



**NEMA SECTION 24G APPLICATION FOR THE RECTIFICATION OF
UNLAWFUL WASTE DISPOSAL PRACTICES AT THE GWAING WASTE
DISPOSAL FACILITY (GWDF) ON REMAINDER OF ERF 464, GEORGE,
WESTERN CAPE.**

**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME
REPORT**

FOR PUBLIC REVIEW AND COMMENT

REFERENCE NUMBERS:

14/2/4/2/3/D2/20/008/26

**PREPARED FOR:
GEORGE LOCAL MUNICIPALITY**

October 2026

FORM NO. BAR10/2021

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1. Environmental Management Programme

a. Details of the Environmental Assessment Practitioner

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b. Site Proposal

The George Local Municipality has submitted a NEMA Section 24G application for the rectification of unlawful waste disposal practices at the Gwaing Waste Disposal Facility (GWDF) in George, Western Cape.

The application proposes the use of an extension area within the existing landfill property to help manage and offset waste that has already been disposed of at the current landfill site. The extension area has not yet been used for any waste disposal activities. It is not intended to receive new waste, but rather to provide additional authorised space to address existing waste volumes and improve overall site management.

Through this application, the Municipality is seeking environmental authorisation to formally include the extension area as part of the landfill operation, together with appropriate environmental management measures to reduce potential impacts on the surrounding environment.

c. Site Description

The Waste Disposal Facility is located east of the Gwaing river, west of the Tumsui industrial area, approximately 6km southwest of the city centre, bordering the Gwaing Wastewater Treatment Works to the south, George. Access to the site is obtained via the R102.

The proposed destination for the relocated waste includes a parcel of municipal-owned land situated immediately south of the current facility. This land lies between the municipal wastewater treatment works and the Gwaing River, on the Remainder of Erf 464, George, Western Cape.

The corrected coordinates of the activity footprint **including** the proposed extension area are included below. The Proposed Rectification Layout can be viewed under Appendix B: Site Layout Plan.

Point	Latitude (S)	Longitude (E)
B-01	S33° 59' 24.79"	E22° 25' 11.78"
B-02	S33° 59' 24.80"	E22° 25' 13.94"
B-03	S33° 59' 37.40"	E22° 25' 19.51"
B-04	S33° 59' 40.10"	E22° 25' 17.36"
B-05	S33° 59' 41.70"	E22° 25' 18.08"
B-06	S33° 59' 42.78"	E22° 25' 17.68"
B-07	S33° 59' 46.24"	E22° 25' 08.53"
B-08	S33° 59' 46.23"	E22° 25' 06.88"
B-09	S33° 59' 49.34"	E22° 25' 03.64"
B-10	S33° 59' 49.32"	E22° 25' 00.80"
B-11	S33° 59' 44.11"	E22° 25' 00.83"
B-12	S33° 59' 40.49"	E22° 25' 03.52"
B-13	S33° 59' 40.50"	E22° 25' 06.77"
B-14	S33° 59' 35.60"	E22° 25' 10.44"
B-15	S33° 59' 32.99"	E22° 25' 10.94"
B-16	S33° 59' 29.27"	E22° 25' 10.48"

d. Outcome of risk assessment

The combined specialist risk assessments indicate that, although the existing landfill has already caused environmental degradation—particularly in relation to water resources—the overall receiving environment is largely disturbed and of low sensitivity. Most specialists agree that impacts such as those on biodiversity, agriculture, groundwater, and visual quality are low to moderate after mitigation measures are applied. While freshwater impacts remain a key concern, with initially high ecological risk, these are expected to decrease over time through proper management, monitoring, and rehabilitation. Importantly, the extension of the landfill is considered necessary to address the current uncontrolled and harmful conditions.

Overall, the development is regarded as acceptable, provided that strict mitigation measures, ongoing monitoring, and effective rehabilitation are fully implemented to reduce environmental risks and improve long-term conditions.

e. Listing Activities

ECA EIA Contraventions: between 08 September 1997 and end of 09 May 2002			
Activities commenced with on or after 08 September 1997 and before end 09 May 2002: EIA regulations promulgated in terms of the ECA, Act 73 of 1989			
Government Notice No. ("GN") R1182 Activity No(s):	Describe the relevant listed activity/ies in writing as per GN No. 1182 of 1997	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
ECA EIA Contraventions: between 10 May 2002 and end of 02 July 2006			
Activities unlawfully commenced with on or after 10 May 2002 and before end 02 July 2006: EIA regulations promulgated in terms of the ECA, Act 73 of 1989,			
NEMA EIA Contraventions: between 03 July 2006 and end of 01 August 2010			
Activities unlawfully commenced with on or after 03 July 2006 and before end 01 August 2010: EIA regulations promulgated in terms of the NEMA			
GN R386 Activity No(s): (Listing Notice 1 of 2006)	Describe the relevant listed activity/ies in writing as per GN No. R. 386 of 2006 ("NEMA 2006 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
Government Notice No. R387 Activity No(s): (Listing Notice 2 of 2006)	Describe the relevant listed activity/ies in writing as per GN No. R. 387 of 2006 ("NEMA 2006 Scoping/EIA listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
N/A			
NEMA EIA Contraventions: between 02 August 2010 and end of 07 December 2014			
Activities unlawfully commenced with on or after 02 August 2010 and before end 07 December 2014: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998,			
GN No. R. 983 Activity No(s): (Listing Notice 1 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R. 983 of 2014 ("NEMA 2010 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
19	The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [(i)] a watercourse; [(ii) the seashore; or (iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—] but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or]	The excess waste that has been seeping into the Gwaing River. The development entails the excavation, removal and relocation of waste from the existing Gwaing Landfill and the deposition of waste on adjacent	

	(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	municipal land located within 100 m of the Gwaing River. These activities will involve the movement of material exceeding 10 m³ within a watercourse buffer and therefore trigger the relevant listed activity under GN R.983 of 2014	
48	The expansion of— [(i) canals where the canal is expanded by 100 square metres or more in size; (ii) channels where the channel is expanded by 100 square metres or more in size; (iii) bridges where the bridge is expanded by 100 square metres or more in size; (iv) dams, where the dam, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (v) weirs, where the weir, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (vi) bulk storm water outlet structures where the bulk storm water outlet structure is expanded by 100 square metres or more in size; or (vii) marinas where the marina is expanded by 100 square metres or more in size;] (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion [or expansion and related operation] occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding— (aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such expansion occurs within an urban area; or (ee) where such expansion occurs within existing roads, road reserves or railway line reserves.	The portion of waste that has been dumped illegally outside of the boundary of the Waste Licence. The development entails the excavation, removal and relocation of waste from the existing Gwaing Landfill and the deposition of waste on adjacent municipal land located within 100 m of the Gwaing River. These activities will involve the movement of material exceeding 10 m³ within a watercourse buffer and therefore trigger the relevant listed activity under GN R.983 of 2014	
GN No. R. 545 Activity No(s): (Listing Notice 2 of 2010)	Describe the relevant listed activity/ies in writing as per GN No. R. 545 of 2010. (NEMA 2010 Scoping/EIA listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
N/A			
GN No. R. 546 Activity No(s):	Describe the relevant listed Activity(ies) in writing as per GN No. R. 546 of 2010	Describe the portion of the development as per the project description that	State the date of commencement of each activity

(Listing Notice 3 of 2010)		relates to the applicable listed activity.	
N/A			
NEMA EIA Contraventions: on or after 08 December 2014			
Activities unlawfully commenced with on or after 08 December 2014: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998,			
GN No. R. 983 Activity No(s): (Listing Notice 1 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R.983 of 2014 ("NEMA 2014 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
19	The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [—(i)] a watercourse; [(ii) the seashore; or (iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—] but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] © falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or © where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The excess waste that has been seeping into the Gwaing River. The landfill expansion involves infilling and depositing soil to extend waste cells. All works will occur outside watercourse to prevent impacts on sensitive areas. Activities will follow approved environmental management measures to ensure compliance with the listed activity requirements.	
48	The expansion of— [(ee) canals where the canal is expanded by 100 square metres or more in size; (ii) channels where the channel is expanded by 100 square metres or more in size; (iii) bridges where the bridge is expanded by 100 square metres or more in size; (iv) dams, where the dam, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (v) weirs, where the weir, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (vi) bulk storm water outlet structures where the bulk storm water outlet structure is expanded by 100 square metres or more in size; or (vii) marinas where the marina is expanded by 100 square metres or more in size;] (ee) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion [or expansion and related operation] occurs— (a) within a watercourse; (b) in front of a development setback; or © if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The portion of waste that has been dumped illegally outside of the boundary of the Waste Licence. The landfill expansion may involve the expansion of existing infrastructure or structures on site, such as access roads, containment walls, or support facilities, with a footprint exceeding 100 m². This listed activity is only relevant if such expansions occur within or close to a watercourse	

	excluding— (aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such expansion occurs within an urban area; or (ee) where such expansion occurs within existing roads, road reserves or railway line reserves.		
GN No. R. 325 Activity No(s): (Listing Notice 2 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R.325 of 2014 ("NEMA 2014 Scoping/EIA listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
N/A			
GN No. R. 324 Activity No(s): (Listing Notice 3 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R.324 of 2014	Describe the portion of the development as per the project description that relates to the applicable listed activity.	State the date of commencement of each activity
N/A			

APPLICABLE WASTE MANAGEMENT ACTIVITIES:

Waste Management Activity Contraventions: On or after 03 July 2007 up to end of 28 November 2013			
Activities unlawfully commenced with in terms of GNR 718 of 03 July 2009 under the National Environmental Management Waste Act, Act 59 of 2008			
GN No. 718 – Category A Activity No(s):	Describe the relevant <u>Category A</u> waste management activity/ies in writing.	Describe the portion of the development as per the project description that relates to the applicable waste activity.	State the date of commencement of each activity
1	The temporary storage of general waste at a facility, including a waste transfer facility and container yard, that has the capacity to receive in excess of 30 tonnes of general waste per day or that has a throughput capacity in excess of 20m3 per day, including the construction of a facility and associated structures and infrastructure for such storage.	The licensing for the builders' rubble and garden waste for this site had to be in order with the NEM:WA listing activities in order to comply with the NEMA regulations.	Early 2000
GN No. 718 – Category B Activity No(s):	Describe the relevant <u>Category B</u> waste management activity/ies in writing.	Describe the portion of the development as per the project description that relates to the applicable waste activity.	State the date of commencement of each activity

Waste Management Activity Contraventions: On or after 29 November 2013			
Activities unlawfully commenced with in terms of GNR 921 of 29 November 2013 under the National Environmental Management Waste Act, Act 59 of 2008,			
GN No. 921 - Category A Activity No(s):	Describe the relevant <u>Category A</u> waste management activity/ies in writing.	Describe the portion of the development as per the project description that relates to the applicable waste activity.	State the date of commencement of each activity
1	The temporary storage of general waste at a facility, including a waste transfer facility and container yard, that has the capacity to receive in excess of 30 tonnes of general waste per day or that has a throughput capacity in excess of 20m3 per day, including the construction of a facility and	the inability to stay under the threshold for this listed activity.	

	associated structures and infrastructure for such storage.		
GN No. 921 – Category B Activity No(s):	Describe the relevant <u>Category B</u> waste management activity/ies in writing.	Describe the portion of the development as per the project description that relates to the applicable waste activity.	State the date of commencement of each activity

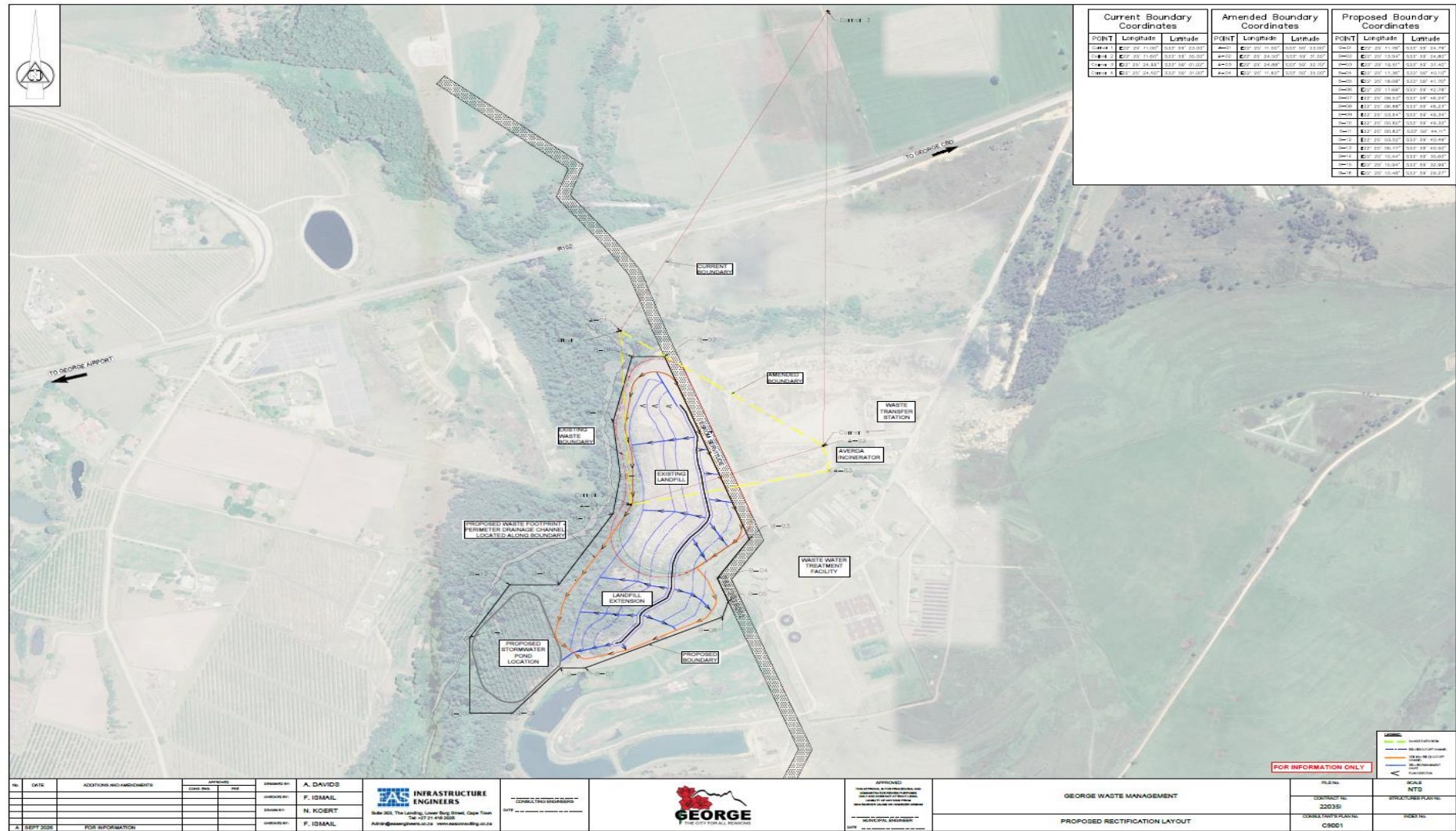
ACTIVITIES LISTED SIMILARLY IN TERMS OF THE EIA REGULATIONS

Kindly indicate the listed activities in terms of the EIA Regulations that is listed similar to the unlawfully commenced activities. The descriptions provided below must clearly state why the activity/development is still similarly listed in terms of the EIA Regulations, 2014.

The similarly listed activities in terms of the EIA Regulations promulgated in terms of the NEMA, Act 107 of 1998,			
GN No. R. 983 Activity No(s): (Listing Notice 1 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R.983 of 2014 ("NEMA 2014 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.	
19	19 LN 1 (GNR 327) The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [(i)] a watercourse; [(ii) the seashore; or (iii) the littoral active zone, an estuary, or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater] but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The excess waste that has been seeping into the Gwaing River. The landfill expansion involves the infilling and depositing of soil and other material to extend the waste disposal area.	
48	The expansion of— [(i) canals where the canal is expanded by 100 square metres or more in size; (ii) channels where the channel is expanded by 100 square metres or more in size; (iii) bridges where the bridge is expanded by 100 square metres or more in size; (iv) dams, where the dam, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (v) weirs, where the weir, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (vi) bulk storm water outlet structures where the bulk storm water outlet structure is expanded by 100 square metres or more in size; or (vii) marinas where the marina is expanded by 100 square metres or more in size;]	The portion of waste that has been dumped illegally outside of the boundary of the Waste Licence.	

	(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion [or expansion and related operation] occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding— (aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such expansion occurs within an urban area; or (ee) where such expansion occurs within existing roads, road reserves or railway line reserves.	
GN No. R. 325 Activity No(s): (Listing Notice 2 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R.325 of 2014 ("NEMA 2014 Scoping/EIA listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.
N/A		
GN No. R. 324 Activity No(s): (Listing Notice 3 of 2014)	Describe the relevant listed activity(ies) in writing as per GN No. R.324 of 2014	Describe the portion of the development as per the project description that relates to the applicable listed activity.
N/A		

f. Composite Map



g. Description of Impact management objectives including management statements

a. The impact management objectives for the proposed development activities include:

- The compliance with relevant environmental legislation policy
- Successful visual, dust and noise impact mitigation
- The demarcation and restriction of all authorized and approved activity to the development area
- Waste management by implementing the waste management hierarchy, and the environmental awareness training and regular discussions with the project staff. The project manager should implement all necessary training and ensure that these protocols are in place throughout the project lifecycle.
- Prevention of community conflict and ineffective public participation

b. Volumes and rate of water use required for the operation

The proposed landfill extension will implement measures to reduce water demand and reuse water where possible. Stormwater collected on site will be diverted and reused for dust suppression and compaction activities. Operational water use will be minimised through efficient water management practices, and any leachate or runoff will be managed and treated to prevent pollution and maximise reuse opportunities. These measures help conserve water resources and reduce the environmental footprint of the facility.

c. Has a water use licence been applied for?

It is indicated that a WULA will not be required for this application. However, the Department of Water and Sanitation will be consulted with during the Public Participation Process.

d. Impacts to be mitigated according to the specialist reports and findings:

Impacts:

- **Terrestrial Biodiversity**

Impacts: The development and ongoing operations can disturb surrounding terrestrial biodiversity features, leading to a loss of indigenous flora and ecological functioning. While much of the site is already degraded, expansion activities result in the loss of some naturally occurring vegetation

- **Freshwater and Aquatic Ecology**

Impacts: Primary concerns include leachate and pollutants entering the Gwaing River, destruction of the riparian zone and instream habitat, and litter or waste ending up in the water

There is a noted risk of contaminating local food resources like mussels, which impacts the broader regional tourism industry

- **Landscape and Visual Impact**

The landfill acts as a prominent artificial landform that interrupted the natural skyline, causing visual intrusion from the N2 and R102. Other impacts include dust generated by machinery and the potential for large-scale landscape change that contrasts with the surrounding rural/peri-urban character.

- **Geohydrological Aspects:**

Landfills pose risks to human health and the environment through groundwater contamination, with observations already showing elevated salt levels and near-surface leachate influence from rainfall infiltration.

- **Socio-economic, noise and heritage:**

Closure of the landfill could negatively impact local residents and construction companies due to increased transport costs for waste disposal. Operational impacts include excessive noise from machinery and the potential to disturb cultural landscapes

Mitigation Measures:

- **Terrestrial Biodiversity**

Avoid and protect all areas identified outside the facility's footprint at all times. Implement continuous rehabilitation using fresh topsoil and erosion control measures as project phases progress. Remove invasive vegetation in a manner that prevents the spread of seeds from the site or during transportation. Restrict all activities strictly to the property boundaries

- **Freshwater and Aquatic Ecology**

River protection measures include maintaining a 32 m buffer from the Gwaing River, stabilising the landfill toe to prevent erosion and slumping, and directing collected leachate to the adjacent WWTW for co-processing. The removal of approximately 5 ha of invasive blue gum trees within the riparian corridor should be carefully managed, with prompt site stabilisation to minimise sediment and debris entering the river.

- **Landscape and Visual Impact**

Reshape landfill slopes to create smooth, naturalized profiles that blend into the surrounding undulating terrain. (Cut back steep 1V:1H side slopes to benched 1V:3H organic curves with 3m-wide terraces) Appoint a registered landscape architect to assist in the final landform design and shaping. Prioritize revegetation of visually exposed slopes using locally appropriate species.

Apply dust suppression measures, such as watering or binding agents, on haul roads and exposed surfaces. Adhere to maximum height constraints (e.g., 115m for the southern site) to limit airspace intrusion

- **Geohydrological Aspects:**

Geohydrological measures include strengthening capping and stormwater controls, installing impermeable liners and leachate collection systems for expansion areas, and providing subsurface interception measures near the landfill toe to limit leachate migration towards the Gwaing River. A geochemical baseline and source-tracking (Microbial Source Tracking) measures should also be established to distinguish natural background concentrations from contamination associated with landfill leachate and WWTW effluent.

- **Socio-economic, Noise and Heritage**

Identify an alternative site for dumping builders' rubble to support local service delivery. Regularly maintain machinery and vehicles to prevent excessive noise and ensure compliance with noise regulations. Cease all activities and contact relevant authorities if any cultural or historical artifacts are unearthed during potential expansion

e. Possible Impacts and Mitigating Measures

Impact Management Measures

- **Terrestrial Biodiversity:** Development causes habitat loss and floral disturbance, particularly on-site edges. Management requires strictly protecting areas outside the footprint, removing invasive species to prevent seed spread, and progressively rehabilitating the site with fresh topsoil.
- **Freshwater & Aquatic Ecology:** Primary risks include leachate, litter, and sediment polluting the Gwaing River, alongside riparian zone destruction. Measures include maintaining a 32-meter river setback, installing engineered liners and leachate collection systems, and stabilizing riverbanks with hard engineering structures.

- **Landscape & Visual Impact:** The facility acts as a visually intrusive "mountain" that interrupts the natural skyline and generates dust. Mitigation involves reshaping slopes to a 1V:3H ratio for a natural profile, adhering to height constraints (115m/105m), and implementing phased revegetation and dust suppression
- **Geohydrological Aspects:** Landfill leachate poses a high risk of groundwater and soil contamination from salts and heavy metals. Required actions include increasing groundwater monitoring to monthly, installing shallow interceptor trenches, and ensuring the segregation of hazardous waste for off-site disposal
- **Socio-Economic & Operational:** Closure would increase waste transport costs for the community, while ongoing operations cause noise and litter nuisances. Management includes identifying alternative local rubble sites, regularly maintaining machinery to reduce noise, and covering waste daily to prevent burning or windblown litter

Influence on the Proposed Development

The proposed development of the Gwaing River Waste Disposal Facility is influenced by the following key factors:

- The facility's location adjacent to the Gwaing River (a Critical Water Resource) mandates a 32-meter NEMA-controlled buffer zone. The Section 24G process drives the need to rectify unlawful waste seepage and address subsurface salt contamination through engineered liners and monitoring.
- The existing site has reached capacity, requiring the relocation of approximately 992,000 m³ of surplus waste to the extension area. Development is further constrained by high-voltage Eskom power lines and the need to elevate land above the 1-in-100-year flood line.
- **Socio-Economic and Planning Priorities:** Maintaining a local facility is a societal priority to avoid the high costs of transporting waste 60km to Mossel Bay. The project must align with the Spatial Development Framework (SDF) and ensure compatibility with the neighboring GM Mixed-Use Development.

- Visual and Aesthetic Limits: To mitigate significant visual intrusion, the landfill's final design must adhere to maximum heights (115m and 105m mamsl) and incorporate 1V:3H slopes to create a naturalized profile that blends with the Garden Route landscape

f. Indicate the frequency of the submission of the performance assessment/audit report

- **General Compliance Monitoring Reports:** These must be compiled and submitted to the competent authority at intervals determined by the authority, or upon request.
- **Environmental Control Officer (ECO) Monitoring:** An independent ECO must be appointed to monitor compliance and inspect the site before, during, and after the remedial works
- **Visual and Rehabilitation Monitoring:** it is recommended that monthly inspections during the closure phase and annual inspections for three years post-closure to ensure successful revegetation and erosion control, are conducted.
- **Groundwater Monitoring:** The geohydrological specialist recommends that groundwater system monitoring frequency should be increased to monthly, as required by the Waste Management License
- **Surface Water Monitoring:** Monitoring of the Gwaing River water source should continue on a 6-monthly frequency
- **Soil Monitoring:** While rehabilitation is underway, interim soil sample monitoring should occur annually to inform potential changes to the baseline

The EAP notes that the submission of these reports is necessary to ensure that remedial works and ongoing operations are guided by the principles of sustainable development and comply with regulatory standards.

g. Environmental Awareness Plan

1. Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work

Environmental Awareness Training will be undertaken as part of site induction and general training to make employees and contractors aware of the following:

- Environmental policy and procedures in terms of the requirements of the EMPr
- The environmental benefits of conforming to environmental policy and improved personal performance

- The possibility of archaeological finds and the correct procedural actions to inform the Heritage Western Cape agency.
- Waste management procedures per the waste management hierarchy. The waste management practices discussed in the BAR and the EMPr should be highlighted and discussed during induction training, to ensure that personnel are aware of best practice for waste management during the project lifecycle.

The training programme will consist of the following elements:

- Identification of employees training needs
- Development of training plans in terms of the needs
- Verification of conformance to the training programme in operations
- Documentation of training received; and
- Evaluation of training provided

The training conducted would be to remind the employees and to ensure that they understand the task at hand and the parameters in which they need to operate to ensure environmental best practice.

Monitoring

A monitoring programme will be in place not only to ensure compliance with the EMPr through the contract / work instruction specifications, but also to monitor any environmental issues and impacts which have not been accounted for in the EMPr that are or could result in significant environmental impacts for which corrective action is required.

Monthly audits will be conducted by the Environmental Control Officer.

Compilation of a monthly audit report with a rating of the compliance with the EMPr. The ECO must keep a photographic record of any damage to areas outside the demarcated site area. The date, time of damage, type of damage and reason for the damage must be recorded in full to ensure the responsible party is held liable. The Contractor must be held liable for all unnecessary damage to the environment.

2. Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment

All relevant information enclosed in the DRAFT and FINAL BAR and EMPr should be discussed with the employees, during induction training. Compliance with the mitigation measures and management actions should be monitored by the project manager and Environmental Control Officer.

Project managers will be equipped with the relevant information and a copy of the approved EMPr, detailing waste management and monitoring standards, to ensure environmental best practice throughout the project life cycle.

It is imperative that environmental awareness training be centred on the principle of Duty of Care towards the environment, as prescribed in Section 28 of the NEMA, 1998 which states that "Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

3. The management of incidents and emergency situations

The management of incidents and emergency situations that may occur throughout the project lifecycle should follow the regulations set out in section 30 of the National Environmental Management Act, 1998 (Act 107 of 1998).

In the event of an incident occurrence, the following steps should be taken:

- The responsible person, or where the incident occurred during the person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available-
 - a) nature of the incident,
 - b) the risk posed by the incident to public health, safety and property;
 - c) the toxicity of the substance or by-product released by the incident and
 - d) any steps that should be taken to avoid or minimise the effect 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 services;
 - iii. the relevant provincial head or department or municipality and
 - iv. all persons whose health may be affected by the incident (in terms of regulation 30(3) of NEMA, 1998 (Act 107 of 1998).
- 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-
 - a) Take all reasonable steps 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 person;
 - b) Undertake clean-up procedures
 - c) Remedy the effects of the incident
 - d) Assess the immediate and long-term effects of the incident on the environment and public health (in terms of section 30(4) of the NEMA, 1998 (Act 107 of 1998).
- The responsible person or, where the incident occurred in the course of the 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 the initial evaluation of the incident, including-
 - a) The nature of the incident;
 - b) The substances involved in the 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(5) of the NEMA, 1998 (Act 107 of 1998).

This section is guided by section 30 of the NEMA, 1998 (Act 107 of 1998) and should be included in the environmental awareness training of all relevant persons involved in the mining lifecycle.

4. Transgressions and penalties to be implemented throughout the project lifecycle:

Transgressions, such as the non-compliance with items outlined in the EMPr discussed during environmental awareness training, and the non-compliance with conditions for environmental authorisation, should be penalized. A monetary fine or suspension, where the impact is severe and may hinder the development process and cause detrimental effects on the surrounding environment. The fine system should be finalized by the Applicant, in agreement with the ECO and the Project Manager, and should be communicated during Environmental Awareness training.

Non-compliance	Amount
Failure to submit method statements timeously	R 10 000
Failure to demarcate working areas, servitudes and No-Go areas and / or maintain demarcation fences / tape	R 30 000
Working outside of the demarcated areas, servitudes and/or within the boundaries of the No-Go area	R 50 000
Failure to strip topsoil with intact vegetation	R 50 000
Failure to stockpile topsoil correctly and/or to separate soil materials	R 50 000
Failure to stockpile materials in designated areas	R 10 000
Failure to take measures to control dust dispersion on site	R 10 000
Washing of vehicles on site outside of the designated bund facility	R 10 000
Pollution of water bodies, groundwater and soils	R 50 000
Failure to implement stormwater management provisions during construction	R 20 000
Failure to control stormwater run-off	R 30 000
Downstream erosion	R 30 000
Failure to provide sanitation	R 10 000
Failure to provide waste disposal facilities and services	R 50 000
Failure to reinstate disturbed areas within the specified timeframe	R 30 000
Insufficient education of staff regarding environmental matters and site housekeeping practices	R 10 000
Untidiness and litter at camp and/or work areas	R 5 000
Failure to provide drip trays and/or empty them frequently	R 10 000
Individual not making use of the site ablution facilities	R 5 000
Construction vehicles not adhering to site speed limits (40 km/hr)	R 10 000
Failure to maintain a register of incidents on site	R 10 000
Failure to maintain the Environmental File on site	R 10 000
Any contravention with approved Method Statements	R 20 000
Petty theft, petty crime, stock theft, fence cutting, trespassing	R 10 000

5. Removal from Site and Suspension of Works

Failure to remediate after the issue of a financial penalty, depending on the severity and significance of the impact related to non-compliance, the ECO must undertake to report directly to WC DEA&DP: Compliance (or if known, directly to the relevant case officer) function recommending that for:

- **High impact:** To issue a notice to cease activities, secure the site to limit further impact, and await formal indication of way forward from the competent authority;
- **Medium impact:** To issue a notice instructing the offender to halt non-compliant activities and to implement recommended remedial action(s); or
- **Low impact:** ECO to notify and request immediate rectification, but up to discretion of DEADP (or DWS, if applicable), to apply sanction.

The Developer, at the direction of the ECO, or of his own conviction, has the power to remove from site any person who is in contravention of the EMPr, and if required, the Developer can suspend part or the whole of the works, as required.

6. Applicable Documentation

The following environmental documentation is applicable for the project, and must be read in conjunction with this EMPr:

- Environmental Authorisation
- Final Basic Assessment Report (fBAR) for the Gwaing Waste Development Facility
- Linked specialist studies to the above reports;
- Any other permit and / or licence issued in respect to this project.

7. Roles and Responsibilities of proponents involved in the project lifecycle:

These parties are responsibilities for ensuring that the environmental awareness is a concept that is adhered to at every stage of the project lifecycle:

a) Project manager

The project manager is appointed by the environmental authorisation (EA) holder to oversee the establishment, operations aspects of the development lifecycle. The project manager is also responsible for ensuring that the EMPr is implemented and that the conditions within the EA are adhered to throughout the project lifecycle.

The project manager is also responsible for keeping a log of any incidents or accidents that may occur during operational hours, as well as concerns raised by interested and affected parties. It is the responsibility of the manager to relay any information of significance to the EA holder.

b) Environmental authorization holder (Applicant)

The applicant, once the EA is granted, is responsible for appointing a suitable and experienced project manager to oversee operations and operators during the project lifecycle. The holder should also communicate and conduct preliminary environmental awareness programmes, which may be relayed to the personnel, by the manager, at a later stage. The holder will also appoint the Environmental control officer to oversee operations and to report on operations on a monthly process (or as determined by the applicant).

c) Environmental control Officer (ECO)

The Independent ECO will form part of the operations staff and will share in the responsibility of monitoring operations and to ensure that the EMPr and approved EA conditions have been adhered to. The ECO will also compile a performance assessment report on a monthly basis, for the information of the applicant and will be made available to the competent authority, on request.

d) Site personnel

It is the responsibility of the site personnel to ensure that they adhere to all aspects discussed during the environmental awareness training and to report any incidents to the project manager, immediately at occurrence. They are also to wear full protective gear throughout mining operations. The project manager is to ensure that all site personnel have the necessary PPE equipment.

e) Environmental Auditor

An independent auditor should be appointed to assess the work of the ECO and project manager, as well as the alignment of practice to approved EMPr and BAR, to ensure any discrepancies are dealt with and mitigated for. The auditing report should be aligned with requirement and guidelines set out in the NEMA EIA Regulations, 2014 (as amended).

Environmental Register

The ECO will put in place an Environmental Register, note that this may form part of the overall site construction related register. The ECO will ensure that the following information is recorded for all complaints / incidents:

- Nature of complaint / incident;
- Causes of complaint / incident;
- Party / parties responsible for causing complaint / incident;
- Immediate actions undertaken to stop / reduce / contain the causes of the complaint / incident;
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint / incident;
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions;
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented; and
- Copies of all correspondence received regarding complaints / incidents.

The SHE Officer (or team member assigned this task) must maintain the Environmental Register that will:

- Contain environmental complaints and correspondence received from the public to the Contractor or ECO;
- Record and report incidents that cause harm or may cause harm to the environment;
- Record all hazardous materials used on site; and
- Maintain a record of all Waste Disposal Manifests detailing the nature of the waste disposed of, the waste classification and the location of the site to which such waste was sent.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMPr, and will be made available for scrutiny if requested by the ECO or the Principal Agent.

12. Legal Requirements

Legislation	Sections	Relates To
The Constitution (No. 108 of 1996)	Chapter 2	Bill of Rights
	Section 24	Environmental rights
National Environmental Management Act (Act No. 107 of 1998 [as amended])	Section 2	Defines the strategic environmental management goals and objectives of the government. Applies throughout the Republic to the actions of all organs of state that may significantly affect the environment.
	Section 24	Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment
	Section 28	General duty of care imposed on the developer to care for the environment and to institute such measures as may be needed to demonstrate such care
EIA Regulations (2014)	GNR 983	Activities requiring a Basic Assessment study to be undertaken
	GNR 984	Activities requiring a Scoping and Impact Assessment study to be undertaken
	GNR 985	Activities in special geographical areas requiring a Basic Assessment study to be undertaken
National Waste Act (Act No. 59 of 2008) and List of Waste Activities (October 2017)		Provides for specific waste management measures and the remediation of contaminated land
Norms and Standards for the Storage of Waste, 2013	GNR 926: Sections 7 – 20	Provides specific guidelines for the operational procedures for a facility for the storage of waste
National Heritage Resources Act (Act No. 25 of 1999) and regulations	Section 34	No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority
Legislation	Sections	Relates To
	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site

	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
	Section 38	This section provides for Heritage Impact Assessments (HIAs), not already covered under the environmental law. Where covered under such law the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The HIA is thus approved under the environmental authorisation, which must take into account the provincial heritage resources authorities' comments prior to making a decision on the HIA.
National Environmental Management Biodiversity Act (Act No. 10 of 2004)		Provides for planning and monitoring for biodiversity, identification and protection of threatened or protected ecosystems and species, and dealing with alien species and the requirement for permitting.
National Forests Act (Act No. 84 of 1998)	Chapter 3	Special measures to protect forests and selected protected trees
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Chapter 4	Mineral and environmental regulation
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	Section 34	Control of noise
	Section 35	Control of offensive odours
National Dust Control Regulations (GNR 827 of November 2013)		Control of dust.
Occupational Health and Safety Act (Act No. 85 of 1993)	Section 8	General duties of employers to their employees
	Section 9	General duties of employers and self-employed persons to persons other than their employees
National Water Act (Act No. 36 of 1998) and regulations	Section 19	Prevention and remedying the effects of pollution
	Section 20	Control of emergency incidents
	Section 21	Water uses for which a Water Use Licence is required.

Hazardous Substances Act (Act No. 15 of 1973) and Regulations		Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances
National Road Traffic Act (Act No. 93 of 1996)		Road safety

13. Maintenance of all infrastructure within 32 m of watercourse

In the case of all workings within the buffer areas of the watercourse area, the requirements shall be as per the controls for remedial works within “No Go” areas.

Routine checking of all infrastructure

All infrastructure should be checked on a regular basis for (a) blockages, (b) structural integrity issues. Dependent on the nature of the results, the standard controls within the EMPr should be imposed.

14. Method Statement Generation

In terms of the DEA&DP requirements for the development of a MMP for approval, detailed method statements for specific maintenance activities should be provided. It is however noted that at this time, such method statements cannot be supplied for all activities. A method statement is considered to be a document detailing how a particular task or activity will be carried out. Construction method statements should at minimum include the following:

- A detailed description of where the activity will be undertaken;
- What the activity will entail;
- What material and machinery to be used;
- Timeframe of the activity; and
- By whom the activity will be performed.

Work may not commence until the method statement has been approved by the ECO. Method statements must be submitted to the ECO 14 days prior to the commencement of the specific work activity.

For the proposed project, there are two types of method statements: Construction Method Statements and Environmental Method Statements.

a. Construction Method Statements

Construction related method statements are compiled by the Contractor, in consultation with his/her SHE Officer on request from the ECO or Engineer, that documents and provides specific instructions on how to perform a specific work-related task. Examples of construction related method statements include:

- Emergency Response Plans;
- Site establishment;
- Concrete Mixing; and
- Excavation Plan.

b. Environmental Method Statements

Environmental method statements are compiled by an Environmental Assessment Practitioner, in consultation with the various environmental specialists, which details control measures which should be implemented in order to ensure sound environmental management. The following method statements should be submitted to the ECO on requested. Examples of environmental method statements include:

- Topsoil management
- Waste management;
- Dust Management;
- Topsoil Removal
- Noise and Vibration Management
- Emergency Response Plan / Spill Procedure (During the Operational Phase)
- Emergency Response Plan / Spill Procedure (During the Construction Phase Phase);
- Fire Prevention and Control Measures- Firebreaks, extinguisher placement and response procedures.
- Crew Camps and Construction Lay Down Areas;
- Workshop and Maintenance / Cleaning Plant;
- Storage of hazardous materials and emergency procedures in the case of spills or leaks;
- Refuelling and servicing of vehicles and equipment.

2. Environmental Management Programme Report

2.1. Pre-Construction Phase

2.1.1. Authorisations, Permits and Licences

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All necessary authorisations, permits and licenses must be obtained by the Developer prior to the commencement of construction.	Developer	Once-off
Survey and physically peg the consolidated site boundaries, ensuring complete clearance of the eastern ESKOM/George Municipality electricity servitude and formalizing the western 32 m buffer offset from the Gwaing River or bank.	Developer/Surveyor	Once-off
Secure all required water use authorizations from the Department of Water and Sanitation (DWS) under Section 21 of the National Water Act (specifically Section 21(a) if abstracting water for operational dust suppression, and Section 21(c) & (i) for works near the watercourse)		

2.1.2. Appointment of Contractor

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
The Developer must ensure that this EMPr forms part of any contractual agreements with a Contractor(s) and sub-contractors for the execution of the proposed project. The Contractor must make adequate provision in their budgets for the implementation of the EMPr.	Developer Contractor	Once-off
The Principal Contractor (including sub-contractors and suppliers) must comply with the relevant provisions of the EMPr, applicable environmental legislation, by-laws and associated regulations promulgated in terms of these laws.		
Tender documents must include statements to include the use of local communities or local community organisation in supplying services and labour to the remedial works.		
Local labourers must be used for such methods.		
Formally appoint a registered Landscape Architect to assist the civil engineers in final landform shaping, profile rounding, and contour integration		

2.1.3. Preparation of Method Statements

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Method Statements must be submitted by the Contractor to the Developer's SHE Officer (or designated EO if a separate function) and must be adhered to by the Contractor and Resident Engineer. These relate to water and stormwater management requirements, traffic requirements, solid waste management requirements, fuel storage and filling and dispensing of fuel (diesel and petrol), hydrocarbon spills, the storage of hazardous materials, standard emergency procedures, and biohazard control.	Contractor	Once-off
The ECO will monitor the implementation of the Statements. All copies of the statements and plans must be submitted to the appointed ECO.		
A qualified ecologist must mark vegetation such as indigenous trees which are to be conserved or relocated prior to the Contractor commencing with clearing on site.		
Specify pre-earthworks drilling and construction of two additional downgradient monitoring boreholes (30 m depth, 165 mm diameter, 125 mm uPVC casing, gravel pack, bentonite seal, and protective headworks per Drawing No. 2), including aquifer pump testing and initial baseline sampling		
Establish a formal granite chemistry baseline for soil and groundwater to differentiate natural geogenic metal exceedances (Arsenic, Lead, Fluoride, Aluminium, Iron) from actual landfill leachate		
The Contractor must compile and submit detailed Method Statements to the ECO 14 days prior to earthworks, specifically for: • Riparian Blue Gum Removal & Soil Stabilization (short work windows, immediate sand compaction, downslope silt traps). • Slope Benched Contouring & Crest Rounding (1V:3H slopes with 3 m terraces) • Leachate Interception Trench & Toe Retaining Structure Construction • Wet Dust Suppression & Water Management		

2.1.4. Appointment of ECO

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
An Independent ECO must be appointed at the Developers cost to monitor the implementation of the EMPr.	Developer	Once-off
The nomination of the ECO must be given to the DEADP ³ , in writing, prior to the start of construction. The notification must include contact details for the ECO and details pertaining to the ECO's relevant experience.		
Once a nominated representative of the Developer has been approved per site, he/she will be confirmed as the ECO. As such the ECO must undertake monthly site inspections and provide monthly audit reports for the duration of the construction and rehabilitation phases. Each audit report must contain the results of the full audit. These audit results report on whether the response to the audit item is 'favourable', 'unfavourable' or 'not applicable'. 'Not applicable' answers are for those aspects of the construction that have not yet started or are not specifically applicable to the contract being considered – this will be decided on a case-by-case basis and will be regularly reviewed. Monthly ECO audit reports must be submitted to DEADP.	ECO	Once-off / Monthly
In the event that the ECO for the development change at any time, this must be communicated, in writing, to the DEA&DP, within fourteen (14) days of appointing the new ECO. The notification must include contact details for the ECO, details pertaining to the ECO's relevant experience and reasons for the change in ECO.	ECO Developer	As required

2.1.5. Notice of Construction

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
The applicant must ensure that the competent authority (DEA&DP) is notified of the intent to commence activities at least seven (7) days prior to the commencement. This aligns with the requirement to submit all necessary site plans, layout plans, and building plans for approval prior to the start of work. The notice must include a date on which it is anticipated that the activity will commence and the reference number for the EA.	Developer ECO	Once-off

2.1.6. Environmental Training and Awareness

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Construction staff must be adequately educated by the ECO, and the Contractor's EO and/or SHE Officer, as to the provisions included in the EMP, and in terms of general environmentally-friendly practice.	Developer ECO SHE Officer	Once-off
The Developer must ensure that all staff are Contractors / Sub-contractors / Suppliers / Service Providers are trained on the environmental, occupational safety and/or legal responsibilities expected from them.		
The training must take into account language and literacy requirements, as well as measures to determine the effectiveness of the training.		
Proof of training must be attached to the ECO's audit reports.		
Consideration of the implications of the EA and EMP must form part of the formal site induction for all contractors, sub-contractors and casual labourers, preferably in their native language. The induction training will, as a minimum, include the following: ▪ The importance of conformance with all environmental policies; ▪ The environmental impacts, actual or potential, of their work activities; ▪ The environmental benefits of improved personal performance; ▪ Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Consultant's environmental management systems, including emergency preparedness and response requirements; and ▪ The mitigation measures required to be implemented when carrying out their work activities.		

All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMP and environmental responsibilities by signing an induction attendance record.		
The Contractor is expected to have “tool box” talks. These talks must be in accordance with the risks and trends associated with the project. Educate all contractors, sub-contractors, and laborers during formal site induction on: • Strict 'No-Go' buffer zones (the 32 m Gwaing River buffer and ESKOM servitude). • Heritage find protocols (immediate stoppage and reporting to Heritage Western Cape / SAPS if artifacts or remains are unearthed) • Alien seed containment protocols during vegetation clearing and waste transport • Emergency spill response and fire prevention procedures Proof of these talks must be kept on site within the Site Environmental File.	SHE Officer	Weekly

2.2. Construction Phase

2.2.1. Site Establishment

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Prior to the establishment of the extension site, the Contractor will produce a site layout plan showing the positions of all equipment storage, temporary waste relocation stockpiles (to manage the approximately 992,000 m³ of surplus waste), fuel storage areas for the approval of the ECO and the George Local Municipality. This site layout plan must be negotiated and agreed upon by the Municipality, the Contractor, and the independent ECO. The construction area must be clearly demarcated on the layout plan, and all other areas—specifically the 32m NEMA-controlled buffer zone from the Gwaing River bank and the Eskom servitude—must be considered strictly no-go areas for the construction personnel. Additionally, the plan must ensure that all activities are restricted to the property boundaries to prevent the disturbance of surrounding terrestrial biodiversity features and to protect the aquatic environment from sediment or debris.	Contractor	Once-off
The contractor laydown area must be placed in an area where erven will be developed and not in an area that will be utilised in future as an open space. No material may be stored or equipment repaired beyond the boundaries of the contractor laydown area. The construction camp and storage areas must be located in zones of low visibility i.e. behind dense bush or in lower-lying areas. Adequate signage must be placed in the area where construction will take place informing the public of the activities taking place. The site must be secured and manned on a 24-hour basis. Contractor must take responsibility for the site to conform to all contractual aspects and environmental standards applicable. Contractor must provide adequate refuse bins that must be cleaned / emptied and waste removed from site on a regular basis. The construction camp must be kept in an orderly state at all times.	Contractor	Once-off

Vegetation removed for the site establishment is to be kept to a minimum. No trees are to be removed, unless specific authorisation has been obtained and with the exception of alien weeds and invader plants.		
Clear the 5 ha of invasive blue gums (Eucalyptus sp.) in short work windows. Immediately compact exposed sand and install downslope geotextile silt fencing to prevent river siltation.		
Contain cleared alien plant material during handling and transport to prevent seed dispersal.		
The Contractor must ensure that drainage on the camp site is such to prevent standing water and/or sheet erosion from taking place.		

2.2.2. Ablution / Sanitation

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
A minimum of one chemical toilet must be provided per 15 persons. The construction of "long drop" toilets is prohibited. Under no circumstances may open areas or the surrounding bush be used as toilet facilities.	Contractor	Daily
An SDC and/or waste manifest is to be obtained and kept on site.		
The chemical toilets must be strategically placed (easily accessible to workers, preferably no more than a 300 m from the work face). There are no observed NFEPA wetlands or wetlands within the 500 m regulated buffer zone.		
Chemical toilets must be secure, clean and functional throughout the maintenance period.		
All ablution activities must take place in these facilities, and the waste material must be stored and disposed of at the registered waste disposal site or collected by a suitable waste contractor on a regular basis.		
Contractor must ensure that toilets are cleaned or emptied regularly and that no spillage occurs during routine maintenance. The contents must be disposed of at a registered waste site. SDCs must be obtained and kept in the Site Environmental File.		
All temporary / portable toilets must be secured to the ground to prevent them from toppling due to wind or any other cause.		
Unauthorised dumping / spilling of waste from toilets into the environment and burying of waste are strictly prohibited.		
Ablution facilities must not cause any pollution to any water resource and it must not be a health hazard to the general public.		

2.2.3. Access

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
The site must have strict access control to reduce the risks associated with vehicular transportation and pedestrian access on the site.	Contractor	On-going
Watercourses and steep gradients must be avoided as much as possible.		
All no-go areas will be indicated as such with warning signs in all relevant languages. To date, no no-go areas were demarcated in the specialist reports.		
Adequate drainage and erosion protection in the form of cut-off berms or trenches must be provided around the sites and where necessary.		

2.2.4. Fires

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
No open fires or uncontrolled fires will be permitted on site.	Contractor	Daily
Fire-fighting measures such as fire extinguishers must be located on site.		
The workforce must be made aware of fire prevention and fire-fighting measures.		

2.2.5. Earthworks, Slopes Benched Contouring and Visual Protection

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Round all post-closure crests and ridgelines under the supervision of a registered Landscape Architect to blend landforms naturally into surrounding terrain.	Contractor / Landscape Architect	Monthly during shaping
Cut back steep, unstable 1V:1H side slopes to a stable 1V to 3H benched profile with 3 m-wide terraces along contour lines	Contractor/ Engineer	Weekly/ monthly
Keep temporary topsoil/soil mounds low (2–4 m height), apply 1:3 benched battering, screen stockpiles from the R102, and install downslope silt traps.	Contractor	Weekly

2.2.6. Vehicle Maintenance Yard

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Construct a hard concrete retaining wall structure along the landfill toe adjacent to the river to prevent slumping and watercourse erosion during high flows.	Contractor / Engineer	Ongoing during earthworks
Construct shallow interception trenches or subsurface barriers downslope near the landfill toe to capture migrating leachate prior to river ingress.	Contractor / Hydrogeologist	Monthly / Post-rainfall
Install engineered basal liners across new relocation footprints and connect the leachate collection network directly to the adjacent municipal WWTW.	Contractor / Engineer	Pre-disposal confirmation

2.2.7. Vehicle Maintenance Yard

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Heavy machinery and construction vehicles are to be stored in a vehicle maintenance yard which must be illustrated on the site layout map.	Contractor	Once-off
A dedicated maintenance area must be demarcated with an impermeable surface leading to an oil-water separator. No vehicle may be extensively repaired in any place other than in the dedicated maintenance yard – if such repairs are required the vehicle must be made safe (i.e. no leakage while being removed to the repair facility) and removed at the earliest opportunity to the repair facility. Prior to returning on site the Engineer must declare the vehicle safe to return to site.		On-going
Washing of vehicles on site is prohibited.		
The only exception is if a designated bund facility with a separator is constructed at the construction camp or vehicle maintenance yard. Such a facility must consider water recycling or water reuse options. The positioning of such a facility must be approved prior to construction by the ECO in consultation with the Engineer.		

2.2.8. Waste Disposal Areas

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
General waste produced on site includes: - Office waste (e.g. food, waste, paper, plastic); - Operational waste (clean steel, wood, glass); and - General domestic waste (food, cardboards, paper, bottles, tins).	Contractor	Daily
Prohibit the acceptance of hazardous waste at the facility and ensure aggressive sorting at the source to manage only permissible residue.		
Maintain strict access control to prevent non-permissible waste from entering the site and implement regularly maintained fencing to contain windblown litter.		
A fenced area must be allocated for waste sorting and disposal on the site, unless otherwise agreed by the ECO.		

2.2.9. 'No-Go' Areas

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Where necessary, certain areas will be demarcated as 'no-go' areas. Demarcation of these 'no go' areas must be clearly visible and understood by all employees on site. The following areas, as a minimum, will be considered 'no-go' areas: ▪ Watercourse including approved buffer area, unless specific approval has been granted; and ▪ Open space area, unless rehabilitation work is underway and/or approval has been granted for surplus fill material to be stockpiled there. ▪ Designated heritage artefacts (refer to Heritage table) must be avoided. Note that additional 'no-go' areas may be identified by the ECO at need, and will be confirmed with the Engineer. Once approved, the additional 'no-go' areas will be considered to be an extension of the already approved controls. All 'no-go' areas must be appropriately fenced and demarcated and no unauthorised entry, stockpiling, dumping or storage will be allowed in these areas. The ECO must ensure that all 'no-go' areas are demarcated prior to construction. The ECO must ensure that all employees on site are aware of these areas. Survey and physically peg the 32 m NEMA buffer line from the Gwaing River bank. Treat the entire buffer zone as a protected No-Go area Cordon off the ESKOM/George Municipality high-voltage electricity servitude to prevent heavy machinery from operating beneath overhead cables or damaging electrical support masts. Strictly restrict all physical construction activities, laydown areas, and plant movement within approved site property boundaries.	Contractor ECO	Daily

2.2.10. Health and Safety

ACTIONS AND CONTROLSRESPONSIBILITY	RESPONSIBILITY	MONITORING FREQUENCY
Contractor must adhere to the prescriptions of the relevant health and safety legislation and standards. Contractor must familiarise himself and his employees with the contents of the aforementioned legislation. First Aid requirements as required must be on hand at all times, with at least one trained medical officer must be on site at any time when work is being carried out on site. Contractor must implement adequate and mandatory safety precautions relating to all aspects of the deconstruction. Such safety measures and work procedures / instructions must be communicated to construction workers. Wearing of Personal Protective Equipment (PPE) on site is mandatory for all personnel and construction team members. Minimum requirements must include the wearing of an approved safety helmet, safety boots, and safety reflective jackets. Additional items such as safety eyewear, dust masks, ear plugs, etc. must be worn as required with the need to use such being clearly indicated in the relevant areas. PPE signs must be erected on site at the areas where it specific items of PPE are required (e.g. high noise level areas and thus ear plugs). The integrity and availability of the signs must be maintained at all times. No one may be allowed on site unless they are wearing the minimum approved safety equipment. Casual visitors will be required to sign a register at the security checkpoint and undergo a site induction by the SHE Officer. The responsible person for the visitor must then be contacted and must collect the visitor from the site entrance area / site office. No unauthorised visitors or unaccompanied visitors are to be allowed on site.	Contractor SHE Officer	On-going

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Workers' right to refuse work in unsafe conditions must be respected.	Contractor/ Developer	Ongoing
All personnel must be trained in basic site safety procedures.		
Contractor must design, test / exercise appropriate emergency preparedness programmes (i.e. plans, schedules, procedures and methods) for addressing environmental accidents, incidents and events such as spills of fuel, oil or lubricants; fires, etc.		
Developer and/or Developer's agent will carry out regular health and safety audits (minimum once monthly) on the principal contractor.		
Similarly, principal contractors must be responsible for carrying out regular audits (minimum once monthly) on their contractors.		
Results of such audits must be tabled for action and discussed at the Health and Safety Committee meetings or the site meetings, as appropriate.		
Principal contractor must provide evidence by means of a procedure or chart that he is fully aware of the "hierarchy" of incidents that can occur e.g. unsafe situations, near misses, first aid box injuries, medical cases, disabling injuries, etc.		
The principal contractor must keep an incident register of all such incidents, investigate and apply corrective action to avoid recurrence, where required.		
The Municipality also reserves the right to stop any unsafe work and request incident statistics from the principal contractor. It is thus advised that these are maintained in good order.		

2.2.11. General and Hazardous Substances and Materials

ACCESS AND CONTROL	RESPONSIBILITY	MONITORING FREQUENCY
Storage areas must not be within any watercourses or within 100 m of any drainage lines.	Contractor SHE Officer	Daily
Storage areas must be designated, demarcated and fenced.		
Storage areas must be secure, under lock and key, so as to minimise the risk of crime.		
Fire prevention facilities must be present at all storage facilities.		
Proper storage facilities for materials used during the operation and expansion of the Gwaing River Waste Disposal Facility—including oils, paints, grease, fuels, and chemicals—must be provided to prevent the migration of spillage into the ground, the saturated groundwater zone, or the nearby Gwaing River. These pollution prevention measures must include a bund wall high enough to contain at least 110% of any stored volume. Such facilities must be situated on an impervious surface, such as a concrete slab or engineered liner, and must be located strictly outside the 32-meter NEMA-controlled buffer zone from the river bank.		
In addition, these areas must be securely fenced, and all hazardous substances must be stored therein. In accordance with specialist recommendations, any hazardous waste discovered during the relocation of existing waste or generated on-site must be strictly segregated from general waste and builders' rubble for disposal at a specialized Hazardous Waste (H:H) Landfill Site		
Care must be taken to separate incompatible hazardous substances. Drip trays, concrete surfacing, or facilities with PVC lining must be installed in these storage areas to prevent soil and water pollution, thereby protecting the Gwaing River's aquatic habitat and downstream resources		
A daily procedure of inspection and emptying of dip trays must be conducted. Servicing of dip trays must be undertaken when necessary. Drip trays must be monitored closely during rainy weather and preventative measures must be implemented to ensure prevention of overflowing and/or spillage.		

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING
		FREQUENCY
The bunded area for storage of hazardous substances must have a smooth impermeable surface and the floor of the bunded area must slope towards oil traps. Any water that collects in the bund must not be allowed to stand and must be removed immediately. All fuel storage tanks and associated facilities must be designed and installed in accordance with the relevant oil industry standards, SANS codes, and other relevant requirements. Symbolic safety signs depicting "No Smoking", "No Naked Flames", and "Danger" are to be prominently displayed in and around the fuel storage area. The capacity of the tank must be clearly displayed and the product contained within the tank clearly identified. Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks (irrespective of size) must be sealed and stored appropriately in an area where the ground is protected. If fuel is dispensed from 200 litre drums, the proper dispensing equipment must be used. The drum must not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank must be stored in a waterproof container when not in use. All waste fuel and chemical contaminated rags must be stored in leak-proof containers and disposed of at an approved hazardous waste site. Storage sites will be provided with bunds to contain any spilled liquids and materials. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of stormwater from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources. MSDSs must be readily available on site for all chemicals and hazardous substances to be used on site. Where possible, the available MSDSs must additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or spillages. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures. A suitable Waste Disposal Contractor must be employed to remove waste oil. These wastes must only be disposed of at licensed landfill sites designed to handle hazardous waste. Appropriate weigh bills must be provided for all hazardous waste being disposed of	Contractor ECO	On-going

The Contractor must ensure that his staff are made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing / equipment in case of spillages or accidents and have received the necessary training.		
Cement / concrete must not be mixed directly on the ground. Cement mixing must be done on hardened surfaces or 'dagga' boards, or mixing trays and impermeable sumps must be used at all mixing and supply points. Cement mixing must be done at least 50 m away from any watercourse.		
The washing of concrete trucks on site is prohibited.		
Unused cement bags are to be stored so as not to be affected by rain or run-off events.		
Used cement bags must be stored in weather-proof containers to prevent windblown cement dust and water contamination. The bags must also be secured suitably so that they themselves do not become windborne litter.		
Used cement bags must be disposed of on a regular basis via the solid waste management system, and must not be used for any other purpose.		

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All visible remains of excess concrete must be physically removed on completion of the plaster or concrete pour section and disposed of. Washing the remains into the ground is not acceptable (i.e. dilution), as groundwater contamination could occur.	Contractor ECO	On-going
No paint products may be disposed of on site.		
Care must be taken of the storage thresholds contained in the EIA Regulations (2017) Listing Notices, as well as the Waste Management Activities contained in Categories A, B and C of the Waste Regulations of NEM:WA. If uncertain, the ECO must be consulted to confirm whether legal thresholds are being exceeded.		
The location of all Underground Storage Tanks (USTs) and/or Above-ground Storage Tanks (ASTs) must be identified on the site camp plan prior to construction commencing. The capacity of the UST/AST and the tenant responsible for it must be brought to the ECO and the DEADP's attention.		
The Contractor must maintain a record of the sourcing of all materials used during construction.		
The Mineral and Petroleum Resources Development Act must be complied with.		

2.2.12. Spills, Incidents and Pollution Control

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Any spillage, which may occur, must be investigated and immediate action must be taken according to the requirements of a Spill Contingency Plan. This must also be reported to the ECO and SHE Officer.	Developer Contractor SHE Officer	On-going
The Developer must ensure that all personnel / workers during the construction phase are appropriately trained to deal with spills / leaks or an emergency situation on site.		
In the event of a spill incident, the Emergency Response SOP must be followed. In the case of a spill of hydrocarbons, chemicals or bituminous material in the Construction camp or on the construction site / bunding area, the spill must be contained and cleaned up on discovery. The material, together with any contaminated soil, must be collected in skips or drums (dependent on quantity) and disposed of as hazardous waste to minimise pollution risk and reduce bunding capacity. SDCs must be submitted to DEADP within fourteen (14) days of its issue.		
In the event that a pollution incident occurs on site the Contractor must: ▪ Implement reasonable measures immediately to contain and minimise the impacts of the incident; ▪ Notify all persons whose health may be affected by the incident; ▪ Undertake clean up procedures immediately; ▪ Notify the Contractor of the incident immediately who will advise the employee as to the measures that must be implemented; ▪ Record the incident in the Environmental Incident Register; and ▪ Implement measures to prevent similar incidents from occurring in the future.		
Concrete mixing must be confined to as few areas as possible and ad hoc mixing is to be avoided. Areas where concrete was mixed must be cleaned up after use.		

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Concrete mixing is to be undertaken on an impervious surface.		
In the event of a significant spillage that cannot be contained and which poses a serious threat to the environment, the following entities must be informed within forty-eight (48) hours of the incident and in accordance with Section 30 of NEMA:		
- George Municipality - Department of Water and Sanitation; - Western Cape DEADP; - Local Fire Department; and - Any other affected Department.		
Soil and construction material stockpiles are to be bermed to prevent leachate and polluted run-off.		

2.2.13. Clearing and Protection of Fauna and Flora

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All of the nationally protected tree species that occur on the site and within the proposed development nodes need to have GPS co-ordinates associated with them and a licensing process with DAFF initiated and approval obtained.	Contract or Engineer ECO	Daily
Protected trees may not be removed, pruned or cut without a permit from the Department of Forestry & Fisheries (DAFF). In the event that a permit is not required from DAFF, the ECO and/or an Ecologist must approve the removal of indigenous vegetation. Any relocation undertaken must be done under the guidance of a qualified Botanist.		
The 'No-Go' Zones established, must be strictly adhered to and no vegetation may be removed from these areas.		
All remaining vegetation pockets must be demarcated as 'no-go' areas and avoided.		
Removing of vegetation must be restricted to the immediate area for construction.		
No natural vegetation on surrounding land is to be collected for use as firewood.		
No animals are to be disturbed unnecessarily and no animals are allowed to be shot, trapped or caught for any reason.		
An emergency procedure for the encounter of dangerous animals / reptiles must be compiled by the Contractor and submitted to the ECO for approval. Workers must be trained with regard to this procedure.		
Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas.		

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING
	Y	FREQUENCY
Seeds must be collected for planting in landscaped areas. A suitably trained and experienced ecologist must be employed to undertake this task prior to clearing and to provide advice on the need for the relocation of any specific species to this nursery. Seeds must be germinated and saplings replanted.		
A plant rescue programme must be undertaken prior to construction to accommodate indigenous plants that fall inside the development footprint.		
The removal of indigenous / endemic shrubs and small trees must be kept to a minimum and only be removed if absolutely necessary and where authorisation has been received where applicable.		
Where alien plants have been introduced on to the site during clearing and infilling, they must be removed. The Contractor must develop a Method Statement for the removal of alien invasive species and submit it to the ECO for approval.		
Desirable plant species, as approved by the ECO, must be planted immediately after the construction phase so that these species can establish and thus prevent large stands of infestations which become difficult to control and manage. Clear the 5 ha of invasive blue gums (Eucalyptus sp.) in short work windows. Immediately compact exposed sand and install downslope geotextile silt fencing to prevent river siltation		
Contain cleared alien plant material during handling and transport to prevent seed dispersal Invader species and weeds must be removed and disposed of in accordance with existing legislation on a regular basis.		

2.2.14. Site Establishment, Management and Erosion Control

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All SFMSs must not be located within 32 m to any watercourse area. A signboard must be placed in the area where stockpiling activities such as clearing and infilling will take place informing the public of the activities taking place. Furthermore, 'no-dumping' signs must be erected. Contractor must take responsibility for the site to conform to all contractual aspects and environmental standards applicable. The site must be cleared of all inert waste, rubble, foundations and litter, prior to and during stockpiling. The following protocols are related to soil stockpiling: ▪ Buffer Zone Compliance: All stockpiles must be located strictly outside the 32-meter NEMA-controlled buffer zone from the Gwaing River bank to prevent sediment runoff or debris from entering the watercourse. ▪ Visual Sensitivity: Stockpiles must be located away from visually sensitive edges (such as the R102 and N2 corridors) to minimize visual intrusion into the natural skyline. ▪ Servitude Protection: No stockpiling is permitted within the Eskom servitude area. ▪ Footprint Restriction: Stockpiling activities must remain within the demarcated property boundaries to avoid disturbing surrounding terrestrial biodiversity. Management and Environmental Control ▪ Height Restrictions: The height of stockpiles must be limited to reduce visual impact and prevent potential slope instability. Stockpile heights are to be guided by the recommendations contained within the Soil Resource Survey and/or Site-specific Soil Management Method Statement. Generally, 2–4 m maximum height is deemed acceptable, depending on space limitations as this sets the viable degree of the stockpile side slopes (see below). Wet soils must be stockpiled to a minimum height due to risk of compaction. ▪ Dust Suppression: Consistent dust suppression measures, such as watering or the application of binding agents, must be applied to all stockpiles and associated haul roads. ▪ Erosion Control: Stockpiles must be managed with erosion control measures to prevent sand, mud, or debris from washing into the Gwaing River during rainfall events. ▪ Invasive Species Prevention: Soil must be managed in a way that prevents the spread of invasive seeds from the site	Contractor	On-going

or during transportation.

Rehabilitation and Quality

- Topsoil Preservation: Only fresh topsoil of appropriate quality and thickness should be used for capping and revegetation during the closure phase.
- The project must prioritize progressive rehabilitation, meaning stockpiled material should be used to cover and cap waste cells as soon as they reach capacity rather than leaving large areas of waste exposed.
- A registered landscape architect should be involved in the final shaping of landforms to ensure that utilized stockpiles help create smooth, naturalized profiles that blend into the surrounding undulating terrain

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING
		FREQUENCY
- Stockpiling must consider specific recommendations found within the Soil Resource Survey and/or Site-specific Soil Management Method Statement. - A period of drying and possibly cultivation may be required in order to aerate wet soils. - Restrict the amount of water that can get into dry stockpiles during the storage period by covering stockpiles, where practicable.	Contractor	Ongoing
No large rocks or building rubble is permitted to be spoiled at these sites. If building rubble is to be spoiled, a waste management license as per the requirements of the NEM:WA will be required.		
The following protocols must be followed to stabilise stockpile areas: - As soon as practicably possible, temporary SFMSs are to be stabilised to avoid erosion and related loss of soil resources. Appropriate compaction must exist for subsoil layers, so as to avoid excessive settlement (subsidence), slumping and channelling of stormwater. - Stabilisation includes ensuring slope stability by battering embankments to 1:3 slopes. Slopes must be benched or terraced for additional stability; thus, creating platforms that run on contour and are between 2–4 m wide. - Slopes must thereafter be vegetated as the preferred means of erosion control. Note that stockpiles may only be left un-vegetated if they are to be moved within 6 months. If left un-vegetated such stockpiles must be covered in some other manner so as to ensure no wind erosion impacts. - Where a significant risk of erosion exists, suitable erosion control measures must be installed. These may include the use of: (hessian) jute matting, straw bales, and/or geotextile silt fencing. All erosion control measures must be installed according to best practice, and must suit the intended purpose of holding back run-off in areas prone to erosion. - In principle, water must be allowed to collect long enough behind erosion controls, to allow sediment to settle out of suspension. As such, careful design consideration must be given to the implementation of adequate stormwater control measures on these sites.		

2.2.14.1. Rehabilitation and Maintenance

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Rehabilitation must be undertaken as per the requirements of an approved Rehabilitation Plan.	Contractor Developer	Weekly
A period of one year must be allowed for following practical completion, unless otherwise specified.		
Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas must be fenced off to prevent vehicular, pedestrian and livestock access.		
Delay the re-introduction of spoil material to all rehabilitation areas until an acceptable level of re-vegetation has been reached. Fencing may be used, or the area may be covered by branches.		
Re-vegetation must match the vegetation type which previously existed, unless otherwise indicated in the Contract or specified by the ECO.		
Base the new carrying capacity of rehabilitated land on the status quo rather than the regional estimate.	Contractor Developer ECO	Post-closure
Water all transplanted, planted and grassed areas.		
Watering must, commence and continue immediately after the seeds have germinated and growth begins.		
Mow lawns regularly to a height of 50 mm above ground level. This promotes adequate coverage.		
Mowing of veld grass is to take place once a year after the grass has shed its seed and not before the grass has fully grown.		
Where mechanical mowing is not possible, an approved method of cutting grass by hand (e.g. by scythe) may be used.		
Prune trees and shrubs at end of winter to stimulate growth, avoid pruning during the growing season as this stunts growth.		
Control weeds by means of extraction, cutting or other approved methods.		
For planted areas that have failed to establish, replace plants with the same species as originally specified. The same species as originally specified must be used unless otherwise specified by the ECO.		
A minimum grass cover of 80% is required, and individual plants must be strong and healthy growers at the end of the Maintenance Period.		
In the case of sodding, acceptable cover entails that 100% cover is attained by the specified vegetation.		
Rehabilitation Work are to be spread with additional topsoil, ripped to a depth of 100 mm and re-planted, re-sodded, re-hand sown or re-hydroseeded.		

2.2.15. Air Quality

2.2.15.1. Pollution Management and Odour Control

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Any oil containing equipment or containers must be managed in a suitable manner so as to avoid oil exposure to atmosphere – the aim being to limit evaporation of volatiles to atmosphere.	Contractor	Daily
Odours from chemical toilets and waste must be managed. Toilets must be serviced regularly to ensure no spillages from overfilling, and to ensure minimal odour generation. Chemical toilets must be cleared and cleaned at least weekly.		
Removal and disposal of litter and debris must be undertaken during periods of high ventilation.		
No fires (for cooking or heating) are to be allowed on site. Cooking and heating alternatives for staff must be organised.		
Vehicles must be maintained to avoid excessive emissions and smoke. Similarly, equipment must be serviced on a regular basis to ensure acceptable emission levels and no leakages of hazardous substances. It is reiterated that all plant equipment when parked must use drip trays if any leakages are found to occur.		

2.2.15.2. Dust Control

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Dust track-on from disturbed areas to paved road surfaces must be avoided by using one of the following measures to:	Contract or SHE Officer ECO	Daily
- Road sweeping. - The suitable use of chemical dust suppression or a biodegradable soil stabilising agents must be investigated for use on disturbed areas to reduce the amount of dust where water suppression is inadequate. - Wet suppression to the roads using a light spray of water with / without a dust suppressant. - The quantities of dust suppressant / water used must not result in run-off, erosion and/or muddied areas. - Any usage of water must be efficient and must ensure minimal usage.		
Vehicles transporting sand or finer grained materials must be covered to prevent dangers / nuisance to other road users.		
If water is abstracted from a water resource for dust suppression, a Water Use Licence / General Authorisation must be obtained from the DWS prior to first abstraction.		
Dust liberated to atmosphere must not reduce the visibility for private vehicles making use of the road passing by the site.		
All construction vehicles and equipment are to be kept in good repair.		

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING
		FREQUENCY
Dust liberated to atmosphere must not reduce the visibility for vehicles making use of the road passing by the site.	Contractor ECO	On-Going
Shade cloth fencing is to be used to reduce dust aggravation.		
Remedial works are to be contained to reasonable hours during the day avoiding periods of sunrise and sunset.		
In areas where there is a large potential for dust liberation (high wind days) wet suppression using a light spray must be applied to the areas in question.		
Surplus fill material sites and stockpiles must be positioned such that they are not vulnerable to wind erosion.		
A dust suppression registers as well as a complaints-register needs to be kept.		
All complaints received need to be investigated with remedial action taken communicated to the affected party within 14 days.		
Speed limits of a maximum of 40 km/hr are to be implemented on site and enforced by the Contractor.		
Comply strictly with Section 21 (a) NWA requirements if water is abstracted from public watercourses for dust suppression.		

2.2.16. Waste Management

2.2.16.1. General Waste

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
General waste produced on site includes: - Office waste (e.g. food, waste, paper, plastic); - Operational waste (clean steel, wood, glass); and - General domestic waste (food, cardboards, paper, bottles, tins).		
An adequate number of general waste receptacles, including bins must be arranged around the Construction Camp, on site to collect all domestic refuse, and to minimise littering.		
Bins must be clearly marked and lined for efficient control and safe disposal of waste.		
Different waste bins, for different waste streams must be provided to ensure correct waste separation.		
A fenced area must be allocated for waste sorting and storage on the site prior to disposal. Access control to this area must be properly managed.		

General waste produced on site is to be collected in skips for disposal.	Contractor	Daily
Hazardous waste is not to be mixed or combined with general waste earmarked for disposal.		
No general waste is to be disposed of at the spoil area.		
Under no circumstances is waste to be burnt or buried on site.		
The excavation and use of rubbish pits on site is forbidden.		
Waste bins must be cleaned out on a regular basis to prevent any windblown waste and/or visual disturbance.		
All general waste must be removed from the construction areas on a daily basis and disposed of in suitable waste receptacles at the Construction Camp.		
Compact waste daily, apply suitable soil cover, and maintain boundary catch fencing to trap windblown litter and prevent spontaneous fires		
The Contractor must ensure that all general waste is disposed of appropriately. Through exploring practical means for reducing, reusing and recycling waste generated in undertaking the activity, the Contractor must dispose of the minimum amount of waste possible.		
Any form of waste material and rubble generated during construction must be removed at the site and disposed of at a registered in terms of section 20(b) of the NEM:WA (Act No. 59 of 2008), if it cannot be responsibly reused or recycled on site. No waste material may be buried (for the sole purpose of final disposal) or burnt. The contractor responsible for the removal of the rubble and waste must supply the applicant with a certificate indicating safe disposal. Within fourteen (14) days of its issue, a copy of the safe disposal certificates must be forwarded to: <i>The Assistant Manager, Compliance, Monitoring and Enforcement Component, DEADP</i>		

Hazardous and Industrial Waste

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Hazardous waste produced on site includes: - Oil and other lubricants, diesel, paints, solvent; - Containers that contained chemicals, oils or greases; and - Equipment, steel, other material (rags), soils, gravel and water contaminated by hazardous substances (oil, fuel, grease, chemicals or bitumen). Hazardous waste is to be disposed of responsibly. Strictly segregate any hazardous waste unearthed during waste relocation from general waste/rubble and haul it to a licensed Hazardous (H:H) landfill facility Hazardous waste bins must be clearly marked, stored in a contained area (or have a drip tray) and covered (either stored under a roof or the top of the container must be covered with a lid). A hazardous waste disposal certificate must be obtained as evidence of correct disposal and kept on site within the Site Environmental File. Kindly note: - Transport of hazardous materials must be done in accordance with legislative control; and - Relevant SABS Codes of Practice must be adhered to.	Contractor	Daily

2.2.17. Traffic and Safety

2.2.17.1. Lane Closures

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Temporary loading and off-loading areas and holding of construction vehicles must be designed prior to waste relocation and site establishment to ensure that the most preferable access and haulage routes has been identified.	Contractor	Daily
Road signs for all lane closures to be done in accordance to the South African Road Traffic Signs Manual (SARTSM, 1999).		
Construction routes must be clearly defined.		
Disruption to the peak traffic periods (i.e. 06h00 – 9h00 and 15h00 – 18h00) to be minimised or if possible avoided.		

2.2.17.2. Pedestrian Protection

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Pedestrians to be protected from waste relocation and site establishment at all times.	Contractor	Daily
Pedestrian conflict with site access and construction vehicles to be managed by traffic officer.		
The construction site camp must remain fenced for the entire construction period.		

2.2.17.3. Construction Vehicles

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Access of all construction and material delivery vehicles must be strictly controlled.	Contractor	Daily
Holding of all construction vehicles to be controlled to ensure that through traffic is not unnecessarily impeded.		
Vehicles and equipment must be serviced regularly to avoid the contamination of the area from oil and hydraulic fluid leaks etc. Any emergency services that need to be done on site must be done under the supervision of the site agent. If there are significant issues with any vehicles that require major servicing – this must be carried out off-site.		
Servicing of vehicles must be done off-site.		
All speed limits must be adhered to.		
Machinery or equipment used on site must not constitute a pollution hazard in respect of the above substances. The Contractor must order such equipment to be repaired or withdrawn from use if they consider the equipment or machinery to be polluting and irreparable.		
Suitably covered receptacles must be available at all times and conveniently placed for the disposal of waste. All used oils, grease or hydraulic fluids must be placed therein and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.		

2.2.17.4. Road Maintenance

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Contractors must ensure that any damage to the pedestrian walkway or holding areas are maintained in good condition by attending to any damages (e.g. road signs or stormwater damage, etc.) as soon as these develop.	Contractor	On-going
If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have spilt.		
All temporary road signs to be removed and pavement reinstated at completion of works. All covered road signs to be reinstated.		

2.2.18. Noise

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Neighbouring landowners must be notified about waste relocation and site establishment at least 48 hours prior to commencement of activities.	Contractor	Daily
All construction vehicles and equipment to be kept in good repair and must be fitted with standard silencers prior to construction. Where possible, stationary noisy equipment (e.g. compressors, generators) must be encapsulated in acoustic covers, screens or sheds. Portable acoustic shields must be used in the case where noisy equipment is not stationary (e.g. drills, angle grinders, chipping hammers). Waste relocation and site establishment, and particularly the noisy ones, are to be contained to reasonable hours during the day and early evening. Machines in intermittent use must be shut down in the intervening periods between work or throttled down to a minimum. In general, operations must meet noise standard requirements of Occupational Health & Safety Act (Act No. 85 of 1993). Construction staff working in areas where 8-hour ambient noise levels exceed 85 dBA must wear ear protection equipment. Noise levels must be kept within acceptable limits. All noise and sounds generated must adhere to SANS 10103 specifications for maximum allowable noise levels for central business districts. No pure tone sirens or hooters may be utilised except where required in terms of SANS standards or in emergencies. Noisy operations must be combined so that they occur where possible at the same time. Noise from labourers must be controlled. Workers must be educated regarding the minimisation of noise levels on site. Noise suppression measures must be applied to all construction equipment. Construction equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. If vehicles or equipment are not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from site. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour must be transported to and from the site by the Contractor or his sub-contractors by the contractors own transport. Waste relocation and site establishment are to be contained to reasonable hours during normal working hours. Neighbours are to be given at least three (3) days warning prior to any blasting, piling or other 'noisy' activities.	Contractor ECO	On-going

2.2.19. Heritage

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Contractors and workers must be advised of penalties associated with unlawful removal of cultural, historical, archaeological or paleontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51(1).	Contractor	On-going
If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately. The point of discovery must be demarcated and the matter must be reported to the local police station and Heritage Western Cape for investigation.		
The contractor must take reasonable precautions to prevent any person from removing or damaging any such article and must immediately, upon discovery thereof, inform the Construction Engineer.		
Work may only resume once clearance is given in writing by the archaeologist and/or Heritage Western Cape.		
Protocol to follow if an artefact is encountered – note this is key if what are believed to be human remains are found: Human remains can occur anywhere on the landscape as there are numerous lost cemeteries and graves that are no longer marked. Should human remains be accidentally unearthed, it is requested that the find-site is immediately cordoned off and the matter reported to:		

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
- Heritage Western Cape, - Local police (i.e. SAPS), and - An archaeologist. These specialists will determine if the remains are a formal grave, a prehistoric burial or a victim of crime, as well as the best way to mitigate the find. It is recommended that the archaeologist be contacted immediately and if they can come to site then, rely on their input thereafter.	Contractor	On-going

2.2.20. Social Considerations

ACTIONS AND CONTROL	RESPONSIBILITY	MONITORING FREQUENCY
Working hours are restricted to daylight hours. Must work be required after these hours, the ECO must be notified and any person who resides in close proximity to the site and who may be impacted upon by the disturbance must also be notified. All neighbouring landowners and those that are disturbed due to waste relocation and site establishment are to be notified of waste relocation and site establishment and provided with regular feedback on the status of construction. The Contractor is to arrange for a suitable candidate to assist with the appointment of local labour and assist with labour disputes. Due to the concentration of a workforce in the area over the construction period, the contractor must implement an HIV/AIDS Awareness Programme on site. The contractor must appoint an HIV/AIDS Awareness Officer for the duration of the construction period. Activities for HIV/AIDS awareness and prevention will be broad based, targeting both individuals and groups. They may consist of: ▪ Information posters in public places both on and off site (eating places, bars, guest houses, etc.); ▪ Peer educators (reference people) drawn from the local labour force and trained in HIV/AIDS issues for discussions with colleagues (estimate 1 per 30 employees); ▪ Small focus group discussions and information covering key issues must be held; ▪ Inclusion of HIV/AIDS activities at site meetings and other discussions; and Voluntary Counselling and Testing. Education will cover: ▪ Stigma and discrimination issues; ▪ Preventative behaviours including partner reduction, condom use, and awareness and importance of treatment of STDs; ▪ Skills including negotiating safer sex, correct condom use, purchase without embarrassment; and ▪ Referral to local health centres and services available.	Contractor	On-going

2.2.21. Incidents Management

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Types of incidents: ■ There are two types of incidents: ○ The first type is a reportable incident. A reportable incident is defined according to NEMA Section 30 as an ‘unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of detriment to the environment, whether immediate or delayed’. A reportable incident is also, according to NWA Section 20, any incident or accident in which a substance (a) pollutes or has the potential to pollute a water resource; or (b) has / is likely to have a detrimental effect on a water resource. ○ The second type of incident is a general incident and it is defined as a minor incident or non-conformance to the Construction Environmental Management Plan that is confined to the construction area and/or has minimal impacts on the environment with no long-term effects. If a reportable incident occurs on the site, an incident report must be completed by the SHE Manager and checked by the ECO who will then be responsible for submitting the incident report to DEADP.	Contractor ECO	On-going

2.2.22. Reporting & Record Keeping

2.2.22.1. Complaints Register

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Complaints received must be registered and recorded by the contractor and also brought to the attention of the contractor. Both parties will respond accordingly. The following information must be recorded in the case of any complaint / incident: - Time, date and nature of complaint; - Response and investigation undertaken; and - Corrective and preventative actions taken and by whom.	Contractor	On-going
All complaints received will be investigated and a response is to be given to the complainant within 7 days.		

2.2.22.2. Environmental Incidents Register

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All environmental incidents occurring on the site will need to be recorded in an Environmental Incident Book and brought to the attention of the ECO. The following information must be provided: - Time, date and nature of complaint; - Response and investigation undertaken; and - Corrective and preventative actions taken and by whom.	Contractor	On-going

2.3. Post-Construction / Operational Phase

2.3.1. Contractor's Site Establishment Area

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All structures comprising the site establishment area are to be removed from the site and surrounding areas, including all chemical toilets and ablution facilities.	Contractor Developer	Post-Construction
The area that previously housed the site establishment structure is to be checked for spills of substances (e.g. oil, paint, diesel) and these must be cleaned up.		
All hardened surfaces within the establishment area must be ripped, all imported materials removed, and the area must be topsoiled and re-grassed according to the re-vegetation specifications provided by the Developer's landscaper.		
The Contractor must arrange the cancellation of any temporary services timeously.		

2.3.2. Materials and Infrastructure

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
All residual stockpiles must be removed to spoil or spread on site as directed by the Developer and/or Engineer.	Developer Engineer Contractor	Post-Construction
All leftover building materials must be returned to the depot or removed from the site.		
The Contractor must repair any damage that the construction works has caused to neighbouring properties.		
Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Developer.		

2.3.3. Waste Reception, Daily Cover and Litter Control

Specific Management Action & Mitigation Measure	Responsibility	Monitoring & Frequency
Maintain strict access control at the gate to prohibit non-permissible or hazardous waste from entering the facility. Compact waste daily and apply suitable soil cover to prevent windblown litter, pest attraction, and spontaneous rubbish fires. Maintain boundary catch fencing to trap windblown litter.	Contractor / Site Manager	Daily site checks by Contractor and SHE Officer

2.3.4. Air Quality & Dust Suppression

Specific Management Action & Mitigation Measure	Responsibility	Monitoring & Frequency
Maintain continuous wet dust suppression on unpaved haul roads, access corridors, and active working faces using water tanker trucks fitted with sprayers. If water is abstracted from public watercourses for dust suppression, secure a Section 21(a) Water Use License under the National Water Act.	Contractor / Developer	Daily operational monitoring; keep a dust suppression register

2.3.5. Leachate & Stormwater Management and Water Monitoring

SPECIFIC MANAGEMENT ACTION & MITIGATION MEASURE	RESPONSIBILITY	MONITORING & FREQUENCY
Collect leachate generated within active cells and pump it directly to the adjacent municipal Wastewater Treatment Works (WWTW) for co-processing prior to discharge.	Contractor / Municipal Civil Engineer	Weekly stormwater and leachate drainage checks
Maintain upper-slope stormwater diversion berms and paved/armoured channels to direct clean surface runoff away from active waste cells.		
Conduct quarterly groundwater sampling across all existing monitoring boreholes to track seasonal quality variations.	Qualified Hydrogeologist / Aquatic Specialist	Quarterly sampling and reporting to DWS
Conduct quarterly surface water sampling in the Gwaing River, aligning sampling dates with groundwater events to assess dry-season baselines and post-rainfall dilution effects.		

2.3.6. Noise Control & Vehicle Maintenance

SPECIFIC MANAGEMENT ACTION & MITIGATION MEASURE	RESPONSIBILITY	MONITORING & FREQUENCY
Keep all heavy machinery and vehicles in good mechanical repair and fit them with standard silencers.	Contractor / Site Agent	Ongoing vehicle inspections
Restrict noisy operations to standard daytime hours and shut down idling machinery between work periods.		
Conduct vehicle servicing off-site or within a dedicated bunded maintenance yard equipped with an oil-water separator.		

2.3.7. *Public Complaints Register*

SPECIFIC MANAGEMENT ACTION & MITIGATION MEASURE	RESPONSIBILITY	MONITORING & FREQUENCY
• Maintain a formal site complaints register to log public concerns regarding dust, litter, or noise. • Investigate every complaint and provide a formal response and corrective action tracking within 7 to 14 days.	George Municipality / Site Manager	Ongoing complaint log tracking

2.4. REHABILITATION, CLOSURE AND POST-CLOSURE PHASE

2.4.1. Rehabilitation

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Developer is responsible for compliance with the provisions for Duty of Care and Remediation of Damage in accordance with Section 28 of NEMA.	Contractor Engineer Developer ECO	Post-Construction
All remaining construction materials, building rubble and waste are to be removed from the site.		
All disturbed surfaces compacted by waste relocation and site establishment including the ablutions and loading areas must be ripped to a minimum depth of 30 cm to allow organic contaminants to breakdown and promote vegetation establishment.		
Locally appropriate indigenous vegetation must be included in the landscape for the site.		
A Rehabilitation Plan must be compiled and complied with. All recommendations included in this Plan are to be adhered to.		
Final rehabilitation must be completed within a period specified by the Engineer.		
Rehabilitation of the river corridor must be done in accordance to an approved Rehabilitation Plan.		
A minimum buffer of 30 m must be established along the watercourse aside from the designated work areas		
The site and surrounding areas is to be cleared of all litter.		
Surfaces are to be checked for waste products from activities such as concreting or asphaltting.		
All embankments are to be trimmed, shaped and replanted to the satisfaction of the ECO.		
The Contractor is to check that all watercourses are free from building rubble, spoil materials and waste materials.		
All areas that disturbed by waste relocation and site establishment (including construction camp area) must be cleared of alien vegetation.		

2.4.2. Site Closure

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
A meeting is to be held on site between the Developer and the ECO to approve all remediation activities and ensure that the site has been restored to a condition acceptable to the ECO and the Developer.	ECO Developer	Post-Construction
A site close-out audit is to be undertaken by the ECO prior to handover of the site by the Contractor.		
The post-construction audit report must be submitted DEADP: Control Environmental Officer: Compliance Monitoring and Enforcement, within thirty (30) days of the completion of construction.		

2.4.3. Monitoring and Maintenance

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
An 'as-built' layout plan must be submitted to the DEADP within sixty (60) days of completion of construction.	Developer	Once-off
The conditions of development must be monitored for a period of three years after the development is complete to ensure: - Erosion is controlled; - The stormwater run-off measures are working; - An Environmental Complaints Register must be kept detailing complaints received, date, response and action taken; - Any maintenance where intrusive works are necessary must adhere to mitigation measures put in place in the EMP; and - Where such measures are impractical due to the nature, duration and extent of maintenance works, a maintenance method statement must be developed prior to maintenance works being undertaken.		Annually
		On-going
- Conduct annual soil sampling at hotspots (SS8, SS9) and downslope compliance points (SS10, SS11), tracking concentrations of Arsenic (As), Lead (Pb), Fluoride (F), Aluminium (Al), Iron (Fe), and Total Organic Carbon (TOC) - Establish a weathered granite chemical baseline to distinguish natural geogenic metal background levels from landfill leachate	Qualified Hydrogeologist	Annual soil audits reported to DEA&DP and DFFE
- Continue quarterly groundwater sampling across existing boreholes and two new downgradient monitoring boreholes (drilled to 30 m depth with 165 mm diameter, 125 mm uPVC casing, gravel pack, and bentonite seal per Dwg No. 2) - Deploy Microbial Source Tracking (MST) for human genetic markers and Geochemical Fingerprinting downstream exceedances occur to differentiate WWTW effluent from landfill leachate	Qualified Hydrogeologist/ SANAS Lab	Quarterly groundwater sampling; (event-driven testing may be required)

2.4.4. Architectural and Design Controls

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
The following architectural and design controls forming part of the design: - In the event that street lights are required, fittings that focus the light toward the ground and prevent light spill (outside of the road and sideway area) must be utilised. These should make use of low energy / energy efficient lighting as far as possible. - Preferential use of locally sourced resources which are obtained in an environmentally sustainable manner. - Use natural colours or natural materials. - Non-reflective materials must be utilised where possible. If not used, this must be motivated.	Developer	On-going
- Conduct monthly visual and erosion inspections during active closure, quarterly vegetation audits during establishment, and annual post-closure visual/erosion audits for at least 3 years post-handover - Maintain the post-closure capped landform and toe retaining structure in perpetuity	George Municipality/ ECO	Monthly during closure, annually for 3 years post closure