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## ENVIRONMENTAL AUDIT REPORT

**FOR THE**

EXTENSION OF A CAR PARK AT KOEBERG NUCLEAR  
POWER STATION ON CAPE FARM 1552,  
DUYNEFONTYN, CAPE TOWN.

**PREPARED FOR:** ESKOM HOLDINGS SOC LIMITED  
Koeberg Nuclear Power Station  
R27 Off West Coast Road  
Melkbosstrand

**DATE:** May 2021

**REPORT NO:** ECO/Koe/05/2021

**DEA EIA REF NO:** 14/12/16/3/3/1/1687

**COPY TO:** ESKOM: Deon Jeannes (Nuclear Environmental Manager), Jana Klopper (Power station EO / environmental manager), Tshililo Ramaru (Nuclear Environmental Manager), Jurina Le Roux (Nature reserve EO / manager), Melvin van Rooyen, Ilse Coop (Safety, Health and Environmental Coordinator)  
GRIDBOW: Project Team



## PROJECT DETAILS

**TITLE:** The extension of a car park at Koeberg Nuclear Power Station on Cape Farm 1552, Duynefontyn, Cape Town.

**LOCATION:** Koeberg Nuclear Power Station  
R27 Off West Coast Road  
Melkbosstrand

**ENVIRONMENTAL CONSULTANCY:** Sharples Environmental Services cc.

**PRIMARY ECO & AUTHOR:** Mr Lloyd Barnes (ECO)

**EXPERTISE:** Lloyd has a Bachelor of Technology Degree and Diploma in Environmental Management from the Cape Peninsula University of Technology in 2016. He has 3 years' experience in the environmental field, including the extensive auditing of several open-cast mines, basic environmental assessments, on-site compliance monitoring, environmental management plans, maintenance management plans and business sustainability. In his time as a consultant, he has compiled a number of environment audits and management plans for a range of developments.

**CHECKED AND APPROVED BY:** Ms Betsy Ditcham (Supervising ECO)

**EXPERTISE:** Betsy has a Bachelor of Science Honours Degree in Wildlife Management from the University of Pretoria and a Bachelor of Science Degree (Zoology and Ecology) obtained from the University of Cape Town in 2005. She has 9 years' experience in the environmental field, including environmental assessments, legal compliance, on-site compliance monitoring, cleaner production and business greening and sustainability (carbon and environmental footprinting). In her time as a consultant, she has compiled a number of environment assessments and management plans for both private and governmental clients. Betsy is co-owner of SES and is registered with EAPASA (Reg no. 1480)

**CLIENT:** ESKOM HOLDINGS SOC LIMITED

**REPORT CLASSIFICATION:** Environmental Audit Report.

**SES REFERENCE NUMBER:** ECO/Koe/05/21

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Section	
1	<b>Introduction</b>

Sharples Environmental Services cc (SES) has been appointed by Gridbow Engineers & Technical Services on behalf of *ESKOM HOLDINGS SOC LIMITED* (the client), as the Environmental Control Officer (ECO) to monitor the construction of a new car park at Koeberg Nuclear Power Station (KNPS) on Cape Farm 1552, Duynefontyn, Cape Town. SES has been appointed to undertake monitoring inspections for the duration of the contract period, to ensure that measures outlined in the Environmental Management Programme (EMPr) are implemented and that environmental degradation is kept to a minimum. This report has been compiled to indicate compliance with the Environmental Authorisation (EA) issued by the Department of Environmental Affairs (DEA) the EMPr compiled by *Advisian* (dated 5<sup>th</sup> of May 2017).

Environmental Authorisation was granted by DEA on July 11<sup>th</sup>, 2017.

Section	
2	<b>Description of Activity</b>

The proposed project is a two Phased project. Phase 1 includes the maintenance of the entrance road off the R27 towards ACP1. Phase 2 encompasses the expansion of the existing car park area.

KNPS performs a refuelling outage approximately every 18 months on each unit (i.e. between one and two outages per year). The outage duration is between 1 and 3 months depending on the work scope. The current car park facilities are inadequate to support the additional outage workforce.

Additionally, to ensure continued operation of the KNPS until 2045, major refurbishment and maintenance of the facility and its associated infrastructure is a necessity. During these major planned maintenance periods, even higher numbers of additional staff and contractors are required on site for the successful completion of these activities. To accommodate the increase in staff and contractor numbers during these outage periods, Eskom has proposed an extension to an existing car park located on the KNPS site (Refer to Figure 2). This project will therefore be a direct extension of the existing parking area and will comprise of both paved and gravel parking bays. The gravel parking bays will cater for any overflow, especially when there is an overlap in shifts.

In terms of the National Environmental Management Act, 1998 (Act No.107 of 1998) and the Environmental Impact Assessment Regulations, 2014. The authorisation of the following activities were granted by DEA;

- GN R.983 Activity number 27
- GN R.985 Activity number 12

Section	
3	<b>Location</b>

The construction is proposed on the following farm:

**ECO: EXTENSION OF A CAR PARK AT KOEBERG NUCLEAR POWER STATION ON CAPE FARM 1552, DUYNFONTEIN CAPE TOWN**

- Cape Farm Duynfontein No 1552, portion 0



**Figure 1: Locality of Koeberg Nuclear Power Station (site).**



**Figure 2: Site locality within Koeberg Nuclear Power Station.**

Section  
3.1

Site Camp

The main site camp is situated within the existing car park (33° 40' 26.84''S, 18° 26' 11.39''E), a temporary site camp was located along the entrance road (33° 40' 37.12''S, 18° 27' 12.8''E) during the early phases of the project. The temporary site camp situated along the entrance road was located on ground that was previously disturbed.

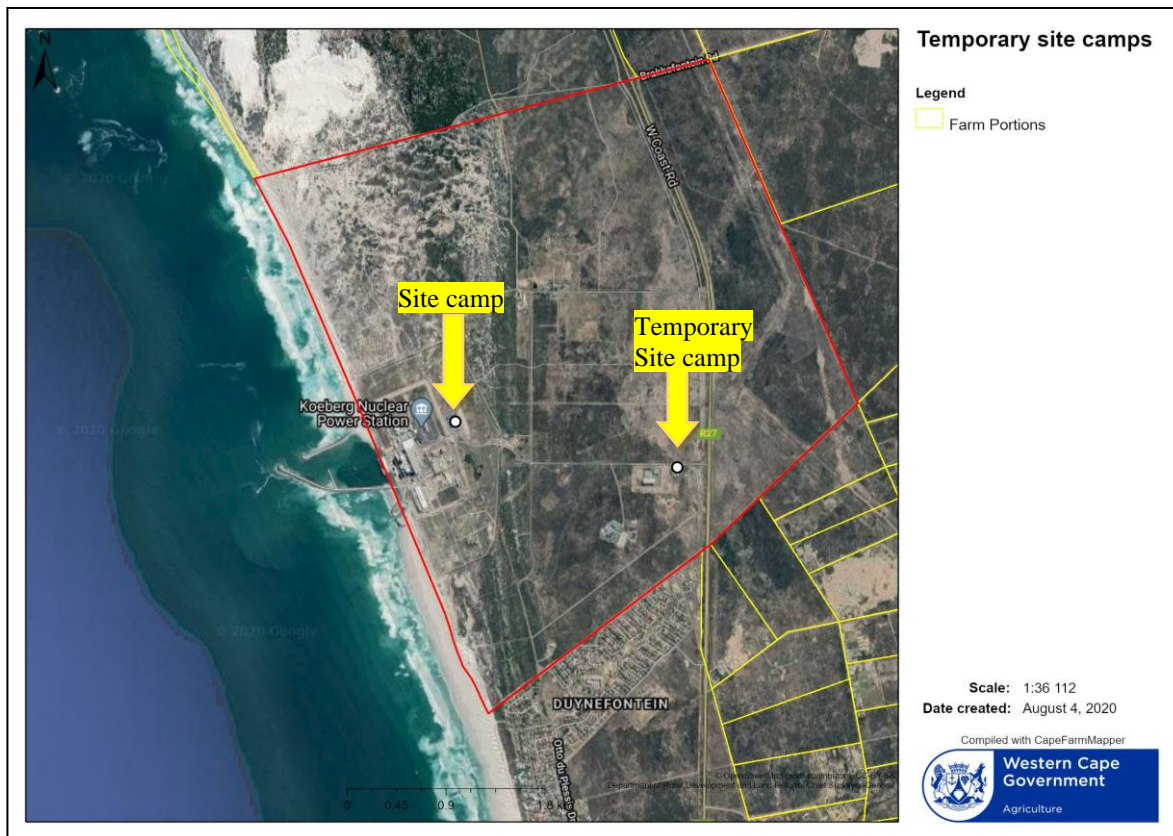


Figure 3: Location of site camp.

Section  
4

Construction work

**This section highlights and discusses the key construction activities observed during the site inspection.**

The construction activities are now within phase 2 of the construction program. At the time of the site visits (11 and 31 May 2021), the ECO noted that the area proposed for clearance had been cleared of vegetation, the first layers of concrete base laid, the curb constructed and the laying of paving was approximately 80% complete.

Construction activities were halted between the 9<sup>th</sup> and 21<sup>st</sup> of April 2021. The ECO noted that all access points were appropriately closed and locked. The site camp and associated facilities were seen to be in an orderly state. The site camp was closed off.

Section	<b>Environmental Matters</b>
<b>5</b>	

SES will conduct frequent Environmental visits as per the contract. SES is therefore appointed to undertake a monitoring role in terms of this project.

Section	<b>Waste Management</b>
<b>5.1</b>	

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**5.1.1 General waste**

An integrated waste management approach has been adopted within the site camp and sufficient bins have been made available.

A record for all waste generated, stored, recycled and disposed of has been created and stored within the Environmental file on site.

Hazardous waste is currently being stored within a secure, demarcated area, within the site camp and on an impermeable surface.

Section	<b>Vegetation clearance</b>
<b>5.2</b>	

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Construction and clearance activities limited to approved area (as per the Environmental Authorisation), as confirmed by Eskom Safety, Health and Environmental Coordinator.

May 2021	COMPLIANCE WITH THE EMPR, METHOD STATEMENTS AND EA				
		Compliance Full/Part/ Non		Comments/ Observations	Action to be taken
		11 May 2021	31 May 2021		
<b><u>SITE CAMP</u></b>					
	The site camp and associated areas should be adequately fenced off along the boundaries of these areas, preferably with 2m high fence and shade netting or Bonnox fencing or similar.	Full	Full		
	All construction related materials must be stored within a designated area within the site camp. Where necessary, materials must be adequately protected from the sun, rain and wind.	Full	Full		
	Toilets in an orderly state, serviced regularly.	Full	Full		
	Records (Receipts) of the servicing of these chemical toilets by a specialist toilet hire company must be collected on a weekly basis and maintained on the site file.	Full	Full		
	Toilets are secured and on a level surface, out of any surface water drainage lines.	Full	Full		
	Adequate signage present designating the site camp as a restricted area and relative dangers.	Full	Full		
	At least 1 fire extinguishers and rubber beaters present. Fire extinguishers should be in working condition and recently serviced.	Full	Full		
	Fuels, chemicals, lubricants and other hazardous substances stored in a demarcated, secured and clearly sign-posted area.	Full	Full		
	An adequate supply of sanitary services and potable water must be provided to workers.	Full	Full		
	A designated area for food storage, preparation and consumption is to be provided.	Full	Full		



**ECO: EXTENSION OF A CAR PARK AT KOEBERG NUCLEAR POWER STATION ON CAPE FARM 1552, DUYNFONTEIN CAPE TOWN**

A dedicated area within which construction workers can rest and eat during breaks must be provided is established.	Full	Full		
The site camp and related site camp facilities are kept neat and orderly.	Full	Full		
<b>SITE</b>				
Appropriate signage erected to warn other road users about the presence of construction vehicles.	Full	Full		
The total extent of the proposed works and all no-go areas (i.e. Koeberg Nature Reserve) must be clearly demarcated with some form of fencing.	Full	Full		
An appropriate perimeter fence must be erected around the works area.	Full	Full		
The movement of people and the operation of vehicles is not prohibited outside of the demarcated working area or on existing routes.	Full	Full		
All open excavations are to be adequately barricaded.	Full	Full		
Topsoil spoil material is stored separately from the overburden. In the absence of a recognisable topsoil layer, strip the upper most 300 mm of soil where possible.	Full	Full		
Stripped areas and stockpiles are not to be left exposed for prolonged periods of time.	Full	Full		
No stripping of topsoil during or after rains.	Full	Full		
Stripped vegetation is to be stored with topsoil.	Full	Full		
The existing bunded batching plant on the KNPS site should be utilised (if ready mix trucks are not available to pour cement directly).	Full	Full		
Stockpiles of earth material not located within any storm-water drainage pathways and is outside of the reach of potential flood waters.	Full	Full		
Any erosion runnels/ gullies/ channels that form are infilled with appropriate material, compacted, rehabilitated as needed	Full	Full		
An adequate number of toilets is to be provided (ratio of 1 toilet per 15 users)	Full	Full		
Portable chemical toilets are to be adequately anchored down	Full	Full		
Toilets are not located in or near (within 32m of) any water body, including the effluent outlet canal, and are outside of any storm water drainage lines.	Full	Full		

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Materials, fuels and other chemicals and hazardous substances are stored according to the manufacturers' product-storage requirements.	Full	Full		
Material Safety Data Sheets (MSDSs) are available on site for all chemicals and hazardous substances to be used on site.	Full	Full		
No open fires on site. (Or evidence of fires)	Full	Full		
A functioning water truck or cart is to be present on site.	Full	Full		
At least 1 fire extinguishers and rubber beaters present. Fire extinguishers should be in working condition and recently serviced.	Full	Full		
All invasive and exotic plants located within and directly surrounding the car park are to be identified, located and mapped in order to eradicate.	TBC	TBC		
If any archaeological or palaeontological material or human burials are uncovered, work in the immediate area should be halted. The find would need to be reported to the heritage authorities.	Full	Full		
A fire extinguisher should always be present wherever any "hot works" (e.g. welding, grinding etc.) are taking place.	Full	Full		
Hot works that may generate sparks should be properly contained or avoided during strong windy conditions to prevent wind-blown sparks that may cause fires at other locations.	Full	Full		
Smoking should ideally not be allowed on the construction site. Smoking must be prohibited in areas where it may pose a safety risk – e.g. in the vicinity of fuel storage areas.	Full	Full		A smoking area has been demarcated and allocated to an area deemed safe. Smoking area approved by Site manager and ECO, as per the EMPr. Signage and sand bucket present. No vegetation or fuel present in the vicinity.
Stockpiles are not to exceed 2m in height or in drainage lines.	Full	Full		
The contact number for the local firefighting service and all relevant emergency numbers must be prominently displayed on site.	Full	Full		
Ensure that Personal Protection Equipment (PPE) is worn by Construction Staff at all times.	Full	Full		

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<b><u>FRESHWATER RESOURCES</u></b>				
The ECO is to be notified before any trenching through drainage lines if required.	Full	Full		
<b><u>TRAFFIC AND VEHICLE CONTROL</u></b>				
Repairs and/or basic maintenance of construction vehicles or equipment undertaken within the designated maintenance yard area, on an impermeable surface, and/or with a tarpaulin and/or drip tray laid down	Full	Full		
Vehicles, machinery and other equipment is in good working order.	Full	Full		
Construction vehicles are to maintain a low speed when driving. The speed limit should be set at 35km/h for vehicles driving past ACP 1 and 50km/h before ACP 1.	Full	Full		
Make use of mobile plant and equipment which is appropriate to the task in order	Full	Full		
The movement of heavy vehicles that have the potential to obstruct traffic should be scheduled to occur outside of peak traffic times as far as possible, so as not to exacerbate traffic congestion.	Full	Full		
<b><u>TOPSOIL AND SUBSOIL MANAGEMENT</u></b>				
Topsoil from within the car park extension footprint should be stripped to a depth of 300 mm.	Full	Full		
Topsoil is to be handled twice only – once to strip and stockpile, and once to replace and level.	Full	Full		
Topsoil from within the car park extension footprint should be stored within the approved locations indicated on the Construction Plan	Full	Full		
Stockpiles are to be located on the higher side of a disturbed area, and above a 1:50 year flood line.	Full	Full		
The topsoil stored stockpile must be adequately protected from being blown away or eroded by storm water.	Full	Full		
Where possible, soil stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding, (or application of herbicides if agreed with the landscaper and/or ECO).	Full	Full		
Topsoil that is stockpiled for prolonged periods of time is to be revegetated or covered appropriately.	Full	Full		

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Topsoil to be the final layer applied to the top of the site, and not used as a base or mixed / buried with other materials.	Full	Full		
<b><u>POLLUTION PREVENTION</u></b>				
Drip trays are utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks.	Full	Full		
Fuel stored at temporary depots must be located within a bunded area, or alternatively in an area underlain by heavy duty PVC sheeting and covered with 100 mm of sand.	Full	Full		
Fuel stored at long term depots must be located within a designated bunded area, underlain by a concrete slab, sloped towards an oil sump for spillage removal. The bund must be able to accommodate 110% of the full volume of one of the containers.	Full	Full		
An impervious surfacing must be placed adjacent to fuel tanks, upon which vehicles must park during refuelling.	Full	Full		
Drip trays placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant.	Full	Full		
A spill kit to neutralise/treat spills of fuel/ oil/ lubricants is available on site. Appropriate training completed.	Full	Full		
A tarpaulin and/or drip trays must be laid down prior to emergency repairs taking place, to prevent any fuel/ oil/ lubricant spillages from contaminating the environment.	Full	Full		
Chemical spills are to be contained and isolated in accordance with section 5.3.2 of the EMPr. Clean-up/control is to be organised by the supplier.	Full	Full		
An oil spill kit (i.e. DRIZIT wheely bin) must be allocated to the site in the advent of a hydrocarbon spill onto exposed soil.	Full	Full		
No depot or containers with any hazardous substance is to be located within the vegetation line of the Koeberg Nature Reserve.	Full	Full		
Dumping of waste or foreign material is strictly prohibited within the Koeberg Nature Reserve.	Full	Full		
Sufficient stormwater control is required to prevent the discharge of water into the Koeberg Nature Reserve area.	Full	Full		
Accidental fuel spills or leakages are to be immediately cleaned up using	Full	Full		

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the method outlined within section 5.3.4 of the EMPr				
Wash water from wash bays and water/slurry from cement and concrete mixing operations is to be contained	Full	Full		
Waste water is to be directed towards a settlement pond or similar for later disposal.	Full	Full		
Washing of vehicles and machinery is to take place within designated wash bays.	Full	Full		
Drip trays and soiled tarpaulin must be emptied and/or disposed of in the hazardous waste bin on site.	Full	Full		
<b><u>WASTE MANAGEMENT</u></b>				
Dedicated waste bins or skips kept in a demarcated area on an impermeable surface.	Full	Full		
Waste placed in the appropriate waste bins/skips.	Full	Full		
Separate bins/skips provided for rubble, green waste, recyclables, general waste and hazardous waste.	Full	Full		
Hazardous waste bins kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins.	Full	Full		
Skips/ bins provided with secure lids or covering that will prevent scavenging and windblown waste.	Full	Full		
Rubble and waste rock must be disposed of at the nearest registered municipal solid waste disposal facility. All waste collections slips (Waybills) kept on file.	Full	Full		
Hazardous waste disposed of at a licensed hazardous facility (i.e. Visserhok site).	Full	Full		
A record of all hazardous waste stored on site is present on site.	Full	Full		
Soil contaminated by hazardous substances is excavated and disposed of as hazardous waste.	Full	Full		
Waste may not be burned or buried on site.	N/A	N/A		No evidence of waste burnt on site.
Records of all waste generated, received, recovered and recycled are to be kept on site.	Full	Full		
<b><u>CEMENT AND CONCRETE BATCHING</u></b>				

**ECO: EXTENSION OF A CAR PARK AT KOEBERG NUCLEAR POWER STATION ON CAPE FARM 1552, DUYNFONTEIN CAPE TOWN**

Cement and concrete mixing is to be limited to single sites.	Full	Full		
Cement and concrete may not be mixed on open ground.	Full	Full		
All visible remains of excess cement and concrete must be disposed of in the approved manner.	Full	Full		
Unused cement bags must be stored in such a way that they will be protected from rain.	Full	Full		Unused cement bags stored within a secure container, within the site camp.
Empty cement bags must be disposed of in the hazardous waste bins on site.	Full	Full		
<b><u>NOISE CONTROL</u></b>				
Noise-levels comply with the relevant health and safety regulations and SANS codes and is monitored by the Health & Safety Officer, as appropriate.	Full	Full		
Eskom personnel working at the KNPS must be informed by the Contractor of construction working hours and of any other activity that may cause a nuisance.	Full	Full		
Vehicles, machinery and other equipment must be kept in good working order.	Full	Full		
No loud music is permitted on site.	Full	Full		
<b><u>DUST CONTROL</u></b>				
Construction and clearing activities do not take place during heavy rains, or windy conditions.	Full	Full		
Stockpiles of topsoil & spoil material are protected from wind & water erosion.	Full	Full		
Cleared areas are provided with a suitable cover as soon as possible, and not left exposed for extended periods of time.	Full	Full		
Material loads are properly covered during transportation.	Full	Full		
Dust must be suppressed on access roads and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water is not to be sourced from Koeberg Nature Reserve	Full	Full		

<b><u>EROSION CONTROL AND STORMWATER MANAGEMENT.</u></b>				
Land clearing, earthworks and construction activities must be restricted to within the footprint of the demarcated working area, to prevent unnecessary disturbance, compaction or exposure of surrounding earth surfaces.	Full	Full		Construction activities limited to approved area (as per the Environmental Authorisation), as confirmed by Eskom Safety, Health and Environmental Coordinator.
Where possible, land clearing and earthworks should be avoided during strong winds or heavy rains, as this may exacerbate erosion and soil loss.	Full	Full		
Stripped areas do not remain uncovered for extended periods of time.	Full	Full		
<b><u>CLEARING OF VEGETATION</u></b>				
Only the area required to accommodate construction activities within the working area is cleared of surface covering.	Full	Full		Construction activities limited to approved area (as per the Environmental Authorisation), as confirmed by Eskom Safety, Health and Environmental Coordinator.
All land-clearing activities must be restricted to within the demarcated working area. NO clearing of vegetation may occur outside of the demarcated footprint and NO vegetation may be cleared from within the no-go areas.	Full	Full		

Section
6.1

## Fining system

### 6.1 Fines

As per the approved EMP, fines may be issued by the appointed ECO for the transgressions listed below. The Eskom Project/Site Manager will inform the responsible Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due under the Contract.

<b>A</b>	Any person, vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a "no-go" area (i.e. within a natural area in the Koeberg Nature Reserve).	R 4000
<b>B</b>	Any vehicle driving in excess of designated speed limit on the KNPS property (50km/h, and 35km/h past Access Control Point 1)	R 1000
<b>C</b>	Any vehicle being driven, and items of plant or material being parked or stored outside the demarcated boundaries of the site	R 2000
<b>D</b>	Any person walking outside the demarcated boundaries of the site	R 500
<b>E</b>	Persistent and un-repaired oil leaks from machinery. The use of inappropriate methods of refueling such as the use of funnel rather than a pump.	R 3000
<b>F</b>	Litter of site	R 1000
<b>G</b>	Deliberate lighting of illegal open fires on site	R 5000
<b>H</b>	The eating of meals on site outside the defined eating areas. Individuals not making use of the site ablution facilities.	R 1000
<b>I</b>	Dust or excess noise on or emanating from the site.	R 1000
<b>J</b>	Any person, vehicle, item of plant, or anything related to the Contractors operation causing a public nuisance.	R 2000

The following penalties are suggested for transgressions:

<b>A</b>	Erosion	A penalty equivalent in value to the cost of rehabilitation plus 20%
<b>B</b>	Oil spills	A penalty equivalent in value to the cost of
<b>C</b>	Damage to indigenous vegetation	A penalty equivalent in value to the cost of restoration plus 20%
<b>D</b>	Damage to sensitive environments	A penalty equivalent in value to the cost of restoration plus 20%
<b>E</b>	Damage to cultural sites	A penalty to a maximum of R100 000 shall be paid for any damage to any cultural/historical sites

Section	<b>Conclusion</b>
7	

SES has compiled this Environmental Monitoring Report to detail compliance with the EA and EMP for the site inspections conducted on the 11<sup>th</sup> and 31<sup>st</sup> of May 2021. The majority of the activities undertaken within the site camp and site were deemed to be compliant with the conditions noted within the approved EMP and EA.



Section	Photo record
8	

Site visit-11 May 2021

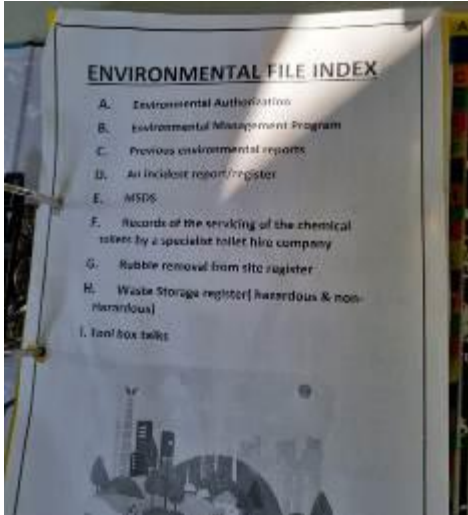


Image 1: Environmental file situated within the Site camp.



Image 2: Waste slips within the Environmental file.



Image 3: Labelled waste recepticals within the site camp.



Image 4: Storage of waste within the site camp.



Image 5: Cleared area awaiting paving.



Image 6: Storage of aggregate on site.



Image 7: Paved area on site.



Image 8: Generator with accompanying drip tray and fire extinguisher.

**Site visit-31 May 2021**



Image 9: Site Camp and working area



Image 10: Parked plant and neat working area



Image 11: Closed access with appropriate signage