



**Environmental and Social Assessment and
E&S Management Plan
(Section B: Relief to Soesdyke)**

**East Bank Demerara Road Improvement
(Good Success to Timehri)**

14 October, 2024



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Acronyms and Abbreviations

Acronym	Description
BSG	Bureau of Statistics Guyana
°C	Degrees Celsius
CCP	Construction Contingency Plan
CEMP	Construction Environmental Management Plan
CHSP	Construction Health and Safety Plan
SDO	Social Development Officer (SDO)
CJIA	Cheddi Jagan International Airport
CO	Carbon monoxide
CPI	International Corruption Percentage Index
CP	Contingency Plan
CRFM	Caribbean Regional Fisheries Mechanism
EA	Executing Agency
CARICOM	Bureau of Statistics Guyana
CDEMA	Caribbean Disaster Emergence Management Agency
CH&PA	Central Housing and Planning Authority
CIA	Cumulative Impact Assessment
CITES	Convention on International Trade in Endangered
CRBC	China Road and Bridge Corporation (Engineering Procurement Contractor)
DAoI	Direct Area of Influence
DDC	Diamond Diagnostic Centre
EBDPR	East Bank Demerara Public Road
ENSO	El Niño Southern Oscillation
EPA	Environmental Protection Agency
ERM	Environmental Resources Management
ESAL	Estimated Equivalent Standard Axle Loads
ESA	Environmental and Social Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESPF	Environmental and Social Policy Framework (IDB, 2021)
ESPS	Environmental and Social Performance Standard
FRC	Flame Retardant Clothing
GAB	Gender Affairs Bureau
GCM	General Circulation Model
GDP	Gross Domestic Product
GDP pc	Gross Domestic Product per capita
GEA	Guyana Energy Agency

GFDRR	Global Facility for Disaster Relocation and Recovery
GGMC	Guyana Geology and Mines Commission
GHTK	Guyana Help the Kid's Foundation
GII	Guyana's Gender Inequality Index
GLSC	Guyana Land and Surveys Commission
GM	Grievance Mechanism
GNBS	Guyana National Bureau of Standards
GOG	Government of Guyana
GPHC	Georgetown Public Hospital Complex
GPL	Guyana Power and Light
GPR	Ground Penetration Radar
GPHC	Georgetown Public Hospital Complex
GT&T	Guyana Telephone and Telegraph Company
GWI	Guyana Water Incorporated
HFA	Hyogo Framework for Action
HRLMP	Human Resources and Labor Management Plan
IAI	Indirect Area of Influence
ICCAT	International Committee for the Conservation of Atlantic Tunas
ICP	Informed Consultation and Participation
IDB	Inter-American Development Bank
INC	Guyana's Initial National Communication
ILO	International Labor Organization
ITCZ	Inter -Tropical Convergence Zone
IUNC	International Union for Conservation of Nature
KC	Kofi Channel
KCOCA	Konashen Community Owned Conservation Area
Km	Kilometers
Km/h	Kilometers per hour
KPI	Key Performance Indicator
LCDS	Low Carbon Development Strategy
LRP	Livelihood Restoration Plan
M	Meters
MICS	Multiple Indicator Cluster Survey
MM	millimeters
MPW	Ministry of Public Works
NBSAP	National Biodiversity Strategy and Action Plan
NDIA	National Drainage and Irrigation Authority
NDC	Nationally Determined Contributions

NDCs	Neighborhood Democratic Councils
NDS	National Development Strategy
NEPA	National Environmental Action Plan
NGOs	Non-Government Organizations
NO ₂	Nitrogen Dioxide
NREAC	Natural Resources and Environmental Advisory Committee
PAP	Project Affected People
OAS	Organization of American States
OHS	Occupational Health and Safety
OSHA	Occupational Health and Safety Administration
PAC	Project Areas Commission
PCLO	Project Social Development Officer (SDO)
PPE	Personal Protective Equipment
PSC	Private Sector Commission
RDCs	Regional Democratic Councils
REDD	Reducing Emissions from Deforestation and Forests
RoW	Right of Way
SBPA	Shell Beach Protected Area
SDGs	United Nations Sustainable Development Agenda and Goals
SEP	Stakeholder Engagement Plan
SGBV	Sexual and/or gender-based violence
SOPs	Standard Operating Procedures
SO ₂	Sulphur dioxide
TAU	Texila American University
TB	Tuberculosis
TPMP	Traffic and Pedestrian Management Plan
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Framework Convention to Combat Desertification
UNFCC	United Nations Framework Convention on Climate Change
UCFCS	Upper Corentyne Fishermen's Cooperative Society
VEC	Valued Environmental Component
VOC	Volatile Organic Compounds
UNDP	United Nations Development Programme
USGS	U.S. Geological Survey
WBG	World Bank Group
MoPW-WSG	Ministry of Public Works- Work Service Group

EXECUTIVE SUMMARY

The country of Guyana is experiencing economic growth at a rate of 36.2% until 2023.¹ However, Guyana is currently ranked 104 out of 140 economies² in road infrastructure and has one of the most limited road networks in all of South America, drastically straining economic growth opportunities. Transportation access is limited as connection between rural communities in the interior and urban communities in coastal areas is minimal, and roads surrounding rural areas are in especially poor condition. The country's constrained transportation sector has incentivized the Government of Guyana to invest in the improvement of roads in the country which are anticipated to result in positive multipliers such as better access to markets, employment, social services, and reduced cost of goods.

The Inter-American Development Bank (IDB) is supporting the Government of Guyana through funding of the improve of the two-lane East Bank Demerara Public Road, specifically the section B that runs from Relief to Soesdyke ("The Project"). The scope of works addresses increased commercial activity and population growth in the area by providing safe access for pedestrians and vehicles, improving traffic flow, and regularizing parking. The Project is anticipated to deliver benefits from the rehabilitation of the roadway given the improvements in quality, accessibility, climate change resilience (i.e., considering rise in sea level), and safety conditions of Guyana's road transport infrastructure; however, it is acknowledged that the Project could also potentially lead to negative environmental and social impacts during its construction. To determine the possible impacts of the Project's on the surrounding environment, an Environmental and Social Assessment (ESA) study was undertaken between 2014 and 2015. This ESA has been revised to reflect design changes, current environmental and social conditions along Section B of the road alignment and requirements that are now mandatory under the IDB's Environmental and Social Policy Framework (ESPF), effective October, 2021. The current document is the revised ESA (2022); therefore, while is largely based on the 2015 ESA, this document was adjusted to reflect the changes mentioned above.

The ESA carried out determined that most risks and impacts likely to be experienced during the construction phase and any unintended consequences can be avoided or minimized through the application of mitigation measures identified in this document. An Environmental and Social Management Plan (ESMP) has been developed outlining the measures and actions necessary to avoid and further minimize impacts to acceptable levels. In addition, implementation of the Project would result in positive environmental and social impacts as the Project components would address the roadway's inefficiencies.

Key impact causing activities associated with the construction phase of the Project include (i) general social interaction; (ii) operation of heavy machinery; (iii) traffic diversion; (iv) road repaving; (v) raising of crosswalks; (vi) multi-use path paving; (vii) sign replacement; (viii) installation of new light posts; (ix) road widening within the Project Right of Way (RoW); (x) reconstruction of the lateral drainage system; (xi) culvert construction; and, (xii) relocation of utility infrastructure. Most significant direct impacts related to increase in road traffic, noise generation, and economic displacement. The ESMP includes Project-specific plans which will be implemented to avoid and minimize the risk and impacts associated with the various Project activities. These plans will be also designed to address the main concerns voiced by stakeholders during consultation.

¹ *IMF- world Economic Outlook (10/2021)*

² *According to the Global Competitiveness Index (GCI)*

1. INTRODUCTION

1.1 Project Background

Purpose and Need

Despite the recent increase in investment in Guyana’s road sector, a number of problems still persist. These include (i) low density and lack of availability of climate-resilient road infrastructure in good condition; (ii) limited land connections with cities along the coast and in the interior of the country; and (iii) challenges intrinsic to comprehensive road safety.

Poor quality roads and lack of efficiently working transportation infrastructure affect access to and from the various production centers, raise transportation costs, and place a constraint on economic development opportunities for Guyana. Rural communities in the interior of the state and populated coastal communities would benefit from the connectiveness provided by the development of climate-resilient road infrastructure. Investing in improvements to the country’s transportation sector will provide economic and social benefits, as well as, increase protection against the risks associated with climate change.

This Project will improve the quality, accessibility, climate change resilience, and safety conditions associated with road transport from Relief to Soesdyke (Section B). It also aims to improve road safety and reduce traffic congestion along the Section B for all road users, including pedestrians, bicyclists, motorcyclists, and vehicles (cars, trucks, and buses). The specific objectives of the Project include:





- Addressing the current deterioration of the road pavement;
- Improving road safety and reducing traffic congestion throughout the highway by widening the road, installing traffic signals and road markings, as well as roadside facilities (bus bays) and safe alignment;
- Establishing pedestrian lanes and if possible, bicycle lanes/facilities, primarily in more urbanized areas of the roadway;
- Improving, replacing, relocating, and installing utility infrastructure as needed (electricity poles, water pipelines, and road lights); and
- Improving night-time visibility through the use of retroreflective signage and thermoplastic road markings.

The technical details of the current proposed design and Project activities can be found under Section 1.5.

Project Overview

The basic information of the project employer contractor is shown in Table 1.1-1.

Table 1.1-1: Project Information

Employer	Ministry of Public Works	
Financing	Inter-American Development Bank	
Engineer	Sheladia Associates Inc.	
Contractor	China Road and Bridge Corporation	

The Project is not designed to increase road capacity. It is a response to increase commercial activities and population growth along the corridor. The rehabilitation works along Section B of the road alignment is expected to improve traffic flow, parking, access for local businesses and services. According to the IDB's ESPF, the Project has been categorized as "B" based on the potential localized negative environmental and social impacts associated with the rehabilitation and improvement of the roadway.

All activities will occur within the existing RoW. The main construction activities of Section B of the road improvement include the following:

1. Widening of the existing road (approx. 1 m on each side);
2. Constructing new sidewalks;
3. Relocating the existing utilities; and
4. Improving safety, street lighting, and pedestrian crossing.

The width of the legal RoW is 24 m (80 ft.) from side to side. However, it varies drastically from location to location. There is evidence of encroachment within the RoW in some areas of the road alignment, such as Relief and Soesdyke.

The Project is estimated to employ approx. 250-300 workers, inclusive of contractors. All workers will have temporary areas to rest, with the corresponding hydration stations and portable bathrooms. In order to support operations of road improvement, two campsites will be constructed and a conditional no objection for these campsites has been issued by the IDB (loan agency).

1.2 Environmental and Social Assessment Objectives

The objective of this ESA is to revise the 2015 and 2022 assessment of the Project's potential

environmental and social risks and impacts, and prepare management plans which align with IDB's E&S Policy Framework (ESPF, 2021). While it is anticipated that section B will have a benefit to Guyana, the potential exists for environmental and social impacts to occur. This document describes the potential positive and negative effects of Section B of the Project and includes an Environmental and Social Management System (ESMS), as well as, the ESMP to be put in place to augment positive effects and avoid, mitigate, manage, and monitor potential adverse impacts and risks for the life of the Project.

The main objectives of the ESA/ESMP include:

- Updating the 2015 ESA to reflect changes in Project design, current social and environmental conditions along Section B of the road alignment, and mandatory requirements under the IDB's ESPF;
- Identifying positive and/or negative changes in the human and natural environment that may affect the quality of life, as well as current and future options for sustainable social and economic development in the Project's Area of Influence (AoI);
- Conducting a Gap Analysis between Guyana's local law and IDB's ESPF, as well as measures needed to close identified gaps;
- Identifying measures to minimize negative impacts and enhance positive impacts of the Project, following the mitigation hierarchy³;
- Analyzing alternatives and providing recommendations for the best course of action, inclusive of any relevant prevention or mitigation measures; and
- Preparing management plans to avoid, mitigate, and minimize identified Project impacts.

The ESA process includes the following activities:

- A document review of the Project design, and environmental and social assessments provided by China Road and Bridge Corporation (CRBC) (2015) and Environmental Resources Management (ERM) (2022), Livelihood Restoration Plan provided Sheladia Associates Inc., Climate Risk Vulnerability Analysis and other documentation from IDB including the GY-L1081 Project Profile Package, GY-L1081 Initial ESRS, GY-L1081 Draft Aide Memoire, and GY-L1021 Aide Memoire, as well as other publicly available sources as the Georgetown, Guyana: Disaster Risk and Climate Change Vulnerability Assessment (November 2019). The complete list of documentation reviewed can be found in Section 9.
- A site reconnaissance, including visual observation of the relevant areas directly and indirectly affected by Section B of the Project, meetings with relevant individuals/groups/organizations, and data and information collection.

³ *The mitigation hierarchy includes the following steps to manage potential adverse impacts of a proposed activity: avoid, reduce/minimize, remedy/restore and offset.*

- Semi-structured interviews with stakeholders from Relief to Soesdyke, especially in areas with the most encroachment.
- Evaluation of the legal and regulatory framework applicable to the Section B of the Project, including IDB’s ESPF.
- Assessment of the potential environmental, social, cultural, health, safety, and labor impacts and risks associated with Section B.
- Identification of measures for mitigation, management, and monitoring required for Section B (presented as the ESMP).
- Execution of the approved Stakeholder Engagement Plan (SEP) for Section B.
- Meaningful public consultations with affected stakeholders (ongoing). These meetings will be conducted after approval is granted for the SEP.
- Once the public consultations are completed (in October 2024), this ESA/ ESMP will be finalized, approved, and implemented during construction.

1.3 Environmental and Social Assessment Scope

This ESA considers both the construction and operations phase of Section B of the Project and focuses mainly on the relevant existing physical, biological, and socioeconomic environments within the direct footprint of this section of the roadway. However, it is understood that some impacts may extend beyond the immediate Project footprint, such as air quality, noise and traffic. As such, a Direct Area of Influence (DAoI) and an Indirect Area of Influence (IAoI) are defined for the Project as follows below.

1.3.1 Direct Area of Influence

The DAoI for the Project is defined as the footprint of the Project, where the majority of the environmental and social impacts associated with Section B of the Project are expected to occur and/or be experienced most acutely, namely the 9.548 km of Project corridor stretching from Relief to Soesdyke. The following activities will be undertaken in the DAoI of Section B:

- Widening of the carriageway of the road by 1 m within the existing RoW (see section 1.5 on the Project description for details of the width of the RoW).
- Construction of temporary camp facilities for workers (see ESMP Campsite Aspect report).
- Improvement, replacement, relocation and installation of utility infrastructure (electricity poles, water pipelines, and road lights) and drainage structures (culverts, and sluices).

1.3.2 Indirect Area of Influence

The IAoI of the Project is defined as the area within a 500-m radius of Section B’s footprint where impacts could occur, but generally with a lower level of intensity than in the DAoI. Impacts in the IAoI may include traffic, dust, and noise disturbances, as well as sedimentation, erosion and flooding of the Demerara River. The information from the climate risk vulnerability analysis was considered when determining the IAoI. (See APPENDIX S)

As it relates to the socioeconomic baseline, affected populations are considered to be those who either reside, travel through or engage in commercial or recreational activities within the DAoI and/or IAoI. It is noted that in many cases, secondary sources of baseline data are available only for wider administrative areas. Data at these levels are supported by DAoI- and IAoI-specific information and data from interviews and field reconnaissance activities to provide as accurate a characterization of the impacted areas as possible. DAoI (indicated in yellow) and IAoI (indicated in blue) are shown in Figure 1.3-1.

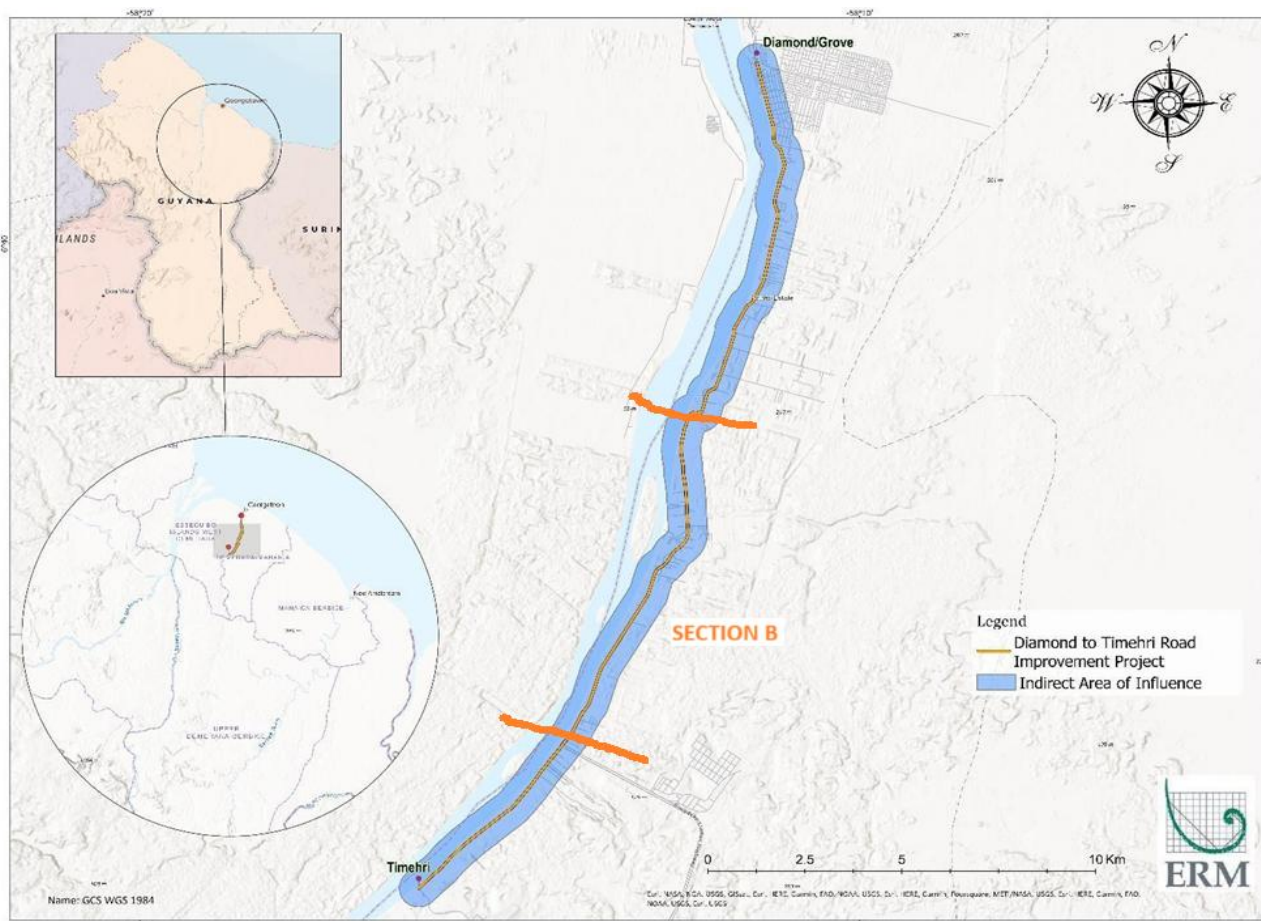


Figure 1.3-1 Direct and Indirect Area of Influence for Section B

1.4 Project Description

1.4.1 Project Location

Section B consists of a two-lane road from Relief to Soesdyke, along the eastern bank of the Demerara River and has a length of 9.548 km (see Figure 1.4-1). The corridor is essential for supporting economic activities as the East Bank Demerara Road is widely relied on for the transportation of goods from the coast and provides access to the interior of Guyana. The Relief to Soesdyke section specifically provides essential access to the Cheddi Jagan International Airport as it is the only road connecting the airport to the capital city of Georgetown.

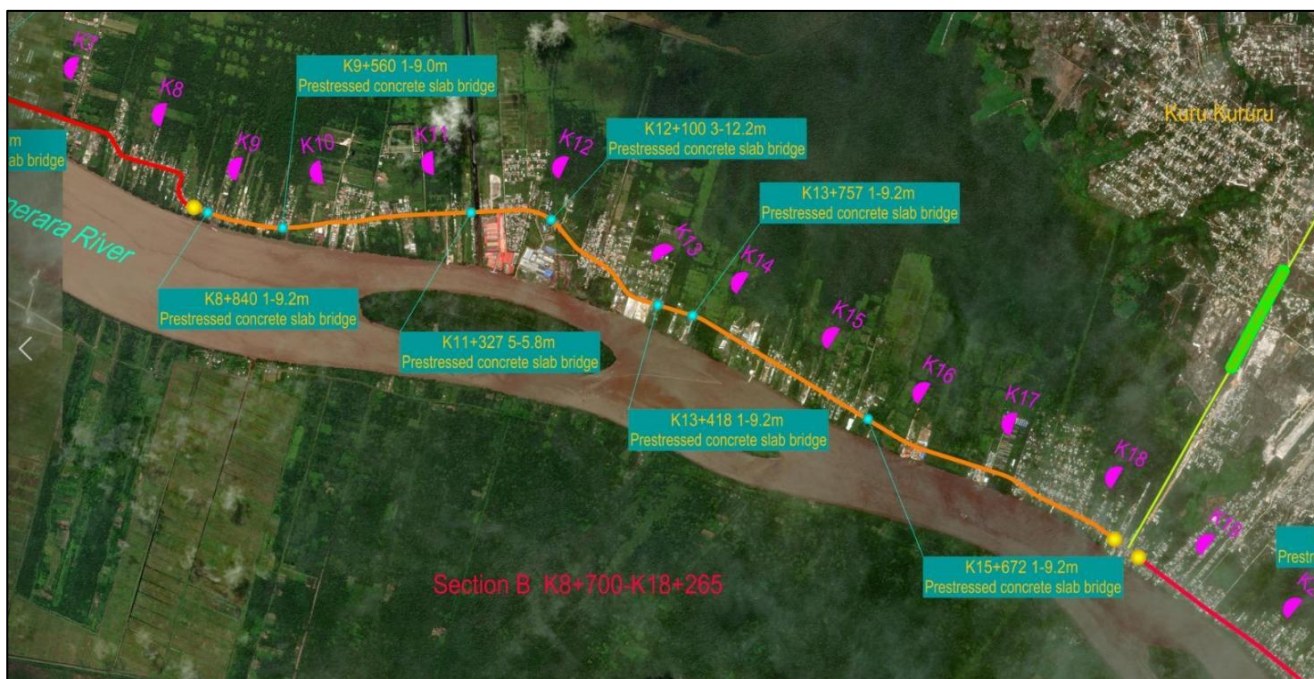


Figure 1.4-1: Section B: Relief (K8+700) to Soesdyke (K18+248.5)

1.5 Project Design

1. Division of Design Sections

According to the existing road characteristics of the Project, Section B has a length of 9.548 km, commencing from K8+700 and terminating at K18+248.5 (Figure 1-2). The section is divided into B1 (K8+700-K13+400) and B2 (K13+400-K18+248.5).

Based on the engineering geological conditions along the highway on Section B, in accordance with the principle of adapting to local conditions and using materials locally, a reasonable cross-section form and slope ratio of the subgrade is selected, and combined with well-designed drainage facilities and protective engineering, Practical and effective measures for foundation treatment and prevention are taken to avoid various adverse factors from harming the subgrade and ensuring that the subgrade has sufficient strength, stability, and durability.

The appropriate slope ratio combination should be selected according to the sub-grade and pavement works and based on the slope height, and hydrological and geological conditions. A naturally stable slope ratio should be used for the subgrade slope.

2. Typical Cross Section of the Subgrade

Based on the terrain and RoW, the following types of typical cross section shown in Figures 1.5-1, 1.5-2, and 1.5-3 are designed for Section B of the Project.

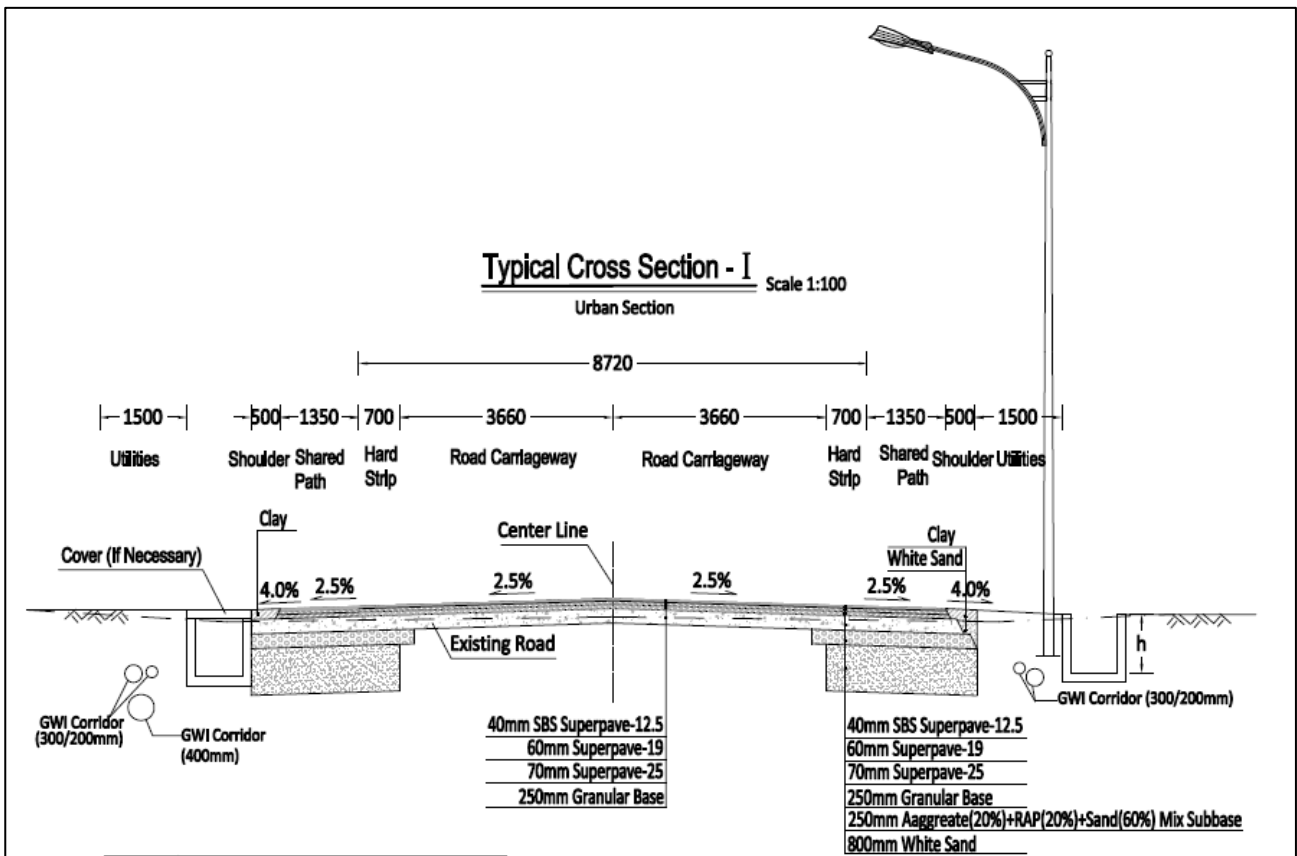


Figure 1.5-1: Typical Cross Section (Urban)

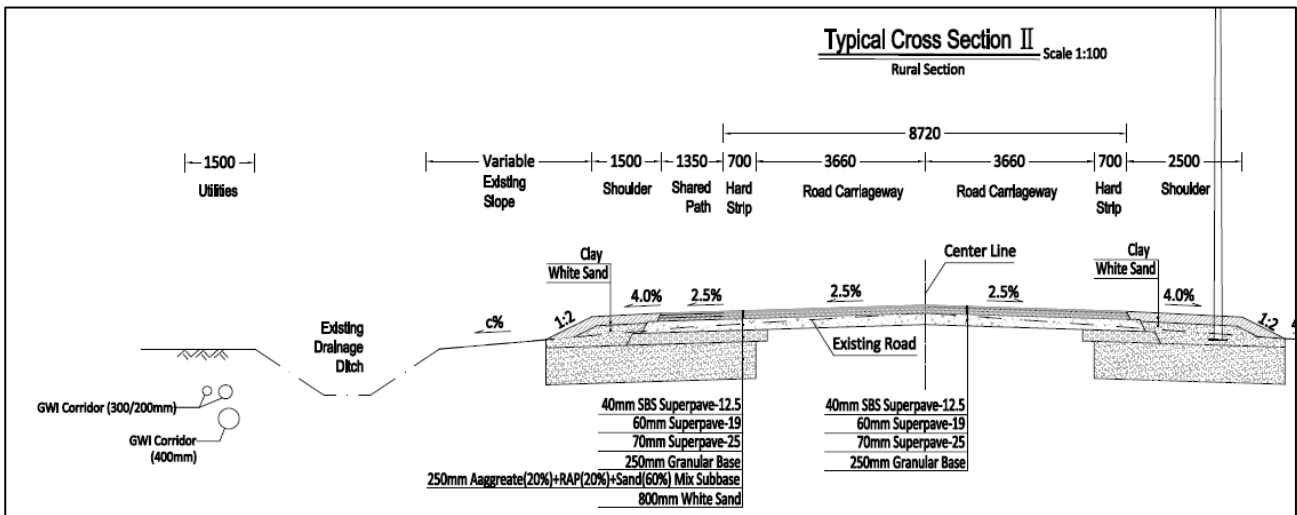


Figure 1.5-2: Typical Cross Section (Rural)

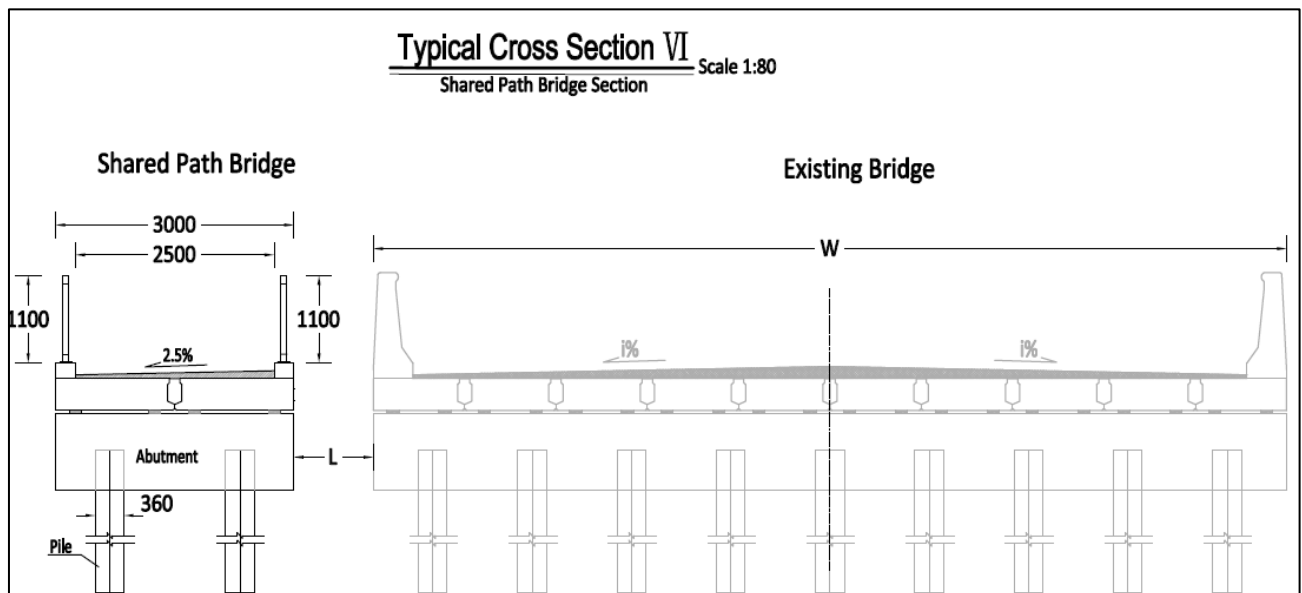


Figure 1.5-3: Typical Bridge Design

3. Location of Subgrade Design Elevation and Cross Slope of Road

The design elevation of the subgrade is at the centerline of the road. The carriageway and hard strip adopt a 2.5% cross slope, and the asphalt concrete shared path section adopts a 2.5% cross slope. The cross slope of the shoulder is 4%.

4. Subgrade Design

The filling material used for embankment filling should be selected according to the specifications for filling. Based on the experience of filling existing highway subgrade in the Section B and the distribution of road construction materials in the area, white sand is mainly used as the subgrade filling material in this Project. When filling the subgrade, the first layer is white sand with an upper layer of aggregate base (crusher run or stone).

5. Pavement Design

According to the requirements of the owner of the contract documents and the AASHTO Guide for Design of Payment Structure 1993, the design period of this Project is 20 years, and the standard axle load is 80kN. During the design life, under cumulative traffic axle loads, the actual structural number of pavements should be greater than or equal to the allowable structural number.

6. Design Safety Criteria

Rehabilitation of the roadway has been designed in accordance with the following codes and standards:

- Roads Act, 1909 Chapter 51:01
- Motor Vehicles and Road Traffic Act, 1940 Chapter 52:01
- Town and Country Planning Act
- Labour Act, 1942, Chapter 98:01
- Occupational Safety and Health Act, 1997

Road rehabilitation work will also adhere to the principles of universal design as defined in the Convention on the Rights of Persons with Disabilities.

7. Temporary Traffic Diversion

There is no detour road planned for Section B to divert traffic during construction works. CRBC will have temporary traffic diversion to alleviate traffic congestion as construction will take a full lane during the execution of the proposed activities.

8. Utilities Relocation

CRBC has contracts with Guyana Power and Light (GPL), Guyana Water Incorporated (GWI), and One Communication (before Guyana Telephone and Telegraph GT&T Company) for the relocation of utility infrastructure located near the existing road and within the existing RoW. A contract was signed with M&P Investment for GWI's pipeline relocation and an amendment will be prepared to include a clause ensuring compliance with the ESMP for Section B. All future contracts with contractors and subcontractors will include this ESMP clause. Relocation for GWI's pipeline will be in the approved corridor for Section B. Contractors and sub-contractors must follow the ESMP.

Ideally, utilities that are associated with electricity, water, internet, and telephone services should be relocated prior to the start of construction. However, depending on the final Project design and the Construction Plan, the order of construction activities may change. Either way, CRBC will approve any changes proposed by the CRBC contractor. In addition, the utility companies will provide detailed locations of the utilities, the conceptual design of the relocation works, and the technical specifications

for materials and components. Contact information for affected individuals in the corridor will also be provided.

Additionally, GWI and GPL have provided CRBC with a list of recommended subcontractors (see appendix) with the capacity to undertake the utility replacement work. CRBC will be supervising the relocation prior to the road construction improvement. Relocation works will be conducted optimally by sequencing removal activities to minimize service disruptions by the contractors hired by the company utilities: GWI, GPL, and One Communication.

Given that light services are being upgraded (modernized), the old systems will be decommissioned by the utilities companies after the new systems have been installed; therefore, disruptions will be minimal. Public notices will be advertised through the media and local authorities if any temporary disruption due to reconnection will occur. GPL poles will be relocated as close as possible to the properties fence line. This pole will accommodate utility lines from One Communication, Digicel, E-Network and National Data Management Authority (NDMA).

Within Section B, GPL has one, 69KV transmission line stretching from the Garden of Eden Power Plant to the proposed cross section of the road at Garden of Eden. The wooden light poles present in the RoW will also be removed and replaced as part of road rehabilitation work. E-Networks may also have poles along that corridor that will need to be addressed. In Section B, GWI has at least 210 customers connected to distribution mains in the corridor (this figure was estimated from the Preconstruction survey report CRBC, 2024).

9. Equipment

The CRBC, construction Contractor, has the following lists of the new equipment needed for the project, the construction equipment includes:

Table 1.5-1 List of equipment used on site and parking at Main Camp

No.	Name of the Item	Specification	Model	Manufacture Year	Equipment Status	Make	Manufacturer	Unit	Qty.	Original
1	Crawler excavator	22T	XE215DA	2024	New	China	Xugong Construction Machinery	u	1	Import from China
2	Wheeled excavator	14T	XE150WD	2024	New	China	Xugong Construction Machinery	u	1	Import from China
3	Loader	3 M ³	LW500H	2024	New	China	Xugong Construction Machinery	u	2	Import from China
4	Dump truck 25 M ³	25 M ³	F3000	2024	New	China	Shanxi Heavy Duty Automobile	u	18	Import from China
5	Sprinkler truck	10 M ³	SX5254GS SBM434	2024	New	China	Shanxi Heavy Duty Automobile	u	1	Import from China
6	Concrete mixer truck	10 M ³	ZZ5257GJ BN3841W	2024	New	China	China National Heavy-Duty Automobile	u	4	Import from China
7	High flatbed trailer	30T	ZZ4257M3 241W	2024	New	China	Shanxi Heavy Duty Automobile	u	1	Import from China
8	Low flatbed trailer	30T	ZZ4257M3 241W	2024	New	China	Shanxi Heavy Duty Automobile	u	1	Import from China
9	Fuel truck	8000L	ZZ5257GJ BN3841W	2024	New	China	Shanxi Heavy Duty Automobile	u	1	Import from China
10	Cement concrete mixing plant	90 M ³ /H	HZS90JZ	2024	New	China	Shantui Janeoo Machinery	u	1	Import from China
11	Mobile crane	50T	XCT50_Y	2024	New	China	Xugong Construction Machinery	u	1	Import from China
12	Crawler crane	80T	XGC85	2024	New	China	Xugong Construction Machinery	u	1	Import from China

13	Trailer crane	8T	SQ8SK2Q	2024	New	China	Shanxi Heavy Duty Automobile	u	1	Import from China
14	Graded crushed stone mixer	500T/H	MWB500	2024	New	China	Sany Heavy Industry	u	1	Import from China
15	Gravel spreader	20M3	20M3	2024	New	China	Xugong Construction Machinery	u	1	Import from China
16	Gantry crane	16T	16T	2024	New	China	Shuangli Machinery	u	1	Import from China
17	Generator 50KW	50KW	50KW	2024	New	China	Youhuan Machinery	u	5	Import from China
18	Generator 200KW	200KW	200KW	2024	New	China	Youhuan Machinery	u	2	Import from China
19	Generator 300KW	300KW	300KW	2024	New	China	Youhuan Machinery	u	1	Import from China
20	Transformer 630KVA	630KVA	630KVA	2024	New	China	Beiyoute Transformer	u	1	Import from China
21	Transformer 315KVA	315KVA	315KVA	2024	New	China	Beiyoute Transformer	u	1	Import from China
22	Weighbridge	100T	100T	2024	New	China	Baozhile Machinery	u	1	Import from China
23	Water purification equipment	6M3/H	WT-6000G	2024	New	China	Hengnan Machinery	set	2	Import from China
24	Drum mixer	18M3/H	18M3/H	2024	New	China	Changjiang Machinery	u	2	Import from China
25	Forklift	3T	3T	2024	New	China	Jieke Machinery	u	1	Import from China
	Total								53	

Table 1.5-2 List of equipment used on site and parking at Sub Camp

No.	Name of the Item	Specification	Model	Manufacture Year	Equipment Status	Make	Manufacturer	Unit	Qty.	Original
1	Crawler excavator	0.76m ³ ,15T	CATM315	2023	new	China	Caterpillar	set	1	Import from China
2	Crawler excavator	1.76m ³ ,26T	CAT326-07	2023	new	China	Caterpillar	set	1	local
3	Crawler excavator	2.36m ³ ,32.6T	CAT333	2024	new	China	Caterpillar	set	2	Import from China
4	Long arm crawler excavator	0.7m ³ , 15T	CAT320	2024	new	China	Caterpillar	set	1	Import from China
5	Crawler excavator	0.8m ³ ,20T	PC200-08	2020	used	China	Komatsu	set	2	from Peru
6	Wheeled excavator	0.76m ³ , 15T	CATM315	2024	new	China	Caterpillar	set	1	Import from China
7	Loader	3M ³	LW500H	2024	new	China	XUGONG CONSTRUCTION MACHINERY	set	4	Import from China
8	Loader	3M ³	CLG855H	2022	used	China	LIUGONG CONSTRUCTION MACHINERY	set	4	from Peru
9	Grader	3.96M,15T	CLG4180	2020	used	China	LIUGONG CONSTRUCTION MACHINERY	set	2	from Peru
10	Grader	3.7M,17T	CAT140GC	2023	new	China	Caterpillar	set	1	local
11	Bulldozer	175kw, 25T	SD22	2020	used	China	SHANTUI CONSTRUCTION MACHINERY	set	1	from Peru
12	Single drum roller	26T	XS263	2020	used	China	XUGONG CONSTRUCTION MACHINERY	set	2	from Peru

13	Asphalt mixing plant	120-160T/H	J2000	2023	new	China	Xi'an Road Construction Machinery Co., Ltd.	set	1	Import from China
14	cement concrete mixing station	60M ³ /H	HLS60	2023	new	China	Xi'an Road Construction Machinery Co., Ltd.	set	1	Import from China
15	hydraulische hammer	1.5T	SSPSC155	2024	new	China	Korea waterberg	set	2	Import from China
16	Dump truck 15 M ³	15 M ³	ZZ3255N3846D1	2020	used	China	SINOTRUK HOWO	set	10	from Peru
17	Dump truck 25 M ³	25 M ³	F3000	2023	new	China	SHAAXI HEAVY DUTY AUTOMOBILE	set	26	Import from China
18	Water sprinkler	16 M ³	SX5254GS SBM434	2024	new	China	SHAAXI HEAVY DUTY AUTOMOBILE	set	2	Import from China
19	Water sprinkler	16 M ³	SX5254GS SBM434	2020	old	China	CHINA NATIONAL HEAVY-DUTY AUTOMOBILE	set	1	from Peru
20	Concrete mixer truck	9 M ³	ZZ5257GJB N3841W	2024	new	China	CHINA NATIONAL HEAVY-DUTY AUTOMOBILE	set	2	Import from China
21	Low flatbed trailer	40T	ZZ4257M3 241W	2023	new	China	SHAAXI HEAVY DUTY AUTOMOBILE	set	1	Import from China
22	Fuel truck	8000L	ZZ5257GJB N3841W	2024	new	China	SHAAXI HEAVY DUTY AUTOMOBILE	set	2	Import from China
23	Crane	50	50T	2024	new	China	XUGONG CONSTRUCTION MACHINERY	set	1	Import from China
24	Truck mounted crane	8T	8T	2024	new	China	XUGONG CONSTRUCTION MACHINERY	set	1	Import from China

25	Screw Compressors	200KW	ZT200	2024	new	China	Atlas	set	2	Import from China
26	Screw Compressors	110KW	ZT110	2024	new	China	Atlas	set	2	Import from China
27	Generator set	500KW	500KW	2022	new	China	YANG ZHOU HUA DONG POWER	set	2	from Peru
28	Generator set	50KW	50KW	2020	used	China	China Lufeng	set	2	from Peru
29	Generator set	30KW	30KW	2024	new	China	China Lufeng	set	1	Import from China
30	Light truck	3T	SE1070	2024	new	China	Shenzhen Dongfeng	set	3	Import from China
31	Fork lift	3T	3T	2024	new	China	LIUGONG CONSTRUCTION MACHINERY	set	1	Import from China
32	weighbridge	100T	100T	2024	new	China	CANG ZHOU JIN TAI	set	1	China
33	Double row pickup truck	2.8L	2.8L Automatic	2023	new	China	TOYOTA	set	2	local
34	Double row pickup truck	2393 CC	2393cc Manual	2023	new	China	TOYOTA	set	14	local
	Total								102	

10. Project Conditions

Topography

The project section B is located on the low coastal plain on flat terrain and low altitude.

Main Surface water bodies

The project is adjacent to the East Bank of the Demerara River and intersects with several cannel/trenches Demerara River, on the section B at. The project also intersects with multiple manually excavated trenches (**K11+315, K12+087 and K20+841**), which are mainly used for domestic water and rainwater drainage of the villages. Sluice gates are arranged at the inlet or outlet of bridges and culverts to prevent the Demerara River from flowing back during the rainy season.

Main Villages

Section B of the project passes through 8 villages from Relief to Soesdyke. The road sections passing the villages and their lengths are specified in Table 1.5-3. The social baseline for section B provides additional information on the villages.

Table 1.5-3: Section B Villages

S. N.	Chainage	Length (m)	Name of Village
1	K8+850-K9+550	700	Relief
2	K9+550-K12+450	2900	Land of Canaan
3	K12+450-K12+885	435	Sarah Johannah
4	K12+885-K13+420	535	Pearl
5	K13+420-K13+750	330	Caledonia
6	K13+750-K17+100	3350	Coverden
7	K17+100-K18+200	1100	Den Heuvel
8	K18+200-K20+900	2700	Soesdyke

Geological Overview

The geological and soil characteristics of the project area mainly include four types of soil: Mara clay, brick-making clay, Tuschen clay, and Lama Muck. The strata are composed of rock formations, mainly Demerara and Coropina clay formations. The soft soil has high compressibility and low bearing capacity.

Climate and Hydrology

Similar to Georgetown, the temperature in Section B is relatively stable, with an average maximum temperature of 32 °C and a minimum temperature of 24 °C in the hottest month (July), and an average

temperature between 23 °C and 29 °C in the coldest month (February). The annual average humidity is 70%. Like in Georgetown, section B receives approximately 2400 millimeters of rainfall annually. The heavy rainfall month is June, with a precipitation of 345 millimeters. The driest month is September, with a precipitation of 90 millimeters.

1.6 Project activities

Road construction for section B additional activities/phases are as follow to have a successful delivery of a functional roadway. These activities are as follow:

1. Construction

Site Preparation

Before construction begins, the site is cleared and graded to create a stable foundation. This involves removing vegetation, relocating utilities, and addressing existing infrastructure like bridges or culverts. Any necessary land acquisition and coordination with stakeholders occur during this phase.

Earthworks

Earthworks consist of excavation, leveling, and embankment construction. Heavy machinery such as bulldozers and excavators are used to move soil and prepare the base for the roadway. This phase requires careful planning to minimize erosion and manage stormwater runoff effectively.

Pavement Construction

This phase includes laying the base layers of aggregate, followed by the application of asphalt or concrete, depending on the project specifications. Proper compaction and quality control are crucial to ensure the road surface will withstand traffic loads and weather conditions.

Drainage and Utilities Installation

Drainage systems, such as culverts and stormwater drain, are installed to prevent water accumulation on the roadway. Additional utilities, including lighting, signage, and traffic signals, are also installed during this phase.

Finishing Works and Landscaping

After the road surface is completed, finishing touches include line painting, guardrails, and signage installation. Landscaping and erosion control measures, such as grass planting or retaining walls, are also implemented to enhance the road's sustainability and integration with the surrounding environment.

After construction the closure includes the following activities: (i) the removal of physical structures including fences and pipe culverts that were utilized to facilitate construction but are not to remain on-site upon operation of the roadway; (ii) disposal of all construction waste in an approved landfill (Haags Bosch Landfill) as indicated in the Contractor's Waste Management Plan;(iii) removal construction equipment after the construction phase; and (iv) backfill of remaining trenches and pits (if apply).

2. Inspection and Commissioning

The final phase involves a thorough inspection of the completed road to ensure it meets all design and safety standards. Any deficiencies are corrected, and once approved, the road is opened for public use. Regular monitoring and maintenance plans are established to ensure long-term functionality.

3. Operations

Maintenance activities will be carried out as needed to ensure the road remains in good condition. Maintenance activities include patching, edge repair, crack sealing, shoulder grading, vegetation control, and ditch cleaning, among others. Overall, the Project is expected to provide long-term benefits for the community.

2. ENVIRONMENTAL POLICY, LEGAL FRAMEWORK And REGULATORY COMPLIANCE

2.1 Applicable Regulations

The CBRC Road Infrastructure Development Project Section B (K8-K18) falls under the jurisdiction of the laws of the Cooperative Republic of Guyana. The relevant legal requirements, national policies, guidelines, and regulatory bodies governing the operation and efficient management of Road improvement activities are outlined and explained in this Chapter.

The following overview of national and local laws related to environmental protection, social responsibility, and labor standards are taken into consideration for the said Road Infrastructure Development Project.

2.2 Policies, Strategies and Plans

Key policies, strategies and plans were established to guide developmental activities in Guyana to ensure that natural resources are sustainably utilized, and environmental impacts minimized. These are as follows:

National Environmental Action Plan (NEAP) 1994

The National Environmental Action Plan (NEAP) was developed in 1994, to identify the major environmental problems in the country and to formulate appropriate policies to address those problems. The Plan further outlines the main environmental policy objectives for the sound management of the environment and natural resources. Twelve stated policy objectives were outlined, one of which called for the conduct of environmental assessments for proposed development activities that may significantly affect the environment. In keeping with this environmental policy objective, the Environmental Protection Act was enacted in June 1996 and includes the legal framework for undertaking an environmental impact assessment.

National Development Strategy (NDS) 2001-2010

The National Development Strategy, 2001 – 2010 was developed to achieve Guyana’s national economic development, social harmony, and well-being. Therefore, considering this, the strategy sets out several objectives and strategies to meet the goal of socio-economic development across different sectors, inclusive of the agricultural sector. These objectives are to attain as high rates of economic growth as possible; eliminate poverty in the country; achieve geographical unity; attain equitable geographical distribution of economic activity; and diversify the economy.

Low Carbon Development Strategy (LCDS) 2013

The Low Carbon Development Strategy was launched June 2009. After a series of consultations, revised versions of the document were published in 2010 and 2013. The document sets out Guyana's strategy to forge a low-carbon economy over the years and outlines the focus of implementation for the period of 2013 to 2015. The LCDS aims to achieve two goals, these goals are the transformation of Guyana's economy to deliver greater economic and social development for the people of Guyana by following a low carbon development path; and the provision of a model for the world on how climate change can be addressed through low carbon development in developing countries, if the international community takes the necessary collective actions, especially relating to REDD+ and Investment Fund (GRIF) to support climate resilience and low-carbon development. Also Focuses on sustainable forestry, renewable energy, eco-tourism, and adaptation to climate change.

Green State Development Strategy (GSDS) 2017

The Green State Development Strategy (GSDS) was developed to guide Guyana's economic and sociocultural development outlining a long-term vision over the next 15 years. The Strategy provided a framework for achieving a green state economy, the Sustainable Development Goals (SDG), and other related targets. The objective of the Strategy was to reorient and diversify Guyana's economy, reducing reliance on traditional sectors and opening new sustainable income and investment opportunities in higher value-adding and higher growth sectors. The central themes to contribute to the transition included structural transformation, sustainable management of natural resources, renewable energy transition, development of resilient infrastructure, capacity building for human development, improved institutional governance and international cooperation for green trade and investment.

LCDS 2030

LCDS 2030 aims to create a new low-carbon economy in Guyana by establishing incentives which value the world's ecosystem services and promoting these as an essential component of a new model of global development with sustainability at its core. Planning for sustainable development is the core principle that guides the LCDS 2030. This means promoting development and stimulating future growth for all of Guyana's people through a balance across human, financial, physical and natural capital with the physical capital encompassing the development of the transportation sector. This LCDS Draft for Consultation addresses these objectives:

- Forest climate services and other ecosystem services
- Stimulate future growth through clean energy and sustainable economic activities
- Protect against climate change
- Align with global climate goals

National Forest Policy (2018)

- Promotes sustainable forest management and conservation.
- Encourages community-based forestry and supports the livelihoods of indigenous and local communities.

National Biodiversity Strategy and Action Plan (NBSAP)

- Focuses on conserving biodiversity, promoting sustainable use of biological resources, and ensuring fair and equitable sharing of benefits.

Climate Resilience Strategy and Action Plan (CRSAP)

- Addresses climate change adaptation and resilience.
- Outlines measures to reduce vulnerability to climate impacts in various sectors, including agriculture, water resources, and infrastructure.

2.3 Legislation

The main legislation governing of section B are discussed as follows:

- National Trust Act (1972) Cap. 20:03.
- Prevention of Discrimination Act (1997) Cap. 99:08.
- Roads Act, 1909 Chapter 51:01/Motor Vehicles and Road Traffic Act, 1940 Chapter 51:02
- Town and Country Planning Act Chapter 20:01
- Labour Act, 1942, Chapter 98:01
- Occupational Safety and Health Act, 1997 Chapter 99:10
- Water and Sewerage Act (2002)
- Environmental Protection Act (1996)

National Trust Act (1972) Cap. 20:03.

Stewardship of historic resources and places of cultural significance. Governs the management of any building, structure, object, or other manmade or natural feature that is of historic or national cultural significance that could be impacted by the Project. This would apply to artifacts such as Koffer Kokers, which date from the Dutch period.

Prevention of Discrimination Act (1997) Cap. 99:08.

Provides for the elimination of discrimination in employment, training, recruitment, and membership in professional bodies and the promotion or equal remuneration to men and women in employment who perform work of equal value. Prevents discrimination in employment practices.

Roads Act, 1909 Chapter 51:01/ Motor Vehicles and Road Traffic Act, 1940 Chapter 51:02

Make provision for the licensing, regulation and use of motor vehicles, the regulation of traffic on roads and otherwise with respect to roads and vehicles thereon.

Town and Country Planning Act Chapter 20:01

Make provision for the orderly and progressive development of Land, Cities, Towns and other areas, whether Urban or Rural, to preserve and improve the amenities thereof, and for other matters connected therewith.

Labour Act, 1942, Chapter 98:01

The Labour Act Cap 98:01 provides for the establishment of the Department of Labour, for the regulation of the relationship between the employer and the employees. The Act stipulates and establishes procedures regulating wages paid; minimum rate wages payable; hours of work; and the rights and obligations of the employees; and provides for the settlement of differences between employees and employers. CRBC will continue to comply with Guyana's Labour laws and policies to protect and safeguard the welfare of all the staff employed by the operation.

Occupational Safety and Health Act, 1997 Chapter 99:10

This Occupational Safety and Healthy Act Cap. 99:06 provides for the registration and regulation of industrial establishments/operations to ensure the occupational safety and health of workers, and inevitably prevent, as far as possible, avoidable injuries due to negligence and/or oversights in safety. The Act stipulates those companies and employers must ensure that measures are implemented to ensure the safety of all operating facilities and machinery, the provision of adequate ventilation, lighting, sanitary facilities and access to potable water; the identification of hazardous chemicals, physical and biological agents to be used during operations of the facility, and regulation of both the usage and storage of these. The Developer fully intends to comply with the Occupational Safety and Health Act to protect and safeguard the welfare of all the staff employed by the Facility.

Water and Sewerage Act (2002) Water and Sewerage Act (Cap. 30:01)

Provide for the ownership, management, control, protection and conservation of water resources, the provision of safe water, sewerage services and advisory services, the regulation thereof and for matters incidental thereto and connected therewith.

- Establishes the Guyana Water Incorporated (GWI) and regulates water resource management.
- Ensures the provision of safe and clean water supply while protecting water sources.

Environmental Protection Act (1996)

The Environmental Protection Act Cap 20:05 Act No. 11 of 1996 (Amended by Act No. 17 of 2005), which established the Environmental Protection Agency and its functions, is the principal Act which governs the environmental regulatory framework of Guyana. The Act provides for the management, conservation, protection, and improvement of the environment and governs the prevention and control of pollution; and the assessment of potential impacts from economic development on the environment through the development of an Environmental Impact Assessment (if required). These methods, procedures, and criteria are mandated by law for the preservation and stability of the eco-systems, and diversity of species and to protect and improve human welfare, and the environment.

To assist in the effective management of the environment, the Environmental Protection Act has accompanying Regulations which aid in governing environmental protection in Guyana. These relevant Regulations are as follows:

- Environmental Protection (Authorizations) Regulations 2000, 2005
- Environmental Protection (Water Quality) Regulations 2000
- Environmental Protection (Air Quality) Regulations 2000
- Environmental Protection (Hazardous Wastes Management) Regulations 2000, 2005
- Environmental Protection (Noise Management) Regulations 2000
- Environmental Protection (Liter Reinforcement) Regulations 2000

Environmental Protection Water Quality Regulations 2000

These regulations require, among other matters the registration and environmental authorization by any person/entity whose construction, installation, operation, modification or extension of any facility cause the discharge of effluents. It establishes that the EPA shall, at any time after the commencement of the Regulation, establish parameter limits of effluent that may be discharged into any inland or coastal waters or land of Guyana. Guidelines on the discharge of effluents and disposal of waste are detailed in these regulations. Includes reporting requirements, penalties for violations of standards, and permitting requirements for discharges. Additionally, standards for drinking water quality have been developed by

the Guyana National Bureau of Standards (GNBS).

Environmental Protection Noise Management Regulations 2000

Under the Environmental Protection Noise Management Regulations 2000, operations that emit noise in the execution of various activities such as construction, transport, industry, commerce and any institution are required to apply to the Agency for environmental authorization. The regulation establishes general provisions for noise avoidance and restrictions from multiple commercial and industrial sources including sound-making devices, night clubs, equipment, tools, and construction activities.

EPA and the Guyana National Bureau of Standards (GNBS) together with other relevant agencies developed Guidelines for Noise Emission into the Environment. The regulation includes reporting requirements, penalties for violations of standards, and permitting requirements for operations that emit noise.

Environmental Protection Air Quality Regulations 2000

Establishes that the EPA shall, at any time after the commencement of the Regulation, establish limits for any of the contaminants specified in the Regulation. Sets ambient air quality standards, reporting requirements, penalties for violations of standards, and permitting requirements for stationary and mobile sources of air emissions.

Environmental Protection (Hazardous Waste Management) Regulations 2000, 2005

The Hazardous Waste Management Regulations were developed with the primary aim of protecting the environment by controlling hazardous waste discharges. The Regulation requires that any Developer involved in any operations that generates, transports, treats, stores or disposes of hazardous waste, must apply for an **Environmental Authorization**. The Regulation also stipulates and outlines the provisions for reporting; record keeping; emergency preparedness planning; and transportation of hazardous waste, while at the same time encouraging Developers to utilize appropriate disposal/ treatment mechanisms of hazardous waste identified in the Regulations.

Environmental Protection (Litter Enforcement) Regulations 2013

The Litter Enforcement Regulations address among other aspects, litter offences, penalties and the power of the local authority to enter premises and to remove derelict vehicles. Under the Litter Regulations, it is an offence to litter in a public place and persons who are found guilty of littering shall be liable to a fine of between fifty to one hundred thousand dollars (\$50,000 - \$100,000) or three months' imprisonment. The Developer will ensure that there is adherence to the stipulated Litter Enforcement Regulations by the implementation of measures where necessary to protect the environment from solid

waste pollution at the Facility.

National Insurance and Social Security Act (1969)

The National Insurance and Social Security Act Cap 36:01 establishes the national insurance and social security system, which covers and protects workers. The persons/ individuals to be insured under this act by payment of contributions must be sixteen (16) years and older, under sixty (60) years of age, self-employed, and gainfully employed. The national insurance and social security system provide benefits for old age, invalidity, survivors' benefits, sickness, maternity, funeral and industrial benefits.

2.4 Permits/ Licenses

The Permit issued by the Environmental Protection Agency as a requirement for the operation of an Asphalt mixing plant, Cement concrete batching plant and Crushed stone mixer in Guyana is:

Environmental Permit

The Environmental Protection Act 1996 under *Part 4 Environmental Impact Assessment Section (11)* and the Environmental Protection (Authorization) Regulations 2000 under *Part 2 General Section (12) and Part 3 Power to Grant Environmental Authorization Section (17)*; requires that an Environmental Permit must be issued by the Agency (EPA) to any project which may significantly affect the environment. The Permit is issued by the Agency upon review and analysis of the application for Environmental Authorization and other relevant documentation requested by the EPA. Such documents include the Environmental Management Plan (EMP) or Environmental Social Impact Assessment (ESIA); which is submitted by the Developer. The Holder of the Permit is required to take all the necessary steps to minimize, prevent and/or mitigate adverse environmental impacts from the operation. Annual compliance monitoring is also a condition of environmental permits.

Note:

Currently, the Road Infrastructure Development Project is the holder of Environmental Permit Reference No.: 20221005 – CRBC to undertake the Rehabilitation of the Relief to Soesdyke Road Infrastructure, permit valid from January 2024 to December 2025 in the Application for Environmental Authorization, dated October 05, 2022, issued in accordance with the Environmental Protection Act, Cap. 20:05, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorizations) Regulations, 2000.

2.5 Regulatory Bodies and Institutions

The central institutions which will govern the operation of the Asphalt mixing plant, Cement concrete batching plant and Crushed stone mixer are discussed as follows:

Environmental Protection Agency (EPA)

The Environmental Protection Agency established under the EPA Act Cap 20:05 Act No. 11 of 1996 is the principal authority for environmental management for the sustainable use of Guyana's natural resources. The EPA falls under the purview of the Office of the Vice President with the responsibility to oversee the effective management, conservation, protection, and improvement of the environment. Furthermore, in Sec. 4 (1) (a), the EPA is given the mandate to *“take such steps as are necessary for the effective management of the natural environment so as to ensure conservation, protection and sustainable use of its natural resources.”*

The Agency is given the overall responsibility to *“co-ordinate the environmental activities of all persons, organizations and agencies”* [Sec. 4(1) (c)]; and is mandated *“to play a coordinating role in the preparation and implementation of cross-sectored programmes of environmental contents”* [Sec. 4(1) (1)]. The mandate to serve as the highest authority for granting Environmental Authorizations, where they are required, is supported by Sec. 5 which states that *“any person or authority under any other written law, vested with power in relation to the environment shall defer to the authority of the Agency and shall request an environmental authorization from the agency before approving or determining any matter...”*. Therefore, the EPA is charged with environmental Permitting.

National Insurance Scheme (NIS)

The National Insurance Scheme (NIS) is a social security organization, which maintains a system of social security by securing contributions from both employees and employers to generate benefits during sickness and accidents. NIS also provides other benefits for example old age, invalidity, industrial etc.

International Conventions

International conventions and protocols are global agreements in which various countries signal their commitment to work together to meet numerous obligations and targets to maintain the environment, minimize impacts and ensure mankind's well-being. The key international conventions Guyana has assented to or ratified, which relates to operations within similar industries:

- Occupational Safety and Health Convention
- United Nations Framework Convention on Climate Change (UNFCCC)

- Montreal Protocol on Ozone Depleting Substances
- Vienna Convention for the protection of the Ozone Layer
- Protocol Concerning Pollution from Land Based Sources and Activities
- Kyoto Protocol

2.6 Policies and Safeguards

IDB’s Environmental and Social Policy framework

IDB requires that this project apply the Environmental and Social Performance Standards (ESPS) that has been triggered by the project and presented in their Environmental and Social Policy Framework (2020). The ESPS applicable to this project are summarized in Table 2.6-1.

Table 2.6-1 IDB’s Environmental and Social Performance Standards

IDB’s ESPS	Objective
<p>ESPS 1 Assessment and Management of Social Risks and Impacts</p>	<ul style="list-style-type: none"> • To identify and evaluate environmental and social risks and impacts of the project. • To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment. • To ensure that grievances from project-affected people are responded to and managed appropriately. • To promote and provide engagement with project-affected people and other stakeholders throughout the project cycle and disclose environmental and socially relevant information.
<p>ESPS 2 Labor and Working Conditions (Project will have direct and indirect workers on site)</p>	<ul style="list-style-type: none"> • To promote the fair treatment, non-discrimination, and equal opportunity of workers. • To establish, maintain, and improve the worker-management relationship. • To promote compliance with national employment and Labour laws. • To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client’s supply chain. • To promote safe and healthy working conditions, and the health of workers. • To avoid the use of child Labour and forced Labour. • To ensure accessible and effective means to raise and address workplace concerns. • To support the principles of freedom of association and collective bargaining of project workers.

<p>ESPS 3 Resource Efficiency and Pollution Prevention (Project will consume resources and will produce waste and emissions)</p>	<ul style="list-style-type: none"> • To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To promote more sustainable use of resources, including energy and water. • To reduce project-related GHG emissions. • To minimize and manage the generation of waste and impacts of pesticide use.
<p>ESPS 4 Community Health, Safety and Security (There are communities and foot traffic in the Project's area of influence)</p>	<ul style="list-style-type: none"> • To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities. • To anticipate and avoid adverse impacts on the project itself from natural hazards and climate change during the project life cycle.
<p>ESPS 5 Land Acquisition and Involuntary Resettlement (There will be economic displacement, but not physical resettlement)</p>	<ul style="list-style-type: none"> • To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. • To improve, or restore, the livelihoods and standards of living of displaced persons. • To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.
<p>ESPS 7 Indigenous People (There are no Indigenous Peoples identified at the Project site or its area of influence)</p>	<ul style="list-style-type: none"> • To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. • To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts. • To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner. • To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life cycle.

	<ul style="list-style-type: none"> • To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present.
<p>ESPS 9 Gender Equality (Project will have risks and impacts on people of all genders, sexual orientations and identities)</p>	<ul style="list-style-type: none"> • To establish actions to prevent or mitigate risks and impacts, including sexual and gender-based violence (SGBV). • To achieve inclusion from project-derived benefits of people of all genders, sexual orientations, and gender identities. • To promote safe and equitable participation in consultation and stakeholder engagement processes regardless of gender, sexual orientation, and/or gender identity. • To meet the requirements of applicable national legislation and international commitments relating to gender equality.
<p>ESPS 10 Stakeholder Engagement and Information Disclosure (As it is required for all projects during its whole lifecycle)</p>	<ul style="list-style-type: none"> • To assess the level of stakeholder interest and enable stakeholder's views to be considered in project design and E&S Performance. • To promote engagement with project people on issues that could affect or benefit them from the project • To ensure environmental and social risks and impacts of the project are disclosed to stakeholders

2.7 International Standards Applicable to the Project Activities

Table 2.7-1 shows the performance criteria to be applied regarding different aspects that are related to the Project activities in accordance with different international standards:

Table 2.7-1: Summary of Key Environmental and Socioeconomic Performance Criteria to be used by the Project

Aspect	Performance Criteria to be Applied	International Standard Which References Applied Performance Criteria
Air Quality	PM2.5: 25 µg/m ³ (WHO, 2021) PM10: 50 µg/m ³ NO ₂ : 25 µg/m ³ (24-hour) SO ₂ : 40 µg/m ³ (24-hour) O ₃ : 100 µg/m ³ (8-hour*a)	World Health Organization's Air Quality Guidelines, 2021 for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide; GNBS, 2016 Guidelines
Noise	Daytime 90 dB 6 am to 6 pm Nighttime 75 dB 6 pm to 6 am GNBS guideline	Guidelines for Community Noise, World Health Organization (WHO), 1999.
Water	Temperature (T): <40 °C pH: 6.0-9.0 Total Suspended Solids (TSS): 25-80 mg/L Dissolved Oxygen: 6.5-8 mg/L Total Dissolved Solids (TDS): <500 mg/L Ammonia (NH ₃): 0.1 to 0.2 mg/L Total Nitrogen (TN): < 1.0 mg/L Turbidity FAU: 5 to 2 mg/L Conductivity mS/cm: 45 to 60 mS/cm	WHO 2021, GNBS, 2016,

2.8 Additional Requirements from the ESPF with Respect to National Legislation

The Project will meet the requirements of the EPSF that are different from National legislation. These include:

- Establishing Environmental and Social Management Systems for the Project, per requirements of ESFS 1.
- Adopting worker's H&S requirements of ESFS 2.
- Establishing a Worker's Grievance Mechanism per ESFS 2.
- Addressing community health and safety, per ESFS 4.

- Developing and implementing a Livelihood Restoration Plan, as needed, compliant with the requirements of ESPS 5.
- Assess and address potential gender-based impacts and risks, per the requirements in ESPS 9.
- Conducting stakeholder engagement activities in line with the requirements of ESPS 10.

Table 2.8-1 details the differences between local legislation in Guyana and the requirements of IDB's ESPF.

Table 2.8-1: Gap Analysis between Guyana’s National Laws and Regulations and IDB’s ESPF

IDB ESPS	IDB Requirement	Guyana Requirements	Gap between local Law and IDB ESPF	Action items to close the gap for this Project
<p>ESPS 1: Assessment and Management of E&S Risks and Impacts</p>	<p>Environmental and Social Management System (ESMS), including the following sections: Project-specific environmental and social framework Identification of risks and impacts Must consider vulnerable populations, including African descendants, LGBITQ, women, Indigenous Peoples and other minorities Cumulative Impact Assessment (CIA) Analysis of alternatives Management programs Organizational capacity and competency Emergency preparedness and response Stakeholder engagement and Public Consultation, as required Monitoring and review</p>	<p>Environmental Protection Act No. 11 (1996) Environmental Impact Assessment Environmental baseline (fieldwork) Environmental monitoring of air, water and noise against Guyana’s National Bureau of Standards (GNBS).</p>	<p>Impacts must include vulnerable groups World Bank Group (WBG) maximum limits Cumulative Impact Assessment Project alternative analysis Environmental audits</p>	<p>Establishment of an Environmental and Social Management System that considers risks and impacts to vulnerable groups Preparation of a Cumulative Impact Assessment Analysis of alternatives ESA/ESMP must be implemented by CRBC contractor and lower tier contractors ESMS should be adopted by CRBC Monitoring should consider most stringent maximum limits. Environmental audits and self-monitoring Adaptive management, based on unforeseen risks and impacts and lessons learned during execution</p>
<p>ESPS 2: Labor and Working Conditions</p>	<p>Risk assessment of occupational health and safety Impacts to primary suppliers Labor assessment to prevent forced and child labor Worker’s grievance mechanism</p>	<p>Labour Act, 1942, Chapter 98:01 Obligations regarding handling of chemical, physical, and biological agents in the workplace. Follow the Labour Act Chap 98:01) (for example, minimum statutory age of workers, daily hours of work, etc.)</p>	<p>Impacts to primary suppliers Worker’s grievance mechanism</p>	<p>Implementation of a Worker’s Grievance Mechanism Consideration of impacts to primary suppliers, and other risks and impacts related to child and forced labor</p>

<p>ESPS 3: Resource Efficiency and Pollution Prevention</p>	<p>Consider resource efficiency, waste generation, water consumption, and hazardous waste management Minimize project-related GHG emissions Quantify gross GHG emissions if more than 25,000 tons of CO2</p>	<p>Environmental Protection Act No. 11 (1996) Environmental monitoring of air, water, and noise against Guyana's National Bureau of Standards (GNBS) Follow national regulations for controls of hazardous waste and chemicals</p>	<p>Control measures to minimize emissions Inventory of GHGs Resource efficiency strategies</p>	<p>Triggering quantities of GHG emissions are not expected for this Project. Implement controls to minimize emissions and waste production Implement resource efficiency strategies</p>
<p>ESPS 4: Community Health and Safety</p>	<p>Impacts to affected people during the Project lifecycle, including assessment of impacts related to disease transmission from workers entering communities Consideration of worker's influx for the risk of disease transmission to local communities</p>	<p>Occupational Safety and Health Act, 1997 Currently, no requirement for impact assessment for health and safety risks on communities</p>	<p>Consideration of risks and impacts to community health and safety</p>	<p>Development of a Traffic and Pedestrian Management Plan and site safety plan Implement COVID-19 protocol on site</p>
<p>ESPS 5: Land Acquisition and Involuntary Resettlement</p>	<p>Public consultation to establish a census of individuals economically displaced Preparation of Livelihood Restoration Plan</p>	<p>No specific guidance on the planning or implementation of livelihood restoration and resettlement. Typically, the resettlement and livelihood restoration processes must be undertaken through an Order or the Courts.</p>	<p>Preparation of a Livelihood Restoration Plan, including census of individuals impacted</p>	<p>Completion of a Livelihood Restoration Plan (including preparation of a compensation scheme and a cutoff date) Conduct consultation with stakeholders affected</p>
<p>ESPS 6: Biodiversity, Conservation, and Sustainable Management of Living Natural Resources</p>	<p>Consider impacts to biodiversity during Project lifecycle Mitigate impacts to biodiversity, species, and habitats as necessary If critical habitat is designated, a Biodiversity Action Plan is required</p>	<p>Environmental impact assessment</p>	<p>Consider Key Biodiversity Areas based on species found on site, in addition to officially Natural Protected Areas Consideration of invasive species If critical habitat is established, preparation of a Critical Habitat Assessment (CHA) and a Biodiversity Management Plan</p>	<p>Its requirements not applicable as there will be no vegetation clearance and the Project is brownfield, no Key Biodiversity Areas (KBA) in the area, no protected areas or endangered species have been identified during due diligence</p>

ESPS 7: Indigenous Peoples	Identification of communities and Indigenous Peoples within the Project area and consideration of the impacts Inclusion as part of a stakeholder analysis and engagement plan	Amerindian Act 2006 vests village councils with the requirement for impact assessment on indigenous communities	Consideration of Indigenous Peoples within impact assessment processes and a culturally appropriate stakeholder engagement	Consideration of Indigenous Peoples within impact assessment processes There are no identified Indigenous communities in the Project Area.
ESPS 9: Gender Equality	High-level Gender Analysis to identify gender-related risks and impacts (gender violence, gender-based exclusion, discrimination on the basis of gender or sexual orientation) Updated Stakeholder Engagement Plan focused on gender issues and impacts to disadvantaged groups	Currently, no requirement to assess gender-based impacts Regulations against discrimination	Gender analysis for specific risks and impacts Code of conduct to consider gender- based violence Workers Grievance Mechanism Special considerations to hire women for non-traditional work (i.e., at the construction site)	Gender-specific risks and impacts analysis Prepare a code of conduct enforceable to all subcontractors Implementation of Grievance Mechanism Toolbox talks and awareness around the prevention of Gender Based Violence
ESPS 10: Stakeholder Engagement and Disclosure	Stakeholder identification and mapping Direct and Indirect area of influence (AOI) Stakeholder grievance mechanism Public Consultation Social Impact Assessment Social baseline (fieldwork)	Public consultation and notification required as part of EIA proceedings, per EPA requirements	Grievance mechanism Specific stakeholder identification methods, including mapping and identification of the direct and indirect AOI.	Implement external grievance mechanism Implement Stakeholder Engagement Plan throughout the lifecycle of the Project

3. DESCRIPTION OF THE EXISTING ENVIRONMENT

This section of the ESA/ESMP describes the existing conditions within the area of influence of section B. It is divided into three major sections: physical environment, biological setting (biodiversity), and socioeconomic and cultural setting. This Section describes the baseline environmental conditions against which the predicted impacts of the Project are measured in Section 5. The information presented corresponds to primary and secondary information obtained in 2015 and 2022 during the preparation of the first ESA and also the current data gathering in 2024 to update this report including the collection of noise level data, air quality data, water quality and the socioeconomic conditions.

3.1 Physical Environment

3.1.1 Climate

According to the World Bank Group climate change knowledge portal (WBG, 20219), the mean temperature in Guyana is 25-27.5 degrees Celsius (°C) throughout the year in most regions except the upland regions in the west, where the mean temperature is 20-23°C. Guyana experiences two wet seasons; most of the country receives 250-450 millimeters (mm) per month between May and July, and the second wet season affects mainly the northern, coastal regions which receive around 150-300 mm per month from November to January. Relative humidity averages around 80% on the coast. Climatic conditions at Section will be the same as that of Georgetown.

Temperatures in Georgetown are quite constant, with an average high of 32°C and an average low of 24°C in the hottest month (July), and an average range of 29°C to 23°C in February, the coolest month. The highest temperature ever recorded in the capital was 34°C and the lowest was only 20°C. Humidity averages 70 percent year-round. Near the Project, the hot season lasts approximately for 2.7 months, from August 12 to November 2, with an average daily high temperature above 31°C. In Georgetown approximately 2,400 mm of rain fall per year. The wettest month is June, with 345 mm and the driest is September, with 90 mm. Section B experiences similar temperatures to that of Georgetown.

Average wind speeds for Guyana are typically 6 meters per second (m/s). However, between July and August, stronger westerly winds, which influence the prevailing wave climate, are experienced. Wind speeds also vary seasonally. During the dry season, the strongest winds are experienced between January and April when the northeast Trade Winds dominate. Wind speeds range, on average, between 9 kilometres per hour (km/h) (wet season) and 12 km/h (dry season). The climate in section B is similar to that of Georgetown

3.1.2 Air Quality

The major air emission sources in the Project Area are attributable to heavy traffic from the roadway itself.

Particulate Matter (PM) - This is a mixture of solid particles (dust, dirt, soot, and smoke) and liquid droplets suspended in the air. These PM emissions originate from a variety of sources, such as vehicles, factories, industrial sites, construction sites, tilled fields, unpaved roads, stone crushing, and burning of wood (Hedges, 2004). Particulate matter comprises both coarse and fine particles. The coarse particles (PM₁₀) have an aerodynamic diameter between 2.5µm and 10µm and are formed by mechanical disruption (e.g., crushing, grinding, abrasion of surfaces), evaporation of sprays, and suspension of dust. Fine particles have an aerodynamic diameter less than 2.5µm (PM_{2.5}). These particles are formed from gas by chemical reactions; and condensation of high-temperature vapors during combustion (Fierro, 2000).

Total Suspended Particulates (TSP) - This refers to all particles in the atmosphere that are less than 100 micrometers. The amount of PM₁₀ and PM_{2.5} are related to the amount of total suspended particulates (TSP) in the air (Alias, Hamzah, and Kenn 2007).

Particulate Matter Guidelines and Standards are instituted (Table 3.1.2-2) due to short term and long-term health effects including premature mortality, chronic respiratory disease, acute respiratory systems, decreased lung functions and aggravated asthma, persistent cough, phlegm, wheezing and physical discomfort (Fierro 2000, Alias, Hamzah and Kenn 2007). These health effects are especially associated with PM₁₀ and PM_{2.5}. The PM₁₀ fraction from TSP can reach the lower regions of the respiratory tract. On the other hand, PM_{2.5} can absorb more toxic and carcinogenic compounds than larger particles and penetrate more easily deep into the lungs (Alias, Hamzah and Kenn 2007). Additionally, there is increased harm to the environment as PM is a major source of haze that reduces visibility, causes changes to nutrient and chemical balance of the soil and aquatic environment, erosions and staining of structures (residential, commercial, or cultural monuments) (Hedges 2004).

Air Quality Standards/Guidelines

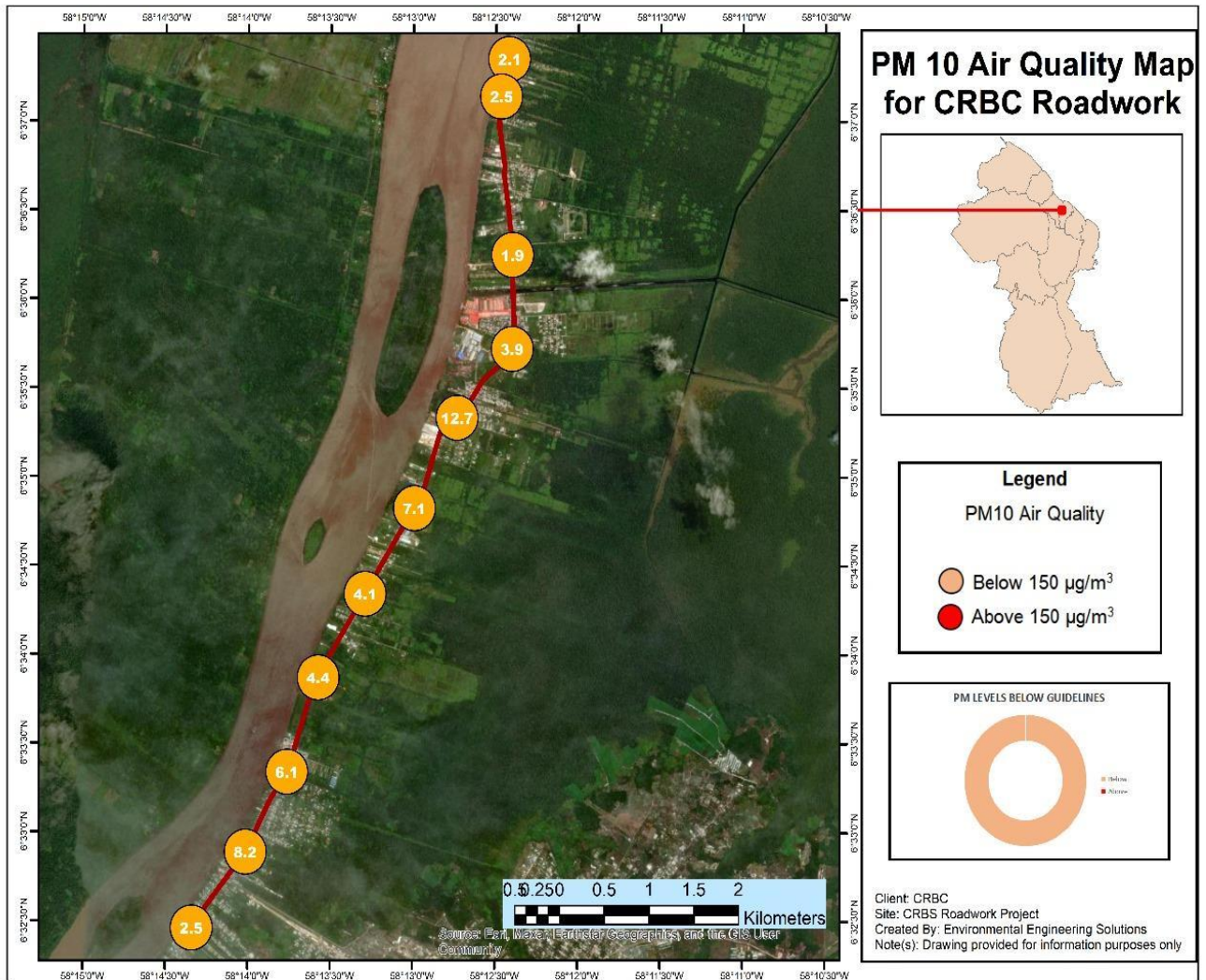
The purpose of the Ambient Air Quality Standards is to establish maximum limits on parameters of air quality considered desirable for the preservation and enhancement of the quality of air resources and health (Mecklenburg-County-NC 2012). The air quality assessment was referenced to the World-Health-Organization guidelines 2021.

To establish the baseline air quality conditions, eleven (11) air sample readings were recorded on **14th July, 2024** along the Section B. For baseline data collection a 15 minutes time weighted average (TWA) were performed. The measured parameters recorded were indicated by the environmental permit. (see Table 3.1.2-1).



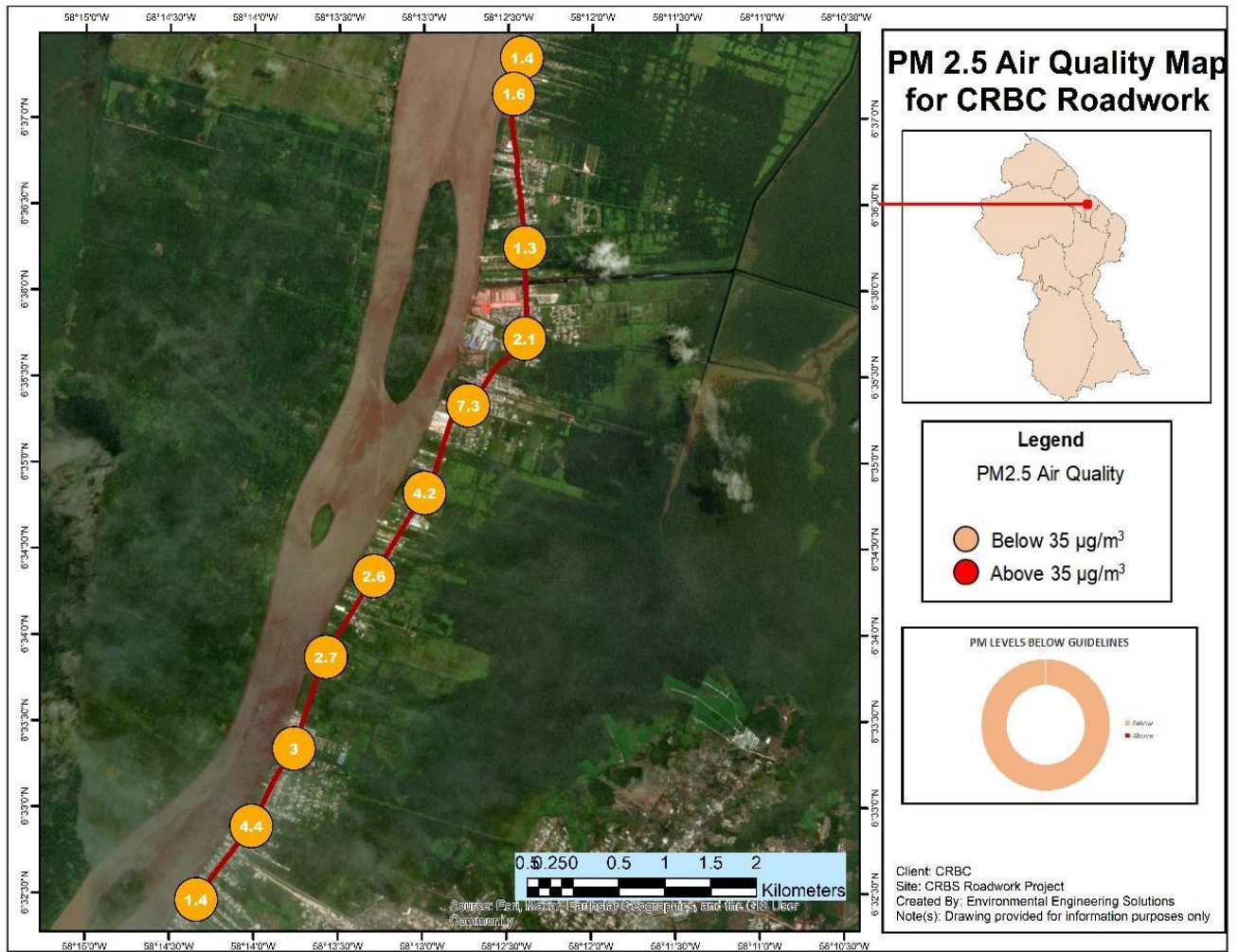
Source: (EES, 2024)

Figure 3.1.2-1: Air Quality Monitoring



Source: (EES, 2024)

Figure 3.1.2-2: Air Sampling points for PM10 at Section B



Source: (EES, 2024)

Figure 3.1.2-3: Air sampling points for PM2.5 at Section B

Results

Table 3.1.2-1: Results of air quality and noise assessment within the Section B

Sample ID	Coordinates		Time	%RH	°C	Max. Con. µg/m ³	TSP/TWA µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	Direction	Speed (m/s)	dB 15 minutes	TVOC µg/m ³	NO ₂	Elevation (m)	CO ₂ (ppm)	HCHO µg/m ³
	21N	UTM															
K-09	0366574	0732181	14:03	68.8	32.8	2.440	0.188/1.590	1.4	2.1	NE-SW	0	64.1	0.000	0.0	45	469	0.202
K-10	0366512	0781198	14:12	53.2	35.3	0.108	0.099/1.101	1.6	2.5	NE-SW	0.8	74.4	0.000	0.0	61	431	0.160
K-11	0366606	0730149	14:25	63.0	35.2	0.097	0.093/0.094	1.3	1.9	"	1.9	53.4	0.001	0.0	51	415	0.138
K-12	0366604	0729175	14:51	61.6	34.4	0.308	0.114/0.221	2.1	3.9	"	1.6	63.7	0.000	0.0	32	475	0.126
K-13	0365987	0728463	15:00	89.1	31.3	0.136	0.126/0.104	7.3	12.7	"	0.8	63.4	0.000	0.0	24	594	0.098
K-14	0365510	0727522	15:10	71.8	31.6	0.108	0.104/0.098	4.2	7.1	"	0.6	54.6	0.000	0.0	44	567	0.082
K-15	0364958	0726636	15:17	67.9	42.1	0.108	0.092/0.093	2.6	4.1	"	0.0	53.8	0.000	0.0	49	426	0.071
K-16 Main Camp	0364434	0725769	15:28	69.7	31.9	0.077	0.072/0.072	2.7	4.4	"	1.1	66.1	0.000	0.0	40	477	0.082
K-17	0364085	0724794	15:37	69.7	31.6	0.111	0.096/0.074	3.0	6.1	"	0.6	62.7	0.000	0.0	35	446	0.072
K-18 Soesdyke	0363617	0723961	15:45	67.8	32.3	0.189	0.084/0.113	4.4	8.2	"	0.0	58.1	0.000	0.0	27	453	0.062
K-19	0363016	0723178	15:58	68.3	32.2	0.077	0.067/0.065	1.4	2.5	"	0.3	64.3	0.000	0.0	29	482	0.060

Table 3.1.2-2: Standards and Guidelines for air quality assessment

Parameter	Type	Averaging Time	Level	Form	References/ Color Code
PM _{2.5}	Primary	Annual	12.0 µg/m ³	Annual arithmetic means, averaged over 3 years.	USA EPA, 2016 GNBS, 2002
	Secondary	Annual	15.0 µg/m ³	Annual arithmetic means, averaged over 3 years.	
	Primary and Secondary	24-hour	35 µg/m ³	98 th percentile, averaged over 3 years.	Below Guideline Value
PM ₁₀	Primary and Secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over a 3-year period.	
Total Suspended Particles (TSP)	Primary	24-hour	260 µg/m ³	Not to be exceeded more than once per year.	Boundary Guideline Value
		Annual	75 µg/m ³	Annual geometric mean.	
	Secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year.	
		Annual	60 µg/m ³	Annual geometric mean	
	Industrial		100	80	
	Construction		90	75	
Air pollutants	O ₃	Peak season *a	60 µg/m ³	*a 99 th percentile (i.e., 3–4 exceedance days per year)	(World Health Organization, 2021)
		8-hour *b	100 µg/m ³	*b Average of daily maximum 8-hour mean O ₃ concentration in the six consecutive months with the highest six-month running-average O ₃ concentration.	
	NO ₂	Annual	10 µg/m ³		
		24-hour*a	25 µg/m ³	*a 99 th percentile (i.e., 3–4 exceedance days per year)	
	SO ₂	24-hour *a	40 µg/m ³	*a 99 th percentile (i.e., 3–4 exceedance days per year)	
	CO	24-hour *a	4 mg/m ³	*a 99 th percentile (i.e., 3–4 exceedance days per year)	

3.1.3 Noise

The major noise sources in the Project Area are attributable to traffic. CRBC conducted noise monitoring prior to the start of activities to establish a baseline.

The most significant existing sources of noise pollution in the Project Area are likely to include:

- Vehicle movement on the project road and surrounding secondary roads (passenger cars, trucks, buses, and motorcycles);
- Noise during off-loading of materials (construction materials such as sand, stone and aggregates)

Noise pollution is the regular exposure to elevated sound levels that can lead to adverse effects in humans or other living organisms (Environmental Pollution Centers, 2017). As such, the intensity of the sound generated by various activities is a key concern to health. Prolonged exposure to sounds louder than 80dB is considered hazardous to hearing (EPA Guyana, 2017) therefore, human hearing is only receptive to certain sound levels. An A-weighting noise assessment provides data on existing noise levels as it establishes baseline conditions of the surrounding environment and determines to what extent if any, noise from the operations can affect the general environment and the health of staff and community.

Standards/Guidelines

The Interim Guidelines for noise in specific environments as well as the Environmental Operation Permit Ref.: 20210219 – ACPBC were used as the guidelines (GNBS, 2010) for assessing the noise quality along the section B. The construction limits for the road work are 90 dB during the daytime (06:00 h - 18:00 h), 75dB during the night-time (18:00 h - 06:00 h).

Measurements were taken using the VLIKE LCD Digital Audio Decibel Meter Sound Level Meter with the measuring scope from 30 to 130dB and shifting function. Noise measurements were taken at locations shown in Figure 3.1.3-1. Table 3.1.2-1 outlines the data collected in relation to the noise produced along section B. All equipment was calibrated and maintained as per the requirements of the manufacturer for each type of equipment, as part of our quality control and assurance practices.

Discussion

Noise levels within section B ranged from **53.8 dB to 74.4 dB**. It is important to note that all the sample readings recorded, fall within the 100 dB Industrial daytime limits and 80 dB Commercial Daytime limits according to the GNBS Guidelines for measurement and assessment of noise in the environment. These sample points showed small increments in noise levels which were sounds emanating from commercial areas and activities from traffic within the given study area.

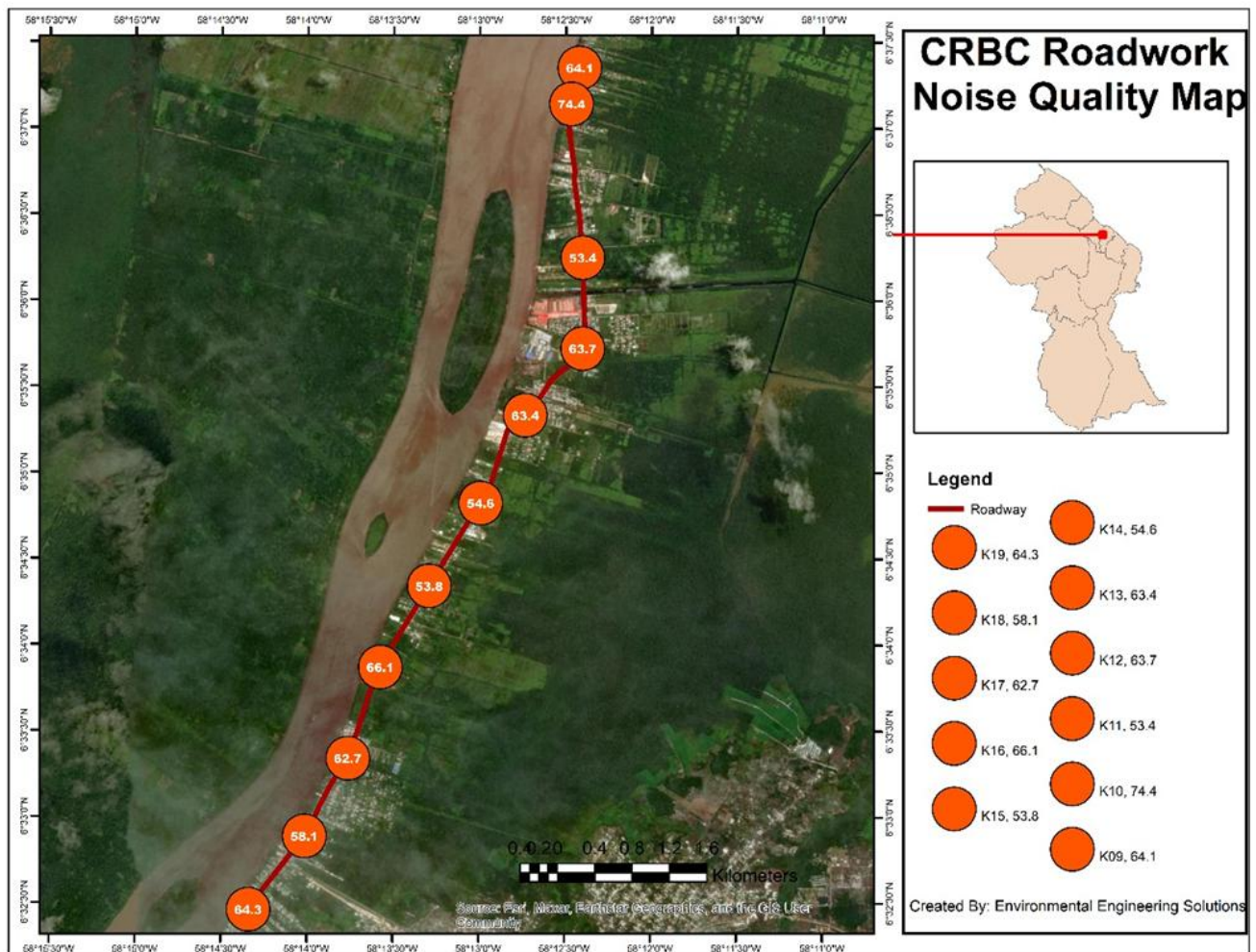


Figure 3.1.3-1: Noise sampling points for Section B

3.1.4 Geology and Physiography

In general, Guyana is comprised of four main physiography Regions: Coastal Plain, Hilly Sand and Clay, Interior Savannas, and Forested Highlands Regions (Guyana Lands and Survey Commission, 2013). The Project site is located in the Coastal Plain Region.

Many areas of the coastal plain are below sea level while other areas are man-made and built-up to raise them above the surrounding land level. An elaborate system of sea defenses, along with irrigation and drainage canals, and sluice gates are required to protect the area from flooding. There is gravity drainage that allows water to drain to the west, into the Demerara River.

The soils of the low Coastal Plain are characterized as poorly drained and are comprised of four types of clay: Mara Clay, Brickery Clay, Tuschen Clay, and Lama Muck.

3.1.5 Hydrology and Drainage

Section B faces the typical water pollution problems of other parts of Guyana. Biological and chemical contamination of surface water varies in magnitude according to location but is increasing with

population growth and land use demands (USACE, 1998).

According to the USACE (1998) excess water is a major concern in the coastal lowlands where the land surface is below sea level. The lower elevations of the country along the coast, where most of the population is located, are threatened by tidal flooding, especially during high spring tides. The coastal lowlands are drained of water through a series of canals. During low tide, the gates or kokers of these canals are opened to allow the water to drain into the adjacent rivers or the Atlantic Ocean. Large-capacity pumps are also used at various sites to drain the canals. Short-term localized flooding is common when heavy rains coincide with high tide, forcing the influx of water out of the canal banks until the gates are opened again.

The Project is located in the lower floodplain of the Demerara River, characterized by poor internal drainage conditions due to clay-rich soil. Drainage throughout the corridor relies primarily on canals equipped with sluices. Additionally, several drainage ditches are constructed along the corridor, due to human settlement near the Project right-of-way. These drainage ditches connect to the main drainage channels and empty into the Demerara River. Inadequate capacity of road cross-drainage structures to accommodate high-intensity short-duration rainfall could result in surface flooding. A drainage study was issued in September 2014 concerned the drainage design of the road between Relief-Soesdyke and Timehri and considered existing conditions of the Demerara River, potential sea level rise, and storms. 58 cross-drainage structures exist in the corridor, most of which have the capacity to manage potential flooding that is predicted for the area. However, it is recommended that several channel improvements be made, as described in Table 3.1.5-1, below.

Table 3.1.5-1 Recommended Improvements to Drainage Design

Structure	Chainage	Invert level (m GD)	Soffit level (m GD)	Width (m)
5	3.200	14.00	60.50	2.50
6	4.130	14.00	16.50	3.5-
10	5.730	14.50	16.50	2.50
16	8.950	14.50	16.75	2.50
17	9.100		To be closed	
22	11.800	14.50	17.25	3.00
25	12.800	15.00	17.00	2.00

28	13.800	15.00	17.00	2.00
40	18.700	15.00	17.00	2.00
42	19.100	15.50	16.50	1.50
44	19.900	60.00	17.25	1.50

Source: CONSULTANCY SERVICES FOR UPGRADE AND EXPANSION PROGRAM East Bank Demerara Public Road (Relief to Soesdyke) Road Design Project Drainage Studies Draft Final Report, September 2014

3.1.5.1 Water Quality Baseline

Untreated stormwater and sewage typically flow directly into the Demerara River and nearby canals, polluting the water bodies. Mining operations upriver, leaching from agricultural activities, and indiscriminate disposal of solid waste also add to the pollution of the river. To determine ambient pollutant conditions, water quality baseline studies for the Demerara River were conducted in 2015 and are presented in Table 3.1.5-2, below. Seven parameters, conductivity, salinity, total dissolved solids, pH, dissolved oxygen, temperature, and turbidity were evaluated at 3 sampling stations at Section B. However, water quality impacts resulting from road construction may be difficult to determine when compared against the baseline data collected, due to non-point sources of pollution. Likewise, sustained levels of high turbidity have been noted in the Demerara River.

Table 3.1.5-2 Demerara River Water Quality Baseline for Section B (2015)

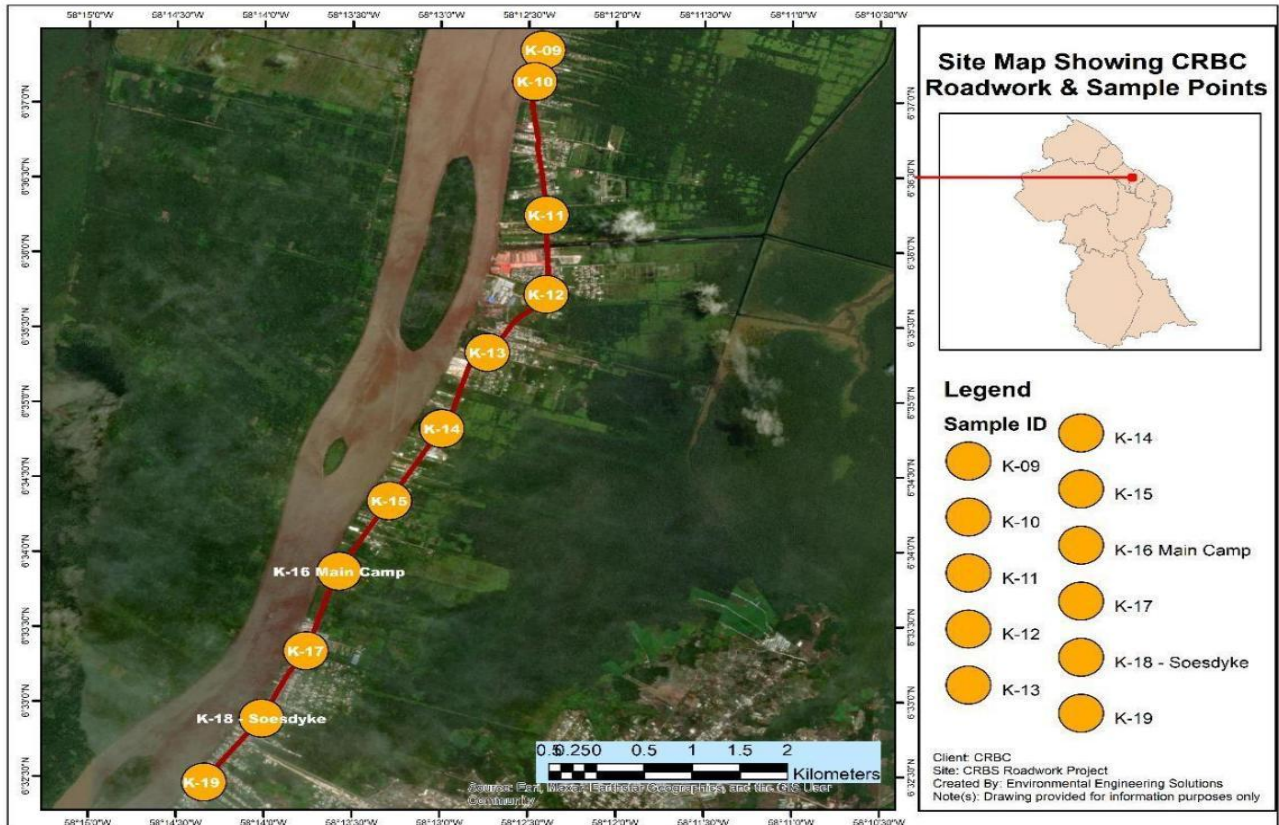
Location	Conductivity μ5	Salinity mg/l	Total Dissolved Solids mg/l	pH	Dissolved Oxygen mg/l	Temperature °C	Turbidity NTU
Koffi Structure (Eastern Side)	8.87	4.9	4.81	6.98	1.49	27.7	99.9
Koffi Structure (Western Side)	15.5	5.8	1735	5.34	4.34	29	1100
Jettoo Area	320	0.1	150.6	3.79	4.00	29.4	14.5

Source: IMC, 2015

Erosion can be expected during flooding and according to the Project Manager for the River Defense project, some areas of the river experience active erosion.

Water quality testing was done to provide information on effluent discharge from the construction as well as from the source of activity downstream to assess the quality of the water. The assessment was to establish baseline conditions of the surrounding environment and to determine what extent if any,

discharge from the operations can affect the aquatic environment. The locations where the samples were collected are visually identified, see Figure 3.1.5-1.



Source: (EES, 2024)

Figure 3.1.5-1: Water Sampling Points along Section B

The samples collected on 16th July, 2024 were analyzed for several parameters which are general indicators used to determine the quality of water. The preliminary parameters measured were temperature, pH, turbidity, total suspended solids (TSS), dissolved oxygen (DO), total nitrogen and ammonia. High occurrences and changes in these parameters will indicate the potential for pollution which can affect aquatic life and human health.

Consequently, the data set sample point measurements taken were then compared to the threshold of water quality standards set by the GNBS General Environmental Guideline Values for Effluent Discharge, the International Finance Corporation World Bank Group Environmental Wastewater and Ambient Water Quality Guidelines, the US EPA Recreational Water Quality Criteria, as well as limits determined by the EPA Guyana.

Results

Table 3.1.5-3 outlines and assesses the data obtained as needed for surface water testing within the camps area.

Table 3.1.5-3: Results of water quality within Section B

Water Parameters/ Data Results											
Sample ID	Date of collection	Location/ Coordinates/ Chainage	DO mg/L	Temp. °C	pH	Conductivity mS/cm 0-2000	Turbidity FAU	TDS ppm	TSS ppm	Total Nitrogen mg/L	Ammonia NH3 mg/L
WB-01	16/07/2024	K17+124.9	8.0	24.2	8.2	57	168	71	40	16	3.1
WB-02	16/07/2024	K15+712.7	5.0	24.2	8.1	67	165	54	54	24	3.8
WB-03	16/07/2024	K15+433.8	7.0	24.2	7.9	65	179	53	31	12	2.6
WB-04	16/07/2024	K13+796.5	7.0	24.2	7.3	72	141	64	52	27	3.7
WB-05	16/07/2024	K13+458.5	6.0	24.2	7.4	67	124	57	54	17	2.2
WB-06	16/07/2024	K12+955.2	5.0	24.2	7.7	71	110	68	39	9	2.6
WB-07	16/07/2024	K12+690.9	5.0	24.2	7.1	66	132	52	36	15	3.9
WB-08	16/07/2024	K12+145.8	7.0	24.2	7.9	63	126	66	39	20	2.2
WB-09	16/07/2024	K11+621.7	5.0	24.2	8.1	64	118	67	52	23	3.1
WB-10	16/07/2024	K11+366.4	6.0	24.2	8.4	61	158	55	56	14	2.9
WB-11	16/07/2024	K10+898.6	7.0	24.2	7.9	72	185	60	33	10	3.9
WB-12	16/07/2024	K9+604.0	7.0	24.2	7.5	57	114	64	41	26	2.7
WB-13	16/07/2024	K9+289.5	6.0	24.2	7.4	70	128	52	57	16	1.9
WB-14	16/07/2024	K8+885.6	7.0	24.2	7.2	64	137	51	31	14	3.8

Table 3.1.5-4: Guyana National Bureau of Standards Interim Guidelines (WHO, USEPA) for healthy aquatic body

Parameter	Guideline	Guideline Color Identification
Temperature (T)	<40 °C	Below Guideline Value
pH	6.0-9.0	
Total Suspended Solids (TSS)	25-80 mg/L	Boundary Guideline Value
Dissolved Oxygen	6.5-8 mg/L	
Total Dissolved Solids (TDS)	<500 mg/L	
Ammonia (NH ₃)	0.1 to 0.2 mg/L	Above Guideline Value
Total Nitrogen (TN)	< 1.0 mg/L	
Turbidity FAU	5 to 2 mg/L	
Conductivity mS/cm	45 to 60 mS/cm	

During the environmental monitoring, it was found that for the parameters tested were within acceptable values threshold of water pollution for culverts, water gates or bridges (see values in table 3.1.5-3).

3.1.6 Soils and Geomorphology

The topography of the Project area is typically low-lying and flat. The soils of the area are a combination of Demerara clays, white sand, and pegasse in some areas Dam. The soils are characterized by four different types of clays Mara Clay, Brickery Clay, Tuschen Clay and Lama Muck.

3.1.7 Natural Hazards and Climate-related Risks

A recent study identified Guyana as exhibiting high climate vulnerability to effects on fishing and food security (Ding et al., 2017). Both changes in rainfall patterns and predicted sea-level rise associated with climate change pose threats to the Guyanese population and its livelihoods. For reference, the mean relative sea level rise in Georgetown between the years 1960 and 2010 was 9.25 inches, resulting from a combination of global mean sea level rise and coastal subsidence. The projected rise in sea level by 2100 is 3 feet in Georgetown. Additionally, historical land surveys and Survey Commission levelling data indicate large parts of the east and west banks of the Demerara River are threatened by salt-water inundation as a result of the anticipated sea level rise. This is exacerbated due to the country's outdated and insufficient drainage systems. Human factors such as inefficient management of solid waste and lack of regular maintenance of existing drainage and irrigation infrastructure add to these risks.

Recognizing this, the country invests continuously in the construction and maintenance of sea and river defenses infrastructure, as well as a system of reclaimed lands, drainage and irrigation canals, pumping stations, and conservancy dams to protect agriculture in the vulnerable coastal areas. Despite this investment, floods continue to threaten public safety and infrastructure along the coast.

Guyana has various Early Warning Systems in place to manage these climate-related risks. An overarching EWS based on hydrological, meteorological, and health hazard assessments works with three main ministries who provide warnings (Agriculture, Public Works, and Health). Guyana's EWS adheres to the Hyogo Framework for Action (HFA) as the overarching DRM international agenda as well as following the HFA-based Early Warning guidance from the Caribbean Disaster Management Emergency Agency. The draft version of the Multi-hazard Disaster Preparedness and Response plan developed by the CDC in 2013 encompasses Guyana's disaster risk governance arrangements. The plan outlines the formulation of emergency or contingency plans at the national level including a set of "Response Sub Plans and Standard Operating Procedures (SOPs)". Provisions and regulations for the establishment of contingency plans in the different sectors and ministries are further detailed in the plan.

Per the Project Profile (GY-L1081), the IDB Disaster and Climate Change Risk Classification for the Project is High. The justification for the classification as provided by IDB is as follows: "the area [of the Project] is prone to flooding and the criticality and vulnerability estimated for the infrastructure's interventions are high due to the potential negative impacts of service failure given the roadway's importance as a corridor to the main international airport." Additional hydrological analysis of the Demerara River basin was conducted taking into account historical rainfall and General Circulation Model (GCM) data for the climate change scenario. Extreme precipitation events are estimated for different return periods in the Georgetown-Timehri Road section, considering historical and climate change scenarios. Historical precipitation events are based on information from 4 rainfall measurement stations and future extreme precipitation is studied based on daily precipitation data from 5 GCMs for the climate change scenario.

The World Bank Group's Think Hazard! tool¹¹ is a high-level, on-line, natural hazard risk database for emerging market countries (the web-based tool developed by the Global Facility for Disaster Relocation and Recovery (GFDRR) in partnership with the World Bank Group and other institutions, and with data contributed by numerous organizations around the world. This tool was queried to assess relative risk ratings for a suite of potential natural hazards for Guyana to provide additional context around the IDB Disaster and Climate Change Risk Classification. The relevant risk categories identified in Region No. 4 (Demerara Mahaica) are listed in decreasing order of risk:

- River flooding (high).
- Coastal flood (high).
- Extreme heat (medium).
- Wildfire (medium).
- Urban flooding (low¹²).

- Tsunami (low).
- Cyclone (low).
- Landslide (low).
- Water scarcity (very low).
- Earthquake (very low).

Flooding risks are described below in the context of Georgetown and the Project Area. In addition to the risks of extreme storms and high winds. The risks for the occurrences of tsunamis, cyclones, landslides and earthquakes are not discussed as these risks are not considered to be relevant for the region assessed.

According to ThinkHazard.org tool, the hazard of coastal flooding in the Project area is classified as *High* based on modelled flood information currently available. This means that potentially damaging and life-threatening river floods and coastal waves are expected to flood the coast and riverine areas at least once in the next 10 years. Sea Level rise studies were carried out at the Guyana Coastline near Georgetown. In the year 1970, sea level was measured at a height of 57.1100 ft GD at the Kingston Lighthouse in Georgetown. Sea level rise was measured again at the same location in the year 2008 and was registered at 56.9763ft GD, a difference of 1.60 inches. The observed difference over the period of 38 years suggests coastal subsidence. Subsidence in Georgetown is likely related to groundwater abstraction for the city's potable water supply. Additionally, the mean relative sea-level rise in Georgetown over a period of 50 years is 9.25 inches, compared to a global mean sea-level rise of 7.9 inches over a period of 100 years.

The hazard of river flooding in the Project area is classified as *High* based on modelled flood information currently available. Potentially damaging and life-threatening river floods are expected to occur at least once during the next 10 years. Climate change is anticipated to increase the likelihood and severity of river flooding as extreme rainfall events are expected to increase.

Based on this information, the impact of coastal and river floods must be considered in different phases of the project for any activities located near the coast and river. Project planning decisions, project design, and construction methods must consider the level of coastal and river flood hazard. The eustatic sea level rise to be considered for the design of Relief to Soesdyke should be 55mm/year.

Short-term weather variability such as high intensity rainfall or wind or tidal/wave activity is the usual cause of floods, while sustained periods without rain cause droughts. The extent of flooding is also influenced by human factors such as the management of solid waste, and the maintenance of physical infrastructure for drainage and irrigation, conservancies and sea defenses (UNDP, 2012). Figure 4-4 shows hazard areas vulnerable to one meter sea level rise due to climate change. The most destructive coastal flood occurred in January 2005, as heavy rainfall caused catastrophic flooding along Guyana's

coasts, affecting 290,000 people – almost half of Guyana’s population. Total flood damage was estimated at \$465 million, or nearly 60% of the country’s GDP, prompting the government to work towards increasing its capacity to manage flood risk.

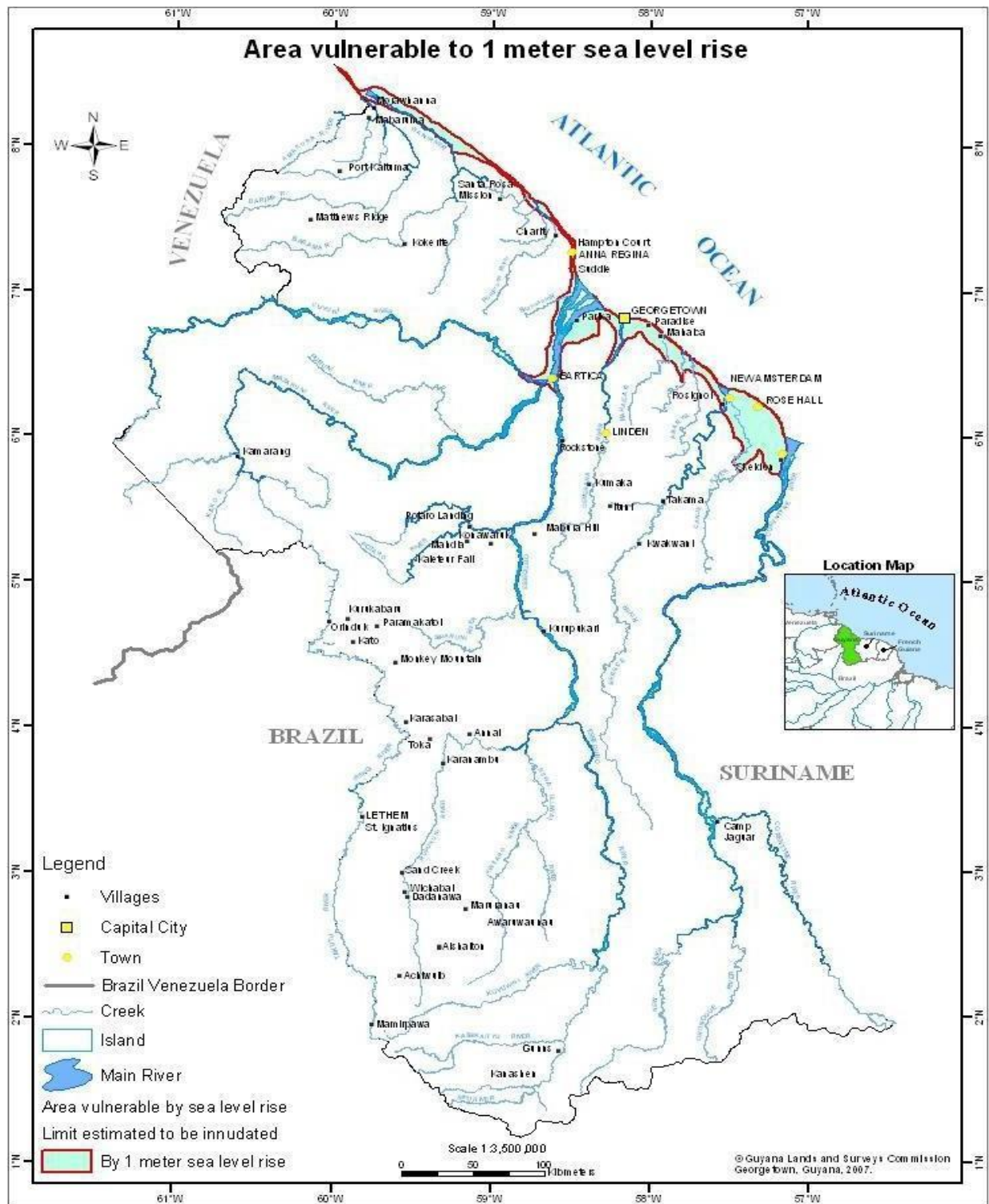


Figure 4-9: Flood Hazard Map for Guyana

3.2 Biodiversity

The Project is located within the East Demerara River of the East Demerara Coastal Plain. The coastal plain is characterized by cultivated fields and secondary vegetation (Huber et. Al., 1995)¹⁴. Human activities, current and historic, have modified the primary ecological functions and species composition, resulting in fragmentation and loss of natural habitats through agriculture, urbanization, and industrial activities. Only species that easily adapt and thrive successfully to rapidly changing environments are present within the modified coastal habitats. No invasive species were observed in the project area, per fieldwork conducted in 2015.

The East Demerara Coastal Plain consists of habitats that include urban areas and the extensive landscape east and southeast of the Project site previously used for sugar cane cultivation. Habitats typical of the East Bank of the Demerara River include mangrove Relief-Soesdyke (Protected habitats); salt/brackish marsh lands; mudflats; cultivated/abandon sugar cane fields; pasture and secondary forest lands; urban areas; and drainage canals.

Faunal species typical of the landscape are predominantly species that adapt easily to human disturbed habitats. Birds known to occur in the landscape of the Project include the Kiskadee (*Pitambus sulphuratus*), Cattle egret (*Bubulkus ibis*), Blue-gray tanager (*Thraupis episcopus*), humming bird (*Amazilia fimbriata*), Wattled Jacana (*Jacana jacana*), Yellow Plantain (*Icterus nigrogularis*), herons, common flycatchers, doves (*Columbina passerina*), kingfishers, parrots, and vultures.

Common fish species include cichlids such as the Patwa (*Cichlasoma bimaculatum*), and Sunfish (*Grenicichla alata*), the Hassar (*Hoplosternum littorale*), pirauçu (*Arapaima gigas*) and the freshwater barracudas or Hourí (*Hoplias malabaricus*). Herpetofaunal species such as caimans (*Caiman crocodilus*), the Crapaud (*Bufo marinus*), gecko (*Thecadactylus rapicauda*), salipenta (*Tupinambus teguixin*), and the common Frog (*Hyla minuta*) are known to occur, as well as several snake species. Domesticated animals such as sheep and cattle are common in disturbed secondary forests, but none are present in the Project area.

3.2.1 Flora and Fauna

The project roadway runs along the east side of the river. The project team observed mostly mobile and common species such as lizards, salipentas, butterflies, and ants. The vegetation alongside the road is heavily disturbed.

The shoreline along the Demerara River is largely developed with impervious surfaces comprised of marinas, businesses (mostly fishing), and industrial sites. Patches of significantly fragmented and/or degraded riparian habitats characterize the banks where there are no developments. The Flora consists

of common weeds and shrubs. Identified species include the carrion crow bush (*Senna alata*), sleep and wake plant (*Mimosa pudica*), wild eddoes (*Colocasia antiquorum*), and bamboo (*Bambusa vulgaris*). The Cecropia (*Cecropia* spp.) tree is a common vegetation species that grows in disturbed areas throughout Guyana. Similarly, the spectacled caiman (*Caiman crocodilus*) is a common (and IUCN Least Concern) reptile species that is typically found in slow-moving waterways and wetlands. Common green iguanas (*Iguana iguana*) are also found throughout the urban environment near and in Georgetown. No endangered species or species identified in IUCN species listings or restricted by the CITES listings were identified in the Project area during 2015 field efforts.

3.2.1.1 Protected Species

The Project area is largely modified and is not known to contain any endangered species. None of the species identified during baseline work or site visits were listed on the IUCN species listings or restricted by the CITES listings.

3.2.2 Ecosystem Services

There will be no land use change (i.e., vegetation clearance) that could alter ecosystem services beneficial to stakeholders.

Relief-Soesdyke mangrove forests play an important role in nutrient cycling and provide habitat for a diversity of flora and fauna, some of which are exploited by humans as provisioning services. Aquatic ecosystems are important producers of oxygen through phytoplankton photosynthesis and estuarine sediments and mudflats contribute to nutrient cycling.

3.2.2.1 Indigenous Peoples

Amerindians in Guyana numbered 78,492 as of the 2012 census, and their population is on the rise, with the growth of 12.8 percent seen in the period 2002-2012. There are nine main Amerindian groups in Guyana, of which three are primarily coastal: the Carib, Warao, and Arawak tribes.

Although there is a relatively high national Amerindian population, Region 4 only comprises of 0.95 percent of the total population (Bureau of Statistics, Guyana, 2016). In relation to Section B, there is expected to be little interference or impact on Amerindian communities given the Project location, vicinity to Amerindian villages, or population of Amerindian members in the DAI communities.

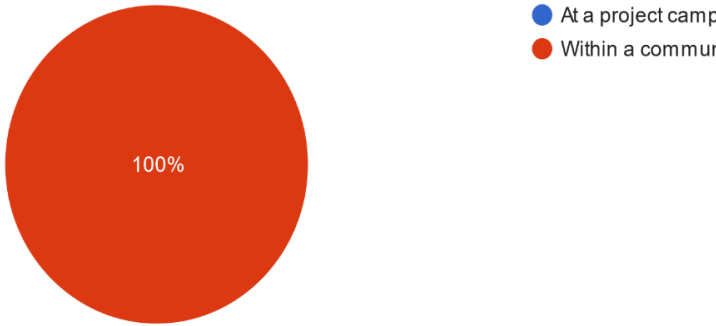
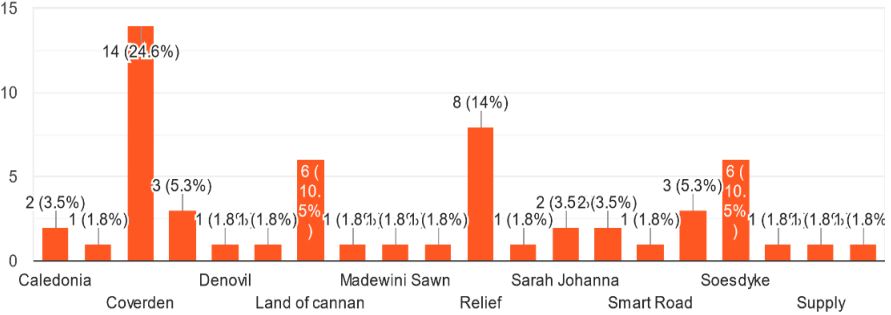
Moreover, given the Project is a road that is currently in operation, there is expected to be little interference or impact on Amerindian communities.

3.2.3 Socioeconomic Survey

A Socioeconomic Survey targeting 60 households along Section B of the East Bank Demerara Main Road covering the villages Relief to Soesdyke on the 16th and 21st July, 2024. The survey was designed

to obtain information on socio-economic factors and characterization. Information such as health and education, cost of living, health, and sanitation infrastructure (water, sewage, and solid waste), energy, cultural sites, community well-being and gender and social issues were obtained.

It is important to mention that the residents were willing to answer anonymously the questions by providing the information asked. Also, the majority of the residents support the projects towards the development of Guyana and the quality of life, no residents were found affected directly taking into the consideration of the RoW of the project. The data obtained at with a survey designed in google forms, is summarized below:

Question/Area/Findings	Notes																																	
<p>Where is this survey being administered? 60 responses</p>  <p>Legend: ● At a project camp ● Within a community</p>	<p>All sixty responses were applied with in the boundary of 500 meter to identified potential impacts to the residents.</p>																																	
<p>Name of Village 57 responses</p>  <table border="1"> <caption>Interviews by Village</caption> <thead> <tr> <th>Village</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr><td>Caledonia</td><td>2</td><td>3.5%</td></tr> <tr><td>Coverden</td><td>14</td><td>24.6%</td></tr> <tr><td>Denovil</td><td>3</td><td>5.3%</td></tr> <tr><td>Land of kannan</td><td>6</td><td>10.5%</td></tr> <tr><td>Madewini Sawn</td><td>1</td><td>1.8%</td></tr> <tr><td>Relief</td><td>8</td><td>14%</td></tr> <tr><td>Sarah Johanna</td><td>2</td><td>3.5%</td></tr> <tr><td>Smart Road</td><td>3</td><td>5.3%</td></tr> <tr><td>Soesdyke</td><td>6</td><td>10.5%</td></tr> <tr><td>Supply</td><td>1</td><td>1.8%</td></tr> </tbody> </table>	Village	Count	Percentage	Caledonia	2	3.5%	Coverden	14	24.6%	Denovil	3	5.3%	Land of kannan	6	10.5%	Madewini Sawn	1	1.8%	Relief	8	14%	Sarah Johanna	2	3.5%	Smart Road	3	5.3%	Soesdyke	6	10.5%	Supply	1	1.8%	<p>The location of the interviews according to area name, show 57 interviews applied within the boundary project</p>
Village	Count	Percentage																																
Caledonia	2	3.5%																																
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Supply	1	1.8%																																
<p>How has the road work affected your daily life? 7 responses 60 responses: Will not affect I'm happy for the new road</p>	<p>There main impacts/concerns for residents are dust pollution, traffic,</p>																																	

<p>Noise pollution based on machinery Haven't started on my side Proper drainage Confusion, dust Might obstruct Obstruction & noise Less customers Just concerned about the flow of the traffic Yes because of the slowing down of the traffic Yes, I'm concerned about my bride for my shop I'm just worried about the building up of the traffic The noise especially in the night Traffic congestion</p>	<p>drainage management and transportation through the phases of the project.</p>
<p>Do you have any recommendations to reduce the impact that the construction of the road has on your life? 59 responses: No They should do a good job None. Environmental: Dust can be problem with the operations Proper waste collection and air pollution prevention No specific recommendations Reduce the noise by using the back roads when it has been finished built. Do the works at convenient hours. Relocation of selling stand Make sure clear passage for vehicles Flooding Monitor flooding Proper Drainage Provide proper drainage Work right through and don't leave until work is finish Dust and obstruction None Build a back road Relocation of corner shop Obstruction & dust will disturb business Make deep foundation for the road If they could make a temporary bridge for me Hoping to get some work That they do good foundation and make it strong for the truck and it will not damage within a year We need a good job to be done They need to do a good job and be quick They need to do a good foundation and a strong road</p>	<p>Recognition of dust management and air pollution is a concern of the nearest residents. Also affecting business along the road side due to the construction.</p>

<p>They need to do a good job</p> <p>Did you observe any environmental concerns as a result of the road works? 58 responses</p> <table border="1"> <caption>Data from Bar Chart: Environmental Concerns</caption> <thead> <tr> <th>Response</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Dust</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>Im worried that the dust</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>Just worried about the dust</td> <td>2</td> <td>3.4%</td> </tr> <tr> <td>(1.7%)</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>(1.7%)</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>No</td> <td>41</td> <td>70.7%</td> </tr> <tr> <td>None</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>(1.7%)</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>(1.7%)</td> <td>2</td> <td>3.4%</td> </tr> <tr> <td>The dust and the noise in t...</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>Option 1</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>Worried that they dust</td> <td>1</td> <td>1.7%</td> </tr> <tr> <td>(1.7%)</td> <td>1</td> <td>1.7%</td> </tr> </tbody> </table>	Response	Count	Percentage	Dust	1	1.7%	Im worried that the dust	1	1.7%	Just worried about the dust	2	3.4%	(1.7%)	1	1.7%	(1.7%)	1	1.7%	No	41	70.7%	None	1	1.7%	(1.7%)	1	1.7%	(1.7%)	2	3.4%	The dust and the noise in t...	1	1.7%	Option 1	1	1.7%	Worried that they dust	1	1.7%	(1.7%)	1	1.7%	<p>The majority of the responses indicates that environmental concerns will be minimum or nill since is the project area is fully development. Generation of dust due to heavy duty vehicles and loose material in the construction areas of Section B may be a concern.</p>
Response	Count	Percentage																																									
Dust	1	1.7%																																									
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(1.7%)	1	1.7%																																									
<p>Are there any historical sites in this village that you believe should be protected? 60 responses</p> <p>Be careful with the bridges Bridges Keeping Trench clean Not that I can think of Not so sure but there is a resort at the back. Panadama wine resort The bridge for the children to walk.</p>	<p>No Historical sites were mentioned from residents' responses.</p>																																										
<p>What are some important services available in your community? 58 responses</p> <p>No light, No water. Water is received from creek. Burn trash. Poultry farming and vegetable farming Creek water, solar electricity, E-networks, burning trash Entertainment such as resort. Gets water from rain far. Uses solar energy Food court Supermarket & a few tires shops Vulcanizing shop Auto parts Truck for hire Lumber yard/sawmill & trucking Tire shop, grocery shop, blocks yard Supermarket/auto parts & mechanic shop Sawmill Lumber yard& supermarket Mechanical shop Church and shops Electric water internet School, Gas station, church Masjid, Dem Bake Water, light internet</p>	<p>Services available in the villages along the road project section B: water, electricity, internet, supermarkets, churches, gas station are some of the main services available.</p>																																										

What do you do for a living?

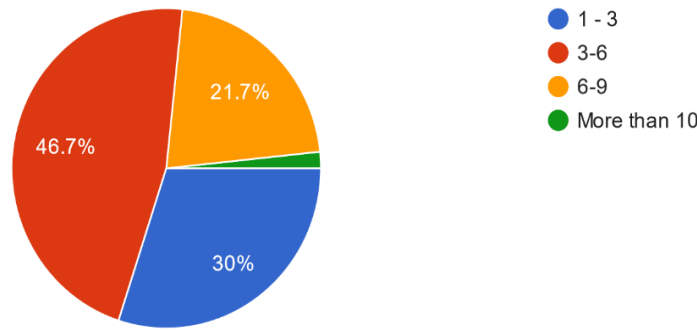
60 responses



The employment activities of interviewed residents are:
Labourer
Contractor
Retailer
Self employed

How many persons are within your household?

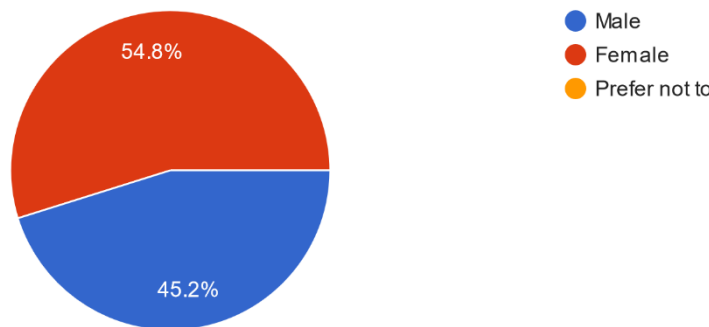
60 responses



Average with 46.7% of persons by households are between 3-6. Followed by 30% with 6-9 and 21% with 1-3 persons per house hold.

Gender

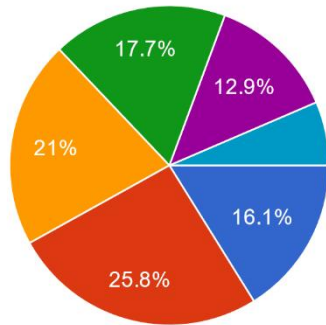
62 responses



54.8% or the household interviewed are compounded by female and 45.2 % are male.

Age Range

62 responses

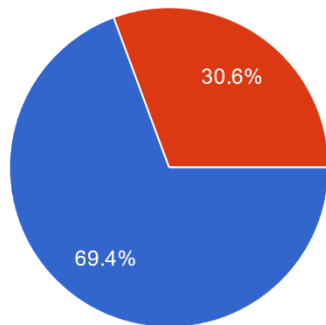


- 18 - 25
- 26 - 36
- 37 - 47
- 48 - 58
- 59 - 69
- 70+

The age range predominant is 26-36 (25.8%) followed by 37-47 years old (21%) and 48-58 years old (17.7%) indicating active work force.

Are you employed?

62 responses

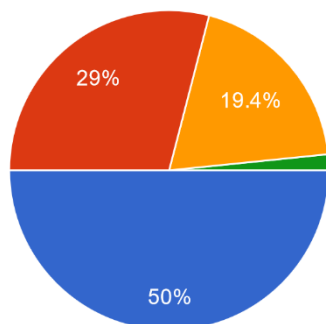


- Yes
- No

69.4 % of the residents have a job. 30.6% of residents are unemployed. Residents seeking employment while the project.

What is your religion?

62 responses

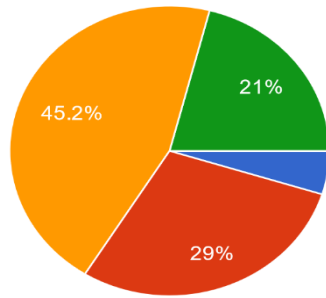


- Christian
- Hindu
- Muslim
- Other

The majority of the practiced religion is Christian (50%) while 29% are Hindu and 19.4% Muslim.

What is your ethnicity?

62 responses



- Amerindian
- African
- East Indian
- Mixed Race
- Portuguese
- European

The two dominant ethnicities are Esat Indian (45.2%), African (29%) and Mixed race (21%).

Pictures of social survey



3.3 Social Economic Environment

Introduction:

The East Bank of Demerara has a population of approximately 58,294 persons and 23 communities, spanning from Ruimvelt to Timehri. The Area of Influence that falls within Section B of the project comprises Relief, Land of Canaan, Sarah Johanna, Pearl, Caledonia, Te Huis te Coverden, Den Heuvel, and Soesdyke, whose combined population is 7,811 people. The latter, Soesdyke is a village being the most populated community in Section B., This village is located between the Demerara River and the East Bank Public Road, also demarcating the southern boundary of Section “B”. It is located just after the village of Den Heuvel if you are traveling from the direction of the Capital city Georgetown. Whereas,

the village on the opposite end of Soesdyke is the village of Timehri, which is approximately 3 miles northeast of the Cheddi Jagan International. While, the village of Den Heuvel shares a northern border with Soesdyke, traveling towards the capital city of Georgetown. Likewise, the village Te Huis te Coverden is 29 km from Georgetown and 10.5 km from Timehri, situated on the eastern half of the East Bank of Demerara carriageway, and aligns parallel the Demerara River and has the third smallest population among the communities of Section B.

Contrastingly, the village of Caledonia has the smallest population among the villages of Section B. Analysis of official statistics revealed that the total number of residents residing in this community is 41. It is pertinent to note the Caledonia community is situated approximately 40 minutes from the capital city Georgetown and less than 15 15-minute' drive from the Cheddi Jagan International Airport at Timehri. Also, historically Caledonia was once much larger geographically and encompassed from the beginning of Coverden and going as far as Craig on the East Bank of Demerara and situated between Pearl and Coverden (Dhanraj,2015). In comparison the village Pearl is a very small close knitted community, has four streets with a few cross streets, several dams, and canals with a large backlands area, but it is a peaceful countryside community that is tucked away between Sarah Johanna and Caledonia villages and it approximately 330 residents according to the 2012 Census. Most of the residents work in both the private and public sectors with a few small business owners. After leaving the community Pearl, heading towards Georgetown in the general direction of north along the East Bank of Demerara carriageway immediately lies the community of Sarah Johanna.

According to Michel Outridge, (2021), Sarah Johanna is said to be named after the sisters of Dutch plantation owners and runs deep into the backlands from the East Bank Public Road. The community's immediate neighbors are the Land of Canaan to the north and Pearl to the south. The village is divided into three sections, one of them being the Sarah Johanna squatting area which, according to residents, is called 'Somalia' because of its present condition. The other two sections are the housing schemes and the old road. Penultimately, the community of Land of Canaan has the second largest number of residents in the Section B area, most industrious, and has the most advanced and developed infrastructural networks. It appears that the well-established businesses or 'economic giants', that are offering employment for villagers are the Barama Company Ltd, Two Brothers Gas Station, Guy gas entity, and Gafoor's Manufacturing Complex, it is important to note that the community of Land of Canaan is located 14 miles from south of Georgetown, that strategically place it as an economic hub between Georgetown and Timehri (Outridge, 2020). Lastly, even though the community of Relief is well known for its towering coconuts, palm trees, and the Supply Primary as the lone school in the village. Albeit, the Supply Primary School serves as a reminder that Relief was once a part of Supply, and only a few years ago Supply was divided into three villages: Supply, Support, and Relief. Hence, this Community delineates the Eastern Border and demarcates the beginning of section B of the East Bank Demerara Rehabilitation Project scope (Dhanraj,2015).

Methodology:

The data gathered for the Section B phase of the East Bank Demerara Road Rehabilitation Project were retrieved through primary and secondary data collection methods. The former, will be done through a series of community visits, feedback from Stakeholders Consultation Meetings, Interviews, Key Stakeholder Consultation Kick-Off Meeting, that saw representatives from the Ministry of Public Works, Environmental Protection Agency (EPA), Guyana Civil Aviation Authority (GCAA), Ministry of Local Government and Regional Development, Regional Democratic Council (RDC), Neighborhood Democratic Councils (NDC), Regional Executive Officer, Business Community and Residents of communities that fall within the project locality.

Contrastingly, the secondary data collection method seeks to collect baseline data of the residents of section B, utilizing official statistics, such as reports from the Guyana Lands and Survey, Bureau and Statistics 2012 Census, newspaper articles, and ministry websites. NDCs and RDCs, academic studies, Constitution of the Cooperative Republic of Guyana Act 1980, Civil Law Of Guyana Act, Chapter 6:01, The Deeds Registry Act, Chapter 5:01, Town And Country Planning Act, Chapter 20:01, And Housing Act, Chapter 36:20. Acquisition Of Lands For Public Purposes Act, Chapter 62:05. The data will be extracted, transferred into a table form and further analyses using the comparative analysis and cross-tabulation technique. The information generated by the process will form the basis of the socio-economic baseline for the communities of Relief, Land of Canaan, Sarah Johannah, Pearl, Caledonia, Coverden, Den Heuvel, and Soesdyke.

Socio-Economic Setting:

Land Use and Cover

The primary objective of the National Land Use Plan (NLUP) is to provide a strategic framework to guide land development in Guyana. As such the NLUP is built upon several national policies and strategies that have a direct relevance for land use and land management (Regional Observatory on Planning for Development, 2024). Land Cover and Land Use are often used interchangeably. However, they are quite different and their definition is given here. The Global Land Cover Network (GLCN), (2006) defines Land Cover as the observed (bio)physical cover, as seen from the ground or through remote sensing, including vegetation (natural or planted) and human construction (buildings, roads, etc.) which cover the earth's surface. Water, ice, bare rock, or sand surfaces also count as land cover. Land Use is based upon function, the purpose for which the land is being used. The definition of land use establishes a direct link between land cover and the actions of people in their environment.

According to the Town and Country Planning Act, Chapter 20:01, the state made provision for the orderly and progressive development of Land, Cities, Towns, and other areas, whether Urban or Rural, to preserve and improve the amenities thereof, and for other matters connected therewith. Hence governing and guiding the developmental aspects of the villages along the East Bank of Guyana. Therefore, influences the socio-economic activities of these communities and their rate of development,

zoning laws, economic activities, and most specifically land use Land Use Planning and Zoning (Central Housing and Planning Authority, 2024).

The communities that fall within the locality of Section B, such as Relief, Land of Canaan, Sarah Johannah, Pearl, Caledonia, Coverden, Den Heuvel, and Soesdyke varied in land usage, for instance, the community of Relief is considered a tiny village on the East of Demerara with a comparably small population, who engages in some amount of sustainable farming. In comparison, the community of Land of Canaan appears to have a more modernized infrastructure and a vibrant business community. The community is home to many small villages and a few prominent businesses like the Barama Company Ltd, offering extensive employment opportunities for residents of Land of Canaan and many surrounding villages. Also, the Gafoor's Manufacturing Complex in the village greatly boosted its employment scope and took it another notch higher in the world of economic and social development. Today villagers can almost satisfy all their necessities in the village since there is good water and electricity supply everywhere. Land of Canaan now boots an artesian well which is manned by the Guyana Water Incorporated (GWI) entity.

Additionally, the village also houses a very vibrant and active Karate School, Igloo Fruit Flavours Ice-Cream Parlour, the A. Azaamally & Sons Ltd. Lumber Yard and the Good Will Enterprises Inc. And of course, there is the Boat House Sports Bar that offers fun and frolic and much leisure time pleasantries. The community is rapidly transforming into an industrial hub of the East Bank of Demerara with the addition of the Neal and Massey branch, Sears General Store, a chain saw outlet, several halaal chicken outlets, and the A. Gonzalez & Sons Scrap Metal entity, two Brothers Gas Station, and a Guy gas entity for LPG operations featuring a computerized filling system capable of producing 700 9kg cylinders of gas per hour (Guyana Chronicle,2015).

In contrast, the community of Sarah Johanna is divided into three sections, one of them being the Sarah Johanna squatting area which, according to residents, is called 'Somalia' because of its present condition and the other two sections are the housing schemes. The village extends from the public roadway down to the backlands and has many nooks and crannies, small tracks, and internal streets. The main economic activities of the locals include farming, poultry, and pig-rearing. There are also skilled workers, self-employed persons, shop owners, and other professionals who work in all sectors (Outridge,2021). Similarly, Pearl Village, East Bank Demerara, is unique because it is a small community that is residential but is also a good place with a lot of greenery and generally quiet, with most residents engaging in self-subsistence agriculture by rearing poultry, cattle farming, and kitchen gardens (Outridge,2020). Likewise, Caledonia on the East Bank of Demerara is a village that is sparsely populated by people, but home to a variety of fauna living in its areas of untouched vegetation and Birds. Tropical Flora and Fauna Inc, which exports birds, mammals, and reptiles and the sawmill creates employment for a few villagers (Dhanraj,2015).

Last but not least, the name Coverden reminds us of Guyana's historical heritage, being a former Dutch

colony, for more years than it was an English colony. The 2012 census (Guyana’s last census) reported Coverden’s population at 459 persons in 151 households. Land tenure was 90% ‘owned/freehold’; 136 of the 151 households owned their house lots. While most of the residents engage in subsistent economic practices. Like, the Den Heuvel is of Dutch origin has a population of approximately 300, and is located just before Soesdyke. Its inhabitants; are farmers, teachers, shopkeepers, housewives, and persons working in the public and private sectors.

Lastly, the village Soesdyke serves as a central point for those accessing the interior, the highway, Linden, and other parts of the country. Soesdyke is home to the Bounty Farms Hatchery; lots of general and hardware stores; roadside bars; eating houses; fast-food joints; pool halls; discos; shops; dog food stands; poultry farms; mechanic workshops; Chinese supermarkets; restaurants and many other small businesses that line both sides of the public road. The village has a secondary school; two nursery schools; two primary schools, a health center, and a post office. At Madewini there is the Police Outpost and the Soesdyke/Te Huist Te/ Coverden Neighborhood Democratic Council (NDC) building which also houses the GECOM office. It is a thickly populated village that has more than 40 internal streets, it is a bustling and vibrant village that has developed significantly over the years. The people of this community are self-employed via their many small businesses, skilled craftsmen, office staffers, employees of both the private and public sectors, and other professionals (Outridge,2021).

Population Main Source of Economic Activities

Even though the majority of the communities in Section B depicted evidence of some among of subsistent farming and cattle rearing engaged in by residents more in certain communities than others, official data demonstrated that the majority of residents earn an income through regular employment. However, distinctively the community of Caledonia did not vary much between the variables of employment and unemployment. This corroborates the notion that a large number of residents in the community still engage in subsistent farming.

Table R-1

Village Name	Employed	Unemployed	Total
Relief	89	26	115
Land of Canaan	576	67	643
Sarah Johanna	246	21	267
Pearl	104	38	142
Caledonia	9	1	10
Te Huis Te Coverden	176	20	196
Den Heuvel	81	12	93
Soesdyke	1,459	191	1,650

Demographic Information:

Villages By Age

The table below indicates that the total population living with the parameter of Section B is 7,811 residents. The highest number of people resided in the Soesdyke community (4114) and Caledonia had

the least residents (41). Soesdyke recorded the highest number of persons residing in the community when in all age category. While recorded Caledonia recorded the lowest figure of residents according to age.

Table R-2

Village Names	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
Relief	29	20	39	26	22	20	27	11	22	16	9	12	11	4	4	2	1	0	275
Land of Canaan	174	184	197	184	135	132	132	121	121	94	64	47	33	27	25	18	6	3	1,697
Sarah Johannah	72	61	72	77	52	42	57	51	40	36	39	17	17	10	6	1	0	1	651
Pearl	31	28	28	30	30	23	24	20	21	19	18	18	10	12	6	5	6	1	330
Caledonia	4	5	6	9	4	0	0	2	6	3	0	0	1	0	0	1	0	0	41
Coverden	42	39	46	47	48	37	41	33	23	22	20	21	8	12	6	9	2	3	459
Den Heuvel	22	22	17	28	22	28	19	16	13	17	16	11	6	4	2	0	0	1	244
Soesdyke	387	441	479	465	355	305	298	291	294	223	195	108	111	55	51	29	16	10	4,114

Villages by sex

The data below analyses the Section Communities based on the variable of sex. Hence it was recorded that Te Huis Te Coverden, Den Heuvel, and Soesdyke recorded a higher number of female residents than males. On the other hand, Relief, Land of Canaan, Sarah Johanna, and Pearl recorded a higher number of male residents than females. Hence it is important to note that for both scenarios the variation between sexes was meagre.

Table R-3

<u>Village Name</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Relief	143	132	275
Land of Canaan	877	820	1,697
Sarah Johanna	344	307	651
Pearl	166	164	330
Caledonia	24	17	41
Te Huis Te Coverden	228	231	459
Den Heuvel	113	131	244
Soesdyke	2,046	2,068	4,114

Villages Main Source of Livelihood

Employment remained the number one driving factor behind the earning capability of the section B residents. Then followed by spousal support and the pension scheme which is most attributable to the older segment of the Section B population. While, Savings/Interest on Savings, Disability Benefits, Investments, and Public Assistance remain at the bottom tier of the scale.

Table R-4

Village Name	Employment/ Own Account	Remittance/ Overseas	Support from Friends/ Relatives (Local)	Parents/Spousal Support	Pension (Old Age, former Employer)	Savings/ Interest on Savings	Dias ability Benefits	Investments	Public Assistance	Other	Total
Relief	101	3	12	59	12	0	0	0	0	0	187
Land of Canaan	600	14	39	380	80	10	1	12	5	1	1142
Sarah Johanna	258	15	8	136	18	6	0	0	5	0	446
Pearl	125	1	12	74	25	3	2	0	0	1	243
Caledonia	11	0	2	12	0	0	0	1	0	0	26
Te Huis Te Coverden	193	1	6	90	24	18	0	0	0	0	332
Den Heuvel	97	0	6	64	6	4	1	3	2	0	183
Soesdyke	1,573	49	112	873	150	30	2	9	7	2	2807

Village level of Education

While a large segment of the section B population for school age level is attending secondary school there is a large gap between residents attending the institutions of Post Secondary School, Vocational/Trade, Business/ Computer Studies, Adult Education, and University/Tertiary.

Table R-5

Village Name	Day Care	Nursery	Primary	Sec. Dept of Primary/ CHS	General Secondary	Post Secondary School	Special School	Technical Institute	Vocational/ Trade	Business/ Computer studies	Adult Education	University/ Tertiary	Other	Total
Relief	5	6	29	0	34	0	1	1	0	1	0	4	0	81
Land of Canaan	26	56	219	6	188	3	0	4	1	2	0	22	2	530
Sarah Johanna	10	21	83	3	62	0	0	1	1	0	0	3	0	185
Pearl	2	7	37	13	15	1	0	1	1	1	0	6	0	85
Caledonia	0	1	4	2	3	0	0	0	0	0	0	0	0	10
Te Huis Te Coverden	5	18	44	0	47	1	1	1	1	0	1	4	0	123
Den Heuvel	0	5	18	0	19	0	0	2	0	1	1	2	0	48
Soesdyke	67	116	542	14	428	4	2	12	1	10	4	48	0	1,249

Population Distribution:

Villages Ethnic Groupings

The table below displays an ethnic group of the residents within Section B Communities. The leading races are African and East Indian which varied throughout the different communities, for instance, Relief, Pearl, and Coverden are predominantly black communities, while the other communities showed a higher number of East Indian residents. However, there is a constant gradual increase of mixed-race ethnic groups throughout the villages.

Table R-6

<u>Village Name</u>	<u>African /Black</u>	<u>Amerindian</u>	<u>East Indian</u>	<u>Chinese</u>	<u>Mixed</u>	<u>Portugues</u>	<u>White</u>	<u>Other</u>	<u>Total</u>
<u>Relief</u>	179	11	22	0	59	3	1	0	275
<u>Land of Canaan</u>	419	76	614	1	578	5	2	2	1,697
<u>Sarah Johanna</u>	28	25	457	0	137	4	0	0	651
<u>Pearl</u>	146	9	71	0	104	0	0	0	330
<u>Caledonia</u>	0	6	16	0	19	0	0	0	41
<u>Te Huis Te Coverden</u>	248	3	61	4	142	1	0	0	459
<u>Den Heuvel</u>	20	10	173	2	38	0	0	1	244
<u>Soesdyke</u>	1,188	101	1412	20	1,388	5	0	0	4,114

Villages Religious Denomination

The table below mere reflection of the religious doctrines that residents within Section B subscribe to. Hence unorthodox Christianity is the leading religious practice observed by Residents of Section B, followed by Hinduism and Islam. Nite the least subscribed religious doctrines were Rastafarian, Bahai, and Jehovah Witnesses respectively.

Table R-7

<u>Village Name</u>	Anglican	Methodist	Pentecostal	Roman Catholic	Jehovah Witnesses	Seventh Day Adventist	Bahai	Muslim	Hindu	Rastafarian	Other Christian	No Religion	Other	Total
<u>Relief</u>	9	0	13	12	2	26	0	3	1	1	208	0	0	275
Land of Canaan	43	9	398	158	13	89	1	66	276	1	601	601	23	1697
Sarah Johanna	1	0	152	26	25	0	0	19	249	0	165	5	9	651
Pearl	59	6	84	11	4	31	0	16	48	1	60	7	3	330
Caledonia	0	2	17	5	0	0	0	7	10	0	0	0	0	41
Te Huis Te Coverden	4	5	243	3	7	43	0	2	22	4	124	2	0	459
Den Heuvel	0	0	9	3	0	13	0	6	136	3	63	10	1	244
Soesdyke	120	74	1,220	98	52	192	3	126	742	6	1,188	270	23	4,114

Literacy of the population:

Academic Qualification by villages

The majority of villagers with Section have no academic qualifications, even though a small number of villagers are school dropouts. Additionally, fewer residents pursued higher qualifications, like Bachelor's, Postgraduate Dip/Certificate, Higher Degree (Master), and Higher Degree (Doctoral).

Table R-8

Name of Village	None	School Leaving	CXC Basic	GCE O' Level or CXC General	High School/ Senior Cambridge Certificate	GCE A levels/ CAPE	Certificate/ Diploma	Bachelor's Degree	Post Graduate Dip / Certificate	Higher Degree (Master)	Higher Degree (Doctoral)	Other	Total
Relief	146	0	0	0	34	0	0	7	0	0	0	0	244
Land of Canaan	857	11	7	11	207	0	0	34	14	0	0	0	1142
Sarah Johanna	357	2	0	0	77	0	0	4	5	0	1	0	446
Pearl	142	3	0	0	37	0	1	40	11	2	2	0	243
Caledonia	22	0	0	0	2	0	0	1	1	0	0	0	26
Te Huis Te Coverden	195	8	1	0	78	5	0	24	10	3	0	0	332
Den Heuvel	132	6	0	2	41	1	0	1	0	0	0	0	183
Soesdyke	1915	59	4	16	663	0	7	99	42	0	2	0	2807

Infrastructure and Social Services:

Roads

It is estimated that roads carry 80 percent of Guyana's passenger traffic and about 33 percent of its freight. In 2004, Guyana's road network was approximately 3,995 kilometers (2,482 mi) long, 24 percent or 940 kilometers of which comprised primary roads in the coastal and riverine areas serving the agricultural sector, while the road to Linden serves the mining and forestry sectors. 21 percent (820 kilometers) is made up of feeder roads that link the agricultural areas along the coast to the primary road network. The remaining 56 percent (2,235 kilometers) is composed of interior roads and trails. Most access roads are in poor condition. However, the Central Government has targeted several roads for complete rehabilitation, such as the East Bank of Demerara Road Rehabilitation Project. South of Georgetown the primary road is the East Bank Demerara Road, a four-lane road from Rumiveldt to Providence and a two-lane from Providence to Timehri Georgetown to Timehri, where the Cheddi Jagan International Airport - Timehri (CJIAT) is located. Between 1966 and 1968, Soesdyke, located on the East Bank Demerara Road, was connected to Mackenzie by a modern two-lane highway, called the Soesdyke-Linden Highway. This road was constructed as a section of a highway connecting Georgetown with Lethem (Kaieteur News,2015).

The East Bank of Demerara Main Road runs in the general directions of North to South, parallel to the villages in Section B. The road is still the only access road to and from most of these communities. The infrastructure network of most of the communities is undeveloped, posing challenges for villagers. With the Enhancement of the East Bank Demerara Highway other secondary road networks will more like developed to facilitate traffic flow and alleviate traffic congestion. Additionally, most of the villages have poor road network and drainage and except for the Land of Canaan and Soesdyke, most members complained about flooding being an issue and affecting their livelihood.

Land Tenure

Land in Guyana is owned either by the State or under private freehold tenure. There are two basic land markets the first consists of freehold properties and the second consists of leases of publicly owned land. In the freehold market, a purchaser buys outright from a seller under the "transport of property" or "transfer of certificate of title" transactions recorded at the Land & Deeds Registries respectively. Hence, all leases of publicly owned land are recorded at the Lands and Surveys Commission (Long Leases, 21 yrs & over, recorded at Deeds Registry).

The Freehold land administration is carried out by the Deeds Registry under the Office of Attorney General of the Supreme Court and by the Land Registry. There are two systems of land law and property recordings governing the private market, namely, the "transport index " based on Roman-Dutch legal practices, and the " title index of land transfer," that is, the Torrens system introduced in the early 1950s by the British.

While the Commissioner of Lands and Surveys is the custodian of all State lands, the Guyana Lands and Surveys Commission by the State Lands Act and Regulations, the Guyana Forestry Commission, under Act 2 of 1979, and the Guyana Geology and Mines Commission, under the Act 9 of 1979, administer land use for agriculture (and other purposes), forestry and mining throughout Guyana, respectively.

Accordingly, each of these three Government institutions issues titles for different purposes over the same land space. The need for some rationalization of authority in the allocation of public land is, therefore, of some concern in the planning of future institutional arrangements. However, the majority of the lands occupied by residents of the section are title lands. For instance, the Dr. Charles Housing Scheme in Coverden is a privately owned housing development whose land was owned and developed by Dr. Charles's Estate. Also, the descendants of Benjamin still own a large area of land in Coverden. According to Bulkan (2021), Coverden is on freehold titled land which provides the widest tenure rights to its owner.

Critical Centers:

Educational Services

There are five Schools within the locality of Section B. The Supply Primary School is located within the community of Relief, then followed by Pearl Nursery School when traveling in the general direction South. However, the remainder of the Schools in Section B are concentrated within the community of Soesdyke, namely the Soesdyke Secondary School, Soesdyke Primary School#01, Soesdyke Primary School#02, St. Mary’s Primary School, and Soesdyke Secondary School.

Table R-9

Name of Village	Nursery School	Primary School	Secondary School	Vocational	Total
<u>Relief</u>		1			1
Land of Canaan					
Sarah Johanna					
Pearl	1				1
Caledonia					
Te Huis Te Coverden					
Den Heuvel					
Soesdyke		2	1		3

Health Centers

There is one Health Center in Section B locality of Section B (261-6413) and it is located within the community of Soesdyke and one privately owned clinic named Integrated Medical Clinic (504 3767). The next two closest Health Centers are located in Timehri and Supply.

Table R-10

Name of Village	Health Center	Hospital	Total
Relief	NIL	NIL	
Land of Canaan	NIL	NIL	
Sarah Johanna	NIL	NIL	
Pearl	NIL	NIL	
Caledonia	NIL	NIL	
Te Huis Te Coverden	NIL	NIL	
Den Heuvel	NIL	NIL	
Soesdyke	1	NIL	1

Fire Services

There are no fire stations within the locality of Section B, however, the closest fire stations are Timehri Fire Station (261-2211) and Diamond Fire Station (216-2162) respectively.

Table R-11

Name of Village	Fires Station	Total
Relief	NIL	
Land of Canaan	NIL	
Sarah Johanna	NIL	
Pearl	NIL	
Caledonia	NIL	
Te Huis Te Coverden	NIL	
Den Heuvel	NIL	
Soesdyke	NIL	

Security

The communities within Section B generally fall within the Regional Division of 4(B). However, no Police Stations or outposts are located within the parameter of Section B but the closest Police Station is located in the Timehri Police Station (261-2222) and the Kuru Kururu Police Outpost (261-5457).

Table R-12

Name of Village	Police Station	Police Outpost	Total
Relief	NIL	NIL	
Land of Canaan	NIL	NIL	
Sarah Johanna	NIL	NIL	
Pearl	NIL	NIL	
Caledonia	NIL	NIL	
Te Huis Te Coverden	NIL	NIL	
Den Heuvel	NIL	NIL	
Soesdyke	NIL	NIL	

Utilities

Water Supply

East Bank Demerara had a population of 58,294 persons and its operational areas ranged from Eccles on the East Bank of Demerara to Timehri and the Linden Highway up to Silver Hill with 17,574 households and 19,631 customers servicing 2,442, 1,669, and 2,987 customers respectively with service to twenty-one (21) communities. 13 pump stations service thirty (30) communities and four (4) State facilities at Timehri. The operations provided service to 509 commercial, 18,989 domestic, 84 industrial, and 49 institutional. There are 14 Schools and 8 Health Centers. GWI ensured that the regional health facilities and schools were provided with a reliable supply of safe potable water from pumps that operated 24 hours daily supplying water to the treatment plants which operated booster pumps for between 14 to 16 hours daily. Land of Canaan has an artesian well which is manned by the Guyana Water Incorporated (GWI) entity and the community of Caledonia commissioned a water treatment plant in 2023(Guyana Times Inc,2023).

Electricity and Telecommunication

Guyana produced 1136 GWh of electricity in 2020, sourced 96.81% from fossil fuels and 3.19% from renewables. The Guyana Power and Light controls 100% of production. The company has received criticism due to the lack of reliable electricity, high cost, and outdated transmission and distribution lines. The Guyanese government took steps starting in 2020 to lower the cost of electricity primarily through energy diversification efforts. In 2018, electricity demand was 124.9 MW. As of 2020, 89.7% of the urban population and 80.3% of the rural population had access to electricity. Programs are in place to promote access of rural populations to mostly renewables-based small-scale grids (Guyana: Energy Snapshot,2020). Among the communities of section B, there was evidence of the Guyana Power Light Inc. infrastructural networks. As it relates to internet access the Guyana Census (2012) indicated that the majority of people living within Section B did not have access to the internet but there was evidence of

some members having access but did not state the method used to access the internet. However, it is important to note that the data presented in the table below is a mere snapshot of the 2012 Census and should be analyzed simultaneously taking into consideration the time specificity and since a lot of aggressive upgrades and expansion have taken place in the information technology sector. Most notable is the Liberalization of the Telecommunication Sector in 2020 and the unprecedented level of infrastructural upgrade to facilitate the Oil and Gas Sector (International Trade Administration,2024).

Internet Access by Villages

The table below generally depicts very low internet usage among Residents of Section B.

Table R-13

Village Name	Yes	No	Total
Relief	36	210	246
Land of Canaan	369	1,154	1,523
Sarah Johanna	150	429	579
Pearl	89	210	299
Caledonia	1	36	37
Te Huis Te Coverden	106	311	417
Den Heuvel	55	167	222
Soesdyke	1,074	2,653	3,727

Transportation and Traffic Management:

Transportation

It is estimated that roads carry 80 percent of Guyana's passenger traffic and about 33 percent of its freight. In 2004, Guyana's road network was approximately 3,995 kilometers (2,482 mi) long, 24 percent or 940 kilometers of which comprised primary roads in the coastal and riverine areas serving the agricultural sector, while the road to Linden serves the mining and forestry sectors. 21 percent (820 kilometers) is made up of feeder roads that link the agricultural areas along the coast to the primary road network. In 2015, the Ministry of Public Works estimated that 60 percent of Guyana’s productive labor force used public transportation daily, which is widely available and fairly reliable. They also stated that the eight major bus routes, 31, 32, 40, 41, 42, 43, 44, and 45, accounted for 67% of the total public bus fleet in Guyana, while 41% of commuters on the major routes expressed satisfaction (Lucus,2015).

However, the Section B project areas can be accessed from the East Bank Demerara Public Road through Linden/Soesdyke Junction, the Soesdyke Timehri Junction, and connected by some minor access roads

leading into the communities. Residents noted that the minor access roads are not in good condition and are often the source of vehicle damage, and during rainy conditions, there are flooded potholes and access by foot is challenging.

Culturally Significant and Archaeological Areas

There have been no significant archaeological and other cultural heritage finds within the project sites recorded by the National Trust of Guyana. There is also no known cultural or historical site of significance. Historically, the land was primarily used for the planting and harvesting of sugar cane and was subsequently designated and diverted to planned housing development by the Government of Guyana. There are no significant cultural and religious values attached to land.

Solid Waste Collection

Residents rely mainly on private contractors for solid waste disposal within the project areas. However, it was indicated that private contractors are not always reliable and efficient. This results in residents having to burn their garbage as a means of disposal. There is no connected sewage system or treatment plant within the areas. Residents have septic tank systems that collect and store sewage on each property.





Relocation/Resettlement




As a result of the nature of the project, which is to merely expand, rehabilitate, and enhance the existing East Bank Carriageway, there is no forceable need for relocation and resettlement of residents within the section B.

4. IMPACT ASSESSMENT

A site visit was performed on the 18th August, 2024 for road project section B. The villages for section are from Relief to Soesdyke. The following sites were visited according to the final design where the major works will take place. The site inspection helped to identified the main direct and indirect impacts, as a reference also see Table 4-1: Distribution of Sections Passing Villages.

Table 4-1: Site Inspected for Assessment of Impacts

SECTION B Chainage	Type of Structure	Reference Picture
K-18+127	Culvert	
K17+124.9, C26	Road	
K17+120	Culvert	
K15+712.7 B-14	Bridge	

K11+366.4	Bridge	
K10+360	Culvert	
K9-600 b9	Bridge	

4.1 General Methodology

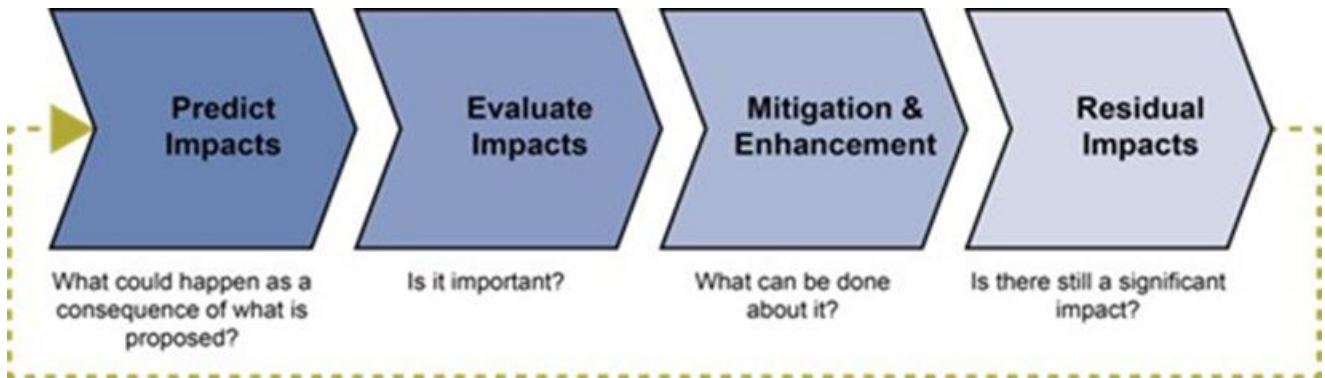
The primary purpose of an Environmental and Social Assessment (ESA) is to predict the impacts resulting from the proposed project. Impacts can be direct, indirect, or induced, as defined in Table 4.1-1.

Table 4.1-1: Impact Designation Definitions

Designation	Definition
Direct	Impacts that result from a direct interaction between the Project and a resource/receptor (e.g., between disturbance of a plot of land and the habitats on that plot of land that are affected).
Indirect	Impacts that follow from the direct interactions between the Project and its environment as a result of subsequent interactions within the environment (e.g., viability of a species population resulting from loss of part of a habitat as a result of the Project occupying a plot of land).

Induced	Impacts that result from other activities (which are not part of the Project) that happen as a consequence of the Project (e.g., influx of camp followers resulting from the presence of a large Project workforce).
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The assessment of impacts proceeds through an iterative process that considers four questions as illustrated in Figure 4.1-1.



Source: Prepared by ERM, 2021

Figure 4.1-1: Impact Prediction and Evaluation Process

These questions are expanded in Steps 1 through 4 below.

4.1.1 Step 1: Predict Impacts

An ESA evaluates potential project impacts by predicting and quantifying to the extent possible the magnitude of impacts on resources (e.g., water and air) or receptors (e.g., people, communities, wildlife species, habitats). Magnitude is a function of the following impact characteristics:

- Type of impact (i.e., direct, indirect, induced).
- Nature of the change (what is affected and how).
- Size, scale, or intensity.
- Geographical extent and distribution (e.g., local, regional, international).
- Duration and/or frequency (e.g., temporary, short term, long term, cyclic, permanent).

Magnitude describes the actual change that is predicted to occur in the resource or receptor. The magnitude of an impact considers all the various dimensions of a particular impact in order to make a determination as to where the impact falls on the spectrum (in the case of adverse impacts) from Negligible to Large. Some impacts can result in changes to the environment that may be immeasurable, undetectable, or within the range of normal natural variation. Such changes can be regarded as essentially having no impact, and are thus characterized as having a Negligible magnitude. In determining the magnitude of impacts on resources and receptors, embedded controls (i.e., physical or procedural controls that are planned as part of the project design) are taken into consideration (e.g., the magnitude of impacts on stream water quality from construction takes into consideration the effectiveness of proposed sediment and erosion control measures).

In addition to characterizing the magnitude of impact, the sensitivity/ vulnerability/importance of the impacted resource/receptor is characterized. A range of factors is considered when defining the sensitivity/ vulnerability/importance of the resource/receptor:

1. Where the resource is physical (e.g., a waterbody), its sensitivity to change and extent (on a local, national, and international scale) are considered.
2. Where the resource/receptor is biological or cultural (e.g., the riverine environment), its importance (e.g., its local, regional, national, or international importance) and its sensitivity to the specific type of impact are considered.
3. Where the receptor is human, the vulnerability of the individual, community, or wider societal group is considered, including if they are vulnerable groups or minorities (i.e., Indigenous peoples, African descendants). Other factors may also be considered when characterizing sensitivity / vulnerability / importance, such as legal protection, government policy, stakeholder views, and economic value.

As in the case of magnitude, the sensitivity/vulnerability/importance designations themselves are universally consistent (i.e., Low, Medium, and High), but the definitions for these designations would vary on a resource/receptor basis.

4.1.2 Step 2: Evaluate Impacts

An ESA evaluates the significance of a potential project impact by considering, in combination, the magnitude of the impact and the sensitivity/vulnerability/importance of the impacted resource or receptor. The assignment of a significance rating facilitates decision-makers and stakeholders to understand how much weight should be given to the issue in their process. In the case of positive impacts, the significance is assigned as Positive.

Significance was assigned for each impact using the matrix shown in Table 4.1.2-1. This matrix applies universally to all resources/receptors.

Table 4.1.2-1: Evaluation of Significance of Impacts

Impact Significance Matrix		Sensitivity/Vulnerability/Importance of Resource/Receptor		
		Low	Medium	High
Negative Impacts				
Magnitude of Impact	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major
Positive Impacts				
Magnitude of Impact	NA	Positive	Positive	Positive

In terms of what the various significance designations represent, the following considerations are provided:

- An impact of ***Negligible*** significance is one where a resource/receptor (including people) would not be affected by a particular activity, or the predicted effect is deemed to be imperceptible or is indistinguishable from natural background variations.
- An impact of ***Minor significance*** is one where a resource/receptor would experience a noticeable effect, but the impact magnitude is sufficiently Small (with or without mitigation) and/or the resource/receptor is of Low sensitivity/vulnerability/importance. In either case, the magnitude should be well within applicable standards.
- An impact of ***Moderate significance*** has an impact magnitude that is within applicable standards but falls somewhere in the range from a threshold below which the impact is Minor, up to a level that might be just short of breaching a legal limit. To design an activity so that its effects only just avoid breaking a law and/or cause a major impact is not best practice. The emphasis for Moderate impacts is therefore on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable. This does not necessarily mean that impacts of Moderate significance have to be reduced to Minor, but rather that Moderate impacts are being managed effectively and efficiently.
- An impact of ***Major significance*** is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resources/receptors.
- An impact of ***Positive significance*** is one that has been identified as having a positive effect on the receptor/resource. Generally, this ESA does not attempt to characterize magnitude for

positive impacts.

A goal of an impact assessment is to get to a position where a project does not have any Major residual impacts (i.e., after management measures are considered), certainly not ones that would endure into the long term or extend over a large area. However, for some aspects, there may be Major residual impacts after all practicable management options have been exhausted. An example might be the visual impact of a facility. It is then the function of the decision-makers and stakeholders to weigh such negative factors against the positive ones, such as employment, in coming to a decision on a project, and to promote offsets or compensation.

4.1.3 Step 3: Management and Enhancement

An ESA process aims to ensure that project decisions are made in full knowledge of their likely impacts on the environment and society. A vital step within the ESA process is therefore the identification of measures that could be taken to mitigate potential impacts of the project being assessed.

This process involves identifying where potentially significant impacts could occur and identifying ways of mitigating those impacts as far as reasonably possible. The mitigation hierarchy was used for this ESA, in which preference was given to trying to avoid or minimize the impact before considering other types of mitigation (i.e., remedy, compensate, offset):

- Avoid—remove the source of the impact
- Minimize—reduce the magnitude of the impact
- Mitigate—“repair” the results of the impact after it has occurred
- Compensate/offset—address the loss or change to a resource by replacing the loss/change in kind or with a different resource of equal value

4.1.4 Step 4: Residual Impacts

Once management measures are determined, the next step in the impact assessment process is to determine the residual impact significance. Residual impacts are the impacts that are predicted to remain after both embedded controls and committed management has been taken into consideration. In most cases, the sensitivity/vulnerability/importance of a receptor is unaffected by proposed management measures: the management measure is typically intended to reduce the magnitude of a predicted impact, thereby reducing its overall significance.

4.1.5 Summary Impacts

The project activities (i.e., lane widening, multi-use path, drainage, and utility relocation) will occur within an existing, widely used ROW. In general, the anticipated impacts are typical of construction projects un urban and peri-urban areas and are temporary and localized. Typical impacts of these

activities will occur during construction, and include emissions from equipment, noise, temporary disruption of traffic, and temporary disruption of access to businesses and residences. Given the status of the ROW, no impacts to biodiversity or cultural resources are predicted. Potential economic impacts are being quantified and are anticipated to be moderate to minor. No physical displacement is planned. Table 4.1.5-1 displays the phases of the Project and the activities on each phase that will cause impacts.

Table 4.1.5-1: Activities that will cause impacts

Phase	Impact-Causing Activities
Pre-Construction	<ul style="list-style-type: none"> • Site preparation, mobilization of equipment and workers.
Construction	<ul style="list-style-type: none"> • Operation of heavy machinery and movement of soil • Traffic diversion/use of a full lane for rehabilitation • Road repaving • Raising of crosswalks • Construction of a multi-use path • Adding parallel parking (in certain sections) • Sign replacement • Installation, repositioning, and upgrade of new light posts • Road widening (carriageway) • Opening of ditches • Reconstruction of the lateral drainage system • Culvert construction • Adding a weight control facility
Operations	<ul style="list-style-type: none"> • Traffic management during maintenance activities • Drainage structure maintenance

Typical mitigation measures for these impacts are well understood and widely used in the construction industry. Table 4.1.5-2 summarizes the anticipated impacts, mitigation measures, and significance of the impacts before and after the implementation of mitigation measures; the table also identifies in which phase of the Project each impact is created. The rest of this section expands the description and evaluation of impacts.

Impact Significance Rating

Negligible
Minor
Moderate
Major
Positive

Table 4.1.5-2 Summary of Environmental and Social Impacts, Management Measures and monitoring schedule

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Air Quality						
Air emissions and dust generation from construction vehicles, equipment and increased combustion and exhaust emissions from private and commercial vehicles	Pre-Construction, Construction and Operations (operations' impacts were deemed negligible).	Moderate	<ul style="list-style-type: none"> ▪ Implementation of the Construction Environmental Management Plan (CEMP) on the air quality and dust management measures. ▪ Maintain all construction equipment in accordance with the manufacturer's specifications; keep the service log up to date. ▪ Suppress dust as needed in unpaved areas (e.g., use of water sprays or water carts). ▪ Where dust is identified as an issue, dust control measures will be implemented. These will primarily be the use of water carts but may include surface treatments ▪ Avoid burning non-vegetative wastes (refuse, etc.) at construction sites. ▪ Avoid unnecessary idling of construction equipment or delivery trucks when not in use. ▪ Keep work vehicles clean (particularly tires) to avoid tracking dirt around and off the site. ▪ Cover work vehicles transporting friable materials to prevent materials being spread around and off the site. ▪ Minimize drop heights of materials. ▪ Area to be disturbed minimized. Clearance lots to be approved by Project Manager. ▪ Implement the external grievance mechanism to follow-up on dust and/or exhaust emissions complaints being received by the community and workers. ▪ Vehicle movements controlled, optimize signaling to reduce traffic congestion (implement Traffic and Pedestrian Management Plan) ▪ Enforcement of speed limit and other traffic laws at the site ▪ Use of dust masks by workers (number of workers wearing them) ▪ Provide dust and air quality awareness talks as part of the environmental induction process. 	Minor	Site inspection during construction Grievance log Maintenance service logs	Monthly progress reports during construction. Quarterly air quality monitoring report

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Water Quality						
<p>Contamination to surface water by excavation works where is needed to replace civil structures, for section B, seven culverts will be Demolished n and new ones constructed. No bridge will be reconstructed according to final design.</p>	<p>Construction</p>	<p>Minor</p>	<ul style="list-style-type: none"> ▪ Implemented the Construction Environmental Management Plan regarding sediment and erosion control and waste management ▪ Provide appropriate waste bins, type, volume, and service frequency to accommodate anticipated waste streams ▪ Enforcement of a strict no-dumping policy especially in drainage canals and areas nearest the waterways ▪ Separate hazardous waste from non—hazardous waste ▪ Place trash disposal bins around the construction site day camp ▪ Provide information regarding waste management in site-specific inductions, including waste separation and the importance of securing vehicle loads. ▪ Ensure licensed contractors are used to collect controlled wastes ▪ Disposal of all waste in the Haags Bosch Landfill site ▪ Implement management measures to prevent and manage spills, per Contingency Plan ▪ Storage of excavation material in designated laydown (campsites) will be transported for its reuse on road foundation specially the asphalt that will remove, this action will avoid issues with water flow for drainage channels and water bodies. ▪ Permission is granted for the establishment of the asphalt plant at the campsite. ▪ Selection of laydown areas by the contractor away from drainage channels and water ▪ Manage drainage to not increase sedimentation in runoff Bodies ▪ Spill kits and spill procedures: The spill procedure to follow is confine the spill, Stop the source, evaluate the incident and implement cleanup, decontaminate the site, complete the required report ▪ Appropriate training for staff on waste management practices and safe handling and storage of hazardous materials ▪ Water Pump System will be installed to allow water flow and avoid water stagnation, allowing regular water flow without disruption ▪ Water facilities will be removed before construction starts, CBRC will Inform Guyana Water Incorporated (GWI) when the removal of water distribution lines is necessary 	<p>Negligible</p>	<p>Site inspection during construction , Number of incidents related to waste management and spills, Grievances from the community, water quality testing along strategic sections of the roadway and against an established baseline</p>	<p>Monthly progress reports during construction and grievance log</p>
Noise						

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Noise generated by construction equipment and activities	Pre-Construction, Construction	Moderate	<ul style="list-style-type: none"> Implementation of the Construction Environmental Management Plan (CEMP) on noise management measures. Maintain all construction equipment in accordance with manufacturer's specifications. If possible, schedule construction, modification, and rehabilitation work during daylight hours when increased noise levels are more tolerable. If possible, schedule construction and rehabilitation work to minimize activity during peak periods of tourism and recreation (weekends, holidays, etc.). Avoid unnecessary idling of construction equipment and trucks. Include a communications protocol regarding construction as part of the external communication mechanisms to stakeholders to inform adjacent receptors (e.g., commercial and industrial businesses) of construction activities. Install broadband spectrum backup alarms on construction vehicles as opposed to the typical single-tone frequency alarms (broadband alarms attenuate more quickly over distance due to the incorporation of higher frequencies). Pre-start checks and maintenance schedules to ensure equipment performance as required. Noise-dampening equipment to be used on equipment with excessive noise-generating characteristics Implementation of community grievance mechanism Use of auditive protection equipment by workers (i.e., ear muffs) 	Moderate	Site inspection during construction Service logs for equipment/machinery used on site Number of grievances by community members and workers Number and percentage of workers using auditive protection	Monthly monitoring and progress reports during construction
Hydrology and drainage						
Disruption to drainage and water service, negative alteration of hydrology conditions of runoff water crossing the Road.	Construction	Moderate	<ul style="list-style-type: none"> Follow technical specifications for base width, side slope, and invert level for the 58 drainage structures as recommended in Appendix F of the drainage study for the improvement of roadside drainage. The flood hazard assessment was use as reference to finalize the drainage design (Georgetown, Guyana: Disaster Risk and Climate Change Vulnerability Assessment, 2019). If possible, perform relocation of utility infrastructure prior to the start of construction activities. Otherwise, liaison with relevant service providers to limit service disruptions Water Pump System will be installed to allow water flow and avoid water stagnation, allowing regular water flow without disruption Water facilities will remove before construction stars, CBRC will Inform Guyana Water Incorporated (GWI) when removal of water distribution lines is necessary. 	Minor	Site inspection during construction , number of grievances of community members	Monthly progress reports during construction, grievance log
Geology and Physiography						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Soil and Water Resources						
Erosion and sedimentation	Construction	Moderate	<ul style="list-style-type: none"> ▪ Disturbance area will be minimized and clearly demarcated. ▪ Works will only be conducted within the works zone. ▪ Vehicle movements will be restricted to the defined roads/tracks. ▪ Where possible, the works area will be designed to ensure stormwater runoff drains into the site. ▪ Where required, sediment controls will be put in place. These will include, but not be limited to, rock check dams, sediment basins, sediment fences and silt socks. ▪ Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24hrs resulting in site runoff). ▪ Strategic location of detention basins to separate sediments in surface water runoff from water discharged to drains ▪ Locate material stockpiles away from waterways and with perimeter berm ▪ Re-routing drainage network to facilitate construction of Kofi Structure and other culverts ▪ Periodic cleaning of drainage canals. The sediments will be stored temporarily at the Jhetoo's campsite and transferred later to the Haags Bosch Landfill site. 	Minor	Site inspection during construction	Monthly progress reports during construction
Natural Disasters and Risks						
Climate change and natural hazards (flood risk)	Construction	Moderate	<ul style="list-style-type: none"> ▪ Incorporate into the Project design, results from the drainage study, to inform the design specifications for 58 cross drainage structures, including invert level, soffit level, slope, and base width, as applicable ▪ Installation of manually operated sluice gates (kokers) at the downstream end of the drains to prevent flooding and intake of brackish or salt water during high tide ▪ Consult with the Sea defense Board to inform Project design ▪ Implementation of Construction Contingency Plan for general actions in the presence of floods ▪ Flood Risk Management Plan has been prepared and includes mitigation measures to prepare for an event flood risk (please see Appendix H) ▪ Reporting of disaster event(s) to appropriate authorities ▪ Carry out planned maintenance of drainage infrastructure 	Minor	Site inspection, number of consultations with the Sea Defense Board, percentage of planned maintenance activities carried out	Monthly progress reports, records of consultations with the Sea Defense Board

Climate Change and natural hazards (flood risk)	Operations	Positive	<ul style="list-style-type: none"> ▪ Implementation of a contingency plan in the event of floods ▪ Reporting of disaster event(s) to appropriate authorities ▪ Carry out planned maintenance of drainage infrastructure 	Positive	Maintenance reports	Maintenance reports
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Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Biodiversity						
Disturbance to surrounding vegetation	Construction	Minor	<ul style="list-style-type: none"> ▪ Minimization of the construction footprint by refraining from the removal of vegetation ▪ Demarcation of work area with fencing to minimize disturbance of natural vegetation ▪ Minimization of temporary and permanent construction footprints during the design phase. ▪ Plan equipment access locations that minimize impacts, where possible; avoid areas with less stable structures such as steep banks. (no revegetation plans) 	Negligible	Site inspection during construction	Monthly progress reports during construction
Wildlife injury or mortality.	Construction	Negligible	<ul style="list-style-type: none"> ▪ Implement noise and air pollution management measures outlined in Section 5.2.2 and Section 5.2.1 respectively ▪ Implementation of construction contingency plan (CCP) (see Section 7.4.3). ▪ CCP establishes procedures and plans to respond in a timely and efficient manner, and with the necessary resources to accidents, attacks, and any other emergency including potential wildlife encounters. ▪ Implementation of the Traffic and Pedestrian Management Plan (see Section 7.4.6) will further reduce the risk of injury or mortality resulting from vehicle collision with wildlife by (i) ensuring routes are planned to reduce the need for excessive vehicle movement, (ii) eliminating the need to reverse, (iii) ensuring adequate visibility for drivers. 	Negligible	Site inspection during construction	Monthly progress reports during construction
Degradation of aquatic habitat	Construction	Minor	<ul style="list-style-type: none"> ▪ Implementation of drainage system to direct surface runoff to the stormwater systems ▪ A Water Pump System will be installed to allow water flow and avoid water stagnation, allowing regular water flow without disruption ▪ Implementation of construction waste management plan ▪ Installation of sediment and erosion controls ▪ Avoidance of vegetation disturbance. 	Negligible	Site inspection during construction Number of incidents related to waste management and spills	Monthly progress reports during construction Plant density and vegetation ground cover reports to monitor necessary revegetation

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Labor Conditions						
Occupational Health and Safety and Working Conditions	Construction	Moderate	<ul style="list-style-type: none"> ● Implement the Construction Health and Safety Management Plan ● Training for the safe use of construction equipment and machinery to all workers. ● Conduct toolbox talks about H&S, safety hazards and other relevant topics of the ESMS ● Conduct a Job Hazard Analysis before conducting a task. Ensure Work Permits are issued for hazardous work, as required ● Use of appropriate protective clothing and safety gear including hard hats, hearing protection, goggles, and other devices; consider individual fitting of PPE for women and employees who do not fit one-size-fits-all and purchase safety helmets equipped with chin straps to improve fit ● Application of signage such as reduced speed in work zones and presence of workers. Signage must be in the appropriate language (i.e., other than English if workers who speak other languages are present) ● Provide of ample supply of potable water, shade and the required number of sanitary facilities on site; ensure women have separate facilities ● Waste bins should be available near temporary camps and rest areas to minimize working in excess heat. ● Communicate with local hospitals to determine protocol in the event of an emergency ● Maintain first aid kits on site that are fully stocked at all times. ● Implement workers' grievance mechanism to raise concerns regarding H&S or working conditions. ● Conduct H&S meetings as needed to discuss issues or incidents. Incidents resulting in fatalities must be reported immediately 	Minor	Site inspection during construction H&S statistics on incidents	Monthly progress reports during construction Grievance log
Provision of construction jobs to local companies and materials sourced from the local economy	Construction	Positive	<ul style="list-style-type: none"> ● Implement job quotas for local employment and sourcing requirements for construction contractors based on the size and scope of the Project ● Encourage hiring women ● Attract local workers, suppliers and contractors 	Positive	Number of women hired Number of local companies hired Number of grievances related to job opportunities	Grievance log Human resources report on composition of the workforce (nationality, men and women ratio)
Livelihood						
Temporary economic displacement to local businesses	Construction	In evaluation	<ul style="list-style-type: none"> ● Implement a Livelihood Restoration Plan, that accounts for all stakeholders impacted on their means of living. ● Design a compensation program for eligible stakeholders 	In evaluation	Written agreements with affected stakeholders, number of grievances, payments made	Monitoring reports of compensation schemes, grievance log

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Community Health and safety						
Impacts on health and safety of the community	Construction	Moderate	<ul style="list-style-type: none"> Develop and implement a Construction Health and Safety Plan and the Traffic and Pedestrian Management Plan Appropriate and timely engagement of stakeholders on an ongoing basis, to ensure that they are well informed of the nature and duration of Project activities and have a good understanding of associated safety risks. Implement good housekeeping practices in and around the Project construction sites including elimination of standing water or, if not practicable, treatment of standing water to kill mosquito larvae, proper management of construction waste, and regular maintenance of drainage canals to minimize flood risk Implement stakeholder outreach to vulnerable subpopulations or to those responsible for maintaining their safety Establish and publicize a Grievance Mechanism in the appropriate language to receive and respond to grievances. Develop a Code of Conduct that strictly prohibits SGBV of any kind within the workforce and community. 	Minor	Site inspection during construction, grievance log, written agreements with affected stakeholders	Monthly progress reports during construction, grievance log,
Infrastructure Damage	Construction	Minor	<ul style="list-style-type: none"> Conduct an assessment of properties along the RoW to determine the physical state of property (including fencing and walls) prior to the start of construction activities in order to determine if damaged occurred resulting from construction activities. The precondition survey has been completed for section B Cover material transport truck to prevent air borne debris that could damage property. Enforcement of Traffic and Pedestrian Management Plan to reduce the likelihood of vehicles colliding with infrastructure 	Negligible	Inspections, community grievances	Inspection reports, grievance log
Community Health and Safety	Operations	Positive	<ul style="list-style-type: none"> Regular maintenance to the road Use of reflective traffic signs and road markings Sufficient street lighting Installation of raised pedestrian crosswalks Universal access features Road safety campaign Implementation of contingency plans for natural hazards 	Positive	Maintenance reports	Maintenance reports
Cultural Resources						
Restricted access to cultural heritage sites	Construction	Negligible	<ul style="list-style-type: none"> Construction of concrete access bridges to religious and cultural sites Improved parking and drainage infrastructure Location of bus stop and pedestrian crossings in consideration of proximity to access to cultural sites Implementation of chance find the procedure 	Negligible	Site inspection Grievances	Monthly reports
Living cultural heritage	Construction	Negligible	<ul style="list-style-type: none"> Include cultural heritage during the public consultation event. and assess churches mosques, or other living heritage sites nearby or within Project's AoI to understand operating hours and minimize disruptions and accessibility. Implementation of chance find the procedure. 	Negligible	Site inspection Grievances	Monthly reports

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Road Traffic						
Increased pedestrian and vehicle traffic congestion and disruption.	Construction	Moderate	<ul style="list-style-type: none"> ● Maintain the traffic and schedule activities, to the extent possible, to be conducted not during peak times (e.g., early in the morning) as stipulated in the EPA permit guidelines. ● Provide advance notice of scheduled construction activities and major traffic constructions via public service announcements (radio, TV, newspaper) ● Coordinate the delivery of construction materials at times that minimize impacts to the existing traffic ● Deploy traffic, safety, and road detour signs in appropriate language and close cooperation with the authorities. ● Maintain one lane of carriageway open at all times to facilitate the flow of traffic ● Install beams, retention walls and temporary passageways as needed (e.g., road safety barriers to facilitate safe access during construction) ● Site H&S and security will be maintained during the construction phase by fencing will be erected to form a secure construction site to prevent entry by children, members of the public, trespassers and vandals. Warning signage to be placed at strategic points on the perimeter fencing. Information signage to be placed at the site entrance. ● Development and implementation of a Traffic and Pedestrian Management Plan in consultation with Police, residents, and NDC. Update the Plan as needed during construction. ● During the construction the road will be half closed during night works and during the day the two lines will be open to avoid major traffic disruption. A side detour (right or left) will be temporarily constructed while the half line is under construction to have two-way traffic all the time. This arrangement is to provide all the time access to all the residents close by to the major construction works mainly culvert and bridges. 	Moderate	Grievances related to traffic and local businesses impact, number of traffic accidents and fatalities	Monitoring reports, grievance log Continual review controls and requirements of the Traffic and Pedestrian Management Plan

4.2 Physical Resources Impact Assessment

4.2.1 Air Quality and GHG emissions

During the construction phase, communities will be disrupted by nuisances typical to construction activities, including increased noise levels from the operation of heavy machinery and dust generation from the transportation of materials. Mitigation measures as described in more detail in section 5.1.3 can be applied to reduce the magnitude of these impacts.

This section assesses the Project's construction and operations impacts on air quality and it considers the magnitude and sensitivity of the affected receptors. The project is not expected to produce more than 25,000 tons of CO₂ equivalent annually, however, no quantitative assessment of potential impacts from Project construction and operations was undertaken (i.e., no air dispersion modelling). In addition, there is the absence of detailed equipment specifications and logistics at this time. The IDB ESPS 3, Resource Efficiency and Pollution Prevention, requires the borrower to consider ambient air quality conditions to address potential adverse impacts. Likewise, the presence of vulnerable individuals (children, elderly, people with respiratory problems, etc.), considered highly sensitive to air quality impacts will be assessed as part of the consultation process and throughout the construction phase through the Project's external Grievance Mechanism. Regarding the general public, the proximity of residential homes to the roadway will heighten impacts from reduced air quality on these stakeholders but can be mitigated through the application of standard practices defined below.

4.2.1.1 Construction Phase

The following Project components would generate air emissions during road rehabilitation activities:

Construction activities will emit fugitive dust and products of combustion. Fugitive dust emissions would result from land clearing, loading and unloading of trucks, excavation and grading. Wind speed and weather conditions would influence the level of dust generated and the distance over which it can be transported. Fugitive emissions are expected to be greater during dry periods.

The following Project components would generate air emissions during road rehabilitation activities along section B:

- Material excavation for the construction of sidewalks and bike paths
- Soil disturbance from materials transport for road rehabilitation
- Dust generation from uncovered material transport trucks
- Mechanical equipment operating at sub-optimal levels
- Dust generation when trucks are offloading sand, loam and aggregates

Dust accumulation and combustion/exhaust emissions during the Project construction would increase

air pollution and may create a health nuisance due to the proximity of residents, St Mary’s Primary school, places of worship, business owners, pedestrians, motorists and other road users along the roadway.

The potential direct impact to air quality during the construction phase of the Relief to Soesdyke Road Infrastructure Development Project includes:

- Emissions of airborne particles from the excavation and increased traffic of trucks transporting excavated material along the roadway
- Increases in combustion/exhaust emissions from construction equipment, machines, and project vehicles. Throughout the corridor, residents a school, places of worship and businesses are located close to the carriage way.
- Dust from construction activities, material and waste stockpiles and movement of heavy-duty equipment can affect workers and nearby residents and businesses.



Source: CRBC 2024.

Figure 4.2.1-1: Picture of Soesdyke Roadway area

The potential for dust emissions is higher during dry and windy weather and it is less of an issue during the wettest months (May to July and December-January, see Figure 5-2).

Considering the Project’s activities would be localized, and occur over a period of 36 months, the

Project impacts to air quality are expected to be *moderate* (medium magnitude, medium sensitivity) as community members and road users will notice impacts given the need for the movement of construction equipment, materials, and vehicles during the construction phase, but all work will be conducted in an urban area already subjected to fugitive emissions and dust generation from traffic congestion. Dust generation and fugitive emissions resulting from construction will be easily mitigable given the application of standard mitigation measures outlined in Table 4.1.5-2.

Residual Impact

Implementation of the management measures is expected to reduce construction air impacts to *minor* and no long-term impact on the environment and local community is expected.

4.2.1.2 Operations Phase

During the operations phase, combustion emissions from heavy equipment and construction vehicles are expected to reduce for periodic maintenance works. However, during operations, traffic congestion is expected to continue due to the high number of vehicles on the roadway and the potential for traffic accidents to cause back-ups. Conversely, improved road surface is expected to reduce vehicular emissions given that traffic congestion is expected to decrease. Alternately, semi-annual air quality monitoring is recommended during operations. The traffic management plan will allow to reduce air emission and also noise reduction. Overall, the Project operations are expected to have negligible impacts to air quality as the environment and local community will not be affected.

Residual Impact

No residual impacts to air quality resulting from maintenance activities during operations are expected.

4.2.2 Noise

This section assesses the Project's construction and operations impacts on noise quality and it considers the magnitude and sensitivity of the affected receptors. For noise, however, it is usually possible to predict noise levels quantitatively and compare them against standards that are resource/receptor-specific and inherently take into account resource/receptor sensitivity. In order to have baseline readings, CRBC conducted data collection prior start of construction activities during the months July-August 2024., as described in the Construction Environmental Management Plan.

Construction equipment and project vehicles are expected to admit noise during working hours; daytime 06:00h to 18:00 h, night-time 18:00h to 06:00hr. The Guyana National Bureau of Standards (GNBS) Guidelines for Noise Emissions into the Environment, provided below, are less strict than World Bank Group (WBG) Guidelines. World Banks maximum limits specify a 70 dB(A) limit in industrial areas and 55 dB(A) limit during the day or 45 dB(A) at night in residential areas. These limits are below limits permitted by the EPA. Per the IDB ESPF3, the Project will comply with the more stringent guidelines for permissible noise limits between WBG and the Guyana, the former being the more stringent.

Receptor	Daytime Limits in dB(A)	Night-time Limits in dB(A)	
Residential	75	60	
Institutional	75	60	
Educational	75	60	
Industrial	100	80	
Commercial	80	65	
Construction	90	75	
Transportation	100	80	
Recreational	100	18:00-01:00h	100
		01:00-08:00h	70

4.2.2.1 Construction Phase

The potential direct impact on noise quality during the construction phases of road rehabilitation includes increases in noise emissions from the use of heavy construction equipment and vehicles. Due to the proximity to businesses, places of worship, the school, road users and residents along the roadway, noise impacts on the community will be noticeable, especially in the Relief-Soesdyke and Soesdyke which have a larger concentration of local people. However, noise impacts are expected to be short-term and during the construction phase. Vibration from pile driving equipment can cause structural damage to nearby property. This is a particular concern where bridges and culverts are being constructed. Noise

from the operation of machinery and construction activities. Throughout the corridor, residents and businesses are located in close proximity to the carriage way. These impacts will be more significant especially in the Relief-Soesdyke area which is extremely built up (Table 5.6 provides a list of typical construction equipment at their typical noise levels at 15 m (50 ft.).

Table 5.6: Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA), 15 m from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Scraper	89
Shovel	82
Truck	88

dBA = A-weighted decibel

Source: US DOT 2006 (*Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006*).

Since baseline data for noise in the area was obtained it is possible to determine at this time the relative increase in noise once construction begins; once monitoring of noise levels during construction occurs, CRBC will be able to manage impacts from noise. Given the proximity of the road to local businesses and other populated areas (including residences), a conservative approach is to assume 5-10 dB increase (Medium magnitude). Similarly, the sensitivity of the receptor can be deemed as Medium given that there is already traffic and noise in the area.

The construction activities associated with roadway expansion and improvement would result in noise increases in the immediate vicinity. However, considering the project activities would be localized and occur over a 36-month time period or shorter period for each individual section, the impacts on noise quality is expected to be *Moderate* (medium magnitude and medium sensitivity).

Residual Impact

Noise impacts are expected to be short-term and during the construction phase only. No residual impacts are anticipated.

4.2.2.2 Operations Phase

During the operations phase, sporadic maintenance of the roadway will be carried out. If machinery will be operated to perform maintenance activities the same mitigation measures described during construction.

Residual Impact

No residual impacts resulting from noise generation are expected during the operations phase.

4.2.3 Geology and Physiography

In general, the proposed Project would have negligible effects on the upland geology and topography at site during the construction and operations phases of the Project. The Proposed project would not modify the underlying geology or significantly alter the topography of the Project area.

4.2.4 Hydrology and Drainage

During construction, CRBC plans to avoid water service disruptions. Nevertheless, water diversions will be required during the construction of culverts to ensure that adequate drainage is maintained, CRBC have system in place to manage water flow, every time a water flow need to manage, a pump system will be installed to allow free water flow according to current conditions avoid any disturbances. In addition, the corridor is identified as a flood-prone area which can be exacerbated due to alteration of drainage networks to facilitate the construction of culverts, particularly the Koffi Structure. A Flood Hazard Assessment is currently being executed to determine existing flood conditions in the area. The Demerara River is a natural drain water body along the east bank of the river where the project lies on. The Project design aims to reduce the likelihood of flooding from construction activities.

Guyana's coastal plane is at high risk of flooding and has poor internal drainage that naturally gravitates towards the Demerara River. Therefore, the sensitivity of the receptor (coastal plan and drainage system) can be considered high. The installation of culverts has the potential to disrupt overall drainage services and the current hydrology system in the area which has the potential to impact the community, especially surrounding businesses. Therefore, the impact is considered moderate (medium magnitude, medium sensitivity).

4.2.5 Soil and Water Resources

The Demerara River is characterized as heavily silted and polluted by sources external to the Project, though road rehabilitation and construction activities can further impact erosion conditions of the river

if not properly mitigated using established engineering practices. Likewise, drainage infrastructure, such as culverts, can increase flood risk if not properly adapted. Areas throughout the corridor are identified as flood-prone areas and are equipped with drainage canals that empty into the Demerara River. Proper management of stormwater runoff is necessary to reduce impacts to surface water quality during the entire life cycle of the Project.

Flooding of the roadway will be addressed by the Project design which includes raising the level of the road and installation of efficient drainage infrastructure or repair of existing infrastructure that has the capacity to manage surface runoff and storage.

The Contractor will install an asphalt plan from road construction (Sub Campsite), minimal contamination due to use asphalt material will be, the contractor already applied to obtain permission from the EPA. The potential for these compounds to containment surface water in the corridor can be mitigated.

4.2.5.1 Construction Phase

Potential direct impacts on soil and water resources during construction includes:

- Increased sediment loading in drainage canals resulting from improper storage of excavation materials and poor management of stormwater runoff in drainage canals nearest the corridor
- Soil compaction from the operation of heavy machinery and vehicles in unpaved areas
- Soil contamination may occur by accidental release of fuels, oils, grease and other hazardous materials from construction equipment

Increased risk of water-borne disease resulting from blocked waterways from the alteration of drainage networks during the construction of culverts represents a potential indirect impact during construction of the Project. Likewise, the diversion of surface water for rehabilitation activities increases the likelihood of erosion. Increased surface run-off from pluvial flooding is another indirect impact of the Project and is exacerbated by climate change. Check our study on flooding

Given the poor drainage in the area (including for naturally occurring soils) and the preexisting risk for flood, resource sensitivity is high for soil erosion and sedimentation. Nevertheless, construction works aim to improve drainage and prevent flooding and planning the location of culverts and U concrete drainage will minimize impacts. Likewise, construction activities will take place in sections, making flood conditions easier to manage as drainage canals nearest construction activities can be carefully watched for blockages. No materials (sand, loam and aggregates) will not be stockpiled along the road. Instead, materials will be transported to the construction site as needed. This will reduce the pot runoff and sedimentation of the water way.

Natural hazards such as pluvial flooding present the greatest risk to soil and water resources and have

the potential to cause long-term disruptions. However, heavy rainfall is already prevalent in the Project area and the impacts are unlikely to be exacerbated by construction activities. Therefore, the magnitude of the impact is small and the overall impact significance, moderate.

4.2.5.2 Residual Impact

Implementation of management measures are expected to reduce the likelihood of soil erosion and contamination and decrease the severity of impacts to drainage canals and the Demerara River.

4.2.5.3 Operations Phase

Monitoring of water courses for erosion and sedimentation and periodic cleaning of drainage canals can reduce impacts to soil and water quality during maintenance activities. Overall, no impacts to soil and water resources are expected during operations.

4.2.6 Water Quality

4.2.6.1 Construction phase

The Project will be inland with sections of the road running parallel to the Demerara River. The Project will not use or discharge liquid effluents or other waste into the river. Nevertheless, indirect impacts are expected from surface run-off during heaving rains, and material stockpiles and excavated materials resulting in an increase in sediment loading in the drainage channels throughout the corridor. Additionally, other impacts to water are those resulting from inadequate implementation of management procedures:

- Water contamination from fuel/oil spills due to proximity of drains throughout the Relief to Soesdyke Corridor
- Improper liquid waste (e.g., sanitary effluents) and solid waste disposal from construction workers (e.g., food wrappers, boxes)

The Demerara River has historical records of altered water quality and does not support diverse aquatic habitat or populations, its sensitivity is low. The Project right of way is located approximately 400 m from the Demerara River; the risk of erosion resulting from Project activities is unlikely, however material stockpiles do have the potential to carry sediments to the Demerara River. Additionally, pollution to the river from poor management of hazardous materials spills, liquid waste, and solid waste is possible.

However, final laydown areas are to be chosen by CRBC chemicals and hazardous materials are not expected to be stored close to the river since there are two campsites assigned to the project for storage and handling, if there is a fuel or chemical spill, the latter is not expected to be large. However, based on information reviewed, the event of unplanned water contamination resulting from runoff and

improper waste and drainage management during the course of a 3-year construction period is likely to occur during normal operating conditions.

Therefore, potential impacts to water quality are considered minor (medium impact and low sensitivity).

4.2.6.2 Operations phase

During operations, the drainage network will be improved, therefore impacts to water quality are expected to be negligible.

4.2.6.3 Residual impact

Impacts to water quality are expected to be easily avoidable, short-term and during the construction phase, only. No residual impact is anticipated.

4.2.7 Natural Hazards and Risks

According to a Global Assessment Report on Disaster Risk Reduction prepared by the United Nations, a hazard is a dangerous phenomenon, human activity, or condition that may cause loss of life, injury, or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage (UNISDR, 2009). A disaster is defined as a serious disruption of the functioning of a community or a society involving widespread, human, material, economic, or environmental losses and impacts that exceeds the ability of the affected community or society to cope using its own resources.

The Disaster and Climate Change Risk Classification for the Project is High due to potential flooding and infrastructure interventions are estimated to have a high level of vulnerability and criticality given the roadway is a corridor to the main international airport. The Project itself would be exposed to natural events, such as floods (river and coastal), which could be induced or exacerbated by sea level rise resulting from climate change and potable water abstraction in Georgetown. The mean sea level rise at Port Georgetown increased 9.25 inches between the years 1960 and 2010. Natural hazards have the potential to affect the Project during both construction and operations. For example:

- **Construction Phase:** Flooding could impact construction activities and could result in damage to Project components (e.g., damage to construction sites and equipment) and exacerbate impacts to surrounding communities.
- **Operations Phase:** Careful attention in the design of Project components must be taken to ensure the Project is resilient to the potential increase of precipitation resulting from climate change so that flood conditions are not exacerbated.

As part of and in addition to risk prevention measures, there will be plans in place to assure emergency preparedness and response in the event of a forecasted event (e.g., tropical storm with a risk of causing

flooding), unforeseen event (e.g., extreme rainfall event) or in the instance where drainage canals become blocked due to Project activities. This will involve securing equipment and materials, stabilizing disturbed areas, proper drainage management during construction, and similar actions as well as procedures for site evacuation.

For the section B one culvert and one bridge need to replace totally. All other structures were determined to be satisfactory but, would benefit from channel improvements in order to provide adequate storage in urban areas during tide locked conditions. Land to the east side of the Demerara River is higher and a natural depression separates the river from the East Demerara Water Conservancy. The depression serves as natural flood storage during tide lock conditions. Urban development in the area has the potential to impact the natural depressions and reduce natural flood storage capacity and therefore would benefit from channel improvements.

5.2.7.1 Residual Impact

It is expected that the implementation of Project control measures would reduce the potential impact of natural disasters to the Project to Minor (small magnitude, medium sensitivity) and decrease the likelihood of floods from occurring, benefiting the local community.

4.3 Biodiversity Impact Assessment

Both the disturbed/degraded condition of natural habitat along the Project corridor limit the significance of the Project's impacts on biodiversity. There is no anticipated vegetation clearance and therefore impacts on Flora are expected to be minimal. Fauna disturbance, if any, would be punctual and isolated. No net loss or improvement on natural habitat is proposed. The potential direct and indirect impacts to biodiversity resulting from the Project are as follows:

- Degradation of Aquatic Habitat by alteration of water quality; and
- Wildlife Injury or Mortality

4.3.1 Disturbance to Surrounding Vegetation

Any potential disturbance of vegetation is limited to erosion due to divergence of water or soil removal during the relocation of utility assets (phone lines, light poles, culverts). If removal of vegetation occurs, CRBC will conduct an assessment of the exact polygon and determine through the EPA the need for additional studies or activities prior to removal. Potentially affected vegetation will consist of narrow areas of secondary 'disturbed' vegetation, primarily common weeds, shrubs, herbaceous plants and trees along the project corridor. The vegetation along the project corridor is defined as secondary due to the low species diversity and heavy habitat disturbance. Disturbance of this vegetation community, if any, would be temporary during construction and disturbed areas of weeds, shrubs and herbaceous plants would revegetate quickly as species observed at the site consisted primarily of highly mobile species

that adapt easily to changing environments. This vegetation also contributes to erosion control and shade for residential areas and economic activity. Landscaping and revegetation will be included as part of roadway design and maintenance if any vegetation removal does occur. Impacts to vegetation during the construction phase of the Project are expected to be Minor (small magnitude and medium sensitivity of the resource).

Residual Impact

Implementation of the management measures detailed in Table 5.4 result in no anticipated residual impact on surrounding vegetation.

4.3.2 Degradation of Aquatic Habitat

Although water quality is already compromised throughout the corridor, the drainage of waste oil (If occur by the operations) into soils or water ways can exacerbate impacts and contribute to reduced water quality and therefore aquatic habitat. Potential erosion could ruin spawning beds for fish that have been found to spawn in drains close to the road. The impacts of the Project on aquatic ecosystems will mostly fall on an already degraded aquatic ecosystem due to the history of land use and maritime activities in the Demerara River.

Impacts from the Project to the aquatic habitats are expected to be Minor (medium magnitude and low sensitivity).

Residual Impact

Implementation of the above-mentioned management measures would reduce impact rating to a *Negligible* level (small magnitude and a low sensitivity).

4.3.3 Wildlife Injury or Mortality

The project corridor is lined with small businesses and residential buildings, drastically altering the food chain and greatly reducing the biological value of most of the species. Wildlife consists of mostly highly mobile species fragmented into microhabitats fragmented by urban structures. No domesticated roaming grazers (cows, sheep, goats) are presently found along the project corridor. There are no endangered species or sensitive habitats in the project area. For the most part, wildlife will move away from work areas during construction, avoiding injury or mortality from Project activities. Since vegetation disturbance is not planned, any existing wildlife will likely return to the area once construction has ceased. Impacts from the construction phase of the Project to area wildlife are expected to be *Negligible* (small impact and low sensitivity). No additional impacts from current conditions are expected to wildlife during the operations phase of the Project.

Residual Impact

Implementation of the measures described above will reduce impact on terrestrial biodiversity to a Negligible level (small magnitude and small sensitivity).

4.3.4 Additional Management/Enhancement Measures for Biodiversity

The following additional management measures would further help reduce the potential impacts of the Project on biodiversity:

- Demarcate the work area with fencing to minimize disturbance or removal of natural vegetation;
- Plan equipment access locations that minimize impacts to riparian areas, where possible; avoid areas with less stable structures such as steep banks; and
- Minimize temporary stockpiling and place stockpiles outside of the active floodplain. Prevent runoff from stockpiles from entering creeks by using erosion control measures such as silt fences and/or straw wattles.

4.4 Socioeconomic and Cultural Heritage Impact Assessment

4.4.1 Labor Conditions

This section assesses impacts to workers during the construction phases of the Project. All employees involved in the road rehabilitation Project will receive training on basic health and safety precautions and effective traffic control mechanisms. A Traffic and Pedestrian Management Plan will be implemented by the contractor during the mobilization and construction phases to minimize risk of accident to workers resulting from collisions with motorized vehicles. The CRBC contractor will implement its Standard Operational Procedures (SOPs) and its own H&S protocols in addition to the general guidelines established by CRBC's ESMP (see Sections 7.4.2 and 7.4.4 for details on occupational H&S and labor and working conditions respectively).

The Project will address gender and diversity gaps present in Guyana by promoting female employment for the construction and maintenance of the road rehabilitation Project. Currently, women make up only 5% of workers in the construction sector in Guyana. The Project will develop training programs specific to the development of women to obtain the necessary skills applicable to successful careers in the construction sector.

Regarding recruitment of personnel, CRBC does not support child or forced labor. They will adhere to the Regulations dictated by the Ministry of Labour of Guyana.

Guyana's national laws have a statutory minimum age of 15 to work. CRBC will go through the selection process to assure people under 18 do not engage in hazardous work. These provisions are prescribed in section on Human Resources and Labor Management, which is part of the ESMP.

4.4.1.1 Construction Phase

Due to national content requirements by the Government of Guyana, CRBC will prioritize recruitment of local workers and local suppliers. CRBC has had up to 250 workers on site, inclusive of contractors, on similar road infrastructure projects, so the peak of workers could be expected around 250-300.

During the construction phase, all workers will be exposed to a number of health and safety hazards that will be mitigated through the implementation of a Health and Safety Plan prepared by the Contractor.

These hazards include:

- Exposure to noise levels above permissible limits if operating heavy machinery without adequate hearing protection
- Detachment of pile driving hammer from protective encasement leading to injury
- Exposure to hazardous materials and waste
- Potential for worker exhaustion
- Working extensive periods in high temperatures (workers exposed to heat stress or heat stroke)
- Fatal or serious injury accidents resulting from distracted or aggressive driving in the corridor.

The IDB ESPF enforces non-discrimination and equal opportunity employment which includes the assessment of risks that may disproportionately affect women. Women employed by the Project are at risk of experiencing gender-based violence by co-workers, managers, and community members. Women can also be subjected to ill-fitting personal protective equipment (PPE), as the design of PPE is generally designed for larger frames. Improper fitting PPE can come in many forms as described below:

- Work boots are difficult to find in women's sizes. Smaller sizes designed for men are often too wide increasing the risk of slip, trips, falls, and irritation
- Safety goggles that are too big for a women's face can expose the eye to hazards or provoke fidgeting as the women attempts to keep the goggles comfortably on her face, increasing the risk of distracted working and restricted vision
- Safety helmets that are too big may also provoke fidgeting and restrict vision
- Hand protection that is too big can make it difficult to hold onto and handle construction equipment safely
- Safety harnesses that are too big and are unable to tighten the appropriate amount can restrict movement and increases the risk of fall from heights

Impacts associated with labor, including supply chain, will be addressed in the Human Resources and Labor Management Plan (HRLMP) included in the ESMP (Section 7.4.4). Requirements identified in the HRLMP will be included in the operation's legal requirements, bidding documents, and contractor and

supplier contracts. Additionally, the HRLMP outlines the workers grievance mechanism as required by the IDB ESPF.

There are no publicly available reports or statistics on forced or child labor in Guyana; however, legislation considers young persons (between 15 to 18 years of age) to work, although not in hazardous work, night shifts or extended shifts. In addition, employment rates in Guyana are low, around 12% at the national level and 11% in region 4, where the Project is located. Given that unemployment is low and there has recently been employment thanks to the development of the Oil and Gas industry, sensitive of the population to forced or child labor can be considered Medium. Adequate management of labor and working conditions starts by selecting Contractors with high environmental and social capacity and good labor practices. CRBC is responsible for ensuring the Contractor implements mitigation and general good practice measures to prevent accidents to workers and protect the welfare of the workforce in line with applicable regulations; CRBC has a Human Resources Department comprised of 6 people, including the HR manager, who would be in charge of assuring the CRBC contractor and direct workers abide by national Law. The bidding documents and the CRBC contract will bind the selected contractor to align to CRBC ESMP and therefore to the IDB ESPF. The risk of having child or forced labor on site is small considering the above.

The construction activities associated with H&S conditions would result in increased risk for Project workers. However, considering many of the risks are mitigatable, workers are protected by the contracting company with experience and procedures in place. With appropriate Management Measures the impacts on H&S labor conditions are expected to be Minor (small magnitude and medium sensitivity). Forced/Child labor is considered low risk given the low unemployment rate of the area and Organizational capacity of CRBC to manage Human Resources issues.

4.4.1.2 Residual Impacts

Residual impacts are expected to be positive but short term and are elaborated.

4.4.2 Impacts to Livelihoods

During construction, the roadway upgrades and expansion is expected to generate impacts that could disrupt livelihood activities locally, leading to potential temporary economic displacement. The Livelihood Restoration and Resettlement Plan (LRRP) found in Appendix C includes the results of a census conducted to assess all affected businesses, including moving vendors, residents and other road users in the Project's area of influence, and to establish an appropriate compensation scheme to mitigate the Project impacts.

It is envisioned that in the long term, the Project will have beneficial, indirect livelihood impacts for a much larger and widely dispersed population in Guyana, via improved efficiency of the roadway leading to improved quality, resilience, and safety conditions of Guyana's road transport infrastructure.

4.4.2.1 Construction Phase

Construction of the Project would generate traffic in and out of the Project area for movement of construction materials, supplies, wastes, and workers. The volume of traffic that will be generated, and the extent of disruption to different roadways over the Project duration, will be temporary and of short duration. However, it is expected that construction activities and traffic could disrupt both formal and informal commercial activities around the Project area to the extent that economic displacement is expected, despite all Project activities occurring in the existing RoW. As described above, there are commercial and industrial business in the area that range from electricity generation to chicken farming and some temporary stalls selling vegetables and other goods are present. Disruption could occur through a temporary increase of truck traffic while construction is underway, deterring would-be patrons due to increased traffic congestion or safety risks, or otherwise creating challenges to gaining access to the establishments such as limiting parking available. Local livelihoods could also be affected if entrepreneurs' assets are accidentally damaged in the course of construction activities, for example, delivery vehicles from traffic accidents or cash crops from Project-induced flooding; however, this last would be an unplanned event given that CRBC is not planning to enforce the RoW nor tear down fences or buildings. The extent of the impact has not yet been determined; nevertheless, business owners could be dependent upon their shops or stalls to make a living and depending on the nature of their establishment (temporary stall vs fixed structure), they could be more or less vulnerable to the Project's impacts. Public consultation and determination of the economic displacement will shape the magnitude of the impact.

The urban commercial landscape can be impacted by increased dust and emissions and the likelihood of localized flooding causing damage to vehicles and buildings increases as drainage infrastructure can become blocked during construction.

Management/Enhancement Measures

All efforts should be made to avoid economic displacement by phasing construction activities, and by creating alternate entrances for vehicles, walkways and pedestrian entrances to businesses, detours and parallel parking areas. This will require advance engagement of the Engineering Procurement and Construction (CRBC) contractor with affected businesses to understand peak hours and existing constraints, and thereby jointly develop managements appropriate to each establishment.

Positive (though temporary) livelihood impacts may be realized if opportunities for local employment are provided during Project construction. This can be done by including stipulations for the contracted CRBC to hire a target percentage of workers from the local community.

A stakeholder Engagement Plan (SEP) was developed for the Project and includes a grievance mechanism that is a reliable and consistent process to seek remedy in the event of unforeseen accidents

that could affect livelihoods. The SEP considered special needs of vulnerable subpopulations. The Project will utilize a Multi Stakeholder Commission to facilitate communication between the public and CRBC.

Residual Impact

It is expected that implementation of the proposed management and enhancement measures would reduce the significance of livelihood impacts.

4.4.2.2 Operations Phase

Disruptions to livelihoods are not expected during the operations phase. Small impacts during maintenance works are possible, but these would be more localized and are considered negligible.

4.4.3 Impacts on Community Health and Safety

During the construction phase of the Project, activities can heighten health and safety risks for road users and for populations of adjacent neighborhoods. Impacts regularly associated with construction include nuisances associated with dust and noise, street closures impeding access to residencies, businesses, and community infrastructure, traffic and pedestrian accidents, and increased traffic congestion. However, it is envisioned that over the long term, the Project will be beneficial from a safety perspective due to improvements in traffic efficiency and safety, and better accommodation of non-motorized modes of transport like pedestrians and bicycles. These benefits are described in more detail in section 5.5.

The Disaster and Climate Change Risk Classification for the Project is considered high. The hazards identified are floods (river and coastal resulting from sea level rise) and droughts. A disaster risk assessment (DRA) will be performed to determine the possibility and extent of impacts of natural disasters on road conditions and will inform the design of the road including the design for the drainage system.

Since the corridor connects two international airports, the criticality, and vulnerability of the infrastructure component of the Project is considered high, exacerbating the need for effective implementation of appropriate mitigation measures as determined by the DRA.

4.4.3.1 Construction Phase

Given that air quality, and hazardous materials impacts are all expected to be minor with the application of the relevant management measures, it is expected that associated impacts on community health and safety from these will also be minor.

However, due to the densely populated area and increased traffic congestion anticipated during construction, noise impacts are considered moderate. Vehicles, pedestrians, and other road user traffic and accidents are expected to increase during construction, but these conditions are expected to be short-term and improved during operations (see section 5.4.5). Stakeholders voiced concerns that adequate

signage that indicates the presence of workers and construction equipment on the roadway would be neglected. The CRBC contractor will display all applicable signage and other necessary safety equipment on site in appropriate language prior to the start of construction. The contractor is also responsible for the proper management of construction activities, including adequate securing of equipment and machinery, to prevent unforeseen incidents potentially causing injury or death.

The Project may also increase the likelihood of disease in the community. Population shifts caused by the influx of workers from other parts of the country or internationally have the potential to cause changes in transmission patterns of some communicable diseases, particularly if workers originate from countries with higher rates of diseases that are transmitted person-to-person, such as Tuberculosis (TB), sexually transmitted infections, and COVID-19.

- Guyana has a lower rate of TB incidence than the global average (79 cases per 100,000 population in 2020, versus the global average of 127.30) but has a higher rate than most developed countries (WHO 2022, (World Bank, 2021). Guyana's rate of HIV prevalence is comparable to the global average.
- As of July 27, 2022, the country had recorded 1,262 deaths from COVID-19 and a total of 68,225 cases (Ministry of Health 2022). Although the effects of COVID-19 have been noteworthy in Guyana, established measures and prevention methods are in place for the workforce. This is especially important as only 58.62% of the Guyanese population is fully vaccinated.
- Moreover, disruption of drainage infrastructure during construction can also lead to stagnant or pooling water on the road surface. Still, water is at risk of creating breeding sites for disease-causing vectors (e.g., mosquitoes).

Due to the reasons above, the local community has a medium sensitivity. Potential Impacts can have a medium magnitude; given the size of the Project, it is not foreseen the worker influx will be high (250-300 people at its peak), although such estimations are not confirmed. When applying management measures the potential impacts can be small, leading to a Minor impact to community H&S.

Stakeholders also expressed concern that project construction would cause damage to buildings along the corridor. Damage could result from unsecured materials carried by material transport trucks and vehicle collisions with infrastructure. As of November 2021, 44% of grievances filed pertained to property matters and infrastructure exists in close proximity to the roadway. For these reasons, the local community has a medium sensitivity. Potential impacts are expected to have a small magnitude as airborne material from transport trucks will likely be excavation materials causing only degradation to paint and other superficial damage. Vehicle collisions with infrastructure are also unlikely to occur. The overall sensitivity of the impact is minor.

Residual Impact

No residual impacts are foreseen for community H&S.

4.4.3.2 Operations Phase

Many stakeholders voiced concern that rehabilitated roads would increase the likelihood of speeding during stakeholder interviews in 2015. This impact can be mitigated through safety features included in the Project design that address road safety concerns for vehicles, pedestrians, and cyclists. This includes raised crosswalks at 150mm above the surface of the road. Signage will be placed before these speed bumps to indicate to drivers that speed is to be reduced and pedestrians may be present ahead.

During the operations phase, road traffic should occur more efficiently and safely than before the Project, including reducing the amount of time spent travelling on the road, indirectly improving cost efficiency for drivers. This will have beneficial health and safety effects by reducing stress and fatigue, reducing the amount of time road users are exposed to exhaust fumes, freeing time that may then be spent on more productive or health-promoting activities, and potentially increasing the number of road users choosing the less sedentary options of pedestrianism and bicycling due to safer road conditions. Therefore, the impacts of the operations phase of the Project are expected to be *Positive*.

4.4.4 Cultural Heritage

This section assesses the impact on cultural heritage resources in the Project Area. There are places of worship (mosques, churches) located along the road; however, they will not be affected by construction activities; CRBC will not move or relocate such places nor will it impede access to them during construction. In addition, there are no listed monuments in the Project footprint, and the improvements will occur within the existing right of way for the road where cultural heritage is expected to be low. However, CRBC will consult with stakeholders if intangible or other unregistered cultural heritage artefacts could be present in the Project's AoI. Currently, the possibility of cultural heritage in the Project area is low after assessing the Project area and potential risks (i.e., no deep excavations will occur, the area is an urban setting), however, a Chance Find Procedure was developed and can be found in Section 7.4.7.

No cultural resources occur within the construction area. Therefore, no impacts are anticipated.

4.4.4.1 Construction Phase

The existing road will be widened by 1 m on either side with no deep excavation. As such, it is unlikely that undiscovered subsurface cultural heritage would be discovered or damaged. Since the activities will not alter the character of the landscape or skyline, it is also not anticipated that the Project would have any visual effects on the Project's AoI.

During stakeholder consultations held in March 2015, residents and the NDC expressed that access to

cemeteries and religious sites should be improved and preserved, this concern (access)was already addressed for Section B and also will be discussed in the next Stakeholder meeting scheduled for October 16 ,2024. For the preparation of stakeholders' meeting in October 2024 upon approval, these issues will be addressed. The significance of the impact on cultural heritage is considered to be *negligible*, given that the road expansion is not anticipated to have any effects on any cultural heritage sites.

4.4.4.2 Operations Phase

No activities with the potential to change levels of access to living heritage sites, or cause damage or alteration to build heritage or other forms of cultural heritage are anticipated during the operations phase.

4.4.5 Road Traffic

Traffic is expected to increase along the 9.548 corridor from Relief to Relief to Soesdyke. Streets parallel to the rehabilitated roadway will be used to divert traffic and alleviate congestion. All side streets will benefit from 6m wide paved connections with the rehabilitated roadway and the replacement of timber bridges with more durable structures. Operation of work vehicles and storage of excavation materials and construction equipment on site will block one carriageway and slow the flow of traffic, which is already heavy during peak hours. According to CRBC design team to alleviate traffic, the management of the construction as highlighted in the mitigating measurements will support residents around de construction area and normal traffic from Georgetown-Timehri-Georgetown.

Statistically, Guyanese road users are more inclined to avoid traffic congestion by using side streets. If sufficient mitigation measures are not implemented to ease traffic flow during construction, secondary roadways will experience an influx of drivers as congestion on the main roadway is avoided. Additionally, limited space in the corridor causes concerns for stakeholders related to the availability of parking to facilitate access to local businesses, particularly from Relief to Soesdyke, already constrained areas. Increased traffic in the main Road can in turn increase traffic along secondary roads. Temporary reduced access to commercial business and public services on account of limited parking and blocked entrances is also expected.

Without a Traffic and Pedestrian Management Plan that defines working hours, temporary infrastructure, and designated parking spaces, congestion in the corridor will lead to temporary economic displacement for local businesses and increase risks of accidents for the local population.

The impact on road traffic will have a medium duration (36 months) and will create a difference from baseline conditions. Nonetheless, the area is localized and it will be a one-event impact (construction) expected when periodic maintenance occurs. In addition, to alleviate traffic CRBC proposed two detour roads that aim at alleviating traffic. Based on these characteristics, it is determined that the magnitude of the impact is Medium. In turn, while the footprint of the Project is not large (9.548 km long) there are several businesses and high activity currently. The local population can adapt to the impacts of

construction; therefore, the receptor's sensitivity is determined as Medium. The overall significance of the impact is Moderate.

4.4.5.1 Residual Impact

No residual impacts are expected although the significance of the impacts on traffic will remain the same after applying management measures (the latter are designed to reduce H&S risks on the community). Traffic congestion from construction activities will be medium-term and localized. Traffic flow is expected to improve during operations.

4.5 Positive impacts

The Section B Relief to Soesdyke Relief to Soesdyke Road Infrastructure Development Project is expected to have both short- and long-term positive impacts on the local community. Long-term benefits are contingent on effective road maintenance. The expected road maintenance activities include (i) patching, edge repair, crack sealing; (ii) condition-sensitive items patching, edge repair, and crack sealing; (iii) shoulder grading; (iv) vegetation control; and, (v) ditch cleaning. Additionally, road design will include principles of Universal Design to facilitate access for persons with disabilities.

4.5.1 Short-Term Benefits

Short-term benefits are related to the creation of employment opportunities during the construction phase.

4.5.2 Long-Term Benefits

Implementation of mitigation measures will have to be implemented along with general road maintenance activities and weigh-stations to ensure the integrity of long-term benefits associated with the project. The long-term benefits identified are localized and can be categorized into three main themes: safety, economy, and efficiency.

4.5.2.1 Safety

During the period of 2008 to 2013, 40 fatal crashes resulted in 43 deaths occurred on the roadway that will be rehabilitated as part of the Project. Of the 43 victims, 31% were pedestrians, 26% were passengers in either a car, truck, or bus, 19% were motorcyclists, 17% were the drivers of either a car, truck, or bus, and 7% were bicyclists. Improved infrastructure for pedestrian, bike, and vehicle traffic and overall reduction of road deterioration will decrease the likelihood of traffic accidents occurring. In the current state of the road, several problems have been noted by the Ministry of Public Works (MPW) related to the current signage, marking, and lighting of the roadway. These problems include (i) dirty signage obstructing posted information; (ii) inconsistent use of bend warnings; (iii) lack of speed limit signs in

certain sections of the road; (iv) missing crosswalk warning signs; and, (v) confusing road markings and lack of outer lane markers. As part of the work plan for the road rehabilitation, improvements to address these issues will be made. All road signs will be updated to meet US standards and include the use of reflective signs and thermoplastic to mark the road surface, increasing night-time visibility. Pooling of water on the road surface following heavy rain was another issue noted by MPW. Drivers will swerve to avoid accumulated water causing head-on collisions. Improved drainage infrastructure and elevation of the roadway will reduce the risk of pooling and accidents that result from driver's loss of control.

4.5.2.2 Economy

An efficient transportation system provides economic opportunities including increasing accessibility to markets and employment. Greater accessibility will increase competitiveness and attracts investment into the area, indirectly increasing property values. Improvements made to drainage infrastructure will also reduce the likelihood of floods which impact cash crop production, making profits more predictable for local farmers. Traffic is expected to increase by 4.8% in 2050.

4.5.2.3 Efficiency

Traffic flow is expected to improve throughout the entirety of the 9.548 km upgrade section that runs from Relief to Soesdyke. Reduced congestion will not only minimize travel time for road users but, will decrease fuel consumption, leading to reduced travel cost and fewer emissions to the environment. Likewise, resurfacing of the road and effective speed signage will lower vehicle maintenance cost.

4.6 Cumulative Impacts Management Framework

Although there are other projects taking place in the area, the Project area is already highly developed and these impacts are already considered in the Project's baseline; therefore, the Project itself is not anticipated to result in significant cumulative social impacts.

However, the importance of ongoing proper stakeholder engagement, understanding of community concerns, and the provision of (where possible and appropriate) training and employment opportunities to community members becomes paramount.

Internationally recognized good practices for managing cumulative impacts include:

- Effective application of the management hierarchy (avoid, reduce, and remedy) in the environmental and social management of the specific contributions of a project to expected cumulative impacts; and
- Undertaking best efforts to engage, leverage, and/or contribute in multi-stakeholder collaborative initiatives or discussion groups to implement management measures that are beyond the capacity and responsibility of any individual project developer (IFC, 2013).

The embedded controls and management measures included in the ESIA provide a means to mitigate the specific contributions of the Project to effects on VECs, following the mitigation hierarchy. Supplementing these controls and management measures, the CIA provides a framework of additional actions that CRBC could apply in the regional and Project context to manage potential cumulative impacts on these VECs.

4.6.1 Project Level

Effective application of the mitigation hierarchy (avoid, reduce, remedy) to manage individual contributions of cumulative impacts will be applied as best practice. A number of management measures detailed in the ESIA have been proposed to address potential impacts from the Project. The ESA also includes an Environmental and Social Management Plan (see Section 6.9), which summarizes the management and monitoring measures for all environmental parameters, including the VECs assessed in this CIA.

At the Project level, the above measures are considered sufficient to address the contributions of the Project to cumulative impacts on the identified VECs.

4.6.2 Regional Level

Ultimately, the management of cumulative impacts is the responsibility of government and regional planners. However, it is considered best international practice that private-sector developers make best efforts to engage relevant stakeholders and promote management of cumulative impacts in their project areas (IFC, 2013; Franks, 2010).

The CIA identified low priority cumulative impacts on the following VECs: Road traffic, Community Health and Safety, and Air Quality and GHG Emissions. Medium priority cumulative impacts were identified for Economic Displacement and Livelihood. Additional mitigation measures for this VEC, include implementation and monitoring the effects of the Livelihood Restoration Plan.

4.7 Conclusion

The results of the environmental and social impact assessment presented in this ESA are valid insofar as the design of the Project remains the same. Given the results of the CIA, no further mitigation plan is needed. Should the design of the Project or any of its components change, then the results presented in this Report may have to be updated to reflect the changes.

5. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

5.1 Introduction

This impact assessment has identified a range of potential environmental, socioeconomic, and cultural impacts related to implementation of the Project components, as described in Section 5 Impact Assessment. As part of the environmental and social management requirements established by IDB and according to industry good practice, an Environmental and Social Management Plan (ESMP) must be developed and implemented for the Project.

This ESMP describes the approach that the Project proponent and other involved parties (e.g., contractors) would follow to manage, mitigate, and monitor the potential impacts of the Project. It includes the Project commitments and management measures as identified in Section 5, Impact Assessment. This ESMP will be updated based on the final Project design as determined by the CRBC contractor and is subject to change during the execution of works.

5.2 Environmental and Social Management Plan Guiding Principles

5.2.1 Plan, Do, Check, Review

Industry good practice follows the general principles of the “Plan, Do, Check, Review” cycle as described below, and outlined in Figure 5.2-1.

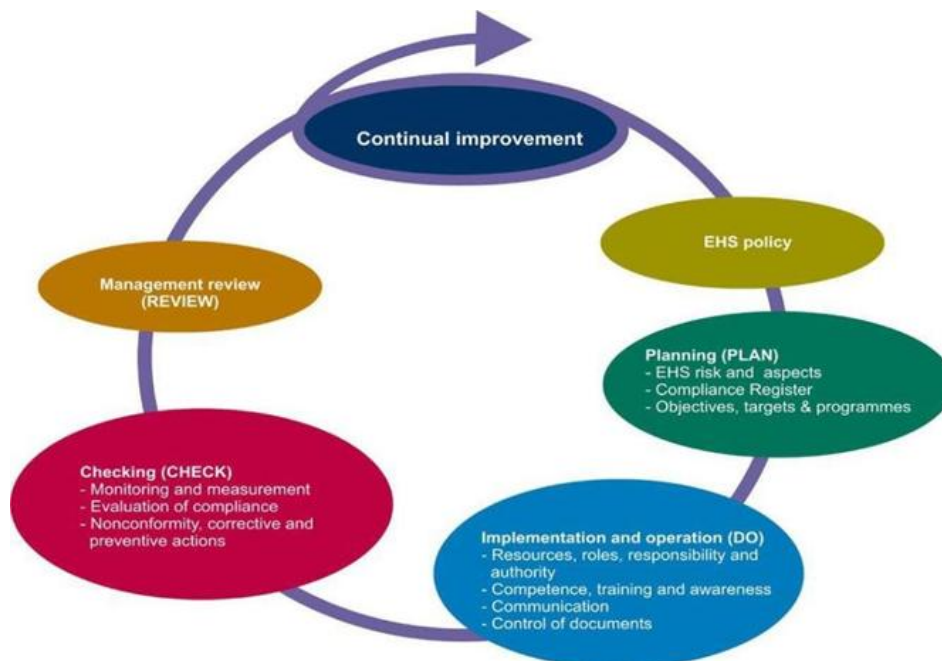


Figure 5.2-1: Plan, Do, Check, Review Cycle

5.2.1.1 Plan

- Define policies and objectives for environmental and social performance.
- Identify environmental and social impacts and risks of the operations.
- Develop managements and operational controls to address impacts and risks.

- Develop a management plan to achieve these objectives.

5.2.1.2 Do

- Implement a management plan.
- Implement management and operational controls.

5.2.1.3 Check

- Monitor performance against policies and objectives.
- Check that management and operational controls are effective.

5.2.1.4 Review

- Make corrections to plans, management, or controls in response to performance monitoring or out of control events.

5.2.2 Mechanism for Auditing, Adjustments, and Reporting

Auditing and adjustment are an essential part of a successful ESMP. Auditing systems include inspections and monitoring to confirm proper implementation of the ESMP, as well as effectiveness of management measures. Corrective actions include response to out-of-control situations, non-compliances, and non-conformances. Actions also include those intended to improve performance.

The parties involved in overseeing the day-to-day activities of Project implementation will conduct continuous monitoring to ensure that all Project personnel (contractors) are fulfilling their obligations under this ESMP.

Monitoring will be conducted to ensure compliance with the commitments in this document and to evaluate the effectiveness of operational controls and other measures intended to mitigate potential impacts. Project monitoring activities are summarized below.

CRBC will keep relevant authorities informed of the Project's performance with respect to environmental and social matters and implementation of this ESMP by way of written status reports and/or face-to-face meetings as needed. Contractors will also be required to provide HSE performance reporting as relevant based on the contractor's responsibilities. CRBC will continue the stakeholder engagement efforts described and communicate with stakeholder groups regarding Project activities and the results of environmental and social monitoring. CRBC will report E&S aspects of the Project to the IDB on a biannual basis, as part of the progress report of the project. CRBC will use the content of the supervision consultant and the contractor's reports to gather the required information on E&S compliance. The Environmental and Social Compliance Report Form can be found on Appendix E. This will be further adapted for the project

5.2.3 Training

All Project personnel will be qualified to do the particular job that they are performing and undergo

further training to meet the needs of the working environment, as required. All personnel, regardless of position, will be given specific job oriented HSE training prior to starting work and as necessary thereafter. All personnel will be trained on general awareness of environmental and social issues and specific procedures aimed at the avoidance of environmental damage as well as human health and safety. New staff, contractors, and visitors will be given basic induction training and follow Project HSE procedures.

5.3 Organizational Capacity and Policies

CRBC will be the ultimate responsible of the ESMS implementation and assure the CRBC contractor and its subcontractors align with it. In addition, CRBC will select a supervision firm that will provide support and oversight of the construction.

Given the scale and nature of this Project, as a minimum the following roles will be required to support ESMP implementation:

Project Manager- Responsible for effective representation of CRBC as the key liaison person with external stakeholders and foreign funded donors; playing the lead internal role in coordinating the development and strategy and master plan; and providing indicators/benchmarks for verifiably measuring outputs; developing quality control/assurance procedures for project work. The Project Manager will study and review all supporting documents, such as Agreements, aide-memories, memoranda of understanding, Reports, etc., agreed and exchanged between donors and the Government of Guyana, and extracts all relevant information and benchmarks and participates in the process of formulating and reviewing strategic plans, objectives and targets. This role requires a Bachelor's degree in either civil, hydraulic, structural engineering or equivalent plus post-graduate in a management-related discipline and six years post undergrad experience in design, construction, and management of Projects similar to those of CRBC.

Social Environmental Officer- responsible for assisting the Environmental Engineer and by extension the Works Services Group in formulating and administering environmental and social policies, plans and programmes for the entire group. The Social Environmental Officer will monitor the implementation of Environmental and Social Plans by supervisory consultants and contractors by means of site visits and by evaluating written progress reports and advises the group on remedial action where necessary. The role requires organizing with government bodies and local authorities to obtain approvals for environmental and social impact assessments and environmental and social management plans. Requirements for this role is a bachelor's degree in Environmental Science, Engineering, or equivalent qualification plus 3 years of experience in conducting socio environmental research and data collection and previous experience in environmental monitoring of similar Project undertaken by CRBC.

Social Development Officer (SDO) – Local resource to effectively handle any number of issues

identified during the ESIR process which will require communication and stakeholder liaison during Project execution. The role is responsible for producing monthly summaries that provide details related to the use of the grievance mechanism as well as logging and closing out all grievances in a timely manner. This role does not necessarily require additional personnel but can be taken on as an additional duty provided the individual have the required training and experience so as to be able to address any potentially sensitive issues representing the Contractor. Requirements for this role will be a degree in social sciences (or equivalent) and at least 5 years' experience of stakeholder engagement.

5.4 Environmental and Social Management Plan

The ESMP provides a description of the various management plans recommended to be implemented by the Project proponent and other involved parties (e.g., contractors) to manage, mitigate, and monitor the potential impacts of the Project. They include the Project commitments and management measures as identified in Section 5 Impact Assessment.

The Management Plans that comprise the ESMP and their general contents are the following:

Management Plan	General contents
Construction Environmental Management Plan	<ul style="list-style-type: none"> ○ Introduction ○ Project Description ○ Project Roles, Responsibilities, and Contacts ○ Training, Awareness and Competency ○ Environmental Management ○ Management sheets for air quality and dust, noise, sediment and erosion, housekeeping and waste. Each sheet has its own Key Performance Indicators (KPIs)
Construction Health and Safety Management Plan Section B	<ul style="list-style-type: none"> ○ Introduction ○ Project Description ○ Site Conditions and Requirements ○ Policy and Systems ○ Site Safety Plan ○ Project Roles, Responsibilities, and Contacts ○ Training, Awareness and Competency Plan ○ Personal Protective Equipment ○ Workers' health and safety training plan including truck driver training ○ Permits to work: High-Risk Work Permit (operating heavy machinery or working near traffic and Hot Work Permit (using asphalt). ○ Complaints ○ General Monitoring Arrangements ○ Emergency Procedures ○ Health and Safety Risk Management

	<ul style="list-style-type: none"> ○ H&S Risk assessment template form ○ Key Performance Indicators
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Management Plan	General contents
Construction Contingency Plan	<ul style="list-style-type: none"> ○ Introduction ○ Emergency Levels ○ Procedures to be Followed During the Implementation of the Contingency Plan ○ Types of Contingencies ○ Phases Considered for Each Event (fire or explosions, spills, falls from heights, cur wounds, electrocution or burns, equipment or infrastructure failure, damage to infrastructure, attacks and sabotage). ○ Key Performance Indicators
Human Resources and Labor Management	<ul style="list-style-type: none"> ○ Forced Labor ○ Child Labor ○ New Employee Safety Orientation ○ ESHS Orientation Checklist ○ Workers Grievance Mechanism ○ Code of conduct ○ Joint Safety and Health committee to be established at CRBC in keeping with the Occupational Safety Health Act (Chap 99:06 of OHS Act). ○ Workplace Health and Safety Committee (Chap 99:06 of OHS Act)

<p>Stakeholder Engagement Plan</p>	<ul style="list-style-type: none"> ○ Background and Objectives ○ Regulatory Framework ○ Stakeholder Analysis ○ Completed Stakeholder Engagement ○ Roles, Responsibilities and Resources ○ Grievance Mechanism ○ Monitoring and Reporting
<p>Traffic and Pedestrian Management Plan</p>	<ul style="list-style-type: none"> ○ Introduction ○ Project Description

Management Plan	General contents
Traffic and Pedestrian Management Plan	<ul style="list-style-type: none"> ○ Diversion roads ○ Project Roles, Responsibilities, and Contacts ○ Training, Awareness, and Competency ○ Communication with Relevant Stakeholders ○ Traffic and Pedestrian Management ○ Management sheet for Road intervention Work Area ○ Specific Work Practices ○ Management sheets with mitigation measures and controls for local business impacts, pedestrian safety, vehicle route, vehicle reversing, drivers safe work practices, signalers/banksman practices and construction equipment.
Chance Find Procedure	<ul style="list-style-type: none"> ○ Introduction ○ Objectives ○ Procedure ○ Project Roles, Responsibilities and Contacts ○ Training, Awareness and Competency ○ Key Performance Indicators
Livelihood Restoration Plan (LRP) (see Appendix C of the ESA/ESMP, 2022)	<ul style="list-style-type: none"> ○ Introduction ○ Legal Framework for Livelihood Restoration ○ Methodology ○ Identification of Project Affected Persons and Potential Impacts ○ Entitlement Framework ○ Implementation ○ Public Consultation, Participation and Disclosure ○ Monitoring, Evaluation and Reporting
E&S Monitoring Plan	<ul style="list-style-type: none"> ○ Objective ○ Scope ○ Selection of Key Performance Indicators ○ KPI Assurance and Monitoring Implementation

5.4.1 Construction Environmental Management Plan

This Construction Environmental Management Plan (CEMP) provides a working template that will be used by the selected construction contractor (the Contractor) appointed by the Executing Agency (WSG). It details the specific management requirements and focus areas identified through the Environmental Assessment, but also recognizes that the selected Contractor will have their own policies and procedures that will need to be inputted to this plan. It also recognizes that as the Contractor develops the Project designs, this may influence how construction will be undertaken and progress, and these aspects will need to be integrated into this plan.

5.4.1.1 Introduction

Overview

This Section provides the Construction Environmental Management Plan (CEMP) for the Relief to Soesdyke Road rehabilitation Project (the “Project”), a Category B Project that focuses on:

- Rehabilitation of 9.548 km of roadway;
- Widening of the carriageway by approximately 1m on both sides;
- Construction of drainage along the roadway;
- Improved safety conditions for pedestrian and vehicle traffic; and,
- Relocation of utility infrastructure.
- Rehabilitation of bridges and culverts

Objectives

The CEMP will ensure that the Project is delivered in full compliance with legal requirements and also address the requirements of the IDB’s ESPF. Specifically, it will ensure the Project aligns with the environmental legislation by the Guyana Environmental Protection Agency (EPA).

The IDB has established its own framework to ensure that projects financed by the IDB group are sustainable. The CEMP will comply with all applicable Environmental and Social Performance Standards, in particular:

- ESPS 1 – Assessment and Management of Social Risks and Impacts. The CEMP takes part of CRBC’s ESMS.
- ESPS 3 – Resource Efficiency and Pollution Prevention. The CEMP focuses on how to manage resources, emissions and waste generation.

5.4.1.2 Project Description

Once the Project’s design is finalized, the construction Contractor needs to prepare the CEMP and include specific details on the proposed works, duration, relevant plans, etc. The following provide guidance on what should be included in this section.

- **Scope of Construction Works:** Description of the full range of construction works/activities proposed (e.g., clearing of land, placement of poles, bridge piles and other infrastructure, filter rock, geotextile fabric and armor rock; installation of drainage structures; etc.).
- **Description of the Construction (Disturbance) Footprint:** Full description of the existing areas that will be disturbed by the construction works and those immediately adjacent;
- **Timing of Works:** Provide a description of both the total duration of the works and the time of year they will occur. The latter would include consideration of expected climate during this time (e.g., anticipated rainfall/storm events, wind direction and speeds);
- **Site Plan:** The project site plan would clearly show the full extent of the proposed works area of the construction project. This would typically include a map with the full construction boundary and disturbance footprint marked clearly over a current aerial photograph (i.e., including all construction activities, associated laydown areas etc.). It would also include site-specific information, for example, the location of any important waterways, ditches or adjacent vegetation to be protected, national heritage listed areas, or the location of sediment and erosion traps, electrical services, etc.

5.4.1.3 Project Roles, Responsibilities and Contacts

All positions across the Project have environmental responsibilities to some extent. These vary in relation to duties described in Table 5.4.1-1, but everyone has a base level duty of care to prevent environmental harm. Project roles include direct workers from CRBC, CRBC contractor, supervision firm and other subcontractors as needed.

Table 5.4.1-1: Project Roles, Responsibilities and Contact Details to be Finalized by the Construction Contractor for the CEMP

Position	Responsibilities	Company	Name	Contact Details*
Project Manager	Overseeing a project from initiation to completion, ensuring it meets objectives within the defined constraints of scope, time, and budget.	CRBC	WU XIAO WEN	+5927059542
Site Supervisor	Overseeing the day-to-day operations at a construction or project site.	CRBC	ZHOU ZHAO	+5926239208
Environment Manager	Ensure safe work environment, and compliance with health and safety regulations.	CRBC	ZHENG TIAN FENG	+5927001991
HSE Representative	Helps create a safer workplace, ensures compliance with regulations, and promotes	CRBC	ZHENG TIAN FENG	+5927001991

	environmental sustainability.			
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5.4.1.4 Training, Awareness and Competency

The CEMP prepared by the construction Contractor must include a code of conduct to be followed by all employees and outline how environmental training, awareness and competency will be delivered / assessed throughout the Project, to ensure the relevant aspects of this CEMP are communicated to the project team and front-line staff (including contractors and sub-contractors) in compliance with the local labor laws and regulations and ILO standards to which Guyana is party to. Examples include:

- Site Environment Induction
- Daily Pre-Start Meetings
- Environmental Toolbox Talks
- Incident bulletins
- Subcontractors’ kick-off meeting
- Contractor and client site kick-off meeting

5.4.1.5 Environment Management

This section presents a summary of the environmental risks and controls that have been identified for the proposed construction project. The Contractor should determine what additional risks and proposed management controls are required based on their final design and work method statements. A project risk assessment or job hazard analysis for a specific task(s) should be performed.

The following tables are based on the ESA that has been performed. Note that this is not an exhaustive list, and it would be expected that Contractor develops risk management strategies, controls, etc. that suit the scale/nature of finalized construction project.

Air Quality and Dust Management

AIR QUALITY AND DUST MANAGEMENT			
Objective(s)	<ol style="list-style-type: none"> 1. To obtain baseline readings on air quality and particulate matter. 2. To ensure the impacts of air quality and dust on adjacent areas and the community are minimized. 		
Management Strategy	Air quality and dust issues are managed principally by emission controls at source, and administrative controls during works.		
		Responsibility	Timing
Control(s)	<p>CRBC collected baseline data for Air Quality, which will measure PM10 and PM2.5, NOx, SOx, Ozone, lead and CO. Monitoring can be done quarterly; dust monitoring in highly congested areas or where dust is higher can be done through a Portable Particle Monitor.</p> <p>The air quality impacts could be minimized using the following measures:</p> <ul style="list-style-type: none"> • Maintain all construction equipment in accordance with manufacturer’s specifications; keep service logs of equipment up to date. • Suppress dust as needed in unpaved areas (e.g., use of water sprays). • Where dust is identified as an issue, dust control measures will be implemented. These will primarily be the use of water carts but may include surface treatments • Avoid burning non-vegetative wastes (refuse, etc.) at construction sites. • Avoid unnecessary idling of construction equipment or delivery trucks when not in use. • Keep work vehicles clean (particularly tires) to avoid tracking dirt around and off the site. • Cover work vehicles transporting friable materials to prevent materials from being spread around and off the site. • Minimize drop heights of materials. • Area to be disturbed minimized. Clearance lots are to be approved by Project Manager. • Implement the external grievance mechanism to follow-up on dust and/or exhaust emissions complaints being received by the community and workers. • Vehicle movements controlled, optimize signaling to reduce traffic congestion (Implement the Traffic and Pedestrian Management Plan) and kept to established tracks and haul roads. • Enforcement of speed limit and other traffic laws at the site • Use of dust masks by workers (Number of workers wearing them) • Provide dust and air quality awareness talks as part of the environmental induction process. 	HSE Representative	Quarterly
Performance Indicator(s)	No. complaints from the adjacent commercial premise, workers and/or community. No. of workers wearing PPE against dust		

AIR QUALITY AND DUST MANAGEMENT

	Air quality readings are below maximum limits per EPA and WBG standards. Percentage of equipment and vehicles with their service up to date.																																		
Monitoring	<p>Baseline information and quarterly monitoring of air quality will be compared against World Bank maximum limits and EPA Standards (Air Quality Regulation 2000). CRBCCRBC will aim to comply with the most stringent limit.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Parameter</th> <th style="text-align: left;">Averaging period</th> <th style="text-align: center;">Maximum Limit per EPA, 2000 (µg/m³)</th> <th style="text-align: center;">Maximum Limit per WBG (µg/m³)</th> </tr> </thead> <tbody> <tr> <td>PM 2.5</td> <td>24 hours</td> <td style="text-align: center;">15</td> <td style="text-align: center;">25</td> </tr> <tr> <td>PM 10</td> <td>24 hours</td> <td style="text-align: center;">-</td> <td style="text-align: center;">50</td> </tr> <tr> <td>SOx</td> <td>24 hours</td> <td style="text-align: center;">-</td> <td style="text-align: center;">20</td> </tr> <tr> <td>NOx</td> <td>1 hour</td> <td style="text-align: center;">-</td> <td style="text-align: center;">200</td> </tr> <tr> <td>O3</td> <td>8 hours</td> <td style="text-align: center;">160</td> <td style="text-align: center;">100</td> </tr> <tr> <td>CO</td> <td>8 hours</td> <td style="text-align: center;">10 mg/m³</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Lead</td> <td>Quarterly</td> <td style="text-align: center;">1.5</td> <td style="text-align: center;">-</td> </tr> </tbody> </table> <p><i>*Source: World Health Organization (WHO). Air Quality Guidelines Global Update, 2005. PM 24-hour value is the 99th percentile. Environmental Protection Agency (2009) and the US EPA National Ambient Air Quality Standard (NAAQS) (2010).</i></p> <p>Daily inspection of works sites to occur, including:</p> <ul style="list-style-type: none"> • visual check for dust crossing the site boundaries. • visual check of high potential dust areas, such as haul roads, stockpiles and operational areas. 	Parameter	Averaging period	Maximum Limit per EPA, 2000 (µg/m ³)	Maximum Limit per WBG (µg/m ³)	PM 2.5	24 hours	15	25	PM 10	24 hours	-	50	SOx	24 hours	-	20	NOx	1 hour	-	200	O3	8 hours	160	100	CO	8 hours	10 mg/m ³	-	Lead	Quarterly	1.5	-	HSE Representative	Quarterly
Parameter	Averaging period	Maximum Limit per EPA, 2000 (µg/m ³)	Maximum Limit per WBG (µg/m ³)																																
PM 2.5	24 hours	15	25																																
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NOx	1 hour	-	200																																
O3	8 hours	160	100																																
CO	8 hours	10 mg/m ³	-																																
Lead	Quarterly	1.5	-																																
Reporting	Any complaints or incidents to be reported to the project manager. Monitoring reports for baseline air quality and quarterly monitoring.																																		
Corrective Action(s)	<ul style="list-style-type: none"> • Investigate cause of excessive dust or emissions that go over the maximum allowed limits within the averaging period assessed. • Implement controls immediately (e.g., water carts, corrective maintenance of potentially malfunctioning equipment). • Implement corrective measures prior to the recommencement of site works. • Implement administrative controls if required, such as rescheduling of dust-generating activities to more favorable weather conditions. 																																		

Noise Management

NOISE MANAGEMENT				
Objective(s)	<ol style="list-style-type: none"> 1. To obtain baseline readings on noise in the Project area 2. To minimize the impacts of noise on the amenity of the surrounding areas. 3. Construction activities undertaken in accordance with best practice controls. 			
Management Strategy	Noise is to be managed primarily through administrative and equipment controls during the construction phase.			
		Responsibility	Timing	
Control(s)	<p>Noise baseline data obtained throughout the entire Section B roadway, adding more points in highly populated areas like Relief and Soesdyke. Noise readings can be done with a portable device.</p> <p>During construction, noise impacts associated with the Project components could be minimized using the following measures:</p> <ul style="list-style-type: none"> • Maintain all construction equipment in accordance with manufacturer’s specifications. • If possible, schedule construction and rehabilitation work during daylight hours when increased noise levels are more tolerable. • The schools’ areas will have priority for data collection related to air quality levels. • If possible, schedule construction and rehabilitation work to minimize activity during peak periods of tourism and recreation (weekends, holidays, etc.). • Avoid unnecessary idling of construction equipment and trucks, also unnecessary use of horns • Include communications regarding construction as part of the external communication mechanisms to stakeholders to inform adjacent receptors (e.g., commercial and industrial businesses, schools, religious groups) of construction activities. • Install broadband spectrum backup alarms on construction vehicles as opposed to the typical single-tone frequency alarms (broadband alarms attenuate more quickly over distance due to the incorporation of higher frequencies). • Pre-start checks and maintenance schedules to ensure equipment performance as required. • Noise-dampening equipment to be used on equipment with excessive noise-generating characteristics. • Implementation of community grievance mechanism • Use of auditive equipment by workers 		HSE Representative	Quarterly

Performance Indicator(s)	No complaints from adjacent commercial premises, workers and/or community. Percentage of workers wearing auditive protection on site Percentage of equipment and vehicles with their service up to date.		
Monitoring	<ul style="list-style-type: none"> • Daily inspection of works sites to occur. • Service logs for equipment/machinery used on site. Grievance logs. • Quarterly noise monitoring <p>Noise monitoring will occur quarterly, which can be done using a portable device. The maximum limits for noise will be the ones of the World Bank Group, corresponding to 70 dB for industrial areas and 55 dB during daylight and 45 dB for nighttime for residential areas. If baseline results show greater noise levels than the maximum limits, then the monitoring results will not exceed in more than 3 dB than those of the baseline. According to EPA Guyana maximum threshold are 90 dB and 75 dB for day time and night time respectively according to GNBS Interim Guidelines, 2010.</p>		
Reporting	Any complaints or incidents to be reported to the Project manager.		
Corrective Action(s)	<ul style="list-style-type: none"> • Investigate cause of excessive noise. • Implement corrective measures prior to the recommencement of site works. • Reschedule of noise-generating activities to reduce noise annoyance. 		

Sediment and Erosion Control

SEDIMENT AND EROSION CONTROL			
Objective(s)	<ol style="list-style-type: none"> 1. To ensure that the effects of erosion and sedimentation on the environment are minimized. 2. Minimize soil disturbance, degradation and erosion. 		
Management Strategy	Ensure that direct impacts (land disturbance) are limited to the works area and that indirect impacts do not impact adjacent areas.		
		Responsibility	Timing
Control(s)	<p>Measures to be applied include:</p> <ul style="list-style-type: none"> • Disturbance area will be minimized and clearly demarcated. • Works will only be conducted within the works zone. • Vehicle movements will be restricted to the defined roads/tracks. • Where possible, the works area will be designed to ensure stormwater runoff drains into the site. • Where required, sediment controls will be put in place. These will include, but not be limited to, rock check dams, sediment basins, sediment fences and silt socks. • Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24 hours resulting in site runoff). • Strategic location of detention basins to separate sediments in surface water runoff from water discharged to drains • Locate material stockpiles away from waterways and with perimeter berm • Re-routing drainage network to facilitate construction of Kofi Structure and other culverts • Periodic cleaning of drainage canals per maintenance guidelines • Landscaping and revegetation measures • No stockpiling of loam and sand along the roadway. CRBC will only purchase loam and sand from permitted mines. (This was approved in the ESMP Camp aspect, Report). 	HSE Representative	Daily/Weekly
Performance Indicator(s)	No evidence of significant sediment deposition outside the works area. No evidence of significant riling, gullies or other instances of run-off erosion.		
Monitoring	<ul style="list-style-type: none"> • Daily inspection of the work site to occur. • Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24hrs resulting in site runoff). The review will include the removal of accumulated sediments as required. 		

Reporting	<ul style="list-style-type: none"> • Incident report for non-conformance of sediment control. • Logging of sediment control structures - location and condition during weekly site inspection. 		
Corrective Action(s)	<ul style="list-style-type: none"> • Investigate the cause of sediment control failure. • Review flow path and determine most appropriate controls are in place, additional controls which can be place in-stream and/or changes that can be made to flow path • Review similar controls on-site (even though these may not have failed) for similarities. 		

Housekeeping and Wastes

HOUSEKEEPING AND WASTES		
Objective(s)	1. Reduce waste volume, maximize recycling, reuse and recovery, and prevent any construction waste/litter entering the environment.	
Management Strategy	Minimize environmental impacts through appropriate controls and site inductions of employees and sub-contractors.	
		Responsibility Timing
Control(s)	<ul style="list-style-type: none"> • Provide appropriate waste bins, type, volume, and service frequency to accommodate anticipated waste streams • Enforcement of a strict no-dumping policy especially in drainage canals and areas nearest the waterways • Separate hazardous waste from non—hazardous waste • Place trash disposal bins around the construction site and worker day camp • Provide information regarding waste management in site-specific inductions, including waste separation and the importance of securing vehicle loads. • Ensure licensed contractors are used to collect controlled wastes • Disposal of all waste in the Haags Bosch Landfill site • Installation of appropriate fencing and containment in waste management areas • Implement management measures to prevent and manage spills, per Contingency Plan • Recycle oil and waste lubricants to be used for construction equipment lubrication (e.g., chains saws) • Reuse of excavation materials for resurfacing and widening road shoulders • Storage of excavation material in designated laydown areas away from drainage channels and water bodies • Selection of laydown areas by the contractor away from drainage channels and water bodies • Donation of unused construction material to the Neighbourhood Democratic Council (NDC) • Appropriate training for staff on waste management practices and safe handling and storage of hazardous materials • Use of PPE for the handling of hazardous materials 	HSE Representative
		Daily/Weekly
Performance Indicator(s)	<ul style="list-style-type: none"> • Hazardous materials are all appropriately disposed of. • Recycling of all recyclable construction metal waste. • Records kept of waste leaving site. • No construction waste piles along the road 	
Monitoring	<ul style="list-style-type: none"> • Daily inspection of work site to occur. Review of waste bins. • Waste volumes leaving site from waste contractors. 	

Reporting	Environmental incident reports.	Project Manager	Throughout project
Corrective Action(s)	<ul style="list-style-type: none"> • Investigate cause of inappropriate waste disposal. • Review cause of issue and develop response, such as variation to bin size, service schedule or waste separation awareness. • Implement controls. 	Project Manager	Throughout project

5.4.2 Construction Health and Safety Management Plan

This Construction Health and Safety Management Plan (CHSP) provides a working template that will be used by the selected construction contractor (the Contractor) appointed by the Executing Agency (WSG). It details the typical requirements and focus areas for health and safety; however, it is recognized that the selected Contractor will have their own policies and procedures that will need to be inputted to this plan. It also recognizes that as the Contractor develops the Project designs, this will influence how construction will be undertaken, and these aspects will need to be integrated into this plan.

5.4.2.1 Introduction

Overview

This document is the Construction Health and Safety Plan (CHSP) for the Road Infrastructure Development Project (the “Project”). The CHSP sets out the expectations of CRBC and the IDB and defines how the Contractor will implement and manage environmental matters.

Objectives

The CHSP will ensure that the Project is delivered in full compliance with legal requirements and ensures:

- All workers, including contractors and subcontractors, are fully trained and experienced to do the tasks requested of them;
- Implements measures to eliminate hazards, and where elimination is not possible, puts in place controls to ensure that hazards and risks are minimized to acceptable levels; and
- Ensures protection and well-being of the surrounding communities and visitors. It is intended that through the implementation of this plan:
 - Hazards that may be encountered during the project are identified;
 - Assessments are made to quantify the risk; and
 - Control measures that require being introduced are implemented to minimize the risks.

The CSHP is a dynamic document that will change and develop throughout the Project. The Plan will be reviewed monthly to ensure that the content reflects the needs of the Project. Additionally, the Plan will be reviewed in light of any unforeseen occurrence.

5.4.2.2 Project Description

The following provide guidance on what is needed.

- **Scope of Construction Works:** Description of the full range of construction works/activities proposed (e.g., clearing of land, dredging activities, geotextile fabric and armor rock; installation of sheet piles; etc.).

- **Description of the Construction (Disturbance) Footprint:** Full description of the existing land area that will be disturbed by the construction works and those immediately adjacent;
- **Timing of Works:** Provide a description of both the total duration of the works and the time of year they will occur. The latter would include consideration of expected climate during this time (e.g., anticipated rainfall/storm events, wind direction and speeds);
- **Site Plan:** The project site plan would clearly show the full extent of the proposed works area of the construction project. This would typically include a map with the full construction boundary and disturbance footprint marked clearly over a current aerial photograph (i.e., including all construction activities, associated laydown areas etc.). It would also include site-specific information, for example, the location of any important waterways or adjacent vegetation to be protected, national heritage listed areas, or the location of sediment and erosion traps, electrical services, etc.
- **Site Safety Plan:** is attached in appendix D and it considers hazards and risks associated with road construction activities for section B.

5.4.2.3 Site Conditions and Requirements

Details must be presented clearly in this plan related to existing site conditions, security and restrictions.

This should cover items such as:

- Personal Protective Equipment Requirements - Safety footwear, dust masks, safety goggles, hi-vis vests appropriate gloves and hard hats will be provided and worn as set out by the specific work activities by all site operatives and visitors.
- Tree Protection - Temporary protective fencing will be installed if trees and/or vegetation are to be protected.
- Ground Conditions - A Site investigation will be conducted prior to works commencing and the results will be fed into this plan.
- Potential Risks to Construction Workers – to consider items such as:
 - The concentrations of contaminants at the site are understood to be low and are unlikely to require measures beyond that required for health and safety purposes on a construction site. Suitable precautions should be in place.
 - Health and safety measures for work in excavations and confined spaces below ground put in place.
 - Maintain first aid kits on site that are fully stocked at all times.
- Cross reference the requirements of the Construction Environmental Management Plan.

- Communicate with local hospitals to determine protocol in the event of an emergency
- The Contractor will liaise with the residents and businesses prior to any works being undertaken to make them aware of works taking place and address any concerns by these affected parties. Access to the work sites will have secure gates that will prevent entry to unauthorized persons.
- Working hours will be two shifts: 7 AM to 6 PM in the daytime; Day shift will have 1.5 hours break for lunch 12:00 noon to 13:30 hrs; Then night shift would be 20:00 (8:00 pm) to anywhere from 03:00 am to 06:00 am depending on the nature of the work. For this project work will be at night (18:00-06:00). Adequate public notice will be provided in keeping with the approved Social Engagement Plan. CRBC and their subcontractors will establish more than one shift will be needed to increase work to 24 hours. Each shift will be in keeping with the Labour Act.
- Priority will be given to maintaining continuous safe access.
- Maintain good housekeeping conditions at the site (avoid having debris or construction material lying around).
- Install temporary camps for workers with enough shade, water and sanitary facilities. These should be proportional to the number of workers on site (ideally 1 portable toilet for every 4 workers). Waste bins should be available near temporary camps and rest areas.
- Conduct good practices in and around the Project construction sites including elimination of standing water or, if not practicable, treatment of standing water to kill mosquito larvae.

5.4.2.4 Policy and Systems

This Section must include an outline of the contractor's policy and management systems for the Project.

5.4.2.5 Project Roles, Responsibilities and Contacts

All positions across the project have health and safety responsibilities. These vary in relation to duties described in Table 5.4.2-1 but everyone has a base-level duty of care to manage health and safety and avoid accidents and incidents.

Table 5.4.2-1: Project Roles, Responsibilities and Contact Details to be Finalized by the Construction Contractor for the CHSP

Position	Responsibilities	Company	Name	Contact Details*
Project Manager	Overseeing a project from initiation to completion, ensuring it meets objectives within the defined constraints of scope, time, and budget.	CRBC	WU XIAO WEN	+5927059542

Site Supervisor	Overseeing the day-to-day operations at a construction or project site.	CRBC	ZHOU ZHAO	+5926239208
Health & Safety Manager	Ensure safe work environment, reducing risks, and compliance with health and safety regulations.	CRBC	ZHENG TIAN FENG	+5927001991
HSE Representative	Helps create a safer workplace, ensures compliance with regulations, and promotes environmental sustainability.	CRBC	ZHENG TIAN FENG	+5927001991

5.4.2.6 Training, Awareness and Competency

The CHSP prepared by the construction Contractor must outline how health and safety training, awareness and competency will be delivered/assessed throughout the project, to ensure the relevant aspects of this CHSP are communicated to the project team and front-line staff (including contractors and sub-contractors). Examples may include:

- Site Health & Safety Induction
- Daily Pre-Start Meetings
- Health & Safety Toolbox Talks
- Incident bulletins
- Sub-contractor’s kick-off meeting
- Contractor and client site kick-off meeting
- Toolbox talks

The Contractor must also detail its organization and arrangements for the promotion of safety, health, and welfare. Overall responsibility for the site and its management will be the Contractor. On the first arrival at the site, allowance must be made for:

- Site induction for individuals, which will include “Site Safety Rules”.
- Mandatory Booking in and out of the site (includes lunch and breaks).
- Registering workers with appropriate training and competency certificates where necessary.
- Providing inspection and other certificates for equipment and machinery to be used safely.
- Daily / weekly site briefing.

- Demonstrating how contractors will monitor safety and its duration and issuing copies of these reports to the Site Project Manager.
- Pre-existing health issues.

All workers will have a safety orientation session as part of the new employee/onboarding process. The contents of the sessions are detailed in section 5.4.4.3 and could be modified as needed, depending on risks and internal procedures by CRBC and the CRBC contractor.

5.4.2.7 Personal Protective Equipment

This section establishes the requirements to be followed to provide adequate protection from workplace hazards through the proper selection and use of personal protective equipment (PPE). PPEs shall not be used as a substitute for adequate engineering or administrative controls, when feasible.

- The use of PPE will be mandatory. They will not prevent accidents, but will eliminate or reduce the severity of an injury.
- It is the responsibility of the contractors to provide their workers with the personal protection equipment required in the execution of any work that generates risks.
- The equipment will be new and of good quality.
- It is the responsibility of the immediate supervisor of each worker to determine the need for personal protective equipment and to ensure that the worker makes use of it.
- The worker will be responsible for the care, conservation and proper use of any equipment entrusted to him.

CRBC and Contractors will:

- Ensure that the required PPE Assessment has been performed, verified, and certified.
- Provide the resources necessary to ensure effective implementation.
- Communicate Management's expectations to employees.
- Ensure that quarterly inspections are performed on unassigned and general use of PPE.
- Evaluate workplace hazards with the goal of establishing PPE requirements for both routine and non-routine work situations.
- Ensure that required PPEs are being used properly and in good condition.
- Promote work practices which minimize exposure potential.
- Ensure employees have the required PPE training before initial assignment, and ensure they receive refresher training as needed.

- Ensure that adequate supplies of appropriate PPEs are available for the employees, contractors and visitors they are responsible for.
- Conduct and document a semi-annual inspection of personally-assigned PPE until construction works are over.

All workers will:

- Participate in training to know when to use PPEs and shall use the appropriate PPEs.
- Properly wear all prescribed PPEs.
- Inspect personally assigned PPEs for serviceability and defects prior to use.
- Clean, maintain and store PPEs in a manner that will ensure its serviceability.
- Not intentionally damage PPEs.
- Report or correct situations where current PPE use is not adequate to protect against the hazard(s) encountered

The purchaser of equipment will:

- Ensure that adequate supplies of appropriate PPEs are available and that manufacturer storage requirements are met.
- Ensure that PPE equipment specifications are met.
- An appropriate variety of glove types are available for various jobs

Hazard assessment and job/task safety analyses process. Additional responsibilities include:

- Provide technical support for the completion of the Risk Assessment in order to identify PPE needs.
- Support the selection of appropriate PPEs and the necessary training and medical examinations according to the hazards identified by the Risk Assessment.
- Provide technical support for those performing Job Safety Analysis.
- Ensure that annual inspection of personally assigned PPEs and quarterly inspection of general use PPEs are performed and documented.
- Performing an analysis of the possible need for Flame Retardant Clothing (FRC).
- Mark areas with signs to identify special PPEs needs.
- Train employees (or arranging training) on the proper use of PPEs.

5.4.2.8 Work Permits

All projects must comply with the requirements and procedures established by local law, including those related to work permits in order to prevent unnecessary risks and/or accidents, and must comply with the following:

- It is necessary to obtain work permits in all areas with risk where work is carried, and they must be issued by authorized personnel.
- No work will be started before the respective work permit has been issued and it has been verified that the recommendations and demands required have been complied with.
- Supervisors authorized to issue and receive work permits will be responsible for the correct issuance of the same. They will also be responsible for ensuring that the security conditions are maintained during the time required to carry out the work.

A work permit will not be issued, covering several areas with different risks. As a general rule, each specific job will require a separate permit.

5.4.2.9 Complaints

A complaints procedure shall be outlined within the Contractor's safety management system and shall be available and used whenever a member of the public wishes to raise a complaint. CRB C's workers' grievance mechanism is an additional channel to raise observations or concerns

5.4.2.10 General Monitoring Arrangements

Safety standards will be monitored by the Contractor through:

- A continuous inspection process by the Site Project Manager is in force. A checklist for these inspections is included with the site safety records. These inspections will include all contractors working on the site and a report of all actions required will be given to the contractor's foremen with instructions to rectify non-conformance in a timely manner.
- Once per week the Site Project Manager or appointed representative will inspect fire equipment, first aid equipment (and replenish if necessary), registers and site documentation.
- Monthly by the Contract Manager or appointed representative, who will carry out an inspection of the site and produce a written safety inspection report for distribution.
- The scheduled progress meeting chaired by the senior Contractor representative will as part of agenda discuss health and safety reports, and relevant discussions between the Client, the Contractor and other relevant stakeholders.

5.4.2.11 Emergency Procedures

The Contractor shall document emergency procedures covering the following:

- On-site facilities and responsibilities e.g., First-Aid kits and designated First Aiders.
- Escalation procedures for incidents and accidents.
- Numbers for local emergency services and details of nearby hospitals and other emergency needs.
- Site evacuation procedures and an Emergency Plan for different types of emergencies e.g., fire, flooding, etc.
- Incident reporting requirements and accident investigation procedures.

More information on emergency procedures is provided in the Construction Contingency Plan provided in the next Section.

5.4.2.12 Health and Safety Risk Management

This section will be completed by the Contractor to present a summary of the key health and safety risks and controls that have been identified for the proposed construction project. The Contractor should determine what additional risks and proposed management controls are required based on their final design and work method statements. A project risk assessment or job hazard analysis for a specific task(s) should be performed.

The template table should be used for each of the following health and safety risks:

- | | |
|---------------------------------------|---|
| • Excavations | • Tag out procedures |
| • Use of heavy equipment | • Noise, vibration, and dust |
| • Use of and contact with power tools | • Hot works |
| • Working at heights | • Confined Spaces |
| • Manual handling | • Traffic management and protection of neighbouring communities/businesses. |
| • Live services | • Storage of waste materials |
| | • Temporary works |

Note that this is not an exhaustive list, and it would be expected that Contractors develop risk management strategies, controls, etc. that suit the scale/nature of the finalized construction project.

5.4.2.13 Key Performance Indicators

In addition to specific KPIs established for each specific activity, the following are general KPIs for H&S on site:

- Zero Lost Time Incident (LTI)
- Zero worker injuries
- Number of grievances by workers.
- Number of H&S incidents (observations, near-miss, new work hazard identified)
- Number of Work Permits issued
- Number of Job Hazard Analysis (JHA) performed
- Number of Toolbox meetings held
- Number of H&S meetings (supervision meetings or others)
- Number of workers using their PPE (which can be verified through observation cards, grievance mechanism or on the spot by the supervision firm)

Template

H&S RISK			
H&S Risk Identified			
Method statements and Risk assessment	Either detail here or refer to separate document		
Management Strategy			
		Responsibility	Timing
Control(s)			
PPE Requirements			
Performance Indicator(s)			
Monitoring			
Reporting			
Corrective Action(s)			

5.4.3 Construction Contingency Plan

This Contingency Plan (CP) provides a working template that will be used by the selected construction contractor (the Contractor) appointed by the Executing Agency (WSG). It details the typical requirements and focus areas for emergency management; however, it is recognized that the selected Contractor will have their own policies and procedures that will need to be inputted to this plan. It also recognizes that as the Contractor develops the Project designs, this will influence how construction will be undertaken, and these aspects will need to be integrated into this plan.

5.4.3.1 Introduction

Overview

This Contingency Plan considers general actions to be taken into consideration in case of emergencies related to the construction of the Project. Although some events can be prevented, as is the case with spills, fires, explosions, etc.; there are others that cannot be controlled; however, impacts can be mitigated by being prepared, as is the case with natural hazards such as: flooding and strong winds, etc. All of these events must be considered in a contingency plan.

The Contingency Plan is a live document and requires that the construction contractor carry out training activities and periodic drills for personnel, as well as continuous review and update of the physical and operational data, as well as equipment and products.

Objectives

The main objectives of this Contingency Plan are:

- Prevent or control operational emergencies or possible industrial accidents that may arise during the construction phase of the Project.
- Establish procedures and plans to respond in a timely and efficient manner, and with the necessary resources, to fires, accidents, attacks and any other emergency that may arise.
- Prevent the consequences of a major event (fire, spills of dangerous products) from damaging human lives and property.
- Manage equipment and installations through periodic inspections.

The contingency plan presents the most important guidelines for subsequent adoption and implementation by contractors. One of the fundamental purposes is to protect and safeguard the human life of all those involved and reduce the losses of public and private property.

There are three elements that significantly influence the success of any contingency plan, which are:

- Resources: appropriate personnel and equipment;
- Strategies, techniques and action plan; and
- Response management: leadership, cooperation and communication.

5.4.3.2 Emergency Levels

For the operation of the Contingency Plan, it is important to first characterize the emergency by seriousness of the situation in order to apply the appropriate level of response:

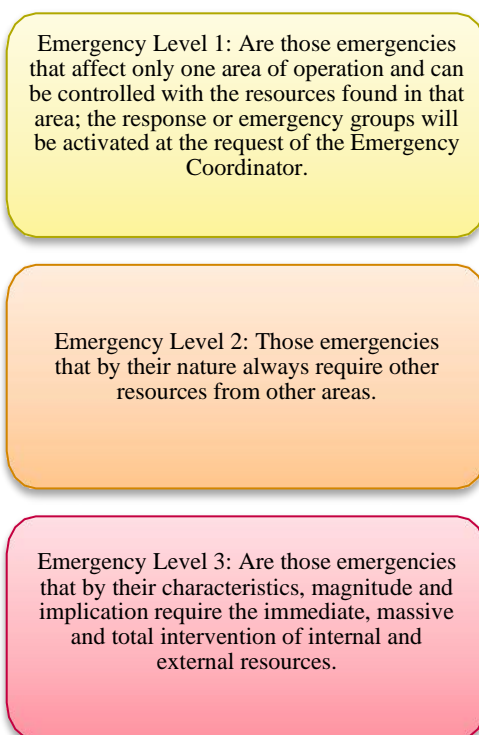


Figure 5.4.3-1: Emergency Levels

5.4.3.3 Procedures to be Followed During the Implementation of the Contingency Plan

Considerations for the designation of the appropriate response measures:

- **Identification of Available Resources.** The most important resource to respond to possible contingencies is the people present at the Project site. The actions to be developed will depend to a large extent on the knowledge, confidence and capacity of the staff to carry out the actions previously assigned in the respective plan. It is imperative that the people at the Project site meet training requirements and are provided with the appropriate personal protective equipment (PPE) emergency response equipment, and information to fulfil their mission.
- **Access to information.** Provide all the necessary information in a concise manner to minimize confusion, and to avoid rumors and exaggeration. Obtaining timely and updated information is a dynamic process and is the best way to provide feedback to the plan. Information will be communicated in keeping with the social engagement plan, which includes the landing page when operational. The landing page should become functional shortly. The Consultants will be given access to publish information on this page
- **Communication.** The problems associated with communication are mainly related to the

content of the messages, the means of transmission, and the interpretation by the person who receives it. Communication systems used internally should be prepared to handle a specific amount of information during an incident.

- **Priority setting.** At the scene of an incident, the personnel in charge of responding to the emergency must be able to alter priorities quickly, in order to face possible changing and/or unexpected situations.
- **Coordination between the Authorities.** An emergency coordinator must be determined for the Project by the contractor during the construction phase. This emergency coordinator will be in charge of coordinating with the appropriate authorities during an emergency.
- **Communication with the communities.** Throughout the construction phase, contractors must take communication initiatives with communities for their safety. These initiatives may include an emergency alert system, a method to provide information on Project activities and how to respond, collaborate with communities to establish action plans, organize demonstrations or training in how to respond to emergencies for communities, and/or identify the emergency response team to communities to establish a relationship before an emergency occurs.

Construction Phase

It is the contractor's and Project sponsor's responsibility to oversee risk management, this responsibility is shared with subcontractors if applicable. CRBC, as supervisor and owner of the project will have to ensure that the contractors manage risks and prepare an appropriate contingency plan as required. Therefore, the contractors and/or subcontractors will be required to comply with all safety, occupational health and environmental procedures to complete and deliver the work without incidents. As previously stated, Contingency Plans are live documents that may be revised and adapted if necessary, according to the appropriate requirements for the construction activities.

The Contractors and Sponsor will ensure compliance with the standards as required based on the type of work, by jobs or disciplines. Such obligations include but are not limited to:

- Guarantee workers with safe conditions in the workplace.
- Instruct and train workers regarding the prevention of accidents, occupational diseases, the risks to which they are exposed in the performance of their work; as well as the use of personal protection equipment according to the work done, through training sessions, posters, etc.
- Design a program of occupational health and safety according to the activities to be performed that contains safety measures to be implemented, in order to avoid injury to personnel or property damage.
- Provide workers with personal protection equipment, according to the work done to prevent injuries.

- Regarding vehicles, machinery and equipment, comply with preventive and/or corrective maintenance programs and safety requirements.
- Organize and maintain health and safety services such as first aid kits in accessible places and ensure staff is knowledgeable.
- Record in writing any statements made by the workers in relation to unsafe conditions and the worker's environment and carry out corrective measures immediately.
- Report any occupational diseases, work accidents and any other unsafe condition that is present in the workplace.

Employees will have to fulfil the following obligations:

- Exercising their specific functions in accordance with the work contract in order to avoid risks and protect their personal safety and health, and that of their work colleagues.
- Immediately report to supervisors any unsafe condition that could threaten their physical integrity or their own health and/or that of other workers.
- Use and maintain personal protection equipment as required, and immediately report to the person responsible for its supply, of the loss, deterioration or expiration of the same.
- Bring to the attention of your superior if you feel that the requested safety or security measures do not appropriately manage the risk.
- Immediately comply with any request that is made for the benefit of your safety and that of others.
- Care for and maintain sanitation and security facilities facilitated to the workers during the construction phase.
- Adhere to all safety and security requests made in the training materials, posters and posted notices.
- Accept the provisions of the medical service and the competent bodies in matters of occupational safety for the prevention, and treatment of occupational or non-occupational diseases, and occupational accidents.

Emergency Procedures

The following Section describes the actions and procedures to be considered by the Contractors and Sponsor in case of emergencies and events that may arise.

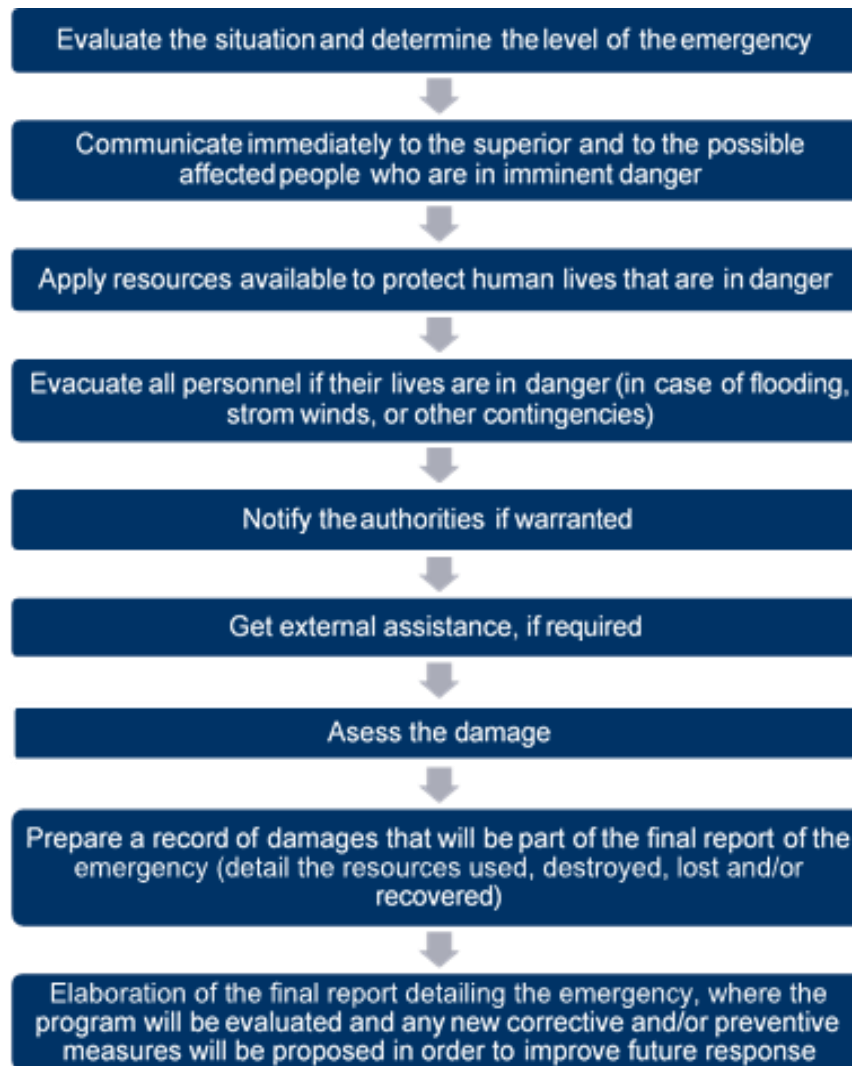


Figure 5.4.3-2: General Procedures during an Emergency

The Contractor or Sponsor must lay out a sequence of actions to be followed in the event of an unplanned event or accident, which may be as follows:

- Notification: Inform all personnel of the accident.
- Verification and evaluation: Confirm that the notification provides an accurate representation of the status of the works and associated risk at the moment that the notification of the event is received.

A notification scheme must be included in the Contingency Plan to include the main local authorities, (may include: the municipalities where the projects are developed, the local police, and/or the local firefighters).

Calling Plan

The Contractor or Sponsor must prepare a calling plan consisting of three types of communications, internal, external, and support.

Internal Calls: The internal calls include the communication of the emergency to top management personnel, as well as the members of the Contingency Plan who are outside the facilities.

Showing below how workers are confirmed safe after an event;

1. Immediate Check-In:
 - Workers report to their designated assembly points.
 - Foreman/ Engineer/ Team leader gather attendance.
 2. Safety Confirmation:
 - Foreman/ Engineer/ Team leader uses a checklist to confirm each worker's presence.
 - Any missing personnel are reported immediately to the Human Resource Manager.
 3. Reporting to the Site Supervisor (SS):
 - Team leaders communicate the status of their teams to the SS.
 - The SS receives updates from the Safety Officer about ongoing assessments.
 4. Final Report:
 - Health & Safety Manager compiles information from the Site Supervisor (SS) and a report. of all confirmed safe workers.
 - Any concerns or missing persons are reported to the Human Resource Manager.
 5. Communication to All Staff:
 - The Communication Officer disseminates information about the event and confirms the safety status to all employees.
- External Calls: Communication of the emergency to the appropriate Government Authorities depending on the type of occurrence.
 - Support Calls: Support personnel in order to control the emergency (dependent on the type), for example, the fire brigade, the national police, ambulance service, medical attention, if necessary, government authorities, etc.

Table 5.4.3-1: Contingency Plan Calling

Position	Responsibilities	Company	Name	Contact Details*	Order to call
Project Manager	Overseeing a project from initiation to completion, ensuring it meets objectives within the defined constraints of scope, time, and budget.	CRBC	WU XIAOWEN	+5927059542	4 th to be call
Site Supervisor	Overseeing a project from initiation to completion, ensuring it meets objectives within the defined constraints of scope, time, and budget.	CRBC	ZHOU ZHAO	+5926239208	3 rd to be call
Health & Safety Manager	Ensure safe work environment, reducing risks,	CRBC	ZHENG TIAN FENG	+5927001991	2 nd to be call

	and compliance with health and safety regulations.				
HSE Representative	Helps create a safer workplace, ensures compliance with regulations, and promotes environmental sustainability.	CRBC	ZHENG TIAN FENG	+5927001991	1 st to be call

Emergency Committee

An Emergency Committee must be organized by the Contractor for the construction phase. It is recommended that the Committee be composed of:

Table 5.4.3-2: Emergency Committee

Position	Responsibilities	Company	Name	Contact Details*
Project Manager	Overseeing a project from initiation to completion, ensuring it meets objectives within the defined constraints of scope, time, and budget.	CRBC	WU XIAOWEN	+5927059542
Site Supervisor	Overseeing a project from initiation to completion, ensuring it meets objectives within the defined constraints of scope, time, and budget.	CRBC	ZHOU ZHAO	+5926239208
Health & Safety Manager	Ensure safe work environment, reducing risks, and compliance with health and safety regulations.	CRBC	ZHENG TIAN FENG	+5927001991
HSE Representative	Helps create a safer workplace, ensures compliance with regulations, and promotes environmental sustainability.	CRBC	ZHENG TIAN FENG	+5927001991
Environmental supervisor	Ensure safe work environment, and compliance with health and safety regulations.	CRBC	ZHENG TIAN FENG	+5927001991
Security Supervisor	Overseeing the security operations of a facility or organization to	CRBC	To be determine (TBD)	To be determine (TBD)

	ensure the safety of personnel, property, and assets.			
Maintenance supervisor	Overseeing the maintenance activities of CRBC to ensure that equipment, facilities, and systems are functioning efficiently and safely.	CRBC	LIU WEI	+5926111407
Workers Health and Safety Committee Representative	Promoting workplace safety and health by serving as a liaison between employees and management	CRBC	ZHENG TIAN FENG	+5927001991

Safety and Health Committees

The main objective of Safety and Health Committees should be the promotion of cooperation between employers and employees in investigating, developing and carrying out measures to ensure the Safety and Health at work of the employees. The Workers Health and Safety Committee will make decisions about safety practices and standards. The workers' health and safety committee will;

- Inform and educate employees about safety standards for section B
- Create, and update documents that outline specific safety practices
- Hold regular safety training for all employees
- Regularly conduct inspections and safety audits for Section B

Other Activities should include: -

- The study of accidents and notifiable diseases, statistics and trends, so that reports can be made to management on unsafe and unhealthy conditions for corrective actions.
- Assistance in the development of workers safety rules and safe systems of works
- A watch on the effectiveness of the safety content of employees training
- A watch on the adequacy of safety and health communication and publicly promote the training and education of members and colleagues.
-

5.4.3.4 Types of Contingencies

The types of contingencies that may arise in the project areas are classified according to their origin:

- Natural phenomena, such as flooding, strong winds, etc.
- Operational emergencies or incidents normally caused by operations, fires, falling machinery,

etc.

- Industrial accidents of personnel or contractors, normally caused by unsafe acts, unsafe conditions or as a consequence of the natural phenomena or operational emergencies previously stated.
- Social phenomena such as sabotage, terrorism, robberies, etc.

5.4.3.5 Phases Considered for Each Event

Prevention Process

Organization and order

Prior to the start of the work, the Contractor or Sponsor will develop a safety, organization and order program for direction, providing guidance on everything from inspections to identify faults, to the types of collection waste/trash receptacles provided for the different types of wastes (organic, inorganic waste, solid waste, liquid, and hazardous waste). Transportation and final disposal methods, in accordance with the national regulations, must also be included. In addition, the following requirements will be fulfilled:

- Each employee will keep their work site clean and in good condition.
- The employee will notify his supervisor about spills of oil, grease, etc., and will be cleaned as soon as they occur.
- All tools, screws and any other material equipment used in the performance of a job will be kept in order, and these objects should not be placed in places where they can be dangerous.
- The flammable substances and wastes will be handled and stored accordingly in order to avoid the risk of spontaneous fire.
- There should be a staging area or adequate space for orderly storage of bulky objects, equipment, or materials.
- Every workplace should be provided with fresh and potable water in sufficient quantity for workers to use.
- The toilets and bathrooms (one toilet for every 20 workers) will be kept in optimal conditions and with a sufficient supply of toilet paper, water and soap.
- If employees eat at the workplace, the workplace should have a dedicate area for eating, protected from weather elements. No waste and debris will be left in place and the use of Styrofoam food containers is prohibit.

Training

Every worker, new or old, will receive operational training from their immediate supervisor (supervisor), in order to develop knowledge and skills for the safe execution of the assigned work, especially on:

- Industrial safety corresponding to construction.
- Occupational health.
- Fire Prevention.
- First aid.
- Personal protective equipment.
- Organization and order.
- Accident prevention.
- Accident analysis.
- Fire protection.
- Works that require written permission for their execution.
- Emergency control.
- Factors of physical risks (electrical, mechanical, noise and vibrations, lighting, heat, ventilation, etc.)
- Factors of chemical risks (smoke, gases in the environment (vapors, fumes), toxic, alkaline and corrosive substances, etc.)
- Other risk factors (health, third-party actions, environmental, etc.).

Emergency Response Actions

The Contractor or Sponsor shall prepare a list of general emergency response actions to include:

- Upon receiving notice of an emergency, immediately evaluate the level of emergency and determine which response measures are necessary, notifying the corresponding response groups.
- If necessary and in accordance with the magnitude of the event, order the evacuation of the area or facilities and initiate the respective response procedures.
- Notify the relevant authorities.
- Consult the emergency response procedures in order to verify the appropriate response for each emergency, ensure all the response procedures have been applied and record descriptive information of the event.
- Restrict access to the event area.

Procedures to be followed during a Natural Disaster (Natural Disaster Risk Management)

General Actions in the Presence of Floods

In the case of the occurrence of threats due to extreme weather conditions, the following actions should be considered:

Preparation

- Train operational personnel to act in the event of flooding emergencies, so that personnel are

prepared for these events.

- Conduct period maintenance cleaning of all drainage canals to remove trash, sediment, and other debris to promote adequate drainage of stormwater during these events
- Inspect emergency equipment and make sure it is ready for use. Ensure emergency equipment includes drinking water and canned food.
- Secure with ropes or chains all equipment that cannot be secured inside a building.
- Place the vehicles in a manner so they are protected against hurricane winds.
- Call the relevant authorities for the Project or Operations, the Police and the security company, if any, and indicate that only the minimum emergency personnel will be left on site.
- Close the main gate if able to.
- The coordinator will determine, according to the prevailing or progressive conditions, if emergency stop procedures should be executed.

After the Emergency

- Equipment will not be energized/turned on until it has been checked by expert electricians/mechanics.
- In case of spills or fires, implement response procedures in accordance with the procedures related to these events in the contingency plan.
- Take a tour and assess the damages incurred.
- Proceed to repair minor damages and those necessary to provide immediate service.
- Proceed to clean debris and artefacts that obstruct the operations of the same.
- Prepare a written report at the end of the emergency. Said report shall contain the results of estimation of damages to the property of the company, affected persons, damages to private properties, and to the environment.
- Response plans should be updated based on the emergency to remain effective.

When flooding events are exacerbated due to drainage blockage (caused by construction activities), the CRBC contractor will divert traffic to avoid people and vehicles from crossing the flooded area, while the drains get unblocked/the issue is resolved. Depending on the size of the flood and the section when it occurs, CRBC along with the CRBC contractor can add another detour road to the Project area.

Fires and/or Explosions

A fire can lead to serious damage to equipment or personnel, and should be taken care of as quickly as possible. The following recommendations should be included in the Contractor's Contingency Plan in

case of a fire.

Before a Fire

- Provide training to all personnel through courses on fire practices and simulations of accidents, use of fire extinguishers, etc.
- Have infrastructure and equipment for fire protection, and extinguishers that work in different environments depending on the type of project (for example, Class A extinguishers for ordinary combustibles such as wood and paper, Class B extinguishers for use on flammable liquids like grease, gasoline and oil, etc.).
- Develop rigorous preventive maintenance programs for all types of equipment, inspect and recharge fire extinguishers, etc.
- Identification and signage of safe areas and establish evacuation routes in all facilities or work fronts.
- Keep extinguishers in good condition.
- Provide first aid kit, battery-operated flashlights, extra batteries, etc. on site.

During a Fire

- Evacuate and or stop work in the area and / or facilities.
- Communicate with the local Fire Brigade, National Police and other entities depending on the severity of the emergency.
- Protect mouth and nose with damp cloths.
- Keep calm and avoid running.
- Assist affected people immediately, if any.
- If appropriate, try to put out the fire with the use of extinguishers and other existing means. Ensure extinguishers are periodically inspected to ensure they are in working condition.
- If any equipment is involved in the fire or explosion, the operator must manually disconnect the electrical power that feeds the equipment, as long as it can be done safely or without risk to human life.

In the event that the fire cannot be fought directly with the extinguishers, or there is danger to the personnel, the actions to be taken are:

- Notify firefighters immediately for help.
- Evacuate the place to the meeting point previously agreed in the training plan and risk drills.
- Once the firefighters have determined that the emergency has ended, the emergency

coordinator of the project owner should be informed.

- Proceed along with the maintenance crew to an inventory of damages and then make a detailed report on the matter.

After a Fire

- Clean the affected area.
- Remove all debris.
- Repair and / or demolish affected facilities in case of major damages.
- When the fire has been extinguished, proceed with the maintenance crew to prepare an inventory of damages and then make a detailed report on the matter.

Adequate Staff Training

Practices or simulations should be carried out every six months (can include coordination with the local Fire Department), and should include response procedures for personnel all personnel.

Use and Disposal of Fire Extinguishers

- Fire extinguishers must be located in appropriate places and easily accessible.
- Every extinguisher must have a plaque with the information about the kind of fire for which it is suitable and expiration date. Also, they must have operation and maintenance instructions.
- Each extinguisher must be inspected every two months, tested and maintained in accordance with the manufacturer's recommendations; similarly, they must carry a label with test dates and expiration date.
- If an extinguisher is used, it will be refilled immediately; or if necessary, it will be replaced immediately.

Spill contingency response

The purpose of spill contingency response measures is to provide a course of action, which will be implemented to allow a prompt and orderly response to spills that may occur during construction. A spill of any liquid, solid or gaseous substance, which could impair the usefulness of the land, water or air where it is released will be responded to by the procedures outlined in this contingency plan. The main objectives of the Spill Contingency Response are:

- To reduce the risk of harmful exposure to individuals and the surrounding environment;
- To clearly outline the action to take if a spill will occur; and,
- To ensure that project staff is aware of the correct response required. Preparation:

- Implementation of sumps and oil traps to prevent leaks and spills from contaminated surface water
- Storage of collected material in drums before transport to a licensed disposal site
- Preparation and availability of spill kits on site

Equipment and Materials Needed for Spill Response

The contractors will have a spill kit to deal with spill incidents. The spill kit will be stored at the Contractors site office and/or strategic places to be used in the event of a Spill. The kit will comprise the following materials:

- Absorbent material, such as sand, sawdust, absorbent cloths (depending on spilled material), absorbent foam
- Skimmers
- Fire extinguishers
- Gloves, safety goggles and respirators and boots
- Gallon sealable containers
- Caution Tape
- Bags containing saw dust
- Bags containing white sand
- Plastic Spade
- Heavy Duty Garbage Bags
- Empty Five Gallon
- Containers with lids to store spilled materials.
- Photographic camera to document the incident

In the event of a spill, formal communication including completion of an incident investigation report will be sent to all relevant personnel which includes the IDB and may include local authorities. The time frame for reporting spill incidents is dependent on the nature and severity of the spill in line with general good practice guidelines for incident classification. The extent of contact with local authorities will also depend on the classification of the spill.

Falls from Heights, Cut Wounds, Electrocution and Burns

Before

- Training for personnel should include industrial safety so that they do not commit unsafe acts and use the appropriate protective implements, such as a helmet, boots, safety glasses, restraint harness, etc.
- Also, training of personnel in the implementation of first aid, so that they may help injured co-workers or themselves, until the arrival of medical or paramedical personnel to the place of the accident or their transfer to a hospital for professional attention.
- Provision of personal protection equipment to all workers, as necessary.

During

In case of an accident in the facilities, the staff will act as follows:

- If it is a minor accident, apply first aid to the injured person and transfer them immediately to the nearest clinic or hospital so that they can be seen by a doctor, in order to rule out possible after-effects.
- If it is a serious fall from heights, shelter the injured person and request an ambulance for immediate transfer to a hospital.
- If a person is not breathing, provide rescue breathing (mouth-to-mouth breathing or mouth-to-nose) and request an ambulance for urgent medical attention.
- In case of burn, do not apply home remedies to the injured only water at the time and request an ambulance for its transfer to the clinic or hospital soon.
- For hemorrhage from a puncture wound, hold a gauze in place to avoid blood loss. If located in the extremities, make a tourniquet to cut blood loss, loosening the tourniquet every 10 minutes to avoid gangrene and to move the injured person to a nearby assistance center.
- If trapped with weight on the chest, lever the heavy element and remove it so that the victim does not suffocate, until the arrival of the ambulance.
- If the victim has suffered an electric shock, ensure they are breathing, provide rescue breathing (mouth-to-mouth breathing or mouth-to-nose), and simultaneously request medical assistance or transfer to a clinic or hospital.

Immediate attention to an injured person through knowledge of First Aid can save a life. Always seek the appropriate medical attention by a professional.

After

- Analyze the causes of the accident and the actions taken to assist.
- Prepare the preliminary and final report of the industrial accident.

Equipment or Infrastructure Failure

- The person who detects a fault or failure will immediately notify the Supervisor or Chief of Operations identifying themselves and indicating the place and type of emergency.
- Try as much as possible to isolate the area or prevent vehicles or people from approaching.
- After overcoming the problem, analyze the root cause of the emergency/fault or failure.
- Prepare preliminary and final reports and submit them to the appropriate authorities in a correct and timely manner.

Damage to infrastructure

The Contractor should conduct an assessment of existing properties within the Right of Way. This includes fences, walls, and buildings (commercial and private) to determine preexisting conditions of all

structures prior to the start of construction activities. Reports of infrastructure damage resulting from construction activities are to be submitted to the appropriate authorities to determine adequate response.

Attacks and Sabotage

- Provide strict control of the entry of personnel into the facilities by a contracted Security Company, as well as provide surveillance in strategic areas, as necessary.
- In the event of an attack or sabotage, the person who detects it will immediately notify the emergency supervisor of the emergency, indicating the place and equipment affected.
- The shift leader will immediately inform the Police and personnel in charge of the surveillance of the facilities, to neutralize the aggressors.
- If an attack leads to an emergency event (such as a spill or fire), the response strategy to the specific type of emergency will be determined and instructions will be given to the external support units: police, fire brigades, etc.

Prepare preliminary and final reports and submit to the appropriate authorities in a correct and timely manner.

5.4.3.6 Key Performance Indicators

- Percentage of actual versus planned emergency drills carried out
- Percentage of actual versus planned maintenance activities for drainage canals carried out
- Total training hours for the safe execution of work
- Reporting of incidents (natural phenomena, operational emergencies or incident, industrial accidents, social phenomena)

5.4.4 Human Resources and Labor Management

5.4.4.1 Forced labor

Although the risk of forced labor is low, CRBC will ensure forced labor is not present in any work or service performed by the contractor or any subcontractor or anywhere in the Project supply chain. Forced labor is defined as any involuntary or compulsory labor which includes:

- Indentured labor
- Bonded labor
- Labor-contracting arranges
- Employment of trafficked persons

If forced labor is identified the EA will take immediate action to remedy the situation.

5.4.4.2 *Child labor*

The minimum working age in Guyana is 15. No hazardous work is to be undertaken by individuals less than 18 years of age. This is in line with the minimum age requirements as established by IDB ESPS 2. CRBC is responsible for identifying all individuals employed under the age of 18. All work performed by individuals under the age of 18 will undergo an appropriate risk assessment and regular monitoring to determine the adequacy of health, working conditions, and working hours. the Project will comply with the national regulation. Those over the minimum age but below 18 shall not engage in the following activities:

- Work that is economically exploitative
- Work that is considered hazardous
- Work that may interfere with the child's ability to receive an education
- Work that is harmful to the child's mental, physical or spiritual state
- Work that can result in health impacts
- Work that is deprives the child's social development.

5.4.4.3 New Employee Safety Orientation

Trainings will be developed in two phases, first will be carried initial training and second refresh training session to ensure employee’s awareness and competence.

Specialized training must be completed to perform activities as work at heights, hot works, confined space, electrical works, hazardous materials handling, lifting operations, and other activities that are considered medium or high risk evaluated.

Initial Training

Management personnel responsible for enforcing this procedure shall read this procedure and complete a testing to demonstrate understanding of its requirements.

Refresher Training

Refresher training will be ongoing thorough the life cycle of the project.

Figure 5.4.4-1 ESHS Orientation Checklist

PART 1: GENERAL DISCUSSION		
ENVIRONMENTAL AND SAFETY POLICIES, PROGRAMS & RESPONSIBILITIES		
Inform the employee of the following Company policies and programs, and his/her responsibilities regarding safety and health issues.		
Yes	N/A	
		CRBC and CRBC contractor's Policies regarding ESHS.
		IDB Environmental and Social Policy Framework and Construction ESMP
		Code of conduct to be signed by employees (with refresher training every year). A copy of the CoC will be annexed to the contract where applicable.
		The employee's responsibility for performing his/her work in a safe manner, in accordance with policies and procedures, and Guyana Laws and Regulations.
		ESMP minimum requirements for wearing personal protective equipment, including hard hats, safety glasses, and steel-toed safety shoes or boots.
		The employee's responsibility is to report all injuries and incidents, including near misses, to his/her supervisor. Inform employees where to get reporting forms and procedures for completing them.
		The disciplinary policy regarding violation of safety policies and procedures.
		The employee's right to report hazardous or unsafe conditions without fear of reprisal (Stop Work Authority).
		The workers’ Grievance Mechanism.

		The alcohol, smoke, drugs and psychoactive prevention of consumption policy.
		Traffic and Pedestrian Management Plan. The use of mobile phones (talking, texting, checking email, etc., even when equipped with hands-free devices) is always prohibited when operating a vehicle.
		The responsibility for attending daily EHS talks and EHS meetings.
		The employee's responsibility for participating in mandatory safety and E&S training.
		Prohibition of weapons (e.g., firearms, knives, etc)
		During workers training and induction excerpts the ESMP will be delivered. Examples tool box talks: EHS training, SHP, GRM, among others.
<p>Initial Safety Equipment Issue:</p> <p>Uniforms, PPE requirements & participation in applicable programs: head protection (eye, face, ear), hand protection, foot Protection, respiratory protection, and fall protection).</p> <p>Required PPE shall be issued, or made available, and requirements for use shall be discussed in the following:</p>		
		Uniforms
		Hard Hat
		Safety Glasses
		Earplugs
		Steel-toed safety boots.
		Other (specify)
<p>PART 2: OVERVIEW OF PROCEDURES / POLICIES / PROGRAMS</p> <p>Inform the employee of the hazards associated with the site and the job he/she will be performing. The plans and procedures to control the risks and how to avoid accidents and illness.</p>		
<p>Safety Training</p> <p>Briefly discuss the following safety programs with all full-time, part-time, and temporary Company employees. Discuss applicable programs with temporary service company employees based on their level of involvement and responsibility.</p>		
Yes	NA	
		Safety Orientation

		Safety Observation & Stop Work Authority
		Construction Health and Safety Management Plan
		General Safety Rules
		Personal Protective Equipment
		Permit to Work System and Job Hazard Analysis (work at height, hot work, electrical work)
		Housekeeping & Office Safety
		Ergonomic Hazards (Heavy lifting, repetitive motion)
		Use of forklifts and major construction equipment
		Signs & Tags
		Contractor Management
		Pre-start Safety Review
		Hazardous Materials (Describe various types of hazardous materials present.)
		Flammables and Combustibles
		Hazardous Energies (Work requiring the use of a lockout/tagout.)
		Hearing Conservation Measures and High Noise Areas
		Respirable Dust
		Bloodborne Pathogens
		Fire Protection Systems & Portable Fire Extinguishers
		Fire Prevention Plans
		Hazard Communication
		Heat Stress
Environmental Management Plan		
Yes	N/A	
		Waste Management
		Air Quality Management Measures
		Noise Management
		Sediment and Erosion Control
		General Housekeeping

EMERGENCY PREPAREDNESS AND RESPONSE PLAN: EXPLAIN OPERATION OF SAFETY/EMERGENCY EQUIPMENT, INCLUDING:		
Yes	N/A	
		Construction Contingency Plan
		Medical Emergency Response Procedures
		Fire and Explosion Response Procedures
		Spill Response Procedures
		Natural Disaster Response Procedures
		Accidents (falls, cut wounds, burns)
		Evacuation procedures
PART 3: TOUR OF WORK AREA		
		Break Rooms
		Restrooms
		Safety Equipment & Supplies
		Safety Observations
		Extinguishers
		Eyewash and Emergency Showers
		First Aid Kits
		Incident Reporting Forms
		Hazardous Waste Storage Areas
		Chemical Storage Areas (Point out various labeling systems used.)
		Flammable & Combustible Storage Areas
		Hazardous Noise Level Areas

5.4.5 Chance Find Procedure

5.4.5.1 Introduction

The purpose of this procedure is to protect cultural heritage that is inadvertently discovered during construction activities of the Relief to Soesdyke Project. CRBC understands that cultural heritage has high social value, is susceptible to disturbance, and is a finite resource. Cultural heritage is protected for its historical, cultural, scientific, and educational value to the scientific community, local communities, general public, and future generations. Impacts to cultural heritage must be avoided or carefully managed

5.4.5.2 Objectives

The objectives of this procedure are:

- Identify, record, and protect cultural heritage that has not been previously identified (i.e., chance finds); and
- Protect cultural heritage identified during previous cultural heritage investigations (i.e., known resources).

5.4.5.3 Procedure

Chance finds can be made by anyone in the Project, including CRBC direct workers, contractors and subcontractors, visitors or guests. The following types of cultural heritage could potentially be found during construction:

- Archaeological features (e.g., habitations, hearths, burials);
- Artifacts (e.g., ceramic sherds, stone tools);
- Historic archaeological features (e.g., brick wells and foundations);
- Historic artifacts (e.g., clay pipes, bottle fragments, and coins);

In case of a discovery, the following activities will occur:

- The perimeter of the archaeological resource or site will be marked with high-visibility caution tape;
- Signs will be posted that the marked area is a protected archaeological site and that entry with mechanized vehicles is prohibited.
- Depending on the discovery, a cultural Heritage Specialist will be called to get to the site and remove the artifact from the discovery area
- When ground-disturbing activities in the area are concluded, the caution tape and sign will be removed.

5.4.5.4 Project Roles, Responsibilities and Contacts

The Project roles to implement the Chance Finds Procedure are displayed below.

Figure 5.4.5-1: Project Roles, Responsibilities and Contact Details to be Finalized by the Construction Contractor for the Chance Find Procedure

Position	Company	Name	Contact Details*
Project Manager	CRBC	WU XIAOWEN	+5927059542
Site Supervisor	CRBC	LIU WEI	+5926111407

Environment Manager	CRBC	ZHENG TIANFENG	+5927001991
HSE Representative	CRBC	ZHENG TIANFENG	+5927001991
Social Development Officer	CRBC	KEVIN LASHLEY	+5926017132

5.4.5.5 Training, Awareness, and competency

Relevant Project personnel (i.e., all Project personnel involved in ground-disturbing activities) will receive training and demonstrate competency in the identification of chance finds and the Chance Find Procedure described above. This training will be incorporated into the overall induction process for Project and contractor personnel and will include a quick reference handout. The Project Manager and Site Supervisor will maintain records of all Cultural Heritage Training provided to Project personnel.

All employees must be aware that it is illegal and forbidden to disturb or remove cultural heritage objects offsite for personal gain. To support the training process, the Project will develop training materials for use in the overall induction process.

The Project Manager and the Site supervisor will maintain records on chance finds and the implementation of treatment plans. These will include:

- Monthly reports summarizing reporting period activities, including chance finds identified, the results of any chance find assessments, internal and external communications and instructions, and supporting photographic documentation (or other reference materials as appropriate); and
- Any additional reports prepared to fulfil specific requirements of the IDB.

5.4.5.6 Key Performance Indicators

KPIs related to the Chance Find Procedure are:

- Number of Toolbox talks regarding the Chance Find Procedure
- Number of discoveries, if any.

5.4.6 Monitoring and Review

5.4.6.1 Introduction

Monitoring and measurement activities are conducted to ensure that the ESMS is effectively implemented and the impacts, risks, and compliance obligations are appropriately managed. The ESMS defines dynamic mechanisms, such as internal inspections and audits to this aim. It identifies the information, including KPIs, that is periodically checked, measured, and recorded to track CRBC's performance.

Through monitoring and performance, CRBC:

- Establishes ESHS KPIs that allow quantitative measures of performance;
- Establishes the activities to collect data and information required for updating KPIs;
- Monitors key characteristics of operations and activities that can have significant ESHS impacts, and that can generate significant H&S risks;
- Tracks its ESHS performance (including progress in achieving objectives and targets);
- Tracks compliance with established procedures and regulatory requirements; and
- Calibrates and maintains monitoring equipment.

Monitoring criteria for the following areas should be established:

- Effectiveness of the ESMS operational control documentation to manage the significant ESHS impacts and risks generated by CRBC's activities and its contractors;
- Conformity with ESHS regulations and other requirements related to the Project ESHS impacts and risks; and
- Achievement of ESHS objectives and targets and the progress of the ESHS programs.

5.4.6.2 Objectives

The purpose of the Monitoring and Reporting Management Plan is to describe the methodology to develop and implement effective monitoring of the Project's environmental and social performance based on systematic data collection and analysis.

An effective Environmental, Social, Health and Safety (ESHS) monitoring supports CRBC to:

- Evaluate ESHS performance;
- Assess the effectiveness of mitigation and compensation measures;
- Assess compliance with ESHS legal requirements;
- Measure progress toward achieving ESHS improvement objectives and targets;
- Gather information to improve performance and increase efficiency;
- Assess compliance with the IDB Environmental and Social Policy Framework requirements; and
- Identify nonconformities and areas requiring corrective actions.

5.4.6.3 Scope

The Monitoring and Reporting Management Plan forms a part of the ESMS document system. It covers all Project activities. It includes activities carried out on CRBC behalf by contractors and subcontractors.

5.4.6.4 Selection of Key Performance Indicators

Each plan described in this ESMP provides Key Performance Indicators (KPIs) in either the example management tables or at the bottom of each plan.

KPIs are selected to measure and evaluate the Project's ESHS performance or to obtain relevant information about CRBCs processes to achieve objectives and the desired performance. The KPIs or metrics developed in this ESMP take into account the following attributes:

- Specific;
- Measurable;
- Attainable and timely;
- Simple and understandable;
- Objective;
- Practical;
- Comparable,
- Accurate;
- Reliable;
- Relevant to achieve the objectives and targets; and
- Relevant to inform about ESHS performance.

5.4.6.5 KPI Assurance and Monitoring Implementation

For KPIs that have to be monitored, the following information must be defined:

- Plan / Management Program;
- KPI, factor, hazard, or aspect;
- Goal / Limits
- Frequency;
- Method / Tool describing the appropriate technology as needed;
- Responsibilities and an Action Tracking Register.

Monitoring and measurement results should be evaluated at least once per month to evaluate the efficiency of the proposed mitigation measures, assess compliance with ESHS legal requirements, and verify the effectiveness of the ESMS processes allowing the identification of potential deviations. CRBC conducting monitoring and measurement activities can identify non-compliance situations.

Table 5.4.6-1 Non-Conformity and Corrective Action Report Form

Report No.				Date:	
Description / Root Cause Analysis (add more pages as needed):					
Action	Worker	Due Date (MM/DD/YYYY)	Evidence	Verification date (MM/DD/YYYY)	Comments
	Yes	No	New corrective action No.	Incident investigation number	
Has the risk been eliminated?	<input type="checkbox"/>	<input type="checkbox"/>			
Closure date (MM/DD/YYYY):			Signature:		
Approved by: Name:					
Position:					

5.5 Public Consultation Meeting

5.5.1 Consultation Plan Key milestones

There are five milestones in relation to public consultation:

1. Prepare consultation materials (invitations, Power Point presentations, posters, brochures, or other visual materials).
2. Notify the nearest Neighborhood Democratic Council (NDC) that CRBC will hold a Public Consultation event about the Project.
3. Hold a meeting between IDB, CRBC and external consultants as needed, regarding the agenda of the event and participants
4. Conduct the Public Consultation event to inform stakeholders of the Project. Stakeholder feedback will be registered and considered for the ESA/ESMP
5. Issue updates to the general Public at least quarterly about the progress of the Project. These can be in form of brochures, public announcements (in radio or newspapers, website) or bulletins, detailing the progress of the construction in non-technical language.

The first Consultation event for Section B will take place on the 16th of October 2024. and added as a public disclosure of this document (ESA/ESMP, 2024). Based on Stakeholder views, said documents will be updated. For this Event, the steps above will be taken. This first meeting will be open to the general public, it is expected that people living or having economic activities along the road will attend. The agenda of the first meeting will focus on the following. The meeting will also be live-streamed on the Ministry of Public Works Facebook page. Stakeholders can also join via Zoom.

- Presentation of the Project
 - Background and project description in non-technical language
- Tentative schedule of activities
- Main risks and impacts
- Controls and mitigation measures; general description of the ESA/ESMP
- Description of the External Grievance Mechanism and its channels.
- Next steps (start of construction, future meetings, how will the Project provide updates to the community)
- Questions and Answers (Q&A) session.

Specific provisions for the consultation event are as follows:

- Types of invitations: invitations will be published in the local newspaper, broadcast in radio

announcements, transmitted via WhatsApp® (using CRBC's distribution list), The MPW's Facebook page and other social media platforms, and indirect mailings to NDCs. Invitations will be sent at least 10 days prior to the event.

- Groups of stakeholders: The invitations will be intended to reach all stakeholders along the Project corridor of 9.548 km, including residents, business owners, mobile vendors, NDC representatives, and the community at large.
- Information provided in advance of the meeting: The environmental documents will be published on CRBC's webpage (Work Services Group | Ministry of Public Works (mopw.gov.gy)) and the address will be provided in the invitation materials.
- Follow-up to promote participation: Announcements on newspapers and radio will be repeated at least 5 days before the event. CRBC will send reminders to the NDCs.

Stakeholder Engagement and Stakeholder meetings will continue during construction. At least one meeting will be held once the CRBC contractor is selected prior commencement of activities and additional meetings will be scheduled as needed. The following section describes the general approach for public consultation and stakeholder meetings during construction going forward.

5.5.2 Consultation Process during Construction

5.5.2.1 Background and Objectives

Consultation with stakeholders is key for informed decision-making and good governance. Meaningful stakeholder consultation has the following objectives:

- Capture the view and perception of people who may be affected by the project
- Validate and verify data obtained through environmental and social assessments carried out
- Enable project-affected individuals to understand their rights and responsibilities in relation to the Project
- Foster trust and transparency between stakeholders and the project

Stakeholder Engagement and consultations will occur throughout the construction phase, as needed.

5.5.2.2 Responsibility

CRBC is responsible for ensuring stakeholder engagement is carried out in line with this consultation plan. CRBC already appointed a social specialist responsible for ensuring project safeguards are being met and to oversee implementation of the consultation plan including: (i) ensuring stakeholders are aware of meetings and events; (ii) minutes of meetings are produced and circulated; (iii) project public education, such as the project website are coordinated and maintained. Additionally, the Social Development Officer (SDO) will lead the coordination of

consultation events and all stakeholder communication, throughout the Project's construction phase.

The Social Development Officer (SDO) will maintain the following responsibilities:

- Serve as the point person for the public to interface with the project.
- Man, the Telephone Hotline.
- Attend quarterly contractors' Open Forums keep a separate report of issues as well as log of any complaints.
- Accompany the Social Development Officer when they interface with specific stakeholder groups as requested.
- Oversee the production and dissemination of project information in the form of signs, posters, and flyers.
- Meet with NDC's and other local authorities such as heads of schools, health centers, police stations, businesses along the EBDPR, etc. to facilitate partnerships for stakeholder outreach and information dissemination.
- Have overall responsibility for tracking, planning, participating, and reporting on stakeholder engagement activities as specified in this Project Communication Mechanism
- Conduct monitoring and evaluation tasks.

Stakeholders can be engaged in a variety of ways including public meetings, focus group meetings, open forums, telephone, or via direct contact with individuals. The Social Development Officer (SDO) should engage with stakeholders early in the Project lifecycle, when Tender Documents go on sale and prior to the Bidding Process.

5.5.2.3 Consultation materials

CRBC will prepare, with support from external consultants, consultation materials that will serve to disclose information to affected stakeholders, these can be invitation/notification letters, PowerPoint presentations, banners, posters or other visual materials to discuss the Project in non-technical language, brochures, videos, among others.

Feedback will be recorded in a matrix with the Stakeholder's description of their concern, questions or comments and responses when applicable, by CRBC.

5.5.2.4 Contractor Consultation with Stakeholders

The different types of stakeholder engagements during construction are the following:

Contractors' Open Forums: allow stakeholders another avenue for engagement and an opportunity for discussions to better understand the project and various safeguards. Open Forums will also create a channel between the contractor and community that can reduce the levels of misunderstanding, conflicts and allow the project safeguards staff to meet and become familiar with stakeholders in their work zone. The Contractor's work plans and other plans required by the ESMP as well as the final road design

should be made available and discussed as required. The Open Forums are also another channel to receive any complaints and formally log them.

Initial and closing site conferences: work out details relating to work and schedules. The EA and Contractor should host the MSC and all relevant NDC members at the field site for a show and tell so that MSC members have firsthand exposure to the site and field issues related to environmental and social safeguards. The Initial Site Conferences should occur as specified in the ESMP before construction begins.

Village Inception Meetings in Each Settlement: discuss traffic and local access arrangements and the overall construction plan. These meetings are important for introducing the contractors to the communities and should be fully supported by the EA, NDC and MSC and CLO. Given that this project will pass through nineteen villages, the contractor may choose to cluster smaller ones together. In the case of Relief and Soesdyke it may be advisable to hold more than one meeting.

5.5.2.5 Key Performance Indicators

KPIs for the Consultation Plan are:

- Number of Contractors' Open Forums held and number of stakeholders in attendance
- Attendance of Initial and closing site conferences
- Number of Meetings and number of stakeholders in attendance
- Number of men and women who attended and participated
- Feedback shared

6. CONCLUSIONS

6.1 Impact Assessment Overview and Environmental Characterization

In accordance with IDB ESPF, screening and classification, the Project will have impacts on the environment and the community and is therefore classified as Category “B.” Category B projects “are likely to cause mostly local and short-term negative” impacts, for which “effective management measures are readily available”. The ESA determined that the Project would likely result in some environmental and social impacts, but these impacts could be readily mitigated and managed, as long as the actions identified in Table 5.4 and in the ESMP are effectively implemented.

Monitoring measures should be used in addition to implementing measures to minimize or avoid the potential adverse impacts of the Project. Measures to enhance the positive effects of Project activities, as described in the ESMP, could be implemented to maximize the short- and long-term benefits of the Project. Ultimately, implementation of the Project would result in positive environmental and social outcomes because the proposed Project will improve road conditions, facilitate economic growth, and make travel in the Relief to Soesdyke corridor safer and more efficient.

7. REFERENCES

[A look at the Diamond Diagnostic Centre - Guyana Chronicle](#)

Bleackley, D. 1956. Geology of the superficial deposits and coastal sediments of British Guiana, U.S. Geol. Surv., Bull. 30, 46 pp.

Bureau of Statistics, 2016. 2012 Population Census: Compendium 4

[Caribbean Development Bank, 2022. Request for Proposals Linden to Mabura Hill Road Upgrade. Doc No. 20220308](#)

Cedar Lake Ventures. 2021. Average Weather in Georgetown. Available at: <https://weatherspark.com/y/29070/Average-Weather-in-Georgetown-Guyana-Year-Round>

Central Housing & Planning Authority, 2019. Livelihood Restoration Plan. Document No. LRP/1.0. Rev.3.0.

E. Persaud, February 2014. Sea Level Rise and the Coastline of Guyana [Education and Training \(statisticsguyana.gov.gy\)](#)

Egis/SRKN & Sinohydro, 2021. GRF Log Analysis Summary.

Environmental Protection Act, 1996. <http://ggmc.gov.gy/main/sites/default/files/Divisions/Environmental%20Protection%20Act.pdf>

Esri, GEBCO, Delorme, Natural Vue, IHO-IOC GEBCO, & NGS. (n.d.). *Map of Guyana Showing Proposed Road Development Projects*

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment, FTA-VA- 1003-06, Federal Transit Administration Office of Planning and Environment Washington DC. Government of Guyana (GOG) and Inter-American Development Bank (IDB), 2015. Final Social Engagement Plan

Guyana adequate Housing and Urban Accessibility Program and Program to Support Climate Resilient Road Infrastructure Development Transport Division Supervision and Special identification Mission. March 2022

Guyana Chronicle, May 19, 2019. Wendella Davidson - A look at the Diamond Diagnostic Centre.

Guyana Lands and Survey Commission. 2013. Guyana National Land Use Plan. Guyana Lands and Surveys Commission with assistance from Development of Land Use Planning Project. Georgetown.

Guyana Water Incorporated, 2017. Regional Profiles: Region 4 East Bank Demerara

http://parliament.gov.gy/documents/acts/4680-act_no_6_of_2006.pdf

<http://parliament.gov.gy/documents/bills/Act%20No.%2014.pdf>

<https://guyaneseonline.files.wordpress.com/2013/12/the-wonderful-demerara-river.pdf>

<https://worldpopulationreview.com/countries/guyana-population>

IDB Transport Gender Lab. Gender and Transport Proposal Guyana. IDB, 2021. Environmental and Social Policy Framework. Available at:

<https://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=EZSHARE-110529158-160>

IDB, 2022. GY-L1081 Project Profile Package

IDB, 2022. Initial Environmental and Social Review Summary. Document No. 42903-GY-L1081. Rev. 02B.

IMC WorldWide, January 2015, Summary Overview of SEP Activities: Budget, Responsibilities, Means of Stakeholders Mobilization and Means of Verification of Implementation.

IMC Worldwide/CEMCO, 2015. Environmental and Social Impact Assessment Report. IMC Worldwide/CEMCO, 2015. Final Social Engagement Plan

IMC Worldwide/CEMCO, 2015. Topographic Surveys and Surveys of Road Cross Drainage Structures Report.

IMC WorldWide/CEMCO, August 2014. Safety Assessment Report

IMC WorldWide/CEMCO, August 2014. Safety Assessment Report. Document No. 5447 IMC

WorldWide/CEMCO, Feb 2015. Open section (80km/h)

IMC WorldWide/CEMCO, February 2015. Typical Details Road Layout Cross Section IMC

WorldWide/CEMCO, March 2015. Economic Appraisal – Final Design

IMC WorldWide/CEMCO, March 2015. Pavement Design Report.

IMC WorldWide/CEMCO, October 2015 – March 2015. Report of Stakeholder Consultations Social Engagement Plan Findings Second Phase Final Report

IMC WorldWide/CEMCO, September 2014. Drainage Studies Draft Final Report

IMC WorldWide/CEMCO, Feb 2015. Relief Village section (50km/h or 65km/h)

International Finance Corporation (IFC). 2007. Environmental, Health, and Safety General Guidelines. IFC. April 30, 2007.

International Finance Corporation. 2012. Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts.

International Finance Corporation. 2012. Performance Standard 5: Land Acquisition and Involuntary Resettlement.

Janette Bulkan (2013) The Struggle for Recognition of the Indigenous Voice: Amerindians in Guyanese

Politics, *The Round Table: The Commonwealth Journal of International Affairs*, 102:4, 367-380, DOI: 10.1080/00358533.2013.795009.

Kaieteur News, June 4, 2019. Lowered Infant Mortality Rate seen in Guyana- Dr. Narendra Singh.

[Lowered Infant Mortality rate Seen in Guyana—Dr. Narendra Singh – Kaieteur News \(kaieteurnewsonline.com\)](http://kaieteurnewsonline.com)

Maritime Administration Department (MARAD), 2016. Guyana Shipping (Ship and Port Facility Security) Regulations.

Menke, Jack K. and Richardson, Bonham C.. "Guyana". *Encyclopedia Britannica*, 9 Dec. 2020, <https://www.britannica.com/place/Guyana>. Accessed 22 March 2021

Ministry of Indigenous' Peoples Affairs 2018. Guyana.

Ministry of Public Works Service Group, April 2022, Violation Notice for Relief Public Road.

[Multiple Indicator Cluster Survey \(MICS\) | Statistics and Monitoring | UNICEF](#)

NASA Sea Level Change Portal." NASA. NASA, February 19, 2021. <https://sealevel.nasa.gov/understanding-sea-level/regional-sea-level/subsidence#:~:text=In%20coastal%20areas%2C%20sinking%20land,the%20seaward%20migration%20of%20coastlines>.

NDS, 1997. National Development Strategy

Nexus GDN. Stakeholder Engagement Plan. Document No. 20200224. Popper et al., 2014. Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI

Protected Areas Act, 2011. Guyana.

Region 4 East Bank Demerara | Guyana Water Inc. (gwiguyana.gy)

[Surveying & Project Management Inc, June 2017. National Land Transport Strategy and Action Plan.](#)

The Guyana Geology and Mines Commission Act, 1979.

http://www.guyaneselawyer.com/laws_of_guyana/Laws/cap6509.pdf

The Wonderful Demerara River by Major General (ret'd) Joseph G Singh MSS, MSc, FRGS, 2013 UN (United Nations). 2014. World Risk Report 2014. Focus: The City as a Risk Area. Alliance

Development Works. United Nations University, Institute for Environment and Human Security.

Accessed: 28 September 2016. Retrieved from:

<https://i.unu.edu/media/ehs.unu.edu/news/4070/11895.pdf>

UNDP. 2012. Guyana – Second National Communication to the United Nations Framework Convention on Climate Change. Prepared by the Government of Guyana with support from the UNDP and the National Communication Support Programme. Global Environmental Facility.

UNDP. 2018. Guyana. Human Development Reports. | Human Development Reports (undp.org)

UNICEF, 2014. Guyana. Multiple Indicator Cluster Survey.

UNICEF, 2016. Guyana. Situation Analysis of Women and Children in Guyana. UNICEF, 2017. Guyana. Guyana Out-of-School Children Study

United Nations Development Programme. 2016. Human Development Report. Available at: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf

United States Army Corps of Engineers (USCE). 1998. Water Resources Assessment of Guyana. US Army Corps of Engineers Mobile District & Topographic Engineering Centre.

Urban Environment Outlook, 2019.

World Bank Group. 2017. Environmental, Health, and Safety Guidelines Ports, Harbours, and Terminals. The World Bank Group and IFC. February 2, 2017.

World Health Organization. 2017a. Global Health Observatory Data Repository. Available at: <http://www.who.int/gho/en/>

World Population Review 2021

CRBC, 2022. Ministry of Public Infrastructure, Works Service Group, Organization Chart

Reporter, S. (2024) Swift action will be taken to fix water woes, land issues facing Coverden residents –president Ali, Guyana Chronicle.
Available at: <https://guyanachronicle.com/2024/01/15/swift-action-will-be-taken-to-fix-water-woes-land-issues-facing-coverden-residents-president-ali/> (Accessed: 22 September 2024).

Dhanraj, J. (2015) Relief, Stabroek News.
Available at: <https://www.stabroeknews.com/2015/07/05/news/guyana/relief-2/> (Accessed: 22 September 2024).

Gtimes (2023) East bank residents to benefit from 24-hour treated water, Guyana Times.
Available at: <https://guyanatimesgy.com/east-bank-residents-to-benefit-from-24-hour-treated-water/> (Accessed: 22 September 2024).

Guyana (2022) Guyana, South America, Guyana South America.
Available at: <https://guyanasouthamerica.gy/places-across-guyana/communities-villages-towns-districts-regions-counties/> (Accessed: 22 September 2024).

Outridge, M. (2020) Pearl Village: A tranquil paradise, Guyana Chronicle.
Available at: <https://guyanachronicle.com/2020/08/09/pearl-village-a-tranquil-paradise/> (Accessed:

22 September 2024).

Reporter, S. (2015) Land of canaan: The Little Settlement that Reeks of Solitude and great contentment, Guyana Chronicle.

Available at: <https://guyanachronicle.com/2015/01/03/land-of-canaan-the-little-settlement-that-reeks-of-solitude-and-great-contentment/> (Accessed: 22 September 2024).

Reporter, S. (2024) Swift action will be taken to fix water woes, land issues facing Coverden residents –president Ali, Guyana Chronicle.

Available at: <https://guyanachronicle.com/2024/01/15/swift-action-will-be-taken-to-fix-water-woes-land-issues-facing-coverden-residents-president-ali/> (Accessed: 22 September 2024).

Constitution of the co-operative republic of Chapter 1:01.

Available at: [https://parliament.gov.gy/Constitution of the Cooperative Republic of Guyana.pdf](https://parliament.gov.gy/Constitution%20of%20the%20Cooperative%20Republic%20of%20Guyana.pdf) (Accessed: 22 September 2024).

Summary booklet of the National Land Use Plan - Guyana

Available at: <https://glsc.gov.gy/wp-content/uploads/2017/05/Summary-Booklet-of-the-National-Land-Use-Plan.pdf> (Accessed: 22 September 2024).

Gtimes (2023) East bank residents to benefit from 24-hour treated water, Guyana Times.

Available at: <https://guyanatimesgy.com/east-bank-residents-to-benefit-from-24-hour-treated-water/> (Accessed: 22 September 2024).

Guyana (2022) Guyana, South America, Guyana South America.

Available at: <https://guyanasouthamerica.gy/places-across-guyana/communities-villages-towns-districts-regions-counties/> (Accessed: 22 September 2024).

Nandhini (2024) List of police stations in Guyana, Police Station.

Available at: <https://police-station.com/list-of-police-stations-in-guyana/> (Accessed: 22 September 2024).

Census (2024) Bureau of Statistics.

Available at: <https://statisticsguyana.gov.gy/census/> (Accessed: 22 September 2024).

8. APPENDIX

APPENDIX A – Code of Conduct

ESHS CODE OF CONDUCT REQUIREMENTS FOR CRBC INDIVIDUAL EMPLOYEE

The Code of Conduct shall define rules of behavior for all workers related to risks associated with but not limited to: prevention and management measures for environmental, labour, and social risks of the Project, including health and safety risks, third party contractor actions, labour influx, illicit behavior and crime, sexual and gender-based violence, discrimination, and sexual abuse and exploitation of children and other individuals or vulnerable groups.

Executive Summary

Courtesy and Respect: CRBC and their Employees should conduct themselves in a manner that is lawful, courteous, businesslike, and respectful of all staff, guests, or visitors.

Language and Behavior: CRBC and their Employees cannot engage in behavior that is rude, threatening, or offensive. Use of profane or insulting language is prohibited. Harassment of any type, including sexual harassment is strictly prohibited. Abusive, derogatory, obscene or improper language, gestures, remarks, whistling, cat calls or other disrespectful behavior cannot be tolerated. Rough housing, fighting, fisticuffs, physical threats, destruction of property, vandalism, littering, or physical abuse of anyone on campus are not permitted under any circumstance.

No Weapons, Alcohol, or Drugs: The use, possession, distribution, or sale of any weapon, alcohol, illegal drug, or controlled dangerous substance by any contractor or contractor's employee is prohibited. Offenders will be removed from site and/or reported to the local Police Department.

Smoking: CRBC and their employees are not permitted to smoke in or near any of the campus buildings.

Appearance: CRBC and their employees are required to wear appropriate work wear, hard hats and safety footwear, as the case may be, while on site. Articles of clothing must be neat and tidy in appearance, and cannot display offensive or inappropriate language, symbols or graphics.

Reporting: CRBC and their employees is required to report any matter involving a violation of these rules of conduct to the Team Leader. Any matter involving health or safety, including any altercations, should be reported to the Team Leader as well.

Child/ Children: No "child" / "children" means any person(s) under the age of 18 years should not be employed by CRBC. Child Labour is strictly prohibited.

CRBC and their Employees shall ensure the protection of children (including prohibitions against sexual activity or abuse, or otherwise unacceptable behavior towards children, limiting interactions with children, and ensuring their safety in project areas)

Health and Safety Requirements: CRBC and their Employees shall ensure Compliance with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Employer's Personnel, and the Contractor's Personnel (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)

Non-Discrimination: CRBC and their Employees shall ensure the Non-Discrimination in dealing with the local community (including vulnerable and disadvantaged groups), the Contractor's Personnel (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status)

Sexual Harassment: CRBC and their Employees shall ensure that Sexual harassment is prohibited (for example to prohibit use of language or behavior, towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate)

Sexual and/or Gender-Based Violence: CRBC and their Employees shall ensure that Violence, including sexual and/or gender-based violence, is prohibited (for example acts that inflict physical, mental, or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty)

Exploitation including Sexual Exploitation and Abuse: CRBC and their Employees shall ensure that Exploitation including sexual exploitation and abuse (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading behavior, exploitative behavior, or abuse of power)

Welfare facilities: CRBC and their Employees shall ensure that adequate welfare facilities are provided (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas)

Non-retaliation: CRBC and their Employees shall ensure that non-retaliation against workers who report violations of the Code of Conduct if that report is made in good faith.

1. Compliance with Laws and Regulations

1.1. Legal Compliance: As an employee of the CRBC you are required to comply with all applicable laws, regulations, and standards of Guyana pertaining to construction, Labour practices, environmental protection, and occupational health and safety. This includes but is not limited to:

Construction Laws: Understanding and adhering to the Building Codes and any other relevant legislation governing construction activities in Guyana.

Labour Practices: Ensuring compliance with Labour laws regarding wages, working hours, employment conditions, and worker rights as specified under the relevant Labour Legislations.

Environmental Regulations: Adhering to the Environmental Protection Agency (EPA) Act and regulations to minimize the project's impact on the environment and promote sustainable practices.

Health and Safety: Implementing and enforcing safety measures to protect workers, stakeholders, and the public from hazards associated with construction activities in keeping with the Occupational Safety and Health Act Chapter 99:06.

2. Integrity and Ethical Conduct

2.1. Honesty and Transparency: Conduct all professional activities with honesty, integrity, and transparency. Provide accurate and truthful information to the Employer, Contractor, Sub- Contractor and Stakeholders at all times.

Example: When reporting project progress or issues, present information objectively without omitting relevant details or providing misleading information.

2.2. Conflicts of Interest: Avoid conflicts of interest that may compromise your professional judgment or impartiality. Disclose any actual or potential conflicts of interest promptly to the appropriate stakeholders and seek guidance on how to manage or mitigate them.

2.3. Anti-corruption: Refrain from offering, soliciting, or accepting bribes, kickbacks, or any other form of improper advantage. Uphold a zero-tolerance policy towards corruption and report any suspected or observed instances of corruption to the relevant authorities.

Example: Decline any offers of gifts or favors from contractors or suppliers that could influence your decision-making process or create a conflict of interest.

3. Professionalism

3.1. Competence: Maintain a high level of competence and proficiency in your field of supervision. Stay informed about industry best practices, technological advancements, and relevant regulatory changes through continuous learning and professional development activities.

Example: Attend seminars, workshops, and training sessions on construction management, quality assurance, and project supervision to enhance your skills and knowledge base.

3.2. Respect and Collaboration: Treat all individuals with respect, fairness, and dignity, regardless of their role or position within the project. Foster a collaborative and inclusive work environment that values diversity and promotes teamwork.

Example: Listen actively to the perspectives and concerns of all project stakeholders, including contractor, sub-contractor, workers, and community members, to facilitate constructive dialogue and problem-solving.

3.3. Professional Image: Uphold a professional image and demeanor in all interactions related to the project. Dress appropriately for the work environment and maintain a courteous and respectful attitude in communications and meetings.

Example: Communicate clearly and professionally in written correspondences, emails, and reports to convey information effectively and maintain professional standards.

4. Confidentiality

4.1. Confidential Information: Safeguard confidential and proprietary information obtained during the course of your supervision duties. Use this information solely for authorized purposes related to the project and refrain from disclosing it to unauthorized individuals or third parties.

Example: Protect sensitive project data, such as financial records, design specifications, and strategic plans, from unauthorized access or disclosure by implementing secure document management practices.

5. Quality and Safety

5.1. Quality Assurance: Monitor and supervise construction activities to ensure compliance with project specifications, quality standards, and contractual requirements. Conduct regular inspections and audits to verify the quality of workmanship and materials used on-site.

Example: Perform quality control checks on completed work stages to identify defects, deficiencies, or deviations from design specifications that require corrective action by contractors.

5.2. Health and Safety: Promote a culture of safety and occupational health among all project stakeholders, including workers, contractor, sub-contractor and visitors to the construction site. Enforce adherence to safety regulations, hazard controls, and emergency procedures to prevent accidents and injuries.

Example: Conduct safety briefings and training sessions for workers on topics such as personal protective equipment (PPE), hazard recognition, and safe work practices to mitigate risks associated with construction activities.

6. Environmental Responsibility

6.1. Environmental Compliance: Comply with environmental laws, regulations, and permit conditions applicable to the construction project. Implement measures to minimize environmental impact, conserve natural resources, and promote sustainable construction practices.

7. Reporting and Documentation

7.1. Accurate Reporting: Maintain accurate and detailed records of project activities, decisions, and communications. Document significant events, milestones, and changes in project scope or specifications to provide a comprehensive project history and audit trail.

Example: Prepare progress reports, site inspection reports, and meeting minutes that summarize key discussions, action items, and resolutions agreed upon during project meetings with stakeholders.

7.2. Timely Communication: Provide timely and clear communication of project progress, issues, risks, and recommendations to relevant stakeholders, including clients, project managers, and regulatory authorities.

Example: Notify the client and project team promptly of any delays, disruptions, or unforeseen circumstances that may impact project timelines, budgets, or deliverables to facilitate proactive decision-making and problem resolution.

8. Conflict Resolution

8.1. Conflict Management: Address conflicts and disputes that arise during the project lifecycle in a fair, objective, and timely manner. Foster open dialogue and mediation between parties to resolve disagreements and reach mutually acceptable solutions.

Example: Facilitate dispute resolution meetings between the client and contractors to discuss conflicting interpretations of contractual terms, scope of work, or project specifications and negotiate equitable resolutions.

8.2. Escalation: Report unresolved conflicts or issues that cannot be resolved at the project level to senior management, legal counsel, or designated authorities for further review and intervention as necessary.

Example: Escalate disputes involving legal or contractual implications to the client's legal department or external legal advisors to seek expert guidance and mitigate potential risks or liabilities for all parties involved.

9. Professional Development

9.1. Continuous Improvement: Pursue ongoing professional development opportunities to enhance your knowledge, skills, and competencies as a supervision consultant in the construction industry. Stay abreast of emerging trends, technologies, and best practices relevant to your field of expertise.

Example: Enroll in continuing education courses, seminars, and certification programs offered by professional associations or academic institutions to expand your technical knowledge and stay current with industry advancements.

9.2. Training and Mentorship: Participate in training sessions and mentorship programs to transfer knowledge and expertise to junior staff or new entrants to the field of construction supervision. Share lessons learned, best practices, and practical insights gained from your project experiences.

Example: Mentor junior engineers or aspiring construction supervisors on effective project management techniques, risk assessment strategies, and stakeholder engagement practices to support their professional growth and career development.

10. Compliance and Accountability

10.1. Code Adherence: Adhere to this Code of Conduct and uphold its principles, standards, and guidelines in all aspects of your supervision consultancy services. Demonstrate personal accountability for your actions, decisions, and conduct throughout the project lifecycle.

Example: Review and acknowledge your understanding of the Code of Conduct annually or upon contract renewal to reaffirm your commitment to ethical behavior, professionalism, and compliance with legal and regulatory requirements.

10.2. Documentation and Audit: Maintain comprehensive documentation and records to demonstrate compliance with contractual obligations, regulatory requirements, and industry standards.

Example: Prepare documentation packages containing project plans, specifications, permits, inspection reports, and correspondence with stakeholders for audit purposes to validate compliance with quality, safety, and environmental standards.

11. Enforcement

11.1. Disciplinary Action: Violations of this Code of Conduct may result in disciplinary actions, up to and including termination of contract or employment, depending on the severity and impact of the misconduct. The decision to impose disciplinary measures will be made in accordance with contractual agreements, legal obligations, and organizational policies and the Termination of Employment and Severance Pay Act. Example: Consequences for breaches of ethical conduct or non-compliance with legal requirements may include verbal warnings, written reprimands, suspension from project duties, or termination of consultancy services, as deemed appropriate by the employer.

11.2. How would CRBC deal with the breaches?

Breaches on Construction sites are some of Guyana's most common Occupational Safety and Health violations. CRBC would deal with these breaches by ensuring enforcement by our dedicated team of Safety professionals providing all employees must wear hard hats if there is a potential risk of falling debris or other construction materials. Other safety measures include erecting barricades, signs, cones, delineating devices, other channeling devices, according to MUTCD Standards, flashing beacons, and flood lights.

CRBC would establish and implement a fall prevention program to protect workers following these and other Occupational Safety and Health Act Chapter 99:06 and OSHA Standards.

CRBC would train all employees to recognize the hazards associated with the type of scaffold used. Training records would also be readily available for inspection.

CRBC has the power to ensure the employees under their supervision adhere to the Occupational Safety and Health Act, Chapter 99:06 under the employer's duties and ensure compliance and Safety on the job site to protect your workers, which is our bottom line.

According to the Contract, CRBC would take disciplinary action against staff in keeping with the Termination of Employment and Severance Pay Act. A stop work order would be issued where any infringement occurs on the site by the Engineer.

12. The Contractor shall be required to implement the agreed Code of Conduct (COC).

12.1 The Company will implement the code of conduct at CRBC under the proposed project EBRIP. According to the Company's principles, standards, and the moral and ethical expectations of employees and third parties of CRBC organization.

Employee/Workers Name _____

Signature _____

Date _____

1.1 Executive Summary

Stakeholder engagement is an inclusive process that will be conducted throughout the project's life cycle. If properly designed and implemented, it supports developing strong, constructive, and responsive relationships that are important for successfully managing a project's environmental and social risks and impacts. Stakeholder engagement is most effective when initiated early in the project development process. It is an integral part of early project decisions about assessing, managing, and monitoring environmental and social risks and impacts.

This plan describes how China Road and Bridge Company (CRBC) intends to manage community relations and employees during the project stages to minimize and address potential project impacts, community engagement, and damage to the Company's property/resources, in addition to public property, complaint handling, labour recruitment, and code of conduct for personnel - community interaction, community health, and safety.

CRBC intends to handle damage to public property through the approved Grievance Redress Mechanism. In the event that damages occur this would be reported to the Engineer and simultaneously the Employer. Further reports would be made to the agency concerned. i.e., Guyana Water Inc. GWI, Guyana Telephone and Telegraph (GTT), Guyana Power and Light (GPL), National Data Management Authority (NDMA) Digicel, E-net Works.

They are ongoing meetings are held with utility companies concerning relocation. The team also is discussing minimum disruption.

With tens of thousands of people living on both sides of this highway in the affected range, it is a diversified community.

The following areas are the list of the communities in the zone of influence from Good Success to Timehri are; Good Supply, Land of Canaan, Sarah Johanna, Pearl, Coverden, Soesdyke and Timehri.

The Contractor will work with the Engineer (Supervising Consultant) and the Employer to enhance communication and establish relationships within the community; The goal of all communication strategies is to promote the Social Engagement Plan.

The Project will provide significant economic and social benefits, as it will reduce congestion of passing vehicles and pedestrians on East Bank Demerara Road (Good Success to Timehri), open new areas of development, and reduce carbon emissions.

The activities of the social engagement are guided by international best practices including the IDB

ESPS framework, as well as all applicable laws and regulations in Guyana. The aims of stakeholder engagement, and Project SEP, are to:

- Promote the development of respectful and open relationships between stakeholders and the Project proponent and developer during the Project life cycle.
- Identify Project stakeholders and understand their interests, concerns and influence concerning Project activities, particularly during the construction phase.
- Provide stakeholders with timely information about the Project, in ways that are appropriate to their interests and needs, and also appropriate to the level of expected risk and adverse impact.
- Provide stakeholders the opportunity to express their opinions and concerns concerning the Project, and for these to be reflected in the Project's Environmental and Social Management System (ESMS), and decisions about Project construction and operations activities, where possible.
- Support compliance with Guyanese legislation for public consultation and disclosure and alignment with financing standards and guidelines for stakeholder engagement; and
- Record and resolve any grievances arising from Project-related activities through a formal Grievance Procedure.
- Provide the framework for stakeholder involvement in identifying appropriate processes for compensating displaced individuals and businesses.

Objectives of the Stakeholder Engagement Plan (SEP)

The objectives of the Social Engagement Plan are as follows:

- To establish a systematic approach to stakeholder engagement that will help the Contractor identify stakeholders, especially project-affected people, and build and maintain a constructive relationship with them.
- To assess the level of stakeholder interest in and support for the project and to enable stakeholders' views to be considered in project design and environmental and social performance.
- To promote and provide the means for effective and inclusive engagement with project-affected people throughout the project's life cycle on issues that could potentially affect or benefit them from the project,
- To ensure that appropriate information on environmental and social risks and impacts of the project is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.
- To provide stakeholders with accessible and inclusive means to raise questions, proposals, concerns, and grievances and allow the contractor to respond and manage them appropriately.

1.2 The focus of the Stakeholder Engagement Plan (SEP)

The Social Engagement Plan focuses on the communication plan, especially for interpersonal communication. Interpersonal communication will build trust within the community and create new lines of communication. Our communication plan will assist us all in communicating with one clear voice. Our goal is that this focus will support a culture in Community Relations of proactive quality service. CRBC believes we have the responsibility to communicate effectively with our constituents; that meaningful public engagement supports our goals, and that effective communication is a two-way process involving both internal/external public.

This Social Engagement Plan implementation is aligned with the overall communication feedback from the community on the project. We understand that meaningful public engagement encourages community involvement and that benefits all stakeholders in the community.

Our main objectives are:

- ✓ Increase opportunities for public input and response (two-way communication)
- ✓ Increase opportunities to share project information with the community.
- ✓ Increase opportunities for community members to interact with contractors, MoPW and Supervising Consultants.
- ✓ Maintain effective communications through traditional (print) and non-traditional approaches.

1.3 Project Background

Despite the recent increase in investment in Guyana's road sector, several problems persist: (i) low density and lack of availability of climate-resilient road infrastructure in good condition, as well as limited land connections with cities along the coast and in the interior of the country, which affect access to/from the various production centers and raise transport costs; (ii) increase losses of Non-Revenue Water (NRW) in networks that have gone over their life cycle; (iii) limited institutional capacity to coordinate the growing project portfolio; and (iv) challenges intrinsic to comprehensive road safety and axle-load control. Poor quality roads and lack of efficiently working transportation infrastructure constrain economic development opportunities for Guyana. Rural communities in the state's interior and populated coastal communities would benefit from the connectedness provided by the development of climate-resilient road infrastructure. Investing in improvements to the country's transportation sector will provide economic and social benefits with positive multipliers including an improved standard of living and increased protection against the risks associated with climate change. This Project will improve the quality, accessibility, climate change resilience, and safety conditions related to road transport from Good Success to Timehri, East Bank Demerara.

The specific objectives of the Project are the following:

- Address the current deterioration of the road pavement.
- Improve road safety and traffic congestion throughout the highway by widening the road and adding traffic signals and clear marking of the right of way (RoW) and the shoulders.
- Adding pedestrian and if possible, bicycle lanes/facilities, primarily in more urbanized areas of the roadway.
- Adding roadside facilities and safe alignments.
- Improve, replace, relocate, and install utility infrastructure as needed (light poles, culverts).
- Addressing flooding caused by the instability of the Demerara River and future sea-level rise.
- Improving night-time visibility through the use of retro-reflective signage and thermoplastic road markings.

1.4 Project Description

The Project will encompass a 23.7 km stretch of the two-lane road from Good Success, near the southern outskirts of Georgetown, to Timehri, near the Cheddi Jagan International Airport (CJIA), running along the eastern bank of the Demerara River (EDBR). The Project will run through both open and residential areas that are constrained for space on either side of the RoW due to physical barriers. The corridor is essential for supporting economic activities as the East Bank Demerara Public Road is widely relied on for the transportation of goods from the coast, supporting value chains in sectors including manufacturing, food processing, construction, mining, and forestry. The Good Success to Timehri section specifically, provides essential access to the Airport as it is the only road connecting the airport to the capital city, Georgetown.

The Project will improve 23.7 km of the existing 2-lane highway from Good Success to Timehri to the extent that the rehabilitated road will remain in operation for 20 years, given adequate preventative maintenance activities are carried out. The objective of the Project is to achieve improved road safety and traffic congestion throughout the entire Project corridor for all road users, including pedestrians, bicyclists, motorcyclists, and vehicles (cars, trucks, buses). The road improvements are not designed to increase road capacity. The rehabilitation of the road should respond to increasing commercial activity and population growth along the corridor by facilitating the flow of traffic and ensuring the availability of parking and access for local businesses and services. Along the road, and including within the existing RoW, there are commercial and industrial activities, so economic displacement is expected. However, there will be no physical resettlement. According to the ESPF, the Project has been categorized as “B” based on the potential localized negative environmental and social impacts associated with the rehabilitation and upgrading of the roadway. Roadway improvements include the following. All

activities will occur within the existing RoW:

- Increase the travel lanes (carriageway) width by 1 meter on each side.
- Install stormwater structures.
- Add a multi-use path adjacent to the road.
- Relocate utilities as necessary to accommodate the new infrastructure.
- Add additional parking (if possible)

The width of the legal RoW is 24 m (80 feet) from side to side. However, some areas show encroachment within the RoW. To minimize affectations to local communities, the project design was adjusted on different sections of the Road. These adjustments consider the available space for widening the carriageway and—based on the remaining space after the widening— the width and location of other improvements will change accordingly. This means that the width of the multi-use path will vary along the roadway, the location of culverts, and light poles and the existence or not of additional parking on a specific section. The variable design is depicted in 10 different cross-sections for the Project, shown in the Widening Existing Roadway.

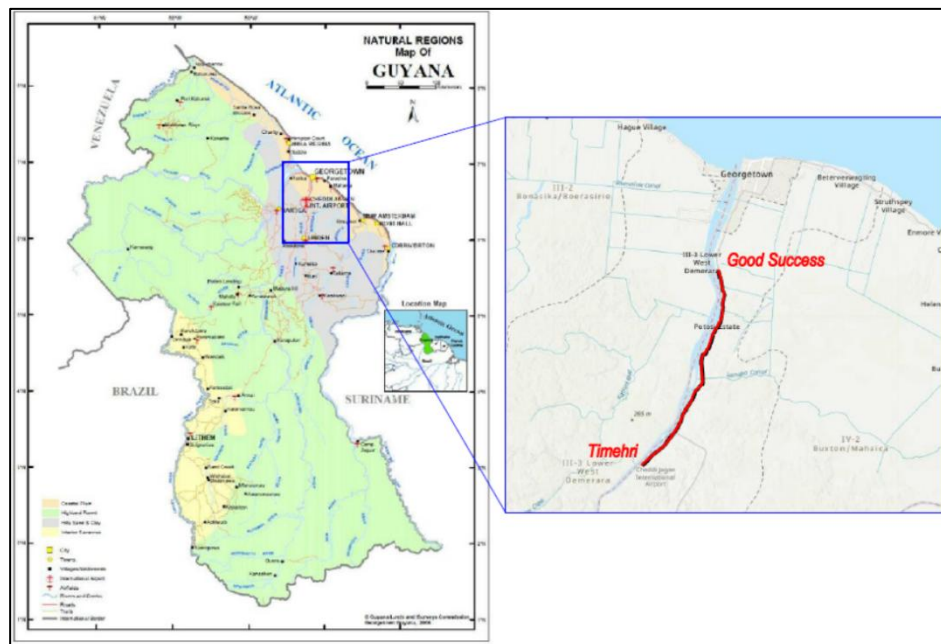


Figure 1 – Map of Guyana showing the project area of influence

1.5 Scope of the Stakeholder Engagement Plan (SEP)

CRBC will develop and implement a social management plan with an educational component that is reviewed, approved by the Engineer, monitored by the Employer, and given no objection from the International Development Bank (IDB). The Company will engage groups likely to be affected by the project in its environmental and social aspects. This is to assist local stakeholders and affected people: understand the nature of the potential changes; make their voices heard; and participate in key decisions

that affect them.

Stakeholders will be properly engaged throughout the process and in the identification and implementation of mitigation and compensation strategies.

Additionally, the goal shall be to inform the public and agency participants by providing timely information throughout the design and construction process. CRBC will be responsible for supporting and cooperating with the Engineer and Employer for all public involvement activities.

The scope will include the following:

- Identifying and reaching out to stakeholders in an inclusive manner with particular attention to eliminating any obstacles to the participation of vulnerable groups.
- Providing early and iterative opportunities for consultation and dialogue.
- Making relevant information on the project and its potential impacts accessible ahead of time in language and format and through socio-culturally appropriate media.
- Organizing and facilitating events in ways that discourage any form of manipulation and establish clear and appropriate expectations.
- Establishing mechanisms for ongoing communication, providing feedback to stakeholders, documenting the topics discussed and any agreements reached; and adopting decision-making and conflict resolution mechanisms commensurate with the issues identified.

1. Legal Framework that Governs the Project's ESMP/SEP

The key environmental legislation, currently in force in Guyana that pertains to resources that could be affected by the Project includes the following:

- ✓ **The National Constitution of Guyana-** Guyana is governed according to the Constitution of the Co-operative Republic of Guyana, which took effect in 1980 and expressly provides for the protection of the environment. Article 25 establishes “improvement of the environment” as a general duty of citizenship. In addition, Article 36 reads as follows: “In the interests of the present and future generations, the State will protect and make rational use of its land, mineral and water resources, as well as its fauna and flora, and will take all appropriate measures to conserve and improve the environment.”
- ✓ **Environmental Protection Act (Chapter 20:05 – 5th June 1996)** –In 1996, the Environmental Protection Act was enacted to implement the environmental provisions of the Constitution. The Act is Guyana’s single most significant piece of environmental legislation because it articulates national policy on important environmental topics such as pollution control, the requirements for environmental review of Projects that could potentially impact the environment, and the penalties

for environmental infractions. It also provides for the establishment of an environmental trust fund. Most importantly, the Act authorizes the formation of the Environmental Protection Agency (EPA) and establishes the EPA as the leading agency on environmental matters in Guyana. The Act further mandates the EPA to oversee the effective management, conservation, protection, and improvement of the environment. It also requires the EPA to take the necessary measures to ensure the prevention and control of pollution, assessment of the impact of economic development on the environment, and sustainable use of natural resources.

- ✓ **Environmental Protection Water Quality Regulations 2000-** These regulations require, among other matters, the registration and environmental authorization by any person/entity whose construction, installation, operation, modification, or extension of any facility cause the discharge of effluents. It establishes that the EPA shall, at any time after the commencement of the Regulation, establish parameter limits of effluent that may be discharged into any inland or coastal waters or land of Guyana. Guidelines on the discharge of effluents and disposal of waste are detailed in these regulations. Includes reporting requirements, penalties for violations of standards, and permitting requirements for discharges. Additionally, standards for drinking water quality have been developed by the Guyana National Bureau of Standards (GNBS). However, no standards have been developed for surface or sub-surface water, and more specifically, for discharges to receiving water from road rehabilitation operations.
- ✓ **Environmental Protection Noise Management Regulations 2000-**Under the Environmental Protection Noise Management Regulations 2000, operations that emit noise in the execution of various activities such as construction, transport, industry, commerce and any institution are required to apply to the Agency for environmental authorization. The regulation establishes general provisions for noise avoidance and restrictions from multiple commercial and industrial sources including sound-making devices, night clubs, equipment, tools, and construction activities. The EPA is responsible for the establishment of standards for permissible noise levels in industry, construction and other areas. The EPA may grant authorization for noise emission unconditionally or subject to conditions and may require environmental audit procedures. EPA and the Guyana National Bureau of Standards (GNBS) together with other relevant agencies developed Guidelines for Noise Emission into the Environment. The regulation includes reporting requirements, penalties for violations of standards, and permitting requirements for operations that emit noise.
- ✓ **Environmental Protection Air Quality Regulations 2000-** Establishes that the EPA shall, at any time after the commencement of the Regulation, establish limits for any of the contaminants specified in the Regulation. Sets ambient air quality standards, reporting requirements, penalties for violations of standards, and permitting requirements for stationary and mobile sources of air emissions. However, elements related to parameter limits on air contaminants and emission

samplings are not stated in the regulations as these have not been developed by the EPA.

- ✓ **Protected Areas Act (ACT No. 14 of 2011 – 27th September 2011)** - The Protected Areas Act was enacted in 2011. It provides for the protection and conservation of Guyana's natural heritage and natural capital through a national network of protected areas and creates a Protected Areas Commission to oversee the management of this network. It also highlights the importance of maintaining ecosystem services of national and global importance and public participation in protected areas and conservation and it establishes a protected areas trust fund to ensure adequate financial support for maintenance of the network. Other functions of this act include promoting national pride in and encouraging stewardship of Guyana's natural heritage, recognizing the conservation efforts and achievements of Amerindian Villages and Amerindian Communities and promoting the recovery and rehabilitation of vulnerable, threatened, and endangered species.
- ✓ **Other Resource-Specific National Environmental and Social Laws**-Several additional Guyanese environmental laws with more narrowly defined scopes pertain to specific biological or physical natural resources. Other laws that primarily have a public health-related focus may also be relevant to the Project. Several of Guyana's environmental statutes were enacted before the Constitution and were subsequently incorporated into the newly formed national legal framework, but most were enacted after 1980. This is depicted in the table below:

Table 1 -Other National Environmental and Social Laws

TITLE	OBJECTIVE	RELEVANCE TO THE PROJECT
Biological Resources		
Wild Birds Protection Act, 1987	Protects listed wild birds in Guyana.	Sections 3 and 6 prohibit knowingly wounding or killing wild birds listed in the First and Second Schedule of the Act. Penalties are also established as part of the Act.
Species Protection Regulations, 1999	Provides for the establishment of a Management Authority and a Scientific Authority in compliance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).	Provides for wildlife protection, conservation, and management.
Wildlife Management and Conservation Regulations, 2013 (supplemented by the passing of Wildlife Conservation and Management Act, 2016)	Provides for the establishment of a Management Authority and the management of the country's flora and fauna. Provides for classification of some species as vulnerable, endangered, or critically endangered; the 2016 Act specifies that the Act applies to all species in CITES Appendices I, II and III unless otherwise reserved by Guyana.	Provides a supportive mechanism cognizant of the national goals for wildlife protection, conservation, management and sustainable use.
Environmental Protection Hazardous Waste Regulations (2000)	Establishes requirements for generating, handling, and disposing of hazardous waste as well as penalties for violations of these requirements.	Identifies waste subject to regulation, including several types of waste that could be generated as part of the Project.
Pesticides and Toxic Chemicals Control Act Cap. 68:09 (2000, as amended in 2007)	Provides for the formation of a Pesticides and Toxic Chemicals Control Board. Establishes requirements for registration, licensing, and trade in pesticides and toxic chemicals. Amended in 2007 to provide rules for the exportation of pesticides and toxic chemicals.	Establishes regulations about the use of toxic chemicals and pesticides. Pesticides will not be required for this Project but small amounts of chemicals may be used. This Act regulates the importation, registration, and use of such chemicals. <u>NOTE:</u> Where a third party is involved, the Third Party shall have all the necessary permits to comply with this regulation.
Guyana Standard, Requirements for Noise Emission into the Environment, 2010	Establishes standards used for monitoring noise emission into the environment; sets permissible noise levels for residential, commercial, and industrial areas (day and night).	Relevant to Project-related noise levels that could be perceived in commercial, residential or industrial districts along the roadway
Public Health		

Occupational Safety and Health Act (1997) Cap. 99:06	Legally defines the responsibilities of workers and management for keeping workplaces safe.	Generally, this applies to Project workers and project-related activities.
Food & Drug Regulations (Food and Drug Act, 1971) Cap. 34:03	Regulates the sale, advertisement, preparation, and handling of food products; regulates the manufacture, advertisement, trade, and administration of pharmaceuticals; provides the Ministry of Health authority to facilities to establish compliance with sanitation standards.	Governs the preparation of food and provision of medications at Project facilities.
Ministry of Health Act (2005)	Sets out the functions of the Ministry of Public Health (previously the Ministry of Health) and the duties of the Minister. Among the responsibilities conferred to the Ministry by the Act are to provide oversight of health care services including mental health; provide advice to the government and establish policies on health; develop and ensure the implementation of the National Health Plan and other action plans and directives including human and all other resource requirements; enter into service agreements with the Regional Health Authority (RHA) and review and approve their health plans and budgets; and facilitate the accreditation and regulation of the health care professionals, hospitals, and other health facilities in the public and private sectors.	Generally, applies to health care services supplied to Project workers.
Regional Health Authority Act (2005)	Provides the RHA with the responsibility for providing for the delivery and administration of health services and health programs in specified geographic areas and for matters incidental thereto or connected therewith.	Establishes the regional regulations under which health services would be provided to Project workers.
Health Facilities Licensing Act (2007)	Under the act, all health facilities must be licensed by the Minister of Public Health. The Act also provides for inspectors who are authorized to enter any facility and conduct inspections. Offences are outlined with fines and imprisonment upon summary conviction. Importantly, the act also provides for the Minister to make regulations related to licenses, renewals, standards for health facilities, record keeping, prescribing and governing the construction, establishment, location, equipment, maintenance, and repair of, additions and alterations to, and operations of health facilities.	Sets the requirements for health facilities at which services would be available to Project workers.
Social / Cultural Resources		
National Trust Act (1972) Cap.	Stewardship of historic resources and places of cultural significance.	Governs the management of any building, structure,

20:03.		object, or other manmade or natural feature that is of historic or national cultural significance that could be impacted by the Project. This would apply to artifacts such as Koffer Kokers, which date from the Dutch period.
Prevention of Discrimination Act (1997) Cap. 99:08.	Provides for the elimination of discrimination in employment, training, recruitment, and membership in professional bodies and the promotion or equal remuneration to men and women in employment who perform work of equal value.	Prevents discrimination in employment practices.
National Insurance and Social Security Act (1969) Cap. 36:01.	Establishes a system of national insurance and social security providing pecuniary payments by way of old age benefit, invalidity benefit, survivor's benefit, sickness benefit, maternity benefit, and funeral benefit, and to substitute for compensation system of insurance against injury or death caused by accident arising in the course of employment or resulting from disease due to the nature of employment; establishes a National Insurance Fund.	Provides the overarching framework for workers' insurance and other benefits.
Employment of Young Persons and Children Act. Cap. 99:01.	Seeks to implement certain conventions relating to the employment of young persons and children.	Restricts the ages of young persons who may be employed by the Project.
Termination of Employment and Severance Pay Act (1997, 1999) Cap. 96:01.	Makes provision for the conditions governing termination of employment and grant of redundancy or severance payment to employees.	Governs payments to employees or the termination of employment. This could be relevant to contractors and subcontractors to the Project.
Labour Act (1942) Cap 98:01	Specifies conditions that an employer must observe in the contracting of employees. For example, wages of employee must be paid in cash unless otherwise agreed. Wages should be payable either weekly, fortnightly, or monthly, except otherwise agreed.	Governs form and timing of payment to employees. Relevance to contractors and subcontractors to the Project and applies generally to project workers. WSG will follow the regulations of the Ministry of Labour in regarding to working conditions and recruitment of personnel.
Social Infrastructure and Services		
Town and Country Planning Act (1996)	Provides for the orderly and progressive development of urban and rural lands and the preservation and	Could be relevant if the Project builds commercial, industrial, or residential structures. It would also be

Cap. 20:01.	improvement of amenities of such development. Development under the Act is restricted to buildings and road works incidental to buildings.	relevant for the land use clearance process (within the building permit process) within the Central Housing and Planning Authority.
Water and Sewerage Act (2002) Cap. 30:01.	Provides for the ownership, management, control, protection and conservation of water resources, the provision of safe water, sewerage and advisory services and the regulation thereof.	The Project will install, move, and construct sluices, culverts, and other drainage infrastructure.
Roads Act (1909) Cap 51:01	Covers the administration, maintenance, and construction of roads. The act provides for the public to be informed about any alterations and expansion to existing road structures and states that the Minister will determine compensation (if any) for the displacement of private property or occupants. Act provides for traffic management for which the Chief Officer is responsible.	Governs compensation of potentially affected communities and provides a framework for traffic management.

3. National Policy Framework that governs the Stakeholder Engagement Plan (SEP)

Guyana's government has articulated national policies on several environmental and social topics that are relevant to the Project. This section provides an overview of the key government environmental and social policies applicable to the Project.

3.1 Green State Development Strategy Launched in June 2017

The Framework of the Green State Development Strategy was the paradigm for national development activities in Guyana from 2018-2020. The Framework outlines Vision 2030 for "greening" Guyana. It encompasses seven key thematic areas as follows, structural transformation, resilient infrastructure, sustainable management of natural resources, transitioning to renewable energy, human health and wellbeing, governance, and international cooperation. The framework was the focus of national consultations by the Government of Guyana in 2018. The Green State Development Strategy: Vision 2040 is aligned with the country's commitments under the United Nations Sustainable Development Agenda and Goals (SDGs). Several of the SDGs address environmental and social imperatives. Specifically, SDG-13 Climate Action seeks to, "Take urgent action to combat climate change and its impacts".

3.2 National Development Strategy

The Draft National Development Strategy (NDS) developed in 1997 was one of Guyana's early attempts at setting priorities for Guyana's economic and social development policies. The six volumes of the NDS contain technical analysis of problems and prospects in all sectors of the economy and areas of social concern. It also contains governmental policies concerning the environment as well as social and gender equity. It identifies 12 distinct features of Guyana's natural resources and environment and sets policies governing the management of each feature. Features covered under Volume 3 with relevance to the Project include waste management, pollution control, and environmental impacts (NDS 1997).

3.3 National Environmental Action Plan

Guyana's National Environmental Action Plan (NEAP) articulates the government's approach to managing the environment from the perspective of economic development. The NEAP considers the issues of environmental management, economic development, social justice, and public health to be inextricably linked. It identifies deforestation, pollution, and unregulated gold mining as historically minor but with growing environmental problems, and identifies private sector investment as one of the primary opportunities to generate the necessary capacity within Guyana to:

1. Provide an appropriate level of public services to its citizens.
2. Reduce and/or eliminate the avoidable environmental degradation that occurs when resource development occurs without appropriate regulation; and

3. Reduce unsustainable development of natural resources due to the socioeconomic pressures of

3.4 National Land Use

The 2013 National Land Use Plan is Guyana's strategic framework for land development in Guyana. The plan lays out the various primary development options for various geographical locations in Guyana. The plan is anchored in several national policies and strategies and seeks to provide a spatial element to development planning in Guyana. Another major objective is the decentralization of land use planning from the national level to the regional level.

3.5 Guyana's National Biodiversity Strategy and Action Plan

Guyana's current National Biodiversity Strategy and Action Plan (NBSAP) was formally adopted in 2015 and is in its third iteration. It establishes the national vision for biodiversity, which is to sustainably utilize, manage, and mainstream biodiversity in all national plans and sectors by 2030, thereby contributing to the advancement of Guyana's biosecurity, and socioeconomic and low-carbon development. The plan is the main tool for the integration of biodiversity into national policies through 2020. The NBSAP recognizes the importance of biodiversity to the fledgling ecotourism industry and other economic sectors. The NBSAP sets forth nine strategic objectives intended to promote conservation and sustainability on a national scale, improve biodiversity monitoring, harmonize legal and policy-based mechanisms across all levels of government to support biodiversity conservation and prioritize funding to meet these objectives. The NBSAP is aligned with Guyana's commitment to the United Nations Convention on Biodiversity (UNCB) which the country has ratified.

3.6 Gender and Social Inclusion Policy

In 2018, the Government of Guyana formulated its intentions regarding gender equality and gender mainstreaming in its National Gender and Social Inclusion Policy. The policy articulates the vision for Guyana to become an inclusive society with gender mainstreaming in all sectors. The plan proposes to tackle all forms of gender discrimination against women and girls in Guyana especially gender-based violence. The plan also included measures for achieving economic development and inclusion, wellness, and health care and advocates for education, training, and skills development for all Guyanese.

3.7 Applicable International Conventions and Agreements

Guyana is a signatory to several international agreements and conventions relating to environmental management and community rights, although not all these agreements have been translated into national legislation. Guyana is a member state of the International Labour Organization (ILO), which administers multiple international treaties and conventions. The ILO has established eight fundamental conventions that provide certain general protections to workers in signatory states such as the right to organize,

standards for remuneration, restrictions on child labour (including minimum ages to work), and protection from forced labour. In addition to these fundamental agreements, Guyana is a signatory to several specific agreements that will govern certain specific aspects of the Project as they relate to labour.

➤ **The Hazardous Chemicals and Waste Conventions**

Guyana is a signatory to several international conventions that addresses chemicals and waste management including reduction of the movement of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries. Among these conventions are the Basel, Stockholm Convention, Montreal Protocol, Rotterdam and Minamata conventions. The Basel Convention specifically addresses the transboundary movement of chemicals and waste. The Montreal Protocol seeks to protect the stratospheric ozone layer by establishing guidelines for countries on substances that deplete the ozone layer. The Stockholm Convention addresses the issue of Persistent Organic Pollutants, and the Rotterdam Convention focuses on the Prior and Informed Consent for certain hazardous substances in international trade. Finally, national mercury use and its disposal are the focus of the Minamata Convention.

➤ **Rio Conventions**

The three United Nations Conventions, the United Nations Convention on Biological Diversity, (UNCBD, the United Nations Framework Convention on Climate Change, UNFCCC and the United Nations Convention to Combat Desertification UNCCD aim to address issues related to climate change, biodiversity and conservation and desertification and land loss. Guyana has ratified all three conventions. The Rio Conventions, particularly the UNFCCC and the UNCBD are important to Guyana. The UNFCCC establishes Guyana's commitments to climate change including its Nationally Determined Contributions (NDC).

3.8 IDB's Environmental and Social Performance Standards

IDB requires its projects to apply the set of ten Environmental and Social Performance Standards (ESPS) presented in their Environmental and Social Policy Framework (2020). The ESPS are summarized in Table 3.8-1.

Table 3.8-1 IDB’s Environmental and Social Performance Standards

IDB’s ESPS	Objective
<p>ESPS 1 Assessment and Management of Social Risks and Impacts</p>	<ul style="list-style-type: none"> • To identify and evaluate environmental and social risks and impacts of the project. • To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment. • To ensure that grievances from project-affected people are responded to and managed appropriately. • To promote and provide engagement with project-affected people and other stakeholders throughout the project cycle and disclose environmental and socially relevant information.
<p>ESPS 2 Labor and Working Conditions (Project will have direct and indirect workers on site)</p>	<ul style="list-style-type: none"> • To promote the fair treatment, non-discrimination, and equal opportunity of workers. • To establish, maintain, and improve the worker-management relationship. • To promote compliance with national employment and labour laws. • To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client’s supply chain. • To promote safe and healthy working conditions, and the health of workers. • To avoid the use of child labour and forced labour. • To ensure accessible and effective means to raise and address workplace concerns. • To support the principles of freedom of association and collective bargaining of project workers.
<p>ESPS 3 Resource Efficiency and Pollution Prevention (Project will consume resources and will produce waste and emissions)</p>	<ul style="list-style-type: none"> • To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To promote more sustainable use of resources, including energy and water. • To reduce project related GHG emissions. • To minimize and manage generation of waste and impacts of pesticide use.
<p>ESPS 4 Community Health, Safety and Security (There are communities and foot traffic in the Project’s area of influence)</p>	<ul style="list-style-type: none"> • To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities. • To anticipate and avoid adverse impacts on the project itself from natural hazards and climate change during the project life cycle.

<p>ESPS 5 Land Acquisition and Involuntary Resettlement (There will be economic displacement, but not physical resettlement)</p>	<ul style="list-style-type: none"> • To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. • To improve, or restore, the livelihoods and standards of living of displaced persons. • To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.
<p>ESPS 6 Biodiversity Conservation & Sustainable Management of Living Natural Resources (There will be no vegetation clearance and the Project is brownfield)</p>	<ul style="list-style-type: none"> • To protect and conserve biodiversity. • To maintain the benefits from ecosystem services. • To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.
<p>ESPS 7 Indigenous People (There are no Indigenous Peoples identified at the Project site or its area of influence)</p>	<ul style="list-style-type: none"> • To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. • To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts. • To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner. • To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life cycle. • To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present.
<p>ESPS 8 Cultural Heritage (There are no currently no formally or informally recognized archeological or cultural heritage artifacts or areas in the Project's area of influence)</p>	<ul style="list-style-type: none"> • To protect cultural heritage from the adverse impacts of project activities and support its preservation. • To promote the equitable sharing of benefits from the use of cultural heritage.
<p>ESPS 9 Gender Equality (Project will have risks and impacts on people of all genders, sexual orientation and identities)</p>	<ul style="list-style-type: none"> • To establish actions to prevent or mitigate risks and impacts, including sexual and gender-based violence (SGBV). • To achieve inclusion from project-derived benefits of people of all genders, sexual orientations, and gender identities. • To promote safe and equitable participation in consultation and stakeholder engagement processes regardless of gender, sexual orientation, and/or gender identity. • To meet the requirements of applicable national legislation and international commitments relating to gender equality.

ESPS 10 Stakeholder Engagement and Information Disclosure (As it is required for all projects during its whole lifecycle)	<ul style="list-style-type: none"> • To assess the level of stakeholder interest and enable stakeholder’s views to be considered in project design and E&S Performance. • To promote engagement with project-affect people on issues that could affect or benefit them from the project • To ensure environmental and social risks and impacts of the project is disclosed to stakeholders
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4. Stakeholder Analysis

It is helpful to group stakeholders based on common interests and characteristics. The use of a number of ‘stakeholder categories’ helps structure activities for stakeholders of the Project, including a summary of the anticipated interest of these groups with respect to the Project and within the local context (e.g., potential impacts, benefits, concerns). A database of stakeholders was developed and will continue to be updated as additional stakeholders are identified. Typical stakeholder categories used in this step include:

- National government
- Regional and local governments
- Local population and community groups
- Land and resource users and rights holders
- Local businesses
- Business development or worker associations
- Providers of local services and infrastructure
- Interested non-governmental organizations (NGOs)
- Media
- Academic and research organizations

4.1 Stakeholder Identification and Mapping

The process of stakeholder identification includes identifying individuals, groups, local communities and other stakeholders who may be affected by the project; identifying broader stakeholders who may be able to influence the outcome of the project; identifying legitimate stakeholder representatives (such as elected officials, non-elected community leaders, etc.); and mapping the impact zones by placing the Affected Communities within a geographic area. As part of the stakeholder identification process, it is important to include vulnerable individuals and groups who may find it more difficult to participate in engagement and to understand how each stakeholder may be affected, or perceives they may be affected, so that engagement can be tailored to inform them and understand their views and concerns appropriately. Examples of this may be performing engagement activities specifically for women, single-caregiver households, and visible minorities, separate from those for the general public to ensure their voices are adequately heard and considered. The appropriate type of engagement is determined by several factors, including the likely impact of the project on the stakeholder (often related to location), their influence

over the project, and their preferences and abilities to access information and participate in consultation. The key stakeholders identified are the Ministry of Public Works, the Ministry of Local Government and Regional Development, the Ministry of Housing and Water (CH&PA), the Environmental Protection Agency (EPA), the National Drainage and Irrigation Authority (NDIA), the Regional Democratic Council (RDC, Region 4), Neighborhood Democratic Councils (NDCs); Good Success/Caledonia and Te-Huist Coverden/Soesdyke, the Guyana Police Force (Division 4B), Cheddi Jagan International Airport (CJIA), Guyana Fire Service, Guyana Defense Force (GDF) Base, Timehri, Lands and Survey Commission, Transportation Association, Truck drivers. This also includes major businesses along the project alignment e.g., Baker Hughes, Bounty Farm Ltd., Gafoors, Coosals, Jumbo Jet, Asphalt plants etc., and Local stakeholders (residents) within the project scope/area.

Public utility companies associated with the Project include Guyana Power and Light (GPL), Guyana Water Inc. (GWI), Guyana Telephone and Telegraph (GTT), E-net Works, the National Data Management Authority (NDMA), and DIGICEL.

4.2 Disclosure and Engagement Methods and Materials

The engagement process encourages meaningful participation by stakeholders. The Project proponent and EPC will employ a range of methods and channels for disclosing information to tailor disclosure to the interests and needs of the various stakeholder groups and will also produce materials appropriate for specific stakeholders and types of engagement. This may include interviews with stakeholder representatives and key informants; surveys, polls, and questionnaires; public meetings, workshops, and/or focus groups with specific groups; and other participatory methods. Feedback mechanisms (also referred to as Project contact vehicles) are adapted to suit the needs and preferences of different stakeholders and their physical locations. To give stakeholders easy and convenient access to the Project, the following contact vehicles should be considered:

- Toll-free number for general Project inquiries
- General email address
- Mailing address
- Landing Page

The contact vehicles must be monitored regularly, and response protocols will be developed to ensure all inquiries are tracked for reporting purposes and that responses are provided. Designated personnel from Employer, Supervisor and Contractor should serve as identified points of contact for stakeholders.

5. Completed Stakeholder Engagement

Under the direct supervision of the Employer (Ministry of Public Works (MoPW)) and the Engineer (Supervising Consultant), China Road and Bridge Corporation (CRBC) hosted its first Stakeholder's

Kick-off meeting for the Good Success to Timehri Road Improvement Project. The meeting was held on Friday 31st May, 2024 at the Prairie Hotel and Bar located at Coverden, East Bank Demerara.

The objectives of the Stakeholder's engagement meeting were to ensure that the stakeholders receive information and are aware of the project and to discuss and share the Stakeholder Engagement Plan (SEP), Traffic Management Plan (TMP) and Grievance Redress Mechanism (GRM).

The key stakeholder kick-off meeting drew a significant gathering of fifty-six (56) individuals. These attendees represented twenty-one (21) entities, including businesses, governmental organizations, and semi-autonomous agencies.

The speakers of the meeting included the Minister of Public Works, Mr. Juan Edghill, the Ministry of Public Work's Project Manager Mr. Mark Greene, Mr. Roger Hodgson from the Sheladia Associates Inc. representing the Engineer (Supervising Consultant) and the contractor's representatives. The stages of the project were discussed, the proposed final design, the traffic management plan, social engagement plan and grievance redress mechanism and the Ministry's use of the Resolv7 App for mobile phones that will be used to post notices about the project.

After the fruitful discussions and presentations, the stakeholders were given the opportunity to ask questions or share concerns, suggestions about the project. These questions were answered adequately by the team from the Employer including Minister of Public Works Juan Edghill, Engineer and CRBC. Some of the questions asked by stakeholders were:

1. Is there a need to examine the road being constructed simultaneously by the MoPW and what provision will be made for a bypass to the current highway?
2. Are there any identified areas for a bypass on the road design?
3. Is there any consideration to straightening the section of the road at Supply East Bank Demerara and Brickery East Bank Demerara to fix the 90-degree turn?
4. Is any consideration given for smaller sections to be completed?
5. Can work be done on one side of the road at a time instead of both sides?
6. Will the section from Diamond/Relief to Craig be done simultaneously?
7. Will a new speed limit be implied so that the entire road will have a common/consistent speed limit?
8. With works scheduled to start in Section B (Relief to Soesdyke) as well as simultaneous works being done on government roads, there is a need for coordination to allow for adequate bypasses as the road progresses. Could these bypasses augment existing challenges?
9. There are varying speed limits ranging from 50mph, 65mph to 80mph from Soesdyke to Timehri. Would these be levelling off?
10. Would the Ministry of Public Works be responsible for the maintenance of the road?

The following responses below were provided;

1. Mr. Juan Edghill (Minister of Public Works):

- Even if the Relief-Soesdyke /Diamond Road is done simultaneously, it will not be affected by the Good Success – Timehri project.
- A lane must remain open at all times.
- Relief-Soesdyke /Diamond Road works will not affect Section B works; there will be enough diversions. It is important to note that the bypass in Relief is not for trucks (they are to remain on the project alignment).

2. Mr. Ron Rahaman (WSG Coordinator):

- There will be a bypass from Little Diamond to Good Success. Statements will be put out by the Ministry, along with signs saying ‘No Large Trucks’
- Heroes Highway at Buss Bee Dam to accommodate large trucks

3. Mr. Ron Rahaman (WSG Coordinator):

Geometric improvement (sharp turns) may be unable to be rectified since it would entail the acquisition of land.

It is of geometrical importance that the existing alignment be maintained. Therefore, acquisition of land will prove to be an additional challenge

4. Mr. Ron Rahaman (WSG Coordinator):

Contractors will work in ½ km sections of the road.

According to the contract document, works will be done staggered, in half KM sections with 1 KM space for traffic flow. Good collaboration with the GPF will be required.

5. Mr. Juan Edghill (Minister of Public Works):

- Even if the Relief-Soesdyke /Diamond Road is done simultaneously, it will not be affected by the Good Success – Timehri project.
- A lane must remain open at all times.

6. Mr. Juan Edghill (Minister of Public Works):

- Relief-Soesdyke /Diamond Road works will not affect Section B works; there will be enough diversions. It is important to note that the bypass in Relief is not for trucks (they are to remain on the project alignment). A lane must be open at all times.

7. Mr. Juan Edghill (Minister of Public Works):

The police are responsible for the implementation of the speed limit.

8. Mr. Juan Edghill (Minister of Public Works):

- Even if the Relief-Soesdyke /Diamond Road is done simultaneously, it will not be affected by the Good Success – Timehri project.
- A lane must remain open at all times.

9. Mr. Juan Edghill (Minister of Public Works):

The police are responsible for the implementation of the speed limit.

10. Mr. Roger Hodgson (Resident Engineer):

Contractor will start taking on maintenance of the existing roadway on June 1st, 2024. Leveling of road shoulders etc. will be done. Two to three {2/3} times a week the Contractor will have a subcontractor doing maintenance and assessing the standard of the maintenance work

11.Mr. Mark Greene (Program Manager-IDB):

The contractor will be responsible for the maintenance of the existing road as of June 1st 2024.



A section of the audience at the Stakeholder’s Engagement meeting.

6.Social and Environmental Impacts

The project activities (i.e., lane widening, multi-use path, drainage, and utility relocation) will occur within an existing, widely used ROW. In general, the anticipated impacts are typical of construction projects in urban and peri-urban areas and are temporary and localized. Typical impacts of these activities will occur during construction and include emissions from equipment, noise, temporary disruption of traffic, and temporary disruption of access to businesses and residences. Given the status of the ROW, no impacts on biodiversity or cultural resources are predicted. Potential economic impacts are being quantified and are anticipated to be moderate to minor. No physical displacement is planned. The table below displays the phases of the Project and the activities in each phase that will cause impacts.

Table 2: Activities that will cause impacts

PHASE	IMPACT CAUSING ACTIVITIES
PRE-CONSTRUCTION	<ul style="list-style-type: none">• Installing temporary laydown areas and temporary workers’ camps (rest areas).

	<ul style="list-style-type: none"> • Site preparation, mobilization of equipment and workers. • Creation of workers camps
CONSTRUCTION	<ul style="list-style-type: none"> • Raising of crosswalks • Construction of a multi-use path • Adding parallel parking (in certain sections) • Sign replacement • Installation, repositioning, and upgrade of new light posts • Road widening (carriageway) • Opening of ditches • Reconstruction of the lateral drainage system • Culvert construction • Adding a weight control facility
OPERATIONS	<ul style="list-style-type: none"> • Traffic management during maintenance activities • Drainage structure maintenance

The table below summarizes for section B the anticipated impacts, mitigation measures, and significance of the impacts before and after the implementation of mitigation measures; the table also identifies in which phase of the Project each impact is created.

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Air Quality						
Air emissions and dust generation from construction vehicles, equipment and increased combustion and exhaust emissions from private and commercial vehicles	Pre-Construction, Construction and Operations (operations' impacts were deemed negligible).	Moderate	<ul style="list-style-type: none"> ▪ Implementation of the Construction Environmental Management Plan (CEMP) on the air quality and dust management measures. ▪ Maintain all construction equipment in accordance with the manufacturer's specifications; keep the service log up to date. ▪ Suppress dust as needed in unpaved areas (e.g., use of water sprays or water carts). ▪ Where dust is identified as an issue, dust control measures will be implemented. These will primarily be the use of water carts but may include surface treatments ▪ Avoid burning non-vegetative wastes (refuse, etc.) at construction sites. ▪ Avoid unnecessary idling of construction equipment or delivery trucks when not in use. ▪ Keep work vehicles clean (particularly tires) to avoid tracking dirt around and off the site. ▪ Cover work vehicles transporting friable materials to prevent materials being spread around and off the site. ▪ Minimize drop heights of materials. ▪ Area to be disturbed minimized. Clearance lots to be approved by Project Manager. ▪ Implement the external grievance mechanism to follow-up on dust and/or exhaust emissions complaints being received by the community and workers. ▪ Vehicle movements controlled, optimize signaling to reduce traffic congestion (implement Traffic and Pedestrian Management Plan) ▪ Enforcement of speed limit and other traffic laws at the site ▪ Use of dust masks by workers (number of workers wearing them) ▪ Provide dust and air quality awareness talks as part of the environmental induction process. 	Minor	Site inspection during construction Grievance log Maintenance service logs	Monthly progress reports during construction. Quarterly air quality monitoring report

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Water Quality						
<p>Contamination to surface water by excavation works where is needed to replace civil structures, for section B, seven culverts will be Demolished n and new ones constructed. No bridge will be reconstructed according to final design.</p>	<p>Construction</p>	<p>Minor</p>	<ul style="list-style-type: none"> ▪ Implemented the Construction Environmental Management Plan regarding sediment and erosion control and waste management ▪ Provide appropriate waste bins, type, volume, and service frequency to accommodate anticipated waste streams ▪ Enforcement of a strict no-dumping policy especially in drainage canals and areas nearest the waterways ▪ Separate hazardous waste from non—hazardous waste ▪ Place trash disposal bins around the construction site day camp ▪ Provide information regarding waste management in site-specific inductions, including waste separation and the importance of securing vehicle loads. ▪ Ensure licensed contractors are used to collect controlled wastes ▪ Disposal of all waste in the Haags Bosch Landfill site ▪ Implement management measures to prevent and manage spills, per Contingency Plan ▪ Storage of excavation material in designated laydown (campsites) will be transported for its reuse on road foundation specially the asphalt that will remove, this action will avoid issues with water flow for drainage channels and water bodies. ▪ Permission is granted for the establishment of the asphalt plant at the campsite. ▪ Selection of laydown areas by the contractor away from drainage channels and water ▪ Manage drainage to not increase sedimentation in runoff Bodies ▪ Spill kits and spill procedures: confine the spill, Stop the source, evaluate the incident and implement cleanup, decontaminate the site, complete required report ▪ Appropriate training for staff on waste management practices and safe handling and storage of hazardous materials ▪ Water Pump System will be installed to allow water flow and avoid water stagnation, allowing regular water flow without disruption ▪ Water facilities will be removed before construction starts, CBRC will Inform Guyana Water Incorporate (GWI) when the removal of water distribution lines is necessary 	<p>Negligible</p>	<p>Site inspection during construction , Number of incidents related to waste management and spills, Grievances from the community, water quality testing along strategic sections of the roadway and against an established baseline</p>	<p>Monthly progress reports during construction and grievance log</p>
Noise						

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Noise generated by construction equipment and activities	Pre-Construction, Construction	Moderate	<ul style="list-style-type: none"> Implementation of the Construction Environmental Management Plan (CEMP) on noise management measures. Maintain all construction equipment in accordance with manufacturer's specifications. If possible, schedule construction, modification, and rehabilitation work during daylight hours when increased noise levels are more tolerable. If possible, schedule construction and rehabilitation work to minimize activity during peak periods of tourism and recreation (weekends, holidays, etc.). Avoid unnecessary idling of construction equipment and trucks. Include a communications protocol regarding construction as part of the external communication mechanisms to stakeholders to inform adjacent receptors (e.g., commercial and industrial businesses) of construction activities. Install broadband spectrum backup alarms on construction vehicles as opposed to the typical single-tone frequency alarms (broadband alarms attenuate more quickly over distance due to the incorporation of higher frequencies). Pre-start checks and maintenance schedules to ensure equipment performance as required. Noise-dampening equipment to be used on equipment with excessive noise-generating characteristics Implementation of community grievance mechanism Use of auditive protection equipment by workers (i.e., ear muffs) 	Moderate	Site inspection during construction Service logs for equipment/machinery used on site Number of grievances by community members and workers Number and percentage of workers using auditive protection	Monthly monitoring and progress reports during construction
Hydrology and drainage						
Disruption to drainage and water service, negative alteration of hydrology conditions of runoff water crossing the Road.	Construction	Moderate	<ul style="list-style-type: none"> Follow technical specifications for base width, side slope, and invert level for the 58 drainage structures as recommended in Appendix F of the drainage study for the improvement of roadside drainage. The flood hazard assessment was use as reference to finalize the drainage design (Georgetown, Guyana: Disaster Risk and Climate Change Vulnerability Assessment, 2019). If possible, perform relocation of utility infrastructure prior to the start of construction activities. Otherwise, liaison with relevant service providers to limit service disruptions Water Pump System will be installed to allow water flow and avoid water stagnation, allowing regular water flow without disruption Water facilities will remove before construction stars, CBRC will Inform Guyana Water Incorporated (GWI) when removal of water distribution lines is necessary. 	Minor	Site inspection during construction , number of grievances of community members	Monthly progress reports during construction, grievance log
Geology and Physiography						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Soil and Water Resources						
Erosion and sedimentation	Construction	Moderate	<ul style="list-style-type: none"> ▪ Disturbance area will be minimized and clearly demarcated. ▪ Works will only be conducted within the works zone. ▪ Vehicle movements will be restricted to the defined roads/tracks. ▪ Where possible, the works area will be designed to ensure stormwater runoff drains into the site. ▪ Where required, sediment controls will be put in place. These will include, but not be limited to, rock check dams, sediment basins, sediment fences and silt socks. ▪ Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24hrs resulting in site runoff). ▪ Strategic location of detention basins to separate sediments in surface water runoff from water discharged to drains ▪ Locate material stockpiles away from waterways and with perimeter berm ▪ Re-routing drainage network to facilitate construction of Kofi Structure and other culverts ▪ Periodic cleaning of drainage canals per maintenance guidelines ▪ Periodic cleaning of drainage canals. The sediments will be stored temporarily at the Jhetoo's campsite and transferred later to the Haags Bosch Landfill site 	Minor	Site inspection during construction	Monthly progress reports during construction
Natural Disasters and Risks						
Climate change and natural hazards (flood risk)	Construction	Moderate	<ul style="list-style-type: none"> ▪ Incorporate into the Project design, results from the drainage study, to inform the design specifications for 58 cross drainage structures, including invert level, soffit level, slope, and base width, as applicable ▪ Installation of manually operated sluice gates (kokers) at the downstream end of the drains to prevent flooding and intake of brackish or salt water during high tide ▪ Consult with the Sea defense Board to inform Project design ▪ Implementation of Construction Contingency Plan for general actions in the presence of floods ▪ Flood Risk Management Plan has been prepared and includes mitigation measures to prepare for an event flood risk (please see Appendix H) ▪ Reporting of disaster event(s) to appropriate authorities ▪ Carry out planned maintenance of drainage infrastructure 	Minor	Site inspection, number of consultations with the Sea Defense Board, percentage of planned maintenance activities carried out	Monthly progress reports, records of consultations with the Sea Defense Board

Climate Change and natural hazards (flood risk)	Operations	Positive	<ul style="list-style-type: none"> ▪ Implementation of a contingency plan in the event of floods ▪ Reporting of disaster event(s) to appropriate authorities ▪ Carry out planned maintenance of drainage infrastructure 	Positive	Maintenance reports	Maintenance reports
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Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Biodiversity						
Disturbance to surrounding vegetation	Construction	Minor	<ul style="list-style-type: none"> ▪ Minimization of the construction footprint by refraining from the removal of vegetation ▪ Demarcation of work area with fencing to minimize disturbance of natural vegetation ▪ Minimization of temporary and permanent construction footprints during the design phase. ▪ Plan equipment access locations that minimize impacts, where possible; avoid areas with less stable structures such as steep banks. 	Negligible	Site inspection during construction	Monthly progress reports during construction
Wildlife injury or mortality.	Construction	Negligible	<ul style="list-style-type: none"> ▪ Implement noise and air pollution management measures outlined in Section 5.2.2 and Section 5.2.1 respectively ▪ Implementation of construction contingency plan (CCP) (see Section 7.4.3). ▪ CCP establishes procedures and plans to respond in a timely and efficient manner, and with the necessary resources to accidents, attacks, and any other emergency including potential wildlife encounters. ▪ Implementation of the Traffic and Pedestrian Management Plan (see Section 7.4.6) will further reduce the risk of injury or mortality resulting from vehicle collision with wildlife by (i) ensuring routes are planned to reduce the need for excessive vehicle movement, (ii) eliminating the need to reverse, (iii) ensuring adequate visibility for drivers. 	Negligible	Site inspection during construction	Monthly progress reports during construction
Degradation of aquatic habitat	Construction	Minor	<ul style="list-style-type: none"> ▪ Implementation of drainage system to direct surface runoff to the stormwater systems ▪ A Water Pump System will be installed to allow water flow and avoid water stagnation, allowing regular water flow without disruption ▪ Implementation of construction waste management plan ▪ Installation of sediment and erosion controls ▪ Avoidance of vegetation disturbance. ▪ 	Negligible	Site inspection during construction Number of incidents related to waste management and spills	Monthly progress reports during construction vegetation ground cover reports to monitor natural regeneration

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Labor Conditions						
Occupational Health and Safety and Working Conditions	Construction	Moderate	<ul style="list-style-type: none"> ● Implement the Construction Health and Safety Management Plan ● Training for the safe use of construction equipment and machinery to all workers. ● Conduct toolbox talks about H&S, safety hazards and other relevant topics of the ESMS ● Conduct a Job Hazard Analysis before conducting a task. Ensure Work Permits are issued for hazardous work, as required ● Use of appropriate protective clothing and safety gear including hard hats, hearing protection, goggles, and other devices; consider individual fitting of PPE for women and employees who do not fit one-size-fits-all and purchase safety helmets equipped with chin straps to improve fit ● Application of signage such as reduced speed in work zones and presence of workers. Signage must be in the appropriate language (i.e., other than English if workers who speak other languages are present) ● Provide of ample supply of potable water, shade and the required number of sanitary facilities on site; ensure women have separate facilities ● Waste bins should be available near temporary camps and rest areas to minimize working in excess heat. ● Communicate with local hospitals to determine protocol in the event of an emergency ● Maintain first aid kits on site that are fully stocked at all times. ● Implement workers' grievance mechanism to raise concerns regarding H&S or working conditions. ● Conduct H&S meetings as needed to discuss issues or incidents. Incidents resulting in fatalities must be reported immediately 	Minor	Site inspection during construction H&S statistics on incidents	Monthly progress reports during construction Grievance log
Provision of construction jobs to local companies and materials sourced from the local economy	Construction	Positive	<ul style="list-style-type: none"> ● Implement job quotas for local employment and sourcing requirements for construction contractors based on the size and scope of the Project ● Encourage hiring women ● Attract local workers, suppliers and contractors 	Positive	Number of women hired Number of local companies hired Number of grievances related to job opportunities	Grievance log Human resources report on composition of the workforce (nationality, men and women ratio)
Livelihood						
Temporary economic displacement to local businesses	Construction	In evaluation	<ul style="list-style-type: none"> ● Implement a Livelihood Restoration Plan, that accounts for all stakeholders impacted on their means of living. ● Design a compensation program for eligible stakeholders 	In evaluation	Written agreements with affected stakeholders, number of grievances, payments made	Monitoring reports of compensation schemes, grievance log

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Community Health and safety						
Impacts on health and safety of the community	Construction	Moderate	<ul style="list-style-type: none"> Develop and implement a Construction Health and Safety Plan and the Traffic and Pedestrian Management Plan Appropriate and timely engagement of stakeholders on an ongoing basis, to ensure that they are well informed of the nature and duration of Project activities and have a good understanding of associated safety risks. Implement good housekeeping practices in and around the Project construction sites including elimination of standing water or, if not practicable, treatment of standing water to kill mosquito larvae, proper management of construction waste, and regular maintenance of drainage canals to minimize flood risk Implement stakeholder outreach to vulnerable subpopulations or to those responsible for maintaining their safety Establish and publicize a Grievance Mechanism in the appropriate language to receive and respond to grievances. Develop a Code of Conduct that strictly prohibits SGBV of any kind within the workforce and community. 	Minor	Site inspection during construction, grievance log, written agreements with affected stakeholders	Monthly progress reports during construction, grievance log,
Infrastructure Damage	Construction	Minor	<ul style="list-style-type: none"> Conduct an assessment of properties along the RoW to determine the physical state of property (including fencing and walls) prior to the start of construction activities in order to determine if damaged occurred resulting from construction activities. The precondition survey has been completed for section B Cover material transport truck to prevent air borne debris that could damage property. Enforcement of Traffic and Pedestrian Management Plan to reduce the likelihood of vehicles colliding with infrastructure 	Negligible	Inspections, community grievances	Inspection reports, grievance log
Community Health and Safety	Operations	Positive	<ul style="list-style-type: none"> Regular maintenance to the road Use of reflective traffic signs and road markings Sufficient street lighting Installation of raised pedestrian crosswalks Universal access features Road safety campaign Implementation of contingency plans for natural hazards 	Positive	Maintenance reports	Maintenance reports
Cultural Resources						
Restricted access to cultural heritage sites	Construction	Negligible	<ul style="list-style-type: none"> Construction of concrete access bridges to religious and cultural sites Improved parking and drainage infrastructure Location of bus stop and pedestrian crossings in consideration of proximity to access to cultural sites Implementation of chance find the procedure 	Negligible	Site inspection Grievances	Monthly reports
Living cultural heritage	Construction	Negligible	<ul style="list-style-type: none"> Include cultural heritage during the public consultation event. and assess churches mosques, or other living heritage sites nearby or within Project's AoI to understand operating hours and minimize disruptions and accessibility. Implementation of chance find the procedure. 	Negligible	Site inspection Grievances	Monthly reports

Impact	Project Phase	Pre-Management Impact Significance	Management Measures	Post-Management Impact Significance	Means of Verification	Monitoring and Reporting
Road Traffic						
Increased pedestrian and vehicle traffic congestion and disruption.	Construction	Moderate	<ul style="list-style-type: none"> ● Maintain the traffic and schedule activities, to the extent possible, to be conducted not during peak times (e.g., early in the morning) as stipulated in the EPA permit guidelines. ● Provide advance notice of scheduled construction activities and major traffic constructions via public service announcements (radio, TV, newspaper) ● Coordinate the delivery of construction materials at times that minimize impacts to the existing traffic ● Deploy traffic, safety, and road detour signs in appropriate language and close cooperation with the authorities. ● Maintain one lane of carriageway open at all times to facilitate the flow of traffic ● Install beams, retention walls and temporary passageways as needed (e.g., road safety barriers to facilitate safe access during construction) ● Site H&S and security will be maintained during the construction phase by fencing will be erected to form a secure construction site to prevent entry by children, members of the public, trespassers and vandals. Warning signage to be placed at strategic points on the perimeter fencing. Information signage to be placed at the site entrance. ● Development and implementation of a Traffic and Pedestrian Management Plan in consultation with Police, residents, and NDC. Update the Plan as needed during construction. ● During the construction the road will be half closed during night works and during the day the two lines will be open to avoid major traffic disruption. A side detour (right or left) will be temporarily constructed while the half line is under construction to have two-way traffic all the time. This arrangement is to provide all the time access to all the residents close by to the major construction works mainly culvert and bridges. 	Moderate	Grievances related to traffic and local businesses impact, number of traffic accidents and fatalities	Monitoring reports, grievance log Continual review controls and requirements of the Traffic and Pedestrian Management Plan

6.1 Public Outreach

Under the direction of the Engineer (Supervision Consultant), and as described in the Social Engagement Plan, the CRBC have the primary responsibility for performing public outreach activities for the Project and shall have a Social Development Officer (SDO) as a member of its Team. The SDO is the primary point of contact for Public Outreach activities.

CRBC will have the primary responsibility for performing public outreach activities for the Project, but the lead in all public outreach activities shall be the Employer. All public communication activities must be reviewed and approved by the Consultant and Employer. This includes communication and notifications of key stakeholders (motorists, the public, area residents, educational institutions, emergency services, businesses, etc.) of road closure information, Project milestones or Project construction activities that have the potential to affect the general public and/or residents in proximity to the Project area. Project milestones include but are not limited to the visible start of construction activities; travel pattern changes; significant Project accomplishments, and construction completion.

CRBC is aware that outreach to the public is a critical component to the successful completion of any project. To offset those potential concerns and anxieties that a yet fully vetted design could create, in the eyes of the public, outreach to the public shall commence early on this project. CRBC shall be prepared to meet with appropriate stakeholders, the elected officials and the general public within 60 days following the issuance of the Commencement Order. Consultations shall be inclusive, reaching out to residents, businesses, schools, hospitals and other social/community entities located along the road. Other local people, entities and groups, particularly those likely to be affected by the road including, for example, residents within the area of influence, road users such as truckers and taxi/minibus operators/passengers, and business owners, etc. should also be consulted.

The Employer remains the lead on this activity with the supervision of the Engineer (Supervision Consultant). However, CRBC will coordinate the logistics, and prepare the presentation material, the announcement of the meetings, and other outreach efforts necessary to capture the community's interest and participation. CRBC will be ready to discuss the design, the reason for said design, the construction methods, the construction contract schedule, the periods of the day that the work will be ongoing, and how traffic and pedestrians will be accommodated, as a minimum. This will all be coordinated with the Employer's Project Manager and discussions of this meeting and coordination will begin at the Design Workshop and will be listed as an agenda item for the Design Workshop.

Under the Engineer's (Supervision Consultant) direction, CRBC shall develop all written and digital material required to notify the public about the project, its impacts and its various milestones, as well as to promote the project. Examples: press releases, travel advisories, construction notices and content for

the Ministry's website and social media. All materials will be reviewed and approved by the Engineer (Supervision Consultant).

As part of the Social Engagement Plan implementation, the Social Development Officer will attend the weekly project progress meetings to identify and develop necessary communication materials.

CRBC will provide the Social Development Officer with a cell phone since they will be responsible for addressing the public's day-to-day concerns and for providing project information.

CRBC will coordinate with and provide a minimum of two weeks advance notice to the Employer before all changes to traffic patterns and the following Project milestones: start of construction; Project completion; and any other interim completion milestone(s) determined by the Employer.

CRBC will provide the Employer with a minimum of two weeks' advance notification for each public information activity (press announcements, travel advisories etc.) to allow for proper review and comment by the Employer.

CRBC will provide the Engineer and Employer with a written work Schedule (including anticipated traffic changes) two weeks in advance of work that will change traffic patterns. This work schedule is to be prepared based on the Construction Work Programme approved by the Engineer and Employer.

6.2 Media Relations

Media Inquiries: All media inquiries, and requests for interviews from local print or broadcast news media, trade magazines or other media outlets must be referred to the Employer's Project Manager for direction. The Employer will coordinate and respond to all media requests. CRBC shall alert all project personnel about this policy.

Press Releases and Travel Advisories: To allow for timely notice to the public, two weeks advance notice of the start of work, any lane closures, road closures, or changes to traffic patterns or project milestones is required to be given to the Employer's Project Manager.

The Ministry of Public Works (MoPW) will also utilize an app: Resolve 75 that will provide road users and drivers with notifications and updates about the construction works of the project.

The Social Development Officer will develop a draft travel advisory and/or press release for content and quality, which will be reviewed by the CRBC and approved by the Employer. The Employer will distribute finalized press releases and travel advisories to the press and appropriate elected officials and posted on the Project website by the Employer. However, CRBC, under the direction of the Employer, is responsible for the notification of local public officials, emergency service providers, schools,

residents, businesses, and other affected parties, or any major travel pattern change. The list of all project stakeholders will be included in the Social Engagement Plan.

The strategies described above are consistent with the requirements of Work Zone Traffic Control and Access and will include Construction Bulletins, which are reviewed and approved by the Engineer (Supervision Consultant) and published by CRBC, especially focused on traffic changes, night-time work, higher-noise construction periods or locations, or other construction activities of potential concern to the public. Under the direction of the Engineer (Supervision Consultant), the CRBC shall be responsible for interaction with the affected homeowners, tenants and businesses about issues including but not limited to, security of and access to their property or properties, utility services, night-time operation, etc.

6.3 Public Information Meeting

CRBC will be prepared to partner with stakeholders on additional Public Information Meetings to discuss the Project's progress with the community in an open forum format. CRBC will prepare design and construction-related information about the Project and the Design-Build process and progress, schedule or construction methods being used to advance the Project, etc., that will help inform Project stakeholders. CRBC will work in cooperation with the Engineer (Supervision Consultant) and Employer in determining the necessary presentation materials, but PowerPoint material will be required. The PowerPoint and any other necessary presentation materials will be forwarded for approval by the Engineer and Employer.

Project update meetings including public informational meetings, as discussed above, may be and the community(s) reaction and receptiveness to the construction of the Project. The Engineer (Supervision Consultant) will determine the number, frequency, schedule, and locations of update meetings and public informational meetings, and will update this information as the project progresses.

The CRBC will maintain a record of the public consultation and the records should indicate: the means utilized for consultation, such as public meetings, surveys, interviews, community workshops, etc. used to seek the views of affected stakeholders; the date and location of the consultation activities, a list of the attendees and participants in each activity and their affiliation and contact address; and, summary minutes identifying stakeholder concerns and any proposals or agreements. Social Platforms will also be used for public consultation (Zoom and Facebook livestream).

6.4 Community Relations Office

CRBC will provide a Community Relations Office centrally located within the Project area and accessible to the public via transit, where information about the Project may be obtained and where the

public can communicate with the Social Development Officer. The office shall be staffed by at least one full-time person and open Monday through Friday during normal business hours (i.e., 9 am to 5 pm) and four (4) hours on Saturdays. The office shall be open to the public beginning four weeks before the start of construction work and ending with the project completion. The office shall be according to the relevant legal provisions of Guyana and may be co-located with other CRBC offices. The Social Development Officer will be staffed for the duration of the project.

6.5 Social Engagement Plan

To ensure the relevant information is available to all stakeholders, a Social Engagement Plan implementation will be adopted for the transfer of all pertinent information to the relevant groups. Due to the diversity of the stakeholders of this project, varying communication mechanisms will be adopted based on the information being communicated. The table below outlines the engagement and communication mechanisms, along with the timelines for communicating that will be adopted throughout this project execution. In addition to the general project grievance management, CRBC established a grievance management system, with a direct grievance hotline and a Social Development Officer (SDO), identified as the first point of contact/ liaison with communities, handling any complaints.

SUPERVISION OF SOCIAL ENGAGEMENT PLAN

Supervision of the Social Engagement Plan for this project will comprise the environmental divisions of the Employer, the Engineer (Supervising Consultant) and the Contractor Environmental Management Team. Overall supervision will be carried out by the specific project personnel as follows:

Employer:	Ministry of Public Works (MoPW)
Engineer (Supervising Consultant):	Sheladia Associates Inc.
Contractor:	China Road and Bridge Corporation (CRBC)

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Mobilization	Site/Office Meeting	The Key Stakeholders are: Ministry of Public Works, the Ministry of Local Government and Regional Development, the Ministry of Housing and Water (CH&PA), the Environmental Protection Agency (EPA), the National Drainage and Irrigation Authority (NDIA), the Regional Democratic Council (RDC, Region 4), Neighborhood Democratic Councils (NDCs); Good Success/Caledonia and Te-Huist Coverden/Soesdyke, the Guyana Police Force (Division 4B), Cheddi Jagan International Airport (CJIA), Guyana Fire Service, Guyana Defense Force (GDF) Base, Timehri, Lands and Survey Commission, Transportation Association, Truck drivers. This also includes major businesses along the project alignment e.g., Baker Hughes, Bounty Farm Ltd., Gafoors, Coosals, Jumbo Jet, Asphalt Plants etc, and Local stakeholders (residents)	Project Startup, As- needed	<ul style="list-style-type: none"> • Notification of intention to commence construction activities. • Discussion of potential disruption to communities • Outline Expectation of the Stakeholders • Foster cooperation between the Contractor and local Authority • Foster cooperation between the Contractor and residents 	<ul style="list-style-type: none"> • Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)
Mobilization	Community meeting	Residents within the project envelop	Project Start-up	<ul style="list-style-type: none"> • Notification of intention to commence construction activities. • Discussion of potential direct impact on the community. • Outline potential employment benefits. • Opportunity for the community to share any early grievance. • Foster cooperation between the Contractor and residents. 	<ul style="list-style-type: none"> Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Mobilization	Meeting	Guyana Police Force Traffic Headquarters Georgetown Regional Police Divisions 4B	Project start up As-needed	<ul style="list-style-type: none"> • Notification of intention to commence construction activities. • Discussion of potential disruption to communities • Approve Traffic Management Plan and provide recommendations 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)
Construction	Community Meeting	Residents/RDC/NDC	Quarterly/ Emergency (Last month of each quarter)	<ul style="list-style-type: none"> • Provide Construction progress updates. • Identification of construction activities that may severely disrupt residents (utilities/access/traffic diversions, etc.) • Foster Contractor/Community Relations 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Construction	Educational programs	Pupils, school guards and wardens	Monthly	<ul style="list-style-type: none"> • To educate those concerned about the project and possible dangers around the construction zone. • Traffic safety • Other relevant information 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)
Construction	Meetings	The Key Stakeholders are: Ministry of Public Works, the Ministry of Local Government and Regional Development, the Ministry of Housing and Water (CH&PA), the Environmental Protection Agency (EPA), the National Drainage and Irrigation Authority (NDIA), the Regional Democratic Council (RDC, Region 4), Neighborhood Democratic Councils (NDCs); Good Success/Caledonia and Te-Huist Coverden/Soesdyke, the Guyana Police Force (Division 4B), Cheddi Jagan International Airport (CJIA), Guyana Fire Service, Guyana Defense Force (GDF) Base, Timehri, Lands and Survey Commission, Transportation Association, Truck drivers. This also includes major businesses along the project alignment e.g., Baker Hughes, Bounty Farm Ltd., Gafoors, Coosals, Jumbo Jet, Asphalt Plants etc, and Local stakeholders (residents)	As-needed	<ul style="list-style-type: none"> • Obtain approvals, resolve emergencies 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Construction	Notices (Road signage)	General Public	As-needed	<ul style="list-style-type: none"> • Notification of planned disruptions, General Public Information 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio- Environmental Officer)
Construction	Leaflets	Residents/General Public	As-needed	<ul style="list-style-type: none"> • Inform community members. • Notification of planned disruptions. • Distribute grievance hotline numbers. 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio- Environmental Officer)

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Construction	Use of mass media and other communication Multi-Media Platform / Landing Page (Facebook, Instagram, WhatsApp Group, Email, Print and non-print) will be done with the assistance of the Engineer (Supervision Consultant) and Employer	General Public	As-needed (updated weekly during construction)	<ul style="list-style-type: none"> • Inform community members and the general public of the construction activities. 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)
Construction	Meeting	Guyana Police Force Regional Division 4B, Traffic Headquarters Georgetown	During Construction phase. As-needed	<ul style="list-style-type: none"> • Monitoring of project and identification of any associated traffic accidents 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Post Construction	Community meeting	Residents/NDC	De-mobilization	<ul style="list-style-type: none"> • Provide construction progress updates. • Un-resolve community issues. • Foster contractor/Community Relations 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)
Post Construction	Notices (Road Signage)	General Public	Project close off	<ul style="list-style-type: none"> • Guidance/caution on roadway use • Attention to potential safety hazard • Temporary restrictions to road use. 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for execution
Post Construction	Meeting	The Key Stakeholders are: Ministry of Public Works, the Ministry of Local Government and Regional Development, the Ministry of Housing and Water (CH&PA), the Environmental Protection Agency (EPA), the National Drainage and Irrigation Authority (NDIA), the Regional Democratic Council (RDC, Region 4), Neighborhood Democratic Councils (NDCs); Good Success/Caledonia and Te-Huist Coverden/Soesdyke, the Guyana Police Force (Division 4B), Cheddi Jagan International Airport (CJIA), Guyana Fire Service, Guyana Defense Force (GDF) Base, Timehri, Lands and Survey Commission, Transportation Association, Truck drivers. This also includes major businesses along the project alignment e.g., Baker Hughes, Bounty Farm Ltd., Gafoors, Coosals, Jumbo Jet, Asphalt plants etc, and Local stakeholders (residents)	Project close off As-needed	<ul style="list-style-type: none"> • Notification of intention to conclude construction activities. • Provide any recommendations 	Contractor (Social Development Officer / Social Development Officer (SDO)) supervised by the Engineer (Supervision Consultants)- Social Specialist and the Employer (Socio-Environmental Officer)

7. GRIEVANCE REDRESS MECHANISM (GRM)

A grievance is a complaint that expresses discontent, negative impact, financial loss or physical harm, or an allegation of tangible damage or impact that occurred as a result of Contractor actions. Grievances, also sometimes called complaints, are typically accompanied by a request for resolution and rectification. For Example: “The Contractor construction trucks are creating dusty conditions along the road affecting my residence”. To ensure grievances are managed efficiently, this grievance mechanism outlines the procedures for handling stakeholder complaints regarding all phases of the Project.

7.1 Types of Grievances

Grievances may include but are not limited to:

- Long traffic delays at road works / Traffic congestion
- Construction noise, dust, vibrations
- Pollution of waterways
- Blockage of drains
- Damage to property not foreseen or discussed with stakeholders
- Risks to community health and safety
- Loss of utilities
- Changes to the Project design or contractor’s activity concerning construction
- Non-response to employment inquiries
- Environmental
- Communications
- Sexual and gender-based violence (SGBV) and other plans.

7.2 Awareness of grievance mechanism

All parties must be aware of the grievance procedures and their duties and roles when addressing grievances. The procedures shall be discussed at inception workshops with the Regional Democratic Council (RDC), Neighbourhood Democratic Council (NDC), Community Development Council (CDC), the Employer staff, and other stakeholders and as part of the induction training for the Contractor’s staff. The Social Development Officer (SDO) shall ensure that public information as outlined in the Project’s communications mechanisms is disseminated. This shall be done by using the appropriate means such as:

Community meetings/consultations,

- Public awareness campaign,
- Media blast,
- Televised programming,

- Multimedia platform,
- Landing Page
- Signs with contact information shall be posted in the contractors' offices
- Portable signs of dimensions 2 ft x 3 ft shall be placed on the roadside in proximity to ongoing works.
- Posters shall be posted throughout the Project's area of influence at shops, the NDC, health centers, churches, schools, police stations, and other critical centers.

7.3 Who may submit a complaint?

The following persons may submit a complaint:

- Persons living or operating a business in the Project area of influence.
- Any road user who is directly impacted.
- Persons who are directly impacted.
- Persons who observe a situation that is a risk to stakeholders, workers, or the public.
- A person who is not directly impacted but wishes to draw attention to a particular adverse effect of the Project's activities.

7.4 Confidentiality and Anonymity

The complainant must always be given the option to remain anonymous. The Engineer's Social Specialist will be responsible for respecting and protecting stakeholders' wishes for anonymity. The Social Specialist will include names and contact information in reports if permission is given. In some situations, anonymity can affect the resolution of the problem; this would be explained. Complainants will be asked to provide other information such as pictures as evidence to describe the problem and location. In cases where identification and other information are not provided, the Social Specialist must log the complaint regardless. The grievance must be included in the Social Specialist grievance reports.

7.5 Avenues for Stakeholders to Lodge Complaints

The following avenues can be used by stakeholders to file a complaint or grievance:

Project Hotline (GTT)

Landing Page (electronic form)

Direct visits to the Social Specialist/Community Liaison's office or the Engineer Social Specialist office

The employer will receive grievances through the ReSolv IMS App and concerns made directly to the Social Officer

Referrals from the Employer and the IDB

Project Outreach Meetings

Submission of a comment in the suggestion boxes.

Using the IDB's Independent Consultation Investigation Mechanism (MICI)-

MICI is an office of the IDB Group, independent of the Bank's management and project teams, which addresses the environmental and social grievances of communities potentially affected by the Group's operations.

MICI's independence allows the IDB to work impartially and objectively to seek solutions with all parties involved: the communities alleging harm; the IDB Group, as the financier of the operation; and the borrower (company or government) executing the project.

How does the MICI work?



This process allows stakeholders to send their complaints in writing directly to the IDB's MICI Director. It can be sent by email, mail or fax addressed to the MICI director. The contact information is as follows:

Email Address: mecanismo@iadb.org

Mailing Address:

Independent Consultation Investigation Mechanism

1300 New York Avenue, NW

Washington, D.C. 20577

United States

Fax: +1 202 312 405

***Reference: Independent Consultation and Investigation Mechanism (MICI). June 2024.
mici.iadb.org/en***

7.6 Procedure for Logging and Recording Grievances

The Social Development Officer (SDO) will receive and log grievances in a logbook assigning a reference number. The logbook shall have a section that can be torn off and given to the stakeholder, noting the reference number, contact numbers, and time frame in which the complaint should be investigated and resolved. The logbook will also include a section outlining the outcome of the investigation, the actions taken, and the date the complainant was notified. The logbook shall be kept for monitoring and evaluation and should be backed up electronically. The Social Specialist will note the type and nature of the complaint and initiate the grievance management process. All environmental complaints shall be forwarded to the Environmental Specialist (ES) and Social Development Officer

(SDO), who will keep records. Other construction complaints will be forwarded to the Construction Manager (CM) and Construction Foreman (CF). Should a grievance not be resolved within fourteen (14) days, information for the complainant to contact the Project Manager will be given. Please see table below with Roles and Responsibilities.

Roles and responsibilities		
Position/Role	Company/Institution	Responsibility
<i>Social Development Officer</i>	CRBC (Contractor)	<ul style="list-style-type: none"> • Receive and log grievances in a logbook assigning a reference number. • Process the grievances until it is fully resolved. • Manage the overall database/log of grievances. • Write reports on the handling of the complaint. • Prepare weekly and monthly reports.
<i>Environmental Specialist</i>	CRBC (Contractor)	<ul style="list-style-type: none"> • Process the Environmental complaints until it is fully resolved. • Conduct investigation on environmental complaints.
<i>Social Development Officer (SDO)</i>	CRBC (Contractor)	<ul style="list-style-type: none"> • External coordination, contact with stakeholders to inform them of progress.
<i>Social Specialist</i>	SAI (Consultant)	<ul style="list-style-type: none"> • Provide guidance on resolving social grievances. • Monitor the measures taken by contractor in handling complaints. • Receive and log grievances in a logbook assigning a reference number. • Supervise the processing of the grievances until it is fully resolved. • Supervise the management the overall database/log of grievances. • Supervise the writing reports on the handling of the complaint. • Prepare monthly reports on grievances and periodic updates and requested.
<i>Environmental Specialist</i>	SAI (Consultant)	<ul style="list-style-type: none"> • Supervise the resolution of Environmental grievances. • Supervise the measures taken by contractors in handling complaints.
<i>Environmental and Social Inspector</i>	SAI (Consultant)	<ul style="list-style-type: none"> • Accompany CRBC on site visits concerning grievances logged. • Monitor the measures taken by contractor in handling grievances • Other duties may be assigned by the Social and Environmental Specialist
<i>Socio Environmental Officer</i>	MoPW-WSG (Employer)	<ul style="list-style-type: none"> • Supervise the Engineer and CRBC handling the grievances and provide guidance and assistance when necessary.

7.7 Procedure for Receiving, Investigating, and Resolving Complaints

The Social Specialist (SS) receives and logs the complaint. The complaint shall then be passed to the construction Environmental Specialist, Social Development Officer (SDO), Contractor Project Manager (CPM), Construction Manager, and Construction Foreman within 24 hours. Alternatively, the complaint

shall be passed to the Contractor’s Construction Foreman by phone immediately if it is deemed to be an emergency, safety breach, or a nuisance that is disrupting the stakeholder’s activities, rest, or damage to their property. The Environmental Inspector is responsible for classifying the complaint and ensuring that an investigation occurs following the classification presented in the table below.

Table 4: Classification of Grievance

	RISK LEVEL	ACTION	INVESTIGATION REPORT
Low	Likely to be of minor impact	Social Specialist (SS) will contact the Environmental Inspector/ Environmental Officer (EI/ EO) and Foreman within 48 hours of CLO receiving the complaint	The results of the investigation and resolution are noted.
Medium	Possible risk and likely one-off event	SS will contact the EI and form an investigation team within 24 hours of SS receiving the complaint.	Results of the investigation and resolution reported, and any underlying problems identified and dealt with.
High	Serious violations or risks to the public or Project	SS will contact CPM, ES, and EI. CM. CF (Employer & Engineer) and form an investigation team of the Employer, other staff and RDC/NDC. EA or Engineer may request works to be stopped while the investigation is ongoing.	Results of the investigation and resolution reported. Any underlying problems shall be identified and dealt with and corrective action shall be detailed.

Corrective actions will be monitored and followed up by the Employer, Engineer, and Social Development Officer (SDO). The Social Specialist shall keep a complaint investigation log with electronic backup and reference numbers as well as a standard report sheet on the outcome of the investigation. The investigation report will state the particulars of the investigation, corrective actions taken, and outcomes and shall be kept by the Social Specialist. Any confounding factors are forwarded to the Employer (Ministry of Public Works) for action.

The Social Specialist will contact the stakeholder on the results of the investigation and follow up with a verbal notification, and where necessary provide a copy of the investigation report via email within ten (10) days of logging the complaint.

7.8 Delays in the Complaints Resolution Process

- If the Environmental Inspector does not resolve the issue within seven (7) days, an interim report sheet

shall be prepared, noting when a result should be expected. The Social Specialist will contact the Stakeholder within 24 hours to indicate when a resolution should be made. This should be done within ten (10) days.

- If a complaint has not been investigated and resolved within fifteen (15) days, the Social Specialist shall notify the Employer and Social Development Officer (SDO) in writing and notify the stakeholder of the delays. The stakeholder should be contacted within two (2) weeks.
- The Employer is then responsible for contacting the Environmental Inspector and Contractor to ensure a satisfactory resolution within one (1) week of receiving the notification from the Social Specialist.
- If the stakeholder is not contacted by the Social Specialist within fourteen (14) days, the stakeholder should contact the Employer Socio-Environmental Officer directly.

7.9 Settling Disputes

During the grievance process, disputes may arise for several reasons as listed below.

- **Stakeholder dissatisfaction with the investigation and corrective measures:** The complainant should be instructed to contact the Employer and the Socio-Economic Officer who, with the Employer and Engineer, will within 48 hours review the case with the initial investigation team, assess its seriousness, and recommend immediate action and a site visit. The Employer staff shall prepare a written Disputes Assessment Report, which will be sent to the Social Development Officer (SDO), Environmental Inspector and the Project Manager. A letter shall also be sent to the stakeholders notifying them of the action taken within seven (7) days.
- **Non-cooperation of contractors:** In instances where the Contractor's staff does not cooperate with the investigation compromising quality and time frame, the Environmental Inspector should immediately contact the Contractor's Project Manager. If there are no changes in 24 hours, the Environmental Inspector should request the immediate intervention of the Employer. The failure of the Contractor to respond to the Employer will be considered a serious breach of contract and safeguard.

7.10 Stakeholder Complaints to Third Parties

Complaints made to the Neighborhood Democratic Council (NDC), the Contractor's Staff, and the Employer, should be redirected to the Social Specialist together with the complainant's contact information. The receiver should follow up within 24 hours by contacting the Social Specialist directly and where applicable, provide the complainant with the hotline number contact information which the Social Development Officer (SDO) should follow up. Complaints received by the Project Liaison Office should also be included in the Contractor's monthly report. Stakeholders can also issue complaints directly to the IDB by following the complaint procedure on their website. This will be shared with all

stakeholders and on all notices.

7.11 Handling malicious or mischievous reports

The Social Specialist shall track trends to identify malicious or mischievous reports. Upon identification of any threats, this must be brought to the attention of the EA as required.

7.12 Stakeholder feedback matrix/grievance logbook

The below grievance form should be used to log stakeholder complaints.

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success to Timehri)

CONSULTANT: Sheladia Associates Inc.

STAKEHOLDER GRIEVANCE COMPLAINT FORM

Reference number #:

Date: _____

Location (Chainage): _____ to _____

Location (Name): _____

Details of Grievance/ Complaint (name, contact number, what is the complaint/issue):

Signature, Name, Date _____

Results of Investigation:

Follow up Action:

Date when the stakeholder was notified of the results of the investigation: _____

Timeframe: _____

Signature & Name: _____

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success to Timehri)

CONSULTANT: Sheladia Associates Inc.

Stakeholder's Stub

Reference Number #:

CLO/Project Hotline Number:

Timeframe: _____

Site Office Address: _____

Signature, Name and Date: _____

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success to Timehri)

CONSULTANT: Sheladia Associates Inc.

Grievance Logbook Format (Electronic)

Grievance No.	Name of Stakeholder	Stakeholder Contact Information	Description of Grievance /Complaint	Grievance Type/nature	Corrective Action Taken	Status/ Closure Date	Remarks

7.13 Closing Grievances

After a thorough investigation of the grievance/ complaint is done, and the relevant steps are taken to rectify, compensate or fix the complaint/ grievance and the stakeholder is satisfied, a Grievance Resolution Form will be issued. The form requires the signatures of the Social Specialist/Social Development Officer (SDO) and the stakeholder that lodged the complaint/grievance. The signed form will be filed and kept by the Contractor and a copy shared with the Engineer (Supervising Consultant).

An example of the form is seen below:

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success to Timehri)

CONSULTANT: Sheladia Associates Inc.

GRIEVANCE RESOLUTION FORM

Date of Resolution: _____

Grievance Number: _____

Name of Complainant: _____

Address of Complainant:

Grievance Description:

Corrective action taken by Contractor:

Are you satisfied with the actions to address your
concern/complaint/grievance?

YES

NO

As a stakeholder, your signature on this document indicates that the above-captioned grievance reported by you has been addressed and resolved satisfactorily. It also indicates a clear communication channel between you and China Road and Bridge Corporation (CRBC).

Stakeholder's Name in Full: _____

Signature of Stakeholder: _____

Date: _____

Signature of Social Specialist/CLO: _____

Date: _____

7.14 Monitoring and Reporting Grievances and Complaints

Monitoring will be conducted to measure the effectiveness of the Community Grievance Mechanism and to identify trends in feedback for continuous, improvement of the Contractor’s activities and improved stakeholder engagement. The existence of a large number of grievances from communities is not necessarily indicative of bad performance. Such a number may demonstrate a high-quality dialogue and community interface. The goal is to gain trust and confidence on the part of communities that when valid concerns or complaints are raised, the Contractor addresses them and responds accordingly. A grievance process should not place undue emphasis on reducing the number of grievances registered, as they may be seen in many cases as analogous to “near-miss” reports that allow the exploration to address complaints before they get serious. However, the achievement of closure and the average time to achieve closure of grievances are key performance indicators. The Social Specialist/Social Development Officer (SDO) shall be responsible for monitoring and reporting grievances. This report should be submitted to the Engineer and Employer on a weekly and monthly basis, a summary of grievances, status, statistics, and issues will be reviewed to identify any trends. The report shall include:

1. Number of grievances received during the week and month
2. Number of grievances closed during the week and month
3. Percentage of grievances closed during the month
4. Category of grievances registered (construction, environmental, social)

Additionally, social compliance shall be an agenda item at weekly internal meetings, weekly progress meetings and monthly progress meetings where solutions shall be discussed. The social aspect of the Project will be monitored by implementing an electronic list of grievances.

The following tables outline the details of what should be recorded.

BREAKDOWN OF OUTSTANDING GRIEVANCE

GRIEVANCE NUMBER	DETAILS	NUMBER OF COMPLAINTS	GRIEVANCE CATEGORY
1	Dust Nuisance	1	Construction/ Environmental
	Total	1	

Sample Outstanding Grievance.

File #	Date	Source	Description	Action	Status
001	2/06/24	Mr. John Doe NDC Chairman	Mr. Doe, of XX Public Road, Supply East Bank Demerara reported that the dust nuisance was severely affecting him since the Contractor was not wetting the haul road. Contact Info: 6XXXXXXX / 2XX-XXX	A site visit was conducted on 5/06/24 by the Engineer only, since the Contractor's CLO was unavailable at the time It was confirmed that the dust nuisance was affecting Mr. Doe.	Follow-up action is being taken.

Remarks: *This grievance is construction/ Environmental.*

8. GRIEVANCE MECHANISM FOR EMPLOYEES/WORKERS

There are likely to be work-related issues arising in the workplace or on the site. These can range from health and safety concerns, harassment from another member of staff, gender discrimination, gender-based violence, sexual harassment, the behavior of a line manager, or worries over changes in work conditions. This should be brought to the attention of the employer and the matter must be investigated and resolved fairly.

Employees can raise workplace concerns formally or informally to their immediate supervisors or managers. If the employee is not satisfied with the results or outcome, they can issue a formal complaint (grievance). It is then expected of the Contractor (CRBC) to ensure a fair and lawful procedure is undertaken. Employees/workers will be reminded in toolbox talks and internal meetings of the GRM on the project and who they can report to if they have unresolved issues.

8.1 How will the worker's Grievance be addressed?

When a complaint is made formally or informally, and it is determined it is a matter that the manager or supervisors cannot resolve the complaint will be logged and communicated with the Social Specialist. An investigation will be conducted with the parties involved, the SS, CLO and manager/ supervisor where any evidence will be provided. The investigation's outcome will determine what type of disciplinary action must be taken or what policies need to be amended to ensure all parties are satisfied.

8.2 Workers Grievance Log

A separate grievance log will be kept and monitored by the Social Specialist which will follow a similar format as the Stakeholder Grievance Log. An example is as follows:

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success - Timehri Road Project)

CONSULTANT: Sheladia Associates Inc.

Worker's Grievance Logbook Format (Electronic)

Grievance No.	Complainant Particulars	Department of Complainant	Description of Grievance /Complaint	Grievance Type/nature	Corrective Action Taken	Status/ Closure Date	Remarks

8.3 Outcome of workers' grievance

After a formal grievance procedure, the Project Manager should decide on what is fair and reasonable based on the findings from the investigation(s), as well as what decisions have been made in any similar cases in the workplace.

If a grievance is upheld, further steps may need to be taken to resolve the matter complained of, for example, taking disciplinary action against another employee where allegations have been raised against them. The employer may also need to take steps to address any matters for which they are directly responsible an adequate explanation must be given to the employee.

9. Addressing disputes related to gender, gender-based violence (GBV), or sexual harassment

Addressing disputes related to gender, gender-based violence (GBV), or sexual harassment requires a careful and systematic approach to ensure fairness, sensitivity, and effectiveness. Here's a structured way to address such complaints:

1. Establish Clear Policies

- **Create a Comprehensive Policy:** Develop a clear, detailed policy on gender equality, GBV, and sexual harassment. This policy should outline what constitutes inappropriate behavior, the procedures for reporting complaints, and the potential consequences for violators. This policy would be posted in a conspicuous location and would be given to all employees at the time of signing their contract.

2. Provide Training and Awareness

- **Training Programs:** Regularly train staff, management, and stakeholders on recognizing, preventing, and addressing sexual harassment and SGBV. This should include training on how to handle complaints sensitively.
- **Awareness Campaigns:** Conduct campaigns to raise awareness about the policy and available resources.

3. Establish Reporting Mechanisms

- **Confidential Reporting:** Set up confidential and secure channels for individuals to report incidents. This could include a hotline, email, or online reporting system.
- **Multiple Reporting Options:** Provide several ways to report issues to ensure that individuals can choose the method they are most comfortable with.

4. Ensure an Impartial Investigation

- **Appoint Investigators:** Designate trained, neutral individuals or teams to investigate complaints. Ensure that they have the necessary skills and experience to handle such sensitive matters.
- **Follow a Standard Procedure:** Implement a standardized investigation process that ensures fairness and thoroughness. This includes interviewing all relevant parties and reviewing evidence.
- **Maintain Confidentiality:** Protect the identities of both the complainant and the accused to the extent possible during the investigation.

5. Provide Support to Affected Individuals

- **Offer Support Services:** Provide access to counseling and medical care for those who have experienced GBV or harassment.
- **Implement Protective Measures:** If necessary, make accommodations to ensure the safety and well-being of the complainant during and after the investigation. This could include changes in work arrangements or other support measures.

6. Take Appropriate Action

- **Determine Consequences:** Based on the investigation's findings, impose appropriate disciplinary actions or sanctions against those found guilty of misconduct. Ensure that actions are consistent with the established policy.
- **Communicate Outcomes:** Inform the complainant and the accused of the outcomes of the investigation and any actions taken, while respecting privacy.

7. Review and Improve Policies

- **Gather Feedback:** After resolving a complaint, seek feedback from all parties involved to identify any issues with the process or outcomes.

- **Regular Reviews:** Periodically review and update policies and procedures to improve effectiveness and address emerging issues or gaps.

8. Foster a Positive Culture

- **Promote Respect and Inclusivity:** Continuously work towards creating a culture of respect and inclusivity where inappropriate behavior is less likely to occur.
- **Encourage Open Dialogue:** Foster an environment where individuals feel safe discussing issues related to gender and harassment, and where they are confident that their concerns will be taken seriously.

By following these steps, organizations can create a safer and more supportive environment for addressing disputes related to gender, GBV, and sexual harassment.

APPENDIX C – Labour Management Plan

The Labour Management plan will be in accordance with the following Labour legislations:

The Labour Act, Chapter 98:01: (No. 2 of 1942) provides for the establishment of the Department of Labour, for the regulation of the relationship between employers and employees, the appointment of the Chief Labour Officer and staff, the statutory responsibility of the Chief Labour Officer and the Permanent Secretary. The Act also provides for conciliation in industrial disputes, defines the powers of the Minister to intervene in trade disputes, and establishes advisory committees, procedures for regulating wages and hours of work, rights and obligations of employees, and the status and enforceability of collective agreements.

Termination of Employment and Severance Pay Act, Chapter 99:08 (No. 19 of 1997) Provides the conditions governing termination of employment, and the grant of redundancy or severance payment to employees for reasons connected with redundancy. The Act defines unfair dismissals and the termination process, including termination on the grounds of redundancy, and the formula for severance allowance.

Prevention of Discrimination Act, Chapter 99:09 (No. 26 of 1997) -Provides for the elimination of discrimination in employment, training, recruitment, and membership of professional bodies. The Act also provides for the promotion of equal remuneration for work of equal value. It further prohibits discrimination, defines unlawful discrimination, and protects against discrimination in employment, and protection against discrimination in other areas.

Occupational Safety and Health Act, Chapter 99:10 (No. 32 of 1977) -Provides for the registration and regulation of industrial establishments, and for occupational safety and health of persons at work. The Act also provides for the establishment and functions of the National Advisory Council, and Authority on Occupational Safety and Health (OSH), and defines the power and authority of an inspector of labour, medical inspector, OSH commissioner and their appointments. The Act further provides for the participation of non-governmental agencies through safety and health representatives and joint workplace and health committees with defined functions and powers. The duties of the employer, supervisors, workers, occupiers, owners, and directors are set out in the Act. Concerning hazardous chemicals, and physical and biological agents, the Act requires their identification and hazardous nature with appropriate inventories and regulates their use, storage, instruction and training. Notification of accidents and occupational diseases, inquest in case of death by accident or occupational disease are further requirements of this Act.

National Insurance and Social Security, Chapter 36:01 Act No. 15 of 1969 -This Act provides for a system of national insurance and social security for old age, invalidity, survivors, sickness, maternity, and funeral benefits. The Act also complements compensation under the Workmen’s Compensation law for injury or accidental death arising out of or in the course of employment or disease due to the nature of employment. The Act further establishes a National Insurance Fund.

Other Laws regarding the regulation of hours of work, wages and other conditions of work, duties and

obligations relating to employers and employees are covered by the following legislation:

Wages Council Act, Chapter 98:04 (No. 51 of 1956) for the establishment of wages councils

Employment Exchange Act, Chapter 98:05 (No. 21 of 1944) for the establishment of employment exchanges

The Recruitment of Workers Act, Chapter 98:06 (No. 9 of 1943) to regulate the recruiting of workers

Employment of young persons and children Act, Chapter 99:01 (No. 14 of 1933/No. 9 of 1999)

Holidays with Pay Act, Chapter 99:02, (No. 6 of 1995) to provide for the grant and regulation of annual holidays with pay for all categories of workers

Labour (Conditions of Employment of certain workers) Act, Chapter 99:03 (No. 18 of 1978) to regulate the conditions of employment of certain workers

Accidental Deaths and Workmen's Injuries (Compensation) Act, Chapter 99:05 (No. 21 of 1916) to make certain provision for accidental death and personal injury. This is in addition to any benefits obtained under the National Insurance and Social Security Act or any entitlements from any other service.

Household Service Workers (Hours of Work) Act (No. 17 of 1980) to regulate the working hours of household service workers.

CRBC's Labor Recruitment Plan shall be made according to the construction organization plan;

Qualified workers shall be recruited following the relevant regulations of Guyana.

Child labour/minor and forced labour are strictly prohibited; equal employment shall be respected.

Project personnel shall comply with the code of conduct for the contractor, attend the induction meeting, HSE meeting, toolbox/pre-work meeting held for the Project, and participate in the HSE training plan organized for the Project.

Project personnel shall participate in HSE drills organized for the project.

The labour training plan of the Project is as follows:

Project Phase	Communication Mechanism	Audience	Frequency of Communication	Objectives	Responsible for Execution
Mobilization	Toolbox Talks	Employees of the Contractor	Inception Daily	<ul style="list-style-type: none"> • Outline any social/cultural sensitivity. • Outline Grievance and reporting procedures. • OSH Awareness 	<ul style="list-style-type: none"> • Contractor • Social Development Officer (SDO)
Mobilization	Sensitization Session/ Training	Employees of the Contractor	Inception	<ul style="list-style-type: none"> • Introduction to Occupational Safety & Health. • Occupational Safety & Health Legislation • Workplace Hazards • Safety and Health in The Construction Sector • Workplace Inspections • Accident and Accident Investigations • Awareness and Education on Social Issues Plan • Hazardous Material Communication • Communicable and Non-Communicable Disease • Grievance and reporting procedures. • Outline of Sexual and Gender Based Violence (SGBV) 	<ul style="list-style-type: none"> • Contractor • Social Development Officer (SDO) • External Facilitators • Gender Affairs Bureau
Construction	Toolbox Talks	Employees	Inception Daily	<ul style="list-style-type: none"> • Outline any social/cultural sensitivity • Outline Grievance and reporting procedures. 	<ul style="list-style-type: none"> • Contractor
Construction	Toolbox Talks Sensitization Session/ Training (see Training Plan for Truck Drivers in Appendix F)	Employees of the Contractor	1 Day Training As-needed Throughout the 36 months of the project	<ul style="list-style-type: none"> • Introduction to Occupational Safety & Health. • Occupational Safety & Health Legislation • Workplace Hazards • Safety and Health in The Construction Sector • Workplace Inspections • Accident and Accident Investigations • Awareness and Education on Social Issues Plan • Communicable and Non- Communicable Disease • Grievance and reporting procedures. • Outline of Sexual and Gender Based Violence (SGBV) 	<ul style="list-style-type: none"> • Contractor • Social Development Officer (SDO) • External Facilitators • Gender Affairs Bureau
Post Construction	Toolbox Talks	Employees of the Contractor	Inception Daily	<ul style="list-style-type: none"> • Outline any social/cultural sensitivity • Outline Grievance And reporting procedures. • OSH Awareness 	<ul style="list-style-type: none"> • Contractor
Post Construction	Sensitization Session/ Training	Employees of the Contractor	Monthly meeting	<ul style="list-style-type: none"> • Outline any social/cultural sensitivity • Outline Grievance and reporting procedures. • Occupational Health and Safety • Communicable and Non- Communicable Diseases 	<ul style="list-style-type: none"> • Contractor

APPENDIX D – Site Safety Plan

A Road Construction Site Safety Plan highlights the considerations and measures to protect the workers, the public, and the environment during construction activities along the corridor of Section B.

1. Introduction

Project Overview:

Esat Bank Demerara Road Improvement project for Section B is located on the East Bank Demerara main road passing through the villages of Relief to Soesdyke, approximately 12 months will be the duration of construction works and main activities will be:

- a. Widen the Existing Road,
- a. Construct new Sidewalk,
- b. Relocate the Existing Utilities
- c. Improve Safety, Streetlighting, Pedestrian Crossing

Safety Objectives:

1. Prevent accidents and injuries to workers and the public by identifying and mitigating hazards associated with road construction activities.
2. Ensure compliance with all applicable local, and national occupational health and safety regulations, as well as environmental laws.
3. Protect the safety of the public, including drivers and pedestrians, by managing traffic flow and reducing the likelihood of roadwork-related accidents.
4. Safeguard the health and well-being of construction workers by providing appropriate personal protective equipment (PPE) and promoting safe work practices.

2. Roles and Responsibilities

1. Site Supervisor: Responsible for overall site safety and ensuring that safety protocols are followed.
2. Safety Officer: Monitors daily operations, performs safety inspections, and ensures that safety equipment is used properly.
3. Workers: Must follow safety guidelines, report hazards, and use protective equipment.
4. Emergency Response Team: Responsible for handling accidents or incidents.

3. Hazard Identification and Risk Assessment

1. Traffic Hazards: Working close to live traffic. Controls include barriers, cones, and flaggers.

2. Machinery Hazards: Working with heavy equipment. Controls include operator training, clear communication, and equipment maintenance.
3. Environmental Hazards: Working in extreme weather or dusty conditions. Controls include PPE, hydration, and shelter.
4. Hazardous Materials: Handling asphalt and concrete. Controls include proper storage, handling procedures, and PPE.

4. Safety Measures and Controls

1. Traffic Management Plan:
 - a. Use of signage, cones, barriers, and flaggers to direct vehicles and pedestrians away from the work zone.
 - b. Establish safe entry and exit points for construction vehicles.
 - c. Speed limits and diversion where necessary.
2. Personal Protective Equipment (PPE):
 - a. Hard hats, high-visibility vests, steel-toed boots, gloves, hearing protection, and safety glasses are mandatory.
 - b. Workers handling hazardous materials may need additional protection like respirators or chemical-resistant gloves.
3. Machinery and Equipment Safety:
 - a. Only trained operators are allowed to use heavy machinery.
 - b. Daily equipment inspections for defects or malfunctions.
 - c. Establish a communication protocol for those operating or working around machinery (e.g., hand signals or radios).
4. Fall Protection:
 - a. Guardrails, harnesses, or safety nets for elevated work (e.g., bridge construction, relocation of utilities post).
 - b. Ladder and scaffold safety measures.
5. Heat and Weather Protection:
 - a. Provide shaded areas and access to water for workers during hot weather.
 - b. Ensure proper clothing for cold or wet conditions.

- c. Monitor weather forecasts and adjust work schedules accordingly.
6. Dust and Air Quality Management:
- a. Regularly water down dust-prone areas.
 - b. Workers in dusty conditions should wear respiratory protection.
 - c. Rotation of workers.

5. Emergency Procedures

1. First Aid and Medical Services:
- a. Provide first aid kits at easily accessible locations.
 - b. Have trained first aid responders on-site.
 - c. Emergency contacts and nearest hospital locations should be listed.
2. Fire Safety:
- a. Fire extinguishers should be available on-site, particularly near machinery.
 - b. Workers should be trained on fire risks and evacuation procedures.
3. Accident Reporting:
- a. All incidents, near-misses, and accidents should be reported immediately to the supervisor.
 - b. Conduct an investigation after an incident to identify root causes and implement corrective measures.
4. Evacuation Plan: procedures
- a. Clear procedures for evacuating the site in case of severe weather, fire, or other emergencies. STEPS
 - b. Designate assembly points and ensure all workers are aware of them.

6. Training and Safety Meetings

1. Safety Training:
- a. Mandatory safety training for all workers before starting work on-site.
 - b. Mandatory training for truck drivers before starting work on-site
 - c. Training on specific risks, such as working near traffic or handling hazardous materials.
2. Toolbox Talks:

- a. Regular (e.g., daily or weekly) short safety meetings to discuss potential hazards, recent incidents, or changes in work conditions.

3. Emergency Drills:

- a. Periodic drills (e.g., fire drills, evacuation drills) to ensure workers know how to respond to emergencies.

7. Site Inspections and Audits

1. Daily Inspections:

- a. Supervisors and safety officers perform daily safety inspections to identify hazards.
- b. Checklists for specific equipment, work areas, and environmental conditions.

2. Audits:

- a. Periodic safety audits to ensure compliance with the safety plan and regulations.
- b. Documentation of inspections, incidents, and corrective actions taken.

8. Compliance with Regulations

1. Local Regulations:

- a. Ensure the safety plan complies with local occupational safety and health regulations.

2. Permits and Certifications:

- a. Ensure that the necessary work permits and certifications are obtained for high-risk activities.

9. Health Monitoring

1. Fatigue Management:

- a. Monitor work hours and provide rest breaks to avoid worker fatigue.

2. Medical Screenings:

- a. Regular health checkups for workers handling hazardous materials or operating heavy machinery (Noise and Dust).

APPENDIX E – Driver Safety Management Plan

1. Vehicle Maintenance and Inspection

Regular Maintenance Schedule: Vehicles managed by CRBC should have a routine vehicle maintenance schedule for oil changes, tire rotations and brake inspections. Vehicles should have routine maintenance every 5000 miles or according to the vehicle specifications.

Daily Inspections: Drivers should inspect the vehicle before using it. This would include ensuring there is oil, water, durable tires, working lights and breaks.

Documentation: Keep records of routine vehicle maintenance should be kept. The information that should be recorded are: Date of maintenance, the Company that maintained with, and what was maintained on the vehicle.

2. Driver Training and Education

- Initial Training: Provide comprehensive training for new drivers, covering vehicle operation, road safety rules, and company policies.
- Ongoing Education: Offer regular refresher courses and updates on new safety regulations and driving techniques.
- Defensive Driving Courses: Encourage or require participation in defensive driving courses to improve hazard awareness and reaction skills.

3. Safety Policies and Procedures

The safety procedures that driver should follow are:

- Seatbelt Use: Drivers must use their seatbelts and encourage all occupants to do the same.
- Speed Limits: Adhere to speed limits on the campsite and on the public roadways.
- Distracted Driving: Drivers should not use their mobile phone use while driving. Hands-free devices should be encouraged.
- Substance Abuse Policy: Strict no-tolerance policy for driving under the influence of alcohol, drugs, or other impairing substances.
- Be prepared for emergencies
- Occupants should not disembark moving vehicles
- Ensure that trucks transporting aggregates are not filled beyond the maximum capacity and ensure that the load is covered properly.
- Always signal when turning Maintain a safe distance
-

4. Fatigue Management

- Work Hours: Drivers should not drive more than 10 consecutive hours within a day.
- Rest Breaks: 60-minute breaks should be taken during 8 hours of driving or whenever the driver desires a break during the journey.
- Sleep: Drivers should prioritize at least eight hours of sleep. Drivers are also encouraged to get regular medical checkups as it relates to eyesight, ergonomics and stress.

5. Emergency Procedures

Vehicle Accident Response:

In the event of a motor vehicle accident immediately take the following steps:

- Ensure all occupants are accounted for and responsive.
- Call 911 and 912 immediately and then inform CRBC
- If any occupant is ejected from the vehicle, unresponsive, or injured call 911 immediately.
- Assess your vehicle's condition to determine if it is safe to occupy and if it can safely be moved.
- If a vehicle cannot be moved, call 911 and wait for assistance.
- If it is safe to do so, occupants should remain in the vehicle with seat belts fastened for everyone's safety until help arrives.
- If it is unsafe to remain in the vehicle, occupants should cautiously exit and move to a safe location away from traffic but adjacent to the accident site.
- Turn on hazard lights, put on a safety vest if possible
- Do not smoke or place lit flares within 25 feet of damaged vehicles or fluids which have leaked from them.
- If a vehicle can be moved without creating further hazard, move it to a safe location adjacent to the accident site.
- Participants should remain in the vehicle with their seat belts fastened if possible.
- Exchange the following information at a safe location off the roadway:
 - Name, address, phone number, insurance company, policy number, driver's license number, and license plate number for the driver and the owner of each vehicle.
 - If the driver's name is different from the name of the insurance, establish what the relationship is and take down the name and address of each individual.
 - Make a written description of each car, including year, model, and color the exact location of the collision and how it happened.
- Notify the nearest police station.

Breakdown Protocol:

- Put on vehicle hazard lights.

- Notify the main office of vehicular trouble.
- If the driver has prior knowledge of the reason for the mishap, then he may try to rectify the problem. Otherwise;
- A mechanic should be contacted to assist with the vehicle
- Emergency Contacts: A list of emergency contact numbers should be made readily available in the company vehicles.

6. Monitoring and Reporting

- Incident Reporting: Drivers should promptly all incidents, near misses, and safety concerns.
- Feedback Loop: The HSE department should regularly review incident reports and feedback to identify trends and areas for improvement.

7. Legal and Regulatory Compliance

- Licensing and Certification: Drivers should have a valid license for the specific type of vehicle that they will drive.
- Regulation Adherence: All vehicles should have updated vehicle registrations, insurance and fitness

Training Plan for Truck Drivers (Section B)

Objective

1. Overview

- To equip truck drivers with the knowledge, skills, and competencies necessary for safe and efficient operation of commercial vehicles, complying with legal requirements, and minimizing risks to themselves and others.
- Truck drivers face a range of challenges, including long driving hours, vehicle maintenance, and handling heavy loads. Proper training ensures drivers are prepared to handle these responsibilities safely and efficiently.

2. Key Training Components

A. Defensive Driving

- Objective: Teach drivers how to anticipate and respond to hazards on the road.
- Topics:
 - Hazard recognition (e.g., road conditions, other drivers)
 - Maintaining safe following distances
 - Adjusting speed for weather conditions (rain and fog,)
 - Emergency maneuvers (braking, evasive actions)

B. Vehicle Inspection and Maintenance

- Objective: Educate drivers on pre-trip and post-trip vehicle inspections to identify potential mechanical issues and ensure compliance with safety regulations.
- Topics:
 - Pre-trip inspections (tires, brakes, lights, fluid levels)
 - Recognizing signs of wear and tear
 - Basic vehicle maintenance (e.g., changing fluids, tightening bolts)
 - Reporting and documenting vehicle defects

C. Hours of Service (HOS) Compliance

- Objective: Ensure drivers understand legal limits on driving hours and the importance of managing fatigue.
- Topics:
 - Maximum driving time limits
 - Required rest breaks and off-duty time
 - Use of Electronic Logging Devices (ELD)
 - The impact of fatigue on safety

D. Load Securement

- Objective: Train drivers on properly securing loads to prevent accidents caused by shifting or falling cargo.
- Topics:
- Proper use of straps, chains, and tarps
- Weight distribution and axle load limits
- Load checks during transit
- Special requirements for hazardous materials (HAZMAT)

E. Emergency Response and Accident Procedures

- Objective: Prepare drivers to respond appropriately in case of accidents, breakdowns, or other emergencies.
- Topics:
- Procedures for reporting accidents
- Emergency roadside procedures (placing warning devices)
- Basic first aid and firefighting
- Evacuation procedures for hazardous materials

F. Health and Wellness

- Objective: Promote healthy practices to ensure long-term well-being for truck drivers who face sedentary work and stress.
- Topics:
- Healthy eating and exercise while on the road
- Managing sleep and fatigue
- Mental health awareness (stress and isolation)
- Substance abuse prevention (alcohol, drugs)

3. Training Delivery

- Format: A blend of classroom instruction, online modules, and practical demonstrations.
- Frequency: Initial training (20-24 hours) with refresher courses every 6-12 months.
- Instructors: Certified trainers with experience in commercial vehicle operation and safety.
- 4. Assessment and Certification
- Evaluation: Written tests, practical driving exams, and hands-on vehicle inspections.
- Certification: Drivers who complete the training successfully receive a certificate of completion, recognized by employers and regulatory bodies.
- 5. Continuous Monitoring and Feedback
- Driver Monitoring: Use telematics to track driving behavior (e.g., speed, braking) and provide feedback for improvement.

- Ongoing Support: Regular check-ins and additional training as needed based on performance metrics.
- Conclusion

This training plan provides truck drivers with a comprehensive understanding of safety, compliance, and best practices, ultimately reducing accident rates and improving operational efficiency.

References

- FMCSA - Federal Motor Carrier Safety Administration. (2024). "Hours of Service Regulations." FMCSA Website.
- National Safety Council (NSC). (2024). "Defensive Driving Course." NSC Website.
- Centers for Disease Control and Prevention (CDC). (2024). "Health and Safety for Truck Drivers." CDC Website.
- National Highway Traffic Safety Administration (NHTSA). (2024). "Emergency Guidelines for Drivers." NHTSA Website

APPENDIX G – Small Vendor Management Plan

Road construction small vendors management plan involves several key steps to ensure smooth operations and compliance with regulations. Here's a structured approach:

1. Vendor Identification and Selection

The beginning of construction projects would initiate business opportunities for small vendors (street vendors) to provide refreshments such as packet snacks, cooked food and beverages for employees.

Street vendors can be allowed to provide this service to construction workers if they suit the following criteria:

- Register with the CRBC office as a street vendor to sell refreshments to their employees.
- Street vendors must have a business registration and a food handlers' certificate for cooked food.
- Submit a list of products that will be offered and their price list.

2. Vendor Management Procedures

- **Vendor Contracts:** A contract should be drafted with the small vendor highlighting terms of engagement, responsibilities, operation times and compliance requirements such as cleanliness, and appearance of their stall.
- **Allocation of Spaces:** Specific vending spaces should be allocated. Management would make the decision where would be the best place to facilitate vending for business owners.

3. Health and Safety Measures

- **Food Safety:** Ensure vendors possess a food handlers' certificate before providing cooked food for employees.
- **Fire Safety:** If cooking will be done at the vendor's stall, fire safety measures should be required. This can be self-taught by the vendors or facilitated by the HSE team of the campsite.
- **Emergency Procedures:** Vendors should be aware of emergency protocols (evacuation routes, contact information).

4. Environmental Management

- **Waste Management:** Vendors should indicate their plans to dispose of generated waste from their operations.

5. Community Relations

- Vendors should be made aware of the GRM for community members and the contact person for disputes with camp residents or construction works. Feedback should be encouraged from CRBC and small vendors as it relates to social concerns.

6. Monitoring and Compliance

- Regular Inspections: Conduct inspections and document updates to ensure that street vendors remain compliant and the best option to provide services for construction employees.

7. Training and Support

- Vendor Education: Specific training can be provided to vendors such as health and safety practices, waste management, and customer service.
- Technical Support: Assistance can be rendered with setting up and maintaining stalls or shops.

9. Financial Management

- Fee Collection: A fee can be charged to acquire vending rights to the construction sites. This should be done on a specific schedule and using an appropriate payment method.

10. Continuous Improvement

- Review and Adaptation: Regularly review the vendor management plan to identify areas for improvement. Consult with vendors to improve their services and receive feedback on ways to improve.

APPENDIX H – Oil spill Report Template

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success - Timehri)

CONSULTANT: Sheladia Associates Inc.

Oil Spill Report

Report ID:

Date _____

Time _____

Location _____

Duration of the oil/fuel spill	
Identity and quantity of the oil/fuel	
Circumstances of the spill (How did the spill occur)	
Containment and clean-up methods	
Disposal method of oil spill	
Adverse effect observed.	

APPENDIX I – Emergency Report Template

Ministry of Public Works

PROJECT: East Bank Demerara Road Improvement Project (Good Success - Timehri)

CONSULTANT: Sheladia Associates Inc.

Emergency Report

Report ID:

The purpose of this report is to record all emergencies. The term accident for this report be categorized as the need for first aid, medical aid, lost time, fatality, or oil spill. The term incident for this report will be categorized as near-miss, property damage with no injuries but required preventative actions.

Report completed by: _____

Date of Report: _____

Persons involved: _____

Date of emergency: _____ Time: _____

Location: _____.

Type of Emergency:

___ Medical Emergency ___ Fire Emergency ___ Severe weather conditions

___ Hazardous material leaks

Brief Description of emergency:

_____ Any unusual

working conditions:

Overview of Emergency

How did the emergency occur? (Include the use of equipment and personnel)	
What tasks were being performed?	
Were there adequate safe working procedures and was it followed?	
Was the risk known? If so, why wasn't it controlled? If not, why not?	
Were the people involved competent and suitable?	
Did the workplace layout influence the adverse event?	
Did the workplace layout influence the adverse event?	
What injuries or ill effects were caused?	
If there was an injury, how did it occur and what caused it?	
Was the safety equipment sufficient?	
Did other conditions influence the adverse event?	
What were the immediate, underlying and root causes?	

Risk, Control Measures, Analysis of Emergency

<p>What risk control measures are needed/recommended?</p>	<p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p>	
<p>Have similar emergency happened before?</p>		
<p>Which Risk control measures should be implemented in the long and short term?</p>		
<p>Control Measure</p>	<p>Completion Date</p>	<p>Person Responsible</p>
<p>1</p>		
<p>2</p>		
<p>3</p>		
<p>4</p>		
<p>5</p>		
<p>What are the findings from the analysis? (Demonstrate the 5 why's analysis)</p>		

Emergency Report

Members of the investigation team

Name	Position	Signature

APPENDIX J – Flood Risk Management Plan

1. Overview

CRBC is committed to the achievement of good practice asset management strategies to ensure the safe and reliable operation of its network. A key component of this strategy is to manage the risk to its assets and customer supply reliability during times of major and moderate flood events.

This Flood Risk Management Plan is part of the Emergency Response Plans and targets specific issues and initiatives relating to flood events.

2. Scope

The Flood Risk Management Plan covers the following areas:

Identification of electricity assets which may be affected by a major or moderate flood

Asset maintenance procedures

Review of business continuity plans

Network Operations response to major floods

Pre-emptive disconnection and optimization of switching

Liaison with other organizations regarding flood-related issues

Restoration of the supply process and dispatch of generators, and

Information to be provided to customers relating to flood risk and public safety.

3. Flood Risk in Guyana

Due to its geography and hydrology Guyana is vulnerable to a variety of flood events. These include coastal, dam failure, riverine and ponding. Additionally, the convergence of these events within a specific geographic location can exacerbate the flood threat beyond the normal flood levels.

Flooding has been regarded as one of the most important environmental hazards affecting Guyana particularly in the coastal regions. The proximate causes of flooding are contained in the everyday environmental stresses of inadequate solid waste management, drainage, drinking water provisions and sanitation (Pelling, 2013). Significant attention is paid to the coastal plain because it is regarded an area of reclaimed land that lies near or below sea level, supports 90% of the population and is the administrative, agricultural, commercial and industrial center of the country.

Floods can be categorized by the source of the event. The characteristics of each of the following flood sources will assist in determining the actions taken to alleviate the flood consequences.

a. River/Fluvial Flooding: The principal source of river flooding is excessive rainfall within a limited period, which overwhelms the drainage capacity of the land or drainage systems, particularly when the ground is already saturated or when drainage channels become blocked. Weather patterns determine the amount and location of rainfall. Unfortunately, the amount and time over which precipitation (rainfall) occurs is not consistent for any given area. Several factors can combine with exceptional precipitation

to exacerbate flooding, for example, water-saturated ground, unusually high tides (spring tides), and drainage modifications. Rapid (flash) flooding can occur when extensive saturation of high ground accompanied by intense short-duration rainfall in a small catchment or in a heavily built-up area results in sudden release of large volumes of water along narrow channels from high ground to low lying locations. Extreme rainfall events may be forced by airflow over mountains, weather fronts and convective storms. The most extreme events involve a rapid uplift of moist air in the same location for a long time. This type of meteorological event can cause other effects including landslides.

b. Coastal flooding Inundation by the sea on coastal areas is potentially caused by unusually high tide, storm surge, and wave activity including tsunamis. Coastal flooding may also be caused by structural failure of defenses with some locations subject to combinations of tidal and river impacts. Long-term processes like subsidence and rising sea level as a result of global warming can lead to encroachment of the sea on land.

c. Dam Burst, Conversancy Failure or Overtopping, Sea Defence Failure Dams occur as human constructed features, or as natural features constructed possibly by landslides. Human constructed dams are built for water storage, generation of electrical power, and flood control. Flood Defence systems are designed to protect vulnerable low-lying areas and also hold water levels above the surrounding natural ground level. Failure can result in the sudden release of large volumes of water leading to catastrophic flooding including potential loss of life.

4. Disaster Management Systems in Guyana

The Cabinet, under Cabinet note CP (97)2:2: reconstituted the CDC in 1997. The Terms of Reference of the Commission are:

To identify disasters according to established criteria and classification

To produce plans for the Management of National Disasters

To identify and implement mechanisms for disaster response and mitigation

To maintain a permanent body, to enhance the national capacity for Disaster Management Services

To train human resources involved in Disaster response mechanisms

To educate all levels in the tenets of Disaster response.

Guyana, through the CDC, has embarked on a Comprehensive Disaster Management (CDM) programme that illustrates the cyclic process by which the country plan for and reduce the impact of disasters, and take steps to recover after a disaster has occurred. Appropriate actions at all points in the CDM cycle will lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next repetition of the cycle. Authority from the Office of the President provides for the maintenance and restoration of order in areas affected by catastrophes, and relief against such catastrophes. These provisions are made through the government appointed entity – the Civil Defence

Commission (CDC). This body will work through other critical stakeholders, in particular, the Ministry of Communities and Regional Democratic Councils and its regional bodies.

5. The National Disaster Management System is a three-tiered system:

- National
- Regional
- Community or Local level.

The National Level is the policy level consisting of the Office of the President, with the President as the head/ lead in policy decisions in an emergency. Supporting the Head of State is the National Disaster Coordinator (NDC), linking with the Cabinet. In support of the Cabinet, there is currently a Sub Committee of Cabinet addressing DRM issues.

On the Technical Level, the CDC is the lead/ coordinator. Assistance and guidance in programming is given to the CDC by the Disaster Risk Reduction Platform, which is comprised of the following agencies:

6. Disaster Risk Reduction Platform Membership:

NDIA Guyana

Red Cross

UNDP

Guyana Lands and Survey Commission

MoC

MoH

UNICEF

MoFA

Sea and River Defence

Hydromet Dept.

Guyana Fire Service

Guyana Police Force

EPA Guyana

Defence Force

Private Sector Commission

Inter-American Development Bank

Civil Society Organizations

In addition to the DRR Platform, there is a National Preparedness and Response Structure that will be responsible for the management and execution of this plan. See chart below. The committees in this structure will operate in conjunction with the CDC and the other levels.

7. Project sites vulnerability to flooding

Generally, all the regions have had reported flooding at different magnitudes, based on the low coastal plain showing in the map below. The camps project sites have a low vulnerability of flooding, this is related with the natural conditions of the terrain altitude with sea level.

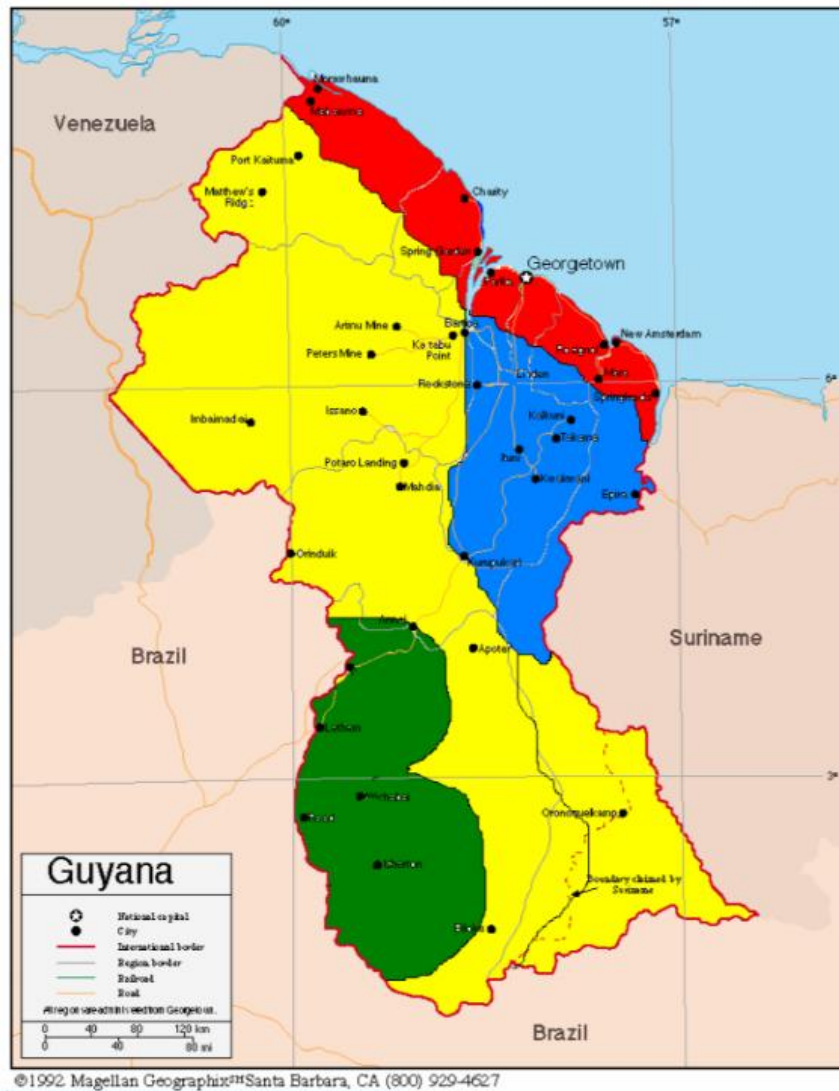


Figure J-1: Guyana Profile

8. Design Considerations

Substations should not be in sites affected by fluvial or tidal flooding.

If unavoidable due to nature of the site, in order to protect critical plant and equipment this should be elevated above the level of the flood and ensure that all duct entries are designed to be sealed against water ingress.

Where the elevation of water sensitive equipment would make installation and/or operation impractical the compound bund wall should be raised above the flood level and removable stop planks installed in areas where the bund wall is lowered to facilitate delivery or removal of the plant.

Foundation design for the transmission line should consider subsurface strata properties and structural loading, flooding events, potential hydraulic force and bed degradation.

9. Procedures for Flooding Events

National Early Warning System Structure and Mechanism

Under the management structure, the implementation of the national EWS is guided by the following protocol. Based on hazard assessments, the EWS is predicated mainly on hydro meteorological hazards, and health hazards. The three main ministries who will provide the warnings will be Agriculture, Public Works and Health.

The EWS is started when the monitoring and warning mechanisms of the ministries detect a threat that could lead to a major impact. Their internal teams and policies kick in and the relevant analysis is undertaken. On completion, a pre-determined warning message is dispatched to the public for their information. A copy of this information is to be passed to the CDC prior to the dispatch to the public.

On receipt of the warning, the Director General of the CDC holds discussions with relevant technical agencies and prepares a draft alerting and preparedness message. He forwards a copy of same to the Office of the President and to the National Disaster Coordinator (NDC), for their review and approval. On agreement on the content, it is recommended that the message be forwarded to GINA for onward dissemination to the press and to the emergency services for their action as required.

10. Declaration of disaster

The declaration of a disaster depends upon the nature and size of the level of the hazard impact. Under the CDEMA mechanism, emergencies/disasters are categorized under the following three levels:

Level 1 Localized emergency/adverse events can be managed within the regular operating mode of the protective and emergency services. These can be managed by the RDC with its own resources.

Level 2 Emergency/adverse events that overwhelm the capacity of the resources in a region, but which do not overwhelm the capacity of the national resources to respond and recover (such zones of impact can be declared Disaster Areas).

Level 3 Disaster events that overwhelm the capacity of the national resources to respond and recover (such an event may be designated as a National Disaster). The President will make the declaration of a National Disaster or Regional Disaster, or if it is a contained area within a region, A Disaster Area. The declaration will be based upon the damage assessments done by the various Damage Assessment Teams and recommendations of the NDC and DG of the CDC.

11. Response to flooding events

During a major flood event, the designated Asset services Managers with staff are to:

- Ensure the resources are available to deal with the threat of flood. Arrange external resources such as contractors, transportation, boats etc.
- Liaise with the CDC and Local authorities as is necessary.
- Resource and liaise with the Network Operations Department.
- Ensure communication lines are in place between the main office, Operations Department, and the project site.
- Communicate with Network Operations on the state of the network belonging to that site.
- Monitor river heights information available and forecast future resource requirements.
- Arrange for vehicles and equipment to be positioned to suit anticipated river levels.
- In conjunction with Network Operations and Customer and Market Operations, ensure that premises are isolated in a timely manner before water reaches wiring or switchboards.

12. Restoration of assets

The restoration of assets should be undertaken in accordance with standard business emergency processes.

CRBC will support the coordination of assessment and restoration of properties affected by floods along the road construction activities. The restoration of electricity supply will be done through the distribution network and an initial assessment of and damage to homes that may affect the installation's electrical safety, assessment will be provide also buy government authorities and utilities companies such GPL, GTT and GWI to restore service. If through a visual inspection the assessment of the premises indicates not affected by flooding, reenergization will be affected. If the premises have been affected, local authorities will be advised who will coordinate the need to assess the damage and effect repairs (which may be temporary).

If the Camps or components of the camps have been affected by the flooding, the company will coordinate their replacement on a prioritized basis as part of the road improvement project to reestablish project execution.

13. Reporting

A review of the Flood Risk Management plan will be conducted on an annual basis. Operational Plans will be continually developed for key critical infrastructures. The company will prepare reports for the Executive as needed for aspects of flood preparedness such as;

Specific projects for critical infrastructure to address flood risk, and

Liaisons with other emergency organizations to address flood risk.

APPENDIX K – Environmental Data

Water Quality Results


Distribution of copies: (List) EES Office File Records		Sheet No. 504
1. General		
Location (Site): K9-K18 Main Road, East Bank Demerara		Samplers: Company Staff
Sample Date: 16 th July, 2024		Observer: Company Staff
Measurement Duration: On- point collection		Sample Type: Surface water
2. Field Observations <input type="checkbox"/> <input checked="" type="checkbox"/>		
Current Weather	Sunny Weather Conditions.	
Description of Location	<p>This project site, section "B" with approximately 10.3 km long on the main road along the East Coast Demerara.</p> <p>Main Road Survey shows high traffic as the main road that led from Timorbi International Airport to Georgetown.</p> <p>Due to the traffic, Noise is due to be high and in instance when trucks passing by the samples point selected.</p>	

3. Test Results												
Sample ID	Date of collection	GPS Location/ Coordinates Chainage	Water Parameters/ Data Results									
			DO mg/L	Temp. °C	pH	Conductivity mS/cm 0-2000	Turbidity FAU	TDS ppm	TSS ppm	Total Nitrogen mg/L	Ammonia NH3 mg/L	
WB-01	16/07/2024	K17+124.9	8.0	24.2	8.2	57	168	71	40	16	3.1	
WB-02	16/07/2024	K15+712.7	5.0	24.2	8.1	67	165	54	54	24	3.8	
WB-03	16/07/2024	K15+433.8	7.0	24.2	7.9	65	179	53	31	12	2.6	
WB-04	16/07/2024	K13+796.5	7.0	24.2	7.3	72	141	64	52	27	3.7	
WB-05	16/07/2024	K13+458.5	6.0	24.2	7.4	67	124	57	54	17	2.2	
WB-06	16/07/2024	K12+955.2	5.0	24.2	7.7	71	110	68	39	9	2.6	
WB-07	16/07/2024	K12+690.9	5.0	24.2	7.1	66	132	52	36	15	3.9	
WB-08	16/07/2024	K12+145.8	7.0	24.2	7.9	63	126	66	39	20	2.2	
WB-09	16/07/2024	K11+621.7	5.0	24.2	8.1	64	118	67	52	23	3.1	
WB-10	16/07/2024	K11+366.4	6.0	24.2	8.4	61	158	55	56	14	2.9	
WB-11	16/07/2024	K10+898.6	7.0	24.2	7.9	72	185	60	33	10	3.9	
WB-12	16/07/2024	K9+604.0	7.0	24.2	7.5	57	114	64	41	26	2.7	
WB-13	16/07/2024	K9+289.5	6.0	24.2	7.4	70	128	52	57	16	1.9	
WB-14	16/07/2024	K8+885.6	7.0	24.2	7.2	64	137	51	31	14	3.8	

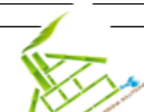
4. Standards and Guidelines		
Guyana National Bureau of Standards Interim Guidelines for Industrial Effluent Discharge into the Environment.		
Parameter	Guideline	Guideline Colour Identification
Temperature (T)	<40 °C	Below Guideline Value
pH	6.0-9.0	
Total Suspended Solids (TSS)	25-80 mg/L	Boundary Guideline Value
Dissolved Oxygen	6.5-8 mg/L	
Total Dissolved Solids (TDS)	<500 mg/L	
Ammonia (NH3)	0.1 to 0.2 mg/L	Above Guideline Value
Total Nitrogen (TN)	< 1.0 mg/L	
Turbidity FAU	5 to 2 mg/L	
Conductivity mS/cm	45 to 60 mS/cm	

5. Comments and Recommendations

- No constraints were experienced in the water sampling process.
- The values represent the current state of water quality at the Section B from K-9 to K-18 compared with the Guyana National Bureau of Standards Interim Guidelines guidelines.
- The water results are within permissible range

Report Authorized by:  16th July, 2024

ENVIRONMENTAL ENGINEERING SOLUTIONS (EES)– Guyana
Environmental Assessment/Air Lab/Water Lab
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Air Quality-Noise Sampling Field Data Report

Distribution of copies: Isidro Espinosa EES Office Files		Sheet No. 504
1. General		
Location (Site): K9-K18 Main Road, East Bank Demerara		Sampler: Company Staff
Sample Date: 14 th July, 2024		Observer: Company Staff
Measurement Duration: 10 minutes		Sample Type: Outdoor
2. Field Observations		
<input checked="" type="checkbox"/> Rainy <input type="checkbox"/> Stormy <input checked="" type="checkbox"/> Sunny <input checked="" type="checkbox"/> Cloudy <input type="checkbox"/> Hot <input type="checkbox"/> Cold Dry Wet		
Current weather:		
Relative Humidity: Average Relative Humidity during the survey was		
Ambient Temperature: The Ambient Temperature Reading was between		
Description of Location: This project site, section "B" with approximately 10.3 km long on the main road on the East Coast Demerara. Main Road Survey shows high traffic as the main road that led from Timorhi International Airport to Georgetown. Due to the traffic, Noise is due to be high and in instance when trucks passing by the samples point selected.		

3. Measurements (Data)																	
Sample ID	Coordinates		Time	%RH	°C	Max. Con. µg/m ³	TSP/TWA µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	Direction	Speed (m/s)	dB 15 minutes	TVOC µg/m ³	NO ₂	Elevation (m)	CO: (ppm)	HCHO µg/m ³
	21N	UTM															
K-09	0366574	0732181	14:03	68.8	32.8	2.440	0.188/1.590	1.4	2.1	NE-SW	0	64.1	0.000	0.0	45	469	0.202
K-10	0366512	0781198	14:12	53.2	35.3	0.108	0.099/1.101	1.6	2.5	NE-SW	0.8	74.4	0.000	0.0	61	431	0.160
K-11	0366606	0730149	14:25	63.0	35.2	0.097	0.093/0.094	1.3	1.9	"	1.9	53.4	0.001	0.0	51	415	0.138
K-12	0366604	0729175	14:51	61.6	34.4	0.308	0.114/0.221	2.1	3.9	"	1.6	63.7	0.000	0.0	32	475	0.126
K-13	0365987	0728463	15:00	89.1	31.3	0.136	0.126/0.104	7.3	12.7	"	0.8	63.4	0.000	0.0	24	594	0.098
K-14	0365510	0727522	15:10	71.8	31.6	0.108	0.104/0.098	4.2	7.1	"	0.6	54.6	0.000	0.0	44	567	0.082
K-15	0364958	0726636	15:17	67.9	42.1	0.108	0.092/0.093	2.6	4.1	"	0.0	53.8	0.000	0.0	49	426	0.071
K-16 Main Camp	0364434	0725769	15:28	69.7	31.9	0.077	0.072/0.072	2.7	4.4	"	1.1	66.1	0.000	0.0	40	477	0.082
K-17	0364085	0724794	15:37	69.7	31.6	0.111	0.096/0.074	3.0	6.1	"	0.6	62.7	0.000	0.0	35	446	0.072
K-18 Soesdyke	0363617	0723961	15:45	67.8	32.3	0.189	0.084/0.113	4.4	8.2	"	0.0	58.1	0.000	0.0	27	453	0.062
K-19	0363016	0723178	15:58	68.3	32.2	0.077	0.067/0.065	1.4	2.5	"	0.3	64.3	0.000	0.0	29	482	0.060

4. Standards and Guidelines						
Parameter	Type	Averaging Time	Level	Form	References/ Colour Code	
PM _{2.5}	Primary	Annual	12.0 µg/m ³	Annual arithmetic mean, averaged over 3 years.	USA EPA, 2016 GNBS, 2002	
	Secondary	Annual	15.0 µg/m ³	Annual arithmetic mean, averaged over 3 years.		
	Primary and Secondary	24-hour	35 µg/m ³	98 th percentile, averaged over 3 years.	Below Guideline Value	
PM ₁₀	Primary and Secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over a 3-year period.	Boundary Guideline Value	
	Total Suspended Particles (TSP)	Primary	24-hour	260 µg/m ³		Not to be exceeded more than once per year.
Secondary		Annual	75 µg/m ³	Annual geometric mean.		
		24-hour	150 µg/m ³	Not to be exceeded more than once per year.		
	Annual	60 µg/m ³	Annual geometric mean.			
Noise	Categories		Daytime Limits in dB	Night-time Limits in dB	Above Guideline	
			(06:00 – 18:00h)	(18:00 – 06:00h)		
	Industrial		100	80	Value	
	Construction		90	75		
	Residential		75	60		

5. Comments and Recommendations
 The baseline air quality and noise results of the Section B K9-K-19 are overall good and do not exceed the guideline values.

7. Personnel	Checked By: Isidro Espinosa	Date: 28 th June, 2024
		

APPENDIX L – Waste Management Plan

Waste Management in Guyana

In Guyana, the two key agencies involved in waste management are the Environmental Protection Agency (EPA) and the Ministry of Local Government and Regional Development (MLGRD).

The Waste Management Plan is aligned with the following Guyana laws and regulations:

- Guyana’s Environmental Protection Act of 1996;
- Guyana Regulations made under the Environmental Protection Act 1996 (No. 11 of 1996) of 2000;
- Guyana’s Environmental Guidelines for the Transportation, Storage and Occupational Handling of Chemical/Industrial Hazardous Waste of 2011 (as applicable);
- Guyana’s Environmental Guidelines for Removal, Treatment & Disposal of Oily Sludge of 2011 (as applicable); and
- Guyana’s Environmental Guidelines for the Storage, Transportation & Occupational Handling of Biomedical Waste of 2011 (as applicable).

As such, transport owners and operators supporting the project will be required to obtain authorization for vehicles used to transport hazardous waste to the landfill area. In addition, vehicle owners and operators will be required to obtain authorization for any vehicles used to transport waste from Project facilities to the waste management facilities once or twice a week.

The Plan will be updated as needed upon issuance of any Project-specific Environmental Authorizations/Permits to reflect any specific waste management commitments, obligations, and conditions contained in those documents.

Non-hazardous waste management facilities

The Haags Bosch Landfill (HBL) site is the only engineered landfill in Guyana for the disposal of municipal solid waste and non-hazardous commercial/industrial wastes. HBL, which is located in the Eccles East Bank Demerara area, is government owned and is operated by a third-party contractor—Waste Solutions Landfill Inc. (joint venture between Puran Brothers and Cevons Waste Management).

Hazardous Waste Management Facilities

There are a limited number of facilities for the treatment of hazardous and industrial waste in Guyana. Guyana has Environmental Technical Solutions (ETS) located at the Guyana Shore-base Inc. (GYSBI) facility, is currently the primary provider of hazardous and non-hazardous waste treatment services in Guyana. ETS employs a variety of waste treatment technologies (sorting/segregation of recyclables,

physical/chemical/thermal treatment of hazardous and non-hazardous wastes), discharges its treated fluids as permitted effluent to the Demerara River, and sends its treated non-hazardous solid waste as well as other wastes received (including general waste, paper/cardboard, and scrap wood), to the HBL.

Waste storage and handling

A specific area shall be laid out and labeled to facilitate the separation of materials for potential recycling, salvage, reuse and return. Recycling and waste bins will be kept safe, in good condition, covered, clean and clearly marked in order to avoid any litter being blown around, damaged by the weather or scavenged by vandals, thieves, trespassers or animals, and to avoid the contamination of materials. If damaged they will be replaced. Skips clearly identified will encourage the workforce to deposit the correct materials into the correct skips.

Categorization of Waste

Construction phase:

Concrete waste should be broken, crushed and separated from any unwanted materials and reused in the new concrete mix or aggregate. This will reduce the volume of waste from the process.

Wood should be repurposed as firewood thereby neighboring communities that require firewood would benefit from this gesture.

Plastics and Cardboard/Paper should be added to the domestic waste bins to be collected by a garbage collection company or transported to the Haags Bosh landfill in Eccles.

Operation Phase:

Waste oil should be collected by an authorized company to properly dispose of waste oil from the facility. Waste oil can be collected periodically; therefore, storage of waste oil should be done on an impervious surface.

Oily rags can be delicately stored and stockpiled to be collected by a hazardous waste facility with the ability to incinerate oily rags.

Scrap metal can be sold to scrap metal yards which would either repurpose the scrap metal or ship them out to be recycled.

Villagers and user of the road in section B:

Domestic waste should be placed into commercial bins to be removed by an authorized garbage collection company or removed from the site and carried directly to the Haags Bosh Landfill. This waste will include plastics, paper, cardboard, biodegradable items, glass, metal (aluminum) etc.

Organic waste should be utilized in the vegetable patch as compost to add nutrients to the soil. Organic waste would require an area to create a compost and turned regularly to ensure the adequate decomposition of the matter. Organic waste can also be disposed same as domestic waste.

Water effluent and sewage will be directed to a septic tank or sediment tank for bio digestion and

treatment then released into constructed ditches of the compound.

Medical waste from the operations may come in the form of gloves, gauze, bandages, syringes, expired medications.

Sharps Disposal Bin will have syringes and other sharp medical objects for disposal. This should be a compliant sharps container that prevents sharp objects from penetrating.

Biohazards Bin will have gloves, bandages, gauze and any item with dried blood or fluids. The bin should be equipped with a red garbage bag.

Pharmaceuticals will have expired medication. This should be a blue bin.

Waste from Decommissioning

Decommissioning a constructed road involves a comprehensive approach to mitigate any negative impacts on the environment. Proper waste management is crucial, involving the segregation, recycling, and disposal of all waste types according to local regulations. Restoration efforts focus on revegetation with native plants and soil stabilization to prevent erosion. Ongoing monitoring and maintenance ensure the site remains stable and free from contamination, while transparent communication with the community and stakeholders fosters trust and addresses any concerns. Compliance with all relevant environmental regulations is strictly maintained, and a detailed final report is prepared to document the decommissioning activities and environmental measures taken.

Waste logistics

Waste will be collected and disposed of by a local waste contractor, who shall transport both non-hazardous and hazardous waste offsite for the duration of the project in section B. Copies of their Waste Management License and Waste carriers license will be held in the site filing system Waste logs and documentation for both hazardous and non-hazardous waste management for cradle-to-grave tracking of all waste movements would be enforced.

Waste Hierarchy

Project wastes will be reduced, recycled, and reused where practicable, with the remainder being treated as needed and properly disposed. The following waste hierarchy shall apply as a priority order in waste prevention:

- Eliminate- Design out waste
- Prevention- lower the amount of waste Produced
- Re-use- Use materials repeatedly
- Recycling-use materials to make new Products
- Recovery-Recover energy from waste

- Disposal-safe disposal of waste to landfill

Education and Training

CRBC will provide on-site instruction of appropriate separation, handling, recycling, reuse and return methods to be used by all parties at all appropriate stages of the Project. Toolbox talks will be carried out every month on waste issues and all subcontractors will be expected to attend.

Monitoring and Reporting

A log will be maintained of all materials that come on to the site, and details will be obtained from the waste disposal company of the quantity of waste materials removed from the site. Details will also be provided outlining the recovery/disposal actions for the specific waste streams. Waste receptacles will be monitored to ensure that contamination has not occurred, results will be recorded. CRBC will continually review the type of surplus materials being produced and change the site set up to maximize reuse or recycling and the use of landfill will be the last option.

Evaluation of Waste Management Plan

At the end of the project, as part of the final report, the following information will be made available:

- Type of wastes generated on site
- Amount of waste generated on site
- Re-use on, and off site, recycling rates and diversion from landfill.

APPENDIX M – Drainage Management Plan

The drainage system construction is essential to prevent waterlogging, soil erosion, and contamination of local water bodies. Effective drainage management ensures the safety, health, and environmental sustainability of the construction site.

1. Objectives

To manage stormwater and prevent water accumulation.

To minimize soil erosion and sediment transport.

To protect local water bodies from contamination.

To ensure the safety and health of the construction workforce.

2. Site Assessment

Topography: Analyze the slope and natural drainage patterns of the site.

Soil Type: Determine soil permeability and compaction characteristics.

Climate: Consider rainfall patterns and intensity.

Existing Drainage: Identify natural watercourses and existing drainage infrastructure.

3. Technical Aspect

- CRBC is equipped with water pumps systems to install in every bridge and culver during the reconstruction and water trucks to alleviate flooding and water accumulation.

4. Implementation

Construction of Drains: Excavate and construct drains as per design specifications.

Installation of Control Measures: Set up sediment control measures and retention ponds.

Maintenance Schedule: Develop a regular maintenance schedule to clear debris and sediment from drains and control structures.

5. Supervision and Inspection

Regular Inspections: Conduct periodic inspections to identify and rectify blockages, damages, or breaches in the drainage system.

Training: Train construction personnel on the importance of drainage management and the proper use of drainage infrastructure.

Waste Management: Ensure proper disposal of construction waste to prevent clogging of drains.

Emergency Response: Prepare an emergency response plan for heavy rainfall events and drainage failures. (Please see the emergency response plan, related to flooding risk management)

APPENDIX N – Community Safety Management Plan

A safety management plan aims to prevent accidents, injuries, and health issues among workers and nearby residents, promoting a safe and healthy living and working environment while minimize the risk of accidents and health hazards and to rise safety awareness and best practices among workers and community members.

1. Community Assessment

Community Assessment, should have the following main areas to assess and accommodate preventive measurements.

- Hazard Identification: Identify potential hazards such as heavy machinery, hazardous materials, and high-traffic areas.
- Risk Assessment: Evaluate the likelihood and impact of identified hazards.
- Community Proximity: Assess the distance and interaction between the construction camp and nearby communities.

2. Safety Policies and Procedures

- Safety Protocols: Establish clear safety protocols for all construction activities.
- Emergency Procedures: Develop emergency response plans for fire, medical emergencies, and natural disasters.
- Personal Protective Equipment (PPE): Mandate the use of PPE like helmets, gloves, and safety boots.

3. Training and Awareness

- Safety Training: Conduct regular safety training sessions for workers.
- Emergency Drills: Organize periodic drills to ensure preparedness for emergencies.
- Awareness Programs: Educate workers and community members about safety measures and potential hazards.

4. Health and Hygiene

- Sanitation Facilities: Provide adequate sanitation facilities, including clean water, toilets, and waste disposal systems.
- Medical Services: Ensure access to on-site medical services and first aid and offer medical service to the community for prompt response to emergency
- Hygiene Practices: Promote hygiene practices such as handwashing and safe food handling.

5. Traffic Management

- Traffic Control: Implement measures to control traffic flow within and around the construction camp.

- Signage: Use clear signage to direct vehicles and pedestrians safely.
- Regularly patrolling within the communities will allow to assess the performance and traffic control car/truck enforcing speed limits to reduce the risk of accidents.

6. Security Measures

- Access Control: Restrict access to authorized personnel only.
- Surveillance: Use security cameras and patrols to monitor the site.
- Lighting: Ensure adequate lighting in and around the camp to deter unauthorized access and reduce accidents.

7. Environmental Safety

- Waste Management: Implement proper waste disposal practices to prevent environmental contamination.
- Noise Control: Use noise control measures to minimize disturbance to nearby communities.
- Dust Suppression: Apply dust suppression techniques to reduce air pollution.

8. Monitoring and Reporting

Regular Inspections: Conduct regular safety inspections to identify and rectify hazards. Incident Reporting: Establish a system for reporting and investigating accidents and incidents.

Continuous Improvement: Use feedback from inspections and reports to continuously improve safety measures.

Communication mechanism within the Camp Managers, work force, stakeholder and local community, will provide the possibility to express / officially record all concerns, complaints and grievances of individuals or society and to facilitate resolutions that should be mutually accepted by the parties. Throughout project execution the mechanisms to communicate grievances and complains by individuals and communities will remain active, and the procedures of recording and response will be adapted regularly, according to the local authorities' necessity.



**Environmental
Protection
Agency**

Ganges Street, Sophia,
Georgetown, GUYANA
Tel.: (592) 225-0506
Fax: (592) – 225-5481
Email: epa@epaguyana.org
Website: <http://www.epaguyana.org>

Operation Permit

Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.

Reference No.:	20180814-RBSMY
Fee:	Small (C2) – US\$ 875 (5 years) i.e. US\$ 175 per year
Fees Paid:	US\$875 (April, 2019 to March, 2024)

Addressee(s): Mrs. Remaliah Aleah Bhaskaran
Proprietress
Trident Marine Trading
Tract 'D', Timehri Public Road
East Bank Demerara.

Activity: Operation of a Sand Mine

Mrs. Remaliah Aleah Bhaskaran, trading and operating under the name, Trident Marine Trading, hereinafter referred to as the "Permit Holder", is hereby authorised in accordance with the Environmental Protection Act, Cap. 20:05, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, to operate a Sand Mine located within GS23: Block B-147/MP/000, Confluence of the Madewini River and Yarrowkabra, hereinafter referred to as the "Project", in the manner indicated in the Application submitted on August 14, 2018, subject to the terms and conditions set forth herein and in any existing and forthcoming regulations made under the said Environmental Protection Act and/or any other applicable laws, best practices, guidelines and standards relevant to this project.

Terms and Conditions for the Operation to be adhered to by the Permit Holder:

1.0 GENERAL

- 1.1 Notify the Agency in writing and obtain its approval for ANY proposed changes in operation of the Sand Mining Operation at least **fourteen (14) days** before making the change. The notification shall contain a **description of the proposed change in operation**. It is not necessary to make such a notification if an **Application to vary** this Permit has been

RB

LM40: X-1000/000/21



No: 02/2022

QUARRY LICENCE

Issued under Section 89 of the
Mining Act 1989 and the Mining Regulations

WHEREAS an application has been made by **Guang Zhao Xiao & Jian Ping Che trading in the name of New Thriving Chinese Restaurant** whose registered address is **Lot 532 Main and Hope Streets, South Cummingsburg, Georgetown, Guyana** seeking the right to occupy and carry out quarrying for **Stone and Stone Aggregate** in Potaro.

Whereas ownership of minerals within the Republic of Guyana is vested in the State of Guyana.

AND WHEREAS the Mining Act, 1989 subject to certain limitations and conditions authorizes the Guyana Geology and Mines Commission to grant Quarry Licence for minerals in Guyana.

NOW THEREFORE: The Guyana Geology and Mines Commission (hereinafter referred to as "the Commission") which term whenever the context permits or requires shall be deemed to include its successors and assigns, in consideration of the covenants hereinafter reserved and subject to the Mining Act 1989 and Regulations made thereunder and in force from time to time and subject to the terms and conditions herein does hereby grant unto **Guang Zhao Xiao & Jian Ping Che trading in the name of New Thriving Chinese Restaurant** (hereinafter referred to as "THE Licensee" which term whenever the context permits or requires shall be deemed to include its successors and assigns), the area of State Land situate in Potaro (hereinafter referred to as "the Area") more fully described in Annex "A" which is attached and made a part hereof.

TO HOLD and enjoy such land for a term of fifteen (15) consecutive calendar years commencing from *14th day of February 2022* for the purposes of quarrying **Stone and Stone Aggregate**, which may be found therein with the right to carry on upon the said land all operations incidental to or connected therewith including the right to erect on the said land such dwellings or erections as may be necessary for the objects aforesaid. The Licensee shall have the right to apply for two (2) renewals of five (5) years each of this Licence which application shall be submitted to the Commission at least six (6) months before the expiration of this Licence.

PROVIDED ALWAYS that the Licensee shall have no right to take or extract from the said land any other mineral, or any mineral or mineral oil, timber or other thing except as herein provided all which things are hereby excepted and reserved out of this demise but so that this proviso shall not hinder or prevent the Licensee from doing such things as are necessary for or incidental to or connected with their operations for the quarrying **Stone and Stone Aggregate** subject to the following conditions:

JD



Government of the Co-operative Republic of Guyana
Environmental Protection Agency



September 04, 2023

Reference No.: 20220204-GXJCC

Mr. Guang Zhao Xiao
Managing Director
New Thriving Chinese Restaurant.
32, Main Street,
Georgetown.



Dear Mr. Xiao,

Re: Environmental Permit for Stone Quarry

The Environmental Protection Agency (EPA) has prepared an Environmental Permit (Renewed) for New Thriving Chinese Restaurant, to Operate a Stone Quarry within the confines of Block LM40: X-1000/000/2021, located at the Confluence of Essequibo River & Dehalibana River, Potaro Mining District #2.

Please initial each page at the bottom right-hand corner and sign the Environmental Permit to indicate your acceptance of its terms and conditions and agreement to comply with the statutory requirements of the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and its regulations.

The cost for the Environmental Permit is US\$12,500 for five (5) years. You are required to pay this fee or its equivalent in Guyana dollars, using the Bank of Guyana (BOG) daily exchange rate. Payment to the Environmental Protection Agency can be made in cash, by wire transfer, Manager's or Personal Cheque, in Guyana dollars. Please note Personal Cheque in United States dollars will NOT be accepted.

Additionally, the Agency has completed the review of Environmental Assessment Management Plan (EAMP) submitted July 21, 2023, and found this document to be acceptable and as such final approval has been granted to this document.

Please note, the Agency will hold the company accountable for the implementation of all strategies and procedures outlined in the aforementioned (EAMP) document.

Should you have any questions or need clarification, please do not hesitate to make contact with Mr. Colis Primo-Senior Environmental Officer (Mining) on 225-0506 Ext. 2312 or E-mail at cprimo@epaguyana.org.

Ganges St., Sophia, Georgetown, GUYANA.

Tel: (592) 225-5467/5471-5472/6044/6048 | Fax: 225-5481

[✉ epa@epaguyana.org](mailto:epa@epaguyana.org) | www.epaguyana.org | [f](#) Environmental Protection Agency - Guyana

"The Environment is Everybody's Business"

HP



Government of the Co-operative Republic of Guyana
Environmental Protection Agency



Yours Sincerely,



CC. Mr. Newell Dennison, Commissioner (Ag.), Guyana Geology and Mines Commission

GPTI 500000045 DD: 2023-09-11 Rate 210.45

Environmental Protection Agency *Large scale* Customer Copy
 Office - Ganges Street, Sophia, Georgetown, Guyana. Date: 20230911
 Tel (592) 225-6048/44 225-5471/67 Fax: (592) 225-5481
 Office - Berbice (Whim, Corentyne) - Tel (592) 331-2201/2207
 Linden (LEN Building, Mackenzie) - Tel (592) 444-2313
 No. 25728

PAID 11 SEP 2023

Received From: Giang Zhao Xiao / New Thriving Chinese Rest.
 The Sum of: Two Million Six hundred thirty thousand \$ 2,639,625
Six hundred & twenty five dollars
 For: Environmental permit (renewed) Stone Quarry
 (Sep 2023 - Aug 2028)
 Signature: [Signature]

PAID Cash Cheques Wire Transfer Balance due Amt. \$

Ganges St., Sophia, Georgetown, GUYANA.

Tel: (592) 225-5467/5471-5472/6044/6048 | Fax: 225-5481

✉ epa@epaguyana.org | 🌐 www.epaguyana.org | 📘 Environmental Protection Agency - Guyana

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Environmental Permit (Renewed)

Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.

Reference No.:	20220204-GXJCC
Fee:	Large (C3) – US\$2,500 per year
Fee Paid:	US \$ 12,500 (September, 2023 to August, 2028)- Five (5) years
Addressee:	Guang Zhao Xiao Managing Director New Thriving Chinese Restaurant. 80, Brickdam, Stabrock Georgetown.
Activity:	Operation of a Stone Quarry

New Thriving Chinese Restaurant., hereinafter referred to as the “Permit Holder”, is hereby authorised in accordance with the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, to operate a Stone Quarry located at the Essequibo and Dehalibanna Rivers, Potaro Mining District No.2 - Block X-1000/000/21, hereinafter referred to as the “Project”, in the manner indicated in the Application for Renewal of Environmental Authorisation submitted on July 21, 2023, and subject to the terms and conditions set forth herein under the Environmental Protection Act, Cap.20:05, existing and/or forthcoming Regulations made under the said Act, and/or any other applicable laws, best practices, guidelines and standards relevant to this project.


This is a renewal of the Environmental Permit, Reference No.: 20220204-GXJCC, issued on August 15, 2022, which expired on July 31, 2023.

The Permit Holder, His Servants, Agents and Sub-Contractor shall comply with the following Terms and Conditions for Operation:

Environmental Permit (Renewed) - Ref. No. 20220204-GXJCC
Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.

remain valid until **August 31, 2028** unless otherwise cancelled, suspended, modified or varied in accordance with the provisions of this Permit or the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisation) Regulations, 2000.

- 15.18 This Environmental Permit (Renewed) must be renewed by submitting a completed *Application Form for Renewal of Environmental Authorization* to the Agency at least six months before this Permit expires, that is, no later than **March 31, 2028**.
- 15.19 Any late submission of renewal application(s) after the specified date as stated above, the agency requires the Permit Holder to pay, in addition to the renewal fee, a late penalty fee (accruing at the time such obligation was first owed for renewal) at a rate of **two thousand dollars (\$2,000.00) per day for every day late**, until such renewal application is submitted to the Agency, without prejudice to any other rights of the Permit Holder in connection therewith.
- 15.20 Failure to comply with the requirements of this Permit shall render the Permit Holder liable to prosecution and to civil penalties and/or injunctive reliefs prescribed under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act 2005, and the Environmental Protection (Authorisations) Regulations 2000, including under any existing and forthcoming regulations made under the said Act or any other applicable Laws of Guyana.

Signed by  on behalf of the Environmental Protection Agency
Kemraj Parsram
Executive Director
Executive Director

Date: 14.9.2023

I hereby accept the above terms and conditions upon which this Environmental Permit is granted and agree to abide by the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, the Environmental Protection (Authorisations) Regulations, 2000, and any forthcoming regulations, best practices, guidelines and standards made under this Act.



N7

APPENDIX P – Traffic Safety Management Plan

According to MOPW- CRBC East Bank Demerara Road Improvement (Good Success to Timehri) Contract entered on 22/02/2024 (MOPW- CRBC EBDRIP (GT) Contract 22/02/2024)

FHWA MUTCD-11 Manual on Uniform Traffic Control Devices for Streets and Highways 2023 11th Edition

FHWA 2012 SUPPLEMENT of Standard Highway Signs 2004 Edition

NZ Transport agency's traffic control devices manual (TCDM) 2013, Part 8, Section F 4th Ed

AASHTO Highway Safety Manual (HSM) 2009 1st Ed

OHSA Part 1926-2009 Safety and Health Regulations for Construction

this Traffic Management Plan has been developed in conjunction with the construction regulations and Guyana Traffic regulations as well as the site traffic management measures for various projects under construction in Guyana.

The implementation of this Traffic Management Plan (TMP) is the responsibility of the Contractor Management Team (CRBC), which will supervise and provide guidance to the implementation of this TMP through its ESHS department to ensure compliance with traffic management requirements here. All personnel involved in field activities will follow the correct work practices required by this TMP.

Goals and Objective

The project manages all traffic elements in and around the construction site to ensure safety and smooth traffic during the implementation of the project.

Roles and Responsibilities

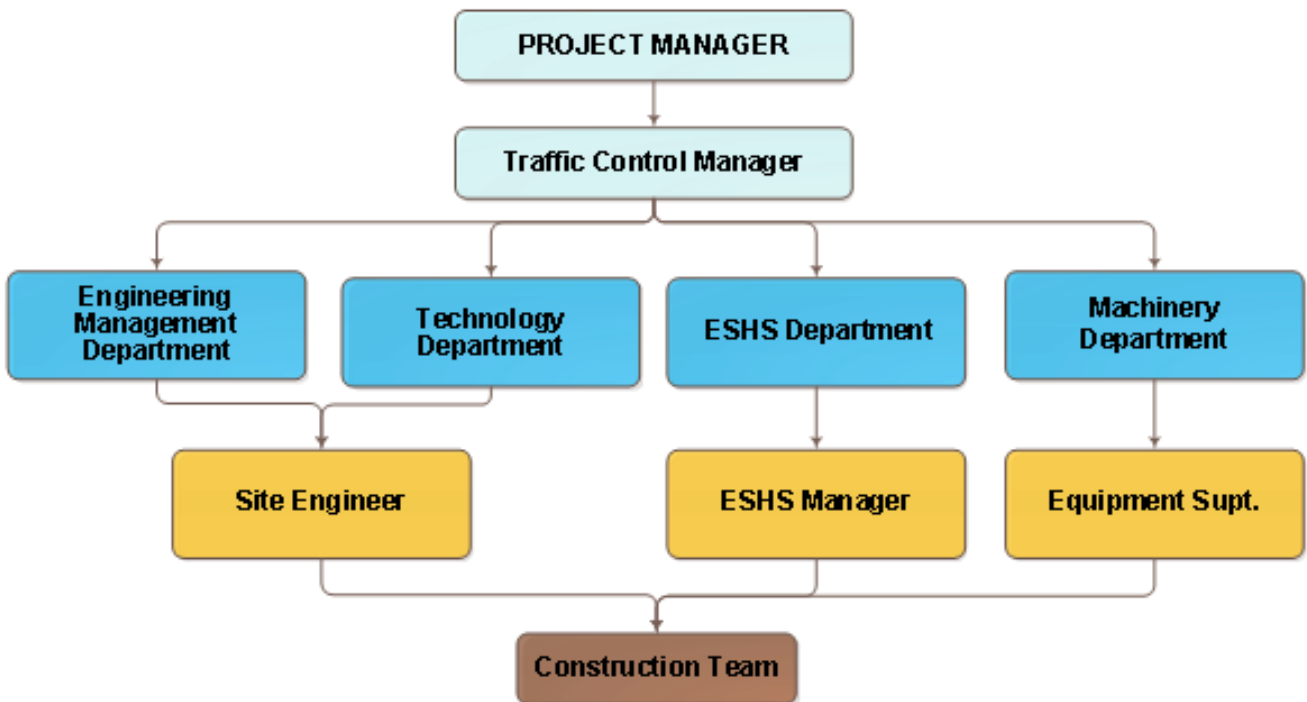
The relevant roles and responsibilities are shown in the table below:

Name of Role /Department	Responsibilities
Traffic Control Manager	Be responsible for organizing and preparing the traffic organization assurance measures of the Project, and supervising their implementation.
Site Engineer	Be responsible for organizing and preparing the traffic organization assurance measures of the Project, and implementing their implementation.
Workshop/Equipment Supt.	Be responsible for organizing the adjustment of machineries and materials based on the traffic organization assurance measures.
Engineering Management Department	Be responsible for implementing the traffic organization assurance measures and feedback their implementation in time.
Machinery Department	Be responsible for implementing the adjustment of machineries and materials during the traffic organization construction.
ESH Specialist & SDO	Be responsible for implementing the occupational health, environmental protection and safety management during the traffic organization construction.
Administration Office	Be responsible for implementing the logistical support and human resources adjustment during the traffic organization construction.
Construction teams	Be responsible for implementing corresponding construction based on the traffic organization assurance measures.

Traffic Management Reporting and Organizational Structure

The project department shall establish a traffic management reporting system, with the project manager as the first responsible person, the traffic control manager as the main executive, and ESH specialist as the supervisor of the traffic management plan. According to the level of traffic accidents, they shall be reported timely to the relevant departments in accordance with relevant regulations. The report shall not be concealed, falsely reported or delayed.

The traffic management control system is shown below:



Work Zone Traffic Control

(1) Traffic control, work area is both sides, distance is 1km of both sides, traffic control plan as shown in the following figure;

Traffic control will comply with the following specifications designated in the MOPW- CRBC EBD RIP (GT) Contract 22/02/2024:

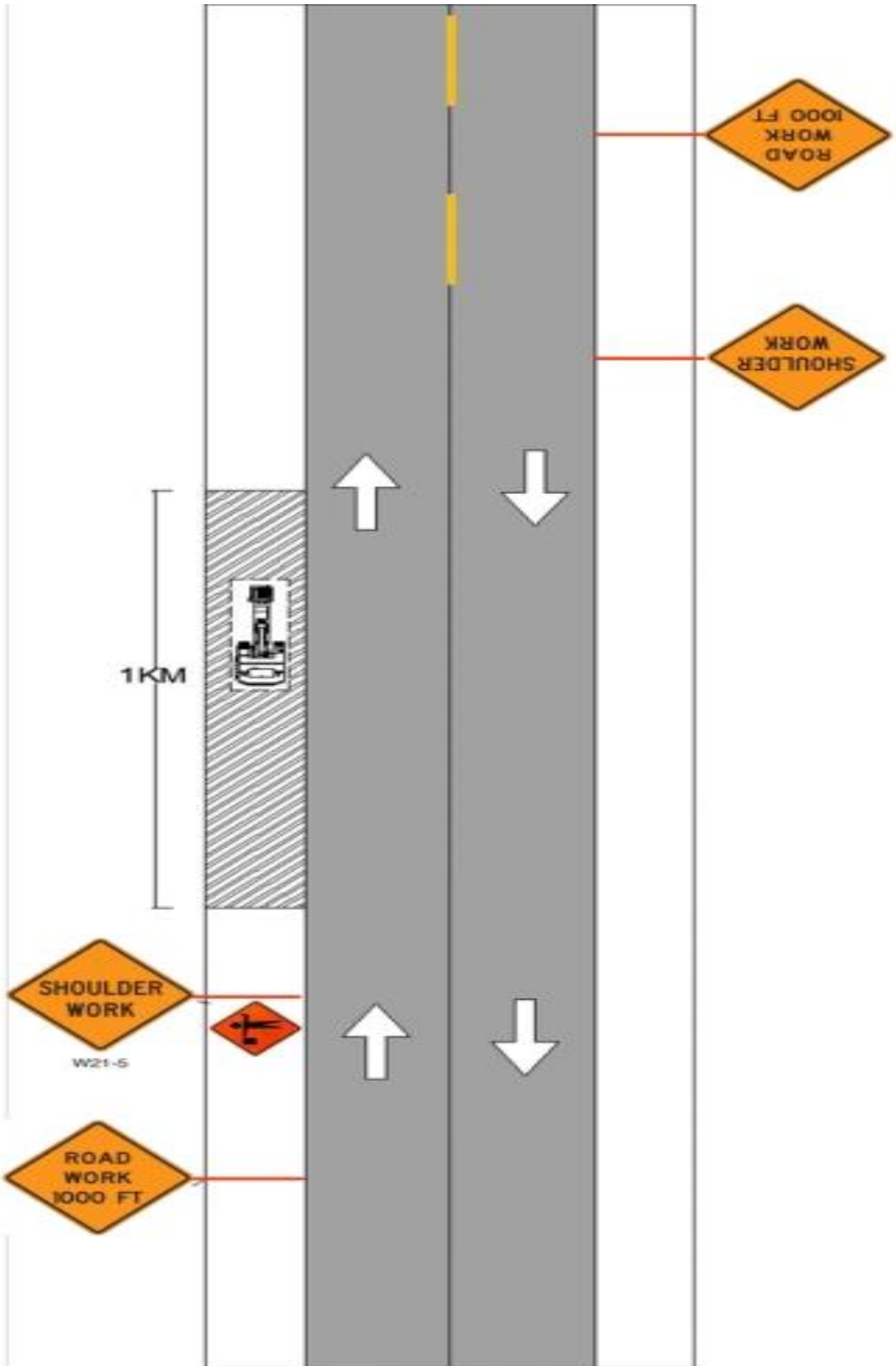
FHWA MUTCD-11 Manual on Uniform Traffic Control Devices for Streets and Highways 2023 11th Edition

FHWA 2012 SUPPLEMENT of Standard Highway Signs 2004 Edition

In the FHWA 2012 SUPPLEMENT of Standard Highway Signs 2004 Edition, there are 21 Temporary Traffic Control Signs as following:

- 1 R1-7 Wait on Stop
- 2 R1-8 Go on Slow
- 3 R2-12 End Work Zone Speed Limit

4	W8-24 Steel Plate Ahead
5	W20-2 Detour Advance
6	W20-3 Road Closed Advance
7	W20-4 One-Lane Road Advance
8	W20-5 Lane Closed Advance
9	W20-5a Lanes Closed Advance
10	W20-7 Flagger
11	W20-7a Flagger
12	W20-8 Stop-Slow Paddle
13	W21-1 Workers
14	W21-1a Workers
15	W21-4 Slow Moving Vehicle
16	W21-8 Mowing Ahead
17	W22-1 Blasting Zone Ahead
18	W22-3 End Blasting Zone
19	W24-1cP All Lanes (plaque)
20	G20-5aP Work Zone (plaque)
21	M4-8 Detour



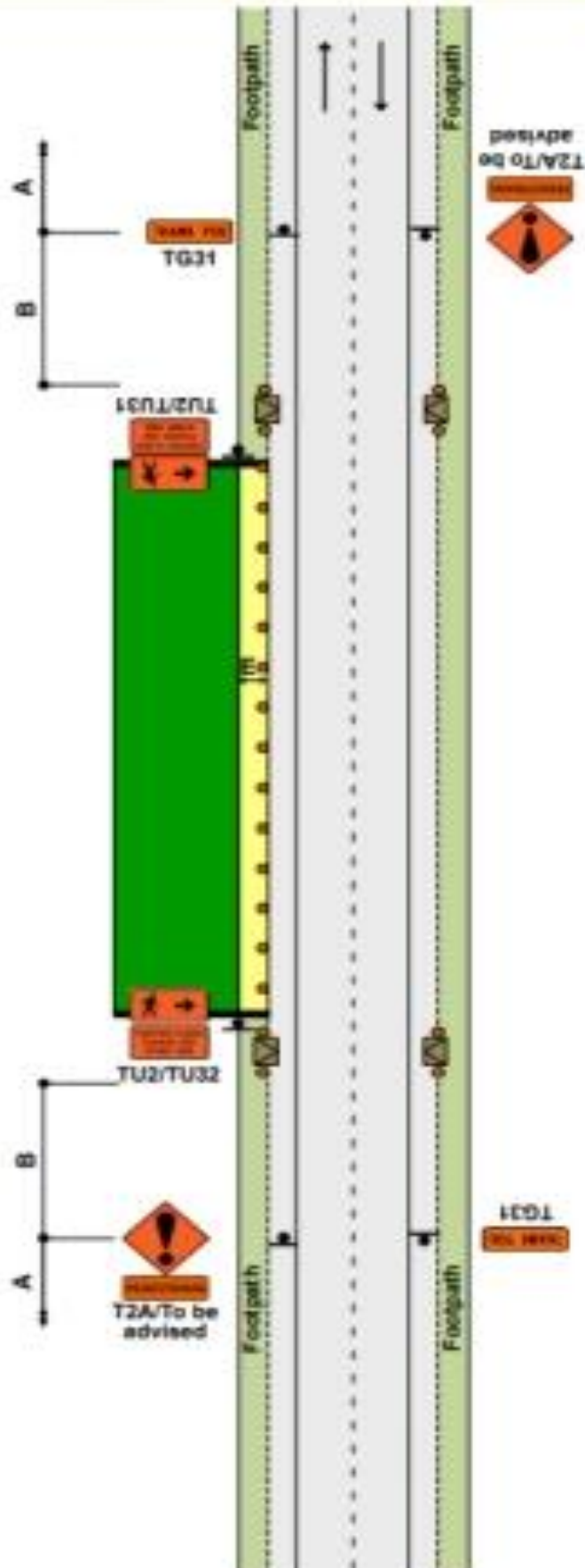
FOOTPATH

Footpath closed - permanent speed less than 65km/h
Fourth preference

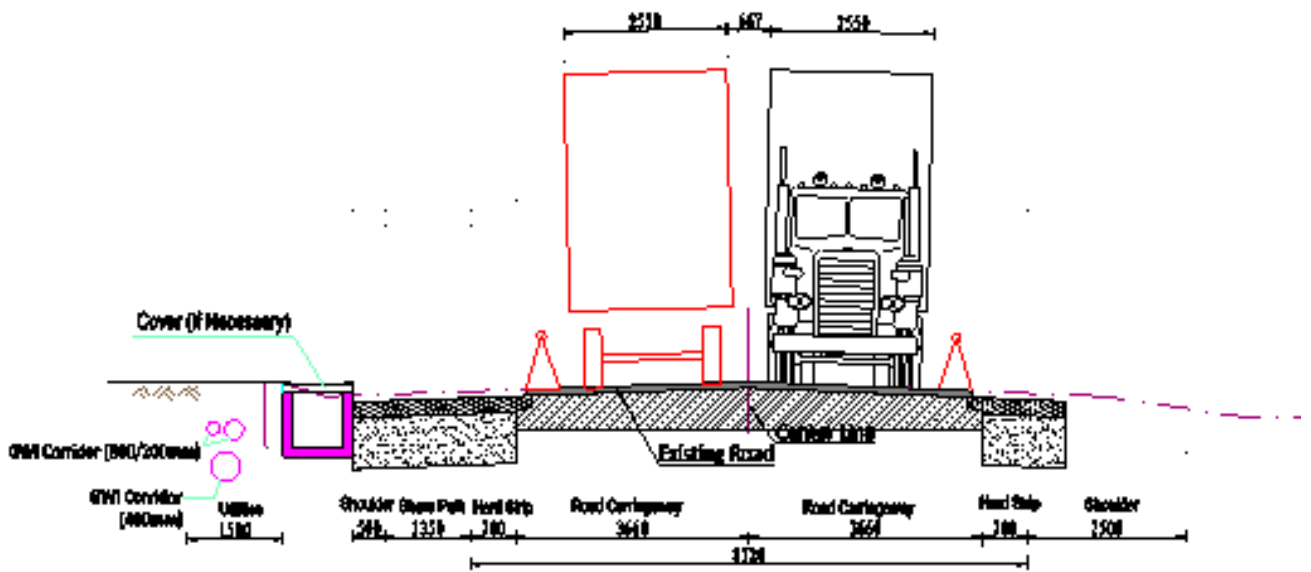
F2.4
Level 1

Notes

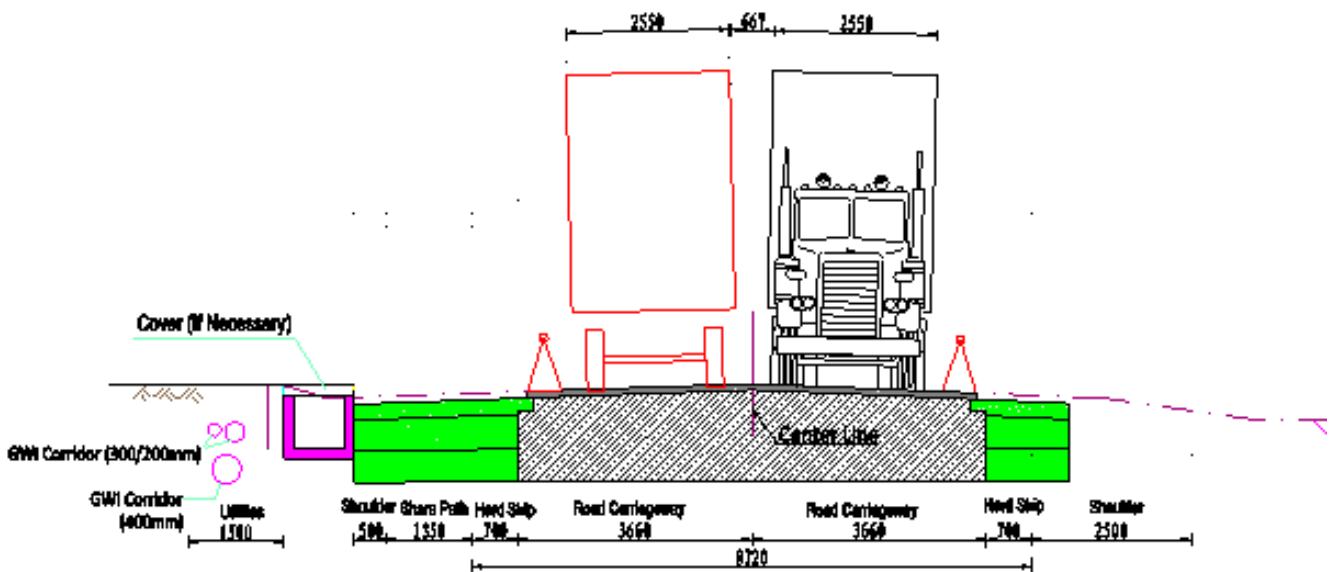
1. Use T2A and PEDESTRIANS supplementary plate to alert road users to the potential of footpath users crossing the carriageway
2. Use safety fence at each end of working space
3. Use kerb ramps
4. Use another TMD as well, where working space/safety zone encroaches on live lane
5. This TMD must be used in conjunction with appropriate TTM for any work carried out on the shoulder or in the live lane



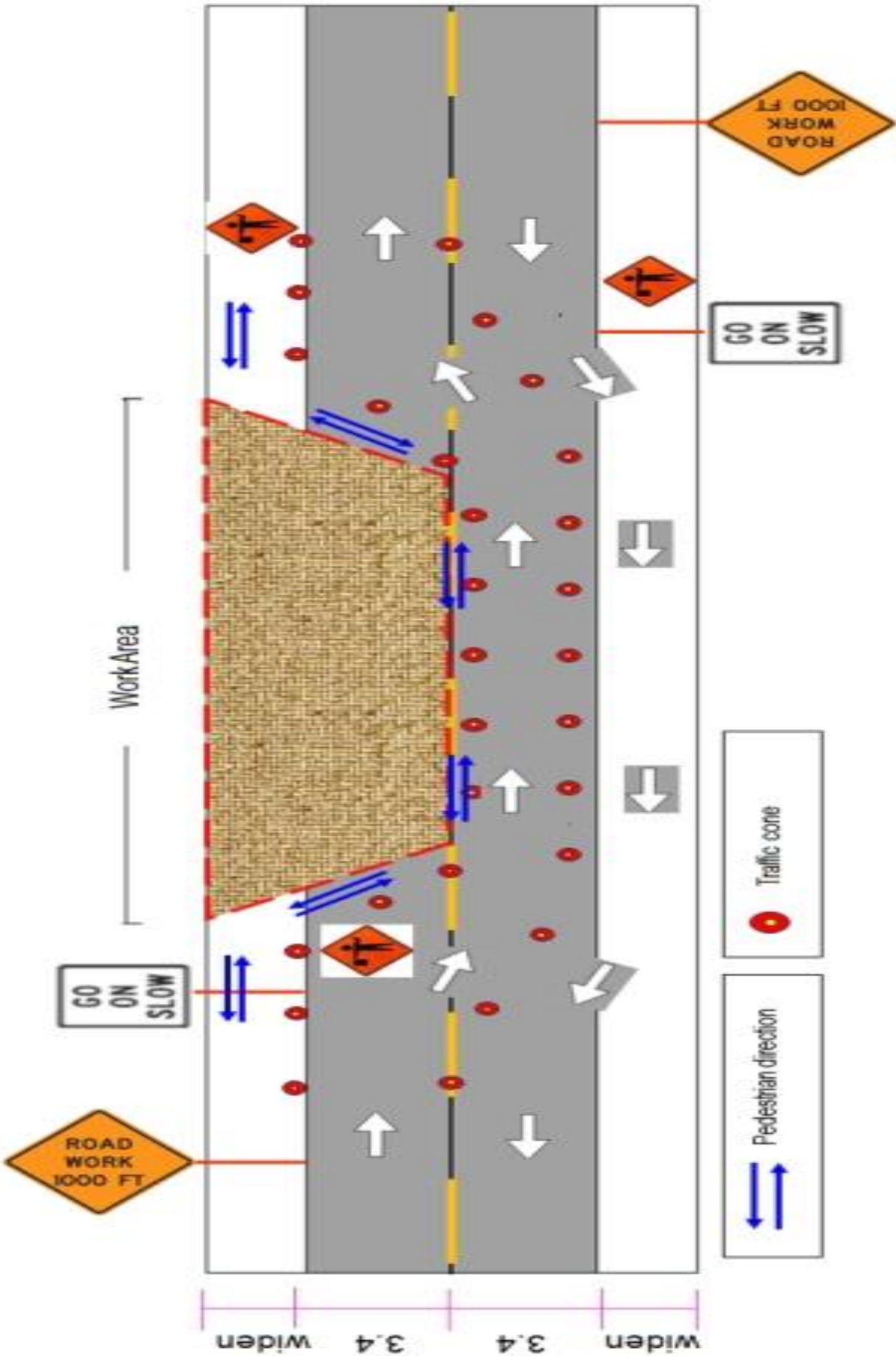
- (2) Clearing and Grubbing, Removal of Structures and Obstructions of widened sections on both sides of the carriageway;
- (3) Drain ditch construction on both sides of the road, as shown in the following figure;



- (4) Excavation and filling white sand and subbase construction on both sides of the carriage Will be Las carried out, and the length of each construction section is 1km, as shown in the figure below;



- (5) Traffic control, work area is the one lane of existing surface, distance is 3km, traffic control plan as shown in the following figure;

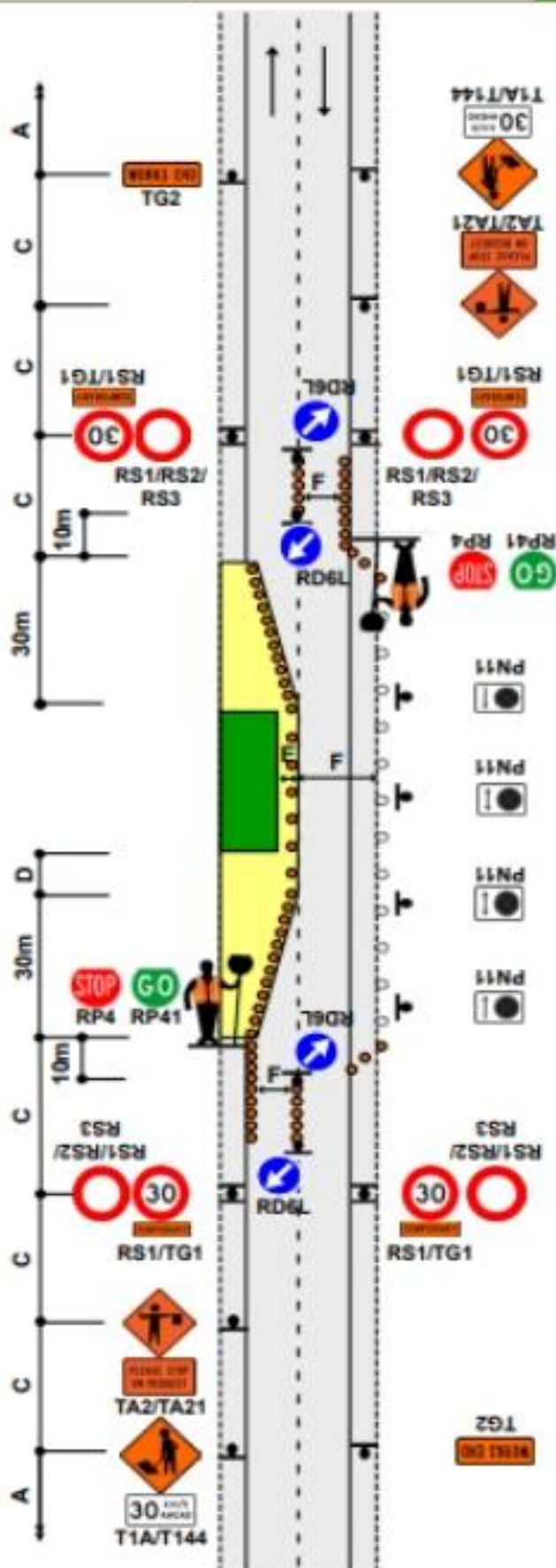


TWO-WAY TWO-LANE ROAD
 Single-lane alternating flow
 Manual traffic control (STOP/GO or STOP/SLOW)

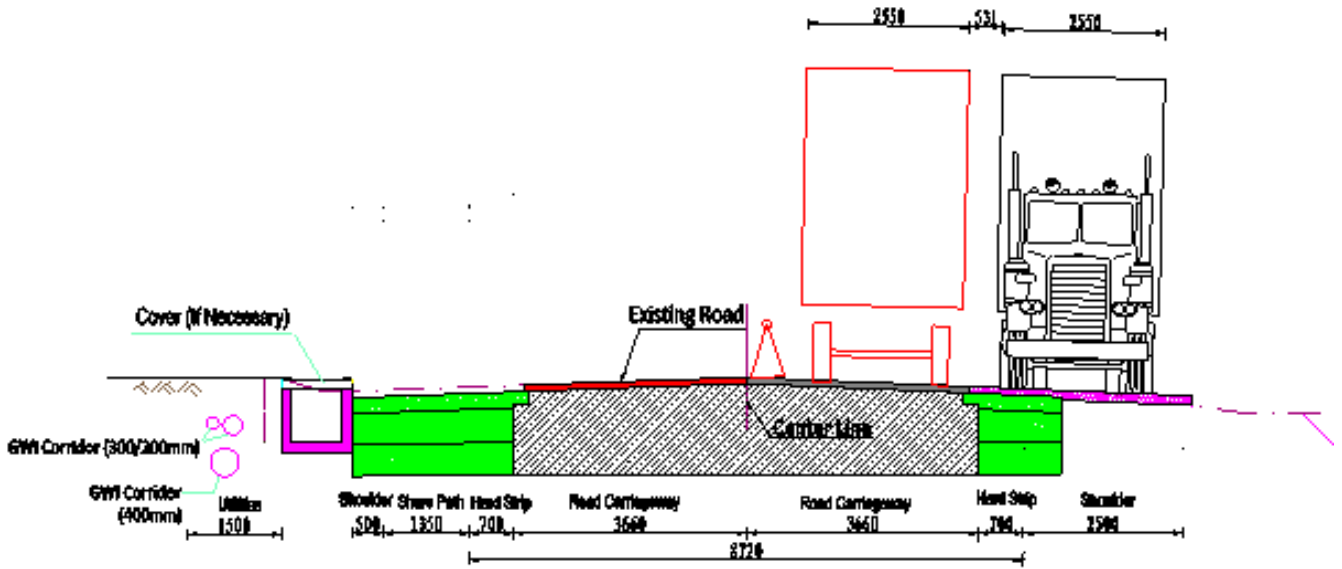
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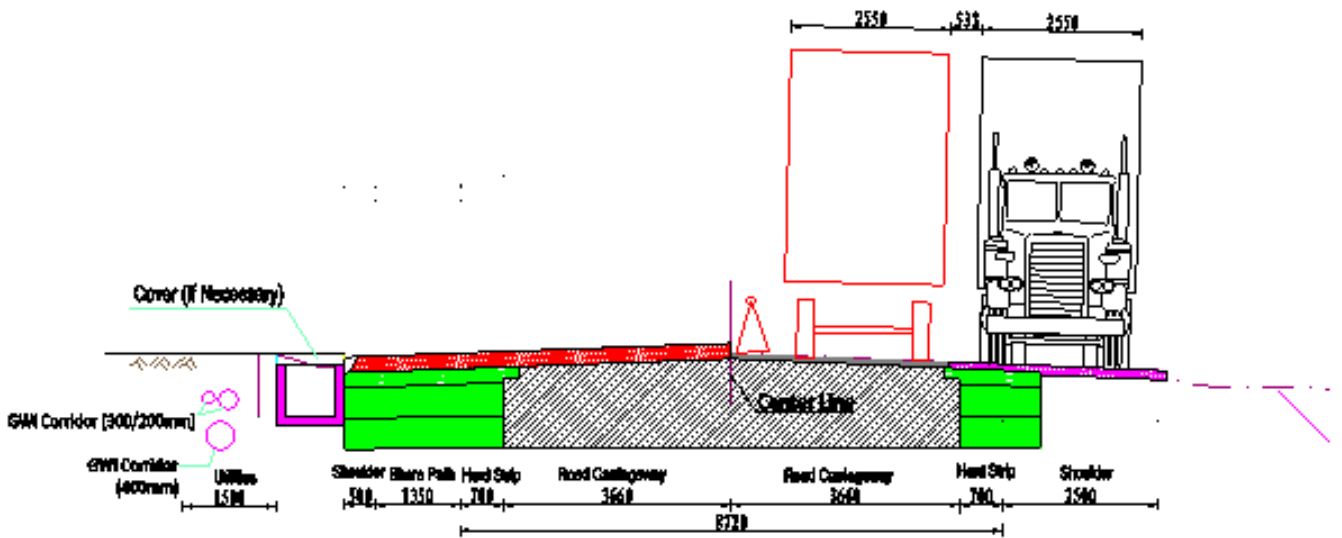
1. Extend or place extra advance warning signs towards on-coming traffic beyond any expected traffic queues
2. A 30m return taper at the end of the closure is mandatory
3. Cones are required on edge of live lane opposite closure if road is not well defined
4. Use PN11 no stopping signs, if necessary
5. MTC with RP4/RP41 STOP/GO or RP4/RP42 STOP/SLOW paddle on road shoulder located between 1st and 2nd cone closest to the working space
6. Minimum 5 cones in cone threshold at:
 - 2.5m centres - less than 65km/h
 - 5m centres - more than 65km/h
7. Refer to C10.2.3 MTC essentials for further information
8. Delays cannot exceed the time approved by the RCA (normally 5 to 10 minutes)
9. The T144 30km/h AHEAD sign is optional



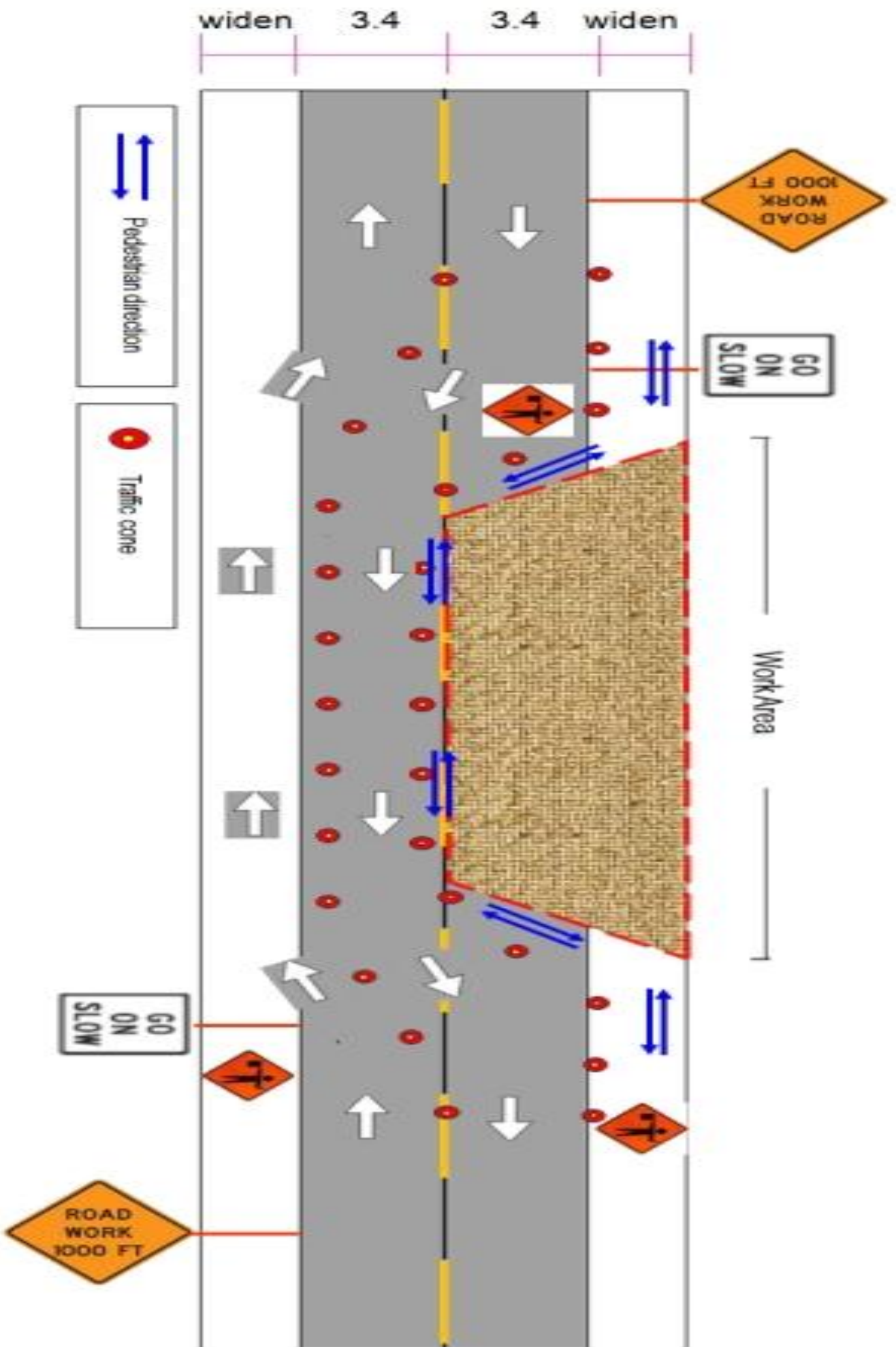
(6) Fill the temporary access road to ensure two lanes of traffic, one lane existing surface will be milled (the red part of the following figure), and the sub-base will be tested, if the sub-base does not meet the standard, it will be replaced. The length of each construction section is 3km, as shown in the figure below.



(7) Construction of sidewalk and lane Aggregate Base Course, the length of each construction section is 3km, as shown in the figure below;



(8) Traffic control, the work area is t other lane of existing surface, distance is 3km, traffic control plan as shown in the following figure (see it in mirror right);



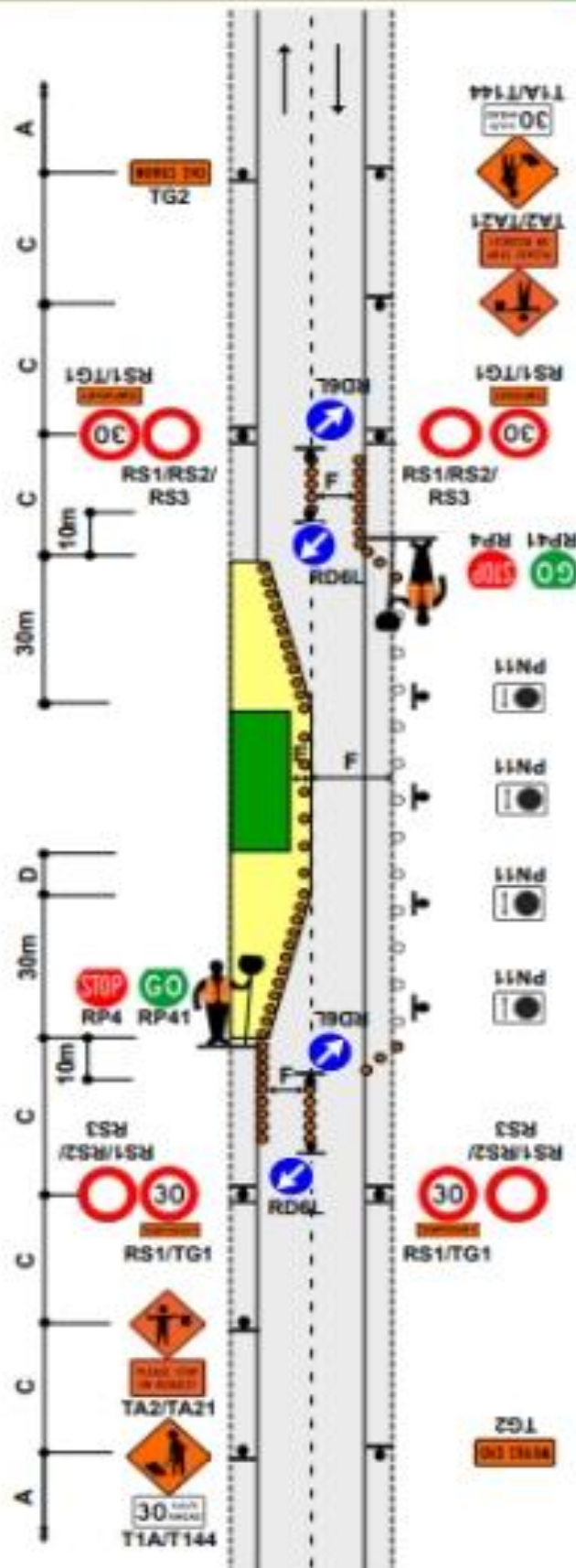
TWO-WAY TWO-LANE ROAD

Single-lane alternating flow
Manual traffic control (STOP/GO or STOP/SLOW)

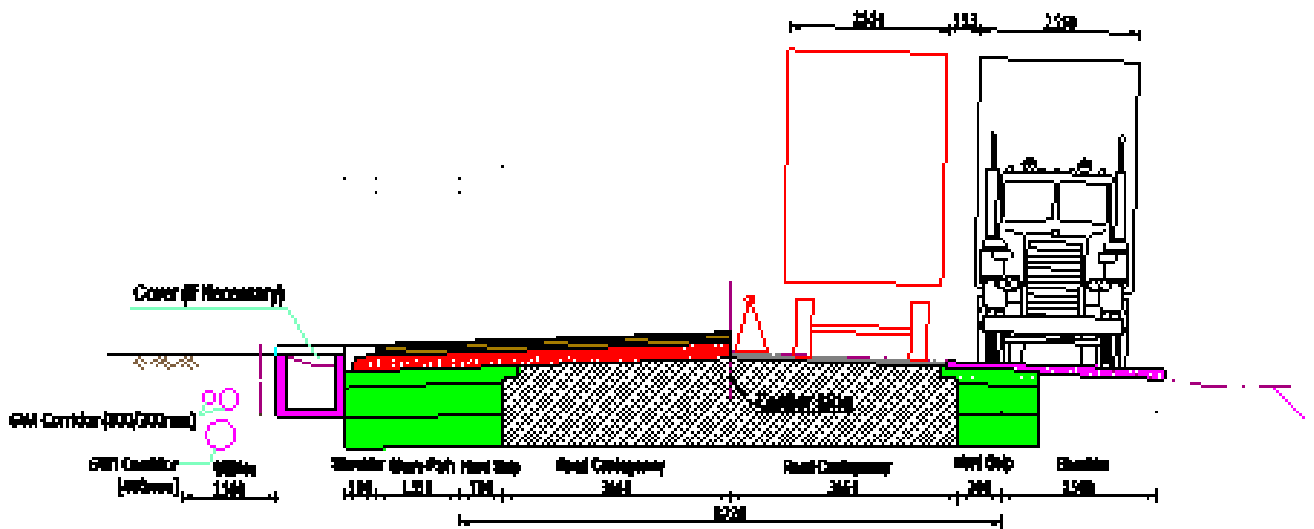
F2.14
Level 1

Notes

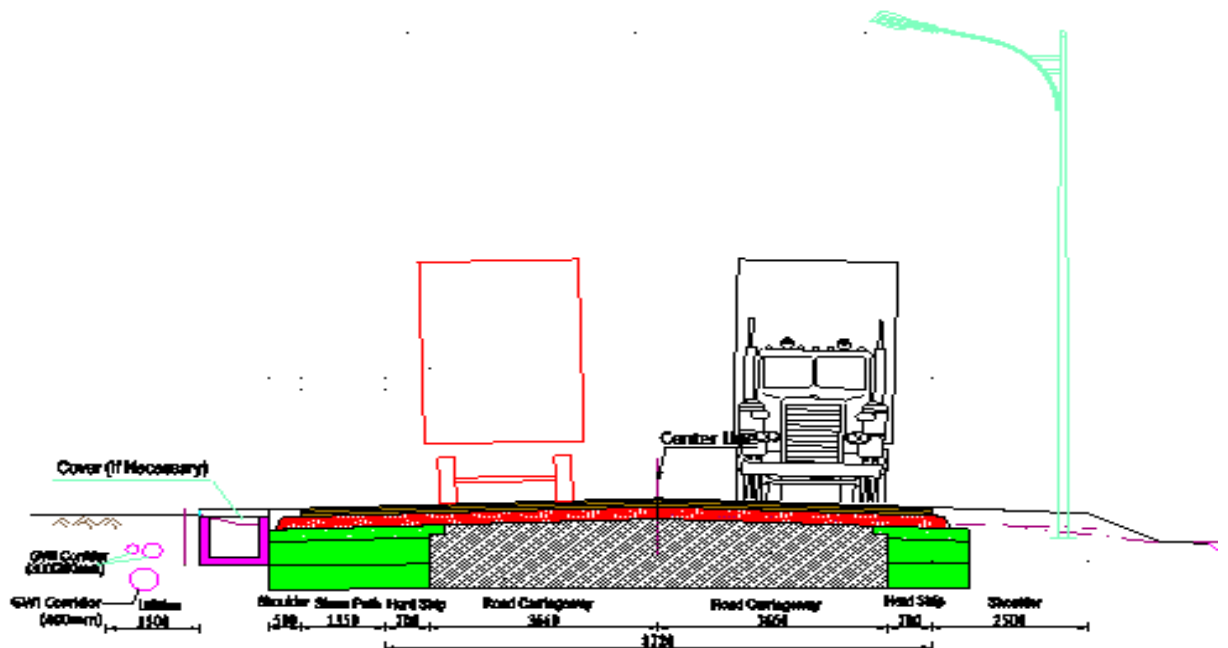
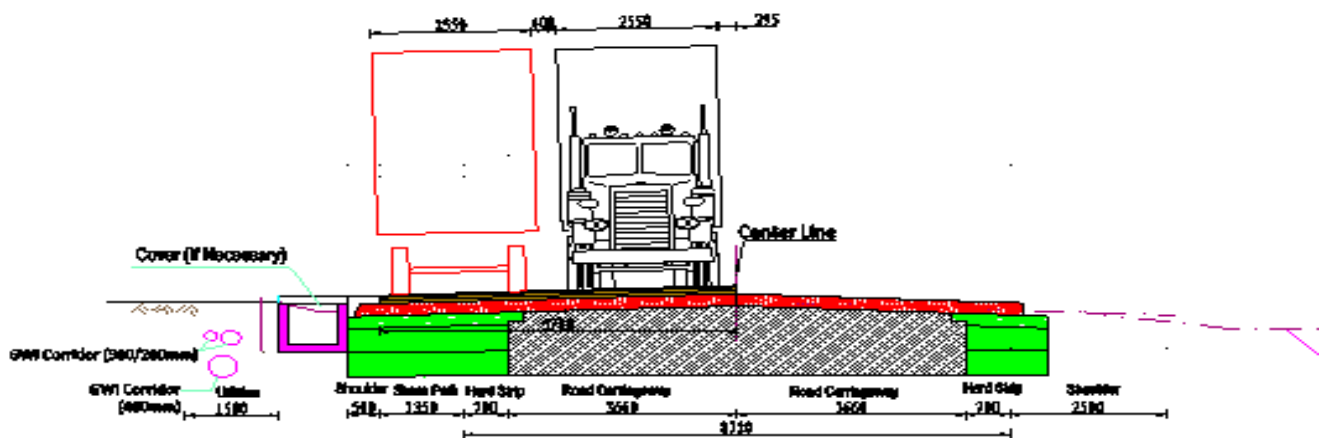
1. Extend or place extra advance warning signs towards on-coming traffic beyond any expected traffic queues
2. A 30m return taper at the end of the closure is mandatory
3. Cones are required on edge of live lane opposite closure if road is not well defined
4. Use PN11 no stopping signs, if necessary
5. MTC with RP4/RP41 STOP/GO or RP4/RP42 STOP/SLOW paddle on road shoulder located between 1st and 2nd cone closest to the working space
6. Minimum 5 cones in cone threshold at:
 - 2.5m centres - less than 65km/h
 - 5m centres - more than 65km/h
7. Refer to C10.2.3 MTC essentials for further information
8. Delays cannot exceed the time approved by the RCA (normally 5 to 10 minutes)
9. The T144 30km/h AHEAD sign is optional



- (9) Construction of Three-layer asphalt pavement. The length of each construction section is 3km, as shown in the figure below;



- (10) The construction of the subbase and Pavement on the other half of the road is the same as that on the left side, and the traffic diversion is the same.



(11) K17+124.9、K18+127 culvert traffic management plan is shown in Figure 1

Risk/impact identification and mitigation

The project will analyze the projected typical impacts and associated risks and develop mitigation measures, which will be managed through an effective traffic management plan and implementation of this TMP to ensure construction safety and mitigate impacts on passing vehicles and surrounding residents.

Risk/impact identification analysis and mitigation measures are detailed in the table below:

Impact	Risk	Typical Mitigation Measures
Footpath closure /Detour	<ul style="list-style-type: none"> ● Inconvenience to pedestrians and residents along route; ● Disconnection of access to bus stops. ● Increased exposure of pedestrians to traffic. 	<ul style="list-style-type: none"> ● Public Notification to affected residents in advance of works in the area; ● Provision of warning and advisory signage prior to and during the closure; ● Provision of pedestrian crossings and refuges or controlled crossing points; ● Provision of convenient pedestrian detour routes well in advance of the closure to provide safe and convenient crossing; ● Bus stops appropriately relocated with adequate clearance from traffic lanes for safety and visibility. ● Bus operators are informed of any changes to bus routes and bus stops. ● Provision of temporary pedestrian access to property within the construction corridor. ● Safety fences for restricted access zones; Pedestrian protection barriers for protection from traffic.
Property access closures	<ul style="list-style-type: none"> ● Inconvenience to residents and businesses along route. ● Reduction in available parking facilities for the local area. 	<ul style="list-style-type: none"> ● Personal visit by ESHS Management Team to advise and discuss impacts of the closure with affected residents and businesses; ● Public Notification to affected residents and businesses in advance of works in the area; ● Provision of temporary car parking in an area within the length of the traffic control site; ● Provision of temporary crossings into properties where feasible and safe; ● Warning signs and other notices, erection of protective barriers.

Impact	Risk	Typical Mitigation Measures
Road closure / detours	<ul style="list-style-type: none"> ● Inconvenience to road users; ● Inconvenience to residents and businesses within closed road segment; ● Congestion on detour routes; ● Congestion on alternative routes; ● Diversion of traffic away from the closure onto inappropriate routes such as past schools or other sensitive facilities. ● Disconnection of bus routes; ● Disconnection of access to bus stops. 	<ul style="list-style-type: none"> ● Personal visit by ESHSMT to advise and discuss impacts of the closure with affected residents and businesses; ● Public notification where necessary; ● Letter drops to residents and / or businesses (where necessary), which are located: <ul style="list-style-type: none"> -within the closure length; -along detour routes; -along approaches to the corridor that may experience congestion or queues. ● Installation of secondary detour routes where necessary; ● Use of VMS for recommending alternative routes. ● Where possible, alternative routes will be recommended at a cordon around the closure, well in advance, in such a way to avoid traffic following the prescribed detour route where an alternative is a more convenient route to their intended destination. Install such signage in advance of the closure. ● Staging of works to require nighttime or weekend full-closures only; ● Consultation with the Traffic Department to develop detour routes and minimize bottle on detours; ● Provision of barricades on the approaches to the closure to prevent public access and visibility to activities within the site; ● Provision of access via a temporary corridor or narrow lane within the closure for residents and businesses within the construction corridor, where possible. ● Bus stops appropriately relocated with adequate clearance from traffic lanes for safety and visibility. ● Bus operators are informed of any changes to bus routes and bus stops.
Temporary speed limit	<ul style="list-style-type: none"> ● Inconvenience to road users; ● Slower operating speeds; ● Potential non-compliance with speed limit. 	<ul style="list-style-type: none"> ● Public notification where necessary; ● Monitor and review the use of Temporary Speed Limits to ensure the speed limit is appropriate for the environment. ● Speed controlling measures may be put in place, such as lane narrowing or introduction of speed bumps. ● The ESHSMT will liaise with the Police and work towards temporary speed limits which can be enforced.
Inclement Weather	<ul style="list-style-type: none"> ● This may result in a decreased readability/visibility of the traffic control devices and may increase the potential for crashes. ● Change in condition of road surface. 	<ul style="list-style-type: none"> ● Contractor must make adjustments as deemed necessary to ensure effectiveness. ● Experienced personnel specializing in erection and maintenance to Traffic Management will only be used. ● The Contractor shall temporarily stop all construction activities temporarily when there is heavy rainfall or threat of flooding. See Chapter 10 for additional measures which must be taken to safeguard against the effects of heavy rainfall or the threat of flooding.

Impact	Risk	Typical Mitigation Measures
Restrictions and delays associated with traffic control e.g., detours, road closures etc.	<ul style="list-style-type: none"> This may cause unacceptable delays to Ambulance and Emergency services. 	<ul style="list-style-type: none"> All works personnel respond to emergency traffic to facilitate safe and unhindered passage.

Note: Outside of working hours, especially at night, all barriers and signs will remain at sites, with lighting and / or lighted signs placed as required to warn both vehicular and pedestrian traffic. All traffic arrangements with Traffic Police and Municipality, NDC, Regional Administration and other authorities must coordinate.

APPENDIX Q – Stakeholder Consultation Plan

Background

The aim of this Stakeholder Consultation and Communication Plan (SCCP) is to strategically document and outline how China Road and Bridge Corporation intends to interact with and engaged the relevant stakeholders surrounding and within proximity of the locality of Pearl to Timehri, throughout the project life cycle (pre, during, post).

Moreover, the SCCP seeks to highlight and reinforce the perceived benefits of the infrastructural development of the East Bank Corridor of Good Succes to Timehri and its associated activities, along with an impact assessment of per-urban communities. Through continuous consultation, CRBC aims to inform and engage with interested parties to verify the needs and requirements of the people living in the communities within proximity of the East Bank Corridor by conducting a Needs Assessment to capture the opportunities to aid in the community development processes, and positively impact the quality of life for residence of the nearby communities, especially children and the elderly.

This SCCP provides stakeholders the opportunity to learn more about the project proposal, raise issues and discuss mitigation measures with members of the consultation and project team. Further aided by an illustrative presentation with information on Section B of the East Bank of Demerara Road Upgrade Project. The SCCP intends to highlight the response from the main stakeholders and residents of the communities in section B and also draws together the key messages, issues, and grievances raised during the consultation. By documenting, summarizing and tailoring the appropriate grievances redress to mitigate such in a timely consistent manner. Ultimately, CRBC intends to build an amicable, strong and positive relationship with the community leaders and stakeholders of the communities of Relief, Land of Canaan, Sarah Johanna, Pearl, Coverden, Caledonia, Den Heuvel and Soesdyke. While positively impacting the socioeconomic activities of the communities through job creation, skill training of residents, support for communities' shops, and vending at the campsites. However, not negating its adverse effect on the livelihood of stakeholders, for instance, dust generation from the activities of the road works, gas emission, noise pollution, vibration, degradation of water supplies, solid waste generation, traffic congestion, an increase of accidents, social conflict between employees of CRBC and residence of the adjacent communities taking into consideration the social and cultural biases and barriers of the various group of people(Chinese Nationals, Venezuelan Nationals and Guyanese Nationals), potential labour violation (Child labour), potential sexual exploitation of locals (prostitution), racism and discrimination.

In contrast, the negative impacts of the rehabilitation and Expansion of the East Bank Corridor were catered for and addressed in the Environment and Social Assessment the Environmental and Social Management Plan (ESA/ESMP) and CRBC Social Engagement Plan, Grievance Redress Mechanism and Employees Code of Conduct. Which will be elaborated, discussed and published during Section B Stakeholders Engagement meetings.

Stakeholders

Internal Stakeholders:

China Road and Bridge Corporation Team, Sheladia Team and Ministry of Public Works.

External stakeholders:

Dr. Charles Estate

Dr. Charles Estate is a key stakeholder and will be a part of the first consultation with the focus group, mainly because he is the property owner for the surrounding properties (Eastern, Northern and Southern) of the Coverden Main Campsite which is located within Section B.

Ministry of Labour- Representative from the Labour Occupational Safety and Health Department

A Representative from the Labour Occupational Safety and Health Department will be invited to the Stakeholder Engagement Consultation for section B. This will afford the CRBC team the opportunity to inform the ministry representative through an illustrative presentation of the design, and layout of section B of the road project and the health and safety risks and CRBC mitigating plan to counter the risks and impacts of the project. The consultations will also facilitate meaningful and informed inputs from the representative which provides the foundation for a continuous consultation process throughout the life cycle of the project.

Non-Governmental Organization (NGOs) and Sports Clubs

The stakeholder consultation plan seeks to meaningfully engage and inform members from NGOs and Neighboring Groups such as the Neighbourhood policing groups, sports teams and coaches. These members hold influential status and positions in their respective communities. These representatives can often act as mediators/liaisons person between CBRC and the residents to convey the benefits of the project and its impact on the communities.

Chairpersons of Good Success / Caledonia and Te Huist Coverden / Soesdyke Neighbourhood Democratic Council (NDCs)

The consistent engagement of the NDCs is pertinent to the activities surrounding the construction of the road project, and the operational aspect associated with the actual East Bank upgrade project. The NDCs are critical in the Grievances Redress Mechanism process and play a mediating role between the interests of the villagers and the contractor. In addition, the NDCs

member needs to have a clear understanding of the project and its negative and positive impacts to properly plan and manage the potential crisis. Before road works commence a "No Objection Letter" is needed from this entity.

Religious Groups Leaders

Religion plays a vital role in the cohesiveness of many Guyanese communities, whereby the general population subscribes as follows: Christianity (54.2%), Hinduism (31.0%), Islam (7.5%), No religion (4.2%), 3.1% others (Guyana 2016 International Religious Freedom Report, 2017). The closest places of worship are the Land of Canaan Mosque, Ganga Maa Temple and Church of the Elect (Friendship Village), Pearl Assembly of God Church Assemblies of God church (Land of Canaan) and Word of Life International Apostolic Ministries Full Gospel Fellowship (Coverden). Based on the data presented the closest place of worship to Section B is the latter, therefore it is important to include the religious leaders in the stakeholder's consultation and engagement throughout the life cycle of the section B. During the consultation process, vital information about the way of life of the people within the community can be gathered from the religious leaders, also being the community point of contact for CBRC, to garner and encourage community support for the road upgrade project.

Guyana Power and Light (GPL)

The primary electricity provider for this area is the Guyana Power and Light Cooperation, hence making them a key state holder involved in the infrastructural preparation for the road upgrade project. The involvement of this entity is critical to avoid accidents and damages to infrastructure, that can potentially cause power disruption to power supplied to the neighboring villages. Also, timely communication on updates and notices to the residents on scheduled and unscheduled work pertaining to the road upgrade works.

Guyana Water Inc. (GWI)

It is necessary for the GWI to supervise and guide the digging process of CRBC during the road upgrade process since it has existing infrastructure buried below the earth surfaces to facilitate the supply of water to the nearby communities. Also, it is pertinent for the GWI to be actively involved in the project design and execution phases, to protect existing mains to protect against the disruption of water flow for residents in Section B, which can potentially invoke hostility amongst them.

Environmental Protection Agency (EPA)

The EPA bears responsibility for the protection of the environment, therefore some of the activities that will be conducted during the road upgrade and rehabilitation exercises would require the necessary permit from the agency to operate. Additionally, the activities

surrounding the Main campsite must be done in a sustainable and environmentally friendly manner. It is important for CBRC to develop a strong relationship with this stakeholder to promote the sharing of information to protect against chemical spills and contamination of air or waterways to further protect the livelihood of the citizens.

Head Teachers (St Mary's Primary School, Supply Primary School, Friendship Secondary School).

The head teachers of these schools categorically are member of the community leadership group and engagement is necessary to better understand the culture, values, tradition and ethos of the communities. Also, it is important to highlight how the East Bank Upgrade Project would directly and indirectly impact their daily lives, for them and their staff and students, for instance, prolonged traffic congestions. Information coming out of the stakeholder's engagement meeting can result in contingency plan to facilitates the smooth running of their respective institutions.

Timehri Police Station and Grove Police Station

The protection of the community is called under the Jurisdiction of the state; therefore, presence of the Police officer is to protect and enforce law and order and deter crime. As it relates to the East Bank Upgrade Project, increased police presence will be needed to better coordinate the traffic flow and reduced errant driving and accidents. Also, conflict resolution between residents and the CBRC employees and act as a mediator once no law has been broken,

Residence of Coverden, Supply, Land of Canaan, Sarah Johanna, Pearl, and Soesydyke

The village of Coverden is 29 km from Georgetown and 10.5 km from Timehri, situated on the eastern half of east of the road whose alignment closely parallels the Demerara River. The 2012 census (Guyana's last census) reported Coverden's population at 459 persons in 151 households. In 2012, 54% of its population identified as 'African/Black', 31% as 'Mixed' and 13% as East Indian. The primary Economic activity is subsistence farming. Unlike Supply which is located just over ten miles from Georgetown, on the East Bank of Demerara and is flanked by the busier village of Brickery to the east and Support to the west.

Brickery Community is predominantly occupied by residents of African descendants, but there is a notable percentage of East Indians, Amerindians and the mixed race, with a population of 2000. In some sections of the village, housewives control the operations of several makeshift grocery stalls, while just a few operate from much larger outlets. The husbands and older boys in the homes are engaged in small-scale farming, fishing and even shoemaking and repairs. A large number of males also have taken up positions as labourers, supervisors and operators at the Barama operations at Land of Canaan, not so far away, while others seek other jobs outside

the village. Some villagers sell icicles, custard blocks, fudge, poulori, fruit juice and egg balls along the roadside, while others make a thriving existence on the rearing of poultry, sheep and cattle, which appears to have been a traditional custom of villagers.

Unlike, Coverden, Land of Caanan has many other businesses and in 1991 the Barama Company Ltd. came into play offering extensive employment opportunities for residents of Land of Canaan and many surrounding villages. The erection of the Gafoor's Manufacturing Complex in the village also greatly boosted its employment scope and took it to another notch higher in the world of economic and social development. Even though logging is the primary economic activity, the village also has a Karate School, Igloo Fruit Flavours Ice-Cream Parlour, the A. Azaamally & Sons Ltd. Lumber Yard and the Good Will Enterprises Inc. and the Boat House Sports Bar.

On the other hand, the community of Sarah Johanna is a close-knit place where the people are all known to each other and it consists of a mixture of people of East Indian, African, Amerindian and mixed-races. Sarah Johanna is about eight miles from the Cheddi Jagan International Airport (CJIA). The main economic activities of the locals include farming, poultry and pig-rearing. There are also skilled workers, self-employed persons, shop owners and other professionals who work in all sectors. Also, Sarah Johanna is home to Bliss Bar and Lounge, which is located on the public road at the start of the village; there are also wash bays, barbershops, mechanic shops, small roadside greens and fruits stalls, rum shops, other bars and other small businesses.

Likewise, Pearl is tucked away between Sarah Johanna and Caledonia villages and it has about 300 residents, some of whom work in both the private and public sectors with a few small business owners. Pearl has a nursery school which children from the neighboring villages attend. The village has two churches, a playschool and aftercare facility that is privately owned, a few shops and a bar.

Lastly, Soesdyke is a village in the Demerara-Mahaica Region (Region 4), Guyana, located between the Demerara River and the East Bank Public Road. Soesdyke is located just after the village called Den Heuvel (Coverden) if you are coming from Georgetown. On the other end of Soesdyke is the village of Timehri about 3 miles northeast of the Cheddi Jagan International Airport. In 2012, the official census recorded a population of 156 people in Soesdyke. Residents are predominantly of East Indian descent. The main religion in Soesdyke is Hinduism, with a small number of peoples adhering to Muslim or Christian faiths. The main economic activities in the region are agriculture, hunting and forestry.

Based on the proximity of the village from each other, and the upgrade of the East Bank Public,

it is quite possible that the livelihood of the residents can be impacted, during the execution phases. Therefore, it is necessary to consistently engage and inform these stakeholders on the activities of CBRC. However, there are some positive impacts resulting from the road upgrade project, for instance, the potential of employment and training for residents and an increase in spending that directly impacts the socio-economic activities.

Stakeholder Engagement Strategy

Communication Method

Communication with the stakeholders will take a multifaceted approach, which will see the use of different methodologies during the data collection and Consultation processes. Notably, typed letters will be dispatched to primary stakeholders that comprise of the Chairpersons of Good Success / Caledonia and Te Huist Coverden / Soesdyke Neighbourhood Democratic Council (NDCs), Religious Groups Leaders, Ministry of Labour- Representative from the Labour Occupational Safety and Health Department, Officer in Charge of Timehri and Grove Police Station, Ministry of Health, Head Teachers (St Mary's primary school, Supply Primary School, Friendship Secondary School), Non-Governmental Organization (NGOs) and Sports Clubs, EPA, GPL, GWI and Community leaders requesting a meeting on the established date. Meaningful consultation with the stakeholders would be a continued process. A questionnaire will be distributed among members of this meeting to be completed and returned at the end of the meeting. Additionally, informing the stakeholders of the activities along section B and its positive and negative impact, is also an opportunity for the project team to utilize the survey methodology to identify and measure various variables, which would produce vital information to guide future engagement, presentation and interaction with the residence of along section B.

Furthermore, information gathered from this survey will be promptly addressed at the next scheduled meeting which is scheduled for October 16, 2024. This community engagement meeting will be face-to-face and will be held at the Supply Primary School, stakeholders will also have the opportunity to join via the Ministry of Public Works Facebook page and Zoom. Schools often serve as a community hub and are well-known to community residents so people may feel more comfortable and trust these venues which is an added advantage thus making it easier for them to attend. Additionally, schools are seen as neutral ground with welcoming spaces and are equipped with the necessary amenities such as seating accommodation, water lights and toilet facilities. Supply Primary School was chosen as it is within proximity to many residents within the communities. For many, it is within walking distance and also much easier

to traverse using public transportation should the need arise.

The venue will be conveyed using a Public Address System mounted on a motor vehicle and traversed throughout the villages, in conjunction with flyers being placed at local shops, businesses, community centers, lantern posts, public transportation, places of worship and schools, after seeking permission from the relevant stakeholders. This process will be a continuous process throughout the project life cycle (pre, during and post), interchanged and incorporated with the survey method utilizing a questionnaire design to capture the progress and the opinions, and concerns of the residents, especially the most vulnerable.

Last but not least, stakeholders will be given the opportunity to express their concerns through the project website landing page, dedicated WhatsApp hotline (592-656-7429) to be used as a message board, a community suggestion box or a visit to the Social Development Officer office at the Main campsite to report any grievances, which will be documented and properly addressed in a timely manner through the right channel. The CRBC communication team would be responsible for the drafting, dispensing of letters and communication with the primary stakeholders.

The stakeholder's consultation will be a continuous process. There will be three stakeholder meetings. The first one will be held on the 16th of October, 2024. The other meeting will be held at six-month intervals (for section B). Invitees to the stakeholders' engagements will include Community leaders, women groups, religious leaders, schools' visits and regular engagements with NDC chairs, residents, business communities, minibus and truck drivers Association, Guyana Police Force, Cheddi Jagan International Airport (CJIA), One Communication (before GT&T), Guyana Water Inc. (GWI), Guyana Defence Force (GDF), Guyana Power and Light (GPL), the Guyana Fire service, the Ministry of Social Protection, There will not be a women's Only stakeholders consultation meeting for section B.

Rules guiding the format of the Stakeholder Meeting at Supply Primary School for section B.

During the preparation for the community and key stakeholders' consultation exercise, the CRBC team will seek to provide an open and welcoming forum for local persons to express their views, opinions and suggestions on the East Bank Upgrade Project. Virtual platforms will be available for participating in this meeting: Zoom and the Ministry of Public Works Facebook page (live stream). CRBC will:

- 1) Explain and discuss any issues and concerns raised
- 2) Encourage discussion and provide everyone with an opportunity to participate

- 3) Accurately record the feedback of the participants of the events during the meeting (CRBC Communication Team member).
- 4) The information will be presented in a PowerPoint presentation form highlighting the relevant aspects of the project to communicate with stakeholders (Environmentalist and Social Development officer). The presentation should be around 30 min and a question session of 15 to 20 min depending on the stakeholders' interests.
- 5) Connecting with stakeholders. Personal-professional check-in at the beginning of each meeting.
- 4) Remind everyone to respect each other by not interrupting and to only say what they're comfortable sharing with the group.
- 5) Encouraging collaborative problem-solving. A collaborative problem-solving session replaces the standard "report-outs" that can weigh meetings down. It's when the leader raises a topic for group discussion and the team works together to generate fresh ideas in response to project challenges.
- 6) Give each person time on the agenda. Along with collaborative problem-solving, giving each person time on the agenda fosters greater collaboration and helps get input from all the team members. The consultation team will write up comments and issues that may arise to bring them to the table, one at a time. The team then goes around the meeting so everyone gets a chance to either ask a question about it or pass. After the consultation team member and CRBC representatives answer everyone's questions, stakeholders then get an opportunity to offer advice in the "I might suggest" format, or pass. The team will collaborate technically to easily manage the virtual environment.

After the meeting Activities

Formalize the end of the meeting. Five to ten minutes before the meeting ends the team will mention that the session is about to end so everyone will be aware that the session will terminate shortly. The team or presenter will make the announcement in the meeting and make sure it's transparent and conscious, processing people's real feelings. It is important that during the meeting, civility and respect must be the norm. There have to be inalienable, ethical rules that the team will follow before, during and after a meeting for it to be truly successful. And that means adhering to two fundamental principles: Be respectful of other's time and be present. The presenter will summarize and recap the consultation providing stakeholders with the main points raised and those questions or comments that need to be followed up on.

Stakeholder Consultation Plan Methodology

Generally, the SCCP utilizes the illustrative presentation format presentation to address a

representative sample of the Key stakeholders. Also, this current sampling pool is referred to as the focus group initially, because the feedback from this meeting will guide the tone and content of the public Engagement forum. The usage of survey- questionnaire attempts to capture the data with the usage of a sequence of both open-ended and closed questions. Hence following the community engagement process at the Supply Primary School, this engagement primarily focuses attention on the residents of Section B and the villages between Pearl and Soesdyke, through an illustrative presentation on the ESA/ESMP of the East Bank Road Upgrade Project. This meeting intends to inform, address, and document the concerns, interests and grievances of the residents and stakeholders of the communities within Section B.

Also, this process of SCCP will be an ongoing process and seeks to employ different methodologies to capture the raw data, emotions, concerns and grievances of the stakeholders, with the incorporation of the mixed methodology technique, which may be varied from interviews (Telephone, face to face and recorded.) and a survey method of questionnaires (administered, self-administered, open and closed ended questions). *See copy of Questionnaire@<https://docs.google.com/forms/d/16T9Px5Q0-vV1bHFnRNvxsIec5CtfxN2bDbd8FlSkw2g/edit?ts=6696aad0>(Annex 2)*

Topic to Discuss

This social survey is being conducted by China Road and Bridge Cooperation (CRBC). The road improvement works will stretch from Relief to Soesdyke, resulting in a two-way highway based on the following objectives.

The current deterioration of the road pavement.

- Improve road safety and traffic congestion throughout the highway by widening the road and adding traffic signals and clear marking of the right of way (ROW) and the shoulders.
- Adding of pedestrian and if possible, bicycle lanes/facilities, primarily in more urbanized areas of the roadway.
- Installation of roadside facilities and safe alignments.
- Improvement, replacement, relocation, and installation of utility infrastructure as needed (light poles, culverts).
- Addressing flooding caused by the instability of the Demerara River and future sea-level rise.
- Improving night-time visibility through the use of retro-reflective signage and thermoplastic road markings.
- Present and explain the construction activities of Section B.
 - Traffic management plan and site safety management plan.

Implementation of the SCCP for the Section B East Bank Upgrade Works

Start the consultation process according to the plan guided by the dates, conduct presentation, distribution of questionnaires and interviews in an ethical and standardize manner.

Also actively engage stakeholders, inform stakeholders about the different phases of the project (pre-construction, during and post-construction), GRM, encourage stakeholder participation, promptly address stakeholder concerns and grievances in a consistent, transparent standardized manner and ensure open communication free from the burden of cost for stakeholders.

Collect and Analyse Feedback

At the end of the presentation and community meeting all questionnaires will be collected and quantitatively analyzed for patterns, trends and relationships of variables. Throughout the project life cycle the interview method of data collecting will be specifically applicable to persons who falls within the category of most vulnerable, for instance, children, women and the elderly. These primary data will be analyzed by the CRBC and Sheladia team to identify common themes, concerns, and suggestions.

Report Findings and Actions

A summary of the key findings will be prepared in the form of a Stakeholder Consultation Report. Information deriving from this report will be utilized to develop an action plan, mitigation plan, and a stakeholder management system based on the merit of priority and surrounding communities. This report will be finalized on September 20,2024 and CRBC will submit it to IDB for approval and final release.

A Stakeholder Engagement Follow-Up Plan

Stakeholders of Section B will be informed about how their feedbacks were used and the changes that were made resulting from this feedback. Note this is a continuous process (pre-, During and Post) and is constantly repeated through the project life cycle and fosters and maintains ongoing communication with the stakeholders to build long-term relationships.

Evaluation and Review of the Stakeholder Consultation Process.

The purpose of the Evaluation of the Stakeholder Consultation process is to evaluate the effectiveness of the processes involved in the consultation and to identify the areas for improvement for future consultations.

Section B East Road Upgrade Project (Relief to Soesdyke)
(Relief, Land of Canaan, Sarah Johanna, Pearl, Caledonia, Te Huis Te Coverden, Den Heuvel and Soesdyke)

STAKEHOLDERS CONSULTATION

AGENDA

Dates: October, 16 2024

Time: 5:00 pm to 6:00 pm

Venue: Supply Primary School

Zoom Link: will be provided.

The Ministry of Public Works Facebook Page.

TIME	PRESENTATION/DISCUSSION TOPICS	PRESENTERS
5:00pm – 5:05 pm	Welcoming and Opening Remarks.	Ms. Shanaz Rahat Chairperson NDC Good Success, Coverden Caledonia
5:05pm – 5:10 pm	Brief Remarks - Ministry of Public Works.	Mr. Mark Greene Project Manager Ministry of Public Works
5:10pm – 5:15 pm	Brief Remarks - Engineer (Supervising Consultant)	Mr. Roger Hodgson Resident Engineer - SAI
5:15pm – 5:25 pm	Description and Layout of Section B	Mr. Diego Zhou Lead Engineer, Highway - CRBC
5:25pm – 5:35 pm	Environmental and Social Management Plan (ESMP).	Mr. Isidro Espinosa Environmental Expert - CRBC Mr. Kevin Lashley Social Development Officer - CRBC
5:35pm – 5:45 pm	Traffic Management and site safety Plan	Mr. Wu/ Mr. Isidro Espinosa Project Manager - CRBC
5:45pm – 5:55 pm	Grievances Redress Mechanism (GRM) and Code of Conduct	Mr. Kevin Lashley Social Development Officer - CRBC
5:55pm – 6:15 pm	Open Session Stakeholder: Questions and Answers Stakeholders feedbacks	Stakeholders.

Activities Table

DATES		Preparation/ Approval		Stakeholders Consultation Meetings/Individual interviews							Consultation Report		Submission of Report	
		Sept 24	Sept 25	Sept 26	Sept 27	Sept 28	Sept 29	Sept 30	Oct 1	Oct 2	Oct 16	Oct 16	Oct 17 to 22	Oct 23
1	Preparation and approval													
2	Distribution of invitational and permission letters to Key stakeholders- informing them of the Stakeholder’s Consultation Meeting, requesting permission to host and use the venue.													
3	Preparation of presentation materials and Brochures.													
4	Public Notices of Meeting -Distribution of flyers													
5	Public Announcement via PA System in Section B													
6	Face-to-face meeting at Supply Primary School. Also Zoom and Live stream via the Ministry of Public Works Facebook page.													
7	Analysis of feedback: Meeting Minutes													
8	Compilation													
9	Submission of Stakeholders Consultation Meeting Report.													
PROGRESS		TO BE DONE		ONGOING			COMPLETED							

APPENDIX R – Climate Risk Vulnerability Analysis

Alternative adaptation measures and strategies: Flood risk

Adaptation measure	Business-as-Usual (BAU)	Feasible	Smart
Soft infrastructure Mangroves and sediment control structures	Conservation areas are maintained but not extended and groynes remain in poor condition with limited influence on morphology. Little protection provided to backshore defences.	Active management and targeted extension of conservation areas. This acts to reduce the chance of breach (where opportunities are greatest).	Further extension of mangrove forest areas and control structures act to improve the standard of protection.
Hard infrastructure Coastal and tidal defence	Present day standards reduce with climate change. No significant improvement in defence condition, 'Critical' condition defences have an increased chance of breaching.	Present day standards reduce with climate change, but enhanced maintenance leads to some improvement in defence condition (reducing the chance of a breach).	Defence standards are raised (through a combination of conventional and nature-based defences) to 1in100 years and their condition improved (reducing the chance of a breach).
Hard infrastructure Drainage infrastructure	Drainage capacity continues to be constrained by channel and pump capacity as well as anthropogenic debris and vegetation. The chance of blockage or pump failure is high.	Improved channel management and pump/sluice maintenance (and targeted replacement) improve the conveyance capacity in urban areas. The chance of a blockage and/or pump is reduced.	Further improvements to conveyance and maintenance improve standards in urban and commercial areas (reducing the chance of blockage and pump failure).
Catchment management*	All strategies assume the upstream catchment remains unaltered and the flows in the Demerara remain unchanged with climate change (an assumption that relies on the maintaining the existing forest cover)		
Spatial planning**/**	Urban growth takes place with no consideration of flood risk -	Urban growth takes place with some consideration of flood risks, seeks to avoid those areas where present day flood hazard during the 1in100 year event > 0.6m. A no new development buffer is maintained of 100m in tidal areas and 500m at the coast.	Urban growth takes place with some consideration of flood risks, seeks to avoid all areas exposed during a 1in100 year coastal event and a pluvial flood hazard of >0.3m. A no new development buffer is maintained of 200m in tidal areas and 1000m at the coast.
Forecasting and warning*	Improved forecasting and warning to support Disaster Risk Management is required across all the strategies and the need to invest in improved systems is a clear recommendation from the stakeholder workshops. The associated costs and risk reduction however are not quantified here.		
Building resilience *	Appropriately rising threshold levels to reflect the 1in100 year flood level (mGD) plus a freeboard allowance and the updating building regulations to encourage resilient designs.		
Supporting disaster risk management, climate adaptation and social resilience*	Institutional change and regulatory responsibility, asset management, mangrove management and monitoring and insurance are all important issues that will need to be addressed going forward are not the focus here. It is however assumed that improvements in asset monitoring enable better targeting of investment in the feasible and smart strategies yielding some efficiency saving. Also developing social resilience requires actions beyond those listed above, including specific actions that address the needs of vulnerable individuals and groups. This will rely upon developing long term community connections and cohesion (Particip 2018). Achieving this is a difficult and complex, requiring community engagement and integrated planning. These actions are not directly focused on in this report but will be improved aspects of further integrated planning processes as identified by Particip (2018).		

Note: * indicates not included in adaptation cost estimates. ** See further discussion in Section 4.2. Source: Sayers and Partners

Source: Georgetown, Guyana: Disaster Risk and Climate Change Vulnerability Assessment, IDB 2019.

Climate change

Sea level rise: Mean sea level (MSL) has risen by 23cm from 15.52mGD (Guyana Datum: GD) to 15.75mGD in the 37 years from 1979 to 2016 (Mc Sweeney et al., 2010), an average of 6.2mm/year. This rate of rise is higher than the global average of about 2-4mm/year (JICA, 2017). Projections of sea level rise from climate models show an increase in mean sea level from 0.26 (lower RCP2.6) to 0.82 m (upper RCP8.5) by 2081-2100 (Church et al, 2014). This is broadly consistent with SLR projections developed by McSweeney for Guyana. Within this study a lower and higher sea level rise projection are therefore proposed based on this work (Table 9).]

Table 9 Proposed SLR scenarios

Epoch	Lower (m)	Higher (m)
2030	+0.14	+0.26
2040	+0.18	+0.35
2050	+0.21	+0.43

Source: McSweeney et al (2010) interpreted for this study (2040 interpolated values)

Source: Georgetown, Guyana: Disaster Risk and Climate Change Vulnerability Assessment, IDB 2019



**Environmental
Protection
Agency**

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6917/ 5467
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Website: www.epaguyana.org

Environmental Permit

Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.

Reference No.:	20221005-WSGPW
Fee:	Large (C2) - US\$2000 per year
Fees Paid:	US\$ 4000 for Two (2) years – January 2024 to December 2025

Addressee: Work Services Group
Ministry of Public Works
Fort Street
Kingston
Georgetown
Guyana

Activity: Road Infrastructure Development Project

Ministry of Public Infrastructure, hereinafter referred to as the “Permit Holder”, is hereby authorized in accordance with the Environmental Protection Act Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, to undertake the Rehabilitation of the Grove to Timehri Road Infrastructure, hereinafter referred to as the “Project”, in a manner indicated in the Application for Environmental Authorisation, dated October 05, 2022, and subject to the terms and conditions set forth herein and any existing or forthcoming regulations made under the said Environmental Protection Act and/or any other applicable laws, best practices, guidelines and standards relevant to this project.

The Permit Holder, his Servants, Agents, and Sub-Contractors shall comply with the following Terms and Conditions of this Environmental Permit:

1.0. GENERAL CONSTRUCTION AND OPERATION

- 1.1. The Permit holder shall make an application to the Agency to vary this Permit in instances where it becomes necessary to:
 - 1.1.1. Change the construction, operation, structure, or layout of the facility, plant, or building;
 - 1.1.2. Change and/or install new equipment, machine, apparatus, mechanism, system, or technology serving the facility or operation;

- 1.1.3. Change the position and design of any outlet at the point or points of discharge of effluents; or
 - 1.1.4. Effect any other change outlined in 20(3) of the Environmental Protection (Authorisation) Regulations.
 - 1.2. The Permit holder shall submit an **Environmental Management Plan (EMP)** to the EPA for approval within **four (4) months** of the date of issuance of this Permit. The EMP must address, but is not limited to, the following:
 - 1.2.1. A waste management plan and an emergency response plan. These plans should clearly identify the waste generated and provide measures for its management to protect the surrounding environment and human health in emergency and non-emergency scenarios.
 - 1.2.2. A Traffic Management Plan, which must include the diversion routes indicated on maps.
 - 1.2.3. Grievance Management must include the procedures used for the permanent and temporary removal of businesses along the project route and complaints by residents in the area of influence due to impacts such as dust pollution.
 - 1.3. The Permit holder shall implement the project in accordance with the plans submitted to the Agency. All specifications of location, pathways, reserve, and boundary lines must be adhered to, unless otherwise authorized; evidence of which must be provided to the Agency.
 - 1.4. The Permit holder shall consult and coordinate with contractors and the relevant/affected utility companies and local government organs such as the Neighborhood Democratic Council (NDC), Sea and River Defence Board, Guyana Power and Light (GPL), Guyana Telephone and Telegraph Co Ltd (GTT) etc. to establish schedules and mechanisms for implementation of service interruptions. Additionally, ensure that utilities/relevant authorities are consulted on the location of their facilities such as sewers, cables, pipelines, etc. to ensure that appropriate actions are taken such as relocation of utility poles, markings, temporary shut off of utilities, etc. prior to the commencement of works.
 - 1.5. The Permit holder shall ensure where possible, that construction support sites are not located in the proximity of sensitive land uses/receptors such as hospitals, geriatric homes, churches, schools, densely urbanized residential areas, recreational areas, etc.
 - 1.6. The Permit holder shall ensure all construction works that are performed within the right-of-way of the main roads do not unnecessarily inconvenience residences/business premises located along the road alignment. Temporary access for adequate ingress and egress to affected residences/ businesses must be provided.
 - 1.7. The Permit holder shall ensure the provision for, maintenance and removal on the completion of works, all barriers, equipment/material staging areas, and all support infrastructure, facilities, and equipment associated with the Project.

- 1.8. The Permit holder shall identify suitable areas for material stockpiles and equipment during construction.
- 1.9. Ensure all employees/third party contractors, etc., are aware of the conditions of this Environmental Permit and provide training in areas such as operating heavy-duty equipment, dispensing and collection of construction material etc, and on good environmental management practices
- 2.0. TRAFFIC MANAGEMENT AND PUBLIC SAFETY**
- 2.1. The Permit holder shall take all necessary precautions to minimise potential adverse impacts on public health and the environment in the transport, storage, and handling of construction materials for the Project.
- 2.2. The Permit holder shall ensure that adequate traffic control devices, signage, guardrails, and cautioning tape, are installed at work sites. Additionally, ensure that speed limits are strictly enforced for all vehicles that are associated with Project Parties including Clients, Consultants, Contractors, Sub-Contractors or any other vehicles associated with the Project, in an effort to minimize dust particles from becoming airborne during construction activities.
- 2.3. The Permit holder shall notify the public of the estimated duration of the project, estimated times of works, and expected difficulties, e.g. road closures and diversions, etc. that may be encountered as a result of construction at least **two weeks** in advance.
- 2.4. The Permit holder shall ensure that all Parties including the Client, Consultants, Contractors, Sub-Contractors, or any other persons associated with the Project make suitable provisions to accommodate vehicular and pedestrian traffic safely with minimum inconvenience through and around the construction site(s).
- 2.5. The Permit holder shall ensure that access is provided to all properties adjacent to the project site for the duration of the construction period.
- 2.6. The Permit holder shall mitigate traffic congestion by carrying out activities on one lane at a time or re-routing traffic, where/when applicable.
- 3.0. EMPLOYEES HEALTH AND SAFETY**
- 3.1. The Permit holder shall strictly adhere to the requirements of the **Occupational Health and Safety Act, Cap 99:10, Laws of Guyana** so as to ensure that employees' health and safety are protected at all times.
- 3.2. The Permit holder shall ensure that employees' personal protective equipment (PPEs) are worn at all time by workers on project sites.

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Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.

- 3.3. Adequate lighting must be provided for the execution of works between the hours of 6pm - 6am.
 - 3.4. The Permit holder shall ensure that adequate toilets, waste disposal, and sanitary facilities are provided at all construction sites.
 - 3.5. The Permit holder shall ensure portable toilets are installed in accordance with the Public Health Ordinance 1953; and
 - 3.6. Ensure all portable toilet systems are emptied by the contracted Waste Disposal Services on a regular basis. Waste collected from the portable toilet should be treated before disposal and at no time should the waste be disposed of in the surrounding environment.
- 4.0. AIR QUALITY MANAGEMENT**
- 4.1. The Permit holder shall comply with the provisions of the **Environmental Protection (Air Quality) Regulations 2000** and the **Environmental Protection (Noise Management) Regulations 2000**.
 - 4.2. The Permit holder shall store construction materials at an approved storage site that causes minimum adverse impact to the public i.e. on traffic flow and dust emissions.
 - 4.3. The Permit holder shall ensure stockpiles are stored downwind to avoid being transported by wind to sensitive areas (e.g. residential homes, and schools). Loading and offloading activities should, as far as possible, also be confined to this location.
 - 4.4. The Permit holder shall minimize the level of dust pollution during the construction phase, especially in dry conditions by periodically applying wet suppression methods and the implementation of any other appropriate measures.
 - 4.5. For unpaved access routes constructed and within the construction sites, the permit holder shall control emissions by covering unpaved roads with materials with lower silt content, examples of which include gravel or slag.
 - 4.6. The Permit holder shall ensure that if any excavated material is retained at the work site it must be covered with construction plastic **at all times**. Unwanted excavated material should be stored at an approved holding site.
 - 4.7. The Permit holder shall switch off construction equipment during mobilization and when not in use.
 - 4.8. The Permit holder shall maintain stakeholder engagement throughout the project life.
 - 4.9. The Permit holder shall record, investigate, and address complaints of excessive noise, dust, and vibrations by residents.

- 4.10. The Permit holder shall service machinery regularly and ensure that they are properly maintained in accordance with the manufacturer's specifications.
- 4.11. The Permit holder shall establish temporary holding sites for stockpiling of construction materials and the construction of temporary camps so as to minimise distances traveled for delivery of materials.
- 4.12. The Permit holder shall properly shape stockpiles to avoid steep sides or faces and avoid sharp changes of shape and elevated heights in the final storage pile to reduce wind erosion.
- 4.13. The Permit holder shall ensure that materials susceptible to wind erosion e.g. sand are covered at all times during transport and storage.
- 4.14. The Permit holder shall during windy conditions, where feasible, pre-construction operations that generate greater levels of dust should be avoided or reduced, especially around sensitive areas, for example; schools and residential homes.
- 4.15. The Permit holder shall locate generators away from sensitive receptors and ensure that the exhaust stacks of generators are at a sufficient distance from communal areas to minimise adverse fumes/soot impacts to the contiguous areas.
- 4.16. The Permit holder shall conduct regular environmental monitoring upwind and downwind of the construction site, to ensure Particulate Matter (PM₁₀ and PM_{2.5}), Volatile Organic Compounds, Sulphur Dioxide (SO₂), and Nitrogen Dioxide (NO₂) are maintained within the World Health Organization Emission Standards.

PM_{2.5}: 25 µg/m³ 24-hour mean

PM₁₀: 50 µg/m³ 24-hour mean

5.0. NOISE MANAGEMENT

- 5.1. The Permit holder shall Comply with the provisions of the **Environmental Protection (Noise Management) Regulations, 2000**.
- 5.2. The Permit holder shall ensure that all sound-making devices such as generators, machines, etc. are suitably equipped with silencers or mufflers to reduce noise emission levels and are placed on foundation properly designed to ensure effective damping of vibrations.
- 5.3. The Permit holder shall monitor noise emissions to determine compliance with the Guyana National Bureau of Standards (GNBS) Guidelines for Noise Emissions into the Environment. Sound levels from noise-making devices should not exceed the limits below, at a distance of 15 meters (50 ft) from the source or property boundary, whichever is closer.

Construction Limits: **90 dB** during the daytime (06:00 h - 18:00 h)
75dB during the night-time (18:00 h - 06:00 h)

- 5.4. The Permit holder shall ensure equipment is operated according to the manufacturer's recommendations to minimise the impact of sound levels on the environment.
- 5.5. The Permit holder shall ensure maintenance work on construction equipment is undertaken away from noise-sensitive receivers.
- 5.6. The Permit holder shall minimise the use of horns and or whistles to signal trucks during the loading and offloading of construction material.

6.0. SOIL AND LAND MANAGEMENT

- 6.1. The Permit holder shall take all necessary precautions to minimise soil compaction, erosion, and siltation of water bodies surrounding the project area. Measures such as reducing slope lengths and gradients, limiting the size of exposed land surfaces, and minimising the duration of exposure of soil surfaces should be practiced.
- 6.2. The Permit holder shall avoid soil and land contamination from fuel, grease, waste oils, and other petroleum products. All refueling and/or servicing of equipment must be done on an impervious base to minimise adverse impacts on the environment in the event of spillage.
- 6.3. The Permit holder shall limit the removal of vegetation to the extent necessary for works to proceed. In areas where soils are not to be removed, the grassed vegetation layer shall be maintained, where possible, to protect the soil from erosion and compaction.
- 6.4. The Permit holder shall limit the removal of vegetation to the minimum extent necessary for works to proceed. In areas where soils are not to be removed, the grassed vegetation layer shall be maintained, where possible, to protect the soil from erosion.
- 6.5. The Permit holder shall stabilize exposed portions of the soil. Implement and maintain stabilization measures (e.g., seeding protected by erosion controls until vegetation is established, sodding, mulching, erosion control blankets, hydro-mulch, gravel) that minimize erosion from exposed portions of the site.

7.0. WATER QUALITY MANAGEMENT

- 7.1. The Permit holder shall strictly Comply with the **Environmental Protection (Water Quality) Regulations 2000** provisions.
- 7.2. The Permit holder shall ensure during wet seasons, silt fences and sediment traps are placed at strategic locations to prevent soil export to nearby waterways.

- 7.3. The Permit holder shall ensure that all fuels, chemicals, and liquids used during construction are stored, handled, and contained properly to minimise spillage or runoff into existing waterways.
- 7.4. The Permit holder shall not wash vehicles or equipment near drains.
- 7.5. Wastewater or "dirty" water generated during the construction process shall, wherever possible, be collected, treated, and disposed of by appropriate means, including the installation of sediment barriers down-slope of all disturbed areas.
- 7.6. Where required, the Permit holder shall install diversion drains across exposed areas immediately following clearing, and re-established and maintained during topsoil removal and earthwork operations.
- 7.7. The Permit holder shall install sediment controls along any perimeter areas of the site that will receive effluent discharges and remove sediment before it has accumulated to half of the above-ground height of any perimeter control.
- 7.8. The Permit holder shall construct and maintain drainage systems capable of handling the probable maximum precipitation event.
- 7.9. The Permit holder shall ensure that all stormwater drains are maintained and remain in effective operating condition during the life of the permit. Also, ensure they are protected from activities that would reduce their effectiveness. As such, the drainage must be kept free-flowing and free of debris.
- 7.10. The Permit holder shall avoid soil and water contamination from fuel, grease, waste oils, and other petroleum products that might be used at the construction site.
- 7.11. The Permit holder shall not discharge or dump liquid or solid wastes and/or trade effluent directly into receiving waters.
- 7.12. The Permit holder shall manage stockpiles or land-clearing debris piles composed, in whole or in part, of sediment and/or soil. Locate the piles outside of any natural buffers and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated.
- 7.13. The Permit holder shall take all practicable measures to avoid erosion, siltation and sedimentation of existing water bodies/drains within the vicinity of the project site. Ensure that wastewater from washout and/or cleanout of bitumen, concrete, paint, and other construction materials are not discharged into waterways unless managed by an appropriate treatment control.

8.0. WASTE MANAGEMENT

- 8.1. The Permit holder shall comply with the **Environmental Protection (Litter Enforcement) Regulations 2013** where applicable.

- 8.2. The Permit holder shall ensure good housekeeping and hygienic practices and improvement in the aesthetic quality of the surroundings at all times.
- 8.3. The Permit holder shall appoint a Waste Management Officer to ensure that any on-site procedures for waste management are implemented and monitored regularly.
- 8.4. The Permit holder shall ensure that road construction works are executed in a resource-efficient manner and the generation of waste is minimised.
- 8.5. The Permit holder shall promote the re-use of materials on-site, encouraged by segregation practices that avoid contamination. Topsoil/overburden and other inert construction wastes/materials should be reused, e.g. for reclamation/landscaping after construction works are completed.
- 8.6. The Permit holder shall promote good sanitation and solid waste disposal practices at construction sites. In particular, dispose of waste, including liquid/septic wastes at an approved landfill site. Covered garbage receptacles must be placed at strategic locations on sites.
- 8.7. The Permit holder shall ensure that portable toilet systems are emptied by the contracted Waste Disposal Services on a regular basis. Waste collected from the portable toilets should be treated before disposal and maintained in accordance with the Public Health Ordinance 1953. At no time should waste be disposed into the surrounding environment.

9.0. HAZARDOUS WASTE MANAGEMENT

- 9.1. The Permit holder shall adhere to the provisions of the **Environmental Protection (Hazardous Wastes Management) Regulations 2000**, as follows:
 - 9.1.1. Establish and maintain a register of hazardous materials or chemicals used or generated during the duration of project.
 - 9.1.2. There shall be no release of any pollutants (i.e. fuel, waste oil, wood preservatives) to groundwater or soil from permitted installation. Accidental release of pollutants to soil and groundwater should be recorded and be reported within twenty-four (24) hrs to the Agency for further investigation.
 - 9.1.3. Take the necessary precautionary measures such as the use of leak-proof and tightly closed containers during the transport of fuel to the site. Appropriate measures should also be taken during the handling and use of all Hazardous Waste at the construction site.
 - 9.1.4. Where applicable, prepare and submit to the Agency no later than

forty-five (45) days forty-five (45) days after the end of the operating year, a report relating to the activities for the previous year. The report shall include:

- 9.1.4.1. The identification information of the project.
 - 9.1.4.2. Type and quantities of hazardous waste generated.
 - 9.1.4.3. Data concerning off-site shipments of waste.
 - 9.1.4.4. Any applied treatment standards.
 - 9.1.4.5. A summary of any accidents that may have occurred and any action taken.
 - 9.1.4.6. Any waste minimization efforts undertaken by the generator.
 - 9.1.4.7. A pollution prevention plan for the project.
 - 9.1.4.8. Any other matter the Agency may require.
- 9.1.5. The Agency considers all materials listed in Schedule I and II of the Environmental Protection (Hazardous Wastes Management) Regulations, 2000, to be hazardous. Please see the attached list of Hazardous Wastes to be controlled.
- 9.1.6. Keep on-site books, documents, records, or things showing, as the case may be:
- 9.1.6.1. The amount of hazardous wastes generated stored, treated, transported, or disposed of.
 - 9.1.6.2. The dates pertinent to the activities referred to above.
 - 9.1.6.3. Signed copies of manifests.
 - 9.1.6.4. Records of test results, waste analyses, permits, and standard conditions required by any authorisation.
 - 9.1.6.5. And any information as the Agency may require.
- 9.1.7. Promote the reuse of used oil, for example, lubrication of equipment, where practical.
- 9.1.8. Store used oil in a covered, bunded area to minimise adverse impacts to the environment in the event of spillage. The bunded area must be able to provide containment for the maximum volume of used oil on site.
- 9.1.9. Ensure that an appropriate spill containment kit is located at the site. The kit should contain absorbent material, drain seals, disposal containers, and other appropriate tools to absorb spilled oil and other spilled liquids.
- 9.1.10. Ensure that oil/fuel containment adsorbent materials are appropriately stored in double wrapping heavy-duty garbage bags or slop tanks and disposed of at an approved hazardous waste disposal facility.
- 9.1.11. Store any contaminated fuel in closed leakproof containers and label slop tanks 'Waste gasoline or Diesel Fuel'.
- 9.1.12. Store all fuel away from ignition sources and have 'No Smoking' signs

posted where fuel is handled or stored.

10.0. COMPLIANCE MONITORING AND REPORTING

- 10.1. Strictly comply with any lawful directions given by the Agency from time to time in furtherance of the implementation of any international or other obligation for the environmental protection of Guyana.
- 10.2. Monitor the implementation of the conditions of this Environmental Permit (Renewed), insofar as they involve adherence by employees and all third parties under your direction.
- 10.3. Report to the Agency any non-compliance(s) with this Environmental Permit (Renewed):
 - 10.3.1. Within **twenty-four (24) hours** of the time the Holder of this Environmental Permit (Renewed) becomes aware of the non-compliance, with the anticipated manner in which it may endanger human health or the environment may be impacted.
 - 10.3.2. Within **seventy-two (72) hours** of the time the Holder of the Environmental Permit becomes aware of the non-compliance, submit to the Agency a written report containing a description of the non-compliance, its cause, the period of non-compliance including exact dates and time and the anticipated time it is expected to continue if the non-compliance(s) has not been corrected.
- 10.4. Submit an **Environmental Annual Report** to the EPA on your compliance with this Environmental Permit on or before **March 31, each year**.
- 10.5. Notify the EPA within **twenty-four (24) hours** of the occurrence of any environmental emergencies (e.g., oil spills, hazardous materials/wastes spill, sudden onset disaster, natural, technological or human-induced factors that cause or threaten to cause severe environmental damage as well as harm to human health or livelihood).
- 10.6. Notify the Agency in writing of any change of name or ownership of the Permit Holder's facility within **thirty (30) days** after the change occurs.
- 10.7. Notify the Agency within **twenty-one (21) days** in the event of death, bankruptcy, liquidation, or receivership of the Permit Holder or if the Company becomes a party to an amalgamation.
- 10.8. It is the responsibility of the Permit Holder to ensure the permitted activity and premises are secured and that all practicable steps necessary to prevent fires, explosions, leaks or suspected leaks and spills at the permitted premises are taken.

11.0. INSTITUTIONAL AUTHORITY/LIABILITIES



- 11.1. The Permit Holder shall be liable for any material environmental harm caused by polluting the environment, pursuant to **s. 39 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 11.2. The Permit Holder shall be liable for any serious environmental harm caused by polluting the environment, pursuant to **s. 39 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 11.3. The Permit Holder shall be liable for any activity that causes or is likely to cause pollution of the environment unless all reasonable and practicable measures are taken to prevent or minimize any resulting adverse effect, pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 11.4. The Permit Holder shall be liable for discharging, causing or permitting the entry into the environment, of any contaminant in any amount, concentration or level excess of that prescribed by the regulations or stipulated by this Environmental Permit (Renewed), pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 11.5. The Permit Holder shall be liable to compensate any person who suffers any loss or damage as a result of contravening conditions 6.3 and 6.4 of this Environmental Permit (Renewed), pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 11.6. The Permit Holder shall not be indemnified by the Agency for any activity that causes or is likely to cause pollution to the environment, resulting from adverse effects through the discharge, any contaminant in any amount, concentration, ultra-hazardous substances, chemicals or otherwise, and shall be rendered liable to prosecution and to penalties prescribed under the Environmental Protection Act and Regulations.
- 11.7. The Permit Holder shall be liable of any gross negligence or wilful misconduct caused by the Permit Holder, his Servants and/or Agents, to the environment, biodiversity, protected species and natural habitat with respect to any release, discharge, or spill, of contaminant fluids, oil or lubricants.
- 11.8. Should the Permit Holder contravene or be likely to contravene any condition of this Permit, the Agency (EPA) may serve on him an Enforcement Notice in accordance with **Section 26 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 11.9. Where it appears to the Agency that the Permit Holder is engaged in any activity that may pose a serious threat to natural resources or the environment or a risk of serious pollution of the environment or any damage to public health, the EPA may issue to the Permit Holder a Prohibition Notice, which may order him to immediately cease

the offending activity, in accordance with **Section 27** of the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**.

- 11.10. The EPA reserves the right to conduct regular inspections of the Permit Holder's activities as part of its monitoring and enforcement requirements under the Environmental Protection Act, Cap 20:05, the **Environmental Protection (Amendment) Act, 2005**, and **Environmental Protection (Authorisations) Regulations, 2000**.
- 11.11. The Permit Holder, His Servants and/or Agents shall at all times, allow entry to the permitted facility to any Officer designated by the EPA for the purposes of conducting inspections or any other legitimate business of the Agency. Pursuant to **Section 38** of the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**, it is an offense to assault, obstruct or hinder an authorised person in the execution of his/her duty under the said Act or its Regulations and the Permit Holder shall be liable to penalties prescribed under paragraph (c) of the Fifth Schedule for doing so.
- 11.12. The EPA has the right to modify, cancel or suspend this Permit for breach of any of the terms and conditions contained herein.
- 11.13. **This Environmental Permit is not the final consent; all relevant Permissions shall be obtained from other regulatory bodies before commencing construction activities.**
- 11.14. This Environmental Permit is effective for the period stipulated herein, **January 2024 to December 2025**.
- 11.15. This Environmental Permit shall remain valid until **December 31, 2025**, unless otherwise suspended, canceled, modified, or varied, in accordance with the **Environmental Protection Act, Cap. 20:05, Laws of Guyana, Environmental Protection (Amendment) Act, 2005**, and the **Environmental Protection (Authorisations) Regulations, 2000**.
- 11.16. This Environmental Permit shall be renewed by submitting "an Application for Renewal of Environmental Authorisation to the Agency at least six (6) months before this Permit expires, that is, no later than **June 30, 2025**."
- 11.17. Any late submission of renewal application(s) after the specified date as stated above, may require the Permit Holder to pay, in addition to renewal fees, a late penalty fee (accruing at the time such obligation was first owed for renewal) at a rate of **two thousand dollars (GY\$2000.00) per day for every business day late**, until such renewal application is submitted to the Agency, without prejudice to any other rights of the Permit Holder in connection therewith.
- 11.18. Failure to comply with the requirements of this Permit or with applicable laws and regulations, whether existing or forthcoming, shall render the Permit Holder liable to prosecution and to penalties, inclusive of civil penalties, injunctive relief and

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imprisonment, as prescribed under the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**, the Environmental Protection Regulations and other applicable Laws of Guyana.

Signed by  on behalf of the Environmental Protection Agency.

Kemraj Parsram
 Executive Director

Date 2024.01.24

I hereby accept the above Terms and Conditions upon which this Environmental Permit (Renewed) is granted and agree to abide by the Environmental Protection Act, Cap.20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, the Environmental Protection (Authorisations) Regulations, 2000, and any forthcoming regulations, best practices, guidelines and standards made under this Act.

NAME:	<i>YASHODRA SINGH</i>
SIGNATURE:	<i>Y. Singh</i>
DESIGNATION:	<i>Socio - Environmental Officer HoPw</i>
DATE:	<i>14th March, 2024</i>



APPENDIX T – Stakeholder Consultation Meeting Report

1. Introduction

The Government of Guyana (GoG) has received financing from the Inter-American Development Bank for the East Bank Demerara Road Improvement Project which entails the rehabilitation from Good Success to Timehri, approximately 23.640 Km. The project entails the following: widening, rehabilitation, and improvement of the deteriorated road pavements and installation in areas where road pavement is non-existent. Also, included in the project is the installation of road safety equipment throughout the roadway, the construction of safe non-motorized traffic facilities for vulnerable road users, and rehabilitation or construction of new bridges and culverts.

As a result, in 2022, an Environmental and Social Impact Assessment (ESIA) was conducted to identify the potential environmental, socioeconomic, and cultural impacts of the East Bank Demerara Road Improvement Project. Based on the information generated from the ESIA the IDB mandates that an Environmental and Social Management Plan (ESMP) be prepared. However, the guiding principles of the ESMP provide the rudimentary basis of the consultation plan for section B of the road, the Environmental and Social Management Plan, and the Stakeholder Engagement Plan. Section B runs from Relief to Soesdyke. The IDB has recognized the importance of engaging stakeholders throughout the life cycle of the project. In support of the East Bank Demerara Road Improvement Project, the development of the Coverden Campsite and Kuru Kururu Campsite was deemed necessary. Five Stakeholder Engagement Meetings have been held thus far. The first Stakeholder Engagement Meeting hosted by CRBC was the Key Stakeholders Kick-off Meeting, followed by the Swan Community Stakeholder Engagement Meeting, the Coverden Campsite Stakeholder Engagement Meeting, and the Swan Community Women's Only Stakeholder's Engagement Meeting. This report is for the stakeholder engagement meeting for Section B. Stakeholders from industries, the private sector, the public sector, Non-Governmental Organizations, religious groups, Judicial, political, Law Enforcement, social groups, and residents within the project area attended these Stakeholder Engagement Meetings. The meetings allowed for meaningful, insightful, and valuable feedback from stakeholders.

The Stakeholder Engagement Meeting for section B was held on the 16th of October, 2024, at Supply Primary School, Public Road Relief Village, East Bank Demerara, from 17:00 hrs to 19:30 hrs. In attendance, were stakeholders from civil society, Private Sector, Public Sector, Non-

Governmental Organizations, Religious groups, Judicial, Political, Law Enforcement, social groups, businesses, and residents within section B. The purpose of this meeting was to inform stakeholders of the scope of work, the commencement of the project, project duration, project design, description, and layout of section “B”, the Environmental and Social Impact Assessment/ Environmental and Social Management Plan (ESIA/ESMP) for Section “B”, Traffic Management and Safety Management Plans, CRBC Grievances Redress Mechanism, and Code of Conduct.



A gathering at the Section “B” Stakeholder Consultation Meeting at the Supply Primary School

2. Objectives

The objectives of the Stakeholder’s engagement meeting were to:

- ▶ Increase awareness amongst stakeholders who reside, are based, operate, and depend on the East Bank Corridor as a transportation route. More specifically Section “B” of the East Bank of Demerara Road from Relief Village to Soesdyke Village, who are more prone to be directly and indirectly impacted by the planned works intended for Section B.
- ▶ Build trust and open communication with the residents of Relief, Land of Canaan, Sarah Johanna, Pearl, Caledonia, Te Huis Te Coverden, Den Heuvel, and Soesdyke.

- ▶ Share with Stakeholders from Relief, Land of Canaan, Sarah Johanna, Pearl, Caledonia, Te Huis Te Coverden, Den Heuvel, and Soesdyke the Environmental and Social Impacts expected from road construction activities in section B.
- ▶ Enlightened Stakeholders on CRBC Traffic Management and Site Safety measures.
- ▶ Explain CRBC Grievance Redress Mechanism (GRM) Procedure and Code of Conduct.
- ▶ Document grievances, concerns, and suggestions, then address them accordingly.

3. SUMMARY OF THE PRESENTATIONS

The Stakeholder Engagement Meeting commenced at 17:00hrs on the 16th of October, 2024. The facilitator, CRBC Social Development Officer (SDO), Mr. Kevin Lashley, welcomed the stakeholders to the meeting and informed them about the purpose of the meeting. The Chairperson for Caledonia/Good Success Neighborhood Democratic Council (NDC), Ms. Shanaz Rahat, delivered the opening remarks and conveyed the perceived benefits and challenges associated with the East Bank Demerara Road Improvement Project.



Meeting facilitator and CRBC Social Development Officer outlining the format of the meeting agenda to the Stakeholders at the Supply Primary School

This was immediately followed by brief remarks by Mr. Mark Greene, the East Bank Demerara Road Improvement Project Manager attached to the Ministry of Public Works. Mr. Greene informed stakeholders who attended in person or virtually (via the Ministry of Public Work Facebook platform), about the nature of the project. Mr. Greene then introduced the representatives

from CRBC(Contractor), Sheladia Associates Inc. and the Ministry of Public Works. He also explained the source of the funding of the project and the collaborative role played by the Government of Guyana and the International Development Bank to bring this project to fruition. Additionally, Mr. Greene highlighted the purpose of the stakeholder engagement meeting, and further briefed the stakeholders about the East Bank of Demerara Road Improvement Project Section “B” and perceived benefits to road users.



Ministry of Public Works Project Manager for the East Bank Demerara Road Improvement Project Mr. Mark Greene delivering his remarks to stakeholders at the Section “B” Stakeholders Consultation Meeting at Supply Primary School

Following this Dr. Francisco Perez, the Team Leader on behalf of Sheladia Associates Inc., engaged the Stakeholders and introduced the project scope, project design, project description, and layout of section “B” of the East Bank Demerara Road Improvement Project. The speaker also highlighted how the project will be executed and the role of the supervising team in attaining

standardization and quality.



Sheladia Associates Inc. Dr. Francisco Perez, Team leader for the East Bank Demerara Road Improvement Project in attendance at the Section “B” Stakeholder’s Consultation Meeting at Supply Primary School

Subsequently, at 17:30 hrs Sheladia Associates Inc. Resident Engineer, Mr. Roger Hodgson commenced the PowerPoint Presentation and presented the stakeholders with an in-depth description and layout of Section “B” of the East Bank Demerara Road Improvement Project. Information was provided on the technical and non-technical aspects of the scope and design of the road. A series of drawings and a BIM display were used to aid the presentation.



Sheladia Associates Inc. Mr. Roger Hodgson, Resident Engineer for the East Bank Demerara Road Improvement Project explained the Building Information Modeling (BIM) 3D interface to stakeholders during the Section “B” Stakeholder’s Consultation Meeting at Supply Primary School

Additionally, CRBC Social Development Officer, Mr. Kevin Lashley, provided a synopsis of the background of the project and the functions of the ESA/ESMP as it relates to Section “B” of the East Bank Demerara Road Improvement Project. Mr. Lashley identified some of the activities that have the potential to cause impacts and shared with stakeholders the measures that will be put in place to reduce these impacts. CRBC’s Environmental expert Mr. Isidro Espinosa focused on the negative and positive environmental impacts resulting from construction activities in section “B” and the management and mitigation measures that will be implemented.



The CRBC Environmental Specialist and Social Development Officer presented to the Stakeholders at Supply Primary School a comprehensive Environmental and Social Impact Assessment and Environmental and Social Management Plan (ESIA)

Mr. Wu XiaoWen, CRBC Project Manager presented CRBC Traffic Management and Site Safety Plans. During his presentation, Mr. Wu emphasized the importance of safety when maneuvering around construction sites. The presenter reminded stakeholders of the activities that would be undertaken and the measures that would be implemented to reduce disruption of traffic flow. Mr. Wu also, explained how CRBC intends to keep the public safe when passing through Section “B”.



CRBC Project Manager, Mr. Wu XiaoWen engaging Stakeholders at Section “B” Stakeholder Consultation Meeting at the Supply Primary School on the CRBC Traffic Management Plan and Site Management Plan

CRBC's Community Liaison Officer Ms. Washington in her presentation explained the Grievance Redress Mechanism (GRM) and CRBC Code of Conduct, which will guide the behaviour of CRBC employees and third-party contractors. Ms. Washington informed stakeholders of the procedures involved in the GRM process and implored Stakeholders to use different methods to report grievances.



CRBC Community Liaison Officer, engaging Stakeholders at Section “B” Stakeholder’s Consultation Meeting at Supply Primary School

Penultimately, CRBC Country Manager Mr. George Cao, briefly provided updates on the progress of CRBC project preparation. He mentioned that Section “B” project design is completed, while sections “A” and “C” are still under design. Also, CRBC has been engaging in maintenance works since August 2024, most of these works are conducted during the night to reduce traffic congestion. Mr. Cao updated Stakeholders on the status of the Coverden and Kuru Kururu Campsite, in which he stated that they are more than 60% completed and will house both local and Chinese workers.



Mr. George Cao CRBC Country Manager delivered a brief on CRBC project preparation to Stakeholders at the Section “B” Stakeholders Consultation Meeting at Supply Primary

School

Lastly, the Honorable Minister of Public Works, Bishop Juan Edghill delivered the closing remarks. In his delivery, the Minister outlined the Government of Guyana's infrastructural development plans. The Honorable Minister lamented the strategic location of the East Bank of Demerara and the logistical support it provided for other regions and the domestic construction industry, especially as it relates to the movement of aggregate, sand, and gravel. The Minister noted that the East Bank of Demerara Corridor plays an integral role in the development of other sectors, such as gold, timber, and agriculture. Furthermore, the Minister Honorable Bishop Juan Edghill shared the Government of Guyana's initiative to link Georgetown to the Linden Highway by extending the Heros Highway and the continuation of a four lanes highway linking Ogle of the East Coast of Demerara to Timehri Village on the East Bank of Demerara. The Minister also spoke about the “Buss B Dam” bypass as an alternative route when the Diamond to Grove Road is under construction. Hence, this project is funded solely by the Government of Guyana and will be divided into five blocks to reduce the project timeline. Stakeholders were also told of the intention to add a wing to the Cheddi Jagan International Airport because Guyana is a highly favor destination for investment.

4. STAKEHOLDERS THAT ATTENDED THE SECTION “B” STAKEHOLDER’S ENGAGEMENT MEETING AT SUPPLY PRIMARY SCHOOL.

The Section “B” stakeholder engagement meeting, is a requirement of the ESMP, which aims to engage stakeholders who are likely to be impacted directly and indirectly by the Section “B” East Bank of Demerara Road Improvement Project. Ninety-eight (98) persons attended the meeting in person. Of the 98 attendees, 45 were women and 53 were men. Most of the attendees resided in Section “B”., Additional, approximately ten (10) persons attended the stakeholder engagement meeting on Facebook which was streamed live by the Ministry of Public Works Facebook page. Also, among the gathering were representatives from the business community, governmental organizations, non-governmental and the Neighbourhood Democratic Council.

The general atmosphere at Supply Primary during the Stakeholder’s Engagement Meeting was shared anticipation, eagerness, and optimism. Some of the stakeholders were very much intrigued by the presentation, while others were merely eager to voice their complaints, and frustration, and make recommendations. The gathering facilitated the sharing of historical and current information,

enabling knowledge transfer and promoting a unified approach to addressing shared challenges and achieving common goals. That fostered the possibility of ongoing dialogue and cooperation between CRBC and the stakeholders of section “B”.

The Stakeholders present during the Section “B” Relief to Soesdyke Stakeholder’s Consultation Meeting were:

1. Ministry of Public Works (MoPW)
2. Sheladia Associates Inc. (SAI)
3. China Road and Bridge Corporation (CRBC)
4. Inter-American Development Bank (IDB)
5. Guyana Police Force – Division 4B
6. Guyana Fire Service (GFS)
7. Guyana Power & Light, Inc.
8. Soesdyke Te Huis Te Coverden Neighborhood Democratic Council (NDC)
9. Good Success/Caledonia Neighborhood Democratic Council (NDC)
10. Head Teacher, Supply Primary School
11. Pearl Assembly of God Church
12. Church Assemblies of God church
13. Barama Group of Companies
14. Baker Hughes Guyana
15. Gafoors
16. Hyde Park Zoo and Sanctuary
17. Residents of Relief, Land of Canaan, Sarah Johanna, Pearl, Caledonia, Coverden, Den Heuvel, and Soesdyke.



Section of the audience at Section “B” of the Stakeholder’s Consultation Meeting at the Supply Primary School

5. STAKEHOLDER COMMENTS, CONCERNS, GRIEVANCES, AND ISSUES
ABOUT THE PROJECT.

QUESTION/SUGGESTION/ COMMENT	RESPONSES
<p>(Resident):</p> <ol style="list-style-type: none"> 1) The East Bank Public Road borders the Demerara River, as such the government should consider placing docking areas to cross the Demerara River at 3-4 points along the road corridor. 2) GWI pipeline relocation has caused a disruption and left them with no water for the past 24 days. 	<p>Hon. Minister Bishop Juan Edghill:</p> <ol style="list-style-type: none"> 1) While this is an excellent suggestion, it is not a part of the road project. However, it will be mentioned to the Sea and River Defence Board for consideration. 2) The Minister stated that GWI has already been written about this disruption. Discussions will be held with the Minister of Housing and Water to fix this problem.
<p>(Resident):</p> <ol style="list-style-type: none"> 1) Is concerned about residents growing flower plants and trees in the front yard of their property and impaired the vision of drivers. 2) She hopes that proper drains will be constructed at the sides of the new road. 3) Pedestrian lanes will be appreciated and hope that cyclists will utilize the same and not ride on the main road. 	<p>Hon. Minister Bishop Juan Edghill:</p> <ol style="list-style-type: none"> 1) The Ministry of Public Works (MoPW) will address the issue of persons planting and blocking visibility and hinders ingress and regress. 2) Concrete drains will be constructed with covers to facilitate cleaning.
<p>(Resident):</p> <ol style="list-style-type: none"> 1) Will residents /businesses have their accessway rebuilt to the same standard to facilitate heavy machinery after the road is dug up? 2) Will residents have proper access to the main drain from their properties? 	<p>Mr. Ron Rahaman (Coordinator of MoPW):</p> <ol style="list-style-type: none"> 1) Yes, all accessway will be rebuilt to the same or higher standard by the Contractor CRBC. 2) Considerations for proper drainage facilities will be done in collaboration with the National Drainage and Irrigation Authority (NDIA).
<p>(Business Community)</p> <ol style="list-style-type: none"> 1) On behalf of Gafoors Land of Canaan Complex, the complex usually has a heavy flow of heavy machinery, will the GWI contractor build a proper access way after the pipe laying activity? 2) Will it be possible to place a pedestrian crossing for staff and customers in front of the business establishment? 	<p>Hon. Minister Edghill:</p> <ol style="list-style-type: none"> 1) If the contractor (CRBC) is conducting work in your area, there has to be a system in place to ensure the work of the company continues. 2) This concern will also be raised with Guyana Police Force (GPF)

<p>(Resident):</p> <ol style="list-style-type: none"> 1) GWI dug an accessway and left a drain in front of her property. This has left her residence without water for the past 5 days. 	<p>Hon. Minister Juan Edghill:</p> <ol style="list-style-type: none"> 1) Instructed his assistant to reach out to the stakeholders to address the matter The Contractor (CRBC) followed up with Ms. Watson, where she reported that the issue where her residence was left without water for the past 5 days was resolved. Further this will be documented in the LRP.
<p>(Business Community):</p> <ol style="list-style-type: none"> 1) In the capacity of a representative of Hyde Park Zoo and Sanctuary-Land of Canaan, EBD. While Guyanese welcome the much-needed project, they demand that the work done will be of a high quality. He further added that roads in Guyana are being done at a great standard. 2) The people would like to know more details of the funding of projects. 	<p>Hon. Minister Juan Edghill:</p> <ol style="list-style-type: none"> 1) The government is committed to improving all roads in Guyana to a high standard, hence the citizens do not need to demand. 2) An amount is always retained by the Government if the contractor does sub-standard work. In such a case the contractor is expected to make the necessary corrections. 3) The Government always engages the stakeholders and shares the source of funding for the projects. 4) 300+ roads are expected to be completed by December 15th, 2024.
<p>(Business Community):</p> <ol style="list-style-type: none"> 1) a representative from Baker Hughes Guyana Congratulated the team for the level of consultation and stated that he has seen improvements from the last key stakeholder meeting and the suggestions made being implemented. For instance, the maintenance of the East Bank of Demara Carriageway. 1) Will there be any consideration to straighten the current road, especially the deep turns? 2) Which general direction (Northern or Southern) will construction work commence for Section “B”? 3) Will the completion of the smaller sections be priorities to facilitate free traffic flow? 4) What will be the extent of night work? 5) Footbridges should be replaced by metal or wooden bridges for pedestrians to be off the road. 	<p>Mr. Roger Hodgson- Resident Engineer (Sheladia Associates Inc):</p> <ol style="list-style-type: none"> 1) The road design does not include the straightening of the road; however, the road will be widened for safer road usage for pedestrians and motorists. 2) The road construction will be done in sections starting in the middle where there are wider open areas and fewer residents. 3) Traffic management will be implemented in areas where more residents reside. 4) The night work will be 50% of the work conducted. 5) Footbridges will be built to be effective.

<p>(Resident):</p> <ol style="list-style-type: none"> 1) Police Officers must also comply with traffic rules at the construction sites. 2) Are systems in place to ensure women, pregnant mothers, and children are not affected by the dust when the road construction begins? 	<p>Hon. Minister Juan Edghill:</p> <ol style="list-style-type: none"> 1) Emergency vehicles must be given a rite of passage at all times. <p>DR. Jewel Liddell (Environmental Expert at Sheladia Associates Inc):</p> <ol style="list-style-type: none"> 1) As stated in the Environmental Management plan, the road will be wet periodically to suppress the dust.
<p>(Resident):</p> <ol style="list-style-type: none"> 1) Will the soil be given to residents to reinforce the dams etc.? 	<p>CRBC Social Team:</p> <ol style="list-style-type: none"> 1) Recorded question and contact information at the end of the Question-and-Answer segment of the presentation and promised a follow after inquiring from the management of CRBC.

6. STAKEHOLDERS CONCERN AND RECOMMENDATIONS

Stakeholder feedback and recommendations are very pertinent aspects of the stakeholder engagement meeting; hence these concerns and suggestions are taken into consideration and added to the design phase of the project. Some of the concerns that emerged out of the stakeholder engagement meeting are:

- Contact Guyana Water Inc. Project Manager with responsibility for oversight for laying of water distribution lines on the East Bank of Demerara Road Improvement Project. Report recorded grievances and coordinate a site visit with the GWI social team, to document and discuss possible mitigation measures to address stakeholder grievances.
- Formation of a WhatsApp group comprising CRBC SDO, Guyana Power and Light Project Manager, Guyana Water Inc. Project Manager, CRBC Project Manager, and Ministry of Public Works Project Manager to collaborate, effectively and efficiently disseminate project-related information and grievances.
- Create a registry of all Contractors and Sub Contractors of CRBC, GWI, and GPL assigned to the East Bank of Demerara Road Project.
- Retrieve copies of GWI and GPL Gantt Charts and Subcontractors' work plans.
- Follow-up With the Honorable Minister Juan Edghill's Office for a progress report about the issues raised by residents.
- Produce CRBC monthly grievance report.
- Regular and timely stakeholder engagements must occur in the various sections before construction work commences and during the construction, project cycle to keep stakeholders abreast with the project phases.

7. RECOMMENDATIONS AND NEXT STEP BY THE CONTRACTOR (CRBC)

- Reach out to Governmental institutions and Companies that were not present at the Section “B” Stakeholders Engagement Meeting and inform them about the next Section “B” stakeholders engagement meeting and request a representative be present.
- Based on the feedback of the Stakeholder Consultation Meetings, CRBC intends to work closely with the residents from Relief to Soesdyke. Also, the traffic department of the Timehri Police Station and Grove Police Station will be contacted to assist with traffic management and to help deter errant drivers.

- CRBC intends to have an Ambulance and tow truck on standby when road works commence.
- CRBC recognizes that continuous engagement with the NDC and its members can encourage active participation from members within their constituents, which can positively impact the overall turnout among residents. Also, members from religious societies, community groups and leaders, youth groups, and schools will continue to be engaged.

APPENDIX

Copy of the following:

- 1. The Invitation Letter**
- 2. The Programme (Agenda)**
- 3. Section B Consultation Notice**
- 4. Letter seeking permission for use of Supply Primary School**
- 5. Minutes of the Consultation**
- 6. The Attendance Register**
- 7. Power Point Presentation**



中国路桥工程有限责任公司圭亚那分公司
CHINA ROAD AND BRIDGE CORPORATION Guyana Branch
East Bank Demerara Road Improvement (Good Success to
Timahri)

Address: Lot 61 Continental Park, East Bank Demerara, Guyana

Tel: +592-6514883

October 11, 2024

Permanent Secretary
Ministry of Local Government & Regional Development
De Winkle Building,
Fort Street, Kingston,
Georgetown, Guyana

Dear Sir/Madam

RE : INVITATION LETTER TO STAKEHOLDER CONSULTATION FOR EAST BANK
DEMERARA ROAD IMPROVEMENT PROJECT

The China Road and Bridge Corporation {CRBC} (Design and Build Contractor), in collaboration with the Ministry of Public Works (Employer) and Sheladia Associates Inc. (Consultant), cordially invites you to a stakeholder consultation regarding the upcoming East Bank Demerara Road Improvement Project (EBDRIP) on Wednesday, October 16th 2024, from 4:45 pm to 6:15 at the Supply Primary School.

The project aims to improve the road infrastructure in your area, enhancing safety, accessibility, and the overall quality of life for the community. The consultation is an opportunity for you to share your thoughts, ask questions, and help ensure the project meets the needs and concerns of residents and by extension all road users.

Key topics to be discussed include:

- Overview of the project scope and objectives
- Potential impacts and benefits to the community
- Environmental & Social Management Plan
- Traffic Management Plan
- Grievance Redress Mechanism
- Open feedback and Questions and Answers Session

Your feedback as a stakeholder, whether you are a business owner, resident, or part of a community group, will help ensure a well-rounded understanding of the community's concerns and perspectives.

We encourage you to attend as we value your input and look forward to your active participation. For further inquiries, please contact us on 653 6557 or 663 5414.

Yours Sincerely,

Mr. Wu Xiaowen, Contractor's Representative
East Bank Demerara Road Improvement, CRBC

East Bank Demerara Road Improvement Project

(Section B: Relief to Soesdyke)

(Relief, Land of Canaan, Sarah Johanna, Pearl, Caledonia, Te Huis Te Coverden, Den Heuvel and Soesdyke)

STAKEHOLDERS CONSULTATION

AGENDA

Dates: 16th October 2024 **Time:** 4:45pm to 6:20pm **Venue:** Supply Primary School

TIME	PRESENTATION/ DISCUSSION TOPICS	PRESENTERS
4:45pm –4:50pm	Welcoming and Opening Remarks.	Ms. Shanaz Rahat -Chairperson-Caledonia/Good Success -Neighborhood Democratic Council.
4:50pm –4:55m	Brief Remarks - Ministry of Public Works.	Mr. Mark Greene -Project Manager -Ministry of Public Works
4:55pm –5:00 pm	Brief Remarks - Engineer (Supervising Consultant)	Mr. Francisco Perez -Team Leader–SAI
5:00pm –5:15pm	Description and Layout of Section “B” Presentation of Virtual drive-through for Section “B”	Mr. Roger Hodgson -Resident Engineer–SAI
5:15pm –5:25pm	Environmental and Social Management Plan (ESMP).	Mr. Isidro Espinosa -Environmental Expert-CRBC Mr. Kevin Lashley -Social Development Officer-CRBC
5:25pm –5:35pm	Traffic Management Plan	Mr. Wu XiaoWen -Project Manager-CRBC
5:35pm –5:45 pm	Grievances Redress Mechanism (GRM) and Code of Conduct	Ms. Marcia Washington -Community Liaison Officer-CRBC
5:45pm –5:50 pm	Project Briefing	Mr. George Cao -CRBC Country Manager
5:50pm –6:00pm	Closing Remarks	Mr. Hon. Bishop Juan A. Edghill -Minister of Public Works
6:00pm –6:20 pm	Open Session Stakeholder: Questions and Answers Stakeholders feedbacks	Stakeholders



GY-L1081: EAST BANK DEMERARA ROAD IMPROVEMENT (GOOD SUCCESS TO TIMEHRI)

The Ministry of Public Works in collaboration with China Roads and Bridges and Sheladia Associates Inc. would like to invite you to an upcoming

STAKEHOLDERS CONSULTATION - INFORMATION SESSION

The upcoming consultation holds great significance for residents living **between Relief and Soesdyke** and all those who regularly use the East Bank Corridor. This event offers you the chance to voice your opinions, seek clarifications, and contribute to the success of the project, which aims to enhance safety and accessibility for all road users.

Key topics to be discussed include:

- Overview of the project scope and objectives
- Benefits of the project to the community
- Potential impacts and mitigation measures
- Environmental & Social Management Plan
- Traffic Management Plan
- Grievance Redress Mechanism
- Open feedback and Questions and Answers Session



Date: 16th October, 2024

Time: 4:45 pm – 6:30 pm

Venue: Supply Primary School

Please note, that the consultation session will also be held virtually via the Ministry of Public Works Facebook page (FB LIVE).

Additionally, please note that the project has a Grievance Redress Mechanism in place to address any concerns you have regarding works during the project. Please don't hesitate to contact us on the hotlines available:

- Contractor, CRBC: +592 656 7429
- Consulting Engineer, Sheladia: +592 728 2031

You can also make contact with the MPW representative and Socio-Environmental Officer, Ms. Yashodra Singh at +592 620 2135

APPENDIX 4. Letter seeking permission for use of Supply Primary School



中国路桥工程有限责任公司圭亚那分公司
CHINA ROAD AND BRIDGE CORPORATION Guyana Branch
East Bank Demerara Road Improvement (Good Success to Timehri)

Address: Lot 61 Continental Park, East Bank Demerara, Guyana

Tel: +592-6514883

October 9, 2024

Mr. Donald Gajraj
Regional Executive Officer
Region # 4 Regional Democratic Council
Thru' Regional Education Officer
Triumph
East Coast Demerara

Dear Mr. Gajraj

Request for permission to use Supply Primary School for Stakeholder Consultation on 16th October, 2024

The China Road and Bridge Corporation (CRBC), under contract with the Ministry of Public Works, respectfully request your permission to hold a Stakeholder Consultation at the Supply Primary School, East Bank Demerara on Wednesday, 16th October, 2024, from 4:45 pm to 6:15 pm.

This meeting will engage stakeholders from the communities along "Section B", Relief to Soesdyke, of the project route, to discuss the project's scope, its environmental and social impacts, mitigation measures, and the socioeconomic benefits it aims to bring to the community.

We anticipate the participation of community members, local authorities, and other relevant stakeholders. The Supply Primary School would provide an ideal venue and has the capacity to accommodate the expected attendees.

We assure you that all necessary precautions will be taken to ensure that the school premises are respected and maintained. Thank you for considering our request and we look forward to your favourable response once again.

Yours sincerely,

Mr. Wu
Project Manager(CRBC)

Copy: Mr. Bhupendra Dooke - Chairman
Neighbourhood Democratic Council - Soesdyke

APPENDIX 5. Minutes of the Consultation

Minutes of Stakeholder Consultation (Section B – Relief to Soesdyke)

**Project Title: GY-L1081 EAST BANK DEMERARA ROAD IMPROVEMENT PROJECT
(GOOD SUCCESS TO TIMEHRI)**

Date: October 16, 2024

Time: 17:00 hours

Location: Supply Primary School, Relief Public Road, East Bank Demerara

Presenters:

Mr. Bishop Juan A. Edghill	-	Honorable Minister of Public Works
Mr. Mark Greene	-	Project Manager, Ministry of Public Works
Ms. Shanaaz Rahat	-	Chairperson, NDC
Mr. Francisco Perez	-	Team Leader, Sheladia Associates Inc.
Mr. Roger Hodgson	-	Resident Engineer, SAI
Mr. Isidro Espinosa	-	Environmental Consultant, CRBC
Mr. Wu XiaoWen	-	Project Manager, CRBC
Mr. George Cao	-	Country Manager - CRBC
Ms. Marcia Washington	-	Community Liaison Officer

Chairperson/Presenter:

Mr. Kevin Lashley	-	Social Development Officer
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Agenda Overview:

1. Welcome and Opening Remarks
2. Brief Remarks – Ministry of Public Works
3. Brief Remarks/Presentation – Sheladia
4. Description and Virtual Layout of Section B – Sheladia
5. Environmental and Social Management Plan (ESMP)
6. Traffic Management Plan
7. Closing Remarks
8. Open Session Stakeholder: Questions and Answers Stakeholders Feedback

Mr. Lashley opened the meeting by welcoming everyone and informing them of the purpose of the meeting. The agenda items were then presented. This was followed by brief remarks by the Chairperson of the Caledonia Good Success Neighbourhood Democratic Council and the Project Manager from the Ministry of Public Works. The Team Leader from Sheladia, Dr Perez then informed stakeholders that Sheladia Associates Inc. is supervising the project and provided information on the scope of work to be completed. The Resident Engineer, Mr. Hodgson provided information on the location and scope of work for section B. His presentation was aided by a virtual drive-through of Section B. CRBC then provided information on the activities that may cause impacts, potential impacts and their management and mitigations, Code of Conduct, Grievance Redress Mechanism and gender-based violence. Remarks were then given by the Honorable Minister of Public Works, Mr. Bishop Juan A. Edghill. The stakeholder engagement meeting ended with a question-and-answer segment.

Discussion Points

Topics	Key Discussion Details
Description and Layout of Section “B”	The discussion focused on the location and length of section B and the activities to be undertaken, including the relocation of utilities. The presentation was aided by a Building Information Modeling (BIM) virtual representation of the intended end state of section B.
Environmental and Social Management Plan (ESMP)	The ESMP presentation zeroed in on the potential environmental and social, negative and positive impacts, along with the requisite mitigation measures. During the presentation information on racism, discrimination, Gender Based Violence, the Grievance Redress Mechanism and CRBC Code of Conduct were shared with stakeholders.
Traffic Management Plan and Site Safety Plan	The proposed Traffic Management Plan for Section B for the construction phase of the project was shared with stakeholders. Stakeholders were told of the measures that are in place to coordinate and control traffic during road construction. Stakeholders were also told of the measures that are in place to ensure safety at the construction site. The safety procedures will have to be adhered to during construction.
Grievances Redress Mechanism (GRM) and Code of Conduct	The Grievance Redress Mechanism and Code of Conduct were shared with stakeholders. The various avenues through which grievances can be lodged and procedures for addressing them were disseminated to stakeholders. The rules and regulations that guide and govern the behaviour of CRBC staff and third-party contractors were also highlighted.

Main Outcomes

Outcome	Details
Businesses in section “B” are expected to remain operational during the construction phase of the project.	All works planned and performed by CRBC and subcontractors during the project execution phase must be done with minimal hindrance to the business community. The effect on businesses was considered during the design and planning phase of the project.
Formation of an Intergovernmental Committee.	The dire need for the sharing of information between Governmental Agencies as it relates to the dissemination of project information and coordination. Primarily between the different Ministerial departments, municipalities and stakeholders.
Modernized Drainage Networks	The addition of concrete drains with covers to facilitate the cleaning activities, along Section “B” of the East Bank Corridor, will seek to modernize and upgrade the drainage network. This will be done in collaboration with the National Drainage and Irrigation Authority, Ministry of Agriculture.
Stakeholder buy-in of the project.	There was consensus of a general buy-in from stakeholders present. In general sentiments of stakeholders were that they were cognizant of the negative environmental and social impacts of the project but also realized the socioeconomic value and modernization aspect of the end state of the project.

Question and Answer

Stakeholders were allowed to ask questions and/ or present their views of the project. Participants also suggest measures that can be implemented to reduce impacts associated with the construction of the road. The table below documents the issues raised during the question-and-answer session.

QUESTION/SUGGESTION/ COMMENT	RESPONSES
<p>(Resident):</p> <ol style="list-style-type: none"> 1) The East Bank Public Road borders the Demerara River, as such the government should consider placing docking areas to cross the Demerara River at 3-4 points along the road corridor. 2) GWI pipeline relocation has caused a disruption and left them with no water for the past 24 days. 	<p>Hon. Minister Bishop Juan Edghill:</p> <ol style="list-style-type: none"> 1) While this is an excellent suggestion, it is not a part of the road project. However, it will be mentioned to the Sea and River Defence Board for consideration. 2) The Minister stated that GWI has already been written about this disruption. Discussions will be held with the Minister of Housing and Water to fix this problem.
<p>(Resident):</p> <ol style="list-style-type: none"> 1) Is concerned about residents growing flower plants and trees in the front yard of their property and impaired the vision of drivers. 2) She hopes that proper drains will be constructed at the sides of the new road. 3) Pedestrian lanes will be appreciated and hope that cyclists will utilize the same and not ride on the main road. 	<p>Hon. Minister Bishop Juan Edghill:</p> <ol style="list-style-type: none"> 1) The Ministry of Public Works (MoPW) will address the issue of persons planting and blocking visibility and hinders ingress and regress. 2) Concrete drains will be constructed with covers to facilitate cleaning.
<p>(Resident):</p> <ol style="list-style-type: none"> 1) Will residents /businesses have their accessway rebuilt to the same standard to facilitate heavy machinery after the road is dug up? 2) Will residents have proper access to the main drain from their properties? 	<p>Mr. Ron Rahaman (Coordinator of MoPW):</p> <ol style="list-style-type: none"> 1) Yes, all accessway will be rebuilt to the same or higher standard by the Contractor CRBC. 2) Considerations for proper drainage facilities will be done in collaboration with the National Drainage and Irrigation Authority (NDIA).

<p>(Business Community)</p> <ol style="list-style-type: none"> 1) On behalf of Gafours Land of Canaan Complex, the complex usually has a heavy flow of heavy machinery, will the GWI contractor build a proper access way after the pipe laying activity? 2) Will it be possible to place a pedestrian crossing for staff and customers in front of the business establishment? 	<p>Hon. Minister Edghill:</p> <ol style="list-style-type: none"> 1) If the contractor (CRBC) is conducting work in your area, there has to be a system in place to ensure the work of the company continues. 2) This concern will also be raised with Guyana Police Force (GPF)
<p>(Resident):</p> <ol style="list-style-type: none"> 1) GWI dug an accessway and left a drain in front of her property. This has left her residence without water for the past 5 days. 	<p>Hon. Minister Juan Edghill:</p> <ol style="list-style-type: none"> 1) Instructed his assistant to reach out to the stakeholders to address the matter. The Contractor (CRBC) followed up with Ms. Watson, where she reported that the issue where her residence was left without water for the past 5 days was resolved. Further this will be documented in the LRP.
<p>(Business Community):</p> <ol style="list-style-type: none"> 1) In the capacity of a representative of Hyde Park Zoo and Sanctuary-Land of Canaan, EBD. While Guyanese welcome the much-needed project, they demand that the work done will be of a high quality. He further added that roads in Guyana are being done at a great standard. 2) The people would like to know more details of the funding of projects. 	<p>Hon. Minister Juan Edghill:</p> <ol style="list-style-type: none"> 1) The government is committed to improving all roads in Guyana to a high standard, hence the citizens do not need to demand. 2) An amount is always retained by the Government if the contractor does sub-standard work. In such a case the contractor is expected to make the necessary corrections. 3) The Government always engages the stakeholders and shares the source of funding for the projects. 4) 300+ roads are expected to be completed by December 15th, 2024.
<p>(Business Community):</p> <ol style="list-style-type: none"> 1) A representative from Baker Hughes Guyana Congratulated the team for the level of consultation and stated that he has seen improvements from the last key stakeholder meeting and the suggestions made being implemented. For instance, the maintenance of the East Bank of Demara Carriageway. 2) Will there be any consideration to straighten the current road, especially the deep turns? 	<p>Mr. Roger Hodgson- Resident Engineer (Sheladia Associates Inc):</p> <ol style="list-style-type: none"> 1) The road design does not include the straightening of the road; however, the road will be widened for safer road usage for pedestrians and motorists. 2) The road construction will be done in sections starting in the middle where there are wider open areas and fewer residents. 3) Traffic management will be implemented in areas where more residents reside.

<p>3) Which general direction (Northern or Southern) will construction work commence for Section “B”?</p> <p>4) Will the completion of the smaller sections be priorities to facilitate free traffic flow?</p> <p>5) What will be the extent of night work?</p> <p>6) Footbridges should be replaced by metal or wooden bridges for pedestrians to be off the road.</p>	<p>4) The night work will be 50% of the work conducted.</p> <p>5) Footbridges will be built to be effective.</p>
<p>(Resident):</p> <p>1) Police Officers must also comply with traffic rules at the construction sites.</p> <p>2) Are systems in place to ensure women, pregnant mothers, and children are not affected by the dust when the road construction begins?</p>	<p>Hon. Minister Juan Edghill:</p> <p>1) Emergency vehicles must be given a rite of passage at all times.</p> <p>DR. Jewel Liddell (Environmental Expert at Sheladia Associates Inc):</p> <p>2) As stated in the Environmental Management plan, the road will be wet periodically to suppress the dust.</p>
<p>(Resident):</p> <p>1) Will the soil be given to residents to reinforce the dams etc.?</p>	<p>CRBC Social Team:</p> <p>1) Recorded question and contact information at the end of the Question-and-Answer segment of the presentation and promised a follow after inquiring from the management of CRBC.</p>

Next Steps:

Action Item	Responsible Party	Deadline
<p>Contact Guyana Water Inc. Project Manager with responsibility for oversight for laying of water distribution lines on the East Bank of Demerara Road Improvement Project. Report recorded grievances and coordinate a site visit with GWI social team, to document and discuss possible mitigation measures to address stakeholder grievances.</p>	<p>CRBC Community Liaison Officer</p>	<p>26/10/2024</p>
<p>Formation of a WhatsApp group comprising of CRBC SDO, Guyana Power and Light Project Manager, Guyana Water Inc. Project Manager, CRBC Project Manager and Ministry of Public Works Project Manager to collaborate, effectively and efficiently disseminate project-related information and grievances.</p>	<p>CRBC Social Development Officer</p>	<p>26/10/2024</p>
<p>Create a registry of all Contractors and Sub Contractors of CRBC, GWI and GPL assigned to the East Bank of Demerara Road Project.</p>	<p>CRBC Community Liaison Officer</p>	<p>31/10/2024</p>


Retrieve copies of GWI and GPL Gantt Charts.	CRBC Social Development Officer	6/11/2024
Follow-up with the hon. minister Juan Edghill's Office for a progress report pertaining to the issues raised by residents.	CRBC Social Team	1/11/2024

Additional Notes

The general atmosphere was lively peaceful and the tone of the room was informative. The majority of the stakeholders welcomed and embraced the East Bank of Demerara Road Enhancement Project, realizing the perceived tangible and intangible benefits that would be derived from the project.

In addition, the Hon. Minister Bishop Juan Edghill's insightful remarks further assured stakeholders of these benefits and the Government of Guyana's commitment to link, and modernized our road networks. The Minister alluded to the necessity of expanding the road networks to accommodate the unprecedented levels of development and growth currently experienced as well as those expected in the future.

Hon. Minister Edghill expressed the Government of Guyana intention to extend the four-lane Heroes Highway which will run parallel to the East Bank of Demerara Corridor to reduce traffic congestion. The Minister also informed stakeholders of the expected increase in air traffic, the expansion of the Cheddi Jagan International Airport and the planned upgrade of the Linden/Soesdyke Highway Road.

Signatures: 

Facilitator: Mr. Kevin Lashley

Date: 2024/10/21

APPENDIX 6. The Attendance Register



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School						
ATTENDANCE REGISTER						
No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
1	Kimberly Bradshaw	Female				
2	Susann Resaud	686-F				
3	Paul Loucka	MALE				
4	Jessie Liddell	Female				
5	Grant Dornick	MALE				
6	Isidro Espinoza	Male				
7	James Williamson	Male				
8	Nathan Smith	Male				
9	Donna Salazar	F				
10	Valda Fredericks	F				
11	Kimberly Daniels	M				
12	Bismarck Alexander	F				
13	Hollanette Seaton	F				



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School

ATTENDANCE REGISTER

No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
14	RAGHUNATH SINGH DAI	M				
15	Wu Xiaowen	M				
16	Zhang Li	RM				
17	Neelwattiri Sukka	F				
18	Shannaz Rahot	F				
19	Joseph Paul	M				
20	JOSEPH Johnson	M				
21	Ron Rahman	M				
22	Natalie Howard	F				
23	Evelyn Graham	F				
24	Daniel Tom	M				
25	Quincy Gibson	M				
26	Edward Wilson	M				



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School						
ATTENDANCE REGISTER						
No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
27	Jermeq Douglas	Male				
28	Omresh Rayhan	Male				
29	Joseph Collette	Male				
30	Alicia Loncks	FEMALE				
31	Wästen	Females				
32	Prinus A. Solomon	Male				
33	Mariam McKenzie	Female				
34	Olumajia Audo	F				
35	L Torres	F				
36	Terasha Edinboro	F				
37	Achiam Melling	M.				
38	Khodija BA	F				
39	AZEER ALLY	M				



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School

ATTENDANCE REGISTER

No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
40	Michelle Burnett	F				
41	JOHN	M				
42	Roger Hodgson	m				
43	Yashoda Singh	F				
44	Harriet Williamson	M				
45	Ramkumari	F				
46	F.M. MICKSKEY	F				
47	Nandanie DASS	F				
48	Sabithy Brijwally	F				
49	HATRAN SINGH	M				
50	Malcolm Garnett	M				
51	Claudette FOO	F				
52	Justin Pole	M				



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School

ATTENDANCE REGISTER

No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
79	Nereta Ossori	F				
80	KWAME KWAK	M				
81	E. elabson	M				
82	Nickisha Austin Jansingh	F				
83	Gr. Babu	M				
84	A. N. K. K.	M				
85	Sabina Thomas	F				
86	Dorbi Koyigbe	F				
87	Abigail Clarke	F				
88	Essan	F				
89	J. Jansin.	F				
90	Roseanne Williams	F				
91	J. K. K.	M				



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School

ATTENDANCE REGISTER

No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
92	Noel James	M				
93	Dwayne Morley	M				
94	Nadia Roberts	F				
95	Paenda Phoenix	F				
96	Shyenne Johnson	F				
97	Michael Letran	M				
98	Manix Powers	M				
99	Ronald Jordan	M				
100	Anis Lato	F				
101	Amac Edin	MA				
102	Lancelot McCaskey	M				
103	Lawrence Shury	M				
104	Wayne Price	M				



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School						
ATTENDANCE REGISTER						
No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
105	Charlton Blair	M				
106	Glincia Younge	F				
107	Donald Melville	M				
108	Lyvonne Wilson	F				
109	Edwin Scott	M				
110	Ashanti Teo	F				
111						
112						
113						
114						
115						
116						
117						



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School						
ATTENDANCE REGISTER						
No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
157	Suzette Grosod	F				
158	Elms Rojas P.	M				
159	ABED HOSSAIN.	M				
160	Sabin Isanally	M				
161	<i>[Handwritten Signature]</i>	M				
162	brodie Johna	F				
163	Dorothea Jarad	F				
164	<i>[Handwritten Signature]</i>	M				
165	Kate Nelson	F				
166						
167						
168						
169						



EMPLOYER: MINISTRY OF PUBLIC WORKS



ENGINEER (SUPERVISING CONSULTANT): SHELADIA ASSOCIATES, INC.



CONTRACTOR: CHINA ROAD & BRIDGE CORPORATION (CRBC)

STAKEHOLDER'S CONSULTATION MEETING(Section) October 16th 2024 at Supply Primary School

ATTENDANCE REGISTER

No.	Stakeholder Name	Gender	Contact Number	Email Address	Signature	Remarks
235	Naimoon Insonally	F				
236	SHARON CLAYTON	M				
237	Sherrill Williams	F.				
238	Dwan Pickens	M				
239	Grace Bradford	F				
240						
241						
242						
243						
244						
245						
246						
247						

N.B. The participants list was not signed in chronological order and the figures were verified by the Engineer.



CO-OPERATIVE REPUBLIC OF GUYANA



EAST BANK DEMERARA ROAD IMPROVEMENT PROJECT (GOOD SUCCESS TO TIMEHRI)

SECTION "B" STAKEHOLDER CONSULTATION

OCTOBER 16TH, 2024





Employer: Ministry of Public Works

Financing Agency: Inter-American Development Bank

Engineer: Sheladia Associates, Inc.

Contractor: China Road and Bridge Corporation

Cost of Project: US\$ 75.88 million





DESCRIPTION AND LAYOUT OF SECTION "B"

Mr. Roger Hodgson - SAI Resident Engineer







1. Widening the Existing Road
2. Constructing New Sidewalks
3. Relocating the Existing Utilities
4. Improving Safety, Streetlighting, and Pedestrian Crossing







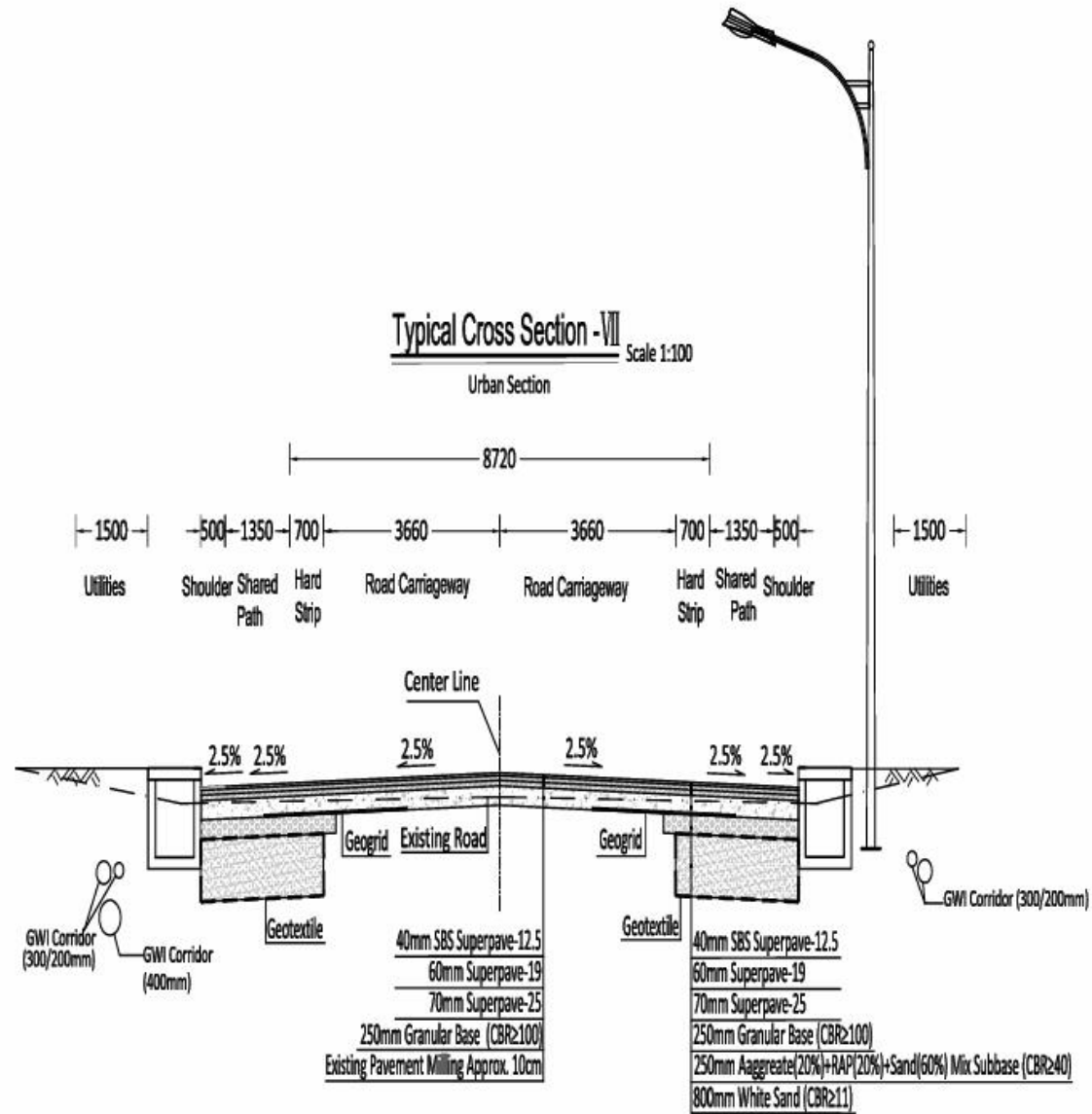


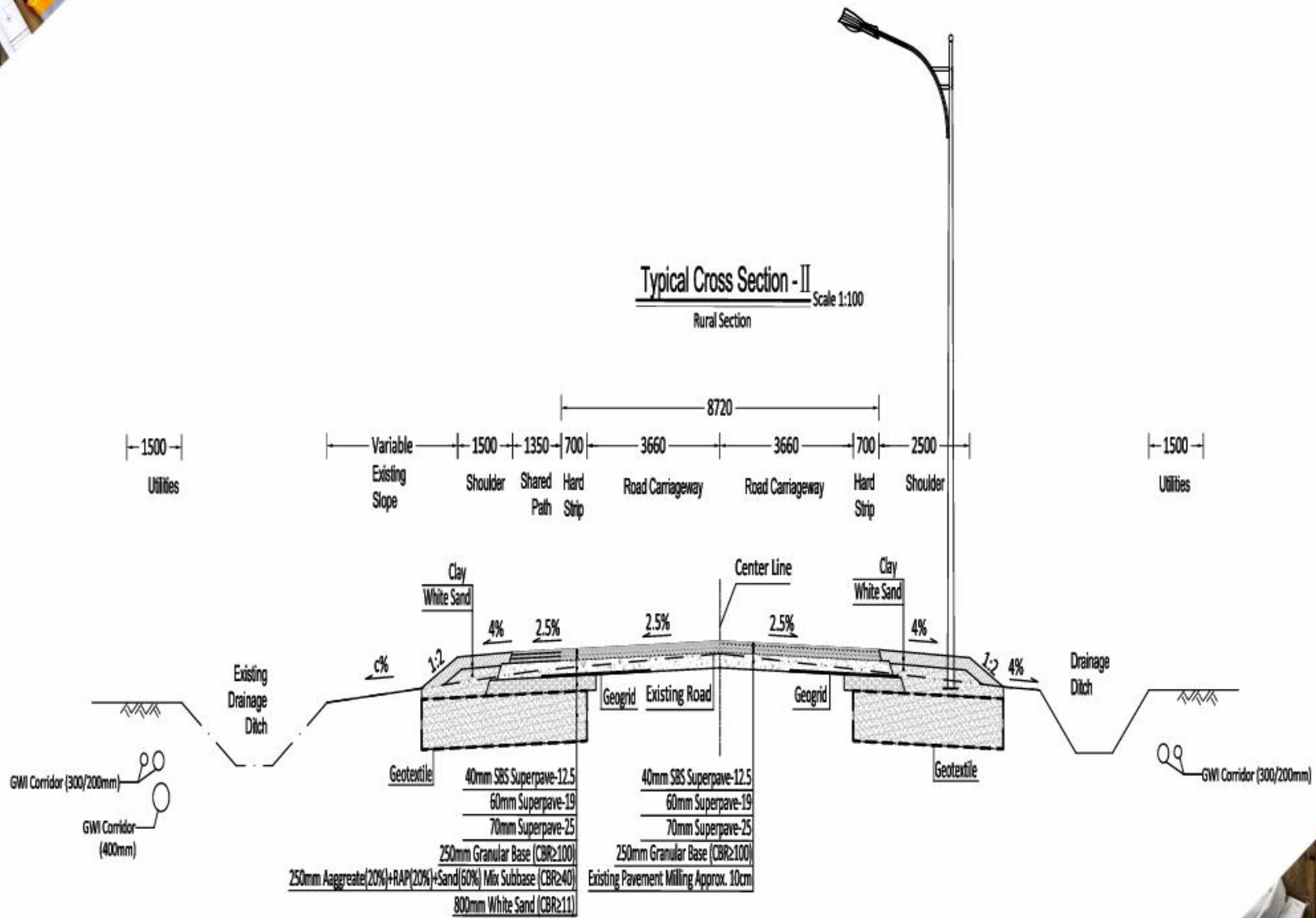
New Footbridge To Be Constructed

Bridge No. 10



Project End Point: Timehri

















ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

Mr. Kevin Lashley – CRBC Social Development Officer
Mr. Isidro Espinosa – CRBC Environmental Expert





PRESENTATION FORMAT

- Background and Purpose of the ESMP.
- Activities that may cause Impacts.
- Potential Environmental and Social Impacts and Management Measures.
- Stakeholder Engagement Activities
- Traffic Management and Site Safety Plan.
- Worker's Code of Conduct (CoC).
- Grievance Redress Mechanism (GRM).





BACKGROUND TO THE ESMP

- In 2022, an Environmental and Social Impact Assessment (ESIA) was conducted.
- The ESIA considered environmental, socio-economic, and cultural impacts.
- As a requirement of the Inter-American Development Bank (IDB), an Environmental and Social Management Plan (ESMP) was necessary.
- The ESIA was used to guide the preparation of the ESMP.
- Stakeholder consultation meeting is an important requirement of the Stakeholder Engagement Plan (SEP) and allows for meaningful and inclusive stakeholder consultations and engagement.
- Engagements with stakeholders will be ongoing throughout the lifecycle of the project.





PURPOSE OF THE ESMP

- Identify Environmental and Social Impacts and Risks of the Project.
- Identify Measures to Manage the Impacts and Risks.
- Plan for Monitoring (Check the Effectiveness of the Management Measures in Place).
- Identify the Consultative Activities to be Undertaken with Stakeholders. It Sets Out the Plan for Engaging Stakeholders.





ACTIVITIES THAT MAY CAUSE IMPACTS

- Relocation of Utilities.
- Operation of Equipment.
- Paving Asphalt on the Road.
- Demolition and Construction of Bridges and Culverts.
- Sand Filling of the Road.
- Pile Driving.
- Removal Of Demolition and other Waste.
- Excavation of Drains.
- Transport of Materials from Campsites to Section “B”.

All of the Above Activities are Expected to Last for 12 Months.





POTENTIAL ENVIRONMENTAL IMPACTS

- Decreased air quality, due to elevated levels of dust and gaseous pollutants.
- Elevated noise levels.
- Increased vibrations.
- Contamination and sedimentation of surface water.
- Disruption of drainage.
- Accumulation of construction and other types of waste in drains and on the roadway.
- Erosion and pollution of soil.





MANAGEMENT MEASURES

- Application of wet suppression to control dust emission.
- When possible, scheduling of noise-generating activities for daytime.
- Use of dust masks by workers.
- ➤ Switching off construction machinery and equipment when not in use.
- Dust and air quality awareness talks as part of the environmental induction process.
- Covering load properly during transport.
- Preventing the deposition of sand and construction waste into waterways.
- Prompt removal of excavated material from the roadway.





MANAGEMENT MEASURES

- Regular maintenance of vehicles.
- Implementation of measures to prevent and manage spills.
- Storage of excavation material at the campsite and away from drainage channels and water bodies.
- Appropriate training for staff on waste management practices and safe handling and storage of hazardous materials.





POTENTIAL POSITIVE SOCIAL IMPACTS

- Construction activities will provide job opportunities for locals.
- **Income generation:** CRBC will purchase construction materials such as sand, gravel, and loam from the local companies.
- Vending and support for local shops within the communities.
- Decreasing road user operating cost.
- Improved road safety for road users.
- Employees acquire new skills and benefit from training while working with CRBC.





POTENTIAL NEGATIVE SOCIAL IMPACTS

- Machinery mishaps, heat exhaustion and exposure to air emissions.
- Traffic congestion.
- Decrease access to properties.
- Damage to properties.
- Obstructed access to transportation.
- Conflicts with construction workers.
- Disruption of livelihoods.
- Discrimination and racism.
- Sexual abuse and gender-based violence (SGBV).





GENDER-BASED VIOLENCE

- Gender-based violence is violence directed against a person because of their gender.
- Both men and women experience gender-based violence.
- Gender-based violence can be sexual, physical, verbal, or psychological (emotional).





MANAGEMENT MEASURES

- Installation of visible signage throughout Section “B”.
- Informing the public early about utility relocation and road construction works.
- Management of traffic flow by indicating to drivers when to proceed.
- Provision of temporary access to properties.
- Restoration of access after construction.
- Preconstruction survey of properties.
- Training of workers to handle emergencies.
- Management of small vendors.
- Code of Conduct for workers.
- Implementation of the grievance redress mechanism (GRM).





STAKEHOLDER ENGAGEMENT ACTIVITIES



Establishment of a hotline



Advertisement of public notices



Public outreach and meetings



Visits to primary schools



Engagements with the NDCs to inform and discuss project activities and GRM



Pre-construction / condition surveys



Implementation of the GRM





TRAFFIC MANAGEMENT PLAN

Mr. Wu – CRBC Project Manager





TRAFFIC MANAGEMENT PLAN

Some traffic management measures that will be in place include:

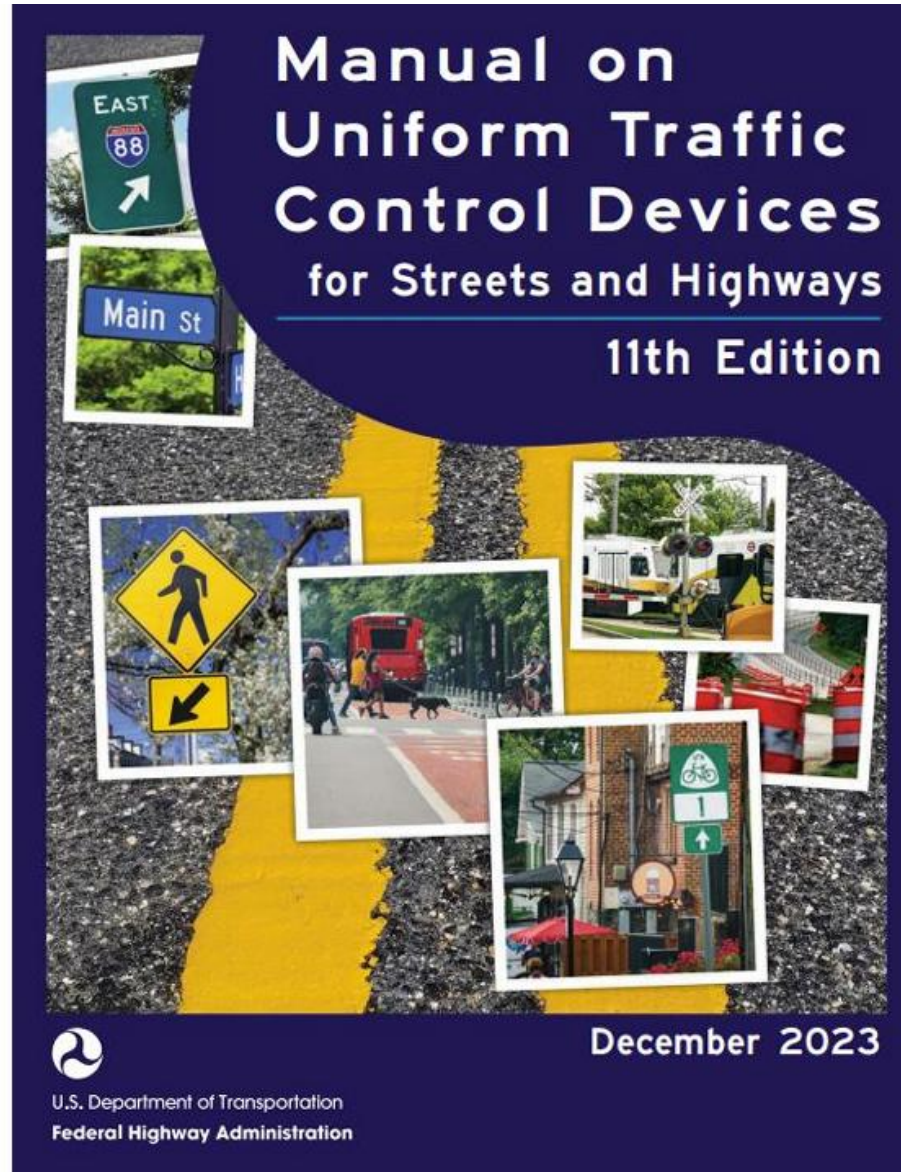
- The use of signage, cones, barriers, and banks men to direct motorists and pedestrians.
- Establishment of safe entry and exit points for construction vehicles during construction works.
- Controlling the flow of traffic, speed limits and diversion when necessary.
- Maintaining two lanes during construction, wherever possible.





Standards:

FHWA MUTCD-11
Manual on Uniform
Traffic Control Devices
for Streets and Highways
2023 11th Edition





Standards:

FHWA 2012 Supplement
of Standard Highway
Signs 2004 Edition

2004 EDITION

English Version

Standard Highway Signs

Including Pavement Markings
and Standard Alphabets

2012 SUPPLEMENT

For use with the 2009
Manual on Uniform
Traffic Control Devices
for Streets and Highways

U.S. Department of Transportation
Federal Highway
Administration





Typical Temporary Traffic Signs:

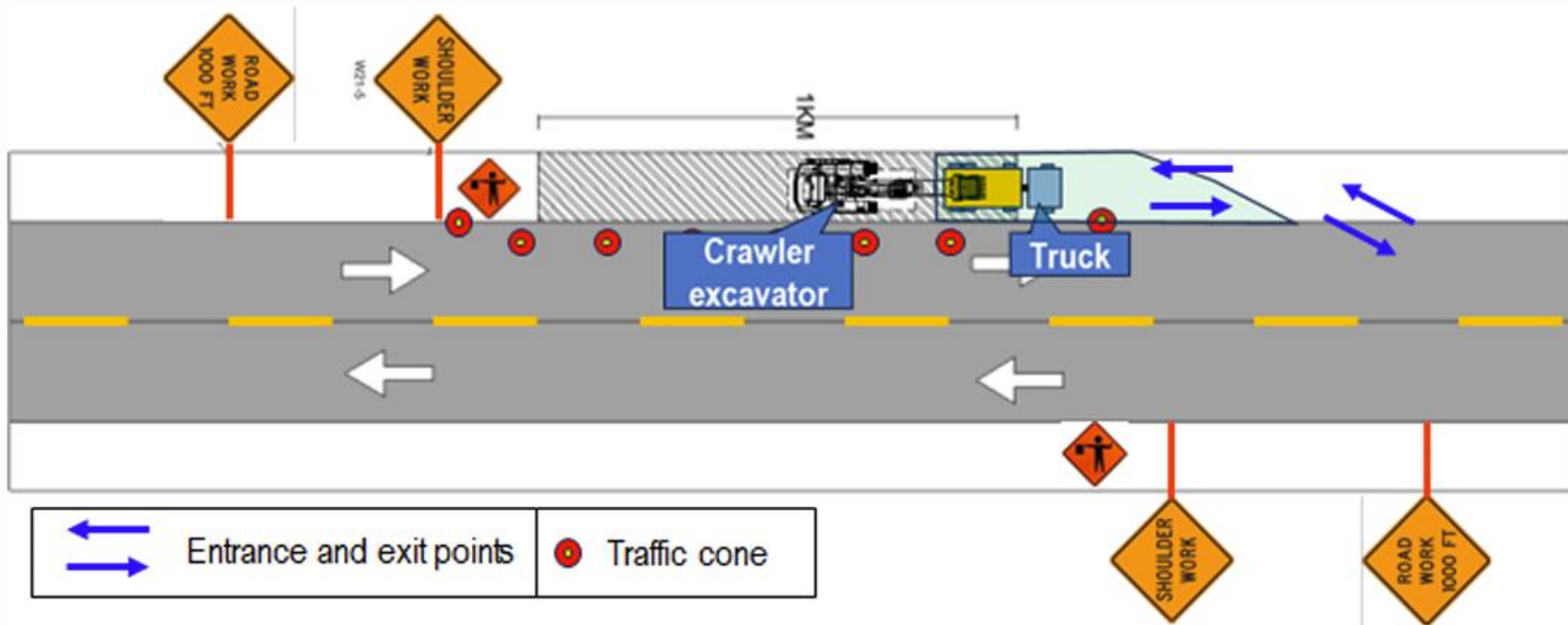
- Lane Closed Advance Warning
- Flag Man Ahead
- Workers on Site

We intend to keep a continuous **two-way traffic** during the construction period, wherever possible.



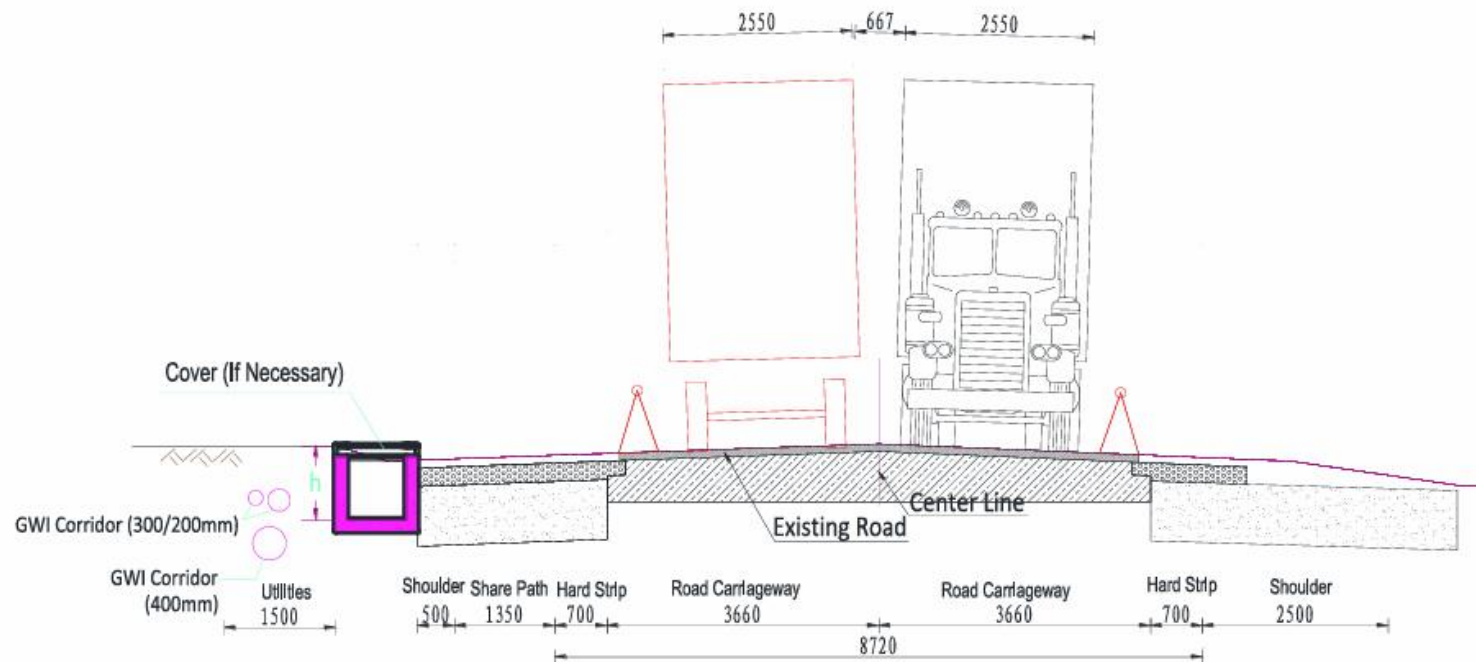


ACTIVITIES: BOTH SIDES, 1 KM, DRAIN, CONCRETE DRAIN, EARTH DRAIN



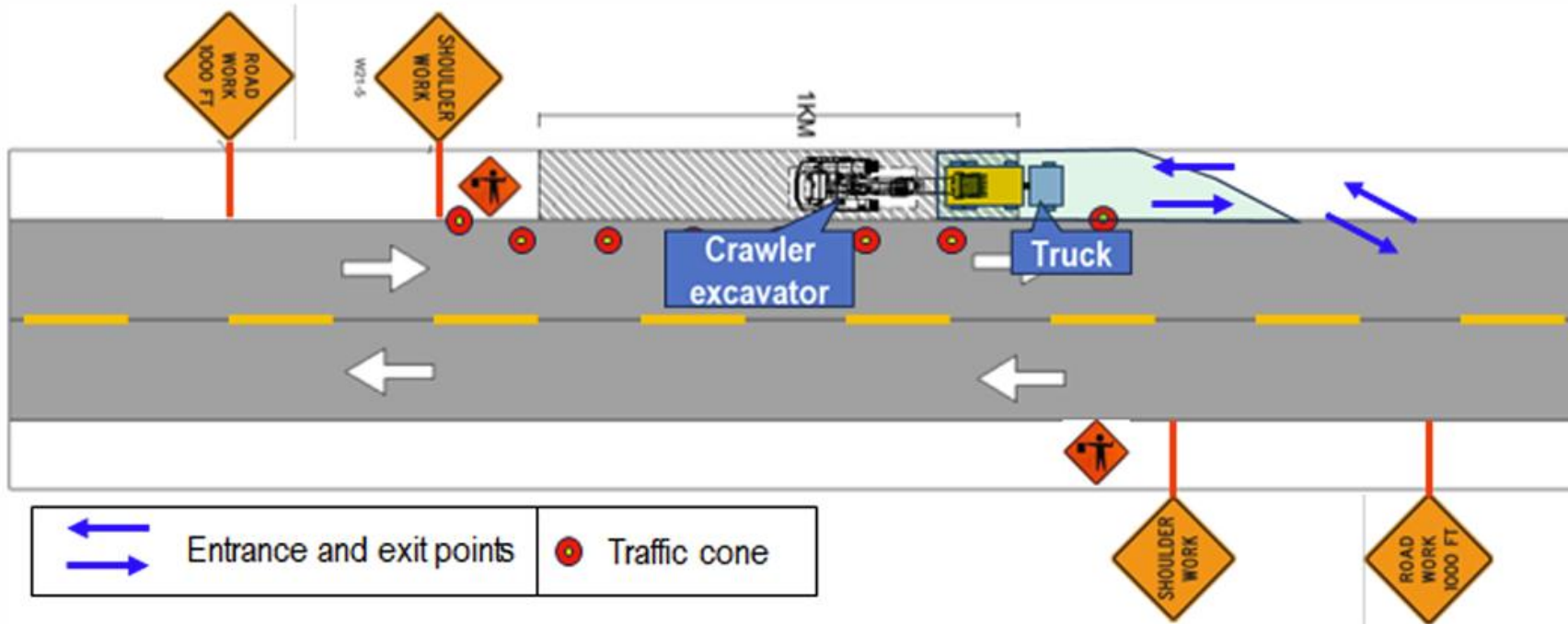


ACTIVITIES: BOTH SIDES, 1 KM, DRAIN, CONCRETE DRAIN, EARTH DRAIN



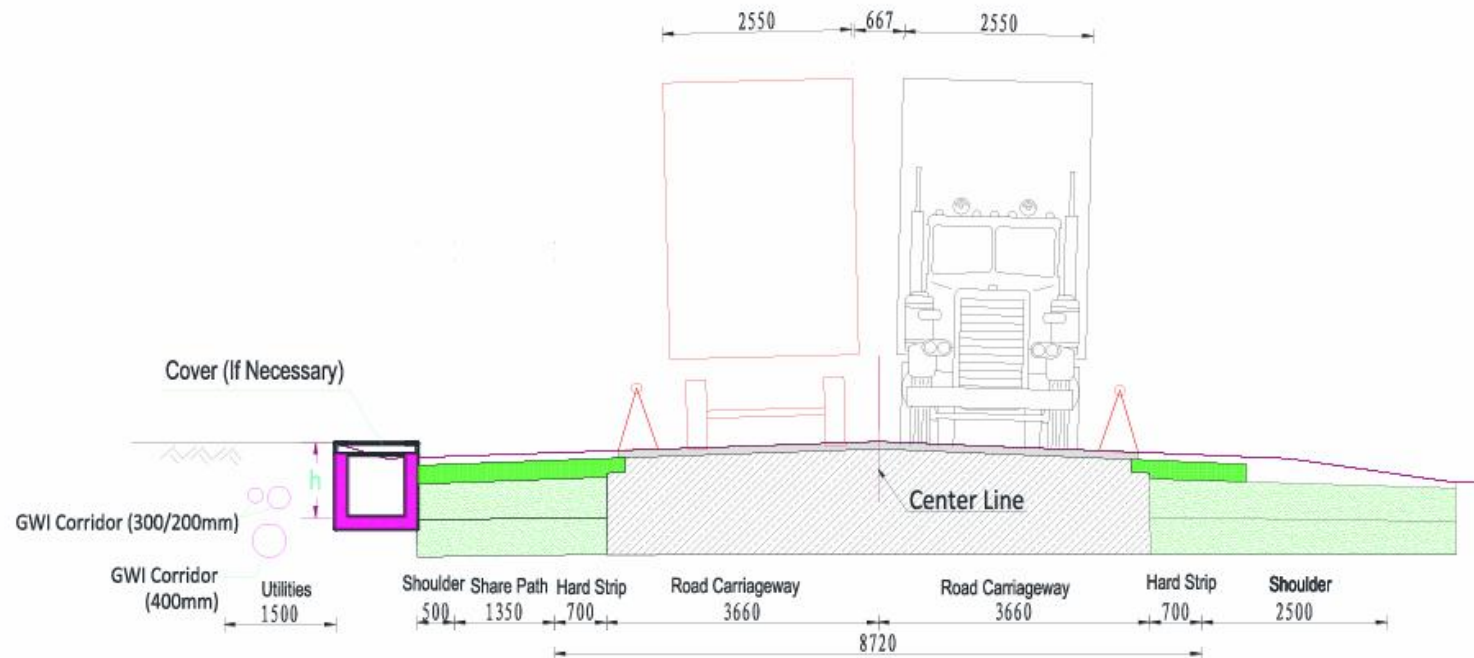


ACTIVITIES: BOTH SIDES, **1 KM**, Widening, Hard Shoulder and Shared Path: Subgrade, Sub-base



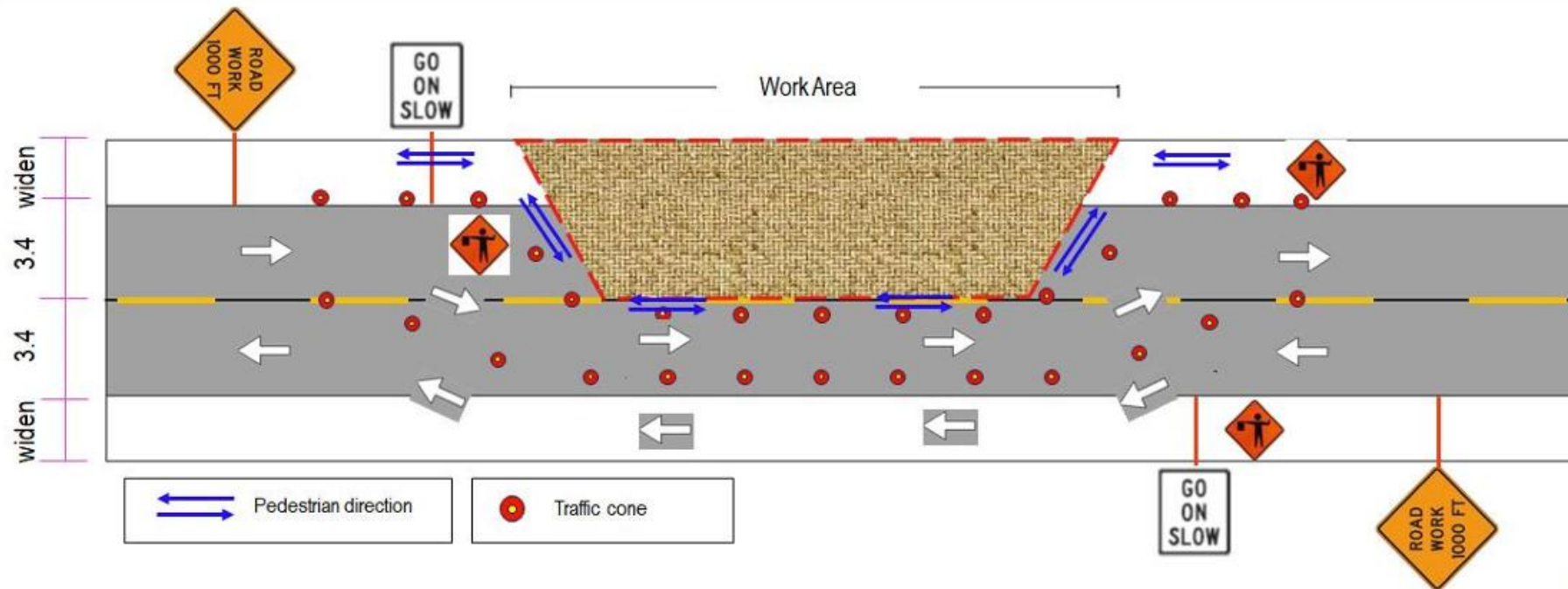


ACTIVITIES: BOTH SIDES, **1 KM**, Widening, Hard Should and Shared Path: Subgrade, Sub-base



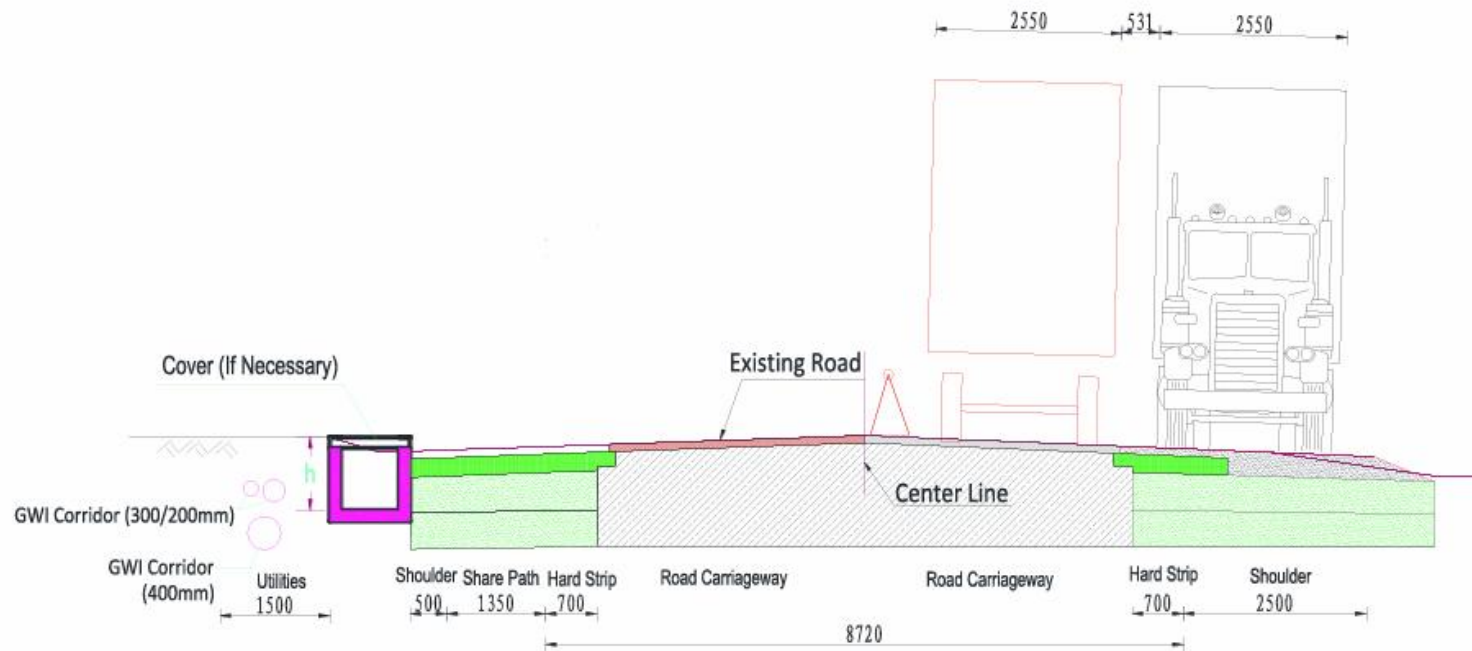


ACTIVITIES: LHS, 3 KM, LANE MILLING, Lane and Shared Path: Base, Surface



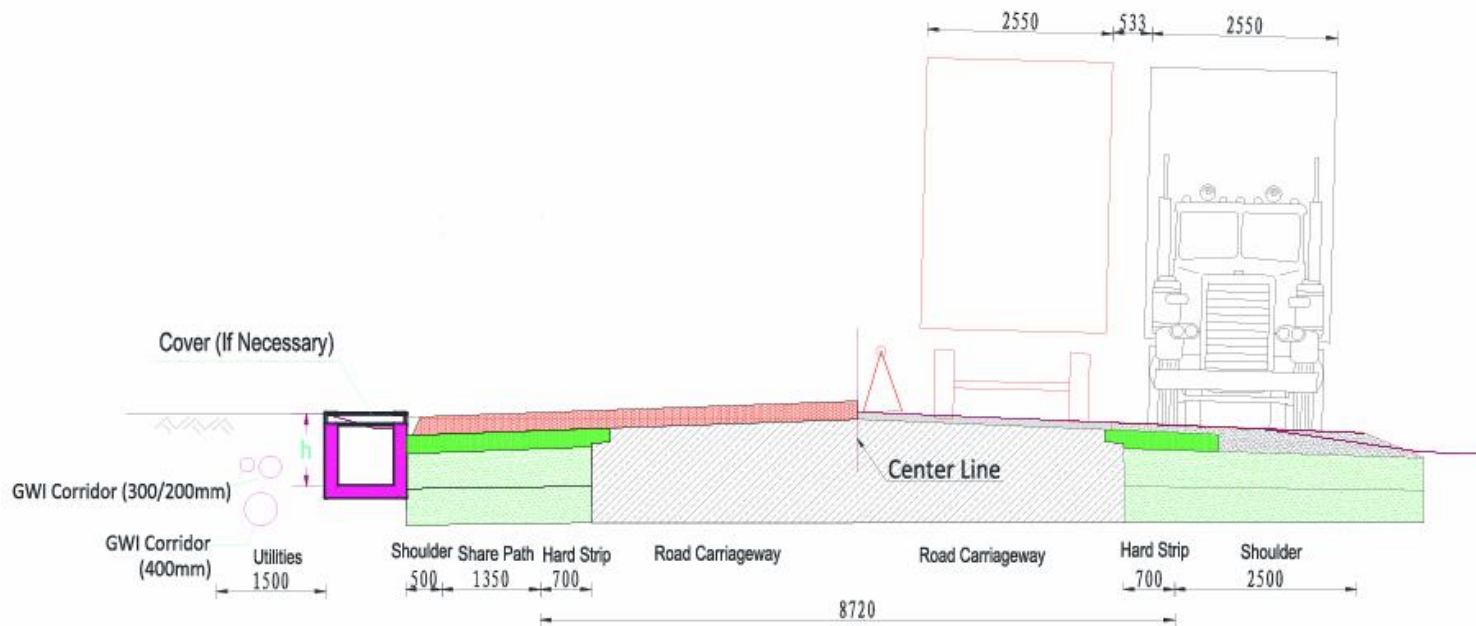


ACTIVITIES: LHS, 3 KM, LANE MILLING



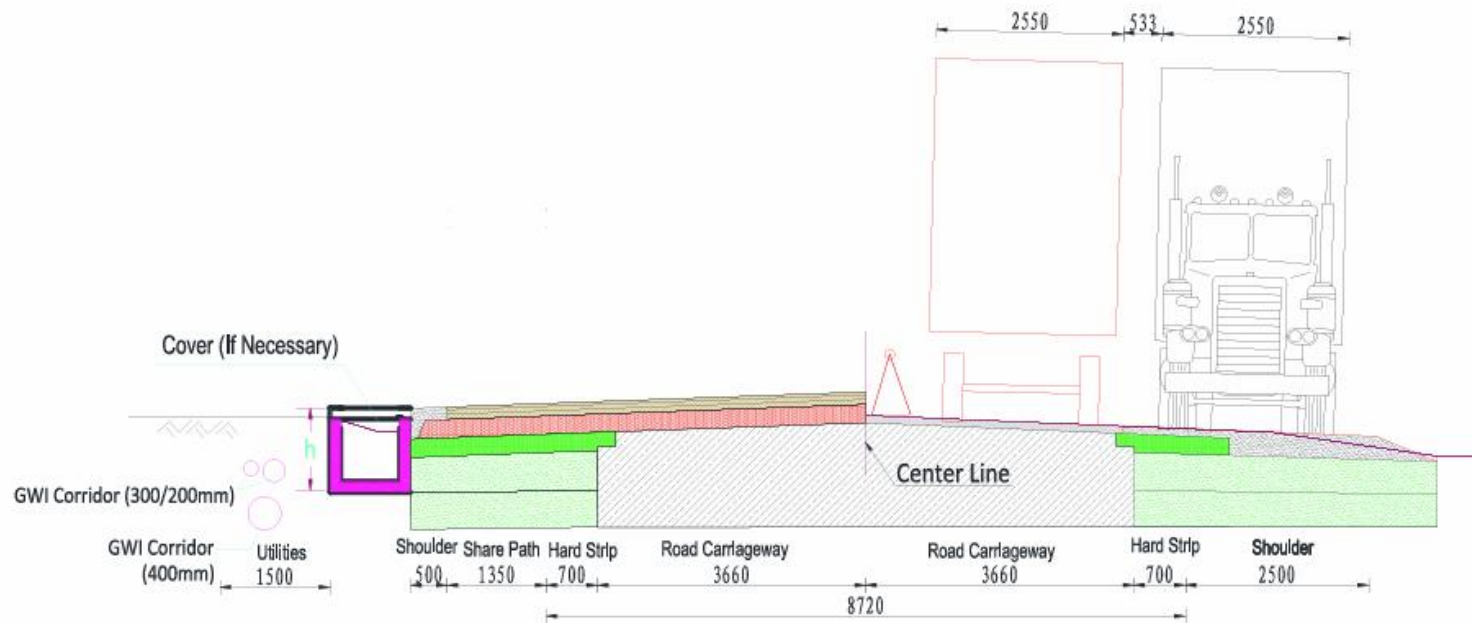


ACTIVITIES: LHS, 3 KM, Lane and Shared Path: Base



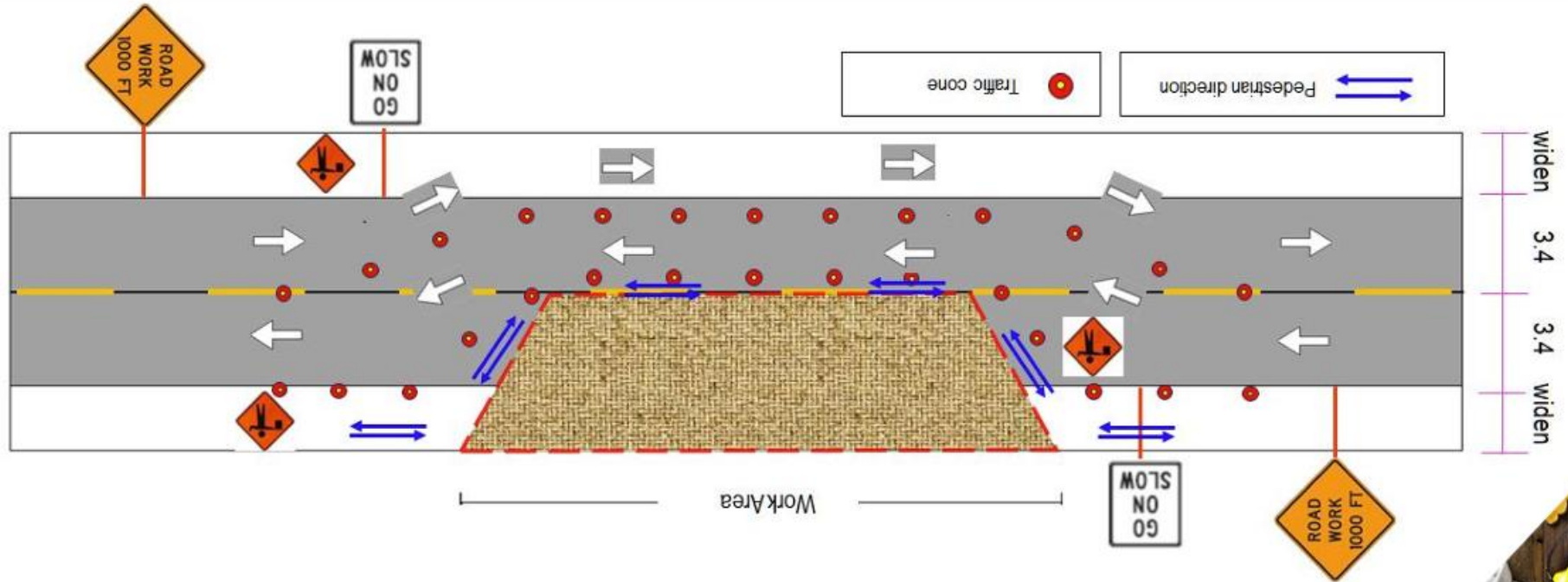


ACTIVITIES: LHS, 3 KM, Lane and Shared Path: Surface



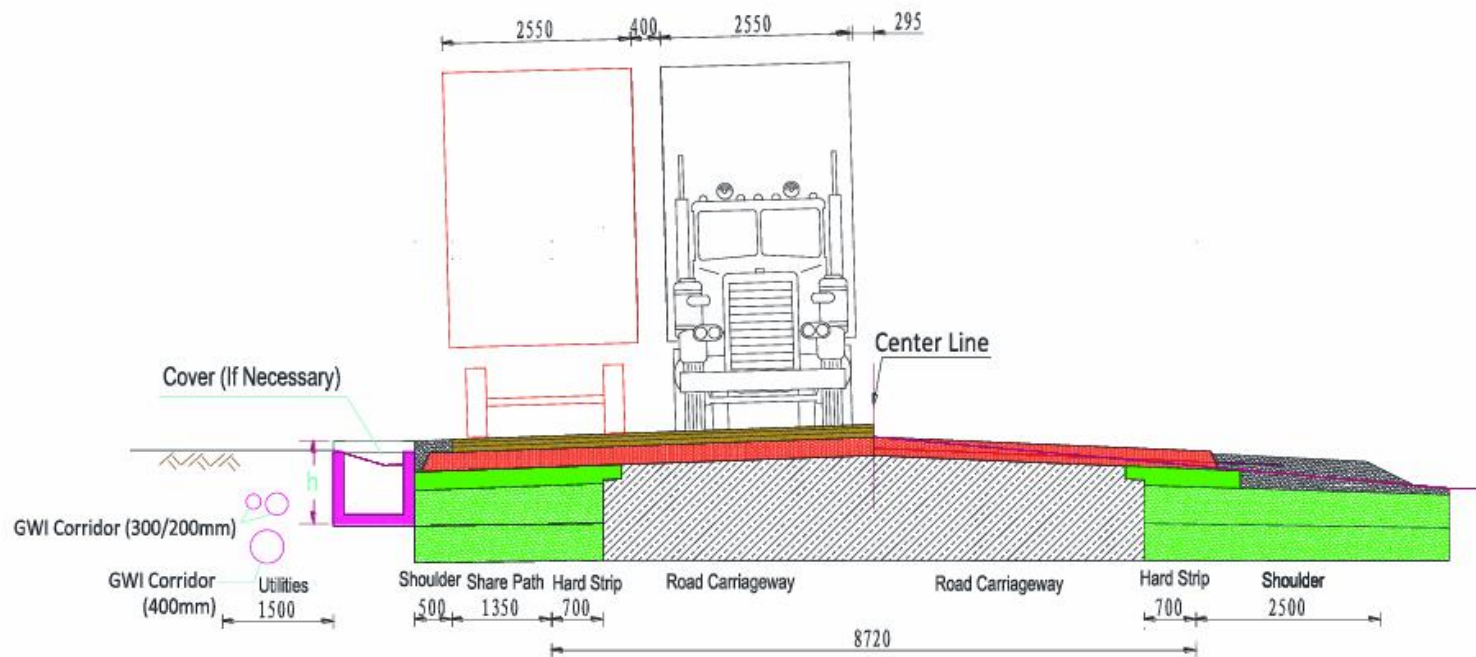


ACTIVITIES: RHS, **3 KM**, Lane Milling, Lane and Shared Path: Base, Surface





ACTIVITIES: RHS, 3 KM, LANE MILLING, LANE BASE, LANE SURFACE





ACTIVITIES: BOTH SIDES, **3 KM**, FACILITIES





PROPOSED SITE SAFETY MEASURES

- Only trained operators will be allowed to use construction machinery and equipment.
- There is a communication protocol for those operating or working around machinery (e.g., hand signals or radios).
- Construction workers will be provided with the appropriate personal protective equipment (PPE).
- Monitoring of the weather and adjusting work schedules.





PROPOSED SITE SAFETY MEASURES

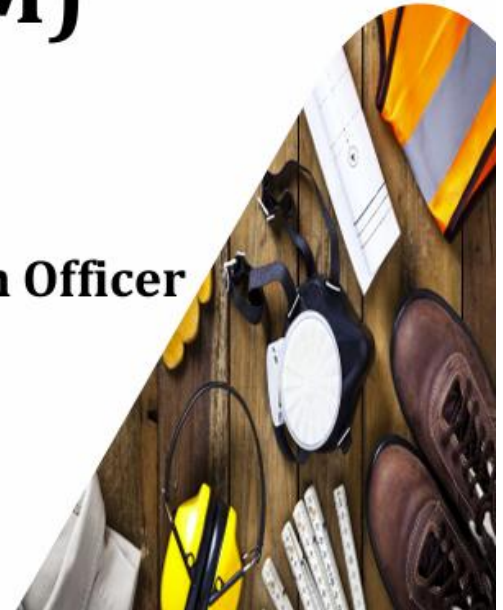
- Trained first aid responders on-site.
- The emergency contacts and nearest hospital locations are listed.
- Periodic safety audits to ensure compliance with the safety plan and regulations.
- Daily or weekly short safety meetings to discuss potential hazards, recent incidents, or changes in work conditions.
- Mandatory safety training for all workers before starting work on-site.





CODE OF CONDUCT AND GRIEVANCE REDRESS MECHANISM (GRM)

Ms. Marcia Washington – CRBC Community Liaison Officer





CODE OF CONDUCT

- The Code of Conduct is a compilation of rules, standards and regulations that guide the behaviours of all CRBC employees and third-party contractors.
- CRBC and their Employees should conduct themselves in a manner that is lawful, courteous, businesslike, and respectful of everyone.
- Workers and third-party contractors must sign the CoC.





GRIEVANCE REDRESS MECHANISM

- A grievance is a complaint or concern persons may have about the activities of the project.
- The GRM is a standardized format or plan to receive, record and resolve complaints or disputes of the affected person as a direct/indirect result of the environmental or social impact of the project.





POTENTIAL GRIEVANCES

Footpath Closure/ Diversion:

- Inconvenience to pedestrians and residents along the route.
- Obstruction of access to properties along the ROW.
- Increased exposure of pedestrians to traffic.

Property Access Closures:

- Inconvenience to residents and businesses along the route.
- Reduction in available parking facilities for motorists.





POTENTIAL GRIEVANCES

Road Closure / Diversion:

- Inconvenience to road users.
- Inconvenience to residents and businesses during road closure segment.
- Congestion at diversions.
- Access to public transportation.





POTENTIAL GRIEVANCES

Temporary Speed Limit:

- Inconvenience to road users.
- Slower operating speeds.
- Potential non-compliance with speed limit.
- Change in condition of road surface.





HOW TO REPORT GRIEVANCES?

- Project hotline / WhatsApp.
- CRBC's office at the campsites located at Coverden and Kururu.
- Social Development Officer and Community Liaison Office will be available 6 days per week to receive and document complaints, and provide feedback in a timely manner.





HOW TO LODGE COMPLAINTS?

Contact Us

Project Hotline / WhatsApp: +592-656-7429 and +592-728-2031

Contractor: China Road and Bridge Corporation

➤ Email: Crbccomplainbox@gmail.com

Engineer: Sheladia Associates Incorporated

Employer: Ministry of Public Works



