Eskom	Specification	Group Capital

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1. Introduction

Eskom Group Capital (GC) Arnot Solar Photovoltaic (PV) Project is committed to achieving and demonstrating sound Environmental management by controlling Environmental risks/impacts consistent with its SHEQ policy's objectives.

The aim of Eskom's adoption of Zero Harm as one of its values is to strive to, and achieve world class environmental performance, where all Guardians (employees and contractors) return home safely every day and without harm done to the environment we operate in.

The aim of the Environmental specification is to provide contractor/s with:

- The overarching framework within which the contractor is required to demonstrate compliance to Environmental legislation.
- Establish the manner in which the contractor is to manage Environmental risks in the execution of the contract; and

The Environmental Specification shall be included with the tender enquiry documentation to ensure that the tenderer is timeously made aware of:

- Eskom's requirements, including
- Eskom's compliance obligations (including Funders' requirements if applicable)
- Activities that may have an impact on the direct and surrounding environment.

The contractor and their sub-contractors are expected to develop an Environmental Management plan (or incorporate Environmental Management into the SHE plan) which meets these requirements as well as the relevant applicable legislation.

This specification may not thoroughly address all aspects and impacts associated with any activity or operation. In such situations, contractors shall be responsible for developing site based environmental management plans/procedures/manuals/work instructions/method statements to adequately address activities and scope of operation in line with relevant regulations.

2. Supporting Clauses

2.1 Scope

This specification sets out the minimum legislative and organisational environmental requirements for the Eskom Group Capital Arnot Solar Photovoltaic (PV) Project. Where appliable this specification should be read in conjunction with Eskom Generation Division (Gx) specification.

2.1.1 Purpose

The purpose of this document is to outline Eskom environmental requirements for Contractors, Sub-Contractors, Service Providers, Suppliers, and anyone carrying out work for or on behalf of Eskom Group Capital.

2.1.2 Applicability

This specification is applicable to Group Capital Arnot Solar PV Project, including all Principal Contractors, Sub-Contractors, Service Providers, Suppliers, and all parties/anyone carrying out work for/on behalf of GC.

2.1.3 Effective date

This specification shall be implemented from date of approval or signatures.

2.2 Normative/Informative References

Parties using this specification shall apply the most recent edition of the documents listed below.

Note: Where the date for revision of a document on the Eskom Document Centre website has passed, the document is still current, irrespective of its revision date having passed.

2.2.1 Normative

[1] 32-727: Safety, Health, Environment and Quality Policy

[2] Hazardous Substances Act, 1993 (Act 85 of 1993)

[3] The Constitution of the Republic of South Africa (particularly Section 24 of the Bill of Rights)

[4] National Environmental Management Act 107 of 1998, as amended

[5] National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)

[6] National Environmental Management: Protected Areas Act , 2003 (Act 57 of 2003)

[7] National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)

[8] National Environmental Management: Waste Act, 2008 (Act 59 of 2008)

[9] National Water Act, 1998 (Act 36 of 1998)

[10] Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

[11] Animals Protection Act, 1962 (Act No. 71 of 1962)

[12] National Road Traffic Act, 1996 (Act No. 93 of 1996)

[13] National Heritage Resources Act, 1999 (Act No. 25 of 1999)

[14] Fencing Act, 1963 (Act No. 31 of 1963)

[15] Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)

[16] National Veld and Forest Fires Act, 1998 (Act No. 101 of 1998)

[17] Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

[18] Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)

[19] Nature and Environmental Conservation Ordinance 19 of 1974

[20] All relevant South African legislation (national, provincial, and local)

[21] Applicable South African National Standards (SANS) for the scope of work/Project.

[22] Applicable International Standards

[23] Environmental Management Programme (draft dated October 2019 and future approved version)

[24] Environmental Authorisation reference number (12/12/20/1142) dated 21/02/2012

[25] Licenses/Permits

[26] 240-62946386: The Vehicle and Driver Safety Management Procedure

[27] 32-37: Substance Abuse Procedure

[28] 32-245: Waste Management Standard

[29] 32-124: Eskom Fire Risk Management

[30] 240-43848327: Employees' right of refusal to work in an unsafe situation

[31] 240-100979499: Personal Protective Equipment for work at Heights Specification

[32] 32-520: Procedure Manual for Performing Occupational Health and Safety Management and Environmental Management: Conducting EH&S Risk Assessment

[33] 32-123: Emergency Planning

[34] 32-726: SHE Requirements for the Eskom Commercial Process

[35] 32-524: Manual, Developing a SHE Specification

[36] 32-1126: Eskom Smoking Policy

[37] 32-1134: Access Control at Eskom Premises

[38] 240-44175132: Eskom Personal Protective Equipment Specification (PPE)

[39] 32-477: Safety, Health and Environment Training and Development Procedure

[40] 32-736: Eskom Land and Biodiversity Policy

[41] 32-246: Work instruction for Reporting on Environmental Expenditure and Income

[42] 240-13307117: Environmental Incident Management Procedure

[43] 32-815: Land and Biodiversity standard

[44] 240-701725/32-247: Vegetation management and maintenance within Eskom Land, servitude, and rights of way

[45] 240 – 99022571: Environmental Emergency Preparedness and Response

[46] WTB003: Management of Protected and Indigenous Vegetation

[47] 240 – 79588146: Transportation of hazardous goods

[48] 240 – 83895653: Environmental training, awareness, and competence procedure in Accordance with ISO14001 environmental Management Systems requirements

[49] 240 – 101685878: Environmental Communication Procedure

[50] 240 – 44175038: Control of Non-Conforming Product or Service Procedure

2.2.2 Informative

Note: The following is a list of documents that can be used as a guide in order to meet legal and Eskom requirements

[51] ISO 14001:2015, Environmental Management System Requirement

2.3 Definitions

For the purposes of this Specification, the following definitions shall apply:

Borrow area means any areas within designated boundaries, approved for the purpose of obtaining borrows material. This mining activity is subject to a mining permit issued in accordance with the Mineral and Petroleum Resources Development Act 28 of 2002.

Borrow material means any material, be it gravel, sand or soil obtained from designated areas for use as bedding material or fill. It does not include rock or stone or any material obtained from commercial sources. This mining activity is subject to a mining permit issued in accordance with the Mineral and Petroleum Resources Development Act 28 of 2002.

Borrow pit means the excavated pit in a borrow area. This mining activity is subject to a mining permit issued in accordance with the Mineral and Petroleum Resources Development Act 28 of 2002.

Botanical specialist for the purposes of this Specification means a specialist suitably qualified to deal with the type of vegetation occurring in the affected environment. This should be the specialist who undertook the botanical investigation as part of the Environmental Impact Assessment (EIA), or where he/ she is unavailable, a suitable replacement identified by the employer.

Clearing means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified.

Contaminated water means any water contaminated by chemicals, soil, and effluent due to the contractor's activities, e.g. concrete water, diesel refuelling, runoff from equipment, construction camps, and ablution facilities and personnel wash areas.

Dangerous goods means goods containing any of the substances as contemplated in South African National Standard No. 10234, supplement 2008 1.00: designated "List of classification and labelling of chemicals in accordance with the Globally Harmonized Systems (GHS)" published by Standards South Africa, and where the presence of such goods, regardless of quantity, in a blend or mixture, causes such blend or mixture to have one or more of the characteristics listed in the Hazard Statements in section 4.2.3, namely physical hazards, health hazards or environmental hazards.

Demolish means the demolition and complete removal and disposal of buildings, sheds, poles, concrete and any other objects and structures.

Environment means the surroundings within which humans exist and that are made up 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 (*i.e.* the social environment).

Environmental Authorisation means the project authorisation issued by the Department of Environmental Affairs, Forestry and Fisheries (DEFF) in terms of the National Environmental Management Act 107 of 1998 (NEMA), and any amendments thereto.

Establishment period means the period that commences from the time of actual planting of vegetation or revegetation until at least six months after planting.

Flood plain means the area encompassed by the 1:100 year flood line.

Grubbing means the removal and disposal of roots and stumps of trees and vegetation already cleared.

Hazardous substance means a substance governed by the Hazardous Substances Act, 1973, as well as the Hazardous Chemical and Substances Regulations. In addition, any other substance that, in the reasonable opinion of the employer, can have a deleterious effect on the environment will be regarded as a potentially hazardous substance.

Heritage resource as per the provisions of the National Heritage Resources Act (No 25 of 1999), means those heritage resources that are of cultural significance or other special value for present and future generations, and which are accordingly considered part of the national estate. In this regard, the national estate includes those items identified in terms of Section 2 of the Act.

Heritage specialist for the purposes of this specification means a specialist suitably qualified to assess, evaluate, manage and advice on heritage resource. For example where the resource is an archaeological artefact or site, the heritage specialist would be an archaeologist and where it is a fossil the specialist would be a palaeontologist.

Indigenous vegetation means vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

Invasive alien vegetation means vegetation, which either does not naturally occur in the country and/or region or which under certain conditions proliferates and becomes problematic since it outgrows other plants and may represent a significant maintenance cost.

Maintenance period means the period after the establishment period up to and until the end of the defects liability period or as prescribed by the employer, during which the contractor shall be responsible to maintain the vegetation.

Method Statement means a written submission by the contractor to the employer in response to this specification or a request by the employer, setting out the equipment, plant, materials, labour and method the contractor proposes using to carry out an activity identified by this specification or the employer when requesting the Method Statement, in such detail that the employer is able to assess whether the contractor's proposal is in accordance with this specification and/ or will produce results in accordance with this specification.

The Method Statement shall cover applicable details with regard to:

i) Construction procedures;

ii) Plant, materials and equipment to be used;

iii) Transporting the equipment to and from site;

iv) How the plant/ material/ equipment will be moved while on site;

v) How and where the plant/ material/ equipment will be stored;

vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;

vii) Timing and location of activities;

viii) Compliance/ non-compliance with this specification; and

ix) Any other information deemed necessary by the employer.

Natural vegetation means all existing species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.

No-go areas mean areas outside of the approved and demarcated working area/ footprint where no construction activities are permitted.

Oil Separator means a trap that separates oil from the water and prevents oil from being transported from the Works into watercourses and water bodies.

Pollution Incident means any incident that may or has caused damage to or the contamination of the natural environment.

Reasonable means, unless the context indicates otherwise, reasonable in the opinion of the employer after he has consulted with a person, not an employee of the employer, suitably experienced in environmental management practices.

Settlement Ponds means ponds that retain water from the Works laden with sediment, suspended solids or other matter for a sufficient period for the sediment/ suspended solids/ matter to settle.

Sensitive area means any area that is denoted as sensitive by this specification or employer due to its particular attributes, which could include the presence of rare or endangered vegetation, the presence of heritage resources (*e.g.* archaeological artefact or graves), the presence of a unique natural feature, the presence of a watercourse or water body, the presence of steep slopes (in excess of 1:4) *etc*.

Slope means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units.

Solid waste means all solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. Plastic packets and wrappers) in a solid state.

Spoil means excavated material, which is unsuitable for use as material in the Works or is material, which is surplus to the requirements of the Works.

Topsoil means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential and composition of the soil.

Watercourse means:

(a) a river or spring;

(b) a natural channel in which water flows regularly or intermittently;

(c) a wetland, lake or dam into which, or from which, water flows; and

(d) any collection of water which is so declared to be a watercourse as made in the National Water Act, and a reference to a watercourse includes, where relevant, its bed and banks.

Water body means body containing any form of water and includes dams and wetlands, whether ephemeral or permanent.

Wetland means any area that is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil. Specifically, an area is classified as a “wetland” if it meets at least one of the following criteria:

i) The area predominantly supports hydrophytes, at least periodically;

ii) The substrate(soil) is predominantly undrained hydric soil; and/ or

iii) The substrate is non-soil, and is saturated with water or covered by shallow water at some time during the growing season.

Works means the Works to be executed in terms of the contract and in accordance with this specification.

Working Area means the land and any other place on, under, over, in or through which the Works are to be executed or carried out, whether permanent or temporary, and any other land or place made available by the employer in connection with the Works. The Working Area shall include the site office, construction camp, stockpile and laydown areas, batching areas, storage areas, all access routes and any additional areas to which the employer permits access. This term can be used interchangeably with “construction area” as approved as per section 0 of this document.

2.4 Abbreviations

Abbreviation	Explanation
CCR	Construction Completion Report
CQA	Construction Quality Assurance
EA	Environmental Authorisation
ECO	Environmental Control Officer
EO	Environmental Officer
SEA	Senior Environmental Advisor
EM	Environmental Manager
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
GC	Group Capital
DFFE	Department of Environmental Forestry, Fisheries and the Environment
DWS	Department of Water & Sanitation
DMRE	Department of Mineral Resource and Energy
EAPASA	Environmental Assessment Practitioners Association of South Africa
HCS	Hazardous Chemical Substances
ISO	International Organisation for Standardization
NEMA	National Environmental Management Act 107 of 1998, as amended
NWA	National Water Act (Act No. 36 of 1996), as amended
NQF	National Qualifications Framework
OHS Act	Occupational Health and Safety Act No. 83 of 1993
PV	Photovoltaic
SACNASP	South African Council for Natural Scientific Profession
SANS	South African National Standards
SAQA	South African Qualifications Authority.
SAQCC	South African Qualification and Certification Committee
SDS	Safety Data Sheet
SHEQ	Safety, Health, Environment and Quality
SOW	Scope of Work
WUL	Water Use License
Abbreviation	**Explanation**
EA	Environmental Authorisation
ECO	Environmental Control Officer
EO	Environmental Officer
SEA	Senior Environmental Advisor

Abbreviation	Explanation
EM	Environmental Manager
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
GC	Group Capital
DEFF	Department of Environmental Affairs, Forestry and Fisheries
DWS	Department of Water & Sanitation
DMRE	Department of Mineral Resource and Energy
HCS	Hazardous Chemical Substances
HWC	Heritage Western Cape
ISO	International Organisation for Standardization
SDS	Safety Data Sheet
SOW	Scope of Work
NEMA	National Environmental Management Act 107 of 1998, as amended
NWA	National Water Act (Act No. 36 of 1996), as amended
NQF	National Qualifications Framework
OHS Act	Occupational Health and Safety Act No. 83 of 1993
SANS	South African National Standards
SAQA	South African Qualifications Authority.
SAQCC	South African Qualification and Certification Committee
SHEQ	Safety, Health, Environment and Quality
WUL	Water Use License

2.5 Roles and Responsibilities

2.5.1 Eskom Project Manager

The responsible project manager (PM) is responsible for managing the contracts and ensure that the Environmental specification is complied with. The PM must also ensure tender process includes this Environmental specification.

2.5.2 Eskom Engineering Manager:

The Project Engineer is responsible for ensuring that the designers fulfil their professional and legal obligations with respect to the implementation of this specification.

2.5.3 Designer:

The Designer is the person responsible for the overall management of the project designs as well as ensuring the management of the compliance of the completed works.

The designer shall ensure compliance with the relevant environmental legislations, approved Environmental Authorisation's, EMP's, permits/ approvals and other recommendations as stipulated in the Environmental Impact Reports or related specialists reports.

2.5.4 Eskom Environmental Manager/Advisor/ Officer:

The responsibility of the Environmental Manager/ Advisor/Officer is to provide assurance, advice, assistance and support to the Eskom Site/Project Manager in the management of the environmental issues on the project, which includes ensuring compliance to the Environmental Authorisation (EA) and the Environmental Management Programme (EMPr), Water Use License (WUL), Waste Management Licence (WML), Tree cutting permits, Vegetation disturbance/ clearance permits, Atmospheric Emission License (EAL), Eskom standards and any environmental compliance obligation/s applicable to the Project.

2.5.5 Contractor

The contractor shall comply with all relevant laws, environmental legislation and regulations, conditions of environmental approvals, specialist studies, any other permit & licenses and employer Policies and Procedures or standards.

2.6 Process for Monitoring

This document is subjected to document control procedures and will be update when it is due for revision or when conditions dictate. Conformance to this document shall be through any relevant approved methods or audits where necessary.

2.7 Related/Supporting Documents

- 240-13307117: Environmental Incident Management Procedure
- 32-245: Waste Management Stand

3. Environmental Management

3.1 GENERAL

This section covers the requirements for controlling the impact of construction activities on the environment. Environmental management is concerned not only with the results of the contractor's operations to carry out the Works but also, with the manner in which his operations are carried out. It is thus a requirement that the contractor including (suppliers, sub-contractors, consultants (all tiers) and consultants etc.) that are contracted by the contractor in relation to the project scope shall comply with the environmental requirements on an ongoing basis. The Contractor shall comply with;

- All relevant laws, environmental legislation and regulations, conditions of environmental approvals, specialist studies, any other permit & licenses and employer Policies and Procedures or standards.
- The principal contractor shall undertake the constructability reviews of all permit and licenses including but not limited to final EIA reports, Specialist reports, Designs Approval and all available Amendments of the projects prior for commencement. The contractor Environmental Manager and/or Officer shall take a special workshop twice (2) a year to ensure anyone or subsidiaries working or performing works on behalf of employer understand all permit and licenses of the project development.
- Where Oversight is identified and advisory from contractor EM/EO shall be communicated to employer PM/EM/EO of the Projects environmental permit and license related issues and /or the legal requirements and a Plan and/or Memo'
- Where permit and licenses requirements is confirmed and deemed necessary, the contractor EM/EO shall apply for relevant permit and licenses to allow the smooth of construction development until he/she has received the approval or authorization applied for. The Arnot Solar PV Project scope of work triggered several listed activities for which an Environmental Authorisation (EA) was obtained from the Department of Environment, Forestry and Fisheries (DEFF) dated 08 March 2016 and a General Authorisation (GA) was obtained from Department of Water and Sanitation (DWS) dated 24 March 2017. All sections of the EA and GA will be complied with.

The contractor shall undertake the constructability reviews of all permits and licenses including but not limited to final EIA reports, specialist reports, designs approval and all available amendments prior to commencement with the works. The contractor Environmental Officers shall undertake a special workshop twice (2) a year to discuss all permit and licenses of the project and ensure anyone or subsidiaries working or performing works on behalf of employer understand licenses requirements.

Where Oversight is identified, contractor EM/EO shall communicate such oversight to employer PM/EM/EO.

Where permit and licenses requirements are confirmed and deemed necessary, either Eskom or contractor EM/EO shall apply for relevant permit and licenses to allow the smooth of construction development.

The contractor shall take full responsibility for protecting the natural environment, eliminating, or minimising the negative impacts of construction activities on the environment. The contractor shall prevent or limit the occurrence of accidents which may cause damage to the environment, prevent, or limit the consequences of such accidents and shall return the environment to a state as close as possible to its condition prior to any such accident occurring. Nothing specified herein shall relieve the contractor of any obligations or responsibilities in this regard.

The requirements of this specification apply to all areas under the contractor's control, including but not limited to the working areas, laydown areas, the construction camp and offices, all access/ haul routes, all labour accommodation areas, and sensitive areas.

3.2 ENVIRONMENTAL POLICY

The contractor shall prepare and implement an Environmental Policy, in line with various statutory regulations and this specification. The Policy shall be submitted to the employer with tender returnables. Upon the employer's approval, the contractor shall immediately implement the policy and any amendments and keep it in operation for the full duration of the contract. The policy shall be communicated to all personnel and copies of the policy shall be prominently displayed at all places of work.

3.3 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The contractor must demonstrate that they have developed, implemented, and maintains an EMS and shall be expected to align to Eskom Arnot Solar PV Project ISO 14001: 2015 requirements.

3.4 ASPECTS AND IMPACTS

The contractor shall determine and develop the aspects and impacts register related to the scope of work. All aspects of the planning, manufacturing, pre-construction, construction and operational phases shall be considered. During the designing activity, the contractor must always take into account the product's life cycle perspective in mind. The following aspects must be taken into account during the design activity:

a) The life of the product — it is important to design a product which last longer and therefore reduces the number of stoppages and possible spillages (environmental incidents).

b) The technological complexity of the product — the design should ensure that the product can easily get maintained and the spares are easily accessible.

c) The design composition of the product — the product should not be designed by pollutant material e.g., Asbestos product as insulation material.

d) End of life management of the product — the product should be designed by material which is recyclable or usable after the life of the product.

3.5 GENERAL AND COMPLIANCE OBLIGATIONS

The contractor shall consider all environmental legislations and may be required to obtain relevant environmental permits and licenses where necessary. All personnel shall observe and obey any relevant environmental legislation and in so doing shall be undertaken in a manner that will avoid or minimise impacts on the surrounding environment, the public and adjacent landowners. The contractor shall absolve the employer of any and all risk or liability in terms of non-compliance with relevant statutory obligations during the construction phase.

The contractor shall construct and/ or implement all the necessary environmental protection measures in each area before any production work will be allowed to proceed. The employer may suspend the works at any time in terms the conditions of contract should the contractor, in the employer's opinion, fail to implement, operate or maintain any of the environmental protection measures adequately.

Eskom may suspend the works at any time if, in their opinion, contractor has failed to implement, operate or maintain any of the environmental protection measures adequately. In addition, a contractor may also be removed permanently off site or contract terminated.

3.5.1 ENVIRONMENTAL MONITORING

3.5.1.1 CONTRACTOR SITE ENVIRONMENTAL PERSONNEL

A suitably qualified person/s employed full time on site by the contractor shall be responsible for environmental monitoring and control daily for the duration of the works. This position shall be designated as the site Environmental Officer. The designated resource shall be a person with adequate environmental knowledge to understand and implement requirements of this specifications, as determined by the employer.

The following minimum requirements shall apply:

a) A related environmental tertiary qualification; National Diploma Environmental Science or management, BSc Environmental Science degree/ honours degree
b) As a minimum, five years working experience on construction site managing environmental compliance, monitoring and auditing;
c) Working experience on reporting of environmental compliance;
d) Working knowledge and relevant exposure to environmental management policies, standards, policies and legal compliance;
e) Good writing and verbal communication skills in English.

Additional requirements may be expected from the potential service providers/ contractors based on the nature of the services required.

Among others, the duties of the Environmental resource will include:

a) Monitoring of all of refurbishment or construction activities in line with various environmental requirements contained in this specification;
b) Undertake environmental awareness and trainings including mandatory induction.
c) Daily inspection and reporting
d) Monitoring and auditing of compliance with relevant environmental legislations;
e) Conduct environmental permit, licenses and general environmental awareness training sessions,
f) Attend construction project management meetings;
g) Development of requisite Method Statements;
h) Instituting remedial action in the event of non-compliance;
i) Implementation and management of environmental protection measures;

j) Keeping a register of public complaints, recordings and addressing any public comments or issues;

k) Routine recording and reporting of environmental ac(ivities on a daily basis;

l) Recording and reporting of environmental incidents according to Incident Management Procedure and;

m) Compiling an audit report, with clear corrective measures and interventions for improvement,

3.5.1.2 SITE MEETINGS

Compliance with this specification shall be an item on the weekly/ monthly project progress meetings. The contractor shall attend the site meetings and report on environmental performance. The Project/ Construction/ Contractor and Environmental Manager/ EO shall be updated regularly on total personnel/ contractor numbers on site so that adequate environmental services can be planned, especially if construction personnel increases. Resources i.e. water, sanitation should be planned well in advance and should be addressed at management meetings.

3.6 ENVIRONMENTAL TRAINING

The contractor shall ensure that all of their employees, and those of their sub-Contractor attend environmental awareness and training course/s. The environmental awareness/ training material shall be structured to ensure that attendees:

a) Acquire a basic understanding of the key environmental management within the working area and its immediate environment.

b) Understanding of the conditions of the EA, EMP, WUL, including but not limited to Specialists Reports with its recommendations, Designs Approvals and any other related Environmental Permit & Licenses requirements.

c) Become familiar with the environmental controls contained within this specification and prescribed licenses;

d) Receive pertinent, written instructions regarding compliance with the relevant environmental management requirements (viz. environmental “do's" and “don'ts"); and

e) Are made aware of any other environmental matters as deemed necessary by the employer.

f) Logistics for the Environmental Awareness, including the date, time and location ol the course/s, the course content and provision for refresher courses;

The initial environmental awareness training shall be held before the commencement date of construction activity, and subsequent to that, training shall be arranged for new employees coming onto site after the initial induction. Provision shall also be made for refresher training to be undertaken on a quarterly basis during the course of the contract.

The contractor shall provide a suitable venue with facilities and ensure that the specified employees attend the environmental awareness training. The training shall be held during normal working hours. The contractor shall allow for sufficient sessions to train all personnel. The contractor shall provide proof of attendance by all of his employees in the form of a signed attendance register and the content shared on the day for each session

3.7 LAYOUT DIAGRAM OR MAP

The contractor shall provide a detailed site construction layout diagram or map, for approval by the employer and/or authorities where required prior to commencement or during construction or refurbishment works. Sensitive environment as set out in the EA, EMP, WUL, design approval and related specialist reports shall be used in the finalisation of the layout map.

The following minimum information shall be included and this may differ depending on legal requirements:

a) Existing infrastructure on Site;

b) Location of key infrastructure and services required for construction, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and laydown areas, hazardous storage areas (including fuels), the batching plant/s, designated access routes, equipment cleaning areas and the placement of any staff accommodation, cooking and ablution facilities;

c) Location and structure of the fuel storage area, including the types of fuel and volume of storage container/s and the design and capacity of the bund;

d) Location and layout of concrete batching facilities;

e) Location and layout of the waste holding area and waste bins across the Site;

f) Location and layout of temporary storm water management controls;

g) All other associated infrastructure;

h) All sensitive features e.g. heritage sites, critical biodiversity areas, ecological support areas, wetlands, storm water channels, wetlands, drainage channels as identified in specialist reports and the EIA;

i) All “no-go" and buffer areas.

3.8 SITE ESTABLISHMENT

The contractor shall inform the employer of the intended actions and programme for site establishment and of the proposed location of the construction camp/s and provide him with a plan showing the fences, roads, construction area, yellow plant area, layout of the construction camp, ablution facilities including the positions of all buildings and infrastructure, stockpile and laydown areas, fuel storage for equipment areas, batching areas and other infrastructure. The construction camp shall occupy as small an area as possible, and no site establishment shall be allowed within legal prescribed distance of any watercourse. A proposed construction camp shall be included in the method statement for approval by employer.

The site layout shall be planned to facilitate access for deliveries, facilitate future works and to curtail any disturbance or security implications for neighbours. The final site layout shall be subject to the employer's approval, which shall not be unreasonably withheld.

3.9 SITE DEMARCATION

3.9.1 GENERAL

The contractor shall maintain in good order all demarcation fencing and barriers for the duration of construction activities, or as otherwise instructed by the employer.

3.9.1.1 CONSTRUCTION CAMP

The contractor shall erect fencing around the construction camp and associated structures such as batching plants, in accordance with this specification and the employer's instructions. When no longer required, infrastructures shall be dismantled, removed and rehabilitate the area.

3.9.1.2 "NO GO" AREAS

Unless otherwise agreed to by the employer, the contractor shall ensure that all activities are restricted to within the defined working Area. The areas outside of the defined working areas as well as any other areas identified by the employer or in this specification shall be regarded as "no go" areas. Insofar as he has the authority, the contractor shall ensure that no unauthorised entry, driving, stockpiling, dumping or storage of equipment, plant or materials, etc shall be allowed within the "no go" areas.

Unless demarcated with other fencing, the boundary of the working area shall be demarcated using "no go" signs as discussed and agreed by both the employer and contractor.

The employer may also identify patches of natural vegetation or any other natural/ sensitive or special features inside the working area as "no go" areas. These areas shall be demarcated using "no go" fencing or any method that may be agreed upon.

Once construction within an area has been completed and the area has been rehabilitated, it shall be considered a "no go" area.

Once construction within an area has been completed and the area has been rehabilitated, it shall be considered a "no go" area.

3.10 METHOD STATEMENTS AND/OR SCOPE OF WORK

The Contractor shall refer to section 4.3 of the Project Environmental Management Programme for a comprehensive list of method statements.

Unless indicated otherwise by the employer, the contractor shall in addition to the above, provide the following Method Statements (if applicable) for approval prior to commencement of construction activities ing::

a) Site Establishment

b) Management of chemical substances, dangerous goods and flammable substances. This Method Statement shall include the Safety Data Sheets (SDS's) for all fuels, lubricants, paints, solvents and other chemicals to be used or stored on site;

c) Procedures for the filling and dispensing of fuel both at the fuel storage area and on site.

d) Preparation of concrete batching facilities including the methods employed for the mixing of concrete and the management of runoff water from such areas. An indication shall be given of how concrete spoil will be minimised and cleared;

e) Waste management, control and removal of waste from the Site, including the number, type and location of rubbish bins, the manner and frequency with which the waste will be removed from site, obtaining and maintaining records of safe disposal certificates and a description of the identified registered disposal sites.

f) Method for dealing with runoff and drainage, including a storm water management plan, mechanisms for the control of erosion and sedimentation, Use of herbicides, pesticides and other poisonous substances, including means of storage;

g) Dust control, including methods to prevent dust generation and method to reduce dust where its generation is unavoidable;

h) Procedure for delivery, transporting and off-loading / transfer of construction materials.

The contractor shall not commence with the activity until the employer have approved the method statements. Except in the case of emergency activities, the contractor shall allow a period of three

(07) working days for approval and acceptance of the method statements. Such acceptance shall not unreasonably be delayed or withheld.

The employer may require changes to a method statement if the proposal does not comply with relevant specification or if, in the reasonable opinion of the employer, the proposal may result in, or carries a greater than reasonable risk of damage to the environment in excess of that permitted by relevant specification.

Approved method statements shall be readily available on site and shall be communicated to all relevant personnel prior to undertaking construction work. Where necessary the requisite training shall be given to the personnel to facilitate compliance with the approved method statement. The contractor shall carry out the works strictly in accordance with the approved method statements. Approval of the method statement shall not absolve the contractor from any of his/her obligations or responsibilities in terms of the contract and taking Environmental Duty of Care in terms of applicable legislation.

3.11 IDENTIFICATION AND MANAGEMENT OF SENSITIVE VEGETATION AND ANIMALS

3.11.1 GENERAL

At the commencement of the contract, the contractor shall identify the areas of natural vegetation that may be disturbed during the execution of the works. In case of any rare or endangered flora and fauna species are identified, a search and rescue operation shall be undertaken by the contractor as per the EA or EMPr requirements, or relevant legislations in consultation with the employer. Search and rescue shall be undertaken by a relevant specialist appointed by the contractor, as approved by the employer.

3.11.2 SEARCH AND RESCUE

The plants shall be transplanted to the location(s) indicated by the employer or specialist report and be fully maintained by the contractor in an on-site nursery or any location where species are housed properly (in agreement with the client) until they are utilised for revegetation.

3.11.3 THE MANAGEMENT AND PROTECTION OF FLORA AND FAUNA

The contractor shall implement the mitigation measures as stated in the EMP or method statements, to manage biodiversity impacts resulting from the construction activities. The contractor shall ensure that the working area is kept clean, tidy and free of rubbish that would attract animal, pests, and no feeding of animals should be allowed on site.

3.11.4 CLEARING OF VEGETATION

No clearing of trees or vegetation shall occur prior to the contractor obtaining written permission from the employer, who shall designate in detail the exact areas to be cleared and the time at which it shall be done. The removal of trees shall also be undertaken in line with relevant legislations.

The contractor shall ensure that the clearance of vegetation is strictly restricted to that required to facilitate the execution of the works. Any natural vegetation, particularly trees, within or immediately adjacent to the working areas, which do not require removal, shall be fully protected against damage. Vegetation clearance shall be restricted to the construction camp, approved access roads, approved stockpiling and laydown areas, batching plant sites and portions of the working area where vegetation interferes with construction activities.

Site clearance shall occur in a planned manner, the detail of vegetation clearing shall be subject to the employer's approval. All cleared vegetation shall either be mulched and mixed into the topsoil stockpiles or disposed of at an approved disposal site. This shall consider site relevant permits and licenses conditions. Should fauna be encountered during site clearance, activities shall cease until such fauna have been safely relocated.

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3.11.5 STOCKPILING, REMOVAL AND DISPOSAL OF VEGETATION AND TREES

All cleared vegetation shall be mulched and mixed into the topsoil stockpiles or disposed of at an approved disposal site as approved by the or employer. The disposal of vegetation by burying or burning shall be strictly prohibited. Failing this, logs shall be disposed of at an appropriate landfill site. Under no circumstances shall members of the public be allowed to collect logs from the working area unless approved by the employer

3.11.6 STRIPPING AND STOCKPILING OF TOPSOIL

The contractor shall strip the topsoil from all areas of the working area where topsoil will be impacted by construction activities, including areas for temporary facilities, as directed by the employer. Topsoil includes the top 300 mm of soil (or to the depth of the bedrock where the soil is shallower than 300 mm) (the depth may change depending on geological location) and root material of cleared vegetation, for subsequent use during rehabilitation and re-vegetation. The depth of the topsoil may be determined by geotechnical studies or any other form that is acceptable to the employer If the contractor fails to conserve topsoil as instructed, they shall obtain suitable substitute material from other sources, approved by the employer, without any additional payment.

Topsoil collected from different areas shall be stockpiled separately and replaced in the same areas from which it was taken. Furthermore, topsoil shall be stockpiled separately from subsoil.

Where possible, stockpiles shall be located on previously disturbed areas or in areas where they pose the minimum risk of causing further environmental degradation. Topsoil and subsoil stockpiles shall be determined by legal requirements and appropriate precautions shall be taken to prevent the erosion and limit unnecessary compaction of the stockpiles. The contractor shall ensure that all stockpiles do not cause the damming of water.

3.11.7 PROTECTION OF NATURAL FEATURES AND HERITAGE RESOURCES

No material of special significance identified within the study area should be unearthed during construction activities.

The contractor shall make provision for accidental discovery of further heritage resources. The conti actor shall take reasonable precautions to prevent any person from removing or damaging any heritage resources (including but not limited to fossils, coins, articles of value or antiquity, graves and structures and other remains of archaeological interest) discovered on the Site, immediately upon discovery thereof and before removal. All works shall be suspended upon any heritage discovery. The contractor shall inform the employer immediately of such a discovery and carry out the employer's instructions for dealing therewith. The area shall be cordoned off until the employer authorises resumption of the works in writing. The employer shall take all necessary actions to ensure that delays are minimised.

Upon notification by the contractor, the employer shall arrange for the removal of remains or graves to be examined by an appropriate heritage specialist as soon as practicable. Acting upon the advice of the heritage specialist, the employer shall advise the contractor of the required actions that comply with this specification and other relevant regulations.

3.11.8 PROTECTION OF WATERCOURSES, WATER BODIES AND WETLANDS

The contractor shall ensure that all watercourses and water bodies are protected from contamination or degradation because of construction activities. All watercourses and water bodies shall be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, etc. In the event of a spill, prompt action shall be taken prevent further spillages, contain spilled material and clear the polluted or affected areas. In parallel the project should be notified immediately thereafter the relevant authorities where necessary.

3.11.9 PREVENTION AND CONTROL OF FIRES

The contractor shall take adequate precautions to ensure that the fire hazard on and near the site is managed. The contractor shall ensure that there is basic fire-fighting equipment available on site at all times, and any fires that occur shall be reported to the employer immediately. Where applicable veld fired shall be reported to relevant authorities. The contractor shall ensure that the responsible firefighter is knowledgeable or trained with the use of the equipment. The fire breaks shall be established and well maintained throughout the site.

Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include the workshop and fuel storage areas, any areas where the vegetation or other material may likely cause the rapid spread of an initial flame. All designated eating areas shall include provision for a smoking area. The contractor shall not be permitted to burn waste as a disposal method.

3.11.10 EMERGENCY PROCEDURES

The contractor shall develop an Environmental Emergency Preparedness Plan (EEPP). The plan shall among others include the management of the following:

a) Major hazardous chemical/ oil spills causing water or environmental pollution/ damage;

b) Major environmental incidents causing reputable damage to Eskom;

c) Fires including veld fires;

d) Emergency animal interactions e.g. snakes, bees and spider bites.

The Environmental EPP may be integrated with the site Emergency Preparedness Plan. The Environmental EPP shall contain a list of local emergency contact numbers which includes contact numbers of the Eskom PM, Eskom Environmental Officer, Eskom Safety Officer and Emergency Oil Spill Contractors and snake catchers.

Emergency numbers shall be displayed on site and be readily accessible by all staff in case of an emergency.

3.11.11 ENVIRONMENTAL INCIDENTS

All environmental incidents such as an oil spill, waste spill, pollution of water, property damage, snakebite, non-conformity, public complaints etc. shall be reported to Eskom PM and Eskom Environmental Officer immediately via telephone, email, etc.

Eskom believes that all incidents are preventable. The contractor shall therefore identify all hazards and risks on site that may result in an incident and control the risk accordingly to avoid incidents from occurring.

A flash report shall be submitted by the contractor to Eskom within 24 hours as per the Eskom Environmental Incident Management Procedure 240-133087117.

Eskom believes that all incidents are preventable. The contractor shall therefore identify all hazards and risks on site that may result in an incident and control the risk accordingly to avoid incidents from occurring.

In the event of a spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The contractor shall maintain spill kits on site at all times and shall ensure that there is always an adequate supply of absorbent material available in the spill kits to absorb/ breakdown and, where possible, be designed to encapsulate minor spillage.

The contractor shall maintain a list of Emergency Response numbers in case deployment is required for uncontrollable incidents. The contractor is fully responsible and accountable for the management of their incidents.

3.11.12 TEMPORARY SITE CLOSURE

If the site has to be closed for a period exceeding one week (7 calendar days), the contractor, in consultation with the employer, shall carry out a checklist procedure, which should as a minimum address the following:

Hazardous substances storage

- Outlet secure/ locked;

- Bund emptied (where applicable);
- Fire extinguishers serviced and accessible;
- Secure area from accidental damage e.g. oil spillage management
- Emergency and contact details displayed; and
- Adequate ventilation.
- Hazardous waste storage areas emptied Erosion
- Wind and dust mitigation in place;
- Slopes and stockpiles at stable angle; and
- Revegetated areas watering schedules and supply secured.

Water contamination and pollution

- Cement and materials stores secured;
- Toilets empty and secured;
- Refuse bins emptied and secured;
- Drip trays emptied and secure (where possible); and
- Structures vulnerable to high winds secure.
- Sedimentation management

Waste Management

- General and hazardous waste are collected on site and bins emptied
- sewage waste removed off site

3.11.13 PLANT AND 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 this specification. The contractor shall ensure that these delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of this specification.

Plant and materials shall be appropriately secured to ensure safe passage between destinations. Loads that pose a risk of dust generation or spillage during transit, including but not limited to sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover. The contractor shall be responsible for any clean up resulting from the failure by their employees or suppliers to secure transported plant and materials properly.

All manufactured and/ or imported plant and material shall be stored within the contractor's camp. All stockpiling and laydown areas outside of the construction camp within the authorised area shall be subject to the employer's approval.

3.10.14 DANGEROUS GOODS AND FLAMMABLE SUBSTANCES

6.20.1 SPILLAGE OF HAZARDOUS CHEMICAL SUBSTANCES

3.21.1 Spillage of Hazardous Chemical Substances

Ï. Safety Datasheets (SDS) shall be provided and available on-site, in an easily accessible location.

ii. Method statements must be developed and approved by the employer regarding commissioning activities that involve any hazardous chemical or dangerous good.

iii. Any spillages that occur shall be treated in accordance with the requirements indicated on the Safety Data Sheet (SDS), EA, EMPr, Eskom requirements and any other relevant procedure that may be legally acceptable

iv. Identify appropriate storage areas for stockpiling of materials, storage of hydrocarbons and storage of hazardous substances and ensure that these areas are appropriately prepared for their purpose;

v. All oil / chemical spills shall be cleaned immediately with spill kit;

vi. Oil traps must be removed regularly and remain free of debris;

vii. Mobile oil and chemical clean-up kits must be available for accidental spills;

viii. Drip trays which have the capacity to hold 110% of the oil / chemical shall accompany each and every heavy vehicle, machine, equipment (e.g. generator) and plant on site which poses a spill risk. Accommodation must be made for back-up drip trays in case of emergencies. Drip trays shall be fit for purpose;

ix. Oil based products and chemicals shall be stored in undamaged, sealed containers which are fit for purpose, labelled accordingly and has secondary containment up to 110% of the quantity in the container;

x. Disposal of hazardous substances shall be done in terms of the relevant legal requirements;

xi. Develop emergency protocols for dealing with spillages particularly where these pose a pollution risk or involve hazardous substances;

xii. Compile and implement the necessary Method Statements and undertake environmental awareness training of all staff.

3.11 HERBICIDES AND PESTICIDES

Only herbicides registered by the Registrar as per the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947 may be used in the control of pests and weeds. The manufacturer's specification must not be deviated from.

Only registered Pest Control Operators (PCO) as per the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947 may apply herbicides. The PCO registration certificate shall be available on site for verification purposes.

A herbicide register must be kept detailing the chemical used, quantities on site and quantities used by the PCO. A copy shall be handed to the Eskom Project Manager / Environmental Advisor/ Manager on completion of the project I contract. The contractor shall strictly adhere to the manufacturer's specifications regarding applications rates, storage and safety precautions.

The leaching action, residual action, manner of application and the surrounding area (especially wetlands and crops) should be considered in the choice of chemical. This aspect shall be carefully monitored when herbicides are applied as the slope of the ground together with the proximity of the stream to the substation site could cause leaching problems.

Unused chemicals shall not be disposed of on site but shall be disposed of at a relevant licensed facility.

3.12 EQUIPMENT

3.12.1 GENERAL

The contractor shall be cognisant of the requirements of this specification in the selection and operation of their equipment's, to ensure that environmental degradation is kept to a minimum. To this end, the contractor shall ensure that their equipment's operators are made aware of the environmental requirements and any other reasonable controls.

In sensitive areas, wheeled equipment shall be used in preference to track equipment. Reasonable speeds, as specified, shall be maintained at all times, but particularly where construction activities are taking place near populated areas. No activities shall be undertaken within sensitive areas without Eskom approval and or authorities permits and licenses.

3.12.2 EQUIPMENT MAINTENANCE AND STORAGE

All vehicles and equipment shall be kept in good working condition. Leaking equipment shall be repaired immediately or removed from Site.

Servicing of equipment on site shall only be permitted in designated areas. Portable drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for mobile equipment (such as compressors) and for "parked" equipment (such as excavators, loaders and cranes). Drip trays shall be inspected and emptied daily. Drip trays shall be closely monitored during rain events to ensure that they do not overflow. Where practical, the contractor shall ensure that equipment is covered so that rainwater is excluded from the drip trays. Oil waste from the drip trays shall be temporarily contained in drums that should be stored on bunded areas. These shall be removed on a regular basis to waste management facilities and proof of disposal must be kept and made available during inspection or audits.

3.13 BATCHING PLANTS

The use of “ready-mix” concrete or cement is preferred above on-site batching plants. The use of on-site batching plants should only be considered if the sourcing of “ready-mix” concrete or cement is problematic.

The siting of batching plants shall take cognisance of the requirements of this specification and shall be subject to the employer's approval. The Contractor's attention is specifically drawn to the requirements related to hazardous substances, dust and noise control, site demarcation, site clearing, refuse and waste control. The contractor shall be responsible for obtaining the employer's approval prior to the siting and establishment of any batching plants.

No batching activities shall occur directly on unprotected ground. Batching plants shall be located on a smooth impermeable surface. No wastewater resulting from batching of concrete shall be discharged into the environment. To this end, either the batching area shall be bunded and sloped towards a sump or diversion berms shall be installed to direct all contaminated water to a temporary storage area or settling pond.

Empty cement bags shall be stored in weatherproof containers to prevent windblown cement dust and water contamination. Empty cement bags shall be disposed of on a regular basis via the solid general waste management system and shall not be used for any other purpose. Unused cement bags shall be stored so as not to be affected by rain or runoff events. The contractor shall ensure that sand, aggregate, cement or additives used during the mixing process are contained and covered to prevent contamination of the surrounding environment.

The contractor shall take all reasonable measures to prevent the spillage of cement/ concrete during batching and construction operations. During pouring, the soil surface shall be protected using plastic and all visible remains of concrete shall be physically removed on completion of the cement/ concrete pour and appropriately disposed of. All spoiled and excess aggregate/ cement/ concrete shall be removed and disposed of via the solid waste management system.

Where “ready-mix” concrete or cement is used, the contractor shall ensure that the delivery vehicles do not wash their chutes directly onto the ground, a designated wash area shall be sited with a bund and settling pond. The contaminated wastewater shall be disposed of at a licensed wastewater treatment facility.

3.14 DEWATERING

Dewatering (removal of water found underground) of water resources is not permitted without a water use license. The contractor shall notify the employer if removal of underground water is required and develop a method statement for discussion and authorities consultation. Where dewatering is required and permits issued, pumps shall be placed over a drip tray in order to contain fuel spills and leaks. The contractor shall take all reasonable precautions to prevent spillage during the refuelling of these pumps. The contractor shall ensure that none of the water pumped during any dewatering activities, is released into the environment without the employer's approval.

3.15 AIR QUALITY

No burning of waste or vegetation is permitted on site. Moderate vehicle speed shall be maintained on access roads to minimise or avoid dust pollution. Further adjustments to vehicle speed may be necessary to minimise dust pollution.

3.15.1 DUST CONTROL PROGRAMME

A dust control programme shall be implemented by the contractor to maintain a safe working environment, minimise nuisance for surrounding residential areas, prevent damage to the natural vegetation of the area and protect topsoil. The contractor shall take all reasonable and appropriate measures to minimise the generation of dust because of their activities. Dust control programme shall, as a minimum, address the following:

i) Schedule of spraying water on dust prone portions of the working area, particularly gravel access roads, paying attention to the control of runoff. High traffic sections shall either be paved or treated via the application of suitable dust suppressing agents.

ii) Speed limits for vehicles on unpaved roads and minimisation of haul distances; Measures to ensure that material loads are properly covered during transportation;

iii) Schedule for wheel cleaning and measures to clean up public roads that may be soiled by construction vehicles;

iv) Minimisation of the area disturbed at any one time and protection of exposed soil against wind erosion, e.g. dampening with water, covering with straw or applying suitable dust suppressing agents;

v) Location and treatment of material stockpiles taking into consideration prevailing wind directions and location of sensitive receptors;

vi) Reporting mechanism and action plan in case of excessive wind and dust conditions;

vii) Access to non-potable water for dust suppression.

An appropriate number of water tankers shall be permanently available for the control of dust generation, and the contractor shall ensure that the sprays do not generate excess run off. There shall be sufficient water tankers of adequate capacity to enable the dampening of all working areas and access/ haul roads at least four times daily. During high wind conditions, the contractor shall comply with the EMP requirements, Air Quality Emission License and employer's instructions regarding additional dust management measures.

3.15.2 Vehicle Emissions

All vehicles and equipment shall be kept in good working order and serviced regularly. Vehicles noticeably emitting excessive fumes will not be permitted to continue working on site and should be taken for maintenance and repairs.

3.16 NOISE CONTROL

The Ccontractor's attention is drawn to the requirements of the following legal requirements (but not limited to):

i. National Environmental Management Act, 1998 (Act 107 of 1998), and

ii. Noise Control Regulations of the Environment Conservation Act (73 of 1989), gazetted on 10 January 1992 (GN. R.154).

Appropriate directional and intensity settings are to be maintained on all hooters and sirens, and the contractor shall provide and use suitable and effective silencing devices for pneumatic tools and other plant to reduce noise levels associated with his activities. The contractor shall restrict any of his operations that may result in undue noise disturbance to those communities and dwellings abutting the Site to the hours of 06h00 to 18h00 on weekdays and Saturdays or as otherwise agreed with the employer.

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 or the landowner within range. The contractor shall not use sound amplification equipment on site other than in emergencies.

The Ccontractor shall ensure that environmental awareness and training for all employees includes the need to minimise noise. The contractor shall provide suitable ear protectors to all of his staff and others entering areas with high noise levels. Zones of risk shall be clearly identified with warning signs.

3.17 LIGHTING

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 indigenous fauna, insects, surrounding communities or other users of the area. The following precautions should be considered:

- Motion infrared lighting;
- Warm colour LED bulbs or yellow bulbs marketed specifically for reducing insect attraction.

3.18 EROSION AND SEDIMENTATION CONTROL

The contractor shall conduct yearly Rain Readiness prior to the rainy season and undertake all reasonable measures to limit erosion and sedimentation due to the construction activities and shall include in the design of the site works measures to prevent such occurrences.

The Works shall be phased, and development staged so that stripped areas are kept to a minimum. The contractor shall ensure that the stabilisation of cleared areas is actively managed in order to prevent and control erosion during the course of construction.

Surface storm water shall not be allowed to be concentrated and to flow down cut or fill slopes, access roads or other areas prone to erosion without erosion protection measures being in place. Accordingly, the necessary temporary and permanent drainage works shall be installed as soon as possible.

3.19 ALIEN INVASIVE VEGETATION

The contractor shall remove all alien invasive vegetation from the working area for the duration of the construction. On-going, alien plant management must be undertaken in the high and medium sensitivity sections of the site. Key elements include: alien clearing must be undertaken by well-trained teams using the right equipment; all stems must be cut by hand (not heavy machinery).

3.20 TEMPORARY SERVICES AND FACILITIES

3.20.1 SITE STRUCTURES

Where possible site structures shall be of a temporary nature and shall be removed at the end of the contract. All site establishment components (as well as equipment) shall be located within previously disturbed areas where possible and shall be positioned to limit visual intrusion on neighbours and to limit the extent of the area disturbed. The type and colour of roofing and cladding materials of the contractor's temporary structures shall be selected to reduce reflection and blend into the surrounding environment.

3.20.2 SERVICES

Temporary services, including power lines and cables, shall be located in a manner which will cause the least disturbance to the environment. In particular, care shall be taken to ensure that the route alignment for temporary services avoids identified sensitive areas. Where possible, the contractor shall ensure that service infrastructure is accommodated within the same trench. All temporary services shall be subject to the employer's approval.

3.20.3 STOCKPILING AND STOCKPILE AREAS

Plant and materials shall be stored within the demarcated construction camp or batching areas. Stockpiled materials shall be stored off the ground and care shall be taken to minimise disturbance to the vegetation and topsoil.

Stockpiles shall be so placed as to occupy the minimum width compatible with the natural angle of repose of the material, and measures shall be taken to prevent the material from being spread over too wide a surface. The contractor shall ensure that all stockpiles do not cause the damming of water or run off, or are themselves washed away.

The contractor shall ensure that material is not stockpiled within regulated distance unless where permits and licences are available. Stockpiles shall be placed so that watercourses are not polluted and shall not obstruct any storm water or drainage paths.

3.20.4 ACCESS ROADS

Only designated access roads shall be used to access the working areas. If required, the employer shall, together with the contractor, negotiate access to the construction camp and working area with the affected landowner/s. The access agreement should be made in writing. Damage to the existing access roads because of construction activities shall be repaired by the contractor to the satisfaction of the employer, using material similar to that used in the original construction of the infrastructure where possible.

Where new access roads are required, these shall be subject to prior approval by the employer. All temporary access roads shall be rehabilitated to their original (i.e. pre-construction/ natural surrounding state) condition at the end of the contract, including ripping the disturbed area parallel with the contours.

All vehicle turning-areas shall be located within the working areas and shall be subject to the prior approval of the employer. The contractor shall ensure that horse and trailer vehicles transporting plant and materials only turn within the designated turning-areas, and not within cultivated lands or areas of natural vegetation.

3.20.5 ABLUTION FACILITIES

The contractor shall provide adequate ablution facilities for their staff in the construction camp as per agreement with the employer. Acts of excretion and urination are strictly prohibited other than at the facilities provided. The ratio of the available toilets to the site staff at any particular location should not exceed 1: 15 and toilet papers and other basic necessities shall be provided in all ablution facilities at all times.

The contractor shall not install pit latrines or septic tanks at the construction site. Where mobile chemical toilets are utilised, the contractor shall ensure the following:

i) Toilets shall be located within 100 m from any point of work but no closer to any watercourse or water body;

ii) Toilets shall be secured to the ground to prevent them from toppling due to wind or any other cause;

iii) Toilets situated close to the site boundaries or within sight of residential areas shall be hidden behind screens or other cover as approved by the employer;

iv) No spillage shall occur when the toilets are cleaned or emptied and the contents shall be properly stored and removed from site to a licensed waste treatment facility;

v) Discharge of waste from toilets into the environment and burial of waste is strictly prohibited;

vi) Toilets shall be provided with an external closing mechanism to prevent toilet paper from being blown out;

vii) Toilets shall be serviced on a regular basis (and as agreed with the employer) and emptied before long weekends and builders' holidays, and shall be locked after working hours; and

viii) Proof of waste disposal is kept on site and available at all times available at all times.

3.20.6 EATING AREAS

The contractor shall designate eating areas for their staff at all locations within the working area where work is taking place. These eating areas shall be clearly demarcated and shall be provided with bins with lids. The contractor shall have an understanding of animal nuisances and management thereof e.g., baboons, rodent and other potential nuisance that large volumes of food can attract. The contractor shall ensure their employees do not consume meals anywhere other than at these eating areas and that noise is limited. The contractor shall ensure that the management and handling of food from purchasing to waste management is considered from an environmental, health, hygiene and nuisance perspective. All eating areas shall include provision for a smoking area.

3.21 WATER USE FOR CONSTRUCTION

Water is a scarce resource in South Africa and water shall be conserved wherever possible. The contractor shall minimise the use of water and shall immediately attend to any wastage.

Subject to the prior approval by the department and the employer, water for construction purposes may not be abstracted from watercourses/water bodies or agricultural sources in the surrounding area. The contractor shall absolve the employer of any and all legal obligation and risk in this regard.

The feasibility study report presents several options regarding the sources for construction water. The study will be made available to the appointed contractor to allow them to select from the options provided.

3.22 WASTE MANAGEMENT

The management of waste on site shall be strictly controlled and monitored. The quantities of waste generated on site shall be minimised. Littering shall be avoided and no electrical waste (bits of wire, cables, wood pole, etc.) may be discarded on site.

The contractor shall provide sufficient weatherproof and scavenger-proof bins on Site to store the waste produced on a daily basis. All waste, including hazardous waste, must be labelled and stored until disposal is possible. Waste of any form shall not be buried, dumped or burned. Bins shall not be allowed to become overfull and shall be emptied regularly. The waste may be temporarily stored in line with relevant regulations.

Waste storage areas shall be included in the Waste Management Plan and to be approved by the employer prior to commencement of works. Sorting, shredding, grinding, crushing, screening or baling general waste is not permitted unless relevant permit or license is available.

Waste generators must ensure that the waste they generate is classified in accordance with SANS 10234 within one hundred and eighty (180) days of generation, and that their waste is re-used, recycled, recovered, treated and/or disposed of within 90 days of generation.

Chemical toilets shall be serviced as and when required to prevent the overflow of sewage. All waste shall be disposed of at a registered waste disposal facility and waste receipts and documentation (including safe disposal certificates) shall be submitted to Eskom and records kept.

Deviation from any of the above requirements constitutes Non-conformance and a Non-Conformance Report (NCR) may be issued to the contractor when such deviations occur.

3.22.1 WASTE MANAGEMENT PLAN

The contractor will be expected to comply with the Eskom waste management standard and develop a waste plan.

The contractor must submit a plan that is related to the scope of works and the plan must include the following (but not limited to):

i. The amount and type of waste that will be generated (Register);
ii. The amount and type of waste that will be stored on site.
iii. Measures to prevent pollution or ecological degradation (Procedure/ Method statement);
iv. Measures or programmes to minimise the generation of waste and the final disposal of waste;
v. Targets for waste minimisation through waste reduction, re-use, recycling and recovery;
vi. The period that is required to implement the waste management plan;

vii. Methods for monitoring and reporting;

viii. The waste class and rating in order to determinate correct disposal method for the waste and any other best practice that may be necessary to give effect to the requirements of the National Environmental Management: Waste Act and regulations passed thereunder;

ix. Approved/ licensed waste disposal sites to be used;

x. Identified compliance obligations.

3.23 ACCESS TO SITE

The contractor shall ensure that access to the Site and associated infrastructure and equipment is off-limits to the public and unauthorised persons at all times during construction.

3.24 ACCOMMODATION OF TRAFFIC

The contractor shall control the movement of all his vehicles and equipment including that of his suppliers so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic, are routed and operated in a manner that minimises disruption to other users and that all relevant laws are complied with. Unless otherwise stated, the speed limit on gravel or earth roads on the site and within 500 m of the Site shall not exceed a speed of 40 km/hr.

3.25 SURFACE EXCAVATIONS

3.25.1 SITE PREPARATION

The contractor shall ensure that the measures specified for site clearing specifically as they relate to the identification and management of sensitive vegetation, clearing of vegetation and the stripping and stockpiling of topsoil, are implemented prior to the onset of earthworks.

3.25.2 DUST AND NOISE

The contractor shall ensure that the dust and noise control measures specified in this specification are implemented during excavation and blasting operations.

3.25.3 EXTENT OF DISTURBANCE

All earthworks shall be undertaken in such a manner so as to minimise their impacts, particularly with regards to loss of natural vegetation. No equipment associated with earthworks shall be allowed outside of the working area unless expressly permitted by the employer. Cuts into sloping terrain shall be minimised to eliminate the potential erosion risks associated with such operations.

3.25.4 STABILISATION

The contractor shall ensure that the slopes of all excavations are stable. The most effective stabilisation mechanism is the retention of existing vegetation, where possible. Accordingly, clearing of any area shall be programmed to occur immediately prior to the onset of construction activities within the subject area. Moreover, disturbed areas shall be revegetated,

Excavation at all the sites shall be carried out in such a way that slopes are not made dangerously steep. No materials, equipment or other load shall be placed so close to any excavation that the stability of the sides of the excavation is endangered.

3.25.5 TRENCHING

Trenching shall be undertaken in accordance with the employer specifications with the following environmental considerations, where applicable:

i) Soil shall be excavated and immediately used for refilling trenches i.e. soil from the first trench section shall be excavated and stockpiled, thereafter soil from the second excavated trench length shall be used to backfill the trench behind it once the infrastructure has been laid. The last trench shall be filled using the soil stockpiled from the first trench.

ii) Trench lengths shall be kept as short as practically possible before backfilling and compacting. No trench shall exceed 1000m in length without the prior approval of the employer.

iii) Trenches shall be re-filled to the same level as (or slightly higher to allow for settlement) the surrounding land surface to minimise erosion.

3.25.6 TREATMENT OF SPOIL

Surplus or unsuitable material obtained from any excavations as well as rubble not required elsewhere shall be disposed/ stored at a designated spoil site. In operating the spoil sites, the contractor shall ensure that the spoil material is stored correctly. Depending on the capacity of the area National Environmental Management Waste Act requirements may be triggered.

3.26 BORROW MATERIALS

3.26.1 USE OF ALTERNATIVE BORROW AREAS

The contractor shall source borrow materials from licensed borrow areas as approved in terms of the Minerals and Petroleum Resources Development Act (No 28 of 2002), NEMA and have respective Water Use Licenses if applicable.

Should the contractor wish to utilise alternative material sources e.g. from a quarry or mine, the employer shall be provided with the relevant mining permit from the source (mine or quarry) as issued by the Department of Mineral Resources. The contractor shall, at his own expense, institute the requisite negotiations with the Supplier. The contractor shall absolve the employer of any and all legal obligation and risk in this regard.

Where the contractor proposes the use of an alternative material source/s, they shall take due cognisance of the time required to obtain the required licences and permission from the relevant authorities and owners of the land for such use.

3.27 FINISHING AND REHABILITATION

AII areas disturbed as a result of the refurbishment or construction activities, irrespective of whether they occur within the defined Working Area or not, shall be subject to the rehabilitation requirements. This includes, but is not limited to, construction camps, all stockpiling and laydown areas, the batching plants, all temporary access routes and all other areas from which topsoil has been stripped or damaged. The landscaping and rehabilitation of disturbed areas shall entail the clearing, shaping, trimming and scarification of the area, as well as the replacement of the topsoil. For areas where plant material has been rescued and stored in the on-site nursery, landscaping and rehabilitation shall also include the replanting of the rescued plants. Rehabilitation pröcess should be undertaken in such a manner that vegetation and landscape blends with the surrounding area. The type and number of plant and tree species to be planted at various locations throughout the Working Area should be guided by a rehabilitation plan developed by the contractor.

The Contractor shall plan for the landscaping and rehabilitation of disturbed areas to occur as soon as practically possible following the cessation of the work in a specific area. In this regard, the Contractor's Works Programme shall clearly indicate how rehabilitation will be executed, per phase, upon the completion of the works within a specific area. The period between the cessation of activities associated with the construction of a particular infrastructural component and the onset of landscaping and rehabilitation for the area affected by these activities shall not exceed 1 month (28 days).

No alien plant species should be used for rehabilitation. Topsoil that is contaminated with seeds of alien invasive species shall also not be used for rehabilitation purposes. Only indigenous plants species should be used for rehabilitation and landscaping.

The shaping and finishing off of the areas shall be done in such a manner that they drain properly. All material in and around the area, whether spoil, excess stockpiled material, oversize material left resulting from clearing and grubbing activities or excess overburden shall be used or disposed of as directed by the PM.

3.28 COMPLIANCE

3.28.1 ENVIRONMENTAL COMPLIANCE

Environmental management is concerned not only with the final results of the Contractor's operations to carry out the Works but also with the control of how those operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standard of the day-to-day operations required to complete the Works.

It is thus required that the Contractor shall comply with the environmental requirements on an ongoing basis. Moreover, the Contractor and their Subcontractors shall not direct any person to undertake any activities which would place such a person in contravention of this Specification and legal requirements.

3.28.2 COST OF NON-COMPLIANCE

Where environmental damage occurs as a result of the failure of the contractor to comply with the requirements of the EA, EMP or this specification, the requisite i emediation shall be affected to the satisfaction of the employer and at the cost of the contractor.

Compliance with regulatory requirements will be assessed as part of the certification of each Payment Certificate. Payment for specific items related to environmental compliance will be withheld if it can be shown that the Contractor has failed to comply with their obligations for said items.

Should the contractor fail entirely to provide or fulfil for a period of time all or part of the continuing services, obligations and liabilities required of him in respect of this specification, the amount, or part of the amount for the item, which in the opinion of the employer fairly reflects such failure, will be omitted and the contract Price reduced accordingly.

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3.28.3 PENALTIES

Penalties will be issued for the various transgressions listed in Table 1 below. Penalties may be issued per incident at the discretion of the employer. Such penalties will be issued in addition to any remedial costs incurred as a result of non-compliance with this specifications. The employer will inform the contractor of the contravention and the amount of the penalty, and will deduct the amount from monies due under the Contract.

Table 1: Identified transgressions and associated penalties.

Nature of transgression	Penalty
Any employee, vehicle, plant or equipment related to the contractor's operations operating within the designated boundaries of a "no-go" area.	R 500 000
Any vehicle driving in excess of designated speed limits.	R 10 000
Persistent and un-repaired oil leaks from machinery.	R 100 000
Persistent failure to monitor and empty drip trays timeously.	R 100 000
The use of inappropriate methods for refuelling.	R 100 000
Litter on site associated with construction activities.	R 5 000
Deliberate lighting of illegal fires on site.	R 100 000
Employees not making use of the site ablution facilities.	R 5 000
Failure to implement specified noise controls, particularly during blasting	R 100 000
Failure to empty waste bins on a regular basis.	R 50 000
Inadequate dust control.	R 50 000
A spillage, pollution, fire or any damage to the environment resulting from negligence on the part of the contractor.	R 500 000
Any damage or degradation to a designated "no go" area or area outside the approved Working area	R 500 000

For each subsequent similar offence the fine shall be doubled. All amounts mentioned exclude the cost of rehabilitation/ rectification. Rectification will be for the contractor's own account and the employer will not be held liable.

The employer shall be the responsible party as to what constitutes a transgression in terms of this clause. It is important to note that these fines are independent of NEMA fines that may be additionally levied on contractor Employees and Directors by the DEA or other Competent Authority (Government).

3.28.4 GENERAL REQUIREMENTS

The basic principles the contractor should adhere to are as follows:

a) Adherence to all the environmental regulations

b) Adherence to environmental specifications;

c) Ensuring that Method Statements are submitted to the employer for approval before any work is undertaken. Any lack of adherence to this will be considered as non-compliance to the specifications.

d) Ensuring that there must be communication tabled in the form of a report at each site meeting, which will document all incidents that have occurred during the period before the site meeting;

e) Ensuring that a register is kept at the site office, which lists all the transgressions issued by the ECO/EO

f) Keep updated register of all public complaints;

g) Obtain presentation of key information pertaining to License and permits from the Project Environmental Manager;

h) Availability of Budget for specialist studies/engineering changes for key risk areas and rehabilitation.

i) Ensure that all the contractor employees receive training before the commencement of construction to ensure they can constructively contribute towards the successful implementation of the environmental requirements of the contract;

j) The most important actions by the contractor to ensure compliance with the environmental requirements, relates to the establishment of an adequate and appropriate organizational structure for ensuring the implementation and monitoring of the requisite environmental controls;

k) Compile Environmental monitoring plans outlining all the construction activities, associated environmental impacts and how they will be mitigated;
l) Ensure that the project pricing makes provision for environmental costs and expenditure reporting;
m) The contractor shall develop and implement a site specific waste management plan including the typical waste inventory and templates used for keeping waste records;
n) The contractor shall implement and maintain an Environmental Management System documentation that is aligned to ISO 14001: 2015 where required.

4. REPORTING REQUIREMENTS

The contractor is expected to submit the following records to Eskom as per outlined timeframes:

Type of reports/ records	Frequency
Environmental Compliance reports	Weekly, monthly & annually
Audit reports	Monthly, Quarterly & Annually
Incident register	Monthly
Complaints register	Monthly
Design changes	As and when it happens

5. HANDOVER DOCUMENTS

The following records should be handed over to Eskom at the end of the contract

i) Audit reports
ii) Compliance monitoring reports
iii) Environmental Method Statements.
iv) Environmental incidents register
v) Complaint register
vi) Copies of Permits and licenses and amendments
vii) Permits and licenses dashboard
viii) All Copies of letters to and from the government authorities - all correspondences with authorities
ix) As built site layout plans
x) Drawings
xl) Construction Quality Assurance and Construction Completion Report

xii) Environmental induction and presentation of the Environmental Awareness Training courses to the Contractor's staff.

6. Environmental Tender Requirements

No.	Requirement	Returnable	Yes/No
1.	Environmental Officer	Curriculum Vitae & Qualifications of Environmental Personnel to appointed.	
2.	Confirm review of the EA, EMPr and WUL	Signed Declaration of Understanding of the EA, EMPr and WUL	
3.	ISO 14001 – Environmental Management System	Valid ISO 14001 Certification or EMS Manual	
4.	Environmental Policy	Environmental Policy signed by the CEO	
5.	Environmental Costing	Inclusion of the following on the quotation: • Environmental Resource • Management of Dust, noise and water • Training • Rehabilitation	
6.	Disclosure of Environmental Penalties / Notices	List of Environmental Penalties/Notices incurred on previous projects with mitigation measures and status or Signed declaration if no environmental penalties/notices	
7.	Waste Management	Waste Management Plan which includes details as indicated on section 3.33.1 of this specification	

7. Acceptance

This document has been seen and accepted by:

Full Name and Surname	Designation
Thembinkosi Mbolekwa	Middle Manager SHEQ
Lebo Memela	Middle Manager Programme
Florence Dube-Jacobs	Environmental Manager

8. Revisions

Date	Rev.	Compiler	Remarks
December 2025	1	Tselane Cele	To outline environmental requirements for the project

9. Development Team

The following people were involved in the development of this document:

- Florence Dube Jacobs
- Portia Hlungwani
- Tselane Cele
- Precious Baloyi

10. Acknowledgements (if applicable)

- Group Capital Head Office Team