



IN ASSOCIATION WITH INKANYEZI YETHU



OCTOBER 2020
ENVIRONMENTAL MANAGEMENT PROGRAMME
INJABULO ESTATE
RAY NKONYENI MUNICIPALITY
CORDEV MARKETING & CORPORATE DEVELOPMENT (PTY) LTD
EIA REF NO: DC21/0023/AMEND/2017/2020

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SECTION 1: INTRODUCTION, PROJECT AND SITE DESCRIPTION

1.1. Background

The applicant Cordev Marketing & Corporate Development (Pty) Ltd currently holds an existing Environmental Authorisation (DC21/0023/2011) for the establishment of a retirement estate, the Fields of Gold Village Estate, on Portion 9 of the farm Uplands No. 8567 (Wards 6 and 27) in the Ray Nkonyeni Local Municipality, Ugu District Municipality, KwaZulu-Natal. The centre point of the site is located at 30°50'17.14"S 30°20'9.41"E. Several attempts to establish the retirement estate have been unsuccessful due to the current economic climate as well as the location of the site. The applicant has therefore investigated other development options that would have a greater likelihood of success. Market research conducted by DEMACON, indicated that the projects' location and the socio-economic profile of the immediate area make it ideally suited for a GAP housing development. The GAP housing development has been branded as the Injabulo Estate.

1.2. Scope of Work

Prepare a site-specific EMPr for the Injabulo Estate to manage and mitigate potential environmental impacts during construction and operation. The provisions of this EMPr are binding on the contractor and applicant throughout the life-span of the contract and Injabulo Estate respectively.

1.3. General Principles and Purpose of This EMPr

The purpose of this EMPr is to guide all contractors and site workers on how to operate responsibly to achieve these goals and ensure that the requirements of the legislation are met. This EMPr is a working document to be used during construction and has been generated to ensure that:

- The protection of the environment during the construction period and the operation phase.
- All emissions to air water and soil are controlled and managed to mitigate their impacts on the environment and surrounding communities.
- Nuisance factors associated with construction are controlled as far as is reasonably possible.
- The correct principles are followed from the very beginning during site set up, thereby reducing frustrations on the part of the contractor when asked to comply with the strictures of the EMPr and relevant environmental legislation.
- The post-construction clean-up is carried out correctly to avoid environmental impacts and meet the legislated requirements.

This EMPr is subject to change as brought about by variations in the project specification, and any changes must be approved by the relevant authorities.

1.4. Responsibilities

The Project Applicant (Cordev Marketing & Corporate Development (Pty) Ltd) is responsible for:

- Ensuring that the engineer and contractors comply with the approved EMPr.
- Ensuring compliance with the provisions for duty of care and remediation of damage per section 28 of the National Environmental Management Act (NEMA), (No. 107 of 1998) and its obligations regarding the control of emergency incidents in terms of Section 30 of NEMA.
- Notifying the relevant authorities (EDTEA) of any incident as defined in subsection 30(1) (a) of NEMA.
- Ensuring that the construction mitigation measures to address environmental impacts identified are carried out by the contractor.
- Ensuring that the operational mitigation measures to address the environmental impacts identified are carried out.

The Project Manager or Engineer is responsible for:

- Appointing a qualified contractor and ensuring that they have read and understood the EMPr.
- Ensuring all work undertaken is per the EMPr.
- Ensuring adherence to safety, health and environment (SHE) standards and ensuring the construction activities comply with the EMPr.
- Arranging for the site to be monitored daily to ensure compliance with the EMPr.
- Overall responsibility and accountability for the site during the construction phase.
- Mitigating impact on the environment through responsible operation and adherence to the EMPr.
- Ensuring transparency in their operation and environmental management of the site.
- Managing the contractor to ensure that they adhere to the EMPr and ensuring that all necessary documentation is maintained on-site.
- Ensuring that the contractor has a copy of the EMPr and Method Statements.

The Site Contractor(s) is/are responsible for:

- Providing a suitable person to operate as Environmental Officer (EO) to undertake the monitoring of the day to day requirements of the EMPr.
- Operating per the EMPr and carrying out construction activities with due care and diligence.
- Ensuring that any communications from stakeholders are reported to the Environmental Control Officer (ECO).
- Maintaining relevant documentation for review by the ECO.
- Undertaking the mitigation measures to address the environmental impacts identified.

The Environmental Officer (EO) or designated Safety Health Environment (SHE) officer is responsible for:

- Daily compliance monitoring of construction against the requirements set out in this EMPr, and the environmental authorisation.
- Undertaking the mitigation measures to address the environmental impacts identified.
- Ensuring that all site staff are adequately trained in environmental matters.
- Liaising with site staff and I&APs through the Community Liaison Officer (CLO), if required.
- Must be conversant with the applicable legislation pertaining to the environment.
- Liaise directly with the ECO on the monthly audit findings.
- Identification of possible areas of improvement during construction.
- Monitoring the construction site regularly and recording key findings.
- Advising the Project Manager and the contractors on environmental matters.
- Provide recommendations to address and rectify these matters.
- Monitoring implementation of the EMPr by the contractor.
- Work hand in hand with the health and safety officer.
- Maintain records pertaining to the requirements of the EMPr.

The Environmental Control Officer (ECO or Independent environment practitioner) is responsible for:

- Conducting regular auditing against the requirements of the EMPr and Environmental Authorization.

- Liaising directly with the EDTEA and supplying them with copies of the audit reports.
- Liaising directly with the contractor and EO and supplying them with a copy of the audit reports.

1.5. Monitoring

The key to a successful EMPr is effective monitoring and review to ensure the effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. The EO must be responsible for day-to-day monitoring and reporting while the ECO must undertake to monitor the site on a monthly basis. The day-to-day monitoring must be conducted by the EO in conjunction with the contractor and the engineer. The monthly audit report by the ECO can then be used to provide external monitoring and reporting to EDTEA Compliance and Enforcement. Paramount to the reporting of non-conformances or incidents is that corrective and preventive action plans are developed and adhered to. Photographic records of all incidents and non-conformances must be retained. Non-compliances identified by the ECO must be resolved within fourteen days of being noted, incidents that are deemed by the ECO to have a large environmental impact must be resolved immediately.

1.6. Applicable Legislation

The site engineer must be aware of any compliance issues raised by the EO and ECO and must ensure that the necessary corrective measures are implemented. As per the National Environmental Management Act No 107 of 1998 (Section 28), offending parties may be held financially accountable for any pollution or environmental damage.

The following environmental legislation must be adhered to:

- The Constitution of South Africa (No. 108 of 1996)
- National Environmental Management Act (Act 107 of 1998)
- National Water Act (Act 36 of 1998)
- National Environmental Management: Waste Act (Act 59 of 2008)
- National Environmental Management: Air Quality Act (Act 39 of 2004)
- National Environmental Management: Protected Areas Act (Act 57 of 2003)
- National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008)
- National Forest Act (Act 84 of 1998)
- Environmental Conservation Act (Act 43 of 1996)
- National Environmental Management: Biodiversity Act (Act 10 of 2004)
- National Heritage Resources Act (Act 25 of 1999)
- KwaZulu-Natal Heritage Act (Act 4 of 2008)
- Mineral & Petroleum Resources Development (Act 28 of 2002)
- Occupational Health and Safety Act (Act 181 of 1993)
- Hazardous Substances Act (Act No. 15 of 1973)
- National Building Regulations and Building Standards Act (Act 103 of 1977)
- Relevant local bylaws

This EMPr meets the requirements of the stipulations provided in Appendix 4 of NEMA, 1998 (Act No. 107 of 1998) Environmental Impact Assessment Regulations,

2014 with regards to the content of EMPr. This EMPr has been developed to specifically address the impacts related to this project in each phase of development.

1.7. The layout of the EMPr

The EMPr is divided into five sections dealing with an Introduction and description of the proposal and the site, Pre-Construction and Site Set Up, Construction Activities and Post Construction, Rehabilitation and Operation Activities. Sections 4 and 5 provide definitions and records that can be used to record training, incidents, and complaints. Under the construction section, each section deals with a specific aspect of the development, i.e. administration and records. Within these sections, the specific activity is described, and the mitigation action required is provided. The tables have been set up to enable ease of auditing with a section for the EO/SHE officer or ECO to state whether mitigation measures have been put in place and to make a comment about any problems noted.

1.8. Project Details

The applicant Cordev Marketing & Corporate Development (Pty) Ltd currently holds an existing Environmental Authorisation (DC21/0023/2011) for the establishment of a retirement estate, the Fields of Gold Village Estate, on Portion 9 of the farm Uplands No. 8567 (Wards 6 and 27) in the Ray Nkonyeni Local Municipality, Ugu District Municipality, KwaZulu-Natal. The validity period for this EA has been extended once (DC21/AMEND/0023/2017).

The proposed amended GAP housing layout plan is, for the most part, the same as the previously authorised retirement village layout, the only difference being the conversion from sectional title to full title. Features such as exclusive use area will no longer be applicable as each plot of land will be privately owned. The proposed new layout will contain 256 sub-economic residential stands/erven and will also include a number of new facilities, namely:

- Medical facility which includes a day clinic and chemist;
- Retail shops and laundrette;
- Pool and gym with associated studio;
- Clubhouse, ablutions and WI-FI enabled library;
- Restaurant;
- Admin block and storage facility;
- Sports facilities; and
- Associated parking areas.

The total area of the site which will be occupied by these facilities will not be altered from what is already authorised i.e. 13517m². Please note all facilities mentioned above will be the responsibility of the estate management and such will primarily function to serve the residents of the estate.

As discussed above, the original layout was for 260 units while the proposed new layout allows for a reduction to 256 sub-economic residential stands / erven. It must be clearly stated at the outset that the development boundary remains the same as was previously authorised and therefore the private conservation area included in the approved layout will not be encroached upon. In addition, there will be no changes to the service infrastructure of the site:

- All road and stormwater accommodations will conform to general design parameters as stipulated by the Province of Kwazulu-Natal Department of Transport and the Ray Nkonyeni Local Municipality. Access to the development will be from the South from the provincial road P520. Internal traffic will be distributed through main internal access collectors, which are connected to the main entrance gate. Various secondary distributor roads are connected to these main access collectors.

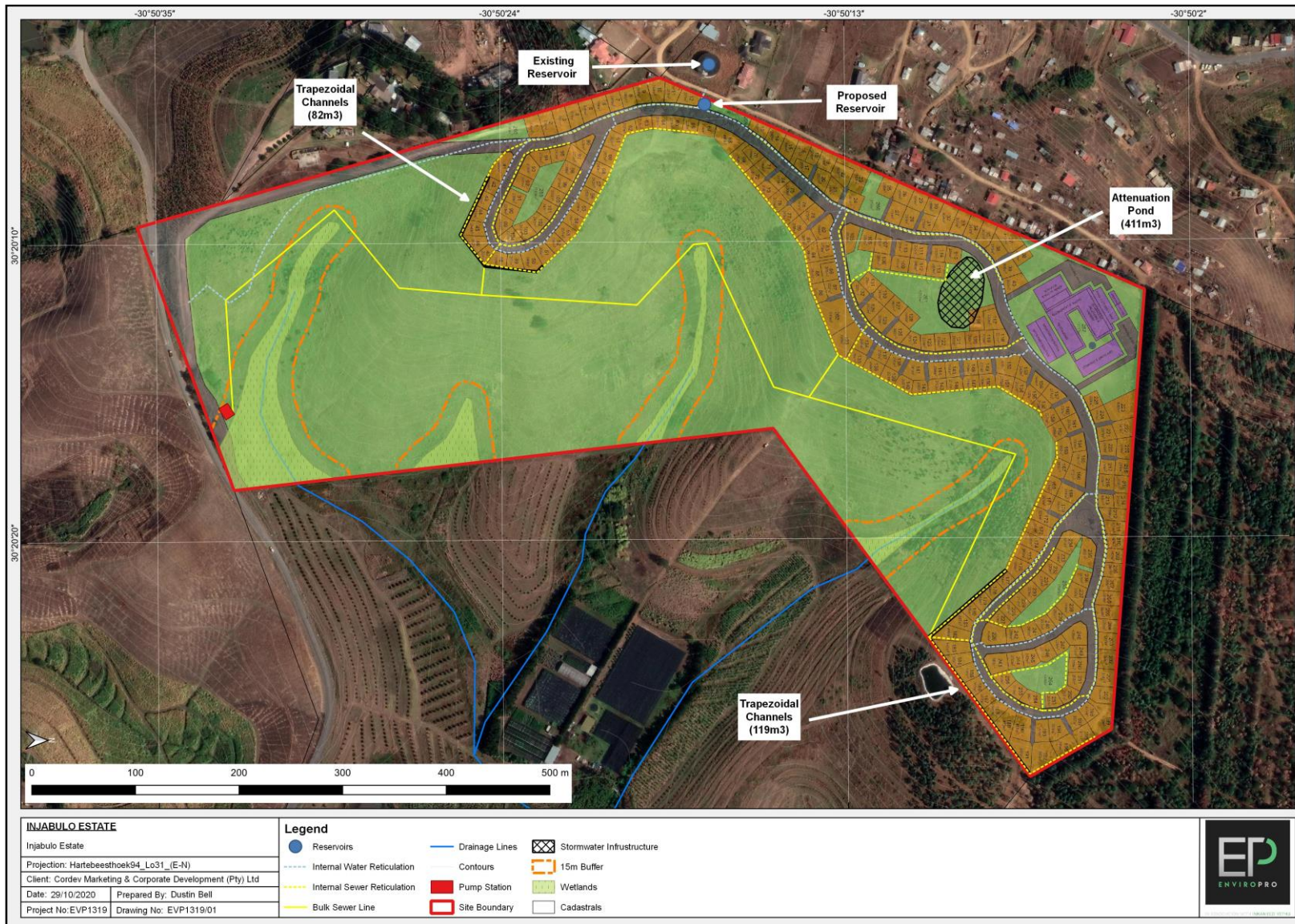
- All the roads and erven will be drained through a series of pipe and open channel networks. The stormwater will discharge into natural waterways, which will drain to attenuation ponds on site. Midblock stormwater drains and subsoil drains may be provided where necessary. The proposed development area is divided into 3 stormwater catchment areas as indicated in the Stormwater Attenuation Layout Drawing included in the Reviewed Services Report^{Error! Bookmark not defined.}. Runoff calculations were done according to the "Rational Method" to determine the total of water to be retained. It was calculated that 411m³ needed to be retained overall. All stormwater that needs to be retained will be within the footprint of the built-up area. There will be an attenuation pond in catchment area 2 which will retain 210m³. For catchment areas 1 and 3 the excessive stormwater will be retained in trapezoidal channels and will retain 119m³ and 82m³ respectively.
- The proposed internal road designs are based on anticipated traffic volumes and ground conditions with the main through road and small access roads having reserves of 12m and 10m respectively. The design life of the proposed roads is 20 years on provision that repairs to the surface will be made where necessary in order to maintain skid resistance and impermeability during the design life of the road. Please note the construction corridor associated with road construction will be a maximum of 14m.
- The bulk water supply will be from a reservoir west from the development^{Error! Bookmark not defined.}. An additional reservoir will be constructed, which will be able to store a capacity of at least half a day supply for the proposed development (64kl). A draft service level agreement is in the process of being signed between the applicant and the Ugu District Municipality confirming the sewer connection.
- The internal sewer drainage network will be designed as a gravity and pump system combination, by Civil Designer Sewer module computer programme. Sewer will be managed and collected by means of a gravity system to the pump station from where it will be pumped, and gravity drained to the municipal connection near Margate Airport^{Error! Bookmark not defined.}. As previously authorised, this sewer line is aligned through the conservation area; however, it has been designed so as to avoid all watercourses within the site, as represented in Figures 2 and 3. The average daily flow of sewerage is expected to be 85kl/day.
- A draft service level agreement is in the process of being signed between the applicant and the Ugu District Municipality confirming the sewer connection.
- A 600 kVa electricity supply will be provided by Eskom as confirmed in their letter dated 11 August 2020.

1.9. Construction Methodology

The following construction methodology is anticipated:

- A construction camp will be established within the development footprint.
- Clearing and grubbing of the site will be undertaken by heavy machinery - i.e. a TLB. Bulk earthwork will take place once the site has been prepared. Clearing and grubbing will only take place in areas demarcated for construction.
- The remainder of the site will be cordoned off to prevent any further clearance of vegetation from occurring.
- The site's services will be constructed, which will include the installation of roads, stormwater, sewer, water and electricity.
- Top structures will be erected as per approved building plans.
- Construction of the Injabulo Estate will take place in accordance with the attached Environmental Management Program (EMPr).
- Once construction is complete, all exposed areas will be rehabilitated according to the conditions of the EMPr.
- A Post Construction audit will take place by an independent Environmental Control Officer to ensure that the site is stable and there are no residual impacts remaining.

Figure 1: Aerial Photograph Showing the Layout of the Injabulo Estate.



1.11. Names and Telephone Numbers of Contact Persons

The following list of contacts must be printed and made clearly visible on the site.

Contact List			
Designation	Organisation	Name	Contact number
Applicant	Cordev Marketing & Corporate Development (Pty) Ltd	Winnie Kyriakides	010 612 0223
Engineer/Project Manager			
Independent Environmental Practitioner and ECO	EnviroPro	Josette Oberholzer Iain Jourdan	031 765 2942
Environmental Authority (Enforcement & Compliance)	EDTEA	Compliance Officer	
Reporting for Incidents involving Watercourses	DWS	Compliance Officer	
Wildlife Related Incident	Ezemvelo KZN Wildlife	Dominic Wieners	033 845 1455
Heritage Resources	AMAFA	Weziwe Tchabalala	033 394 6543
Fire Emergency	Fire Department	-	10111
Crime Emergency	Police	-	10111

1.12. Fines/Penalties During Construction

Penalties will be instituted for non-compliance. The penalty is over and above the cost of rectifying the problem and/or damage. Penalties are to be determined according to the weight of the offence from R 1 000 to R20 000 for non-serious to serious issues as determined by the ECO.

These penalties must be paid into a separate account to be administered by the developer. The ECO will decide how the penalties, if any, are to be spent.

The Contractor is deemed NOT to have complied with the EMPr if:

- a) Within the boundaries of the site, site extensions and haul/ access roads there is evidence of contravention of the EMPr confirmed and verified by the ECO;
- b) Environmental damage ensues due to non-compliance of EMPr requirements;
- c) The Contractor fails to comply with corrective or other instructions issued within a specific time;
- d) The contractor fails to comply with a site instruction given by the Engineer based on the ECO report;
- e) The Contractor fails to respond adequately to complaints from the public in line with requirements of this EMPr; and
- f) Legal action is instituted against the proponent in terms of Environmental laws.

1.13. Fines/Penalties During Operation

Those found not adhering to the operational conditions are liable for penalties. Penalties are to be determined according to the weight of the offence. It is the responsibility of the Estate Management to determine what penalty suits what offence in consultation with the ECO, these penalties will need to be specified in the approved Estate Conduct Rules. This must be recorded to be used for future offences, thus ensuring that the same offence receives the same penalties in the future. Repeat offenders are to be penalized more strictly than first time offenders. Ignorance is not an excuse for non-compliance.

The offending party is deemed NOT to have complied with the EMPr if:

- a) Within the boundaries of the site;
- b) Environmental damage ensues due to non-compliance of EMPr requirements;
- c) The offending party fails to comply with corrective or other instructions issued within a specific time; and
- d) Legal action is instituted against the proponent in terms of Environmental laws.

SECTION 2: SITE-SPECIFIC IMPACTS AND MITIGATIONS AS IDENTIFIED IN THE BAR



Figure 2: (a) View of the existing access to the site with the neighboring property to the south on the left; (b) View of the existing macadamia trees on site.



Figure 3: (a) View looking north from the south-western boundary of the site near the access road; (b) The adjacent farming activities taking place east of the site.



Figure 4: (a) View of the degraded vegetation on site; (b) Overview of the portion of the site which will be left as a conservation area.

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed/avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
PLANNING AND DESIGN PHASE				
Destruction of vegetation and wetlands	<ul style="list-style-type: none"> Site development outside wetland buffer areas and only on non-sensitive vegetation. Create a conservation area on remainder of property 	APP		
Steep slopes minimise development areas	<ul style="list-style-type: none"> Only develop on slopes flatter than 1:4 	APP		
Visual view of development from neighbours	<ul style="list-style-type: none"> The development is sited only on the western side of the property with the remainder maintained as a natural area. This will soften the visual aspect of the proposed development. Use of colours that are sympathetic to the surrounding views 	APP		
Heritage	<ul style="list-style-type: none"> No heritage resources to be taken into account 	APP		
Reduced agricultural potential	<ul style="list-style-type: none"> No mitigation required because the property's soils has low potential 	APP		
Social impact on community	<ul style="list-style-type: none"> This is a positive impact 			
Traffic – increased traffic on linking roads	<ul style="list-style-type: none"> A Type B1 intersection at the entrance must be constructed. Cutting embankments to the west of the proposed entrance must be undertaken to provide at least 150m sight distance. The surface of the P520 must be widened with a one-meter surfaced shoulder both sides of the road for at least 60 meters from the access intersection. 	APP		
CONSTRUCTION				
Destruction of vegetation and wetlands	<ul style="list-style-type: none"> Demarcation of construction and site camp areas will reduce negative impacts No construction activity and/or construction-related activity may be undertaken outside the construction footprint. All sensitive ecosystems must be clearly demarcated and regarded as a 'no-go' area - i.e. construction staff must not be permitted access to these areas. Areas to be developed must be specifically demarcated during the construction phase, preventing movement of workers into sensitive surrounding environments. Only the demarcated areas must be impacted upon. All wetland areas and buffer zones must be demarcated as sensitive areas, and no construction activity, laydown yards, camps or dumping of construction material are to be permitted within these areas; 	CON/APP		

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed/avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
	<ul style="list-style-type: none"> The footprint area of the sewer pipeline must be kept a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas; All construction activities must be upslope of the pipeline (away from the wetlands); The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm. These can be stockpiled on either side of the trench; The proposed pipeline system must be divided up into 100 m intervals. Each interval's soil must be stockpiled and filled back up (in the correct order) to avoid long periods of stockpiling. 			
Stormwater and soil erosion	<ul style="list-style-type: none"> Reduce concentration of stormwater Temporary stormwater protection measures must be established before construction activities commence. Any sign of erosion on site must be immediately rectified to prevent any significant wash away of soil into the adjacent grassland area. The Contractor must regularly check and clean material from behind erosion barriers. Any exposed earth must be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil; 	CON/APP		
Groundwater contamination	<ul style="list-style-type: none"> Ensure proper filtering of stormwater before entering natural water courses All temporary toilet facilities on site utilised by the construction personnel must be checked on a daily basis and emptied on a weekly basis by the contractor. All temporary toilets must be situated out of the 1: 100-year floodline of a watercourse or outside 100 metres from the riparian zone, whichever is greatest distance. A registered waste removal contractor must remove sewage waste from site or sewage waste must be disposed of at a permitted Waste Water Treatment Site. Safe disposal slips for the disposal of effluent waste must be obtained and kept on site as proof of safe disposal. The contractors used for the construction must have spill kits available prior to construction to ensure that any fuel, oil or hazardous substance spills are cleaned-up and discarded correctly. 	CON/APP		

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed/avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
	<ul style="list-style-type: none"> All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site; 			
Dust	<ul style="list-style-type: none"> Minimise stockpile areas Cover or wet stockpile and exposed areas as appropriate Vegetated exposed areas as soon as practical feasible Adopt a phased approach to clearing areas for roads and/or services Vehicle speed limits must be reduced to 40km/hr to reduce the amount of dust raised along the gravel roads around site. The applicant must comply with the National Dust Regulations (Government Notice R827, 2013) with regards to dust levels produced on site. 	CON/APP		
Storage of fuel	<ul style="list-style-type: none"> Storage areas to be contained within a bund. All servicing to be done with a proper tray to prevent spilling on the ground. The contractors used for the construction must have spill kits available prior to construction to ensure that any fuel, oil or hazardous substance spills are cleaned-up and discarded correctly 	CON/APP		
Noise	<ul style="list-style-type: none"> Limit construction hours between 7:00 and 8:00 No work over weekends Standard mufflers must be fitted to all vehicles 	CON/APP		
Visual view of construction	<ul style="list-style-type: none"> This impact is unavoidable however construction will be only temporary and all housekeeping matters will be managed as per the conditions of the EMPr. 	CON/APP		
Social impact on community	<ul style="list-style-type: none"> This is a positive impact 			
Traffic – increased traffic on linking roads	<ul style="list-style-type: none"> Provide safety flags at access onto road P520 	CON/APP		
OPERATION				
Destruction of vegetation and wetlands	<ul style="list-style-type: none"> Provide paths and educational information to protect the vegetation and wetlands in the conservancy area Rehabilitate disturbed wetland and vegetation areas by removing all alien vegetation 	APP		
Water usage	<ul style="list-style-type: none"> Use volume reducing equipment such as showers and toilets to reduce water demand Plant local vegetation species to reduce irrigation requirement The water demand is unavoidable as it needs to meet regulated requirements. 	APP		
Electricity usage	<ul style="list-style-type: none"> Use energy saving bulbs and solar heating wherever practically feasible 	APP		
Sewage volume	<ul style="list-style-type: none"> A reduced water demand combined with volume reducing showers and toilets will decrease the volume of sewage effluent to be treated by the Municipality 	APP		
Stormwater and soil erosion	<ul style="list-style-type: none"> Reduce concentration of stormwater The stormwater attenuation system must be designed to release flow at near natural flow volumes and velocities. 	APP		

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed/avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
	<ul style="list-style-type: none"> Stormwater must be diverted through an attenuation process, before discharging it in a controlled manner into the downstream natural drainage systems. Appropriate erosion control measures must be constructed at the various stormwater discharge points located throughout the site to limit erosion on the receiving environment e.g. at headwalls and culverts. 			
Groundwater contamination	<ul style="list-style-type: none"> Ensure proper filtering of stormwater before entering natural water courses 	APP		
Dust	<ul style="list-style-type: none"> Cover or wet exposed areas as appropriate Vegetated exposed areas as soon as practical feasible 	APP		
Storage and use of fuel	<ul style="list-style-type: none"> Storage areas to be contained within a bund All servicing to be done with a proper tray to prevent spilling on the ground 	APP		
Noise	<ul style="list-style-type: none"> Limit construction hours between 7:00 and 8:00 No work over weekends Standard mufflers must be fitted to all vehicles The only land uses on site will be residential housing and service such as the, Medical facility; Pharmacy; Mini supermarket; Hairdresser; Community hall; and WI-FI enabled library. These activities will not create excessive noise on site. Service-related activities will also only be operational within normal working hours. 	APP		
Social impact on community	<ul style="list-style-type: none"> This is a positive impact 	APP		
Odours from Landfill Site	<ul style="list-style-type: none"> No mitigation possible because possible odours from outside the property 	APP		
Increased demand on resources such as water and electricity	<ul style="list-style-type: none"> Water and electricity demand reducing principles must be considered (e.g. low flow taps/showers and energy reducing light bulbs) to decrease to demand on resources to be provided by the Municipality The increased water demand is unavoidable as it needs to meet regulated requirements. 	APP		
Increased load on the sewage effluent treatment works	<ul style="list-style-type: none"> A reduced demand on water usage will also decrease the volume of sewage to be treated at the treatment works 	APP		

SECTION 3: CONSTRUCTION MITIGATION MEASURES

3.1. Site Camp, Storage & Handling of Hazardous and Non-Hazardous Materials & Stockpiling

Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Location & Establishment of the construction camp	<ul style="list-style-type: none"> The construction camps must be marked out with the approval of the ECO. 	CON		
	<ul style="list-style-type: none"> The site camps must be located on a flat transformed portion of land. Do not set up the construction camps within 32m of any watercourse or within an area that will be flooded should water levels rise. Do not set up construction camps within 32m of any watercourse. 	CON		
	<ul style="list-style-type: none"> The site camps must be demarcated and fenced off to prevent illegal entry. 	CON		
	<ul style="list-style-type: none"> The following areas must be demarcated and marked within the construction camps: <ul style="list-style-type: none"> A waste storage area A materials storage area Areas for fuel and hazardous chemical / flammable goods Stockpile areas Vehicle servicing and wash bay areas (if required) Parking area 	CON		
Establishing storage areas & Stockpiles	<ul style="list-style-type: none"> A waste storage area must be demarcated, and suitable and sufficient waste bins must be provided within the camps. Storage of waste must be on a hard surface, and undercover. Liquid waste must be situated within a bunded area. <ul style="list-style-type: none"> Liquid waste and accumulated waste must be removed from the site monthly by a recognised Waste Contractor. 	CON		
	<ul style="list-style-type: none"> A materials storage area must be identified and designated within the construction camps, which must be located more than 16m from any watercourse. Materials, specifically liquid and potentially environmentally hazardous materials must be stored within a bunded 	CON		

	<p>area (110% capacity of the largest container) and on a hard surface. The storage area must be undercover.</p>			
	<ul style="list-style-type: none"> • Areas for fuel and hazardous chemical / flammable goods must be identified and signposted within the construction camps. An inventory of the materials and volumes stored must be maintained and updated once a week. These areas must be located within a bunded, hard-surfaced impermeable area. Such storage areas must be located outside the 1:100-year floodline of any watercourse. 	CON		
	<ul style="list-style-type: none"> • Bulk fuel storage: No bulk fuel storage to occur on any of the sites. 	CON		
	<ul style="list-style-type: none"> • Designated areas for stockpiling of raw materials must be demarcated within the construction camps. No stockpiling is to occur on or near slopes where they could be washed into the surrounding properties or the rivers. All stockpiling areas must be approved by ECO and must be located more than 32m from the edge of any watercourse. 	CON		
	<ul style="list-style-type: none"> • Parking: The contractor must designate parking areas on the sites and ensure that only these parking areas are used. • Vehicles must not park within 16m of any watercourse. 	CON		
	<ul style="list-style-type: none"> • Vehicle servicing and washing: only emergency (breakdown where equipment is no longer mobile) and minor maintenance (e.g. greasing) may be done on the sites. <ul style="list-style-type: none"> ○ A designated area must be set aside for this, which must be hard-surfaced and bunded. ○ If emergency repairs are required, this must not be conducted within 16m of any watercourse, riparian zone or wet area. ○ Drip trays must be used. ○ Any other planned or required maintenance must be done off-site at a suitable location. ○ Vehicle washing must also be conducted off-site at a designated vehicle wash bay, the wash bay must be lined with an impermeable material and must drain to a sump to ensure hydrocarbons, and other contaminants are separated before remaining runoff being discharged into the municipal sewer system. 	CON		

	<ul style="list-style-type: none"> ○ No cement vehicles may be washed on site. 			
Handling of liquids on site	<ul style="list-style-type: none"> • Decanting of any liquids/chemicals paints etc. must be done within the confines of a drip tray or on a hardened surface within a bunded area. • This must not be carried out within 20m of the delineated wetland or 30m of any riparian area. 	CON		
	<ul style="list-style-type: none"> • Decanting from large containers (e.g. 210L drums) must be done using a hand pump, where possible. If no hand pump is available, liquids must be decanted on a drip tray using a funnel. • This must not be carried out within 32m of any watercourse. 	CON		
	<ul style="list-style-type: none"> • All handling of hazardous materials, including cement, must take place on a hardened surface or within a drip tray or cement mixing tray. • This must not be carried out within 32m of any watercourse. 	CON		
	<ul style="list-style-type: none"> • Decanting of hazardous materials must take place within the site camp above drip trays or containers to prevent the potential spillage into these areas. 	CON		
Inventory and record of substances stored on site	<ul style="list-style-type: none"> • A full inventory of hazardous substances and Material Safety Data Sheet (MSDS) for each substance stored on site must be maintained, and each substance must be stored and managed per the MSDS. 	CON		
Storage of hazardous materials	<ul style="list-style-type: none"> • Hazardous materials and liquids to be stored in the assigned storage area as per Section 3.1 of this EMPr. 	CON		

3.2. Administration & Records				
Activity / Document	Required Action	Person	In place (Yes / No)	Comments
Contractual obligations	<ul style="list-style-type: none"> The Contractor shall acknowledge receipt of copies of the EMP and confirm in writing that he has familiarised himself with the contents thereof; The Contractor shall comply with all environmental obligations imposed by the Environmental Control Officer (ECO); The Contractor shall co-operate fully with the ECO and use his best endeavours to ensure that the objectives of the EMP are fulfilled in the course of the Contractor's execution of the works or the relevant part thereof. The Contractor must ensure that all workers are given environmental awareness training on the requirements of the EMP. This must form part of the Contractor's contract agreement. The ECO must be informed in writing of implementation. The contractor must provide safety flags at the entrance to road P520 to ensure safe access. Working hours will be from 7:00am to 18:00pm Monday to Friday. No work will be allowed on Saturdays, Sundays or public holidays. Deliveries will only be allowed between 8:00am and 5pm. Preference must be given to local labour, Workers (except security guards) may not be housed on site. 	CON		
Site-Specific EMPr	<ul style="list-style-type: none"> Keep a hard copy of the Site-Specific EMPr on-site and ensure that it has been signed and received by the contractor and engineer. 	CON		
	<ul style="list-style-type: none"> All contractors, the engineers and the ECO must have a copy of the EMPr before coming on to the site. 	ECO/ ENG		
Records	<ul style="list-style-type: none"> Keep records and proofs of all agreements, meetings etc. to demonstrate compliance with this EMPr. 	CON		

<p>Proof of raw material sourcing and resource use</p>	<ul style="list-style-type: none"> • Proof of sustainable source of all materials used must be obtained and documented, especially for raw material i.e. topsoil, sands, natural gravels, crushed stone, clay liners, timber etc. <u>In other words, documented proof that materials have been sustainably sourced must be maintained on-site for review by EDTEA.</u> <ul style="list-style-type: none"> ○ E.g., sand may only be obtained from approved sand winning operations, which is licensed by the Department of Mineral Resources (DMR) and has an approved EMPr for operation. ○ Where materials are borrowed (mined), proof must be provided of authorisation to utilise these materials from the landowner/mineral rights owner and the Department of Minerals and Energy. 	<p>CON/ EO</p>		
<p>Water abstraction for dust suppression</p>	<ul style="list-style-type: none"> • Water used on site must be obtained from a municipal source. If this is not available and water needs to be obtained from a nearby water resource, then the following will apply: <ul style="list-style-type: none"> ○ If water is to be extracted it must be from an approved source, and permission from the landowner must be obtained. ○ If water is extracted no more than 50 000l per day may be extracted. All water use must be registered with DWS. ○ If water is extracted, a daily record of the volume of water extracted must be retained and: <ul style="list-style-type: none"> ▪ The driver must record each truckload that is removed, and this will be used to determine the volume of water extracted. ▪ These records must be provided to the ECO for record and review. ▪ The ECO must monitor volumes to ensure that usage remains below 50 cubic metres per property per day or that abstracted amounts remain within those allowed by the permit that must then need to be applied for. ○ Water use must be controlled and reduced wherever possible. 	<p>CON/ EO</p>		

Maintenance of the extraction point	<ul style="list-style-type: none"> • One point of entry must be established and approved by the ECO. Multiple entry points and pathways must not be permitted. • Multiple abstraction points are not permitted. • The abstraction point must not be established within wetland areas or in areas thickly vegetated by riparian vegetation. • The abstraction point must be easily accessible and where possible, located in close proximity to an established road to avoid the creation of additional tracks. • The abstraction area must not be located on steep slopes where the point may become eroded. • Vehicles approaching the extraction point must remain 32m from any watercourse except where required to pump directly from the stream/river. • No vehicle repairs or maintenance or refuelling may be conducted at the abstraction point. • Damage to the banks of any water resource must not take place. • Should the area become damaged or eroded, erosion protection measures such as sandbags or hessian sheeting must be put in place to allow the re-establishment of vegetation and stabilisation of the area. • Once an abstraction point is no longer being used, the area must be rehabilitated to its former state. 	CON/ EO		
Proof of training	<ul style="list-style-type: none"> • Keep training attendance registers on file at all times. 	EO		
Incident records & Photographs	<ul style="list-style-type: none"> • Keep records of incidents that have occurred and how they were remediated. It is a good idea to take photographs when incidents occur and then to take follow up pictures to demonstrate remediation and keep these on record. • These records must be kept on-site for review by EDTEA. 	EO		
Appointment of ECO / EO	<ul style="list-style-type: none"> • Appoint an ECO (Environmental Control Officer) before the commencement of construction to monitor the entire construction phase. 	ENG		
	<ul style="list-style-type: none"> • Keep proof of appointment and contact details as well as dates of audits. 	APP		

Emergency response plan	<ul style="list-style-type: none"> An emergency response plan must remain on-site as must a copy of the EMPr and the Environmental Authorization. 	ECO		
Audits	<ul style="list-style-type: none"> A record of audits conducted on the site as well as findings must be kept on site. 	CON/ EO		
Permits & Approvals	<ul style="list-style-type: none"> Keep all necessary permits and approvals on file, i.e. construction licences etc. These must be kept on-site for review by EDTEA. 	CON		
MSDSs	<ul style="list-style-type: none"> Material Safety Data Sheets (MSDSs) are to be kept on-site for all hazardous materials. 	CON		

3.3. Training & Awareness				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Who should be trained & Frequency of training	<ul style="list-style-type: none"> All construction staff must have basic environmental awareness training, which can be conducted at the same time as the required health & safety training. 	EO		
	<ul style="list-style-type: none"> Staff must be trained on their environmental responsibilities before commencing work and refresher sessions can be conducted during toolbox talks on specific areas causing problems. 	EO		
	<ul style="list-style-type: none"> Staff must sign a training register and Records of training must be kept. These records must be maintained on-site for review by EDTEA. 	EO		
Training Content and staff conduct	<ul style="list-style-type: none"> Training must include <ol style="list-style-type: none"> The definition of environment (people + air + soil + water +business); Reasons for conserving and protecting the environment; How the following activities can impact the environment: - Not using assigned ablutions, hazardous materials, uncleaned spills, mixing of cement or paint on soil or grass surfaces, waste management, i.e. use of waste receptacles and waste separation for recycling, vehicle washing polluting soil & groundwater; litter; 	EO		

	<ol style="list-style-type: none"> 4. What to do to prevent the above impacting the environment i.e. assign impermeable mixing areas, no vehicle washing on-site, use of waste receptacles and separation of waste to allow for recycling, how to respond in an emergency and deal with a spill; 5. Consideration of neighbours. 6. Do not play music or create any other disturbance to neighbours. 7. Use only the chemical toilets provided. 8. No dumping to occur in sensitive areas on site. 9. Use waste bins provided. 10. Use drip trays provided. 11. Do not build fires for any purpose on the site. 12. Behave in a socially acceptable manner and do not use drugs or alcohol on site. 13. There is to be no hunting of wildlife on the site and no setting of snares or traps. No animals are to be harmed or harassed. 			
Neighbours & Working hours	<ul style="list-style-type: none"> • Local community members must be notified of the project through community leaders and must be notified of the existence of any hazardous storage areas as well as the type of chemicals being used on site. This can be achieved through the placement of signboards. 	CON		
	<ul style="list-style-type: none"> • Limit hours of operation to weekdays 7-5 pm and Saturday mornings 7 - 12 pm. Neighbours to be notified before construction on weekends take place. 	CON		
	<ul style="list-style-type: none"> • Advise the adjoining neighbours of the work and hours of work at least one week before commencement. This can also be indicated on the signboards. 	CON		
	<ul style="list-style-type: none"> • Neighbours to be advised before periods where work will be done outside normal working hours. 	CON		

3.4. Sensitive Social Areas, Environmental Areas, Vegetation and Vegetation Clearing and Wildlife				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Flora and Fauna	<ul style="list-style-type: none"> This site although not overall sensitive does have sensitive environments such as drainage lines and wetlands. All areas within 32m of these areas must be demarcated as "no-go" areas. Should any animal life be encountered it must be carefully removed and none may be harmed or killed. Most animals will move away naturally except possibly snakes. Any problems must be reported to the ECO. 	CON		
Community	<ul style="list-style-type: none"> The surrounding stakeholders must be made aware of the commencement of construction 30 days before construction. Alternate temporary access routes must be determined before the commencement of the construction. 	CON		
Topsoil	<ul style="list-style-type: none"> Topsoil removed during the excavations must be kept to one side (stored more than 32m from any watercourse). This must then be re-used for rehabilitation purposes. The soil must be replaced in the same area that it was excavated from. Much of this topsoil, especially the top 30cm, will retain grass and vegetation seeds. Soil stockpiles must not exceed 2m in height, must be covered, or grassed to prevent erosion caused by exposure to heavy wind or rain. 	CON/ EO		
Cultural and Heritage items	<ul style="list-style-type: none"> The KwaZulu Natal Amafa and Research Institute must be contacted if any heritage objects are identified during earth-moving activities and all development must cease until further notice. No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from the KwaZulu Natal and Amafa Research Institute. Under no circumstances may any heritage material be destroyed or removed from site unless under direction of the KwaZulu Natal and Amafa Research Institute and a heritage specialist. Should any remains be found on site that is potentially human remains, the South African Police Service(SAPS) must also be 	CON		

	<p>contacted. No SAPS official may disturb or exhume such remains, without the necessary permission from the KwaZulu Natal and Amafa Research Institute.</p> <ul style="list-style-type: none"> • No activities are allowed within 50m of a site, which contains rock art. • Sources of all-natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation. 			
<p>Paleontological Monitoring Programme</p>	<ul style="list-style-type: none"> • The Monitoring Programme for Palaeontology must commence once construction has commenced. <ul style="list-style-type: none"> - The following procedure is only required if fossils are seen on the surface and when excavations commence. - When excavations begin, the rocks must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (wood, plants, insects, bone, coal) must be put aside in a suitably protected place. This way, the project activities will not be interrupted. - Photographs of similar fossil plants must be provided to the developer to assist in recognising the fossil plants in the shales and mudstones. This information will be built into the EMP's training and awareness plan and procedures. - Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. - If there is any possible fossil material found by the developer/environmental officer, then the qualified palaeontologist sub-contracted for this project must visit the site to inspect the selected material and check the dumps where feasible. - Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site, a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. - If no good fossil material is recovered, then the site inspections by the palaeontologist will not be necessary. 	<p>CON/ EO</p>		

	- If no fossils are found and the excavations have finished, then no further monitoring is required.			
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3.5. Soil, Stormwater Runoff; Erosion				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Stormwater system	<ul style="list-style-type: none"> Temporary stormwater protection measures must be established before construction activities commence. 	CON		
	<ul style="list-style-type: none"> No contaminated runoff or greywater is allowed to be discharged from the Site Camps into any watercourse or surrounding environment. 	CON		
	<ul style="list-style-type: none"> Stormwater must not be allowed to flow into surrounding properties and must enter existing stormwater channels. 	CON		
Stormwater Quality	<ul style="list-style-type: none"> Only clean stormwater maybe diverted to a watercourse, and associated wetlands and then precautions must be in place to prevent erosion of the riverbanks. These precautions can include gabion baskets, berms or diversion ditches, sandbags 	CON		
	<ul style="list-style-type: none"> Washings from any vessels or any containers must not enter the watercourse. These washings are to be contained and removed as waste. 	CON		
Incidents	<ul style="list-style-type: none"> The entry of any substance (i.e. any material or substance that is not clean stormwater) into the stormwater or a water body is considered an incident and must be reported to the ECO immediately to maintain the site's incident records. 	CON/ EO		
Stormwater flow	<ul style="list-style-type: none"> The drainage system must be regularly checked to ensure unobstructed water flow. 	CON		
Erosion Control	<ul style="list-style-type: none"> Install erosion barriers (gabion baskets, berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric) before clearing in order to prevent substances from entering exposed drains or channels. 	CON		
	<ul style="list-style-type: none"> Identify any steeper areas where erosion is more likely to occur. These areas must be protected from erosion. This can be achieved 	CON/ EO		

	through the planting of vegetation, placement of berms or use of hessian material.			
	<ul style="list-style-type: none"> Regularly check and clean material from behind erosion barriers. 	CON/ EO		
	<ul style="list-style-type: none"> Sediment/soil must not be permitted to enter the watercourses. The contractor must install erosion barriers (gabion baskets, berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric). 	CON/ EO		

3.6. Housekeeping, Waste Storage Handling and Disposal				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
General Waste Storage	<ul style="list-style-type: none"> The waste area to be designated and demarcated within the construction camp (as per section 3). 	CON		
	<ul style="list-style-type: none"> Solid waste must be stored in covered, tip-proof metal drums to be collected and disposed of by a certified waste contractor. Proof of safe disposal of solid waste must be documented, and these records must be maintained on-site for review by EDTEA. 	CON		
Hazardous waste	<ul style="list-style-type: none"> Hazardous materials that require disposal (cement, paints, solvents, old fuel/oil etc.) must be disposed of at a registered hazardous landfill site. 	CON		
	<ul style="list-style-type: none"> These materials must be removed by a hazardous waste contractor. Proof of disposal must be available to the ECO for scrutiny and kept on record. Proof of safe disposal of solid waste must be documented, and these records must be maintained on-site for review by EDTEA. 	CON		
Waste from Chemical toilets	<ul style="list-style-type: none"> Install chemical toilets and ensure disposal of waste at a licenced disposal facility. Proof of disposal must be kept on-site at all times. 	CON		
	<ul style="list-style-type: none"> Waste from the toilets must be collected weekly by a registered and reputable company. The ultimate responsibility for the removal of waste lies with the contractor. 	CON		

	<ul style="list-style-type: none"> All waste must be disposed of at a licence waste water treatment works. Safe disposal certificates for toilet waste must be obtained and kept on-site as assurance that the waste was properly disposed of. 	CON		
	<ul style="list-style-type: none"> Toilets must not be situated on slopes or within 20m of the delineated wetland or 30m of any riparian area and must be secured to prevent them from tipping over. Toilets must be situated out of the 1: 100 year floodline of a watercourse or outside 100 metres from the riparian zone, whichever is greatest distance. 	CON		
	<ul style="list-style-type: none"> Staff must use facilities provided and are not permitted to use any other areas on-site as toilet facilities. 	CON		
	<ul style="list-style-type: none"> Chemical toilets must be checked daily and cleaned. 	CON		
Waste storage and handling	<ul style="list-style-type: none"> No waste may be buried or burned on-site or dumped on surrounding properties and farmland. All waste must be disposed of at a licences waste disposal facility. Proof of disposal must be kept on-site at all times. 	CON		
	<ul style="list-style-type: none"> All skips must be covered to contain odours and prevent waste from blowing around the site. 	CON		
	<ul style="list-style-type: none"> A register of all waste generated and disposed of must be maintained. 	CON/EO		
	<ul style="list-style-type: none"> No dumping is permitted. There must be no dumping on site under any circumstances. The contractor is liable to a fine should there be any evidence of illegal dumping. The ECO to review the damage and advise on rehabilitation measures if required. 	CON		
	<ul style="list-style-type: none"> Do not place waste containers, skip bins or building materials on steep slopes or within 20m of the delineated wetland or 30m of any riparian area. 	CON/EO		
	<ul style="list-style-type: none"> Waste accumulated on-site must be removed weekly. The waste must be moved to a licenced waste disposal facility. 	CON		
	<ul style="list-style-type: none"> Provide litter bins throughout the site for use by all staff on site. 	CON		

Waste separation	<ul style="list-style-type: none"> • Hazardous: Hazardous waste must be stored separately from general waste. <ul style="list-style-type: none"> ○ Hazardous waste must be disposed of at an approved hazardous waste landfill, and safe disposal certificates must be obtained. ○ Hazardous waste includes used oils, lubricants, solvents, solvent-based paints, concrete waste, and cement. 	CON/EO		
	<ul style="list-style-type: none"> • Oils must be within a bunded storage area and treated as flammable waste. <ul style="list-style-type: none"> ○ Where possible used oils must be recycled. ○ Safe disposal certificates must be kept on-site demonstrating disposal or recycling of the used oils. ○ Solid paint waste may be disposed of as general waste. 	CON/EO		
	<ul style="list-style-type: none"> • Concrete waste: <ul style="list-style-type: none"> ○ Return excess concrete with the delivery truck to the supplier for recycling or proper disposal. ○ Any other excess concrete, i.e. on-site mixed concrete, can be stored in a lined bin for eventual recycling or disposal. 	CON/EO		

3.7. Noise				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Noise Generation and suppression	<ul style="list-style-type: none"> • All construction vehicles must be fitted with standard silencers and be well maintained. 	CON		
	<ul style="list-style-type: none"> • Workers must be trained regarding noise on-site, and construction hours must be kept to working hours (07h00 to 17h00). 	CON		

3.8. Dust & Emissions				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Dust from stockpiles	<ul style="list-style-type: none"> Cover any stockpiled fine material that may release dust with plastic. 	CON		
Dust from surfaces	<ul style="list-style-type: none"> Damp down surfaces and stockpiles as required to reduce windblown dust. 	CON		
	<ul style="list-style-type: none"> A water cart may be used which must remain on designated roadways if required. 	CON		
	<ul style="list-style-type: none"> If dust from the site is likely to create problems for nearby residents, these areas must be shielded with shade cloth. 	CON		

3.9. Vehicle Maintenance, Operation, Driving On-Site and Vehicle Washing				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Access points	<ul style="list-style-type: none"> Haulage roads must be demarcated at the site set up. 	CON		
	<ul style="list-style-type: none"> Turning areas must be located within the construction footprint and must be designated. 	CON/ EO		
	<ul style="list-style-type: none"> Temporary access roads must not be located within adjoining properties. 	CON/ EO		
	<ul style="list-style-type: none"> No ad hoc haulage roads or turning areas may be created. 	CON/ EO		
	<ul style="list-style-type: none"> Limit vehicle entry point to the designated access point and ensure no other point of entry is used. 	CON/ EO		
	<ul style="list-style-type: none"> All vehicles to remain in the parking area designated within the construction site. 	CON/ EO		

Vehicle Servicing and repairs	<ul style="list-style-type: none"> No major equipment or vehicle servicing to occur on-site, i.e. major disassembly and repair work, clutch replacements and oil or lubricant changes must be carried out at a suitably equipped workshop. 	CON		
	<ul style="list-style-type: none"> Only minor emergency repairs, i.e. those necessary to get the vehicle moving so that it can be taken to a repair facility to be carried out, i.e. stopping of oil leaks, lubricating of hydraulics, changing of buckets/breakers on Excavators and TLBs or changing of tyres. This must be carried out in designated workshop areas within the allowed construction camps. These areas to be hard-surfaced and bunded. 	CON		
	<ul style="list-style-type: none"> Drip trays are to be used by all leaking vehicles and equipment. 	CON/ EO		
	<ul style="list-style-type: none"> All vehicles to be equipped with drip trays. 	CON/ EO		
	<ul style="list-style-type: none"> All small machinery used on site must be situated on a drip tray (i.e. pumps, generators, compressors etc.). 	CON/ EO		
	<ul style="list-style-type: none"> All vehicles to be regularly maintained and maintenance records must be made available on request. 	CON/ EO		
	<ul style="list-style-type: none"> No leaking vehicles to be allowed on site. 	CON/ EO		
	<ul style="list-style-type: none"> Any vehicles that are leaking must not be allowed entry to the site. 	CON/ EO		
	<ul style="list-style-type: none"> No vehicles to be washed on-site - cement trucks are not permitted to wash out cement mixers on site. 	CON/ EO		
	<ul style="list-style-type: none"> Only emergency (breakdown where equipment is no longer mobile) and minor maintenance (e.g. greasing) may be done on-site. Any other planned or required maintenance must be done offsite at a suitable location. 	CON		

3.10. Incidents, Spills and Emergency Response				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Spill kits	<ul style="list-style-type: none"> Adequate spill kits and containers for spilt and contaminated material to be on standby on site. 	CON/EO		
	<ul style="list-style-type: none"> Keep marked booms and/or absorbent material on-site to contain spills if they occur. 	CON/ EO		
	<ul style="list-style-type: none"> All staff must be trained on how to react in the case of an emergency. 	CON-SHE		
	<ul style="list-style-type: none"> If a spill occurs, stop the source, contain it, clean up as per MSDSs and notify relevant authorities. 	CON/ EO		
	<ul style="list-style-type: none"> Make staff aware of emergency phone numbers to use in the case of a large spill. 	CON/ EO		
Definition of incidents	<ul style="list-style-type: none"> All incidents are to be recorded. 	CON/ EO		
	<ul style="list-style-type: none"> Minor incidents: small spills less than 5 l that do not enter stormwater or the stream/river, minor non-compliance with EMPr that does not cause major environmental impact, i.e. housekeeping issues etc. <ul style="list-style-type: none"> Action: Supervisor and staff on-site to record and address and notify ECO. Take photos of the spill. Prevent spill from spreading and contain. Collect spilt material and contaminated soil and place in a sealed container for disposal. ECO to advise on remediation measures and to follow up on actions taken to address the incident. Records: On-site incident register. 	CON/ EO		

	<ul style="list-style-type: none"> • Major incidents: Large spills or any spills that enter stormwater or the stream/river, fires, explosions. Please see the definition of a reportable incident provided below. <ul style="list-style-type: none"> ○ Action: Report immediately to ECO, action to be taken to prevent further damage and incident to be reported to authorities. ECO to advise on remediation measures and to follow up on actions taken to address the incident. ○ Records: On-site incident register and report to authorities. 	CON/ EO		
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3.11. Sewage and Grey Water Management				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Sewage	<ul style="list-style-type: none"> • Adequate toilet facilities (such as chemical toilets) sufficient in number to cater for the number of staff on-site must be provided. One toilet per 15 staff must be provided. 	CON		
	<ul style="list-style-type: none"> • Waste must be managed as per section 3.5, namely removed by a licensed contractor, and safe disposal certificates retained to prove proper disposal. • Safe disposal certificates must be kept on-site for review by the EDTEA. 	CON/ EO		
Greywater/wash water	<ul style="list-style-type: none"> • Greywater must not be permitted to enter the surrounding properties or stormwater. 	CON/ EO		
	<ul style="list-style-type: none"> • Vehicles, especially cement trucks, must not be washed on site these must be washed at a wash bay facility off-site. 	CON/ EO		
	<ul style="list-style-type: none"> • Alternately the wash water can be collected and returned with the supplier's truck for disposal by the supplier. 	CON/ EO		

SECTION 4: POST CONSTRUCTION, REHABILITATION AND OPERATION

4.1. Post Construction Activities				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Post Construction Audit	<ul style="list-style-type: none"> Clearance from the ECO must be obtained to ensure the all of the requirements of the EMPr have been complied with. 	ECO		
Stormwater	<ul style="list-style-type: none"> The Contractor must check that the stormwater channels are free from building rubble, spoil materials, and waste materials. 	CON		
	<ul style="list-style-type: none"> Ensure that in the long term; stormwater is protected from ingress by potential pollutants. 	CON		
Waste & Spills	<ul style="list-style-type: none"> All spillages must be cleaned and contaminated soil must be removed and disposed of. 	CON/ EO		
	<ul style="list-style-type: none"> All remaining waste bins and/or skips must be removed and disposed of. Records of disposal must be retained. 	CON/ EO		
	<ul style="list-style-type: none"> All excess concrete must be removed from the site on completion of works and disposed of. Washing of the excess into the ground is not allowed. 	CON/ EO		
	<ul style="list-style-type: none"> All excess aggregate must also be removed. 	CON		
	<ul style="list-style-type: none"> Used oil must have been collected by a registered used oil contractor and documentation to this effect provided. 	CON		
	<ul style="list-style-type: none"> Surfaces are to be checked for waste products from activities such as concreting are cleared in a manner approved by the ECO. 	CON		
	<ul style="list-style-type: none"> No litter must be left on site. 	CON/EO		

Structures, materials and stockpiles	<ul style="list-style-type: none"> Any fences, barriers, or demarcations utilised for the construction phase must be removed and disposed of. 	CON		
	<ul style="list-style-type: none"> All structures and imported materials within the construction camp must be removed. 	CON		
	<ul style="list-style-type: none"> The remaining building materials must be removed from the site. 	CON		
Damage	<ul style="list-style-type: none"> Any damage incurred on the neighbouring homesteads by the contractor must be repaired by the contractor. 	CON		
	<ul style="list-style-type: none"> Any damage to existing infrastructure must be repaired or replaced on completion of the upgrade. 	CON		
Close Out	<ul style="list-style-type: none"> A meeting must be held between Engineer, the ECO, and the contractor to approve all remediation activities and ensure that the site has been restored to a condition, which has been approved by the Engineer. 	ENG		
Vegetation	<ul style="list-style-type: none"> All vegetation planting must be completed and any areas that have been disturbed or cleared must have been rehabilitated and revegetated. 	ECO		
	<ul style="list-style-type: none"> Re-vegetation of cleared land must utilise only 100% locally indigenous plant material to ensure no erosion occurs once the site is vacated. 	CON/EO		
	<ul style="list-style-type: none"> Ensure that no sensitive habitats have been damaged during the construction phase. 	ECO		
	<ul style="list-style-type: none"> Where habitats have been damaged, these must be reported to the ECO and procedures for rehabilitation of these habitats must be undertaken. 	CON/EO		
Erosion	<ul style="list-style-type: none"> Any eroded soil on paths/roadways/ other areas must be collected and replaced in the area from which it was eroded. These high-risk erosion areas must be protected from further soil erosion. 	CON/EO		

4.2. Rehabilitation				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Rehabilitation of areas surrounding the construction footprint	<ul style="list-style-type: none"> Cleared areas to be re-grassed on completion. Indigenous grasses to be used and the use of vetiver or kukuyu grass is not supported. Rather an indigenous grass seed mix must be used to rehabilitate the site. Where possible, vegetation that was removed during clearing must be kept aside and re-used. This can be kept on-site in nursery areas or if the replanting occurs within a few days of clearing, can be kept to one side and immediately re-planted. Grass can be reintroduced by Hydroseeding or planting of grass plugs. Cleared areas must not be left exposed for periods longer than two weeks and must be revegetated in stages as each section is completed. Where serious habitat damage has taken the damaged must be reported to the ECO. Consultation between the ECO, contractor, and engineer must take place. Whereby the contractor must develop and suitable method statement which must focus on the rehabilitation of the damaged area. This method statement must be approved by both the ECO and engineer. The contractor must then implement this method statement under the supervision of the ECO. 	CON/ EO		
Top Soil	<ul style="list-style-type: none"> Topsoil removed during the excavations must be kept to one side (stored more than 32m of any delineated wetland or riparian area) and re-used in the same area that it was excavated from. Much of this topsoil, especially the top 30cm will retain grass and vegetation seeds. This topsoil to be used when re-vegetating and rehabilitating areas cleared for construction/ excavation. 	CON/ EO		
Rehabilitation of eroded areas	<ul style="list-style-type: none"> Any erosion damage caused during construction must be repaired. The affected area must be reshaped, and the soil replaced. 	CON/ EO		

	<ul style="list-style-type: none"> The eroded area must be re-vegetated or measures put in place to control further erosion. The contractor must install erosion barriers (gabion baskets, berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric). 			
Removal of alien invasive plants	<ul style="list-style-type: none"> Alien invasive species must be removed on an on-going basis. Use of chemical pesticides must be avoided, and mechanical removal by hand is preferred. 	CON/ EO		
Damage to any watercourse	<ul style="list-style-type: none"> Where any watercourse has been damaged, the following measures are to be taken to ensure restoration of the habitat: <ul style="list-style-type: none"> ECO must assess the damaged area Any construction debris or contaminants within the watercourse must be removed Original soil structure must be restored Any impedence or diversion to water flow must be removed The area must be vegetated with suitable riparian or wetland species No loose soil or damaged banks can be left behind after construction. 	CON/ EO		

4.3. Operation				
Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Gardens	<ul style="list-style-type: none"> The fencing of gardens must be as outlined in the Estate Rules 	ESTATE MAN		
Pets	<ul style="list-style-type: none"> The control of pets must be guided by measures as outlined in the Estate Rules. 	ESTATE MAN		
Stormwater Management	<ul style="list-style-type: none"> A stormwater minimisation policy must be adopted. No stormwater will be allowed to enter the sewer system. The stormwater attenuation system must be designed to release flow at near natural flow volumes and velocities. 	ESTATE MAN		

	<ul style="list-style-type: none"> Stormwater must be diverted through an attenuation process, before discharging it in a controlled manner into the downstream natural drainage systems. Erosion control measures at the various stormwater discharge points must be maintained on a regular basis. The stormwater drainage system must not be contaminated by other waste sources and must therefore be separated from other waste water drainage systems 			
Waste/contaminated/hazardous materials	<ul style="list-style-type: none"> All waste material from the service facilities, must be stored under cover and within a designated waste collection/storage area. Access control to this area must be properly managed. Contaminated/hazardous materials from the service facilities must be disposed of at a permitted hazardous landfill site that is authorised to accept such waste material. Medical waste or waste that arises from the medical centre, including pharmaceutical waste must be kept separate from general refuse and disposed in a suitable manner. The medical waste must be sent to a permitted medical waste facility. The recycling of suitable material (i.e. glass, paper, plastic, etc) must be encouraged throughout the Estate. All domestic waste produced from the residential units must be disposed through the existing municipal waste stream. 	ESTATE MAN		
Water Storage	<ul style="list-style-type: none"> The installation of a rainwater storage tanks for each household, be consider for inclusion in the Estate Rules. 	ESTATE MAN		
Conservation Area	<ul style="list-style-type: none"> The conservation area must be maintained by the estate management throughout the life time of the Injabulo Estate. There are existing wetland(s) on the property. No access is allowed into the wetland and 32m buffer areas. Should the Estate wish to develop a walking trail that need to cross a wetland or buffer area representation to DWS and EDTEA must first be made. The grasslands are poor in species richness as a result of previous sugar cane farming and will therefore not require specific fire management to maintain biodiversity. Fires might further decrease the species. However, the grasslands must be maintained as a feature of the development and all alien vegetation must be 	ESTATE MAN		

	<p>removed. Walking trails should be developed under guidance of a specialist.</p> <ul style="list-style-type: none"> The grasslands can from time to time be brush cut and the cuttings used for compost. As a minimum a 30m corridor must be maintained by a brush cutter around the perimeter fence to serve as a fire break. 			
Watercourse Maintenance	<ul style="list-style-type: none"> Maintenance activities must be planned to avoid unnecessary disturbance to the banks and/or bed of the river. Alterations to the riverbed and riverbanks destroy crucial habitats for aquatic organisms. Manual labour must always be considered first for river maintenance activities. Mechanical methods must be a last resort, to ensure that damage is minimised. 	ESTATE MAN		
Walking Trails	<ul style="list-style-type: none"> The general public must have free access to the pathways. No motorised vehicles (e.g. motorcycles, four wheelers, scooters or golf carts) are permitted on the trail system or elsewhere in the conservation area unless as part of the maintenance requirements. Mountain bikes may be allowed only on designated paths. There must not be any deviations off of the path for any reason, unless the path is damaged or is unusable for any reason. In such circumstance's deviation must be kept to a minimum. Any damage discovered on the trails should be reported to the estate management who is responsible for the immediate rectification. Damaged trails must be closed to ensure that no deviation from paths is necessary. The purpose of the trails is for the enjoyment of the natural surroundings (fauna and flora); these must therefore not be disturbed. Nothing may be removed from the open space trails. 	ESTATE MAN		
Wildlife and human interaction	<ul style="list-style-type: none"> Snakes are likely to come in contact with humans and must not be killed, as they provide a useful service by controlling vermin populations. Whenever snakes cause a problem, Estate 	ESTATE MAN		

	<p>Management must be contacted to catch the snake and release back into the conservation area.</p> <ul style="list-style-type: none"> • Adequate waste and rodent control will lessen the likelihood of snakes or other animals frequenting buildings. • People may not feed any wild animals to encourage interaction. 			
<p>Alien vegetation clearing</p>	<ul style="list-style-type: none"> • The estate management must take control of alien clearing. After establishment alien plants must be identified and a plan compiled for removal and re-instatement of indigenous species as far as is practical. • The eradication and management of alien invasive trees must be ongoing. • Eradication of medium to large invasive alien trees must occur systematically over an extended period - the affected area must be divided in plots of appropriate size ($\pm 50m^2$) and total eradication must occur within one plot at a time with extended period's in-between to allow for sufficient natural vegetation to re-settle. This systematic approach is to ensure that a not to large unstable area is left vulnerable at a time as these areas may become prone to erosion. In the case where a plot with a low abundance of alien invasive trees and a sufficient natural plant covering has been cleared, commencement of the following plot may occur immediately. • Clearing within the aquatic ecosystem must preferably occur in the late winter. • Alien vegetation regrowth on areas disturbed by construction must be immediately controlled once recorded throughout the entire site and the affected during operation and maintenance. • Cleared areas that have become invaded by alien species can be sprayed with appropriate herbicides provided that these are such that break down on contact with the soil (except in the aquatic ecosystem). Residual herbicides should not be used. • No alien species must be cultivated on-site. If vegetation is required for aesthetic purposes, then noninvasive, water-wise locally-occurring species should be used. • The felled specimens must be removed out of the wetland boundaries as soon as possible (within a week of felling) and care 	<p>ESTATE MAN</p>		

	<ul style="list-style-type: none"> must be taken to prevent any potential for re-seeding. Surveys for alien species must be conducted regularly. It is recommended that this be undertaken at least once a year. All alien plants identified must be cleared using appropriate means. 			
Visual aspects	<ul style="list-style-type: none"> Use of colours that are sympathetic to the surrounding views must be incorporated into the design of the estate. 	ESTATE MAN		
Swimming pools	<ul style="list-style-type: none"> Chlorinated or water from saline pools may not be released onto the roads or onto the natural vegetated areas. An option would be to release the water into the sewer system but approval for this need to be obtained. Another option would be to release the water into water storage tanks where it will be diluted with rainwater. The best option, however, would be the use of a filter and recycling system (such systems are available and economically feasible). 	ESTATE MAN		
Perimeter fencing	<ul style="list-style-type: none"> The fencing of the property must be maintained to allow for small animal movement. For any walls an opening of 10cm must be available at the bottom. These can be placed in 1m sections between pillars. For fencing the bottom wires should have similar spacing of 10cm. If this poses a security risk other options can be investigated in consultation with the ECO. Options include monitored v-shaped openings or fencing with larger sized blocks to provide an opening of at least 10cmx10cm. 	ESTATE MAN		
Sewer lines	<ul style="list-style-type: none"> No sewer line or pump station may be sited within the 32m buffer around wetlands as indicated in the approved site layout plan. The estate management must regularly check line routes and manholes. Leaks, blockages and overflowing of manholes must be immediately fixed or reported to the Municipality (as relevant). 	ESTATE MAN		

SECTION 5: DEFINITIONS

Stormwater

Clean rainwater, must be allowed to enter the stormwater system or natural water bodies without causing erosion. Stormwater must not be contaminated with any other substance including soaps, washings, hazardous materials, soil etc.

Greywater

This is wash water that may contain non-hazardous soaps, i.e. bathwater, vehicle wash water etc. This must not be permitted to enter the stormwater system but can be disposed of in the sewage system or as effluent. If no sewage system is available on site, the greywater must be collected and disposed of.

Sewage

Human excrement from chemical toilets.

Raw materials for which source statement must be obtained

Topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, timber etc. E.G., sand may only be obtained from approved sand winning operations, which is licensed and has an approved EMPr for operation.

Incidents

All incidents must be recorded. Minor incidents could include small spills of less than 5l that do not enter a water body or any stormwater drains, as well as housekeeping issues and general small non-compliances with the requirements of the EMPr. Major incidents are those that must be reported to the authorities and include all incidents involving contamination of a water body or stormwater or other reportable incidents as defined below.

Reportable incident is defined as 'an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed' NEMA Section 30, 'includes any incident or accident in which a substance (a) pollutes or has the potential to pollute a water resource; or (b) has, or is likely to have, a detrimental effect on a water resource.' NWA Section 20.

Complaints register – Record any complaints received from neighbours or the public regarding dust or pollutions, noise or nuisance.					
Date of complaint	Complainant’s Name	Complainants Contact Number	Details of complaint	Corrective action taken	Date action completed

Environmental Emergency Response and Definition of an Incident

<p>Aim of this document</p>	<ul style="list-style-type: none"> To effectively manage the response to emergency incidents and control these incidents should they occur. To ensure that such incidents are recorded and, where possible, all measures are taken to prevent them from re-occurring. To provide a definition for what would be considered a reportable incident in terms of the environmental legislation. <p>Activities covered in this procedure include:</p> <ul style="list-style-type: none"> Identification and definition of an incident and whether or not it needs to be reported to the authorities. Reporting to the relevant authorities if a reportable incident occurs Procedure to follow in the event of a spill or fire.
<p>Personnel Duties and Responsibilities</p>	<p>The contractor is responsible for:</p> <ul style="list-style-type: none"> Ensuring all activities are carried out as per this procedure and that the company complies with relevant legislation. Maintaining a register of all incidents as well as ensuring that an incident report is generated for each incident, including details of the incident and how it was closed out. Ensuring that safe disposal certificates are obtained for any waste materials generated as a result of an incident and that this waste is recorded. Providing the necessary spill kit equipment and drums for storage of contaminated soil etc.
<p>Training Requirements</p>	<ul style="list-style-type: none"> All personnel and workforce to undergo a site safety and environmental induction before starting work on site. All employees to be trained on how to respond to an environmental incident and whom to contact in order to ensure that the incident is addressed and recorded and if necessary reported.
<p>Definition of a “reportable incident”</p>	<ul style="list-style-type: none"> In terms of the National Environmental Management Act, major incidents must be reported to the authorities. In terms of the National Water Act, any incident involving a substance which has the potential to pollute a water resource must be reported, i.e. any spill of into a watercourse or the stormwater system must be reported. The relevant sections from the legislation are provided below:
<p>National Environmental Management Act</p>	<p><i>As defined by NEMA, section 30 “Control of emergency incidents”.</i></p> <p><i>(1) In this section—</i></p> <p><i>(a) “incident” means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed;</i></p> <p><i>(b) “responsible person” includes any person who—</i></p> <p><i>(i) is responsible for the incident;</i></p> <p><i>(ii) owns any hazardous substance involved in the incident; or</i></p> <p><i>(iii) was in control of any hazardous substance involved in the incident at the time of the incident;</i></p> <p><i>(c) “relevant authority” means—</i></p> <p><i>(i) a municipality with jurisdiction over the area in which an incident occurs;</i></p>

	<p>(ii) a provincial head of department or any other provincial official designated for that purpose by the MEC in a province in which an incident occurs;</p> <p>(iii) the Director-General;</p> <p>(iv) any other Director-General of a national department.</p>
<p>National Water Act</p>	<p>As defined by the National Water Act section 20 “Control of emergency incidents”</p> <p>(1) In this section “incident” includes any incident or accident in which a substance -</p> <p>(a) pollutes or has the potential to pollute a water resource; or</p> <p>(b) has, or is likely to have, a detrimental effect on a water resource.</p>
<p>Reporting to the authorities</p>	<p>If a reportable incident occurs, the Site Agent / Project Manager and Environmental Control Officer must be notified immediately. No site staff may communicate directly with the authorities.</p> <p>The relevant sections from the legislation are included below:</p> <p>As taken from NEMA, section 30: Control of Emergency Incidents:</p> <p>(3) The responsible person or, where the incident occurred in the course of that person’s employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available—</p> <p>(a) the nature of the incident;</p> <p>(b) any risks posed by the incident to public health, safety and property;</p> <p>(c) the toxicity of substances or byproducts released by the incident; and</p> <p>(d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment too—</p> <p>(i) the Director-General;</p> <p>(ii) the South African Police Services and the relevant fire prevention service;</p> <p>(iii) the relevant provincial head of department or municipality; and</p> <p>(iv) all persons whose health may be affected by the incident.</p> <p>(4) The responsible person or, where the incident occurred in the course of that person’s employment, his or her employer, must, as soon as reasonably practicable after knowledge of the incident—</p> <p>(a) take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;</p> <p>(b) undertake cleanup procedures;</p> <p>(c) remedy the effects of the incident;</p> <p>(d) assess the immediate and long term effects of the incident on the environment and public health.</p> <p>(5) The responsible person or, where the incident occurred in the course of that person’s employment, his or her employer, must, within 14 days of the incident, report to the Director-General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including—</p> <p>(a) the nature of the incident;</p> <p>(b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects;</p> <p>(c) initial measures taken to minimise impacts;</p>

	<p>(d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and</p> <p>(e) measures taken and to be taken to avoid a recurrence of such incident.</p> <p>(6) A relevant authority may direct the responsible person to undertake specific measures within a specific time to fulfil his or her obligations under subsections (4) and (5): Provided that the relevant authority must, when considering any such measure or time period, have regard to the following:</p> <p>(a) the principles set out in section 2;</p> <p>(b) the severity of any impact on the environment as a result of the incident and the costs of the measures being considered;</p> <p>(c) any measures already taken or proposed by the person on whom measures are to be imposed, if applicable;</p> <p>(d) the desirability of the State fulfilling its role as custodian holding the environment in public trust for the people;</p> <p>(e) any other relevant factors.</p> <p>(7) A verbal directive must be confirmed in writing at the earliest opportunity, which must be within seven days.</p> <p>(8) Should—</p> <p>(a) the responsible person fails to comply, or inadequately comply with a directive under subsection (6);</p> <p>(b) there be uncertainty as to who the responsible person is; or</p> <p>(c) there be an immediate risk of serious danger to the public or potentially serious detriment to the environment, a relevant authority may take the measures it considers necessary to—</p> <p>(i) contain and minimise the effects of the incident;</p> <p>(ii) undertake cleanup procedures; and</p> <p>(iii) remedy the effects of the incident.</p>
<p>National Water Act section 20: Control of emergency incidents</p>	<p>(2) In this section, "responsible person" includes any person who -</p> <p>(a) is responsible for the incident;</p> <p>(b) owns the substance involved in the incident, or</p> <p>(c) was in control of the substance involved in the incident at the time of the incident.</p> <p>(3) The responsible person, any other person involved in the incident or any other person with knowledge of the incident must, as soon as reasonably practicable after obtaining knowledge of the incident, report to -</p> <p>(a) the Department;</p> <p>(b) the South African Police Service or the relevant fire department; or</p> <p>(c) the relevant catchment management agency.</p> <p>(4) A responsible person must -</p> <p>(a) take all reasonable measures to contain and minimise the effects of the incident;</p> <p>(b) undertake to clean-up procedures;</p> <p>(c) remedy the effects of the incident; and</p> <p>(d) take such measures as the catchment management agency may either verbally or in writing direct within the time specified by such institution.</p>

Spill response	
Responsible Person/s	The spill is reported to the site foreman who must notify his superior. All employees must be made aware of the procedure in case of a spill.
Procedure	<ol style="list-style-type: none"> 1. Identify the nature of the spill, e.g. paint, oil or lubricants 2. Locate spill kit 3. Contain spill according to the training provided 4. Where necessary, contact external spill control contractors 5. Ensure spill does not cause any external contamination (such as storm/groundwater or soil) 6. Ensure that cleanup measures are taken if any contamination has occurred 7. Record in emergency response record the: <ul style="list-style-type: none"> • Nature of incident • Cause of incident • Clean up measures • Mitigation measures are taken 8. Record in non-conformance register 9. The ECO and Project Manager will determine if the event qualifies as an incident and take steps to report the incident to the necessary authorities, i.e. EDTEA and DWS. 10. The ECO shall review all spill reports
Fire	
Responsible Person/s	The fire is reported to the site foreman All employees must be made aware of the procedure in case of fire.
Procedure	<ol style="list-style-type: none"> 1. Identify the source and nature of fire. 2. In case of small fire extinguish with material appropriate to the nature of the fire 3. In case of a large fire contact Fire Department 4. In the site camp, seal off exposed stormwater drains to ensure firewater does not cause any external contamination. If on-site, take measures to prevent firewater from entering any water body. 5. Ensure that clean-up measures are taken if any contamination has occurred 6. Record in emergency response record the: <ul style="list-style-type: none"> • Nature of incident • Cause of incident • Clean up measures • Mitigation measures are taken 7. Record in non-compliance register 8. The ECO and Project Manager will determine if the event qualifies as an incident and take steps to report to the authorities. 9. The EO shall review incident/nonconformance reports 10. Adjustments will be made, if necessary, to the operational and emergency procedures and the Environmental Management System to prevent future occurrences
Explosion	



Responsible Person/S	The explosion is reported to the site foreman who must notify his superior. All employees must be made aware of the procedure in case of an explosion.
Procedure	<ol style="list-style-type: none"> 1. Identify the source and nature of the explosion. 2. In case of small fire as a result of the explosion, extinguish with material appropriate to the nature of the fire 3. In case of a large fire as a result of the explosion contact Fire Department 4. In the site camp, seal off exposed stormwater drains to ensure firewater does not cause any external contamination. If on-site, take measures to prevent firewater from entering any water body. 5. Ensure that clean-up measures are taken if any contamination has occurred 6. Record in emergency response record the: <ul style="list-style-type: none"> • Nature of incident • Cause of incident • Clean up measures • Mitigation measures are taken 7. Record in non-compliance register 8. The ECO and Project Manager will determine if the event qualifies as an incident and take steps to report the incident to the necessary authorities, i.e. EDTEA and DWS. 9. The ECO shall review spill reports
Resource Requirements	
Materials	<ul style="list-style-type: none"> • Separate drums for contaminated soil. • Spade and clean soil • Fire equipment

Alien Plant Control Plan

Alien Plant Control Plan	
Activity	Site Mitigation Measures to control alien plants
Training and expertise of personnel involved in Alien plant management on site	<ul style="list-style-type: none"> • It is rare that a contractor has employees or members with good knowledge of alien plants and their eradication, who can then eradicate these plants effectively and on a near-complete basis. Partial knowledge means that some alien species are missed or ignored or indigenous plants harmed. Partial work or work that is not sustained is also ineffective in the long run as any residual presence can regenerate and expand quickly, particularly if live material or many seeds still in the ground. • As a result, the contractor must continually train their works as to the importance of alien plant control and at the same time providing them with the correct knowledge as to which plant must be removed and what method must take place.
Alien Invasive Plant Management in the construction area	<ul style="list-style-type: none"> • The construction area must be kept free of alien invasive plants. Regular inspections of the site must take place. The following methods of alien plant control can be adapted: <ul style="list-style-type: none"> ○ Mechanical Control <ul style="list-style-type: none"> ▪ Hand pulling ▪ Manual removal using hand tools ▪ Manual removal using mechanised tools ○ Chemical Control <ul style="list-style-type: none"> ▪ Foliar spraying ▪ Handheld spraying ▪ High-pressure spraying • The construction area must be rehabilitated immediately following the completion of construction to ensure that alien invasive plants do not become established. • The construction area must be regularly inspected following rehabilitation and alien invasive plants removed if they have become established.
Responsible Use of herbicides	<ul style="list-style-type: none"> • Problem plants in construction areas usually short-lived weeds for which mechanical methods alone are not successful. Some use of herbicides may be unavoidable. The following must be followed during the use of herbicides: <ul style="list-style-type: none"> ○ Do not spray herbicides in windy conditions ○ Preferably spray in dry conditions and not before any predicted heavy rainfall as most pesticide movement either to the surface or to the groundwater will occur in the first major storm event after application. Heavy losses are reported when application occurs immediately before a major storm. ○ A buffer zone which must remain untreated must be retained around any watercourse. A minimum buffer of 10m must be retained. This will have to be managed by mechanical means. ○ Empty containers or unused herbicides must be disposed of correctly and may not be dumped on site.

Section 30: Emergency Incident Report

NB! Please ensure that all the information provided in brackets are removed before submitting this report to all the Authorities.

 <p>environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA</p>  <p>ENVIRONMENTAL MANAGEMENT INSPECTORATE</p>	<p>Document Type:</p>	<p>Emergency Incident Report</p>	
	<p>Title for the incident:</p>		
	<p>Date of the incident:</p>		
<p>Reference:</p>		<p>Initial Submission Date:</p>	
<p>Revision No.:</p>		<p>Compiled by:</p>	

This form provides a template for the emergency incident report required in terms of section 30(5) of the National Environmental Management Act (Act No. 107 of 1998) (hereinafter “NEMA”) in which the responsible person or, where the incident occurred in the course of that person’s employment, his or her employer, must, within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including: (a) the nature of the incident; (b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; (c) initial measures taken to minimise impacts; (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and (e) measures taken and to be taken to avoid a recurrence of such incident.

In terms of section 30(1)(a) of NEMA, an “incident” means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed.

In line with section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), “serious” is taken to be a measure of the impact of an incident where such an incident has had, could have had, is having, or will have a negative impact on human health or well-being.

<p>1. RESPONSIBLE PERSON</p>	
<p>In terms of section 30(1)(b) of NEMA, the “responsible person” includes any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control of any hazardous substance involved in the incident at the time of the incident</p>	
<p>1.1. Name:</p>	<p>1.2. Designation:</p>
<p>1.3. Postal Address:</p>	<p>1.4. Physical Address:</p>
<p>1.5. Telephone (B/H):</p>	<p>1.6. Telephone (A/H):</p>
<p>1.7. Fax:</p>	
<p>1.8. E-mail:</p>	
<p>1.9. Nature of Business:</p>	

2. Emergency Incident Summary Information

Mark the appropriate boxes

2.1. Fire:	2.2. Spill:	2.3. Explosion:	2.4. Gaseous Emission:
2.5. Injuries	2.6. Reportable injuries:	2.7. Hospitalisation:	2.8. Fatalities:
2.9. Open water impacts:	2.10. Ground water impacts:	2.11. Atmospheric impacts:	2.12. Soil impacts:
2.13. Own emergency response involved	2.14. Fire prevention services involved	2.15. Government hazardous materials emergency response involved	2.16. More than 1 governmental emergency response service involved
2.17. Emission of non-toxic substances at low concentrations	2.18. Emission of non-toxic substances at high concentrations	2.19. Emission of toxic substances at low concentrations	2.20. Emission of toxic substances at high concentrations
2.21. No evacuation required	2.22. Immediate area evacuated	2.23. Immediate surrounds evacuated	2.24. Evacuation of the general public
2.25. Other			

3. INITIAL EMERGENCY INCIDENT REPORT

In terms of section 30(3) of NEMA, the responsible person or, where the incident occurred in the course of that person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available: (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or byproducts released by the incident; and (d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to: (i) the Director General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.

3.1. Description	3.2. Date:	3.3. Time:	3.4. Medium:	3.5. Name and contact details:
Relevant fire prevention service: (in case of fire)	[submission date]	[submission time]	[Fax, phone, SMS, letter, etc.)	[Who was the report made to?]
LOCAL:				
PROVINCIAL: (Those deal with Environmental issues)				
DIRECTOR GENERAL: (Department of Environmental Affairs)				
Any other Director General of National Department, E.g. Department of Water Affairs				

4. INCIDENT DETAILS

In terms of NEMA section 30(5)(a) and (d), the responsible person must report on the nature of the incident as well as the causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure			
4.1. Location of the incident		[Provide physical address of the location where the incident happened including the GPS co-ordinates]	
4.2. Incident start date and time:		4.3. Incident duration:	
4.4. Duration of exposure:			
4.5. Incident description:			
Background of the incident:			
Operation:			
Incident type:			
Root Cause of the incident:			
Contributory Factors to the incident:			
Conclusion:			
4.6. Wind speed and direction		4.7. Ambient air temperature	
4.8. Weather conditions		4.9. Other relevant meteorological conditions	

5. POLLUTANTS RELEASED DURING INCIDENT

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity.					
List all the pollutants directly released during the incident (i.e. exclude those pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.)					
5.1. Substance or mixture of substances	5.2. Reference Number	5.3. Phase eg solid, liquid or gas	5.4. Total Quantity emitted/released	5.5. Unit s eg Kg, L etc	5.6. Nature of emission/release
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[Emitted from truck, underground pipe, stack, etc.]

6. SECONDARY POLLUTANTS RESULTING FROM INCIDENT

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.

List all the pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.

6.1. Substance or mixture of substances	6.2. Reference Number	6.3. Phase	6.4. Total Quantity emitted/released	6.5. Unit	6.6. Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[Emitted from truck, underground pipe, stack, etc.]

7. POLLUTANT CONCENTRATIONS

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.

List all the pollutants detailed in previous section:

7.1. Substance or mixture of substances	7.2. Reference Number	7.3. Estimated pollutant concentration on different radius			
		7.3.1. 10m	7.3.2. 100m	7.3.3. 500m	7.3.4. >2000m
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[estimate the concentration of the pollutant in water, soil and/or air within a 10m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]	[estimate the concentration of the pollutant in water, soil and/or air within a 100m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]	[estimate the concentration of the pollutant in water, soil and/or air within a 500m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]	[estimate the concentration of the pollutant in water, soil and/or air within a > 2000 m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]

¹ Concentration at the plume

² Concentration that was falling on the ground

8. INCIDENT IMPACT

In terms of NEMA section 30(5)(b), the responsible person must report on possible acute effects on persons and the environment and the responsible must provide data needed to assess these effects;

8.1. <i>Minor injuries</i>	[Describe the number and types of any minor injuries that resulted from the incident or efforts to manage the incident or the impacts thereof]
8.2. <i>Reportable injuries</i>	[Describe the number and types of any injuries requiring statutory reporting that resulted from the incident or efforts to manage the incident or the impacts thereof]
8.3. <i>Hospitalisation</i>	[Describe the number and types of any injuries that required professional medical care that resulted from the incident or efforts to manage the incident or the impacts thereof]
8.4. <i>Fatalities</i>	[Describe the number and cause of any fatalities that resulted from the incident or efforts to manage the incident or the impacts thereof]
8.5. <i>Biological impacts</i>	[Describe any impacts on biological life, other than human life, e.g. fish kills, plant mortality, etc.]
8.6. <i>Impact area</i>	[Describe the area possibly affected by the incident or the impacts thereof including: (i) size of the area; (ii) socio-economic context; (iii) population density; (iv) sensitive environments (if any), etc.]
8.7. <i>Data</i>	Attach relevant impact reports, medical reports, death certificates, post mortem reports, environmental monitoring data, etc. as Annexes C1, C2,... to this report

9. EXISTING PREVENTION PROCEDURES AND/OR SYSTEMS

9.1. <i>Foresight</i>	[Briefly describe whether the incident could have, or had, been foreseen, e.g. was it included in any environmental impact assessment, risk assessment, health and safety plan, etc.]
9.2. <i>Procedures and/or systems</i>	Attach any relevant safety, health and environmental plans (including any statutory planning requirements) that detail what actions should be taken in the event of the incident that is the subject of this report
9.3. <i>Procedure and/or systems failures</i>	[Describe any failures or shortfalls in procedures and/or systems that may have contributed to the incident] All procedures and checklist in place and signed off.
9.4. <i>Technical measures</i>	[Describe any technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurrence of the incident] Communications & discussions in place.
9.5. <i>Technical failure</i>	[Describe any failures of technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurrence of the incident]

10. INITIAL INCIDENT MANAGEMENT

In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.

10.1. <i>Evacuation</i>	[Describe any evacuation activities including information on the number of people evacuated and whether these people were staff or otherwise]
10.2. <i>Technical measures</i>	[Describe all technical measures taken to address the incident]
10.3. <i>Mitigation measures</i>	[Describe all measures taken to minimize the impact] SOPEP gear activated
10.4. <i>Emergency Services</i>	[Describe any governmental emergency services involvement] SAMSA/TNPA advised

11. CLEANUP AND/OR DECONTAMINATION

In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.

11.1. <i>Cleanup and/or decontamination</i>	[Report on initial cleanup and or decontamination (remediation) measures taken to minimise the impact of the incident on human health and the environment. Provide copy of safe disposal certificate (if any)]
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11. CLEANUP AND/OR DECONTAMINATION

In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.

11.2. Permissions and Instructions

Provide details of any permission and/or instructions received from any organ of state during initial incident management, cleanup and/or decontamination

11.3. Type	11.4. Statute	11.5. Issued By	11.6. Name and contact details
[Describe the nature or type of permission or instruction]	[Provide a reference to the legal mandate for the permission or instruction]	[Provide contact details for the permitting or instructing authority]	[provide a summary of the activities carried out in terms of the permission or instruction]

12. MITIGATION MEASURES

In terms of NEMA section 30(5)(e), the responsible person must report on measures taken and to be taken to avoid a recurrence of such an incident.

12.1. Measure	12.2. Objective	12.3. Cost	12.4. Timing
[Briefly describe each of the measures taken, and to be taken, to avoid a recurrence of such incident]	[Briefly describe the objective of the measure, i.e. the desired outcome of the measure]	[Estimate the cost of the measure in terms of capital costs and/or recurrent costs]	[Provide information on the timing for the full implementation of the measure]

13. AUTHORISATIONS

Provide details on all authorisations (including permits, licenses, certificates, etc.) in respect of the activity to which this incident relates.

13.1. Type	13.2. Statute	13.3. Issued By	13.4. Issue & Expiry Date
[Describe the nature or type of authorisation, e.g. Registration Certificate]	[Provide the reference for the authorisation, e.g. section X of the National Environmental Management Act (Act No. 107 of 1989)]	[Provide contact details for the issuing authority]	[provide the date of issue and expiry]

14. HISTORY

Provide details of all similar incidents involving the responsible person in the past (i.e. from 1998). Similar incidents include those that: (i) involved similar circumstances; (ii) involved similar emissions; (iii) involved similar personnel; and/or (iv) involved similar impacts.

14.1. Incident title	14.2. Report reference	14.3. Date of incident	14.4. Summary of event
[Provide the title used in the relevant emergency incident report]	[Provide the reference in respect of the relevant emergency incident report]	[Date of incident]	[Provide a summary of the event]

Signed by, or as a mandated signatory for, the responsible person:		Date:	
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**APPENDIX 1
List of affected people as results of the incident**

NAME	ADDRESS	PHONE	FAULT	REMARKS

**APPENDIX 2
Layout map of the area likely to be affected or affected as a result of the incident**

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Disclaimer

Any other information not covered in the reporting template must be included.

CAUTION

In terms of section 30 (11) of NEMA as amended, it is an offence not to report an incident and liable on conviction to a fine not exceeding R 1 million or imprisonment for a period not exceeding 1 year, or to both such a fine and such imprisonment.