



**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF PRESIDENT'S OFFICE, REGIONAL
ADMINISTRATION AND LOCAL GOVERNMENT**



SUMBAWANGA MUNICIPAL

CONTRACT NO. LGA/098/HQ/2022/2023/W/43

**UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN
SUMBAWANGA MUNICIPALITY (TACTIC) PROJECT**



ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

	<p>Employer Sumbawanga Municipal Council Sumbawanga Municipal Street P. O. Box 187, Sumbanga, Rukwa</p>
 <p>Howard Consulting Limited Consulting Engineers and Project Managers</p>	<p>Submitted to Supervision Consultant M/s Howard Consulting Limited, Site Office, in Sumbawanga Municipality, Rukwa Region</p>
	<p>Prepared by Contractor <u>中国地质工程集团公司</u> China Geo-Engineering Corporation Site Office in Sumbawanga Municipality, Rukwa Region, Tanzania</p>

FEBRUARY 2024

TABLE OF CONTENTS

Contents

TABLE OF CONTENTS.....	i
LIST OF TABLES	iii
LIST OF ABBREVIATIONS AND ACRONYMS	iv
1 INTRODUCTION	1
1.1 Project Background.....	1
1.2 Summary of Basic Project Data/Information.....	1
1.3 Objective of ESMP.....	1
1.4 ESMP Context	2
1.5 ESMP Updating	2
2 PROJECT DESCRIPTION.....	4
2.1 Project Location	4
2.2 Materials and Sources	6
2.2.1 Sources of Materials	6
2.2.2 Water Abstraction Sources, Borrow and Quarry Materials	6
2.3 Type and Number of Employees.....	7
2.4 Working Hours	7
2.5 Key Project Stakeholders.....	7
3 POLICY, LEGISLATION FRAMEWORK AND STANDARDS	9
3.1 Environmental Policy	9
3.2 Environmental and Social Management Organization.....	9
3.3 Staff Deployment for ESMP Implementation	10
3.4 Approval and Licensing Requirements.....	13
4 ENVIRONMENT AND SOCIAL MANAGEMENT FRAMEWORK	14
5 ENVIRONMENTAL RISK AND MITIGATION MEASURES.....	31
6 MONITORING PROGRAM	41
6.1 ESMP Implementation Schedules.....	41
7 TRAINING PROGRAM	49

7.1	HSE Induction Training	49
7.2	On Job Trainings	49
7.3	Mandatory OHS Trainings.....	50
7.4	Toolbox Talks	50
8	COMMUNITY	51
9	ENVIRONMENTAL AUDITING	54
10	ENVIRONMENTAL REPORTING	55
10.1	Reporting Format.....	55
10.2	Corrective Actions.....	55
10.3	ESMP Review.....	55
11	REFERENCES	56
12	APPENDICES	57
	Annex 1: CGC Corporation’s HSE Policy	57
	Annex 2: Borrow Pits and Quarry Sites Approval Form	58
	Annex 3: Recommendable Tree Species Ideal for Planting along Road in Tanzania.....	60
	Annex 4: HSE Induction Training Checklist	62
	Annex 5: HSE Training Register.....	63
	Annex 6: Format for Documenting Minutes of Consultation Meetings.....	64
	Annex 7: Monthly HSE Inspection Checklist for Contractor’s Main Camp.....	65
	Annex 8: Monthly HSE Inspection Checklist for Quarry Sites	67
	Annex 9: Monthly HSE Inspection Checklist for Road Sites	69
	Annex 10: Monthly HSE Inspection Checklist for Diversion Roads.....	71
	Annex 11: ESMP Reporting Format	73
	Annex 12: The adopted Employer’s Code of Conduct	74

LIST OF TABLES

Table 1: Summary of Basic Project Information	1
Table 2: List of Project Roads in Sumbawanga Municipal	4
Table 3: District, Wards, Streets Traversed by Central Business District (CBD) Roads in Sumbawanga Municipality Project.....	5
Table 4: Identified or Proposed Sources of Water, Borrow and Quarry Materials	6
Table 5: Type and Number of Local Employees	7
Table 6: Key Project Stakeholders.....	7
Table 7: Roles and Responsibilities for ESMP Implementation	10
Table 8: Statutory Permits, Certificates and Licences for the Project	13
Table 9: Consolidated ESMP for the upgrading of central business Road Project	32
Table 10: Monitoring Plan for ESMP Implementation.....	42
Table 11: Schedule for Project Stakeholders Consultation	53

LIST OF ABBREVIATIONS AND ACRONYMS

AC	Asphalt Concrete
CBOs	Community Based Organizations
CCEP	Community Communication and Engagement Plan
CEC	Code of Ethical Conduct
CGC	China Geo-Engineering Corporation
CRL	Central Railway Line
CLO	Community Liaison Officer
CMP	Crime Management Plan
COVID-19	Coronavirus Disease 2019
CSC	Construction Supervision Consultant
CSR	Corporate Social Responsibility
DEMO	District Environmental Management Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESHS	Environmental, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESM	Environmental and Social Manager
ESMP	Environmental and Social Management Plan
GBV	Gender Based Violence
GMP	Grievance Management Plan
GPS	Global Positioning System
HIV/AIDs	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HSE	Health, Safety and Environment
HSEO	Health, Safety and Environmental Officer
HSMP	Health and Safety Management Plan
Km	Kilometer
LGAs	Local Government Authorities
LRBWB	Lake Rukwa Basin Water Board
LHS	Left Hand Side
MCR	Monthly Compliance Report
MPR	Monthly Progress Report
NA	Not Applicable
NEMC	National Environment Management Council
NGOs	Non-Governmental Organizations
NSSF	National Social Security Fund
OFC	Underground Optic Fiber Cable
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Authority
PAs	Protected Areas
PAPs	Project Affected Persons
PM	Project Manager
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
RCC	Road Construction Consultant

RE	Resident Engineer
RHS	Right Hand Side
ROW	Right of Way
SEA	Sexual Exploitation and Abuse
STDs	Sexual Transmission Diseases
TAMCO	Tanzania Mines, Energy, Construction and Allied Workers Union
TANESCO	Tanzania Electricity Supply Company Limited
TARURA	Tanzania Rural and Urban Roads Agency
TB	Tuberculosis
TMO	Traffic Management Officer
TMP	Traffic Management Plan
TRC	Tanzania Railways Corporation
TTCL	Tanzania Telecommunications Company Limited
URT	United Republic of Tanzania
VCT	Voluntary Counseling and Testing
WCF	Workers Compensation Fund
WRP	Workers Redundancy Plan

1 INTRODUCTION

1.1 Project Background

The Government of the United Republic of Tanzania has received financing from the World Bank towards the cost of the Tanzania Cities Transforming Infrastructure and Competitiveness (TACTIC) Project coordinated by the President’s Office, Regional Administration and Local Government (PO-RALG) through a Project Coordination Team (PCT) and intends to apply part of the proceeds toward payments under the contracts for **Package 1 - Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality**. The road improvement is part of the Government strategy to develop its road network to support the socio-economic development of the country including facilitation of mobility, movements of goods and persons along the project corridor including the central corridor networks.

Sumbawanga Municipal (hereinafter referred to as the Employer), has awarded M/s China Geo-Engineering Corporation (hereinafter referred to as the Contractor) to undertake the work named as ‘Contract No. LGA/098/HQ/2022/2023/W/43, **Package 1 - Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality (TACTIC) Project to Bitumen Standard;** (hereinafter referred to as the Project).

1.2 Summary of Basic Project Data/Information

The table below presents a summary of basic project information.

Table 1: Summary of Basic Project Information

	Project Name	Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality (TACTIC) Project
1.	Contract Number	Contract No. LGA/098/HQ/2022/2023/W/43
2.	Project Length	13.03 KM
3.	Employer	Sumbawanga Municipal Council
4.	Engineer	Howard Consulting Limited
5.	Contractor	China Geo-Engineering Corporation
6.	Financier	World Bank
7.	Contract Signature Date	23 rd September, 2023
8.	Commencement Date	20 th November, 2023
9.	Contract Price	TShs. 20,361,688 (VAT Exclusive)
10.	Contract Duration	15 months
11.	Contract Completion Date	20 th February, 2025
12.	Defects Notification Period	365 days

Source: Project’s Contract, November 2023

1.3 Objective of ESMP

This document is the Contractor’s Environmental and Social Management Plan (ESMP) for the Project. The main objective of this ESMP is to ensure that the mitigation and enhancement measures

proposed in the Project's Environmental and Social Impact Assessment (ESIA) report approved by the National Environment Management Council (NEMC) are appropriately and effectively implemented by the Contractor. But it is also the main guiding document which describes; how the contractor is committed and going to execute civil works considering environment, social, health and safety aspects including implementing proposed mitigation measures, and serving as a guide to all environmental and social monitoring activities of the project. Further, ESMP is a dynamic and site specific- not all measures described in the original ESMP shall be implemented

This ESMP is being implemented alongside the Contractor's Health and Safety Management Plan (HSMP). Like the ESMP, the main objective of the HSMP is to ensure that the mitigation measures for addressing health and safety issues as proposed in the approved Project's ESIA report are appropriately and effectively implemented by the Contractor.

1.4 ESMP Context

This ESMP is prepared based on the following Project documents:

- i. Sumbawanga Municipal Council Guiding Format for ESMP Preparation in Road Construction Projects;
- ii. Standard Specifications for Road works (2000) and Environmental Code of Practice for Roads Works (2009); and
- iii. Project's Environmental and Social Impact Assessment (ESIA) report.

1.5 ESMP Updating

The ESMP is a tool that guides implementation of environmental and social considerations for this development project. As mentioned in section 1.4 above that the ESMP has been prepared based on the aforementioned documents. The ESMP therefore will be updated to cover the areas beyond project site or the areas which were not included during undertaking of ESIA studies. These areas include acquisition of new borrow pits, quarry site, land take, locations for dumping/temporary storage of spoil materials, campsite, current workshops etc. when preparing this ESMP or standalone C-ESMP shall be prepared this may include source of construction material, borrow pits, dumping of soil materials, campsite, quarry site, workshops etc. This shall be done following the instruction provided by the supervision consultant to Contractor.

As of January 2024, the following new areas which were not included in the EIA report have been identified and approved;

- i. Borrow Pit sites: two borrow pit sites have been identified and one borrow pit valuation processes are complete, all PAPs were identified and the Contractor is waiting for final report to proceed with the payment. The borrow pit located at Sokolo street in Kizwite ward.
- ii. Water Source(s): The Contractor sourcing water from Lwiche river and Ndua river for road

works, and have installed SUWASA water system at his campsite for domestic uses (see section 2.6.3); and

- iii. Quarry and crusher sites: One quarry and crusher sites are located in Kizungu Street (Km 30 from Sumbawanga town. The material exploration from the quarry by the Contractor has started and the assembling of the crusher plant is already installed.

2 PROJECT DESCRIPTION

2.1 Project Location

The project road is located in Sumbawanga Municipality, Rukwa Region. The road passes Maendeleo Road (0.26 km), New Municipal Hospital Access Road (1.95 km), Kalangasa Road (0.53 km), Kasema Road (0.49 km), Airport-Senga-Wipanga Road (3.3 km), Mandela Road (0.4 km), Maweni II Road (0.4 km), Muva Road (0.2 km), Sido-Senga-Mafulala Road (2.7 km), Sokolo Bible-Mbeya Road (2.6 km), Kimati-Ufipa Road (0.2 km).

Table 2: List of Project Roads in Sumbawanga Municipal

Project Road	Total Length (Km)	Start-Coordinates	End-Coordinates
Sido – Senga – Mafulala Road	2.7	36M 348193E 9121826N	36M 349700E 9121432N
SOKOLO – BIBLE – MBEYA ROAD	2.6	36M 348408E 9117592N	36M 350987E 9117579N
Mandela Road	0.398	36M 346705E 9120052N	36M 346388E 9119840N
Muva Road	0.2	36M 347134E 9119645N	36M 347007E 9119807N
Maweni II Road	0.4	36M 349224E 9117811N	36M 349192E 9118157N
New Municipal Hospital Access Road	1.95	36M 342508E 9119252N	36M 342252E 91199371N
Maendeleo Road	0.256	36M 347206E 9119650	36M 347057E 9119845N
Kasema Road	0.489	36M 347352E 9119660N	36M 347063E 9120037N
Karangasa Road	0.534	36M 34741E 9119667N	36M 347107E 9120077N
Kimati – Ufipa Road	0.2	36M 347303E 9119731N	36M 347399E 9119806N
Reginal Block – Msakila Road	1.25	36M 348325E 9119616N	36M 347500E 9120412N

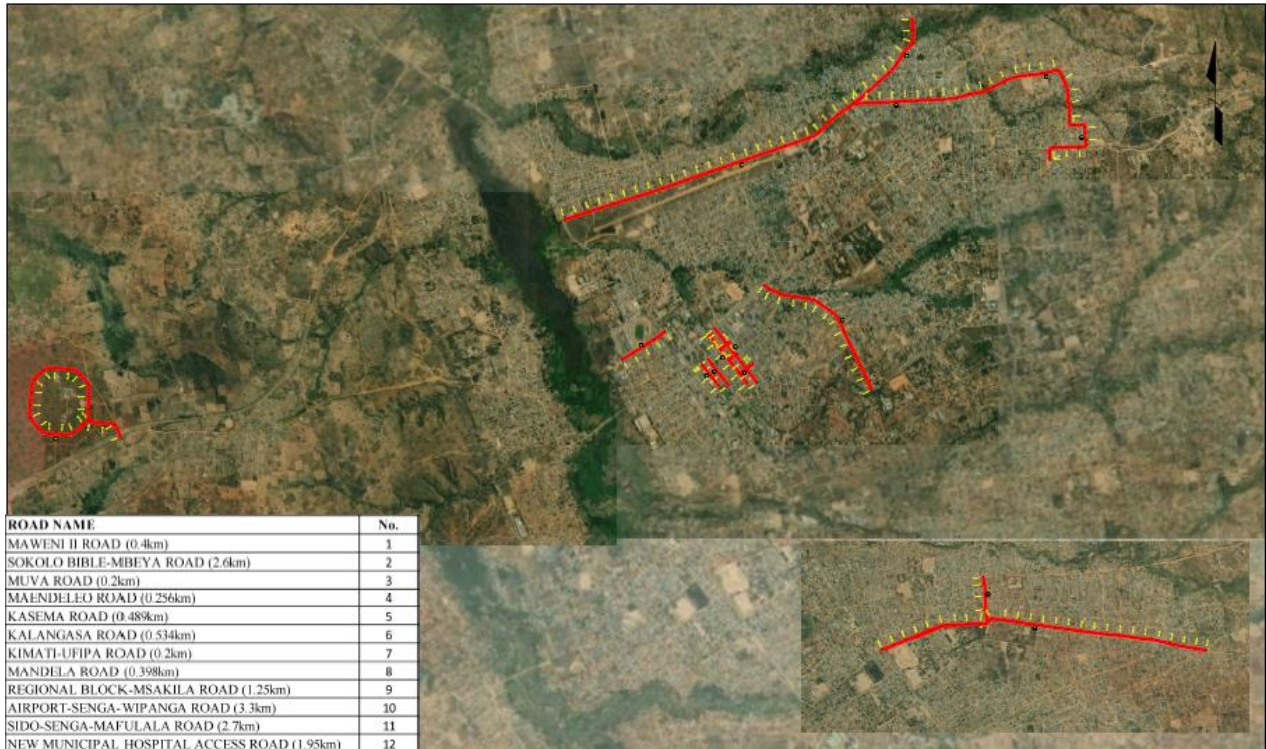


Figure 1: Location Map of the Project Road

Administratively, the road is located within five (7) wards in Sumbawanga Municipality as presented in Table 3 below.

Table 3: District, Wards, Streets Traversed by Central Business District (CBD) Roads in Sumbawanga Municipality Project

Council	Ward	Street	Street location		Start (km) chainage	End (km) chainage	Approximate length (km)
			RHS	LHS			
SIDO – SENGA – MAFULALA ROAD (2.7 KM)							
Sumbawanga Municipal	Mafulalala	Jora		√	Km 00+000	Km 1+045	Km 1.045
		Maduka	√		Km 0+000	Km 1+045	Km 1.045
		Momoka		√	Km 1+045	Km 1+600	Km 0.555
		Mafulalala	√		Km 1+045	Km 2+700	Km 1.655
		secondary	√		1+600	Km 2+700	Km 1.1
Reginal block – Msakila Road (1.25)							
Sumbawanga Municipal	Katandala	Mbizi B		√	Km 0+ 000	Km 0+780	0.780 Km
		Katandala C	√		Km 0+ 000	Km 0+490	0.490 Km
		Kasakalawe	√		Km 0+ 490	Km 0+ 780	0.29 Km
		Anglican B		√	Km 0+ 780	Km 1+ 250	0.47 Km
		Katandala A	√		Km 0+ 780	Km 1+ 250	0.47 Km
SOKOLO – BIBLE – MBEYA ROAD (2.6 Km)							
Sumbawanga municipal	Kizwite	Majengo		√	Km 0+000	Km 0+850	0.850 Km
		Bible		√	Km 0+850	Km 1+500	0.650 Km
		Nantacha		√	Km 1+500	Km 1+950	0.450 Km
	Chanji	Sokolpo		√	Km 1+950	Km 2+600	0.650 Km
		Mianzini	√		Km 0+000	Km 0+090	0.090 Km
		vodacom	√		Km 0+090	Km 0+300	0.210 Km
	Msua	Soko dogo	√		Km 0+300	Km 0+470	0.170 Km
		Maringa	√		Km 0+470	Km 0+700	0.230 Km
		Maweni	√		Km 0+700	Km 0+850	0.150 Km
		Kilimani	√		Km 0+850	Km 1+400	0.550 Km
		Chemba	√		Km 1+400	Km 1+970	0.570 Km
		Mkuyuni	√		Km 1+970	Km 2+600	0.630 Km
Kasema Road (0.489)							

Sumbawanga Municipal	Katandala	National housing	√	√	Km 0+000	Km 0+210	0.210 Km
		Community center	√	√	Km 0+210	Km 0+489	0.279 Km
Kimati – Ufipa Road (0.2)							
Sumbawanga Municipal	Katandala	National housing	√	√	Km 0+000	Km 0+200	0.2 Km
Kalangasa Road (0.534)							
Sumbawanga Municipal	Katandala	National Housing	√	√	Km 0+000	Km 0+208	0.208 Km
		Community center	√	√	Km 0+208	Km 0+534	0.326 Km
Maendeleo Road (0.256)							
Sumbawanga Municipal	Katandala	National Housing	√	√	Km 0+000	Km 0+212	0+212
		Community center	√	√	Km 0+204	0+256	0.052 Km
Muva Road (0.2)							
Sumbawanga Municipal	Katandala	National Housing	√	√	Km 0+000	Km 0+147	0.147
		Community center	√	√	Km 0+147	Km 0+200	0.053
New Municipal Access Road (1.95)							
Sumbawanga Municipal	Malangali	Isofu	√	√	Km 0+000	1+950	1.950
Mandela Road (0.398)							
Sumbawanga municipal	Mazwi	Mazwi		√	Km 0+000	Km 0+398	0.398
		Mandela	√		Km 0+000	Km 0+398	0.398

Source: Fieldwork, November 2023

2.2 Materials and Sources

2.2.1 Sources of Materials

Many of the potential building materials such as sand, aggregates, masonry units, steel bars, pipes, cement, paint, timber, and roofing sheets will be sourced locally via certified suppliers. However, quality and availability shall, ultimately, dictate the sources of these materials. Many of the materials for construction projects in Sumbawanga and Mbeya, Njombe districts including as well as other regions like Mtwara and Dar es Salaam are obtained locally except for specialized material such as bitumen will be determined later.

2.2.2 Water Abstraction Sources, Borrow and Quarry Materials

Until November 2023 Contractor had already identified area for sourcing quarry materials, borrow pit and water sources that can be used for construction activities. Table 4 below described identified sourcing of construction materials.

Table 4: Identified or Proposed Sources of Water, Borrow and Quarry Materials

SN	Material sources	Street location	GPS coordinates: 37M/Chainage	Estimated water volume (m3) or land Size (m2)/depth	Description	Material approved or to be approved for
Water sources						
1.	Lwiche River	Lwiche	N/A	-	-	Construction works
2.	Ndua river	Kizwite	N/A	-	-	As above
3.	SUWASA	Eden A	N/A	located at contractor's campsite	-	Domestic use
Quarry site						
1.	Kizungu quarry site	Kizungu	332147 E 9141225 N	Already surveyed	Gravel, aggregate and related materials	Approved

SN	Material sources	Street location	GPS coordinates: 37M/Chainage	Estimated water volume (m3) or land Size (m2)/depth	Description	Material approved or to be approved for
	Borrow pit					
1.	Borrow pit	Sokolo	N/A	-	G3, G7 and G15	Approved
2.	Borrow pit	Mafulala	N/A	-	G3, G7 and G15	Approved

Source: Fieldwork, November 2023

Water is required for general construction works including (concrete works, compaction works), domestic use and dust abatement. Contractor will either use SUWASA water system at the contractor's camp or source from Lwiche and Ndua river.

2.3 Type and Number of Employees

The Project will employ both foreign/expatriates and local employees as appropriate. The current number of foreign is 16 (Male), this number is expected to reach a maximum of about 30 employees.

Table 5: Type and Number of Local Employees

	Type of local employees	Current number of local employees			Expected maximum number of local employees		
		Male	Female	Total	Male	Female	Total
1.	Skilled	83	0	83	110	10	120
2.	Unskilled	37	8	45	60	20	80
	Total	120	08	128	170	30	200

2.4 Working Hours

Networking hours are 8 hours per day, Monday to Friday from 08:00 am to 12:00 pm, 02:00 pm to 06:00 pm with 2 hours for a lunch break; Saturdays expect public holidays, from 08:00 am to 12:00 pm.

2.5 Key Project Stakeholders

Table 6 below presents a list of key Project stakeholders in Sumbawanga District Council

Table 6: Key Project Stakeholders

	Category of stakeholder	Names of Stakeholders
1.	Government Departments and Agencies	<ul style="list-style-type: none"> Tanzania Electric Supply Company (TANESCO) – Rukwa Tanzania Telecommunication Corporation Limited (TTCL)- Sumbawanga District Fire Department – Sumbawanga District Occupational Safety and Health Authority (OSHA) – Southern highland zone Office – Mbeya Tanzania Police Force – Sumbawanga municipal Sumbawanga Urban Water Supply and Sanitation Agency (SUWASA) Lake Rukwa Basin Water Board (LRBWB) Mining office – Rukwa Tanzania Forest Service Agency (TFS) – Sumbawanga Municipal
2.	Sumbawanga Municipal Council	<ul style="list-style-type: none"> Sumbawanga Municipal Executive office
3.	Business Owners/ Operators	<ul style="list-style-type: none"> All kinds of businesses along the road (e.g. food vendors, kiosk, etc.) especially at street business centers Telecommunication/electrical companies standing/laying their infrastructures within/along road route (e.g. TTCL)
4.	Institutions near the project area	<ul style="list-style-type: none"> Schools, police posts, hospitals, etc.
5.	Farmers along road	<ul style="list-style-type: none"> Smallholder farmers along the road route

The plan is to keep the stakeholders updated on the construction works as per the contractor's work plan so as to avoid friction as much as possible. Reliable and timely communications through appropriate channels, as part of the implementation of Community Communication and Engagement Plan (CCEP), will promise good relations between the Contractor and other Project stakeholders

3 POLICY, LEGISLATION FRAMEWORK AND STANDARDS

3.1 Environmental Policy

CGC’s Health, Safety, and Environmental (HSE) Policy, dated November 2023, is included in Annex 1. The Policy Statement states that *“Safety and Health of our workforce and our Environment Stewardship are just as important to our success as Operational and Financial Performance, Government Relation, Ethical Behaviour, Corporate Reputation, Social Responsibility and Employee Involvement and Commitment. We shall strive to make our facilities safer and better places to work and our attention to detail and focus on HSE will ensure high standards of performance.”*

3.2 Environmental and Social Management Organization

CGC will take all precautions for safeguarding the environment during the course of road construction. CGC will abide by all laws, rules and regulations in force governing pollution and environmental protection that are applicable in the area where the works are situated. The environment around the construction area will certainly be affected during the construction period. However, CGC will proactively take necessary procedures at the utmost to decrease adverse effects to the surrounding environment and local community throughout the construction period.

The project’s environmental management structure and responsibility are presented in an *Environmental and Social Management Organization Chart* in Figure 2 below.

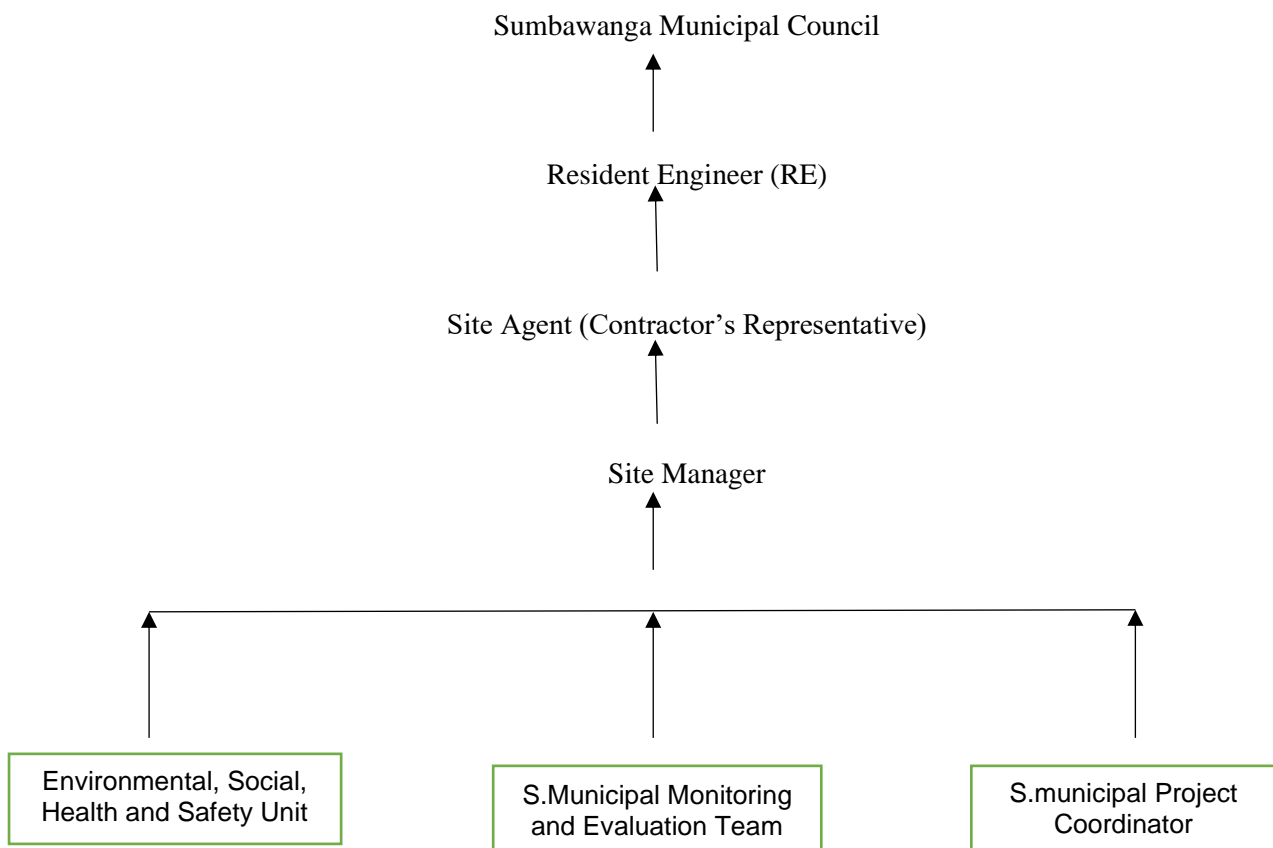


Figure 2: Environmental and Social Management Structure

From the figure above, the most important institutions/agencies for C-ESMP implementation, apart from the World Bank (WB) (funding agency) include:

- i. Sumbawanga Municipal Council;
- ii. Resident Engineer (RE);
- iii. Project Manager (Contractor’s Representatives);
- iv. Site Manager;
- v. Environmental, Social, Health and Safety Unit;
- vi. Sumbawanga Municipal Monitoring and Evaluation Team, and
- vii. Sumbawanga municipal Project Coordinator.

From the Contractor’s part, environmental management will be under the direct leadership of the Site Agent at the commencement of construction works. Any non-compliance to ESMP during the construction period will be well addressed to achieve the intended construction goals with due regard to environmental protection.

Environmental management issues including but not limited to sourcing and transportation of construction materials, bitumen processing and spillage, hot works, river management, conflicts on the use of resources, plant/equipment maintenance workshop, fuel and construction material handling shall be dealt with in accordance to Tanzania environmental law and regulations as well as the Standard Specifications for Roadwork’s (URT, 2000) and Environmental Code of Practice for Road Works (2009), and the Environmental Management Act (EMA) (URT, 2005).

3.3 Staff Deployment for ESMP Implementation

The Site Agent will delegate the preparation of the environmental management procedure to the Environmental and Social Manager (ESM) who will have the responsibility of supervising and leading implementation of this ESMP. Standards of working methods will be established by the Project Management on site in close cooperation with the Engineer and others where required.

Table 7 below outlines the Contractor’s personnel and their roles and responsibilities for environmental and social management. Usual aids such as notices will be strategically placed in order to remind everyone on site of their responsibilities.

Table 7: Roles and Responsibilities for ESMP Implementation

	Name	Position	Roles and Responsibilities	Phone number
1.	Mr Wang Tuquan	Site Agent	(i) He will report to Resident Construction Supervisor (ii) He will review the implementation of ESMP and policies within jurisdiction of his project site (iii) To conduct weekly meeting with the head of the departments/sections regarding the implementation of environmental and social measures of his project site	+255 769 463 209

	Name	Position	Roles and Responsibilities	Phone number
			<ul style="list-style-type: none"> (iv) To comply with all required with all environmental and social statutory (v) To liaise with RCS and employer on environmental and social matters (vi) To review and approve incentives and corrective measures according to environmental and social performance of the project 	
2.	FRANK NAHAMAN TWEVE	Environmental and Social Manager (ESM)	<ul style="list-style-type: none"> (i) Develop and update project site specific ESMP (ii) Monitor the implementation of the environmental and social mitigation measures (iii) Assist in field interpretation of environmental requirements (iv) Provide advice regarding corrective actions and resolving non-compliance situation and issue specific formal instructions to Contractor's Workgroup (v) Maintain records of issues and corrective action taken (vi) Submit to the Engineer a monthly implementation of ESMP (vii) Assist in HIV/AIDS awareness program (viii) Ensure that all training programs are attended by the employees and maintain a register of such trainings. (ix) Leads the Grievance Procedure and all other social plans and programs. (x) Responsible for publicity of the grievance process at the community level, collect grievances from the community and document them. (xi) Evaluate and transmit the feedback obtained from stakeholders to the contractor so that this information can be addressed if is applicable-in project decision-making and Oversee the grievance procedure effectiveness and Conduct grievance investigation in collaboration with Departmental Grievance Representatives (DGR) and provide first resolution which will be approved by project manager. (xii) To handle GBV cases including workers disputes and code of conduct (CoC). 	+255 673 931 563
3.	AMANI FARES MTUI	Health and Safety Manager (HSM)	<ul style="list-style-type: none"> i. He will report to project manager all matters related to health and safety. ii. Ensure that all works are carried out strictly as per health and safety plan. iii. Ensure that all workers are aware of all hazards and associated risks on their relevant jurisdiction iv. Ensure provision of PPE v. Identify potential hazards and take remedial measures vi. Ensure that instruction/training is given to all employees in the use of equipment and tools. vii. Determining the cause of an incident/accident viii. Keeping up date with recommended code of practice safety literature and circulating information applicable to each level of employees 	+255 655 570 119

	Name	Position	Roles and Responsibilities	Phone number
			ix. To enforce all safety procedures for all crews and equipment on site x. To submit all relevant health and safety reports to Project Manager xi. Enforce toolbox meeting to all project sites, and xii. Conduct site inspections.	

Apart from the above (Contractor's side), the following are the roles and responsibilities from consultant's key personnel:

- i. Resident Construction Supervisors/Resident Engineer:
 - o Will represent the client (Sumbawanga Municipal) in the project performing all the responsibilities of the Sumbawanga municipal in the implementation of the ESMP.
 - o Has ultimate responsibility for compliance with the specification and resource consent conditions;
 - o Reports to Consultant's senior management and Sumbawanga municipal on ESMP compliance

- ii. Environmental and Social Manager
 - (a) Develops, implements and reviews environmental management systems and plans
 - (b) Provides leadership to ensure all staff comply with environmental management systems;
 - (c) Co-ordinates environmental management interfaces with external agencies and stakeholders;
 - (d) Notifies the consent authorities of any non - compliance;
 - (e) Responsible for reporting major defects and non-compliances and arranging appropriate corrective actions;
 - (f) Primary contact for environmental complaints and enquiries
 - (g) Monitor the implementation of the Contractor's ESMP requirements, including impact mitigation and monitoring measures, during the construction of the works,
 - (h) Review and approve ESMP provisions of method statements, implementation plans, GBV/SEA prevention and response action plan, drawings, proposals, schedules and all relevant Contractor's documents;
 - (i) Undertake audits, supervisions and/or inspections of any sites where the Contractor is undertaking activities related to the Works, to verify the Contractor's compliance with ESHS requirements including its Gender Based Violence (GBV)/ Sexual Exploitation and Abuse (SEA) obligations, with and without contractor and/or client relevant representatives, as necessary, but for GBV related issues not less than once per month,
 - (j) Promptly report any identified non-compliance issues to Construction Contractor and SUMBAWANGA MUNICIPAL and work with these entities to define acceptable remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ESHS obligations remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ESHS obligations;

- (k) Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESMP issues;
- (l) Ensure any GBV/SEA instances and complaints that come to the attention of the Consultant are registered in the grievance redress mechanism; and
- (m) Prepare and submit to Sumbawanga municipal, as part of monthly progress report, issues on ESHS project construction compliance and performance.


3.4 Approval and Licensing Requirements




Table 8 below presents statutory permits, certificates and licences for the Project.





Table 8: Statutory Permits, Certificates and Licences for the Project




	Permit, Certificate and License	Relevant Act/Regulation	Responsible authority	Owner/who to apply for	Status
1.	EIA Certificate	EMA No. 20, of 2004	VPO-DoE through NEMC	SUMBAWANGA MUNICIPAL	Acquired
2.	Certificate of registration of workplace issued by the Occupational Safety and Health Authority	Occupational Health and Safety Act, 2003, S. 15-17	OSHA – Southern Highland zone office in Mbeya	CGC	Applied
3.	Workers Compensation Fund (WCF) registration	The Workers Compensation Act No. 20 of 2008.	Workers Compensation Fund	CGC	Applied
4.	Fire Safety Certificate	Fire and Rescue Act, No. 14 of 2007	Fire and Rescue Force under the Ministry of Home Affairs	CGC	Applied
5.	Primary Mining License	Mining Act, 2010	Ministry of Minerals	SUMBAWANGA MUNICIPAL/ CGC	Acquired,
6.	Licence to Purchase or Acquire Explosives	Explosives Act, No 9, 2002	Ministry of Minerals	CGC	Applied
7.	Water Use Permit for the use of surface and underground water	Water Resources Management Act, No. 11 of 2009	Lake Rukwa Basin Water Board, Rukwa	CGC	Applied
8.	Borehole drilling permit	Water Resources Management Act, No. 11 of 2009	Lake Rukwa Basin Water Board, Rukwa	CGC	Applied
9.	Registration license/certificate	The Engineers registration Act No.15 of 1997	Engineers Registration Board, Dodoma	Supervising Consultant	
10.	Solid Waste Disposal Permit		Sumbawanga District Council	CGC	To be applied for




4 ENVIRONMENT AND SOCIAL MANAGEMENT FRAMEWORK



CHINAGE				DISCRIPTION	PICTURE	IMPACT	SITE-SPECIFIC MITIGATION MEASURES
Start	Intermedia te	End	Road Side				
Sokolo Bible - Mbeya Road (2.6 KM)							
0+000		2+600	Both sides	Settlement		Potential air pollution - Dust	<ul style="list-style-type: none"> • Spraying of water to supress dust in all active site twice to three per day. • The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point
						Noise	Awareness building and administrative measures will be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.




0+100		0+168	LHS	Seasonal Plantation		<ul style="list-style-type: none"> • Disruption of existing activities 	<ul style="list-style-type: none"> • Compensation for existing users
0+172		0+450	Both sides	Existing Trees		<ul style="list-style-type: none"> • Loss of natural aesthetic 	<ul style="list-style-type: none"> • Avoiding unnecessary clearing of trees. • Re-planting trees & grass along the project roads
						<ul style="list-style-type: none"> • Disfiguring of landscape 	<ul style="list-style-type: none"> • Re-planting trees & grass along the project roads
						<ul style="list-style-type: none"> • Induced soil erosion & sedimentation 	<ul style="list-style-type: none"> • Re-planting trees & grass along the project roads •
0+212		0+360	RHS	Ndua Primary School		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
						Road accidents	<ul style="list-style-type: none"> • Contractor will conduct special road traffic awareness to school to raise awareness to students. • Assign flag-person to control traffic at school zone




	0+250		LHS	Buxon Executive Lodge		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
	0+450		LHS	Chanji Ward Office		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
	0+450		LHS	Kizwite Dispensary		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
				Road accidents		Assign flag-person to control traffic	
0+500		0+840	RHS	Roman Catholic Fence		<ul style="list-style-type: none"> Wall falling and loss of property 	Compensation to the existing owner.
				<ul style="list-style-type: none"> Disruption of existing activities 			



0+700		0+750	LHS	Seasonal plantation		<ul style="list-style-type: none"> • Disruption of existing activities 	<ul style="list-style-type: none"> • Compensation for existing users
0+900		1+250	RHS	Tree fence (Mlimani Theological College)		<ul style="list-style-type: none"> • Loss of natural aesthetic 	<ul style="list-style-type: none"> • Avoiding unnecessary clearing of trees. • Re-planting trees & grass along the project roads
						<ul style="list-style-type: none"> • Disfiguring of landscape 	<ul style="list-style-type: none"> • Re-planting trees & grass along the project roads
						<ul style="list-style-type: none"> • Induced soil erosion & sedimentation 	<ul style="list-style-type: none"> • Re-planting trees & grass along the project roads
	1+190		LHS	Light Church of Tanzania		<ul style="list-style-type: none"> • Environmental pollution (dust, noise, improper waste disposal) 	<ul style="list-style-type: none"> • Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)




	1+200		LHS	Milling machine		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
1+502		1+750	Both sides	Business Center		Potential air pollution - Dust	<ul style="list-style-type: none"> • Spraying of water to suppress dust in all active site twice to three per day. • The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point
						Noise	Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.
	1+925		RHS	Milling Machine		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)


2+175		2+340	Both side	Small Business center		<p>Potential air pollution - Dust</p> <ul style="list-style-type: none"> • Spraying of water to suppress dust in all active site twice to three per day. • The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust
						<p>Potential contamination of soils and improper waste disposal</p> <p>Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point</p>
MAWEN II ROAD (0.4 KM)						
0+000		0+400	Both sides	settlement		<p>Potential air pollution - Dust</p> <ul style="list-style-type: none"> • Spraying of water to suppress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p>
						<p>Potential contamination of soils and improper waste disposal</p> <p>Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point</p>
						<p>Noise</p> <p>Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.</p>
						<p>Complains/grievances concerning on-going activities and project itself</p> <p>Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.</p>
SIDO – SENGA – MAFULALA ROAD (2.7 KM)						
0+000		2+700		Settlement		<p>Potential air pollution - Dust</p> <ul style="list-style-type: none"> • Spraying of water to suppress dust in all active site twice to three per day.



			Both sides				<p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p> <p>Potential contamination of soils and improper waste disposal</p> <p>Noise</p> <p>Complains/grievances concerning on-going activities and project itself</p>	<p>Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point</p> <p>Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.</p> <p>Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.</p>
0+620		0+700	Both sides	Small business center		<p>Potential air pollution - Dust</p> <p>Potential contamination of soils and improper waste disposal</p>	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day. The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust <p>Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point</p>	
	1+045		Both sides	Seasonal river – Mafulala river		<p>Surface and groundwater contamination during construction.</p> <p>Potential soil erosion due to the vegetation/tree falling along or within river banks</p>	<ol style="list-style-type: none"> Construction works carried out in the vicinity of the river/swamp's areas will be monitored by a suitably Contractor environmentalist. The extent of construction activities will be controlled to limit vegetation removal and the exposure of soils. <ol style="list-style-type: none"> Unnecessary clearing of vegetation shall be avoided The extend of disturbance shall be limited and soil surface shall be stabilized immediately by establishing perennial vegetative cover on all areas that are not paved or covered 	




						<ul style="list-style-type: none"> Increased sedimentation of river courses due to earth works Increased erosion and subsequent changes in bed and bank stability 	<ul style="list-style-type: none"> i. Artificial bank reinforcement should be avoided if possible ii. Unused concrete should not be disposed into the river water. iii. All construction materials will be reused, recycled and properly disposed of. iv. No waste shall be disposed into river (including its beds, or within immediate proximity to the river),
1+304		1+500	RHS	Mafulala Primary School		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
						Road accidents	<ul style="list-style-type: none"> Contractor will conduct special road safety awareness training to school to raise awareness to students. Assign flag-person to control traffic at school zone
	1+800		LHS	Free Pentecostal Church		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
	1+904		Both sides	Seasonal River		Surface and groundwater contamination during construction.	<ul style="list-style-type: none"> iii. Construction works carried out in the vicinity of the river/swamp's areas will be monitored by a suitably Contractor environmentalist. <p>The extent of construction activities will be controlled to limit vegetation removal and the exposure of soils.</p>
						Potential soil erosion due to the vegetation/tree falling along or within river banks	<ul style="list-style-type: none"> iii. Unnecessary clearing of vegetation shall be avoided <p>The extend of disturbance shall be limited and soil surface shall be stabilized immediately by establishing perennial vegetative cover on all areas that are not paved or covered</p>


						<ul style="list-style-type: none"> Increased sedimentation of river courses due to earth works <p>Increased erosion and subsequent changes in bed and bank stability</p>	<ul style="list-style-type: none"> Artificial bank reinforcement should be avoided if possible Unused concrete should not be disposed into the river water. All construction materials will be reused, recycled and properly disposed of. <p>No waste shall be disposed into river (including its beds, or within immediate proximity to the river),</p>
2+600		2+700		Small business center		Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day. The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point
NEW MUNICIPAL ACCESS ROAD (1.95)							
0+000		1+950	Both sides	Bushes		Loss of natural aesthetic	<ul style="list-style-type: none"> Avoiding unnecessary clearing of trees. Re-planting trees & grass along the project roads
						Disfiguring of landscape	<ul style="list-style-type: none"> Re-planting trees & grass along the project roads
						Induced soil erosion & sedimentation	<ul style="list-style-type: none"> Re-planting trees & grass along the project roads
0+090		1+950	LHS	Hospital		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)



						Road accidents	Assign flag-person to control traffic
MANDELA ROAD (0+398)							
	0+000		LHS	Nasco Fuel Station		Environmental pollution (dust, noise, vibration and waste)	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day Preparation of well-designed pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
						Emergency of fire	Consulting Sumbawanga municipal fire force for advising mitigation measure to handle the site.
						Traffic accident/ congestion	Assign flag-person to control traffic
0+095		0+398	Both sides	Urban Business center		Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p>
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point





						Noise	Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.
MUVA ROAD (0.2 KM)							
0+000		0+200		Business center and settlement		Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p>
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point
						Noise	Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.
MAENDELEO ROAD (0+256)							
0+000		0+256				Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day.


			Both sides	Business Center and settlement			<p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p> <p>Potential contamination of soils and improper waste disposal</p> <p>Noise</p> <p>Complains/grievances concerning on-going activities and project itself</p>	<p>Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point</p> <p>Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.</p> <p>Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.</p>
KASEMA ROAD								
0+000		0+489	Both sides	Business center		<p>Potential air pollution - Dust</p> <p>Potential contamination of soils and improper waste disposal</p> <p>Noise</p>	<ul style="list-style-type: none"> Spraying of water to supress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p> <p>Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point</p> <p>Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.</p>	

						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.
	0+078		LHS	Ufipa Dispensary		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
						Road accidents	Assign flag-person to control traffic
	0+180		RHS	Kasema Dispensary		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
						Road accidents	Assign flag-person to control traffic
MUVA ROAD (0.2)							
0+000		0+200		Business center and Settlement		Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to supress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p>
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point

						Noise	Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.
KALANGASA ROAD (0.534)							
0+000		0+534		Business center and settlement		Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p>
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point
						Noise	Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.
REGINAL BLOCK – MSAKILA ROAD (1.25 KM)							
	0+000		RHS	Summit Health Center		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)

						Road accidents	Assign flag-person to control traffic
O+100		1+250	Both sides	Settlement		Potential air pollution - Dust	<ul style="list-style-type: none"> Spraying of water to suppress dust in all active site twice to three per day. <p>The contractors will be responsible for careful handling and storages of materials and operation of the equipment in order to reduce the air pollution including dust</p>
						Potential contamination of soils and improper waste disposal	Contractor will prepare a proper waste management plan i.e., installation waste bins at site and daily collection to disposal point
						Noise	Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.
						Complains/grievances concerning on-going activities and project itself	Contractor will conduct community engagement meeting to rise awareness to the community concerning construction activities and project itself.

	0+370		RHS	Southern Corridor Hotel		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
	0+500		RHS	Free Pentecostal Church of Tanzania		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
	0+605		RHS	Apple Lodge		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
0+702		0+850	RHS	Rice Milling Machine		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)

	0+915		RHS	Sangos Annex Lodge		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)
	1+050		LHS	Pentecostal Holiness Mission Rehoboth		Environmental pollution (dust, noise, improper waste disposal)	Preparation of well-designed of pollution control measures including (proper waste disposal, maintenance of mobile equipment etc.)

Source field work November 2023

5 ENVIRONMENTAL RISK AND MITIGATION MEASURES

This section specifies the following:

- All the environmental management activities, mitigation and control measures that will be used to prevent or minimize environmental impacts are presented in the consolidated E-ESMP in Table 9 next page;
- Detailed mitigation measures identified from the impact / risk assessment in Section 4 above;
- Personnel or institution responsible for control measures; and
- Timeframes for the implementation of the proposed mitigation measures.

Table 9: Consolidated ESMP for the upgrading of central business Road Project

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
Preparation for earthworks (sourcing of raw material for actual earthworks)								
Streets Sections	Residential & business housing units, & other properties in 6 streets	Clearing ROW by displacement of residential and business housing units and properties	<ul style="list-style-type: none"> Disruption of livelihoods of people and business Loss of residential & business housing units, & other properties 	Compensation following the legal procedures of Tanzania	<ul style="list-style-type: none"> Affected People received financial compensation; Affected People received land replacement, Affected People complaints settled, pending litigation cases 	Construction phase	Integrated into Project Bills of Quantities (BoQs)	Contractor
Streets Sections	Public Utilities Network	Relocation of public utility services	Shortage in supplies & disruption of service;	<ul style="list-style-type: none"> Relocate electric networks during day hours; Fast replacement of utility networks; 	<ul style="list-style-type: none"> Utility services replaced and service becoming regular with improved networks. 	Construction phase	Integrated into Project BoQs	Contractor
	Institutional structures; Affected people ornamental trees, fruits, shrubs, bushes, etc	<ul style="list-style-type: none"> Removal of trees & fences; Excavating land & removing waste for further construction activities 	Loss of aesthetic; Reduced CO ₂ sequestration; Loss of birds' & wildlife habitats; generation of spoil	<ul style="list-style-type: none"> Re-planting similar tree species around the houses, and operation areas; Grass planting on cut sections Compensation following the legal procedures of Tanzania 	<ul style="list-style-type: none"> Aesthetic restored. Provides more beauty to town sections. 			
Borrow Pits								
Preparation & Material Extraction from Borrow Pits								
All Borrow pits	Farm land; Bush land, Trees, existing borrow pits	Construction of access roads	<ul style="list-style-type: none"> Disruption of existing activities; Dust, Noise, emission, and Respiratory illnesses related to dust pollution; 	<ul style="list-style-type: none"> Compensation Showering the material extraction site at least three times a day Use scrap material from existing road to construct access roads Maintain equipment's and vehicles to minimize emission & noise pollution 	<ul style="list-style-type: none"> Dust and noise minimized to acceptable levels Accidents minimized 	Construction phase	Integrated in Project BoQs	Contractor or in collaboration with local authorities

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
All Borrow pits	Farm land;	Removal & stockpiling of top soil	<ul style="list-style-type: none"> Solid waste (spoil material); Loss of soil fertility 	Level spoil stockpile around borrow pit and surrounding area	Volume of top soil stockpiled;	Construction phase	Integrated in Project BoQs	Contract or in collaboration with local authorities
	Bush land,	Removal of vegetation	Loss of natural aesthetic;	<ul style="list-style-type: none"> Re-planting tree & grass seedlings 	Site rehabilitated progressively			
	Trees,	Extraction of material	<ul style="list-style-type: none"> Dust, Noise, emission, and respiratory illnesses related to dust pollution; Disfiguring of landscape; 	<ul style="list-style-type: none"> Showers dusty areas frequently Regular inspection and scheduled maintenance of all equipment Compensation for acquired land Stockpile top soil (Minimize the storage period of 	<ul style="list-style-type: none"> Dust suppressed by water showering; Low level of dust than the baseline Physical & biological 			
All Borrow pits	Farm land;	Extraction of material	<ul style="list-style-type: none"> Water logging & Breeding of mosquitoes leading to malarial disease outbreak Induced soil erosion & sedimentation leading to subsequent deterioration of water quality; 	<ul style="list-style-type: none"> topsoil stockpile to control erosion and run-off and maintain top soil quality) Avoid erosion of stockpile Establish intercepting ditches to avoid run-off flowing into borrow pit Maintain minimum slope during material extraction from borrow pit Erect fence around activity area rehabilitation of borrow pit by transporting & 	<ul style="list-style-type: none"> erosion control mechanisms in place; Minimum erosion Visible safe slopes maintained in borrows Fence erected to prevent accidental fall into a pit Borrow pit rehabilitated 	Construction phase	Integrated in Project BoQs	Contract or in collaboration with local authorities
	Bush land,							
	Trees,							
All Borrow pits	Farm land;			stocking spoil material from actual earth work site to borrow area	to the satisfaction of the owner and the Engineer			
	Bush land,	Stockpiling material	<ul style="list-style-type: none"> Solid waste (spoil material) Sediment transport (erosion) 	<ul style="list-style-type: none"> Stockpile top soil (Minimize the storage period of topsoil stockpile to control erosion and run-off and maintain top soil 	Overburden used	<ul style="list-style-type: none"> Construction phase Post-construction 	Embedded in BoQs	Contract or in collaboration with

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
	Trees,	Removal of overburden		quality) <ul style="list-style-type: none"> Use overburden during reinstatement 		phase		local authorities
		Transporting material	Reduced visibility;	Showering the material extraction site at least three times a day	Improved visibility	Construction phase		
Preparation & Material Extraction from Quarry Sites								
Quarry Site	Tree, bushes, shrubs, scrubs etc	rehabilitation of access roads	<ul style="list-style-type: none"> Disruption of existing activities Reduced visibility due to dust 	<ul style="list-style-type: none"> Compensation for existing users Put speed limits on and shower access roads to suppress dust 	<ul style="list-style-type: none"> Affected compensated Low level of dust than the baseline Improved visibility Proper road signs in place 	Pre- and during construction phase	Integrated in project BoQs	Contractor
Quarry Site		Removal of vegetation	Loss of natural aesthetic	Re-planting trees	Physical and biological erosion control mechanisms in place	Construction phase	Embedded in BoQs	Contractor
		Removal of top soil and overburden	Induced soil erosion & sedimentation leading to subsequent deterioration of water quality	<ul style="list-style-type: none"> Use granular materials for access roads Use erosion control mechanisms Establish intercepting ditches to avoid run-off flowing into quarry 	Physical and biological erosion control mechanisms in place			

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
Quarry Site		Blasting	<ul style="list-style-type: none"> Dust, Noise, emission, and Respiratory illnesses related to dust pollution Reduced visibility Disfiguring of landscape Flying stones 	<ul style="list-style-type: none"> Inform local stakeholders and obtain blasting permission; Announce to local people one night before blast the time of blast next day using a public address system; Evacuate all people & animals from the area of blasting; Make sure that all houses are evacuated one hour from blasting; oldies/children/pregnant women for fast evacuation 	<ul style="list-style-type: none"> Blasting procedures in place Proper blasting signs in place All workforce provided and using PPE especially helmets and gloves Announcement about the blasting made and all streets aware of proposed blasting one night before the blast 	Construction phase	Embedded in the project BoQs	Contractor
Quarry Site		Excavation of materials	<ul style="list-style-type: none"> Dust, Noise, emission, and Respiratory illnesses related to dust pollution Disfiguring of landscape 	Maintain safe slopes	<ul style="list-style-type: none"> Safe slopes maintained in quarry intercepting ditches Rehabilitate site progressively Dust suppressed by water 	Construction phase	Embedded in the project BoQs	Contractor
			Water logging &	<ul style="list-style-type: none"> Avoid water logging around the quarry site 	sprinkling			
Quarry Site			Breeding of mosquitoes leading to malarial disease outbreak	<ul style="list-style-type: none"> Rehabilitate site progressively 				
		Stockpiling material	Solid waste (spoil material)	Implement progressive rehabilitation by leveling spoil on area of quarry site	Spoil material leveled	Post-construction phase	Integrated in project BoQs	Contractor
		Transporting material	Dust generation	Sprinkling twice a day	Reduced dust	Construction phase		
Fuel Storage								

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
Camp, Crasher and borrow areas	No fuel contamination into soil, surface and ground water	Fuel refueling and transportation	Contamination of Land & Groundwater as a result of spills	<ul style="list-style-type: none"> If a spill should occur during refueling operations, STOP the refueling operation until the spill is controlled and the situation corrected. The source of the spill must be identified and contained immediately. 	No contamination of land and groundwater	During Construction phase	Integrated in project BoQs	Contractor
Camp, Crasher and borrow areas	No fuel contamination into soil, surface and ground water	Fuel refueling and transportation	Contamination of Land & Groundwater as a result of spills	<ul style="list-style-type: none"> The spilled material and the contaminated soil must be treated and/or disposed of in accordance with all applicable Tanzanian Regulations Absorbent material(s) shall be placed over spills to minimize spreading and to reduce its penetration into the soil. 	No contamination of land and groundwater	During Construction phase	Integrated in project BoQs	Contractor
Camps								
Establishing Camp								
All camp sites	Farm land, bush trees	Land acquisition for camps establishment	<ul style="list-style-type: none"> Temporary relocation of existing activity Land use change 	Compensation in accordance with laws and regulations	Owners' compensated & complaints cleared	Mobilization period	Integrated in project BOQs	Contractor
		improvement of access roads	Dust, noise pollution and reduced visibility, respiratory illnesses related to dust pollution	<ul style="list-style-type: none"> Put speed limits on access roads Shower & suppress dust 	<ul style="list-style-type: none"> Dust generation minimized Dust suppressed by suitable sprinkling methods 	Construction phase	Integrated in project BOQs	Contractor

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
All camp sites	Farm land, bush trees	Removal of vegetation for site clearance	<ul style="list-style-type: none"> Induced soil erosion & sedimentation leading to subsequent deterioration of water quality Disfiguring of landscape Loss of natural aesthetic Loss of soil fertility 	<ul style="list-style-type: none"> Re-planting trees & grass seedlings inside camp site Reinstatement through biological & physical structures to prevent erosion 	<ul style="list-style-type: none"> Trees and grass planted Soil conservation measures in place 		Integrated in project BOQs	Contractor
All camp sites	Farm land, bush trees	Compaction of site	Compaction of soil	Loosing compacted site after project completion	Affected soils loosened	Decommission phase	Integrated in project BoQs	Contractor
		Construction of workers shelter, toilets, water collection scheme, etc.	Solid and liquid wastes generation	Proper collection and disposal of waste	Waste properly collected and disposed	Construction phase		
		Installation of water & electricity networks	Water leak, electricity risks and hazard	Proper installation, adequate safety measures	Proper installation in place. Safety measures implemented			
		Paving or leveling to accommodate equipment & stores	Induced erosion	Implement soil conservation measures	Soil erosion minimized			
All camp sites	Farm land, bush trees	Construction of temporary reservoirs for water abstraction/collection	Breeding sites for water borne disease vectors	Water borne disease prevention education to workforce	Proper use of temporary reservoirs	Construction phase	Integrated in project BoQs	Contractor
		Transportation of construction materials	Accidents	Prepare and implement traffic management plan	Reduced accidents			
Crusher site								
Preparation & Material Extraction from Crusher Site								

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
Crusher site	Farm land, bush trees	Land acquisition for camps establishment	<ul style="list-style-type: none"> Temporary relocation of existing activity Land use change 	Compensation in accordance with laws and regulations	Owner's compensated & complaints cleared	Mobilization phase	Integrated in project BOQs	Contractor
		Construction/improvement of access roads	Dust, noise pollution and reduced visibility, respiratory illnesses related to dust pollution	<ul style="list-style-type: none"> Put speed limits on access roads Shower & suppress dust 	<ul style="list-style-type: none"> Dust generation minimized Dust suppressed by suitable sprinkling methods 	Construction phase	Integrated in project BoQs	Contractor
		Removal of vegetation	Loss of natural aesthetic	Re-planting trees	Physical and biological erosion control mechanisms in place	Construction phase	Embedded in BoQs	Contractor
Crusher site		Stone crushing	Rock Dust and Respiratory illnesses related to dust pollution	<ul style="list-style-type: none"> Dust recovered from sweeping of yard will be collected at a dedicated storage area shielded from wind effects Rock dust will be sent to the approved landfilling site at regular basis In no cases should rock dust be dumped on accesses to the near water resources or residential dwellings Vehicles transporting rock dust to the landfill shall be covered 	<ul style="list-style-type: none"> All workforce provided and using PPE especially helmets, masks, and gloves Rock dust dumped to the approved landfill only All vehicles transporting rock dust are covered Wet dust suppression, Dry dust collection device eg. Filter is in place 	Construction phase	Integrated in project BoQs	Contractor
			Air emission	<ul style="list-style-type: none"> Complete enclosure fence (corrugated iron sheet/iron bar) to contain dust emission within its stone crushing plant will be constructed 	Enclosure fence is available	Pre-construction and construction phases	Integrated in project BoQs	Contractor

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
				<ul style="list-style-type: none"> All equipment and machinery to be well tuned and maintained Soil/rock dust stockpiled to be well covered by tarpaulin to minimize dust emission Water sprinkling to the to be done prior to discharge of boulders into hopper and the yard 	<ul style="list-style-type: none"> Regular service of machines and equipment Tarpaulin for covering stockpiled dust available Water bowser for daily sprinkling on place All workforce provides appropriate PPE 	Construction phase	Integrated in project BoQs	Contractor
			<ul style="list-style-type: none"> Noise emission 	<ul style="list-style-type: none"> All equipment and machinery to be well tuned and maintained Complete enclosure fence (corrugated iron sheet/iron bar) to abate noise emission 	<ul style="list-style-type: none"> Provision of ear muffs/ear plug to all employees Regular service of machines and equipment 			
Bitumen Handling								
All around the project areas	Bitumen is found only on the main road along the construction corridor	Processing & Transportation	Noise	Site selection	Noise controlled	Construction phase	Integrated in project BoQs	Contractor
				Plant design & layout.				
				Planned maintenance program.				
				Vehicle inspection and maintenance				
			Process waste from Water effluent	Design approved by competent person. Design of settling pit / dam incorporates	Process water retained and treated	Construction phase	Integrated in project BoQs	Contractor
All around the project		Processing & Transportation	Wet Scrubber Sludge Reclaimed Asphalt Pavement (RAP) Excess Filler	Sufficient secondary containment. (i.e. a soil berm wall).	Sludge is controlled	Construction phase	Integrated in project BoQs	Contractor

Site	Baseline Condition	Project Activities	Type of Potential Impacts	Potential Mitigation measures	Indicator	Time Frame	Mitigation Cost	Implementer
		Material testing	Laboratory waste from sampling	Enforce procedures for safe storage of samples and safe disposal of distil residue	Waste disposal procedures implemented			
All around the project areas		Material testing	Visual aspects on Stack emissions, Spillage Briquettes from Lab	<ul style="list-style-type: none"> Practice “good housekeeping” at all times; Ensure that “upset conditions” are rectified as soon as possible; 	Waste from Laboratory is controlled	Construction phase	Integrated in project BoQs	Contract or
			Ground /Soil (Water) Pollution	<ul style="list-style-type: none"> Routine inspection of storage and transfer facilities; Bund walls and spill reaction plans; Stock reconciliation procedure; 	No soil and water pollution			
All around the project areas		Bitumen processing	Surface water pollution	<ul style="list-style-type: none"> Storm water management plan; Site design & layout incorporates physical barriers to prevent flooding of facilities and controlled drainage of storm water. 	No water pollution	Construction phase	Integrated in project BoQs	Contract or

6 MONITORING PROGRAM

This section describes ESMP monitoring and the monitoring activities during ESMP implementation. The environmental monitoring program (Table 10 next page) will operate through the preconstruction and construction phases. It will consist of a number of activities, each with a specific purpose, key indicators, and significant criteria. The EMP entails the following aspects:

- i. Aspect/parameter to be monitored;
- ii. Monitoring frequency;
- iii. Monitoring site/sample area;
- iv. Measurement unit/method;
- v. Target level/Standard; and
- vi. Responsibility for monitoring.

Monitoring records will be collated in collaboration between Supervision Consultant's and Contractor's representatives and shall be reported in Monthly Compliance Reports (MCRs), whose copies will be separately submitted to the Supervision Consultant for review and comments.

6.1 ESMP Implementation Schedules

Alongside the monitoring plan, all environmental and social issues (including health and safety issues) associated with the operation phase of Contractor's camp, borrow pits, quarry site, stone crusher site, road sites and diversion roads will be monitored/inspected on monthly basis.

ESMP implementation schedules are copies of forms, checklists, reports or registers used during a project's day-to-day environmental and social management. The following have been determined for this project:

- i. HSE Induction Policy – Annex 1;
- ii. Borrow Pits and Quarry Sites Approval Form – Annex 2;
- iii. Recommendable Tree Species Ideal for Planting along the Road – Annex 3;
- iv. HSE Induction Training Checklist – see Annex 4;
- v. HSE Induction Training Register – see Annex 5;
- vi. Format for Documenting Minutes of Consultation Meetings – Annex 6;
- vii. HSE Monitoring/Inspection Checklist for Contractor's / Engineers' Camp – Annex 7;
- viii. HSE Monitoring/Inspection Checklist for Quarry/ Borrow pit Sites – Annex 8;
- ix. HSE Monitoring/Inspection Checklist for Road Sites – Annex 9;
- x. HSE Monitoring/Inspection Checklist for Diversion Roads – Annex 10;
- xi. ESMP report format -Annex 11;
- xii. Accident Register Book to be obtained from OSHA.

For the monthly HSE Monitoring/Inspection Checklists, a space for sign-off by Supervision Consultant's and Contractor's representatives to verify that the control action was undertaken and is working effectively has been provided. The checklists also specify if, and when, follow-up action is required and who is responsible.

Table 10: Monitoring Plan for ESMP Implementation

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
1.	Construction activities involving the transfer of fuel and chemicals	Soil, ground water and surface water contamination	<ul style="list-style-type: none"> (i) All storage containers will be properly sealed and monitored to avoid any possible spillage (ii) All contaminated sites will be cleaned soon after completion of civil works (iii) No waste shall be disposed into waterways (including their beds, or within immediate proximity to them), wetlands/swamps and flood plains (iv) Appropriate sites for preliminary accumulation of excavated materials and waste will be established (v) Activities involving the transfer of fuel and chemicals shall be done far away from water courses 	Zero pollution from spillage and leaks	<p>Water quality (Nitrate, Lead, Sulphate, Turbidity, Hydrocarbons, pH)</p> <p>Equipment such as DR 890, DR 1900, UV.VIS Spectrophotometer, Incubetor, Turbidimeter, Ph Meter, TDS Metre, Flame Photometer, Murfle Furnance will be used for monitoring water quality</p>	Water bodies (rivers/wetlands/swamps) along the road, and drilled borehole at the campsite and along road project	Once before construction and quarterly thereafter	Contractor
2.	Construction activities	Competition and pressure on existing water resources	<ul style="list-style-type: none"> (i) Contractor to avoid utilisation of piped water supply systems and ground water sources meant for general uses of local communities (ii) External water supply for construction (iii) rainwater harvesting or borehole drilling at the campsites and road sites (iv) application of water use permit from Water Basin Authority 	<p>Zero pressure on infrastructures and utilities;</p> <p>Avoiding over-abstraction of water resources</p>	Existing utility services; Extra sources of water; Water abstraction	Construction site, access roads & adjacent residential areas; Water sources along the project road	Weekly	Contractor, Local authorities
3.	Construction and use of diversion	Soil pollution and soil compaction as a result of construction of diversion road on the side of the constructed road associated dust problem because of using detour roads	<ul style="list-style-type: none"> (i) Restore project activity area such as detours, spoil stockpile & disposal spoil, through progressive rehabilitation at the end of each section; (ii) Shower project activity area to suppress dust for improved visibility; (iii) Avoid soil pollution by not disposing waste from machineries everywhere; (iv) Showering the material extraction site at least three times a day 	The objective of monitoring mitigation measures during actual road construction is to make sure that all mitigation measures indicated on the ESMP are exercised and provide advice in case new challenges observed	Dust generation, oil spills	Extent of visibility; areas contaminated with grease, oil, fuel and bitumen	Every month	Contractor

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
4.	Construction and use of diversion		<ul style="list-style-type: none"> (i) Use scrap material from to construct access roads and detours; (ii) Always try to avoid spill of grease, oil, fuel, and bitumen and for accidental spill way prevent further flow of such substances; In oil collection sites cover land with thick plastics to prevent oil from leaking or spilling at the time of refueling prevent any spill to the land but to the plastic; 	The objective of monitoring mitigation measures during actual road construction is to make sure that all mitigation measures indicated on the ESMP are exercised and provide advice in case new challenges observed	Dust generation, oil spills	Extent of visibility; areas contaminated with grease, oil, fuel and bitumen	Every month	Contractor
5.	Construction activities	Damage to access and rough roads infrastructure at the intersection points	<ul style="list-style-type: none"> (i) It will be ensured that no damage is caused to the infrastructure at the intersection point (ii) All damaged infrastructure will be restored to original or better condition. (iii) Liaising with respective authorities on appropriate measure to be taken to minimize damages 	<p>All earth roads are not damaged</p> <p>Status of infrastructures tracked and repaired</p>	earth roads	Road work areas intersected with earth roads	Every month	Contractor, infrastructure owners
6.	Employment	Influx of people to the project area and associated social problems	<ul style="list-style-type: none"> (i) Majority of semi-skilled and unskilled labour will be sourced from the communities along the project road (ii) Special clause for local residents to be employed as labourers during construction (iii) Contractor shall liaise with the local government authority to identify the potential employees (iv) Promotion of small businesses that support construction such as cafes, food vendors, <i>kiosk</i> etc. 	High recruitment from local community; Increased income generation for locals	Number of local people get employed;	Works areas, campsites	Every month	Contractor
7.	Employment	Child labour	<ul style="list-style-type: none"> (i) under-age children/students will not be employed (ii) strict enforcement of ant-child labour laws (iii) Community awareness creation programmes 	Absence of child labour in the construction activities	Children under 18 years	Construction/ Works areas, Schools	Monthly	Contractor, SUMBAWANGA MUNICIPAL, NGOs, communities
8.	Borrow pit/Quarry site excavation and	Soil erosion as a result of actual road construction	<ul style="list-style-type: none"> (i) Physical soil erosion control measures such as terraces, gabions, intercepting ditches etc.; and biological such as 	The objective of monitoring mitigation measures during actual road construction is to	<ul style="list-style-type: none"> (i) Volume of top soil stockpile; (ii) Protection to stockpile; 	Number of seedlings planted	Per month	Contractor

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
	road construction	and material extraction sites	planting trees and vet grass; Stockpile top soil (Minimize the storage period of topsoil stockpile to control erosion and run-off and maintain top soil quality); (ii) Avoid erosion of stockpile; (iii) Establish intercepting ditches to avoid run-off flowing into barrow/quarry and maintain minimum slope, implement progressive rehabilitation.	make sure that all mitigation measures indicated on the ESMP are exercised and provide advice in case new challenges observed	(iii) Length of interceptor ditch; (iv) Area rehabilitated progressively; (v) Number of seedlings prepared and planted			
9.	Borrow pits, quarry sites, crusher plant, campsite, mechanical workshop, construction sites	Gaseous emissions	(i) Appropriate respirators/PPE are provided to workers during spray painting, bitumen chipping, and bitumen spraying (ii) Frequent maintenance of machines, engines, and plants	Compliance with TBS - ambient air quality standards (TZS 845:2005 Air Quality – Specifications	(i) Level of exhaust generated by equipment, bitumen fumes (ii) Working environment for workers exposed to hazardous gaseous fumes (iii) Use of respirators and masks by workers carrying out spray painting, pre-coating of chippings, and bitumen	No excessive smoke from equipment Equipment engine tuning, spray painting, and welding done in a well-ventilated area Appropriate respirators used by workers during spray painting, bitumen chipping, and bitumen spraying	Before everything starts, and Quarterly during construction	Contractor
10.	Borrow pits, quarry sites, crusher plant, campsite, and construction sites	Dust generation	(i) Appropriate PPE such as masks and eye protection against dust, splinters, debris are provided to the workers during operation activities (ii) Dust suppression methods (water sprinklers, covering stockpiles, wetting materials shall be used to avoid visible dust (iii) Introducing vehicle speed limit, e.g. less than 20 within the camp). (iv) Use of water truck or fixed sprinklers on crushing equipment.	All mitigation measures for dust management as proposed in this ESMP are implemented	• Dust generation potable particulate counter (make-Stark, model-CW-HAT200S) will be used to monitor dust	Extent of visibility areas	Daily	Contractor
11.	Power generation, aggregate production and material transportation	Air, noise and Water pollution from generators, crusher plant, machineries and heavy trucks	(i) Provide shade for diesel generators to lower the noise as much as possible; (ii) Maintain equipment and vehicles to minimize emission & noise pollution; (iii) Use of water to suppress dust during material production and transportation (iv) Use of conveyors/housing (v) Re-planting tree & grass seedlings inside camp site;	Compliance with TBS - EMDC 6 (1733) P3 Noise Pollution Tolerance Limits	Reduced emission and dust pollution Class Ohlson digital sound level meter type 36-1604, model ST-805 with measurement range of 30 to	Dust suppressed and Emission lowered	Before everything starts, and after every six month/semi-annual during construction	Contractor

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
			(vi) Proper training to the workforce. Insurance; Working schedule for the activities with high noise level during day time only; (vii) Use 'CFC-free' HH appliances like refrigerators.		130 dB (A) equipment will be used to monitor noise level			
12.	Stationery, cooking and concrete mixing	Solid waste associated with camp sites	(i) Reduce waste generation by reusing or recycling useful waste; (ii) Reuse/Recycle water whenever possible; (iii) Dispose solid waste at approved dumpsites	All generated wastes are timely collected and properly disposed	Solid waste generation	Haphazard waste management reduced	Weekly	Contract or
13.	Campsite, quarry site crusher sites and construction road corridor	Sewage waste	(i) Sewage management facilities (septic tanks system) shall be constructed (ii) Mobile toilets facilities are constructed along the road corridor	All generated sewage waste are discharged to septic tanks, and timely collected and properly disposed	Sewage waste generation	Zero spills	Weekly	Contract or
14.	Reallocation of utilities/structures	Loss of properties services, and damage of infrastructures	(i) Identifying existing utilities infrastructures for relocation (ii) Developing alternatives to service provision during relocation (iii) Compensation for all affected parties (iv) When reallocation is necessary, communicate with the responsible parties	Continued utilisation of the existing utilities and/or infrastructures	Structures and utilities within road reserve	Utilities and structures reallocated	Every month	Contract or Consultant Sumbawanga Municipal Utility owners i.e. TUWASA and TANESCO
15.	Stone crusher plant site	Air, noise and dust emission	(i) Maintain equipment minimize emission & noise pollution; (ii) Use of water to suppress dust during material production and transportation (iii) Use of conveyors/housing (iv) Proper training to the workforce. Insurance; Working schedule for the activities with high noise level during day time only; and (v) Proper Dust recover system from yard/storage area	Compliance with TBS - EMDC 6 (1733) P3 Noise Pollution Tolerance	Reduced emission and dust pollution	Air, Dust suppressed and noise Emission lowered	Before everything starts	Contract or
16.	Mechanical	Generation of	(i) Maintain equipment minimize vibration	Compliance with TBS -	Reduced vibration generated	Mechanical	Weekly	Contract

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
	workshop, quarry site, crusher plan, batch plant	vibration	(ii) Providing appropriate PPE to workers exposed to vibrations (iii) Shifting program to workers	EMDC 6 (1733) P3 Vibration Tolerance	by equipment	workshop, quarry site, crusher plan, batch plant		or
17.	Construction activities involving removing spoil soil, widening existing road etc.	Disruption of domestic water supply pipe line utilities and fiber optic cables	Contractor liaise with utility owners for relocation	All infrastructures are not damaged	All utilities relocated	Where there is water supply or fiber optic cables along/within road corridor	Weekly	Contractor, water engineer for Tanga city, Pangani, and Muheza Districts, TTCL-Tanga, and local community
18.	Construction activities	Reallocation of graves/cemeteries	(i) Identifying graves for relocation (ii) Engagement with street leaders and grave owners to agree on the actions to be taken before and during the removal of graves. (iii) When reallocation is necessary, communicate with the responsible parties (iv) All procedures for relocation of grave or as specified by the Grave yard removal Act (No. 9 of 1969) shall be followed	All graves located with road corridor are reallocated	Graves located within road corridor	Where there is graves within road corridor	Before everything starts or when accidentally recovered	Contractor, local/street leaders, religious institution, Tanga city, authority, Graves owners/Indians, SUMBA WANGA MUNICIPAL
19.	Construction activities	Rough road/bypass road accident at the intersection points with project road	(i) Vehicular speeds will be kept low at the intersection point to minimize safety hazard (ii) Flag man will be available at all intersection points to monitor vehicles (iii) Safety signs will be installed at each intersection point	All areas where road project intersects with earth, and bypass road	Earth and bypass roads intersect with project road	Where project road intersect with earth, realigned roads and road project	Daily	Contractor
20.	Construction activities	Chance finds uncovered during	(i) Plant operator to immediately stop working and inform the contractors'	All areas where project road and access roads pass	Heritage resources located within the project and access	Road corridor, and access road,	Daily during construction	Contractor,

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
		construction	<p>supervisor, who will deliver the message to the RE engineer</p> <p>(ii) SUMBAWANGA MUNICIPAL/RE/Contractor shall immediately inform the Antiquities Department for advise and consent</p> <p>(iii) The Contractor shall exercise care so as not to damage artefacts or fossils uncovered</p> <p>(iv) No work shall be continued on the specific area until permission/approval from the Director of Antiquities is secured</p> <p>(v) Provision for a professional archaeologist(s), employed by the project, to monitor ground disturbing construction activities to identify archaeological resources during construction phase.</p>		road corridor		activities	Consultant Supervising Engineer, RE, Safe guard staff (Archaeologist), Antiquity department, Local Authorities and Ministry of Land, Human settlements and developments.
21.	Construction activities	Conservation of Known and Chance findings	<ul style="list-style-type: none"> All procedures for preservation and protection of sites and articles of paleontological, archaeological, and historical PCR as specified by the Antiquities Act (No. 10 of 1964) shall be followed 	Uncoverd chance findings are preserved	Uncovered chance findings physical cultural resources	National museum and on site	During and after the construction	SUMBAWANGA MUNICIPAL and Antiquities officer
22.	HIV/AIDS	Potential spread of HIV/AIDS and other STDs	<ul style="list-style-type: none"> Routine awareness-creation campaigns for HIV/AIDS for labour and surrounding communities in all phases of the project Free distribution of protective gears such as condoms in designated posts e.g. distribution box installed in the showers/toilets Collaborating with active NGOs and other groups focusing on HIV/AIDS and STDs in the project area 	No new records of HIV/AIDS cases	Voluntary Counselling and Testing (VCT), number of sensitization campaigns held	Project area	Quarterly	Contract or NGOs, local authorities

S/N	Activity	Project Impact	Proposed Mitigation Measures	Monitoring Objective	Parameter to be monitored and equipment	Indicators/ Sampling area	Frequency	Responsible
23.	Gender issues	Workplace sexual harassment & GBV issues	<ul style="list-style-type: none"> Assaults/harassment, GBV and VAC cases 	Zero assault/harassment, GBV and VAC cases	Site verification, observation, complaints, Police reports, no. of sexual harassment cases reported cases and reports,	Campsites, Works areas, adjacent communities along project corridor, materials sourcing sites	Daily	Contractor, District council, local authorities, HIV/AIDS & Gender service provider, Local police, community
			<ul style="list-style-type: none"> Women participation & recruitment 	Number & positions of women involved in project activities	Site verification and employment records	As above	Monthly	HR Manager, (Contractor)

7 TRAINING PROGRAM

Project workers will receive at least four types of training as presented in the following subsections.

7.1 HSE Induction Training

Every new employee will attend Health Safety and Environment (HSE) induction training (see Annex 5) pertaining to HSE management and general safety rules and procedure, site specific Health & Safety rules and their responsibility and accountability in safety performance. The training will be given to all categories of personnel at the site by ESM and HSM in collaboration with other staff. The training will be recorded in the prescribed format and all trainees will acknowledge such training by signing the relevant document (see Annex 5).

Important topics in the HSE induction training will include the following:

- a. Contractor's environmental and social safeguards policies including workers Code of Ethical Conduct (CEC);
- b. The importance of Personal Protective Equipment (PPE) in construction activities;
- c. Firefighting;
- d. The importance of road safety signs;
- e. The working environment (clean, protect and improve);
- f. Emergency response procedures;
- g. The importance of first aid;
- h. HIV/AIDs and infectious diseases (STDs, TB, Malaria and COVID-19) prevention and control;
- i. The effect of alcohol and drug abuse in working place;
- j. The effect of environmental pollution;
- k. Proper use of work equipment; Etc.

The local community will be provided training regarding to HIV/AIDs and infectious diseases (STDs, TB, Malaria and COVID-19) prevention and control and GBV/SEA (causes, impacts, and reporting system – this shall be done during public meeting) HIV/AIDS awareness campaign, and well as road safety awareness campaign/training.

7.2 On Job Trainings

Based on a specific work section, workers will receive on-job trainings that will be conducted by the Contractor's staff and outsourced trainers where appropriate. These trainings will focus on:

- The safe ways of working in a particular trade including hazards involved.
- Occupational Health and Safety Training
- Workers Right
- Contractor's code of conduct

- Fire safety awareness and prevention
- Function of GRM and reporting system, and
- HIV/AIDs and infectious diseases (STDs, TB, Malaria and COVID-19) prevention and control.
- ETC.

7.3 Mandatory OHS Trainings

These refers to the trainings offered by government institutions/authorities responsible for occupational health and safety (OHS). As per the requirements of the Occupational Health and Safety Act No. 5 of 2003, employers are required to have selected individuals amongst the workers who should attend mandatory training programs offered by the OSH Department for the safety, health and welfare of persons at work places. These training may include but not limited OHS in construction industry, Accident prevention and investigation, Safety and Health Reps, First Aid, OHS Risk Assessment, etc.

7.4 Toolbox Talks

A Toolbox Talk is an informal group discussion that focuses on a particular safety issue. These tools will be used daily to promote workers' HSE culture. Toolbox talks are also intended to facilitate HSE discussions on the job site. The toolbox talk may include but not limited spill prevention, first aid and first aid kit familiarization, common illness/diseases, drug and alcohol issues, vehicle safety, emergency response plan, communications, fire safety awareness and prevention/control, hygiene, and social management; waste management (biodegradable and hazardous wastes), avoid littering/leaving sites untidy, etc.

8 COMMUNITY

CGC is committed to build and maintain strong community relationships by preparing schedule for stakeholder consultation (see table 11 next page) and implementing a Grievance Management Plan (GMP) in order to appropriately manage grievances made by the workers and community located within the project area. In view of this, there is committee responsible for receiving and responding to any grievance made to the Project as quickly as possible and therefore to avoid as much as possible any conflict or potential judicial processes.

Specific objectives of the GRM are as follows:

- a. Creating accessible, responsive and demonstrably fair channels to resolve communities' and workers' grievances in a mutually acceptable process.
- b. Implementing effective dialogue and open lines of communication with the public.
- c. Creating an extra channel for receiving information about the community and worker grievances with the company.
- d. Serving as a release valve for community and worker grievances stemming from a project and provides early warning of potential problems that are developing.
- e. Preventing unrealistic expectations or negative perceptions from the surrounding local population towards the project.
- f. A system of investigation, response and quick grievance resolution has been established.
- g. Grievances prevention from accumulating and escalating to conflicts such as protests, sabotage or strikes that can be very costly to a company in terms of its reputation and in terms of work time, land access or additional demands established.
- h. To allow the company to understand the project risks associated with grievances. Protests, campaigns and strikes can arise from 'unfounded' grievances or misunderstandings as well. The grievance mechanism provides one channel that a company can use to rectify these sorts of misunderstandings or explain why a grievance is unfounded or is not within the company's jurisdiction.
- i. Negative publicity and activist campaigns are being managed. A company that operates responsibly and has effective grievance management channels can actively manage strike threats and hence reduce opportunities for activists to influence aggrieved workers.
- j. Improve Project social performance through the analysis of grievances.

The Contractor is responsible for resolving grievances associated with the project within the project life time. The GMP will be prepared and available to any person, group, community or local employee of the Project who considers himself/herself affected by Project activities.

Despite standalone GRM will be prepared, the communication model and chain of command of grievance management process is presented in diagram/ Figure 3 next page gives a step-by-step overview of the proposed grievance management process. Each step is described in detail after the diagram (next page).

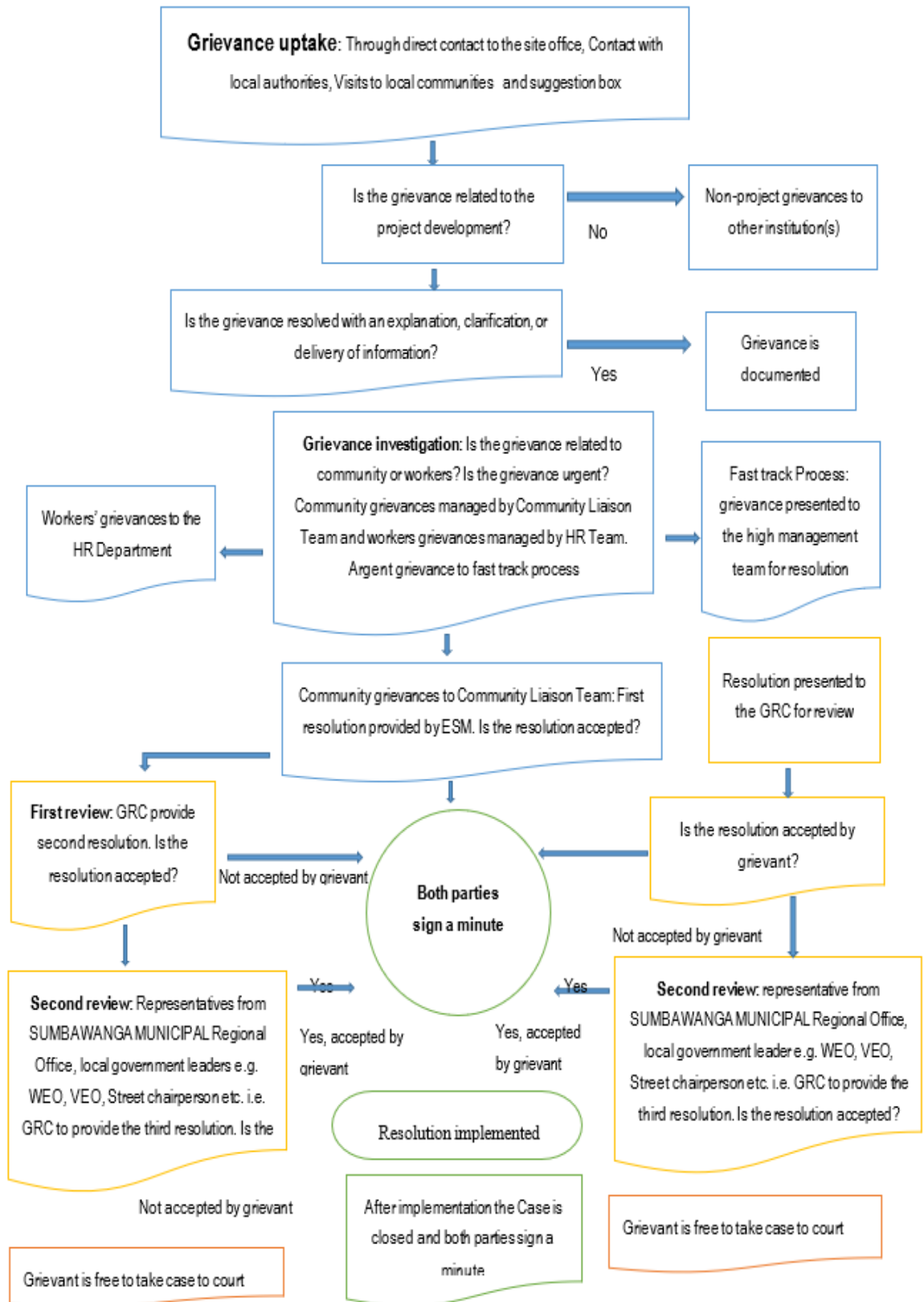


Figure 3: Grievance Resolution Flowchart

Table 11: Schedule for Project Stakeholders Consultation

	Street	Type of meeting	Purpose of the meeting	Expected stakeholders	Meeting frequency	Venue	Agenda/topics for discussion	Medium/tools for instruction
1.	Mafulala	<ul style="list-style-type: none"> Engagement Focus Group Discussions (FGDs) Awareness sessions Consultation 	<ul style="list-style-type: none"> Raising awareness about Project operations Consulting and giving feedback or updates on specific issues Grievances resolution Labor recruitment Land acquisition for sourcing construction materials 	Depending on the type and purpose of the meeting, the following will be invited: <ul style="list-style-type: none"> Ward and Street leaders Religious leaders Government agencies working in the area Streets/communities Business Owners/ Operators CBOs and NGOs 	At least once per month in areas with active construction works	Either of the following: <ul style="list-style-type: none"> Street office Public buildings like schools Open spaces 	<ul style="list-style-type: none"> Project operations Employment opportunities Sourcing of construction materials (borrow pits) Grievance management procedures Any intervening issues. 	<ul style="list-style-type: none"> Presentations by Project staff Open discussions Deliberative Dialogue
2.	Katandala	As above	As above	As above	As above	As above	As above	As above
3.	Mazwi	As above	As above	As above	As above	As above	As above	As above
4.	Kizitwe	As above	As above	As above	As above	As above	As above	As above
5.	Chanji	As above	As above	As above	As above	As above	As above	As above
6.	Malangali	As above	As above	As above	As above	As above	As above	As above

9 ENVIRONMENTAL AUDITING

The overall implementation of the ESMP and all associated environmental management requirement is the primary responsibility of Contractor. Specifically, the Contractor's Site Agent (SA) and Environmental and Social Manager (ESM) are the primary focal point in ensuring that aspects of the ESMP that are to be implemented during construction are well implemented and monitored for compliance on enhancement and mitigation measures. Contractor will forward its monthly implementation report to the supervising consultant/Resident Engineer, who may review the report and conduct an audit or monitoring to ensure that the approved mitigation measures indicated in ESMP are implemented.

Also, in order to ensure the effective implementation of the ESMP including the associated monitoring activities, Environmental and social specialist from Supervision Consultant will be onsite and to ensure contractor complies on environmental and social issues as indicated in ESMP including providing necessary support to ensure ESMP is successfully implemented.

However, as part of ESMP implementation, Sumbawanga municipal (Employer) will work with external environmental and social auditor(s) to undertake audits (this can be quarterly, bi-annually, etc. depending on their convenient time) to ensure that the contractor is complying with the required construction phase of management measures (environmental and social management). The function of external auditors will be to monitor and report project compliance and other statutory obligations pertaining to environmental performance during the construction phase.

10 ENVIRONMENTAL REPORTING

10.1 Reporting Format

A Monthly Compliance Report (MCR) on implementation of ESMP will be prepared and submitted to the Resident Engineer for review and approval. Preliminary MCR will be prepared and presented to monthly site progress review meetings.

The MCR will also cover Health and Safety Management Plan (HSMP) implementation. The MCR on the ESMP and HSMP implementation will be presented and structured in the format below.

10.2 Corrective Actions

This section defines procedures for dealing with non-compliance with environmental management controls, environmental incidents and emergencies.

Non-compliances will be recorded routinely during monthly HSE inspections using checklists (see Annex 7-12); corrective and preventative actions will be recommended in the same checklists – that will be signed off by Supervision Consultant's and Contractor's Environmentalists or other appointed staff. All non-compliances and their corrective and preventative actions will be included in Monthly Compliance Reports (MCRs) to call for the attention of Contractor's and Engineer's senior staff.

Any unresolved issue will be carried over to the next reporting period until the issue has been resolved. This will allow for the tracking of issues until it is confirmed that the issue/concern has been resolved.

10.3 ESMP Review

This ESMP will be considered for review one year after its approval and implementation. The effectiveness of the proposed environmental controls and procedures will determine the need for review and revision. Contractor's environmental and social management team, with guidance from the Supervision Consultant, will be responsible for the review and revision if needed.

The reviewed and revised ESMP will be submitted to the Supervision Consultant for review and approval. The approved revised ESMP will be communicated to the Contractor's staff.

11 REFERENCES

1. Draft Contractor's Health and Safety Management Plan (HSMP) dated 27th December 2023.
2. Grant, A: Bracher P. 2002. Environmental Objectives and Best Management Practices for Aggregate Extraction: Ministry of Water, Land and Air Protection, Vancouver Island: Environmental Stewardship Division.
3. Jacobs (2017) Environmental Impact Assessment Report (EIAR) Volume 2 of 4: Main Report. Noise Vibration and Control in Crusher Plant.
4. Project's Environmental and Social Impact Assessment (ESIA) report, prepared by NORLPLAN Tanzania Limited (2023)
5. Roughton International (2000). Guidelines on Materials and Borrow Pit Management for Low-Cost Roads, DFID
6. State of Victoria, Department of Natural Resources and Environment. 2002. Environmental Guidelines for Sand and Gravel Extraction. LC0088.
7. United Republic of Tanzania (URT), Ministry of Infrastructure Development (2009), Environmental Code of Practice for Road Works (February, 2009).
8. URT (1964)' Antiquities Act of 1964 (Act No. 10 Of 1964 Cap 550) which is the principal legislation and the Antiquities (Amendment) Act of 1979 (Act No. 20 of 1979)
9. URT (2003). The occupational Health and Safety Act, 2003. Government Printers, Dar es Salaam.
10. URT, 1963. Explosives Act. Government Printer, Dar es Salaam.
11. URT, 2004. The Environmental Management Act (EMA), Cap 191. Government Printers, Dar es Salaam.
12. URT, 2007. The Environmental Management (Air Quality Standards) Regulations. Dar es Salaam.
13. URT, 2007. The Environmental Management (Soil Quality Standards) Regulations. Dar es Salaam.
14. URT, 2007. The Environmental Management (Water Quality Management Standards) Regulations.
15. URT, 2008. The HIV and AIDS (Prevention and Control) Act. Government Printers, Dar es Salaam.
16. URT, 2009. The Environmental Management (Solid Waste Management) Regulations. Dar es Salaam.
17. URT, 2009. The Environmental Management Act (Hazardous Waste Control and Management) Regulations. Dar es Salaam.
18. URT, 2009. The Public Health Act (Act No. 1/09). Government Printers, Dar es Salaam.
19. URT, 2011. The Environmental Management (Standards for the Control of Noise and Vibrations Pollution) Regulations. Dar es Salaam.

12 APPENDICES

Annex 1: CGC Corporation's HSE Policy

CGC CORPORATION'S HEALTH, SAFETY AND ENVIRONMENTAL POLICY

Safety and Health of our workforce and our Environment Stewardship are just as important to our success as Operational and Financial Performance, Government Relation, Ethical Behaviour, Corporate Reputation, Social Responsibility and Employee Involvement and Commitment. We shall strive to make our facilities safer and better places to work and our attention to detail and focus on HSE will ensure high standards of performance. Our efforts in the areas of HSE will be directed by the following:

a. Accident Prevention: We are striving to make our workplaces free of injuries and accidents with 100% safe work practices and safe conditions throughout our operations

b. Environmental Stewardship: We are committed to the protection of the environment and shall apply working best practices as appropriate to minimize the generation of emissions and waste throughout our operations.

c. Risk Assessment: Effective management of risk is fundamental to achieving safe operations. We are systematically identifying potential hazards, assess their relative significance, develop reduction measures and establish suitable controls to ensure that risks are minimised.

d. Emergency Preparedness: Being properly prepared for an emergency is of vital importance and is the responsibility of management, supervisors and employees at all levels. We are maintaining emergency plans in cooperation with local authorities and emergency services groups to ensure a prompt, effective and integrated response to minimise harmful effects from any incidents.

e. Regulatory Compliance: We will comply with all applicable laws, regulations, standards and recognised codes of practice and, where any of these are inadequate, adopt and apply high standards that reflect CGC commitment to safety, the protection of the natural environment and the health of our workforce.

f. Training: We will continue to ensure that employees understand their HSE responsibilities that they have the right training for their jobs and are competent to perform their assignments safely, effectively and efficiently.

g. Community Citizenship: We are dedicated to being a good citizen in the communities where we work. We will conduct our operations safely, cleanly and responsibly and will be proactive in consultation with all stakeholders' issues of mutual interest.

Name:

Position:

Signature:

Date:

Annex 2: Borrow Pits and Quarry Sites Approval Form

**Package 1 - Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality
BORROW PITS AND QUARRY SITES APPROVAL FORM**

Borrow pit/ quarry site description		Remarks	
Particulars			
1.	Name of borrow pit or quarry site		
2.	Location		
3.	Land Size		
4.	Type of material and approximate quantity		
5.	Status (existing or new)		
Mode of acquisition by Contractor			
6.	Mode of acquisition (attach evidence)		
7.	Did acquisition involve compensation?		
8.	If yes, attach evidence, as appropriate		
9.	Description of outstanding ownership issue, if any		
Minimum distances as for environmental, social, health and safety (ESHS) consideration – According to URT, 2009, exploitation surface of a new borrow pit or quarry must be located at least 500 meters from the following elements:			
	Element / feature	Distance (m)	Remarks
10.	Public or private buildings		
11.	Trunk or regional roads		
12.	Railroads		
13.	Water pipelines		
14.	Cemeteries		
15.	Cultural sites		
16.	Classified forests		
Closure and reinstatement/ restoration plan			
17.	Opening date		
18.	Expected closure date		
19.	Depth of borrow pit at closure (should not exceed 3m)		
20.	Responsibility for restoration		

Form Completed by

Signature:

Name:

.....

Position: Date:

Approved/ accepted by

For the Contractor

For the Consulting Engineer

Name: _____

Name: _____

Date: _____

Date: _____

Annex 3: Recommendable Tree Species Ideal for Planting along Road in Tanzania

S/N	NAME	GROWING CONDITIONS
1	<i>Calistemon citrinus</i>	Lake basin, Highlands and Coastal areas
2	<i>Croton megalocarpus</i>	Arid and Semi- arid lands, Lake basin and Highlands
3	<i>Azadirachta indica</i>	Arid and semi-arid lands and Coastal areas
4	<i>Cordia sebestina</i>	Coastal areas, Lake basin and Arid and semi-arid lands
5	<i>Senna fistula</i>	Coastal areas, Lake basin, Arid and semi-arid lands and Highlands
6	<i>Trichilia emetica</i>	Coastal areas, Lake basin and Arid and semi-arid lands
7	<i>Jacaranda mimosifolia</i>	Coastal areas, Lake basin, Arid and semi-arid lands, Highlands
8	<i>Casuarina equisetifolia</i>	Arid and semi-arid lands and Coastal areas
9	<i>Acacia seyal</i>	Lake basin and Arid and semi-arid lands
10	<i>Acacia zanzibarica</i>	Coastal areas and Lake basin
11	<i>Acacia melanoxylon</i>	Arid and semi-arid lands
12	<i>Samanea saman</i>	Arid and semi-arid lands, Highlands and Lake basin
13	<i>Polyalthia longifolia</i>	Coastal areas, Lake basin, Arid and semi-arid lands and Highlands
14	<i>Acacia xanthophloea</i>	Arid and semi-arid lands, Lake basin and Coastal areas
15	<i>Delonix regia</i>	Arid and semi-arid lands, Lake basin and Coastal lands
16	<i>Gmelina arborea</i>	Coastal areas
17	<i>Roystonea regia</i>	Arid and semi-arid lands, Coastal areas and Lake basin
18	<i>Spathodea campanulata</i>	Lake basin, Highlands and Coastal areas
19	<i>Senna grandis</i>	Coastal areas, Lake basin, Arid and semi-arid lands and Highlands

Annex 4: HSE Induction Training Checklist



CHINA GEO-ENGINEERING CORPORATION (CGC)

Package 1 - Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality.

HSE INDUCTION TRAINING CHECKLIST

DATE.....

Health, Safety and Environment (HSE) is very important component in any construction activities, this is because it guides the employee to protect him/herself from accidents, injury, occupational diseases and hence increase his/her and Company productivity.

NOTE: Upon signing in the column sheet against his/her name, it means that, the employee has understood all the HSE topics inducted.

No.	HSE Induction Training Topics	YES	NO
01.	Health, Safety and Environmental (HSE) Policy		
02.	Health, Safety and Environmental (HSE) Principles		
03.	Workers' Code of Ethical Conduct (CEC)		
04.	HSE signs around project/construction sites		
05.	Emergency response procedures		
06.	Use of Personal Protective Equipment (PPE) during working period		
07.	Fire prevention and fighting		
08.	The importance of road safety signs		
09.	The working environment (proper housekeeping)		
10.	The importance of first aid		
11.	HIV/AIDs, STDs, TB, Malaria and COVID-19 prevention and control		
12.	The effect of alcohol and drug abuse in working place		
13.	Accident and incidence reporting and investigation		
14.	The effect of environmental pollution i.e.		
15.	Grievance and complaints management procedures		

HSE Induction Trainers and Approval

	Name	Position	Date	Signature
1.				
2.				
3.				
4.				

Annex 5: HSE Training Register



CHINA GEO-ENGINEERING CORPORATION (CGC)

**PACKAGE 1 - UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN SUMBAWANGA MUNICIPALITY
HSE INDUCTION TRAINING REGISTER**

No.	Name/Jina	Job Title/Cheo	Work Site/Sehemu ya Kazi	Date/Tarehe	Signature/Saini
01.					
02.					
03.					
04.					
05.					
06.					
07.					
08.					
09.					
10.					
11.					
12.					
13.					

Annex 6: Format for Documenting Minutes of Consultation Meetings

Subject:			
Date & Time:		Venue:	
Attendance:	List of attendance to be annexed to the minutes.		
Agenda:	5. Opening of the meeting 6. Self-introduction by participants 7. Intervening issues 8. Any other business 9. Summary of agreed issues for action 10. Closing of the meeting		
Meeting Minutes:			
1. Opening of the Meeting			
2. Self-introduction by participants			
3. Intervening issues			
4. Any other business			
5. Summary of agreed issues for action			
6. Closing of the meeting			

Signature
Name:

Street Position: Chairperson

DATE:.....

Signature
Name:

Position: Street Executive Officer

DATE:

Annex 7: Monthly HSE Inspection Checklist for Contractor's Main Camp

PACKAGE 1 - UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN SUMBAWANGA MUNICIPALITY

Monthly HSE Inspection Checklist for Contractor's Camp // Engineers' camp

Contractor _____ **Date** _____
: _____ **:** _____
Location: _____ **Time** _____
 _____ **:** _____

No	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
01	Medical Care				
	Is the First Aid point identified?				
	Are there adequate First Aid Kits at the camp?				
	Are there enough and qualified First Aiders at the camp?				
	Is HIV campaign conducted at the camp?				
	Are HIV posters displayed at the camp?				
	Are there adequate condom boxes with enough condoms provided at the camp?				
02	Personal protective equipment (PPE)				
	Are proper PPE identified/provided?				
	Are PPEs maintained in a good condition?				
	Are adequately PPE Stock?				
	Are PPE complying with acceptable standard?				
	Are Personnel know the use of PPE?				
03	Hygiene Situation				
	Are there enough toilets at the camp?				
	Is there good wastewater management system at the camp?				
	Is sufficient drinking water available and used at camp?				
	Is canteen clean and in good condition?				
04	Environmental and Housekeeping				
	Is general environment clean?				

No	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
	Are the components in good arrangement?				
	Is good solid waste management system practiced?				
	Are grasses and trees planted around the camp?				
	Are hazardous waste managed properly at the camp?				
	Are food remains disposed properly?				
	Is dust suppression practiced at the camp?				
	Are oil and grease managed properly?				
05	Emergency Preparedness				
	Are there sufficient warning signs at the camp?				
	Are there emergency assembly points at the camp?				
	Is there emergency escape route plan at the camp?				
	Are there emergency contacts numbers at the camp?				
	Are there enough fire-fighting equipment around the camp?				

For For

Contractor : Engineer :

Date : Date :

Annex 8: Monthly HSE Inspection Checklist for Quarry Sites

**PACKAGE 1 - UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN
SUMBAWANGA MUNICIPALITY**

Monthly HSE Inspection Checklist for Quarry Sites/ Borrow pits

Contractor: _____ **Date:** _____
Location: _____ **Time:** _____

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
01	Tools				
	Are all hand tools in safe working condition?				
	Are tools properly stored?				
02	Personal protective equipment (PPE).				
	Are proper PPE identified/ provided?				
	Are PPE complying with acceptable standard?				
	Are Personnel know the use of PPE?				
03	Excavation				
	Is excavation not exceeding 5 meters depth?				
	Are there safe accesses to the excavation?				
	Are there sufficient hazards warning sign?				
	Are there pit water outlets?				
04	First Aid Equipment				
	Are first aid station identified?				
	Are first aid boxes present?				
	Are eye wash bottle available and good order?				
05	Personnel welfare				
	Is sufficient drinking water available and used at site?				
	Are there adequate rest shelter provided at site?				
	Are toilet facilities provided?				
	Is dust suppression practiced?				
06	Location				

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
	Are the pits located at least 100m far from Right of Way?				
	Are the pits located at least 500m far from main road (Trunk or regional road)?				
	Are the pits located at least 500m far from major settlements?				
	Are the pits located at least 500m far from railway?				
	Are the pits located at least 500m far from the fuel pipelines?				
	Are the pits located at least 500m far from protected sites?				
	Are the pits located at least 500m far from water pipes?				
	Are the pits located at least 500m far from classified forest?				
07	Compensations and Rehabilitation				
	Are compensations done following valuation reports?				
	Are there any complaints from the land owners?				
	Are rehabilitation plans prepared?				
08	Explosives				
	Are explosives stored in good condition?				
	Are explosives kept far from the operation sites?				
	Is qualified blaster used during explosion?				
	Are there valid permits used during transportation and uses of explosives?				

For Contractor :
Date :

For Engineer :
Date :

Annex 9: Monthly HSE Inspection Checklist for Road Sites

**PACKAGE 1 - UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN
SUMBAWANGA MUNICIPALITY**

Monthly HSE Inspection Checklist for Road Sites

Contractor _____ **Date:** _____
Location: _____ **Time** _____

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
01	House Keeping				
	Are access/exit routes unobstructed and clear of tripping hazard?				
	Are toilets around site: clean and free of hazard?				
	Are lifting equipment adequate in areas?				
	Are materials stored properly?				
	Rubbish containers available, adequate & color coded?				
	Are surplus materials stored in site?				
	Is the site free from sharp/pointed objects such as nails?				
02	Tools				
	Are all hand tools in safe working condition?				
	Are tools properly stored?				
03	Electrical Equipment				
	Are all electrical and control panels secured and accessible?				
	Are electrical shock posters sited?				
	Electrical equipment properly earthed?				
	Are portable grinder guarded?				
	Are all rotating tools protected?				
04	Machinery and equipment				
	Are there valid certificates for mobile equipment?				
	Are all rotating equipment and drive belts protected?				
	Are qualified and experienced operators used on site?				
05	Lifting equipment				
	Are lifting equipment comply with current colour code?				

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
	Are there valid certificates for lifting equipment?				
	Are qualified and experienced operators used onsite?				
06	Compressed Gases				
	Are all welding gas cylinders capped, marked and stored properly?				
	Are gas cylinders secured properly?				
	Are empty gas cylinders isolated?				
07	Personal Protective equipment (PPE).				
	Are proper PPE identified/provided?				
	Are PPEs maintained in a good condition?				
	Are adequately PPE Stock?				
	Are PPEs complying with acceptable standard?				
	Are personnel know the use of PPE?				
08	Excavation				
	Are excavated materials away from the road edge?				
	Are there safe accesses to the excavation?				
	Are there sufficient hazards warning signs?				
09	Firefighting Equipment				
	Are fire extinguishers readily accessible and clearly identified?				
	Are fire extinguishers in good working condition?				
10	First Aid Equipment				
	Are first aid stations identified?				
	Are the first aid boxes adequately stocked?				
	Are eye wash bottle available, in date and good order?				
11.	Emergency				
	Are assembly points identified?				
	Are people aware of emergency procedure?				
	Are there more than one exit from area?				
	Are there sufficient direction and information signs?				
12	Personnel welfare				
	Is sufficient drinking water available for use at site?				
	Are adequate rest shelters provided at site?				
	Are the toilet facilities provided on site?				
	Is dust suppression practiced onsite?				

For Contractor :
 Date :

For Engineer :
 Date :

Annex 10: Monthly HSE Inspection Checklist for Diversion Roads

PACKAGE 1 - UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN SUMBAWANGA MUNICIPALITY

Monthly HSE Inspection Checklist for Diversion Roads

Contractor: _____ **Date** : _____
Location: _____ **Time:** _____

No	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
01	Diversion Construction				
	Is the diversion follow into pre-existing road?				
	Is it a new diversion?				
	Is the construction following proposed designing?				
	Are the road safety signs present according to the design?				
	Are the bus stops present along the diversion stretch?				
	Is the diversion passing into Road reserve?				
	Are the water ditches constructed along the diversion stretch?				
02	Maintenance of the diversion				
	Is the dust suppression done regularly?				
	Is the diversion grading regularly?				
03	Rehabilitation				
	Is there any rehabilitation plan prepared for the diversions?				

No	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
	Is there any diversion rehabilitation done for this month?				
	Are the rehabilitation activities following the proposed plan?				

For For
 Contractor : Engineer :
 Date : Date :

Annex 11: ESMP Reporting Format

1. INTRODUCTION

- a. General Introduction
- b. Road Works Progress Summary

2. ESMP IMPLEMENTATION

- a. Environmental Aspects (dust suppression; solid waste management; hazardous waste management; protection of water resources; soil erosion control; protection of wildlife, spoil material management, construction wastewater management, sanitary wastewater management etc.)
- b. Social Aspects (land acquisition; relocation of public utilities; community engagement meetings, grievance management, crime and security management; community support as Contractor's corporate social responsibility (CSR); etc.
- c. Employment and workers welfare (employment of foreign and local workers by gender, provision of employment contracts, contribution to NSSF and WCF, provision of drinking water, provision of sanitary facilities, provision of changing rooms and working cloths, etc.)
- d. HIV/AIDS Programme and Prevention control Programme (HIV/AIDS awareness campaign, HIV/AIDS prevention campaign and HIV/AIDS training)
- e. Environmental monitoring and inspections (air and water quality; contractor's and Engineer's camp sites; borrow pits, crusher plant site and quarry/ crusher sites; etc.).

3. STATUS OF COMPLIANCE OF ISSUES OBSERVED IN THE PREVIOUS MONTH (Contractors' obligation with ESHS issues)

4. ACTION PLAN FOR NEXT MONTH

5. REFERENCES

6. ANNEXES

Annex 12: The adopted Employer's Code of Conduct

ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY (ESHS), OHS, GBV/SEA and CHILD ABUSE

EMPLOYEE CODE OF CONDUCT:

I, _____, acknowledge that adhering to environmental, social, health and safety (ESHS) standards, following the project's occupational health and safety (OHS) requirements, and preventing Gender Based Violence (GBV) is important.

The Company considers that failure to follow ESHS and OHS standards, or to partake in activities constituting GBV—be it on the work site, the work site surroundings, at workers' camps, or the surrounding communities—constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. Prosecution by the Police of those who commit GBV may be pursued if appropriate.

I agree that while working on the project I will:

1. Consent to Police background check.
2. Attend and actively partake in training courses related to ESHS, OHS, and GBV as requested by my employer.
3. Will wear my personal protective equipment (PPE) at all times when at the work site or engaged in project related activities.
4. Take all practical steps to implement the contractor's environmental and social management plan (C-ESMP).
5. Implement the OHS Management Plan.
6. Adhere to a zero-alcohol policy during work activities, and refrain from the use of narcotics or other substances which can impair faculties at all times.
7. Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
8. Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
9. Not sexually exploit or abuse project beneficiaries and members of the surrounding communities.
10. Not engage in sexual harassment of work personnel and staff—for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature is prohibited. E.g. looking somebody up and down; kissing, howling or smacking sounds; hanging around somebody; whistling and catcalls; in some instances, giving personal gifts.
11. Not engage in sexual favors—for instance, making promises of favorable treatment (e.g. promotion), threats of unfavorable treatment (e.g. loss of job) or payments in kind or in cash, dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
12. Not use prostitution in any form at any time.
13. Not participate in sexual contact or activity with children under the age of 18—including grooming, or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.

14. Unless there is the full consent¹ by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex (including prostitution). Such sexual activity is considered "non-consensual" within the scope of this Code.
15. Consider reporting through the GRM or to my manager any suspected or actual GBV by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.

With regard to children under the age of 18:

16. Bring to the attention of my manager the presence of any children on the construction site or engaged in hazardous activities.
17. Wherever possible, ensure that another adult is present when working in the proximity of children.
18. Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
19. Not use any computers, mobile phones, video and digital cameras or any other medium to exploit or harass children or to access child pornography (see also "Use of children's images for work related purposes" below).
20. Refrain from physical punishment or discipline of children.
21. Refrain from hiring children for domestic or other labor below the minimum age of 14 unless national law specifies a higher age, or which places them at significant risk of injury.
22. Comply with all relevant local legislation, including labor laws in relation to child labor and World Bank's safeguard policies on child labor and minimum age.
23. Take appropriate caution when photographing or filming children.

Use of children's images for work related purposes

When photographing or filming a child for work related purposes, I must:

24. Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
25. Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.
26. Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive.
27. Ensure images are honest representations of the context and the facts.
28. Ensure file labels do not reveal identifying information about a child when sending images electronically.

Sanctions

I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

1. Informal warning.
2. Formal warning.

¹ **Consent** is defined as the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained using threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even if national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

3. Additional Training.
4. Loss of up to one week's salary.
5. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
6. Termination of employment.
7. Report to the Police if warranted.

I understand that it is my responsibility to ensure that the environmental, social, health and safety standards are met. That I will adhere to the occupational health and safety management plan. That I will avoid actions or behaviors that could be construed as GBV. Any such actions will be a breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to ESHS, OHS, GBV issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to act mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____