Baseline Risk Assessment:

BASELINE RISK ASSESSMENT FOR THE NDPW INFRASTRUCTURE PROJECTS IN VARIOUS PROVINCE ACROSS THE COUNTRY

Risk Assessment №

COEGA-SBU-BRA-058-24

Classification: Public

11 July 2024

DOCUMENT INFORMATION SHEET

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Prepared by	**:**	*Siseko Gwavu*
Typed by	**:**	*Siseko Gwavu*
Business Unit	**:**	*SBU*
Prepared for	**:**	*Bidders*
Date of Issue	**:**	*11 July 2024*

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DOCUMENT CONTROL SHEET

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PROJECT NAME	:	***Baseline Risk Assessment for the NDPW Infrastructure projects in various Province across the Country***
DOCUMENT TITLE	:	***Baseline Risk Assessment***
DOCUMENT No.	:	***CDC-SBU-BRA-058-24***

SIGNING OF THE ORIGINAL DOCUMENT

We, the undersigned, accept this document as a stable work product to be placed under formal change control as described by the Procedure for Control of Documented Information.

ORIGINAL	**Prepared by**	**Reviewed by**	**Approved by**
Date: **11 July 2024**	Name: **Siseko Gwavu**	Name: **Siyabulela Mabi**	Name: **Simphiwe Silwana**
	Signature: Digitally Signed by: **Siseko Gwavu** *SHE Programme Manager* **7c54b8f6-e79c-49c9-b0fa-92ffb296ce62** IP Address: 10.0.30.81 Date: 2024/07/22 1:52:48 PM	Signature: Siyabulela Mabi | d0872682-5106-4ae5-8c5e-6fa0aebc7652 | 2024/07/22 5:39:51 P	Signature: Digitally Signed by: **Simphiwe Silwana** *Sustainability Manager: HSE & Social Impac* **d94c9186-b4f3-4805-8512-de16421e38bc** IP Address: 10.0.56.29 Date: 2024/07/23 7:47:53 AM

Distribution:	***Coega Development Corporation***

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CLIENT: NATIONAL DEPARTMENT OF PUBLIC WORKS INFRASTRUCTURE (NDPWI)

PROJECT: NDPW INFRASTRUCTURE PROJECTS IN VARIOUS PROVINCES ACROSS THE COUNTRY

IMPLEMENTING AGENT (IA): COEGA DEVELOPMENT CORPORATION

CLIENT CONSTRUCTION BASELINE RISK ASSESSMENT

The intended scope of works is entailed in the RFP document, mainly focusing on the intended construction work of infrastructure in various Provinces across the Country. The works order entails of construction, repairs, maintenance, refurbishments, additions, upgrades, renovations of infrastructure across the provinces i.e. **EC, FS, NC, NW, WP, GP, MP.** The scope will include the following activities but not limited to –

Site Area

- Site Establishment inclusive of separating construction area with the operations of the activities
- Loading and Offloading
- Control of access to public and staff on site
- Security
- Access to services and protection thereof
- Decanting

Excavation Works

- Protection of species i.e. flora, fauna and heritage resources
- Site clearance
- Digging of trenches
- Backfilling of trenches

Building Works

- Demolition of some existing structures
- Brick and plastering work
- Glazing
- Joinery
- Working on heights
- Electrical installation
- Mechanical installation
- Handling of Asbestos Roof Sheeting and products (where applicable).

Plants/Equipment

- Use of concrete mixer
- Use of plant equipment
- Use of hand and explosive tools
- Use of lifting equipment
- Use of scaffolding/suspended platforms
- Use of construction vehicles (Inclusive of bakkies)

Environment

- Management and handling of different waste categories
- Use of construction water and portable water
- Working during inclement weather
- All health hazards that can be present during any of the above activities and should include individual dusts, gases, fumes, vapours, noise, extreme temperatures, illumination, windspeed, vibration and ergonomic hazards.
- Landscaping and rehabilitation of disturbed areas

The risk profile is identifying the key areas of risk exposure that the Implementing Agent is highlighting to be considered by the respective Designers and Contractors as part of the construction, design, or operations of the units: The item on the risk profile are linked and a legal framework for compliance to such have been identified in the controls and SHE specification but not limited to:

- Constructing in a green or brown fields area within the Provinces
- Consideration of the environmental impact assessment to be prioritize especially on green fields
- Protection of species to be implemented e.g., flora, fauna etc
- Inclement weather conditions
- Exposure to moving equipment and interaction with other contractors
- Earth works and excavations
- Exposure to hot sources
- Dust, noise, vibration exposure
- Manual handling & related ergonomic stressors
- Working at heights, structural frame erections and roof sheeting
- Lifting and lowering operations
- Grinding and cutting operations
- Electrical and mechanical installation
- Handling and storage of chemicals
- Ventilation limitations
- Illumination limitations
- Heat and Fire exposure

- Stacking and racking exposure
- Waste exposure and handling
- Safe walks and driveways onsite
- Commissioning risk exposures

The risks identified in this assessment relates to the IA's duties, the Designers and Contractors appointed on these projects will be required to develop a detailed baseline risk assessment on the risk exposures experienced on site and relevant to the project scope of works

No	Processes	Potential Hazards	Risk
	Lack of SHE planning and implementation	Not prioritizing SHE requirements at the appropriate stage of the project by internal and external teams	Negative impact on the client, possible cost implication for the identification of changes as required from an SHE compliance requirement. Project delays and legal liability
		Late of CHSP representatives for the project	Legal liability as a result of the risk not being adequately identified, managed and controlled on the project
		No pre-construction SHE management approvals conducted	Legal non-conformances and project delays resulting into cost implication
	Known/unknown services for water, electricity and sewer	Electrocution, sewer/water leaks	Disruptions to the project, shock, burns, death,
	Lack of geotechnical soil information knowledge	Excavations collapse and incorrect design rational used	Injuries, fatal, structural faults and property damages
	Poor management of social -economic risks	Exposure to unrest, crime on site	Injuries, damages and theft

No	Processes	Potential Hazards	Risk
	Access and transport on and to site	Unsafe transportation, lack of adequate traffic control and road worthiness of vehicles.	Motor vehicle accident and fatalities. Personal injuries of non-construction workers due easy unauthorized access.
	Site camp erection & dismantling	Rigging – off loading- placement of containers and machinery	Falling objects - Sliding objects Cuts and lacerations – crush injuries
	Off-loading equipment, machinery, materials	Manual rigging and crane operations- rigging- movement of equipment	Falling and moving objects or machinery Ergonomic strain, crush, death
	Stacking & Storage	Moving storage or stacks (pipes, bricks)- picking off stacks	Falling objects or machinery- crush injuries
	Bush Clearing	Moving machinery, dust, and noise nuisance, snakes etc	Accidents, dust inhalation and NIHL, bites
	Protected flora and fauna	Illegal hunting of species or removal of red listed, as per the environmental legislations	Environmental non-conformance
	Grubbing and aggregate placement	Mobile plant and truck movement dust	Crush accidents- dust inhalation
	Layer earth works	Transportation, traffic control	Motor vehicle accident and fatalities
		Use of compaction plant	Crush injuries- noise - vibration
	Dust exposure	Construction activities generating dust	Respiratory irritation- silica induced illness, poor visibility on site

No	Processes	Potential Hazards	Risk
	Noise exposure	Construction activities generating noise	Noise induce hearing loss
	Whole Body and hand vibration	Mobile plant operations, using vibrating electrical or mechanical equipment	Whole body Vibration back and muscular strain
	Exposure to radioactive source	Exposure and use to radioactive source	Acute radiation
	Excavation works.	Working inside unsafe excavations, no barricading to prevent employees from falling into excavation, signage displayed – lack of warning indicator	Falling into excavation, deaths, serious injuries. Excavation collapse
	Pipe laying and road works	Unsafe lifting and lowering into excavations, mobile plant operations, dust, open excavations	Falling loads, falling into excavations, dust inhalation
	Waste management	Waste accumulation, risk of fire, pollution, unauthorizing dumping within the districts	Construction rubble polluting the environment, illegal dumping
	Plant repair and maintenance of plant and machinery	Mechanical risks: mobile parts, gravity energy, hydraulic or coil energy, nip points	Severe to fatal injuries
	Exposure to elements and environment	Sun, wind, temperature, emissions	Skin cancer, heat exhaustion, lung cancer etc
	Temporary Flammable Stores	Inadequate temporary flammable store,	Fire risk resulting into property damage and injury to people

No	Processes	Potential Hazards	Risk
	Hauling of vegetation and soil material	Unauthorized clearing of vegetations and soil material, illegal dumping without approval by Agent and the CDC.	Pollution into the environment, illegal dumping
	Mobile plant operations	Mobile plant and truck movement	Accidents/Incidents
	Concrete works	Handling cement, concrete, heavy objects	Skin, eye chemical insult, ergonomic strain
	General construction work, brick laying, carpentry etc	Hand tools- small portable electrical tools- manual handling- sharp articles –electricity	Hand-, eye injuries, crush injuries, noise exposure, dust exposure –ergonomic strain –electrical shock - fire
	Temporary work operations.	Collapse, incorrect temporary works erections Wind affecting the temporary work structures	Serious injuries- multiple persons- fatality
	Construction in operation	Hazardous activities and construction vehicle exposures, open trenches	Injuries to members of the public or community and users
	Structural steel erection	Ergonomic hazards Collapse Wind risk during erection affecting the material handling & temporary work structures Fall risks, drop risks	Strains Serious injuries- multiple persons- death
	Installation of Roofing, Ceiling	Ergonomic hazards Collapse of structure	Strains Serious injuries- multiple persons- death

No	Processes	Potential Hazards	Risk
		Wind risk affecting the material handling of roof- and cladding sheets Fall risks, drop risks	
	Public Health and Safety, constructing at an operational area	Construction to be separated from the members of the public, construction material falling from heights, obstructing path and walk ways, unsafe site conditions	Scratches, fractures, skin, eye, respiratory impact, falls,
	Working at heights, placement of windows and air vents	Ergonomic hazards Collapse Wind risk affecting material handling of roof- and cladding sheets	Strains Serious injuries- multiple persons- fatality
	Electrical work.	Unsafe electrical exposure	Electrocution, Fatality, damage to property due to fire
	Mechanical works	Unsafe mechanical exposure	Entanglement, serious injuries
	Use of ladder	Collapsing –fall -drop	Severe injury- fatality
	Use of chemical substances	Cement-dust, diesel, Paint	HCS-specific illness

No	Processes	Potential Hazards	Risk
	Demolition work. If required due to inadequate building quality	Exposure to unknown hazardous sources, structural collapse	Severe injury and fatality
	Community unrest	Unforeseen unrest from community members	Property damage, project delays
	Road usage and cleaning	Unsafe constructive vehicle operations,	Injuries to pedestrians and members of the public.
	Laydown areas	Delivery of construction material and equipment to site, incorrect storage of equipment's and material	Obstruction for operations and damaged to existing infrastructure
	Painting	Usage of paint and painting at heights	Fume inhalation, falling from heights

ANNEXURE B

Acknowledgement:

I,_____representing _____ Principal Contractor have satisfied myself with the content of the Baseline Risk Assessment (BRA) and shall ensure that the personnel and other people visiting site comply with all relevant obligations in respect thereof.

_____ _____

Signature of Principal Contractor Date

_____ _____

Signature of Agent Date

Specification:

HEALTH AND SAFETY SPECIFICATION FOR THE NDPWI PROJECTS IN VARIOUS PROVINCES ACROSS THE COUNTRY

Specification №

CDC-SBU-SPEC-106-24

Classification: Public

11 July 2024

DOCUMENT INFORMATION SHEET

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Type of Document	**:**	*Occupational Health and Safety Site Specification for NDPWI projects for various Provinces across the Country*
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Prepared by	**:**	*Siseko Gwavu*
Typed by	**:**	*Siseko Gwavu*
Business Unit	**:**	*SBU*
Prepared for	**:**	*Bidders*
Date of Issue	**:**	*11 July 2024*

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PROJECT NAME	:	***Project Occupational Health & Safety Site Specification: For the NDPWI projects for various Provinces across the Country***
DOCUMENT TITLE	:	***Project Health* and *Safety Specification***
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SIGNING OF THE ORIGINAL DOCUMENT

We, the undersigned, accept this document as a stable work product to be placed under formal change control as described by the Procedure for Control of Documented Information.

ORIGINAL	**Prepared by**	**Reviewed by**	**Approved by**
Date: **11 July 2024**	Name: **Siseko Gwavu**	Name: **Siyabulela Mabi**	Name: **Simphiwe Silwana**
	Signature: Digitally Signed by: **Siseko Gwavu** *SHE Programme Manager* **7c54b8f6-e79c-49c9-b0fa-92ffb296ce62** IP Address: 10.0.30.81 Date: 2024/07/22 1:52:48 PM	Signature: Siyabulela Mabi | d0872682-5106-4ae5-8c5e-6fa0aebc7652 | 2024/07/22 5:39:51 P	Signature: Digitally Signed by: **Simphiwe Silwana** *Sustainability Manager: HSE & Social Impac* **d94c9186-b4f3-4805-8512-de16421e38bc** IP Address: 10.0.56.29 Date: 2024/07/23 7:47:53 AM

Distribution:	***Coega Development Corporation***

REVISION CHART

REVISION 1	**Name:**	**Name:**	**Name:**
Date:	Signature:	Signature:	Signature:

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HEALTH AND SAFETY SPECIFICATION
(Specification)

TABLE OF CONTENTS

1 INTRODUCTION AND BACKGROUND

1.1 BACKGROUND TO THE OCCUPATIONAL H&S SPECIFICATION

Historically, the Building or Construction Industry has had poor health and safety record. Due to the complex and potentially dangerous operations being undertaken, there is a high risk of incidents and injuries. In many instances poor adherence to the Occupational Health and Safety Act and Regulations, (OHS Act), Act (85 of 1993) has resulted in severe consequences for Health and Safety performance. The Coega Development Corporation (CDC) is determined that the highest health and safety standards are implemented and full commitment from all parties to achieving best practices recognised internationally.

To achieve this goal the CDC has prepared and published a Project-Specific Occupational Health and Safety Specification for the **National Department of Public Works Infrastructure projects in various Provinces across the Country (EC, FS, NC,NW, WP, GP, MP)**. The OHSS sets out guidelines and minimum levels of awareness and guidance for health and safety requirements for the specific project. Management, supervision, and contractual responsibility for adhering to these requirements rests with Client/Consultants and Contractor/s. All employees are encouraged to be pro-active in compliance. The CDC is committed in ensuring the highest health and safety norms and standards for all work undertaken during planning, production, and closeout stages.

1.2 PURPOSE OF THE OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

The purpose of the OHSS is to assist the Consultants/Contractors in achieving compliance with the OHS Act and Regulations and all relevant Legislations revolving the Contractor's scope of works and to reduce potential injuries in the workplace environment. The OHSS is a performance measurement to ensure all stakeholders such as the Client, Consultants, Contractors achieve an acceptable level of OHS performance.

Therefore, the Consultants/Contractors are at all times required to and will remain responsible to address all requirements of the OHS Act and Regulations and all relevant Legislations, norms and standards in the project health and safety plan and implementation thereof. The OHSS is a performance specification to ensure that the CDC and any bodies that enter into formal agreements with the CDC such as Consultants, Contractors achieve an acceptable level of OHS performance.

No advice of any document required by the OHSS for an example hazard identification and risk assessment, health and safety plan or any other form of communication from the CDC shall be interpreted as an acceptance by the CDC of any obligation that absolves the Consultants/Contractors from achieving the required level of performance and compliance with legal requirements. Further, there is no acceptance of liability by the CDC which may result from the Consultants/Contractors failing to comply with the OHSS unless the CDC has issued an instruction to any requirement, i.e. the Consultants/Contractors remain responsible for achieving the required performance levels.

1.3 IMPLEMENTATION OF THE OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION (OHSS)

This OHSS forms an integral part of the Contract, and Consultants/Contractors are required to make it an integral part of their Contracts with Consultants/Contractors and Suppliers. It will be disseminated by the CDC responsible person for the duration of the intended construction works.

The Consultants/Contractors shall sign a CDC acknowledgement in Annexure A that he /she has familiarised him / herself with the content of the OHSS and he / she shall comply with all his / her obligations in respect thereof. The successful Consultants/Contractors will be required to compile a project Health & Safety and Environmental File based on the requirements of the OHS Act and Regulations and relevant Legislations, which will need to be approved by the appointed CDC SHE Project Manager prior commencement with construction work.

2 OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1 SCOPE OF WORKS

The intended scope of works is entailed in the RFP document, mainly focusing on the intended construction work in the various Provinces across the Country. The works order entails maintenance, refurbishment, repairs, upgrades, renovations, rehabilitation of existing state assets i.e. infrastructure services and top structures. The scope will include the following activities but not limited to –

Site Area

- Site Establishment inclusive of separating construction area with the operations of the activities
- Loading and Offloading
- Control of access to public and staff on site
- Security
- Access to services and protection thereof
- Decanting

Excavation Works

- Protection of species i.e. flora, fauna and heritage resources
- Site clearance
- Digging of trenches
- Backfilling of trenches

Building Works

- Demolition/dismantling of some existing structures
- Brick and plastering work
- Glazing
- Joinery
- Working on heights
- Electrical installation
- Mechanical installation
- Article/substances Installations

Plants/Equipment

- Use of concrete mixer
- Use of plant equipment
- Use of hand and explosive tools
- Use of lifting equipment
- Use of scaffolding/suspended platforms
- Use of construction vehicles (Inclusive of bakkies)

Environment

- Management and handling of different waste categories
- Use of construction water and portable water
- Working during inclement weather
- All health hazards that can be present during any of the above activities and should include individual dusts, gases, fumes, vapours, noise, extreme temperatures, illumination, windspeed, vibration and ergonomic hazards.
- Landscaping and rehabilitation of disturbed areas

2.2 INTERPRETATION

The OHSS contains clauses that are generally applicable to construction works and impose pro-active controls associated with activities that impact on human health and safety as it relates to plant and machinery. Compliance to the requirements of the OHS Act is in addition to the requirements of the OHSS and is part of the Consultants or Contractors responsibility. The CDC will monitor that the Consultants/Contractors comply with the requirements of the OHS Act and will not prescribe to the Consultants/Contractors how such compliance is achieved.

2.3 DEFINITIONS

For the OHSS the definitions, acronyms given hereunder shall apply:

2.3.1 Construction Work (as defined in the Construction Regulations 2014)
means any work in connection with –

a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or an addition to a building or any similar structure; or
b) The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer, or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work.

2.3.2 Hazard Identification and Risk Assessment and Risk Control -
Means a documented plan, which identifies hazards, assesses the risks and detailing.

2.3.3 Site-

Means the area in the possession of the Principal Contractor for the intended construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Principal Contractor and approved for such use by the Engineer.

2.3.4 The OHS Act

Means, unless the context indicates otherwise, the Occupational Health and Safety Act and Regulations, Act (85 of 1993) promulgated there under.

2.3.5 CDC

Coega Development Corporation (Pty) Ltd.

2.3.6 NDPWI

National Department of Public Works Infrastructure

2.3.7 Hazard

Means a source of or exposure to danger (source which may cause injury or damage to persons, or property)

2.3.8 Risk

Means a source of or the probability or likelihood that a hazard can result in injury or damage.

2.3.9 Principal Contractor's Responsible Person (Construction Manager) -definition from the Act

Means a competent person responsible for the management of the physical construction processes and the coordination, administration, and management of resources on a construction site.

2.3.10 Employer's Personnel

As defined in the relevant contract Documents.

2.3.11 OHSS

Occupational Health and Safety Specification

2.3.12 SHE

Safety, Health and Environment

2.3.13 DoEL

Department of Employment and Labour

2.4 GENERAL HEALTH AND SAFETY PROVISIONS

2.4.1 Application of Construction Work Permit / Notification of Intention to Commence Construction Work

The Client or Implementing Agent shall apply for the construction work permit (CWP) to the Provincial Director of the DoEL in the form of Annexure 1 of CR 2014 as regulated by the CR 3 within 30 days before the construction work commences. Application shall be submitted to the **Provincial Office** where the project will be implemented. A copy of the signed and completed application form is to be included in the SHE File with proof of submission and construction work permit certificate issued by the DoEL.

For the purposes of the construction work permit process the appointed Construction Health and Safety Agent in consultation with the Client/ Implementing Agent shall prepare permit SHE File with required documentation but not limited to the construction work guidelines and submit to the Client/Implementing Agent for approval before submitting to the DoEL. Once the CWP has been granted, a copy of certificate will be issued to the Principal Contractor, and such certificate shall always be kept on site.
The Principal Contractor shall ensure that the **permit number** is conspicuously displayed at the site entrance. NB: No construction work may commence without a **valid construction work permit** issued by DoEL and shall not be transferrable to other sites.

The Chief Inspector of DoEL granted a temporary exemption on the 26th July 2018, contemplated in (b) in terms of section 40 of the OHSA Act. read as follows –

a client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the Provincial Director in writing for a construction work permit to perform construction work if the intended construction work starts from the 07th August 2018 and will –

1. exceeds 365 days and will involve more than 3600 person days of construction works,

2. the tender value limit is grade 7, 8, or 9 of the Construction Industry Development Board (CIDB) grading.
3. All intended construction works above R60 Million Rand threshold.

The Principal Contractor shall notify the Department of Employment and Labour (DoEL), in the form of Annexure 2 of Construction Regulations 2014 (CR 2014) as regulated by the CR 4 within 7 days before the construction work commences. Notification shall be submitted to the nearest **Labour Centre** before intended construction work commences. A copy of the signed and completed notification form is to be included in the SHE File with proof of submission and acknowledgement in the form of certificate or stamp issued by the DoE, such certificate shall always be kept on site.

According to the Construction Regulations 2014 Clause 4, the regulations require "a contractor who intends to carried out any construction work other than work contemplated in regulation 3(1), must at least 07 days before that work is to be carried out notify to the Provincial Director of DoEL in writing in a form similar to Annexure 2 if the intended construction work will –

- Include excavation work;
- Include working at heights where there is risk of falling;
- Include demolition of a structure; or
- Include the us of explosives to perform construction work
- All intended construction works below R60 Million Rand threshold all inclusive

2.4.2 Assignment of Principal Contractor's Construction Manager and, Construction Health and Safety Officer (CM/CHSO) to Manage and Supervise Health and Safety on site.

The Principal Contractor shall submit supervisory appointments as well as any relevant appointments in writing (as stipulated by the OHS Act), prior to commencement of work. The Principal Contractor shall submit CV's of the CM/CHSO for approval by the CDC prior the commencement of work on site. Proof of competency is to be included with all appointments, in the form of C.V. and Certificates.

The Principal Contractor shall appoint a competent **Full-Time Construction Health and Safety Officer/Manager (CHSO/M) registered with SACPCMP** who has the necessary of years of practical experience in the type of construction work associated with the construction project and shall be responsible for overseeing overall compliance of H&S matters on site. The successful Bidder (Principal Contractor/s) will be required to provide valid proof of registration of the Construction Health and Safety Officer (CHSO) or Construction Health and Safety Manager (CHSM) with SACPCMP upon award and must have necessary competencies and resources to execute his or her duties. No candidate registration will be accepted. The CHSO/M must have proven record of years of experience as follows:

- **CIDB grading (1 - 6) = minimum of 2 years or more**
- **CIDB grading 7 = minimum of 5 years or more**
- **CIDB grading 8 = minimum of 8 years or more**
- **CIDB grading 9 = minimum of 10 years or more**

2.4.3 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COID Act)

The Principal Contractor shall submit a valid letter of good standing registered with the Compensation Fund or approved licensed Insurer. A copy shall be included in the Project SHE File, which will also include the following:

- Occupational Health and Safety Policy
- Environmental Policy
- Substance Abuse Policy
- HIV Policy
- Disciplinary Code
- Other relevant policies

2.4.4 Health and Safety Organogram

The Principal Contractor shall submit a Project Site Specific Organogram in the SHE File, outlining the Health and Safety Site Team with their designation as required and related to the relevant responsible appointments by the OHS Act.

2.4.5 Risk Assessments

2.4.5.1 Baseline Risk Assessment

The Principal Contractor shall submit a baseline risk assessment, which shall form part of the health and safety plan and file. The Risk Methodology applied should follow the

hierarchy of controls mitigation and must form part of the Risk Assessment and be included in the SHE File.

Should the Principal Contractor commence work without approval of the risk assessment, or should the risk assessment not reflect the activities being undertaken, the CDC may instruct the work to be immediately stopped. Thereafter, the Principal Contractor will have no claim against the CDC in such a case for lost time or costs, irrespective of whether it can be demonstrated that the work was being safely undertaken.

The risk assessment should include the following:

(a) the identification of the risks and hazards to the health and safety to which persons may be exposed.
(b) the analysis and evaluation of the hazards identified.
(c) a documented plan and safe working procedures to mitigate, reduce or control the risks identified; and
(d) The monitoring and review plan of the risks and hazards.
(e) The relevant personal protective equipment or clothing.

The Principal Contractor shall ensure that all persons entering the site are informed of all hazards on site; record of this is to be kept on the SHE File. The risk assessment should take into consideration of the project scope of works, with the key processes as specified on **clause 2.1** above. Preventative measures must first address the elimination of the hazard or risk. Should PPE be required to reduce risk the equipment or clothing must be used and be SABS approved.

2.4.5.2 Issue Based Risk Assessment

As circumstances and needs arise, separate risk assessment studies will need to be conducted. These will be associated with a system for the management of change. An additional risk assessment will need to be conducted and submitted to the CDC for verification when for example:

(a) A new machine is introduced onto site;
(b) A system for work is changed or operations altered;
(c) After an accident or a ‘near miss’ has occurred
(d) New knowledge comes to light and information is received which may influence the level of risk to employees on site.

2.4.5.3 Continuous Risk Assessment

This is the most important form of risk assessment which should take place continually, as an integral part of day-to-day management. This should be conducted by frontline Supervisors on site and it is essential that formal training be provided to enable this process to be efficient. The Principal Contractor shall be responsible for making sure that all employees under his / her control are conversant with the content of the Risk Assessment and what appropriate measures have been put in place to either eliminate or reduce the identified risks. The Principal Contractor shall outline to employees what role they are expected to play in the Risk Assessment and control measure process. Records are to be kept of this communication.

2.4.6 Health and Safety Representative(s)

The Principal Contractor shall ensure that at least one (1) or more of Health and Safety Representative(s) are / is elected and trained to carry out his / her functions pending on the number of employees per site. The appointment(s) must be in writing. The Health and Safety Representative(s) shall carry out regular inspection, keep records and report to the Supervisor(s) and CHSO/M to take appropriate action. The Principal Contractor is required to elect and appoint a health and safety representative regardless of the number of employees on site. Such representative shall always be on site and report to the CHSO/M and Construction Management Representative.

2.4.7 Health and Safety Committee

Ensure that the Principal Contractor complies with the requirements of Section 19 of the Act. The Principal Contractor shall ensure that SHE Committee is established, and health and safety committee meetings are scheduled monthly pending on the number of employees per site or contract. All invited individuals shall be compelled to attend such meetings. The Principal Contractor shall ensure that health and safety committee meetings' minutes are kept on record. Meetings must be organised and chaired by the Principal Contractor's Responsible Person i.e. nominated Safety Coordinator.

2.4.8 Health and Safety Training

The Principal Contractor shall at project start-up ensure that identified people have attended the training on project risk profile, the Principal Contractor must ensure copies of the certificates are kept on the SHE File.

2.4.8.1 Induction

The Principal Contractor shall always conduct Project Site Specific Inductions to all employees and visitors on site. Proof of inductions in a form of attendance registers must be kept in the SHE File.

2.4.8.2 Awareness

The Principal Contractor shall conduct on site, periodic toolbox talks, preferably weekly or before any hazardous work takes place. The talks shall cover the relevant activity and an attendance register must be kept and signed by all attendees. A record of who attended and the content of the topic will be kept on the site SHE File as evidence of training.

2.4.8.3 Competency

The Principal Contractor shall keep records of all competent persons in the SHE File and identify the training to be conducted, based on the Hazard Identification & Risk Assessment (HIRA) and keep certificates of training for reference.

2.4.8.4 General Record Keeping

The Principal Contractor shall keep and maintain SHE records to demonstrate compliance with the OHSS and the OHS Act. The Principal Contractor shall ensure that all records of incidents, spot fines, training etc. are kept on site. All documents shall be available for inspection by the CDC, or the Authorities' Inspectors.

2.4.8.5 General Inspection, Monitoring and Reporting

A schedule of inspections must be determined and its frequency to be included in the H&S plan, including responsible person. Inspection records and registers must be kept on the SHE File.

2.4.8.6 Internal Audits

The Principal Contractor shall conduct SHE audits of the project Health and Safety Management System, including the Contractor records, to ensure compliance with the OHS Act and OHSS. Records of audits must be kept, and non-conformance reported, investigated and corrective action must be taken to prevent re-occurrence.

2.4.8.7 External Audits

The Appointed Construction Health and Safety Agent (CHSA) or CDC SHE PM or External Service Provider, shall conduct monthly inspections/audits on site. All documentation held by the Principal Contractor shall be available for auditing. The Principal Contractor shall provide any additional information required. The Principal Contractor is required to participate fully in the Audit. Records of audits must be kept, and non-conformance reported, investigated and corrective action must be taken to prevent re-occurrences.

2.4.8.8 Emergency Procedures

The Principal Contractor shall develop and submit a detailed Emergency Procedure and be kept in the SHE File. The procedure shall detail the response plan including the following key personnel:

- List of key personnel,
- Details of emergency services,
- Actions or steps to be taken in the event of the emergency; and
- Information on hazardous material / situation, including each material's / hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

Emergency procedure(s) shall include, but not be limited to, fire, spills, accidents to employees, use of hazardous substances, damage of vital resources such as water and electricity etc. NB: a separate risk assessment and safe work procedure for the identification, location, exposure, and protection of existing services is required for submission, review and approval by the CDC SHE Project Manager via appointed CHSA with the relevant members of the Technical Team. A contact list of all service providers (Fire department, Ambulance, Police, Medical and Clinic, etc) must be maintained and available to site personnel.

2.4.8.9First Aid Box and First Aid Equipment

The Principal Contractor shall ensure that it appoints a trained **First Aider(s)** regardless of number of labourers on site. The appointed First Aider(s) are to be deemed competent or sent for accredited first aid training **before** starting on site. Valid certificates are to be kept on site. The Principal Contractors shall provide an onsite first aid box(es), adequately always stocked, and ensure that the first aid box is accessible and fully controlled by a qualified First Aider. The Principal Contractor shall ensure that there is always a qualified First Aider within its establishment to attend on first aid injuries should incident occur on site.

2.4.8.10 Accident / Incident Recording, Reporting and Investigation

The Principal Contractor (PC) shall appoint a competent person in writing to conduct incident investigation should it occurs on site, investigate, record and report all incidents as per the OHS Act requirement. The Principal Contractor shall advise the CM, CHSA and CDC SHE PM and any relevant party immediately, followed up with a written preliminary investigation report, of any medical treatment cases, lost time, disabling incident or fatality within 24 hrs of occurrence. In case of fatal incident, the PC is required not to temper with the scene until all relevant external stakeholders are onsite and give permission to do so. Full Incident Investigation Report is to be submitted to the CDC SHE PM via CHSA within **7 working days**, unless requested otherwise

2.4.8.11 Unanticipated Hazards (inclusive of adverse weather such as extreme rain, heat and cold).

The Principal Contractor shall immediately notify CM, CHSA and CDC SHE PM of any hazardous or potentially hazardous situations arising during the performance of activities. It will be upon the responsibility of the Contractor to stop any activities which may impose immediate danger to the employees due to exposure to the adverse weather conditions.

2.4.8.12Personal Protective Equipment (PPE)

A PPE needs analysis is to be conducted in accordance with the HIRA. PPE is to be issued free of charge. The Principal Contractor is to indicate procedure for the lost or stolen and worn out or damaged PPE. The following PPE shall be used on site as minimum required for everyone on site:

- Steel-Toe Safety Shoes/Boots
- Work suite
- Gloves
- Ear plugs
- Goggles
- Masks
- Hi-Viz Vest in cases where visibility is impaired.
- Corrective PPE shall be risk dependent.

2.4.8.13Occupational Health and Safety Signage

The Principal Contractor shall ascertain and provide adequate on-site Warning, Prohibition, Mandatory and General Signage. The Principal Contractor shall be responsible to maintain the quality and replacement of signage.

2.4.8.14Permits

The Principal Contractor shall implement a Permit to Work System. The permit system shall be granted by the Engineer or CHSA via CDC SHE PM prior commencement of activity. Listed below shall cover the following works but not limited to:

- Protection of identified species
- Use of explosives
- Lock out system
- Confined space
- Excavation works
- Public Holidays or Weekend works
- Water use
- Waste disposals

2.4.8.15 Contractors

The Principal Contractor shall implement a Contractor Management System to ensure compliance to the OHS Act and OHSS. The Contractor Management System procedures are to be stipulated in the H&S Plan.

2.5 OCCUPATIONAL SAFETY

2.5.1 Storage of Materials/Equipment

The Principal Contractor shall store material or equipment at agreed identified site by the CM, CHSA and CDC SHE PM, any other areas will be prohibited. All materials shall be neatly stored in a designated laydown area within the confines of the Principal Contractor's allocated construction area.

2.5.2 Site Access, Speed Restrictions and Protection

The Principal Contractor shall ensure that the exact opening shall be discussed and agreed upon with the Client's representatives. The Principal Contractor shall ensure that all persons in their employ and all those that are visiting the site are aware and comply with the site speed restriction(s). The speed limit is set to not exceed 20km/h when entering the grounds/construction site.

2.5.3 Noise Induced Hearing Loss

Where noise is identified as a hazard, the requirements of the NIHL regulations must be complied with and means of compliance is to be stipulated in the H&S Plan. Proper planning and finding means of reducing noise levels concerning these activities is highly encouraged.

2.5.4 Hazardous Chemical Agents (HCA)

In addition to the requirements of the Regulations for Hazardous Chemical Agents (RHCA), the Principal Contractor must provide proof in the H&S Plan that:

- Safety Data Sheets (SDS's) of the relevant materials/hazardous chemical agents are available prior to use by the Principal Contractor. Mention should be made how the Principal Contractor is going to act according to special/unique requirements made in the relevant SDS's. All SDS's shall always be available for inspection by all relevant parties.
- Risk assessments are to be done when new HCA are introduced on site.
- How the relevant HCA's are being/going to be controlled by referring to:
  - Limiting the amount of HCA

- Limiting the number of employees
- Limiting the period of exposure
- Substituting the HCA
- Using engineering controls
- Using appropriate written work procedures
- The correct PPE is being used.
- HCA are stored and transported in terms of regulations for hazardous chemical agents, 2021 and in according to SABS 072 and 0228.
- Training with regards to these regulations is conducted.

The H&S plan should refer to the disposal of hazardous waste on classified sites and the location thereof (where applicable). The First Aider must be made aware of the SDS and how to treat HCA incidents appropriately.

2.5.5 Asbestos work

The Principal Contractor/Contractor shall comply with the provisions of Asbestos Abatement Regulations, 2020 (amendments No. R.2092 dated 20 May 2022) should they have to work with asbestos related materials. No other than accredited Contractor to perform this activity.

2.6 PLANT AND MACHINERY

2.6.1 Construction Plant

Construction Plant encompasses all types of plants including but not limiting to machines and road vehicles with or without lifting equipment. It is envisaged that such plant will be used on this project, however, should the need arise, the Principal Contractor shall ensure that all such plant complies with the requirements of the OHS Act. The Principal Contractor shall inspect and keep records of inspections of the tools and equipment used on site. Only authorised persons are to use machinery under proper supervision. Appropriate PPE and clothing and as specified by the HIRA, shall be provided, and always maintained in good condition.

2.6.2 Pressure Equipment or Gas Bottles Including Operations

Should such equipment be used, the Principal Contractor shall comply with Pressure Equipment Regulations, including:

- Providing competency and awareness training to the operators;
- Providing PPE or clothing;
- Providing and maintain appropriate signage in areas where Pressure equipment are used;
- Inspect equipment regularly and keep records of inspections;
- Providing appropriate firefighting equipment (Fire Extinguishers).

2.6.3 Fire Extinguishers and Fire Fighting Equipment

The Principal Contractor shall provide adequate serviced firefighting equipment on site fully serviced. The Principal Contractor shall keep spares where applicable in replacement of expired firefighting equipment.

2.6.4 Hired Plant and Machinery

The Principal Contractor shall ensure that any hired plant and machinery brought to site is safe for use. The necessary requirements as stipulated by the OHS Act as well as those that are stipulated by this OHSS, shall apply. The Principal Contractor shall ensure that **Operators** hired with machinery have proof of competency to operate the type of machinery, proof of medical certificate of fitness and undergo a health and safety induction, appropriate toolbox talks and be issued with the necessary PPE. All documentations must be kept in the SHE File.

2.6.5 Scaffolding / Elevated positions including roof work

The Principal Contractor shall ensure that a detailed fall protection plan and HIRA has been undertaken and submitted for approval by the CM before commencement of such activity on site. The Principal Contractor shall appoint and train scaffolding inspectors and erectors to ensure all scaffolding is erected according to SANS 10085.

2.6.6 Form and Support Work for Structures

Should the work require this type of work, the Principal Contractor shall ensure that formwork and support work structures are examined and checked for suitability by a competent Person, Structural Engineer, before use, during and after placement. Records of such examinations are to be kept on the SHE File.

2.6.7 Lifting Machine and Tackle

The Principal Contractor shall ensure that lifting machinery and tackle is inspected before use and/or **daily.** The Principal Contractor shall have lifting machinery and tackle inspector who will inspect the equipment daily or before use, considering that:

- All lifting machinery and tackle have a safe working load clearly indicated;
- Records of inspections and load testing certificates are kept on site.
- There is proper supervision in terms of guiding the loads which includes a trained banks man to direct and check lifting tackle if it is safe for use.

2.6.8 Ladders and Ladder work

The Principal Contractor shall ensure that all ladders are numbered and inspected regularly keeping record of inspections. It should be noted that Aluminium ladders are preferred to wooden ladders.

2.6.9 General Machinery

The Principal Contractor shall comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

2.6.10 Portable Electrical Tools / Explosive Power Tools

The Principal Contractor shall ensure that use and storage of all explosive powered tools and portable electrical tools are in compliance with relevant legislation or standards. The Principal Contractor shall consider that:

- A competent person undertakes routine inspections;
- Only authorised persons use the tools;
- There are safe working procedures applied;
- Awareness training is carried out and compliance is enforced at all times; and
- PPE and clothing is provided and maintained.

2.6.11 High Voltage Electrical Equipment and any electrical works

The Principal Contractor shall ensure that, where the work is under, on or near high-voltage electrical equipment that a SWP is drafted and approved by a competent person and the CHSA and that approval document to be kept in the SHE File. Such SWP shall include relevant risk management procedures (e.g. Lock-out Procedure). The Principal Contractor shall communicate with the relevant representatives prior to commencement to any electrical works.

2.6.12 Public Health and Safety

Having been aware that the project is taking place in an urban areas the Principal Contractor shall ensure that each person working on or visiting a site, and the surrounding community, shall be made aware of the dangers likely to arise from onsite activities and the precautions to be observed to avoid or minimise those dangers. This should further be able to prevent any other incident that may expose risks to persons. Appropriate health and safety signage shall be always posted.

The Principal Contractor have a duty in terms of the OHS Act to do all that is reasonably practicable to prevent members of the public and others being affected by the construction processes to be aware and put preventative measures in place. The visitors to site shall go through a visitor's health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks. A proof of such induction must be kept on the safety file for audit purposes.

2.6.13 Night Work

The Principal Contractor shall not undertake any night work without prior arrangement and a written permit from Employer's personnel. The Principal Contractor shall ensure that

adequate lighting and ventilation are provided for all night work and failure to do so shall result in work being stopped.

NB: risk assessment to be revised should night works be approved.

2.6.14 Facilities for Safekeeping and Eating Area (Mess Room) for workers

The Principal Contractor shall provide facilities for safekeeping. The structure should be suitable for use and adverse for all weather conditions.

2.6.15 Transport of Workers

The Principal Contractor shall refer and comply with the requirements set in the National Road Transport Regulations, 2000. The Principal Contractor shall, and not be limited to:

- Not transporting persons together with goods or tools unless there is an appropriate area or section to store them.
- Not transport persons in a non-enclosed (top) vehicle, e.g. truck, there must be a proper canopy (properly covering the back and top) with suitable sitting area. Workers shall not be permitted to stand or sit at the edge of the transporting vehicle.
- Not transporting workers on the back of open bakkies.
- Provision of a serviced portable fire extinguisher in vehicles at all times.

2.7 OCCUPATIONAL HEALTH

Exposure of workers to occupational health hazards and risks are very common in any work environment, especially in construction. Occupational health hazards and risks exposure is a major problem, and all Contractors are to ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards and risks. The occupational hazards and risks may enter the body in three ways:

- Inhalation through breathing.;
- Ingestion through swallowing maybe through food intake;
- Absorption through the skin.

2.7.1 Medical Service (Pre/Periodic/Exit)

The Principal Contractor shall ensure that **all employees** are in position of valid medical examination certificates and certified fit for duty. The medical examinations must be conducted in the form of Annexure 3 by an Occupational Health Practitioner as stipulated by Construction Regulations 2014 and fitness certificates must be kept in the SHE File.

2.7.2 HIV/Aids Programme

CDC commits itself to providing guidance and leadership in the implementation of HIV and AIDS, TB and Sexually Transmitted Infections (STI) programmes by all stakeholder organisations. It is a requirement that Principal Contractors shall provide HIV/Aids awareness training and roll out an HIV/Aids Programme for all employees by the appointed HIV/AIDS and STI Coordinator.

The HIV/Aids Awareness Programme Requirements:

- Male condom dispensers, sufficient male condom available and is it placed in high trafficked areas.
- All types of HIV/Aids related posters displayed in a high trafficked area and in a good condition.
- HIV/Aids Awareness workshops/tool box talk
- HIV/Aids Prevention Measures
- HIV/Aids Care and Support
- Free voluntary HIV testing

No Principal Contractor shall require an employee, or an applicant for employment, to undertake an HIV test in order to ascertain that employee's HIV status. As provided for in the Employment Equity Act, employers may approach the Labour Court to obtain authorisation for testing. All Personnel must be encouraged to undertake voluntary testing. Voluntary Testing and Counselling (VCT) must be encouraged by all Principal Contractors.

2.8 PANDEMIC/ENDEMIC DISEASES E.G. COVID-19

Construction sites operating during the Pandemic/Endemic diseases need to ensure they are protecting their workforce and minimising the risk of spread of infections. This includes an establishment if all employees are fit for works with no symptoms, it considering how

personnel travel to and from site and a range of other applicable matters to manage the spread of the virus on site.

This project specific construction health and safety specification is intending to introduce consistent control measures on the construction site that will be in line with the Government's recommendations and ensure employers and individuals make every effort to comply by adhering to the implementation good hygiene practises and constantly monitoring and reviewing the required control measure for the project. Principal Contractor should take lead to ensure the requirements are implemented. However, it will be very critical that the PC shall make provisional sums for such situation to avoid delays to the project.

2.9 PENALTIES

Should, at any time, the works, or part of the works, be stopped due to unsafe acts and conditions or non-compliance with the PCs OHS Plan; neither the PC nor any other Principal Contractor or Contractor shall have a claim for extension of time or any other compensation. In cases of any **repetitive** non-**conformances**, the non-conforming party shall be penalised.

All penalties shall be communicated to the Principal Contractor and the relevant Project Team Members should they be issued. The Principal Contractor will be expected to confirm receipt of such penalty/ies. The total fine amount as per penalties issued shall be tabled in the site meeting for noting purposes. All issued penalties shall be deducted from the Certified Certificates submitted by the Principal Contractor.

The following constitute examples of the types of non-conformances that will attract penalties:

Minor: **Fine: R50/count**	**Medium:** **Fine: R500/count and a non-conformance**	**Severe** **Fine: R5000/count, a non-conformance and/or activity stoppage**
Non-use of basic PPE supplied	PPE not supplied	Principal Contractor working without OHS Plan approval
Non completion of registers for plant and equipment on site	Principal Contractors did not sign the records	Workers transported in contravention of the OHS Plan or legal requirements
Lack of OHS signage at work areas	Working without training or the appropriate OHS Method Statements / SWP / HIRA	Non provision of signage
Tools and equipment identified in poor condition during inspections	Non-conformances identified during the previous inspection and not addressed within the agreed time frame	Allow people to work with no proof of medical fitness certificate
	No Medical Certificates of Fitness for relevant workers	Threat to the OHS of persons
	Poor Housekeeping	Failure to maintain housekeeping

		Principal Contractor working without Endemic/Pandemic diseases HS Plan approval

2.10 CLOSE - OUT REQUIREMENTS

Upon completion of the project, the Principal Contractor shall submit a well-documented consolidated SHE File (to be in electronic form) to the appointed CDC SHE PM, confirming the SHE history of the project. The closeout SHE File is expected within 21 days of practical completion.

The following **summary** of information is required in the file, but not limited to:

- Completed SHE File
- Letter of good standing
- Appointments/agreements
- Notification/Permit certificate
- SHE inspection/audit reports
- Records of training
- Registers, certificates, and manuals
- Records of incidents/accident
- WCA Claims
- Total Man-hours and DIFR
- Environmental rehabilitation status
- Copies of Medical Certificates of all employees that worked on the project.
- SHE Non conformances (current/outstanding)
- Copies of all Hazardous Waste Disposal Certificates

Handover of the consolidated SHE File can only commence once all personnel has been demobilized and nil man-hours are recorded on site. All Contractors accountable to the PC are expected to complete and submit their close-out SHE Files upon completion of their work to the appointed CHSA for approval prior to leaving the construction site. The CDC SHE PM will evaluate the SHE performance of the Principal Contractor i.e. compliance, performance, quality and refer in a cover letter which will be added to the Principal Contractors consolidated file.

ANNEXURE A

Acknowledgement:
I,_____representing _____ Principal Contractor have satisfied myself with the content of the Occupational Health and Safety Specification (OHSS) and shall ensure that the personnel and other people visiting site comply with all relevant obligations in respect thereof. _____ _____ Signature of Principal Contractor Date _____ _____ Signature of /Client/Agent Date
Comments:

SPECIFICATION:

PPROJECT ENVIRONMENTAL SPECIFICATION FOR THE NDPW INFRASTRUCTURE PROJECTS IN VARIOUS PROVINCES ACROSS THE COUNTRY

Specification №

CDC-SBU-SPC-105-24

Classification: Public

11 July 2024

DOCUMENT INFORMATION SHEET

Title of Document	:	*Environmental Specification*
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Prepared for	:	*Bidders*
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The purpose of this form is to ensure that documents are reviewed and approved prior to issue. The form is to be bound into the front of all documents released by the Coega.

PROJECT NAME	:	***NDPW INFRASTRUCTURE PROJECTS IN VARIOUS PROVINCES ACROSS THE COUNTRY***
DOCUMENT TITLE	:	***PROJECT ENVIRONMENTAL SPECIFICATION***
DOCUMENT No.	:	***CDC-SBU-SPC-105-24***

SIGNING OF THE ORIGINAL DOCUMENT

We, the undersigned, accept this document as a stable work product to be placed under formal change control as described by the Procedure for Control of Documented Information.

ORIGINAL	**Prepared by**	**Reviewed by**	**Approved by**
Date: **11 July 2024**	Name: **Siseko Gwavu**	Name: **Sisa Xabanisa**	Name: **Simphiwe Silwana**
	Signature: Digitally Signed by: **Siseko Gwavu** *SHE Programme Manager* **7c54b8f6-e79c-49c9-b0fa-92ffb296ce62** IP Address: 10.0.30.81 Date: 2024/09/05 2:28:50 PM	Signature: Digitally Signed by: **Sisa Xabanisa** *Environmental Manager* **8a8dbb2c-65ed-4879-a2e8-196cb7dbba35** IP Address: 10.0.122.51 Date: 2024/09/05 2:30:36 PM	Signature: Digitally Signed by: **Simphiwe Silwana** *Sustainability Manager: HSE & Social Impac* **d94c9186-b4f3-4805-8512-de16421e38bc** IP Address: 10.0.57.29 Date: 2024/09/06 8:51:13 AM

Distribution:	***Coega Development Corporation***

REVISION CHART

REVISION 1	**Name:**	**Name:**	**Name:**
Date:	Signature:	Signature:	Signature:

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ENVIRONMENTAL SPECIFICATION

TABLE OF CONTENTS

1. SCOPE

This Project Environmental Specification (PES) covers the requirements for controlling the impact on the environment of construction activities. The PES is applicable to all construction work activities intended to be performed across the various Provinces. The PES should be read with the project specific scope of work prescribed in the Tender documents.

2. INTERPRETATION

2.1 Supporting Specifications

Where the PES is required for a project, the following supporting specifications shall, where applicable, form part of the Contract Documents where necessary:

(a) EMPr

(b) JBCC, GCC or Fidic Equivalent Specification

(c) EA/RoD

2.2 Application

This PES contains clauses that are generally applicable to the undertaking of built or engineering works as it is necessary to impose pro-active controls on the extent to which the construction activities impact on the environment. Interpretations and variations are set out in this Project Environmental Specification. In the event of any difference or discrepancy between the provisions of this Project Environmental Specification and the provisions of the Project Specifications then the provisions of the Project Specification shall prevail.

2.3 Definitions

For the purposes of this PES, the definitions and abbreviations given in the applicable specifications listed in 2.1 and the following definitions and abbreviations shall apply:

2.3.1 CDC:

Means Coega Development Corporation (Pty) Ltd.

2.3.2 Cement laden water:

Means water containing cement or concrete arising from the Contractor’s activities.

2.3.3 Contaminated water:

Means water contaminated by the Contractor's activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshop or personnel wash areas but excludes water containing cement/ concrete or silt.

2.3.4 Environment:

Means the surroundings within which human beings exist and these comprise of:

(i) The land, water and atmosphere of the earth;

(ii) Micro-organisms, plant and animal life;

(iii) Any part or combination of (i) and (ii) and the interrelationships among and between them; and

(iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

2.3.5 His:

Means his or her, as applicable.

2.3.6 Method Statement:

Is a written submission by the Contractor to the Engineer in response to the Specifications or to a request by the Engineer, setting out the plant (construction equipment), materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the Engineer when requesting the Method Statement. The Method Statement shall be in such detail that the Engineer is able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications. The Method Statement shall cover applicable details with regard to:

- Construction procedures;
- Materials and equipment to be used;
- Getting the equipment to and from Site;
- How the equipment/ materials will be moved while on Site;
- How and where materials will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing and location of activities;
- Compliance/ non-compliance with the Specifications; and
- Any other information deemed necessary by the Engineer.

2.3.7 Potentially hazardous substance:

Is a substance, which, in the reasonable opinion of the Engineer, can have a deleterious effect on the environment. Hazardous Chemical Substances are defined in the Regulations for Hazardous Chemical Substances published in terms of the Occupational Health and Safety Act.

2.3.8 Reasonable:

Means, unless the context indicates otherwise, reasonable in the opinion of the Engineer, after he has consulted with CDC Safety, Health & Environment Business Unit.

2.3.9 Silt laden water

Means water containing sand and silt arising from the Contractor's activities and/or as a result of natural run-off.

2.3.10 Site:

This is the area in the possession of the Contractor for the construction of the Works. Where the area is not demarcated, it will include all adjacent areas, which are reasonably required for the activities for the Contractor and approved for such use by the Engineer.

2.3.11 Solid waste:

Means all solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

3 MATERIALS

3.1 Materials handling, use and storage

The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) required to comply with the Specifications. The Contractor shall ensure that these delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of the Specifications. Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

All manufactured and/ or imported material shall be stored within the Contractor's camp, and, if so required by the Project Specification, out of the rain. All lay down areas outside of the construction camp shall be subject to the Engineer's approval. Imported gravel, fill, soil and sand materials shall be free of weeds, alien invasive seed matter, plant material, litter and contaminants and shall be obtained from sources approved by the Engineer. A Method Statement detailing the source and methods to ensure compliance with this specification shall be submitted to the Engineer.

3.2 Stockpiling

Any stockpiling of gravel, cut, fills or any other material including spoil shall be in areas approved by the Engineer within the defined working area. The Contractor shall ensure that the material does not blow or wash away. If the stockpiled material is in danger of being washed or blown away, the Contractor shall spray it with material that is not detrimental to the environment or cover it with a suitable material, such as hessian or plastic. Stockpiles of topsoil shall not be covered with plastic. No stockpiling of any material shall be allowed within the 100m of any residential areas or 20m of any “no go” area. Stockpiles will not be stacked higher than 2 meters.

3.3 Solid waste management

No on-site burning, burying or dumping of any waste materials, litter or refuse shall occur. The Contractor shall provide vermin and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced daily.

The lids shall be always kept firmly on the bins. Bins shall not be allowed to become overfull and shall be emptied at least once a day. A designated area shall be established, enclosed with signage always provided. The waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Engineer has approved. Recyclable waste shall be disposed of into separate skips/bins and removed off-site for recycling. All solid waste shall be disposed off site at an **approved landfill Site**. The Contractor shall supply the Engineer with the appropriate disposal certificates and kept in the Environmental File.

The Contractor must facilitate the re-use of cleared trees and bush (e.g. by allowing controlled wood cutting and removal of wood). Cleared vegetation may only be burnt when no other form of re-use (e.g. **chipping or composting**) is practical or economical. Burning of cleared vegetation may only take place in a safe area (e.g. borrow pit) after permission has been obtained from all the relevant authorities and the Fire Department has been informed. The Contractor must ensure that cleared trees and wood are removed from the Site within **45 days** of Site clearance. The Contractor shall submit a solid waste management Method Statement to the Engineer. The contractor shall provide Certificates of safe disposal for all waste removed site.

3.4 Water use

All sources of water for construction purposes must be approved by the Engineer in writing before any such sources can be used to obtain water. Water collection must be kept in the form of registers and record all water cotted per day.

3.5 Hazardous substances

The transportation and handling of hazardous substances must comply with the provisions of the Hazardous Chemical Substances Act (Act No. 85 of 1993) and associated regulations as well as SABS 0228 and SABS 0229. The Contractor shall also comply with all other applicable regional and local legislation and regulations regarding the transport, use and disposal of hazardous substances. Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances) used during construction shall be stored in secondary containers. The relevant Safety Data Sheets (SDS) shall be available on Site. Procedures detailed in the SDSs shall be followed in the event of an emergency.

The Contractor shall be responsible for the training and education of all personnel on Site who will be handling hazardous materials about their proper use, handling and disposal. If potentially hazardous substances are to be stored or used on Site, the Contractor shall submit a Method Statement to the Engineer detailing the substances / materials to be used, together with the transport, storage, handling and disposal procedures for the substances.

3.6 Contaminated water

Potential pollutants of any kind and in any form shall be kept, stored, and used in such a manner that any escape can be contained and that the water table is not endangered. Water containing such pollutants as chemicals, washing detergents, sewerage, fuels, paints and solvents and hydrocarbons shall be contained and discharged into an impermeable storage facility for removal from the site or for recycling. This particularly applies to runoff from fuel depots/workshops/truck washing areas. The Contractor may direct contaminated water into a sewerage main, provided that authorisation has been obtained from the local authority and that the Engineer has provided written permission for this action.

Wash down areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted. The Contractor shall notify the Engineer immediately of any pollution incidents on Site. The Contractor shall submit a Method Statement to the Engineer detailing how the contaminated water will be managed on Site.

3.7 Cement and Bulk Mixing Plant

The proposed location of bulk mixing plant (including the location of cement stores and sand and aggregate stockpiles) shall be indicated on the Site layout plan and approved by the Engineer. All wastewater generated from the operation and cleaning of concrete mixing equipment and other sources of concrete shall be passed through a concrete wastewater settlement system as depicted in the appropriate drawing. The water from this system shall not be allowed to flow into any “no go” area or water course but must permeate through the ground before it reaches any such water course. The accumulated sludge in the settlement system must be regularly cleaned out and appropriately disposed of as solid waste.

The Contractor shall ensure that minimal water is used for washing of concrete mixing equipment. Used cement bags shall be disposed of in weatherproof bins on site to prevent the generation of wind-blown cement dust and the bags from blowing away. During construction, the contractor must ensure that concrete is mixed on mortar boards, all visible remains of concrete are removed and disposed of as waste and that all surplus aggregate is removed. A Method Statement detailing all actions to be taken to comply with the cement and mixing requirements shall be submitted to the Engineer.

4 PLANT

4.1 Fuel – Petrol, Diesel, Oil Etc

4.1.1 Fuel Storage

Fuel can be stored on site. The location of the fuel storage area will be approved by the Engineer and will be situated at least 100m away from any major drainage systems, residential areas or “no go” areas. All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities. Symbolic safety signs depicting “No Smoking”, “No Naked Lights” and “Danger” conforming to the requirement of SABS 1186 shall be prominently displayed in and around the fuel storage area. There shall be adequate fire-fighting equipment at the fuel storage area. The Contractor shall ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly always shut and under lock and key. The capacity of the tank shall be clearly displayed, and the product contained within the tank clearly identified using the emergency information system detailed in SABS 0232 part 1. Fuel storage tanks shall have a capacity not exceeding **9000 litres** and shall be kept on site only for as long as fuel is needed for construction activities, on completion of which they shall be removed.

Tanks on site shall not be linked or joined via any pipe work but shall remain as separate entities. The tanks shall be situated on a smooth impermeable base with a bund. The volume inside the bund shall be 110% of the total capacity of the largest storage tank. The base may be constructed of concrete, or of plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The impermeable lining shall extend to the crest of the bund. The floor of the bund shall be sloped to enable any spilled fuel and/or fuel-contaminated water to be removed. Appropriate material, approved by the Engineer that absorbs/ breaks-down or encapsulates minor hydrocarbon spillage and which is effective in water shall be installed in the sump.

The tanks and bunded areas shall be covered by a roofed structure, as detailed in the appropriate drawing, to prevent the bunded area from filling up with rainwater. This structure shall be constructed in such a way, and to the approval of the Engineer, to ensure that it is not dislodged by wind. If any water does collect in the bunded area it shall be removed within a day of this occurring and taken off Site to a disposal site approved by the Engineer, and the material that absorbs/ breaks-down or encapsulates minor hydrocarbon spillage shall be replenished.

Only empty and externally clean tanks may be stored on the bare ground. Empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected. Adequate precautions shall be provided to prevent spillage during the filling of any tank and during the dispensing of the contents. The dispensing mechanism for the fuel storage tanks shall be stored in a waterproof container when not in use. A Method Statement shall be submitted to the Engineer detailing the design, location and construction of the fuel storage area as well as for the filling and dispensing from storage tanks and for the type of absorbing/ breaking-down or encapsulating material to be used.

4.1.2 Refuelling

Where reasonably practical, plant shall be refuelled at a designated re-fuelling area/depot or at a workshop as applicable. If this is not reasonably practical, then the surface under the refuelling area shall be protected and appropriately bunded against pollution to the reasonable satisfaction of the Engineer prior to any refuelling activities.

If fuel is dispensed from **200 litre** drums, the proper dispensing equipment shall be used, and the drum shall not be tipped to dispense fuel. The Contractor shall ensure that the appropriate fire-fighting equipment is present during refuelling operations. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of **200 ℓ** of hydrocarbon liquid spill. Prior to any refuelling or maintenance activities, the Engineer must approve this material.

4.1.3 Used oil and hydrocarbon contaminated materials

Used oil shall be stored at a central location on Site prior to removal off Site for disposal at an approved disposal or recycling site. Old oil filters and oil, petrol and diesel-soaked material shall be treated as hazardous waste. The Contractor shall remove all oil, petrol, and diesel-soaked sand immediately and shall dispose of it as hazardous waste or treat it on site with material that breaks-down or encapsulates such spillages as approved by the Engineer.

4.2 Ablution Facilities

Washing, whether of the person or of personal effects, and acts of excretion and urination are strictly prohibited other than at the facilities provided. The Contractor shall provide the necessary ablution facilities for all his personnel prior to the commencement of work and shall ensure that his personnel make use of the facilities. Toilet facilities shall be supplied by the Contractor for the workers at a ratio of at least **1 toilet per 15 workers** in areas approved by the Engineer. Every 1-man urinal will be taken as supplying the equivalent of 5 men in addition to the 15 men per toilet on site. No toilets will be erected within 100m of any residential areas, within 20m of the edge of the Site, within 50m of any “no go” areas or any major drainage systems. Toilets shall be situated within 200m of any area where work is taking place in numbers sufficient to meet the ratio depicted above for the workers in the area. Mobile toilets (e.g. trailer mounted) should be considered for Sites, where workers may be expected to cover large distances every day.

The facilities shall be maintained in a hygienic state, good state of repair and serviced regularly. Toilet paper, soap, sanitizer, form of towels shall be provided. Temporary/ portable toilets shall be secured to the ground to prevent them toppling due to wind or any other cause, to the satisfaction of the Engineer. Discharge into the environment and burial of waste is strictly prohibited. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from the Site. Toilets shall be emptied before the Contractors’ holidays or any other temporary site closure.

4.3 Eating Areas

The Contractor shall designate eating area/s, subject to the approval of the Engineer. The facilities shall be maintained in a hygienic state, good state of repair and serviced regularly. No cooking is allowed outside of the Contractor's camp area on Site. At mealtimes all workers must eat in designated eating areas. More than one area may be required for large Sites and to accommodate issues of Social Distancing. These areas shall have shade for the workers. The eating areas may be in existing structures or in temporary/ transportable structures that shall be well constructed using wood or metal for the frame and screened on the top and sides with shade cloth/ canvas or other material to the satisfaction of the Engineer. These areas shall be well demarcated and in locations approved by the Engineer and shall not be within 100m of any "no go" areas or any major drainage systems, on or adjacent to the Site. There must be Sanitizer Stations at each eating areas and sufficient bins shall be present in these areas. All disposable food packaging must be disposed of in the bins after every meal. The feeding or leaving of food for animals is strictly prohibited.

4.4 Site Structures

All site establishment components (as well as equipment) shall be positioned to limit visual intrusion on neighbours and the size of the land area disturbed. The type and colour of roofing and cladding materials to the Contractor's temporary structures shall be selected to reduce reflection. The Contractor shall supply and maintain adequate and suitable sheds for the storage of materials. Sheds for the storage of materials that may deteriorate or corrode if exposed to the weather shall be weatherproof, adequately ventilated and provided with raised floors.

4.5 Lights

The Contractor shall ensure that any lighting installed on the Site for his activities does not interfere with road traffic or cause a reasonably avoidable disturbance to the surrounding community or other users of the area.

4.6 Workshop, equipment maintenance and storage

Where practicable, all maintenance of equipment and vehicles on Site shall be performed in a workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the Engineer prior to commencing such activities. No maintenance, including emergency maintenance, of plant can take place within 50m of any "no go" area or drainage system.

The Contractor shall ensure that in his workshop and other plant maintenance facilities, including those areas where, after obtaining the Engineer's approval, the Contractor carries out emergency plant maintenance, there is no contamination of the soil or vegetation. The workshop shall have a smooth impermeable (concrete or thick plastic covered with sand) floor. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages. When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders, vehicles) always.

All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from the Site. The washing of equipment shall be restricted to urgent or preventative maintenance requirements only. All washing shall be undertaken in the workshop or maintenance areas, and these areas must be equipped with a suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate and nitrate containing and low sudsing-type detergents. A Method Statement must be submitted to the Engineer detailing the design of the bunding of the workshop and how run-off from the workshop will be managed as well as how drip trays used under plant will be managed.

4.7 Noise

The Contractor shall take precautions to minimise noise generated on Site (e.g. Install and maintain silencers on machinery). The Contractor shall comply with the Noise Induced Hearing Loss Regulations published under the Occupational Health and Safety Act. Appropriate directional and intensity settings are to be maintained on all hooters and sirens. No amplified music shall be allowed on Site. The use of radios, tape recorders, compact disc players, television sets etc shall not be permitted unless the volume is kept sufficiently low as to avoid any intrusion on members of the public within range. The Contractor shall not use sound amplification equipment on Site unless in emergency situations.

4.8 Dust Control

The Contractor shall be responsible for the continued control of dust arising from his operations. The Contractor shall inform the Engineer 48 hours in advance of anticipated ‘unavoidable’ dust generating activities. The Contractor shall take all reasonable measures to minimize the generation of dust because of construction activities to the satisfaction of the Engineer.

Appropriate dust suppression measures include spraying or dampening with water, using a commercial dust binder, rotovating straw bales, planting of open cleared space and the scheduling of dust-generating activities.
If the conditions are such that the Contractor cannot satisfactorily dampen the dust, then the Engineer may halt operations until such time as the conditions are more suitable for lower dust generating construction.

Damping of all gravel haul and access roads with water must be ongoing and special attention must be given to roads close to residential areas. Should dust still be a problem on any specific road, the allowable speed will be reduced to 20km/h. If dust is still a problem the road should be treated with a commercial dust binder, as required, to form a cohesive layer that will control the dust on the road. Areas that are to have the topsoil stripped for construction purposes must be limited and only stripped when work is about to take place.

Other activities and situations that may result in a dust nuisance include site clearance and other earth moving operations, open cleared space, stockpiles of topsoil or sand and activities associated with concrete batching plants. A Method Statement detailing how dust will be managed for different operations on the site must be submitted to the Engineer for his approval before any work that could result in dust being generated is undertaken.

5 CONSTRUCTION

5.1 Method Statements

The following Method Statements, as well as any required by the Project Specification, shall be provided by the Contractor and submitted with the Environmental File for reviewing and approval upon to the awarding of a Contract and prior commencement of construction work.

5.1.1 Solid waste management (Clause 3.3)

Expected solid waste types, quantities, methods and frequency of collection and disposal as well as location of disposal sites.

5.1.2 Contaminated water (Clause 3.6)

Methods of minimising, controlling, collecting and disposing of contaminated water.

5.1.3 Contractors SHE Officer (Clause 5.2)

The name and letter of appointment of the Contractors SHE Officer must be given to the Engineer and the terms of reference for the work to be undertaken by the SHE Officer must be detailed including time on site, CV, roles and responsibility, interaction with the Contractor and environmental offices, etc.

5.1.4 Site division (Clause 5.4)

The location, layout and method of establishment of the construction camp (including all buildings, offices, lay down yards, vehicle wash areas, fuel storage areas, bulk mixing plant and other infrastructure required for the running of the project)

5.1.5 Emergency procedures (Clause 5.10)

Emergency procedures for fire and accidental leaks and spillages of hazardous substances (including fuel and oil). Include details of risk reduction measures to be implemented including firefighting equipment, fire prevention procedures and spill kits (materials and compounds used to reduce the extent of spills and to breakdown or encapsulate hydrocarbons). Other Method Statements that will be required during construction are to be provided by the Contractor a minimum of 20 days prior to commencement of the works or activities to which they apply (no work can commence on site before these Method Statements have been approved):

5.1.6 Importing of material (Clause 3.1)

Detail the source of any gravel, soil, aggregate or sand imported onto site and precautions taken to ensure no vegetative contamination.

5.1.7 Hazardous substances (Clause 3.5)

Details of any hazardous substances / materials to be used, together with the transport, storage, handling and disposal procedures for the substances.

5.1.8 Cement and bulk mixing plant (Clause 3.7)

Location, layout and preparation of cement/ concrete mixing areas including the methods employed for the mixing of concrete and particularly the containment of runoff water from such areas and the method of transportation of concrete.

5.1.9 Fuel storage and use (Clause 4.1)

The design, location and construction of the fuel storage area as well as for the filling and dispensing from storage tanks.

5.1.10 Workshop and drip trays (Clause 4.6)

Location, layout, design and pollution control for Workshop as well as management of drip trays under plant.

5.1.11 Dust (Clause 4.8)

Details on the methods for managing dust on the site.

5.1.12 Environmental awareness training (Clause 5.3)

Number, dates, trainer and logistics for the initial awareness courses for the Contractor's employees and for the management Staff.

5.1.13 Access Routes (Clause 5.7)

Details, including a drawing, showing where and how the access points and routes will be located and managed. Any additional Method Statements as required by the Engineer, or the Project Specification must be provided by the Contractor. The Contractor shall not commence the activity until the Method Statement has been approved in writing and shall, except in the case of emergency activities, allow a period of 20 working days for approval of the Method Statement.

The Engineer may require changes to a Method Statement if the proposal does not comply with the specification or if, in the reasonable opinion of the Engineer, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment more than that permitted by the Specifications or any legislation. Approved Method Statements shall be readily available on the Site and shall be communicated to all relevant personnel and subcontractors. The Contractor shall carry out the Works in accordance with the approved Method Statement. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract. No claim for delay or additional cost incurred by the Contractor shall be entertained due to inadequacy of a Method Statement.

"Details of the following appointments are required within 7 days before commencing work on site":

5.1.14 Assistants to the Contractor's SHE Officer (Clause 5.2) (if applicable)

The name and appointment letter of the assistants to the Contractor's SHE Officer must be given to the Engineer and the work to be undertaken by these assistants must be detailed including time allocated to these roles and their responsibility and interaction with the Contractors SHE Officer.

5.1.15 Fire Officer/Marshall (Clause 5.9*)*

The name and appointment letter of the Fire Officer/Marshall must be given to the Engineer.

5.2 Contractor's SHE Officer

The Contractor shall appoint a Contractor's SHE Officer who shall be responsible for undertaking a daily site inspection to monitor compliance with this Specification and the relevant Project Specification. The Contractor shall submit the name of the Contractor's SHE Officer as well as a Method Statement detailing his CV, roles and responsibilities to the Engineer for his approval before work can commence on site.

The Contractor will also appoint reliable staff, who will assist and report to the Contractor's SHE Officer, to the following positions:

- Litter Assistant to ensure that the site is cleaned every day and that dustbins are not overflowing, and litter does not blow off the site into the surrounding areas.

- Hydrocarbon and Contaminated Water Assistant to ensure that any hydrocarbon spills or leaks are dealt with immediately, vehicles are not leaking hydrocarbons on site, there is no pollution of any water course/ drainage system on or adjacent to site due to any construction activities, all stationary plant has bunds around them that are kept in good working order, the fuel storage and refuelling area is free of spills and leaks of hydrocarbons and any other issues to do with hydrocarbon housekeeping on site. He will also ensure that no contaminated water is escaping onto the site and that the toilets are kept in a clean and good working condition.

- Demarcation and Dust Assistant to ensure that all fencing and demarcation is in place when it is required and that such fencing or demarcation is in good order daily. This person will also be responsible to ensure that excessive dust is not generated from the construction area and will ensure that the roads are watered, and other areas dampened where necessary and any other actions taken to limit dust generation from site.

These appointments will be made within 7 days before commencing of work on site and will be given to the Engineer in writing.

5.3 Environmental awareness training

Environmental awareness training courses shall be run for all personnel on site. Two types of course shall be run, one for the Contractor's and Subcontractor's management and one for all site staff and labourers. Courses shall be run in the morning during normal working hours at a suitable venue provided by the Contractor. All attendees shall remain for the duration of the course and sign an attendance register on completion that clearly indicates participant's names, a copy of which shall be handed to the Engineer.

The size of each session shall be limited to **30** people. The Contractor shall allow for sufficient sessions to train all personnel. Subsequent sessions shall be run for any new personnel coming onto site. A Method Statement with respect to the organisation of these courses shall be submitted. Notwithstanding the specific provisions of this clause it is incumbent upon the Contractor to convey the sentiments of the EMP to all personnel and Subcontractors involved with the Works.

5.3.1 Training course for management and foremen

The environmental awareness training course for management shall include all management staff and foremen. The course, which will be presented by the Engineer's SHE Coordinator, will be of approximately one-hour duration. The initial course shall be undertaken not less than 7 days prior to commencement of work on site. Subsequent courses shall be held as and when required.

5.3.2 Training course for site staff and labour

The environmental awareness training course for site staff and labour shall be presented by the Contractor's SHE Officer from material provided by the Engineer unless otherwise required by the Project Specification. The course will be approximately one-hour long. The course shall be run not more than 7 days after commencement of work on site with sufficient sessions to accommodate all available personnel. Subsequent courses shall be held as and when required.

5.4 Site division

The Contractor shall restrict all his activities, materials, equipment and personnel to within the area specified. A Method Statement detailing the location, layout and method of establishment of the construction camp (including all buildings, offices, lay down yards, vehicle wash areas, fuel storage areas, bulk mixing plant and other infrastructure required for the running of the project) shall be submitted to the Engineer. No accommodation for any staff is permitted on the Site.

5.5 Site demarcation

As required by the Project Specification, the Contractor shall erect and maintain permanent and / or temporary fences of the type and in the locations directed by the Engineer. Such fences shall, if so specified, be erected before undertaking designated activities.

5.6 "No go" areas

If so required by the Project Specification, certain areas within or next to the Site shall be "no go" areas. The Contractor shall ensure that, insofar as he has the authority, no person, machinery, equipment or materials enter the "no go" areas at any time.

5.7 Access routes/ haul roads

On the Site and, if so required by the Project Specification, within such distance of the Site as may be stated, the Contractor shall control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic and that all relevant laws are complied with. In addition, such vehicles and plant shall be so routed and operated as to minimise disruption to regular users of the routes not on the Site.

On gravel or earth roads on Site and within 500m of the Site, the vehicles of the Contractor and his suppliers shall not exceed a speed of 45 km/hr or as directed by the Engineer. The Contractor shall supply the Engineer with a Method Statement detailing the location and management of all access points and roads.

5.8 Construction personnel information posters

The Contractor shall erect and maintain information posters for the information of his employees depicting actions to be taken to ensure compliance with the Environmental Specifications. Construction personnel information posters shall be laminated and erected in all eating areas, workshops and site offices. The Contractor shall ensure that the construction personnel information posters are not damaged in any way, and shall replace them if any part becomes illegible. Examples of these posters will be supplied to the Contractor by the Engineer in electronic format.

5.9 Fire control

The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his activities on Site. No open fires shall be permitted on the Site, with the exception of burning of cleared vegetation after approval by the Engineer and relevant authorities. Any fires that occur shall be reported to the Engineer immediately. Smoking shall not be permitted in those areas where there is a fire hazard. Such areas shall include the workshop and fuel storage areas and any areas where the vegetation or other material is such as to support the rapid spreading of an initial flame.

The Contractor shall appoint a Fire Marshall who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedures to be followed. The Contractor shall forward the name of the Fire Marshall to the Engineer for his approval within 7 days of being on site. The Contractor shall ensure that there is basic fire-fighting equipment available on Site at all times. This shall include at least rubber beaters when working in urban open spaces and natural areas, and at least one fire extinguisher of the appropriate type when welding or other “hot” activities are undertaken. The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires that were started as a result of his activities or personnel, and for any cost relating to the rehabilitation of burnt areas, or consequential damages.

5.10 Emergency procedures

Emergency procedures, including the names and contact details of responsible personnel and emergency services shall be made available to all staff and shall be clearly displayed at relevant locations at the Site. The Contractor shall advise the Engineer of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Telephone numbers of emergency services shall also be posted conspicuously in the Contractor's office near the telephone. The Contractor shall submit a Method Statement covering the procedures for the following emergencies:

5.10.1 Fire:

The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall ensure that his employees are aware of the procedures to be followed in the event of a fire.

5.10.2 Accidental leaks and spillages:

The Contractor shall ensure that his employees are aware of the procedures to be followed for dealing with spills and leaks, which shall include notifying the Engineer and the relevant authorities. The Contractor shall ensure that all the necessary materials and equipment for dealing with spills and leaks are always available on Site. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the Engineer.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. Any spills must be cleared, and the contaminated soil/sludge disposed of in an appropriate manner, approved by the Engineer, or at a licensed hazardous waste disposal site.

5.11 Community relations

If so, required by the Project Specification, the Contractor shall erect and maintain information boards in the positions, quantities, designs and dimensions specified. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Engineer. The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself and note the date and time that the complaint was resolved. The Engineer shall be responsible for responding to queries and/or complaints and may request assistance from the Contractor's Management Staff.

5.12 Protection of natural features

The Contractor shall not deface, paint, damage or mark any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes unless agreed beforehand with the Engineer. Any features affected by the Contractor in contravention of this clause shall be restored / rehabilitated to the satisfaction of the Engineer. The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, and open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

5.13 Protection of species

5.13.1Flora

Except to the extent necessary for the carrying out of this Works, flora shall not be removed, damaged or disturbed nor shall any vegetation be planted. The search and rescue of rare, endemic or endangered species prior to Site clearance must be carried out in accordance with the Vegetation Specifications by the competent service provider. Where the site has dance vegetation the Contractor must at the same time perform bush clearing with the presents of flora search and rescue service provider, depending on the provisions made for this activity and approval by the appointed Engineer. The removal and stockpiling of topsoil must also be carried out in accordance with the Vegetation Specifications.

5.13 2Fauna

Except to the extent necessary for the carrying out of this Works, fauna shall not be removed, injured or disturbed nor shall be killed. Trapping, poisoning and/or shooting of fauna is strictly forbidden. No domestic pets or livestock are permitted on Site. The search and rescue of fauna, endemic or endangered species prior to Site clearance must be carried out in accordance by the competent Service Provider. Where the site has dance vegetation the Contractor must at the same time perform bush clearing with the presents of fauna search and rescue Service Provider, depending on the provisions made for this activity and approval by the appointed Engineer. Trapping or capturing and removal of fauna from site will only be performed by the approved competent Service Provider.

5.14 Stormwater management

Natural run-off must be diverted to stormwater drains where these are available. The Contractor shall take appropriate measures to prevent sand, silt and silt-laden waters from entering stormwater drains, or any surface water course. The Contractor shall take reasonable measures to control the erosive effects of stormwater runoff particularly where excavation and construction activities form temporary channels. Suitable energy breaking devices, cut-off drains, diversions and retention ponds shall be employed to ensure that storm water runoff from the Site is dissipated and does not exceed the capacity of the surrounding stormwater system and excessive suspended solids are settled before they enter the stormwater system or any surface water course. If required in the Project Specification, the Contractor shall submit a Method Statement to the Engineer detailing how stormwater will be managed on Site.

5.15 Erosion and sedimentation control

The Contractor shall take all reasonable measures to limit erosion and sedimentation due to construction activities and shall, in addition, comply with such detailed measures as may be required by the Project Specification. Where erosion and/or sedimentation, whether on or off the Site, occurs despite the Contractor complying with the foregoing, rectification shall be carried out in accordance with details specified by the Engineer. Where erosion and/or sedimentation occurs due to the fault of the Contractor, rehabilitation shall be carried out to the reasonable requirements of the Engineer and at the expense of the Contractor.

5.16 Aesthetics

The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area.

5.17 Recreation

If so, required by the Project Specification, the Contractor shall take measures to reduce disruption to recreational users of the area abutting the Site.

5.18 Temporary site closure

If the Site is closed for a period exceeding 5 days, the Contractor's SHE Officer in consultation with the Engineer shall carry out the following checklist procedure and ensure that the following conditions pertain and report on compliance with this clause:

5.18.1 Fuels / flammables / hazardous materials stores

- Fuel stores are as low in volume as practicable.
- There are no leaks.
- The outlet is secure and locked.
- The bund is empty.
- Fire extinguishers are serviced and accessible.
- The area is secure from accidental damage through vehicle collision and the like.
- Emergency and contact numbers are available and displayed.
- There is adequate ventilation in enclosed spaces.
- There are no stores or containers within the 1:50 year flood line.

5.18.2 Safety

- Site safety checks have been carried out in accordance with the Occupational Health and Safety Act (No. 85 of 1993) prior to site closure.
- An inspection schedule and log for use by security or contracts staff is developed.
- All trenches and manholes are secured.
- Applicable notice boards are in place and secured.
- Emergency and Management contact details are prominently displayed.
- Security personnel have been briefed and have the facilities to contact or be contacted by relevant management and emergency personnel.
- Night hazards such as reflectors, lighting, traffic signage etc have been checked.
- Fire hazards identified and the local authority notified of any potential threats e.g. large brush stockpiles, fuels etc.
- Pipe stockpiles are wedged / secured.
- Scaffolds are secure.
- Structures vulnerable to high winds secure.

5.18.3 Erosion

- Wind and dust mitigation measures such as straw, brush packs, irrigation etc are in place.
- Excavated and filled slopes and stockpiles are at a stable angle and capable of accommodating normal expected water flows.
- Re-vegetated areas have a watering schedule and the supply to such areas is secured.
- There are sufficient detention ponds or channels in place.

5.18.4 Water contamination and pollution

- Hazardous fuel stores are secure.
- Cement and materials stores are secure.
- Toilets are empty and secured.
- Refuse bins are empty and secured.
- Bunding is clean and treated with appropriate material that will absorb/ breakdown and where possible be designed to encapsulate minor hydrocarbon spillage.
- Drip trays are empty & secure.

5.19 Protection of archaeological and palaeontological sites

If any possible palaeontological/archaeological material is found during excavation work, including shell middens, Stone Age tools, fossil bones and other artefacts, graves and wrecked vessels, the Contractor shall stop work immediately and inform the Engineer. The Engineer will inform the South African Heritage Resources Agency (SAHRA) and arrange for a palaeontologist/archaeologist to conduct inspection and studies, and if necessary, excavate, the material, subject to acquiring the requisite permits from SAHRA at the following address:

111 Harrington St,
Zonnebloem,
Cape Town,
8001
Postal Address: PO Box 4637
Email: info@sahra.org.za
Telephone: 0214624502

6 TOLERANCES

Refer to Contract document.

7 TESTING

Void

8 MEASUREMENT AND PAYMENT

8.1 Basic Principles

Except as noted below and in the Project Specification as Scheduled Items, no separate measurement and payment will be made to cover the costs of complying with the provisions of this Specification and such costs shall be deemed to be covered by the rates tendered for the items in the Schedule of Quantities completed by the Contractor when submitting his Tender.

8.2 Scheduled Items

8.2.1 Protection of stock piles from blowing or washing away:

The spraying or covering of stockpiles, including the supply of the spray or cover material, as required, shall be measured as a lump sum.

8.2.2 Storage of fuel and oils:

The supply, construction, installation, transport, upkeep and removal of all facilities required for storage and management of fuel and oils will be measured as a lump sum.

8.2.3 Cement laden water management:

The supply, construction, installation, transport, upkeep and removal of all facilities required for the management of wastewater from concrete operations will be measured as a lump sum.

8.2.4 Contaminated water management:

The supply, construction, installation, transport, upkeep and removal of all facilities required for managing contaminated water will be measured as a lump sum.

8.2.5 Storm water management:

The supply, construction, installation, transport, upkeep and removal of all facilities required for managing storm water run-off from the site will be measured as a lump sum.

8.2.6 Bunding and management of run-off from workshop areas and supply of drip trays for stationary and “parked” plant:

The supply, construction, installation, transport, upkeep and removal of all facilities required for bunding and managing the run-off from workshop areas as well as all drip trays required will be measured as a lump sum.

8.2.7 Dust management:

The supply, application, transport, upkeep and removal of all materials required to ensure that dust is adequately controlled will be measured as a lump sum.

8.2.8 Fire Control:

The supply, transport, upkeep and removal of all material required for fire control will be measured as a lump sum.

8.2.9 Provision of venue and staff attendance at the environmental awareness training course:

The provision of a venue and staff attendance at the environmental training course will be measured as a lump sum. The sum shall cover all costs incurred by the Contractor in providing the venue and facilities as detailed in the Specifications and in ensuring the attendance of all relevant employees and sub-contractors and their employees, at the training.

8.2.10 Eating areas:

The supply, construction, installation, transport, upkeep and removal at the end of the construction of all eating areas structures shall be measured as a sum.

8.2.11 Ablutions:

The supply, maintenance, regular emptying and removal of toilets shall be measured as a sum.

8.2.12 Site demarcation:

The supply, installation and removal at the end of the construction of all temporary fences shall be measured by length for each type of fence scheduled.

8.2.13 Construction personnel information posters:

The supply, installation and removal at the end of the construction of all construction information posters shall be measured by number of posters for each type of poster scheduled.

8.2.14 Solid waste (including hazardous waste) management

The supply of bins and skips as well as transport of waste to appropriate waste disposal facilities shall be measured as a sum.

8.2.15 Spill kits

The supply, use and replenishment of spill kits, to be used at fuel storage areas and refuelling areas shall be measured as a sum.

8.2.16 Method Statements: Additional Work:

No separate measurement and payment will be made for the provision of Method Statements but, where the Engineer requires a change beyond the requirements of the Specification on the basis of his opinion that the proposal may result in, or carries a greater than warranted risk of damage to the environment, then any additional work required, provided it could not reasonably have been foreseen by an experienced Contractor, shall be valued in accordance with the Contract document.

A stated sum is provided in the Schedule of Quantities to cover payment for such additional work.

8.2.17 Work "required by the Project Specification":

Where a clause in this Specification includes a requirement as "required by the Project Specification", measurement and payment for compliance with that requirement shall be in accordance with the relevant measurement and payment clause related to the Project Specification.

ANNEXURE C

Acknowledgement:

I,_____ representing

_____

___ Principal Contractor have satisfied myself with the content of the Project Environmental Specification (PES) and shall ensure that the personnel and other people visiting site comply with all relevant obligations in respect thereof.

_____ _____

Signature of Principal Contractor Date

_____ _____

Signature of Agent Date