BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:	
NEAS Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014 as amended, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for. This report is current as of 1 OCTOBER 2022. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority

2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

6. This report must be handed in at offices of the relevant competent authority as determined by each authority **unless indicated otherwise by the Department**.

7. No faxed or e-mailed reports will be accepted **unless indicated otherwise by the Department**.

8. The report must be compiled by an independent environmental assessment practitioner (EAP). The EAP must satisfy conditions 11 below.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

11.1 The Environmental Assessment Practitioner (EAP) must be registered in terms of S24H Regulations with the Registration Authority EAPASA as from 8 August 2022.

11.2. S24H (14) states that "only a person registered as an Environmental Assessment practitioner may perform tasks in connection with an application for an environmental authorisation contemplated in

(a)Chapter 5 of the Act read with the Environmental impact Assessment Regulations.

(b)Section 24G of the Act

(c) Chapter 5 of the National Environmental Management Waste Act 2008 (Act No 59 of 2008) read with the Environmental Impact Assessment Regulations

11.3. Tasks in regulation 14 may only be conducted by an EAP that is registered

11.4. Regulations 20 of S24H indicates the offences and penalties as indicated below:

"*20. Offences and penalties*

(1) A person is guilty of an offence if that person-

(a) contravenes regulation 14 of the Regulations; or

(b) pretends to be a registered environmental assessment practitioner or registered candidate environmental assessment practitioner.

(2) A person convicted of an offence in terms of subregulation (1) is liable to the penalties contemplated in section 49B(3) of the Act.". Section 49B(3) of the Act states:

"A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment.".

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	YES	**NO X**

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail

Project history

The proposed project (grit and sludge washing facility) was granted an environmental authorisation (EA) had by the Department of Economic Development Environmental Affairs and Tourism (DEDEAT) in 2018 (DEDEAT ref: ECm1/C/LN1&3/M/09-2018). The EA has lapsed as construction did not commence within the required timeframe. A new application for EA is being undertaken noting that the facility design has not changed significantly and the preferred layout remains the same between the previous submission.

Activity Description

The Nelson Mandela Bay Municipality (NMBM) and various contractors undertake maintenance and cleaning operations on sewage pump stations, sewer lines and inlet works at waste water treatment works. These activities generate sewage grit and sludge. The NMBM lacks accurate records for the volumes of grit and sludge generated by these activities, but a preliminary investigation undertaken by Lukhozi Consulting Engineers (Lukhozi) in 2011 estimated that at least 30m^3 of grit is generated in the NMBM daily. This figure does not take into consideration sludge originating from septic tanks. It is anticipated that the total grit available for treatment is higher than 30m^3 per day once all the service providers who are undertaking cleaning of sewage infrastructure are taken into consideration. Samples of the grit and sludge were taken in 2011 and sent to two independent laboratories for analysis. The grit and sludge was classified as hazardous waste.

The grit and sludge is currently disposed of at the NMBM's two landfill sites, Arlington and Koedoeskloof. These landfill sites are only licensed to accept general waste. The Department of Environmental Affairs (DEA) (now the Department of Forestry, Fisheries and the Environment) issued a waiver to the NMBM in 2011 which permitted the NMBM to dispose of grit at the municipal general waste landfill sites on the condition that if has first been washed. At present there are no facilities available for the washing of large quantities of grit generated in the NMBM. The NMBM is therefore unable to comply with the waiver issued by DEA.

A feasibility assessment was undertaken in 2017 by Lukhozi to compare the option of disposing of grit at the privately owned Aloes waste management facility, a hazardous waste landfill site (H:H site) versus the construction of a grit washing facility and disposal of grit at the NMBM's general waste landfill sites. The feasibility study calculated the costs of the two options over a 25 year period. The cost for the construction, maintenance and operation of a grit washing facility was calculated as R 87,204,651, while the cost for disposal of grit at the Aloes facility was calculated as R 162,197,343. The recommendation of the feasibility was therefore that a grit treatment facility be constructed.

A Traffic Impact Assessment (TIA) was undertaken in September 2017 to determine how developing such a facility at the proposed location would impact the traffic along John Tallant road and Grahamstown road. The TIA recommended that the existing four lane John Tallant Road cross-section be extended to Grahamstown Road to prevent delay caused by vehicles entering the facility to eastbound traffic on John Tallant Road. Thus upgrades to the John Tallant / Grahamstown road intersection have been proposed as part of this project.
An updated TIA (EAS, 2023) was undertaken as part of this basic assessment process.

Facility Location

The proposed location of the grit and sludge washing facility is opposite the entrance of the Fish Water Flats Waste Water Treatment Works (WWTW) on erf 419, Swartkops. The facility will be accessed via the John Tallant road. The centre of the site is approximately 33°52'58.80"S, 25°36'55.64"E. Road upgrades are proposed at the John Tallant / Grahamstown road intersection, with the middle point being approximately 33°52'51.37"S, 25°36'53.30"E.

Figure 1. Locality Plan

Facility Design

The grit washing facility will consist of the following components and infrastructure:

1. Grit washing facility

A Huber Technologies treatment facility is proposed, which has capacity to treat approximately 55m3 of a grit and sludge mixture (50% grit and 50% sludge/ wastewater) per hour.

The grit washing facility will consist of the following structures:

- 10 m long x 5 m wide x 3 m deep reinforced concrete structure for the acceptance bin and drum washer.
- 20 m long x 20 m wide x 4 m high structure to house the grit washer classifier, Skip 1 and Skip 2, electrical control equipment, office, storage and ablutions consisting of a raft foundation with load bearing face brick walls and concrete roof.
- 5 m long x 5 m wide x 3 m high access control / security / weighbridge control building consisting of a raft foundation with load bearing face brick walls and concrete roof.
- 20 m long x 10 m wide reinforced concrete structure for the entry and exit weighbridge.
- 10 m long x 10 m wide x 4 m high undercover area for the storage of skips consisting of concrete columns with bases and a concrete roof.

The mechanical and electrical equipment required will consist of:

- Acceptance bin (ROSF 7), drum washer (ROSF 9), sump pump, grit washer classifier (ROSF 4) mechanical equipment and associated electrical motor control centre, cabling, etc. as proposed by Huber Technologies.
- Entry and exit weighbridges, with associated electronic sensors and control equipment.
- Ventilation for the main structure.
- Area lighting and general internal power points, lighting, and electrical equipment.
- Pumping equipment including all controls and electrical equipment for the treated effluent supply consisting of two pumps. One pump for the treatment process and one pump for washing of vehicles and collection of treated effluent.

2. Roadworks for access road and Hardstand

- The facility will require the following roadworks / hardstand infrastructure:
- 7 m wide, 75 m long concrete block paved access road from John Tallant Road to the access control point.
- Widening of the eastern side of John Tallant Road by the addition of two extra lanes, each with a total width of 7.4 m and 110 m long from the entrance to Fish Water Flats Waste Water Treatment Works to the Grahamstown Road intersection and extension of the existing culvert beneath John Tallant Road to the east by approximately 10m to accommodate the additional lanes.
- Construction of a slip lane 14 m wide (at the widest point) on the north-east of the intersection and a slip lane 25 m wide (at the widest point) south-east of the intersection. Development of three rest bays approximately 4 m wide and 40 m long near to the intersection.
- The western side of John Tallant Road also requires upgrades in the future and could potentially be included in the contract for the development of this facility.
- 2400 m² concrete block paving for internal access roads and hardstand areas.

3. Stormwater Management

The stormwater runoff will be spilt into two categories namely, contaminated and uncontaminated stormwater. The stormwater originating from the hardstand area at the disposal point is anticipated to be contaminated with some spillage of waste water when trucks off load the sludge and grit. The affected area is small (10m x 20m) and covered; therefore, the stormwater runoff will be negligible and will be diverted into the municipal sewer. The balance of the stormwater originating from the remainder of the access road and hardstand areas are anticipated to be uncontaminated. The road and hardstand areas will be designed to allow for overland flow of stormwater with multiple discharge points in order to minimise the concentration of stormwater runoff. The main structure and equipment of the facility's structure and equipment will be construction at a height above the 1:50 flood level.

4. Treated Effluent Supply

The treatment facility will use treated effluent from the Fish Water Flats WWTW to wash the grit and sludge. The following infrastructure will be required to provide a supply pipeline for treated effluent:

- 250 mm diameter connection to the existing 1350 mm diameter industrial outfall to the Paapenkuils canal.
- 3 m long x 3 m wide x 3 m deep reinforced concrete structure to house two pumps.
- 50 m long, 50 mm diameter HDPE PE100 PN 10 pipeline to connect the sump to the treatment facility.
- The treated effluent demand for the treatment process is approximately 120 kilolitres per day.
- 120 m long, 160 mm diameter HDPE PE 100 PN10 pipeline to connect wash hydrants and treated effluent collection points.
- The maximum treated effluent demand for flushing of raw waste disposal vehicles and treated effluent collection vehicles is 1.5 mega litres per day.

5. Potable Water Supply

Potable water will be required at the facility for general domestic use and ablutions. The following infrastructure will be required. The facility will require a 100 m long, 32 mm diameter HDPE PE100 PN10 water connection with a water meter for potable water for general domestic use for ablutions.

6. Sewer Connection

The facility will require the following sewage connections:
- 30m long, 110mm PVC-u Class 34 sewage pipe and connection to the Kwazakhele outfall sewer for ablutions.
- 30m long, 200mm PVC-u Class 34 sewage pipe and connection to the Kwazakhele outfall sewer for treatment process wash water with a maximum discharge rate of 16 l/s.

7. Fencing

The facility will require approximately 400m of 2.1m high, high security fencing around the entire perimeter, ClearVu or BetaFence or similar. The fence will not extend to the eastern boundary. A 25m corridor will be left unfenced to allow access to the existing pipelines in this corridor for future.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative.

(a) the property on which or location where it is proposed to undertake the activity.

1. Site Selection

Three potential sites were considered for the grit and sludge treatment facility in this application and the previous application.

1. Erf 419, Swartkops. Opposite the entrance to Fish Water Flats Waste Water Treatment Works;
2. Old Bucket Washing Facility within Fish Water Flats Waste Water Treatment Works; and
3. Brickfields Pre-treatment Works.

The site opposite the entrance to Fish Water Flats Waste Water Treatment Works; is the preferred and only current viable locality for the grit and sludge treatment facility. The details of each alternative site are discussed below.

Erf 419, Swartkops. (Preferred) Opposite the entrance to Fish Water Flats Waste Water Treatment Works.

This site is owned by the NMBM and is situated on the remainder of erf 419, Swartkops. The centre of the site is approximately 33°52'57.56"S; 25°36'55.12"E. The site is an undeveloped portion of land south of John Tallant Road and east of Grahamstown road. Access to the site is available from John Tallant Road (M3).

Although the site is undeveloped it has been altered by past construction activities; there is a derelict bucket washing facility on site; an informal access road has developed from the construction of bulk pipelines; and it appears that historically sections of wetlands on site have been filled with soil and construction waste.

There are multiple existing services cross the site. These services do not however interfere with the proposed development footprint. A stormwater earth drain / channel is situated along the western boundary of the site, effectively occupying a strip of land 40 m in width along the entire western boundary. This earth drain has formed a degraded wetland.

Four existing bulk sewer pipelines and one proposed bulk sewer are situated along the eastern boundary of the site occupying a width of approximately 25 m along the entire eastern boundary. One of the existing sewer pipelines is the Paapenkuils industrial outfall sewer which discharges treated effluent to the Paapenkuils River. A connection to the Paapenkuils industrial outfall sewer will be provided to supply the facility with treated effluent water. Potable water, sewer and electrical connections can easily be provided at this site as there are existing services nearby.

Old Bucket Washing Facility Within Fish Water Flats Waste Water Treatment Works

This site is owned by the NMBM and is situated on erf 419 Swartkops. The existing bucket washing facility is located within the Fish Water Flats Waste Water Treatment Works site. The centre of the facility is approximately 33°52'43.64"S; 25°37'2.67"E. The footprint of the existing facility is approximately 25 m wide by 70 m long and is surrounded by multiple existing services which cannot be relocated. The existing services reduce the available footprint for the new facility.

This site was considered, but was declared unsuitable for the following reasons:

- To fit the proposed equipment, and to allow for the required vehicle movements, the minimum size required for the facility is 35 m wide by 100 m long (excluding the weigh bridges).
- The existing structures are dilapidated and are not suitable to house the mechanical equipment.
- There is insufficient space along the access road to accommodate the required weighbridges.
- The Waste Water Treatment Directorate intends to prohibit the disposal of grit and sludge at the bucket washing facility as vehicle access to the site is not currently being monitored sufficiently. The additional grit and sludge results in a significant increase in wear and tear on the inlet work mechanical equipment.
- The Waste Water Treatment Directorate intends to prohibit vehicles collecting treated effluent from the works as they are currently not being monitored and therefore present a security risk.

The old bucket washing facility is therefore **not a viable alternative.**

Brickfields Pre-treatment Works

This site is owned by the NMBM and is situated on erf 1, Wells Estate. The Brickfields Pre-treatment Works screens and sewage draining from Motherwell. The pre-treatment works includes a backup bucket washing facility. The centre of the existing backup bucket washing facility is approximately 33°49'42.11"S; 25°36'38.79"E. Site 3 is not suitable as there is no treated effluent connection to the site. Treated effluent must be used for washing the grit and sludge. It is not feasible to wash grit and sludge with a scarce resource such as potable water. To provide a treated effluent connection to this site, an 8 km long rising main and pump station would have to be installed. The cost of which would make the facility unviable. This site is therefore **not a viable alternative.**

2. Layout Alternatives within Erf 419, Portion 0.

Due to the size, shape and presence of wetlands on site there are limited options for layout alternatives. During the first application for environmental authorisation two possible layouts on erf 419 were considered. The first layout design, called Layout 2, was the original design. However, after the wetland was delineated by the wetland specialist, it was found that the part of the wetland channel would be lost due to the removal of wetland vegetation and levelling of the banks of part of the wetland channel in order to develop the grit and sludge treatment facility in that location. Subsequently, Layout 1 (preferred layout alternative), was designed in order to minimise the loss of wetland as far as possible. Please refer layout plans attached in **Appendix A.** A map showing the overlay of the two layouts possible on the site is provided below.

As Layout 1 was deemed to preferred in terms of environmental impacts during the initial application for EA and no fatal flaws were identified for this site, Layout 2 has not been considered in this application.

Figure 2. Overlay of Previous Layout Alternatives

(b) the type of activity to be undertaken;

There are two legal options for the disposal of grit in in terms of Government Notice 36784 No. R636 National Norms and Standards for Disposal of Waste to Landfill, 2013, , namely:

1. **(Activity 1 Preferred)** Wash the grit at a Grit and Sludge Treatment Facility as proposed and dispose of it at a general solid waste disposal site (or use it for brick manufacturing, pipe bedding or as landfill cover), and
2. **(Activity 2)** Disposal at Enviroserv/Aloes Hazardous Solid Waste Disposal Facility.

Activity 1 - Wash the grit at a treatment facility and re-use or dispose of it at a general solid waste disposal site.

This option entails the construction of a grit and sludge washing facility, weighbridge and the associated civil and structural infrastructure. The advantage of this activity is that it recovers grit, which can potentially be reused, instead of disposing it to hazardous landfill. This is in line with South Africa's waste management hierarchy published in the National Waste Management Strategy (DFFE, 2020) which promotes the re-use waste in preference to the disposal waste. This also reduces landfill impacts and reduces use of landfill airspace.

Washed grit has many uses. It can be used as bedding sand for sewer and stormwater pipes, or in the manufacture of bricks/blocks and can be used as cover material at the municipal andfill sites. The potential income from sale of grit as a material for manufacture or bricks or use as a bedding material has not been allowed for in the life cycle costing exercise. This is because the value and market for the material has not been determined. In addition, testing would be required to determine the suitability of the grit for these uses.

Another added benefit is that the weighbridge, installed as part of the grit washing facility, will allow Fish Water Flats WWTW to accurately measure the amount of liquid waste disposed by contractors. The grit washing facility will also provide a facility where treated effluent can be collected by contractors. This will assist the Fish Water Flats with securing their premises and reduce unwanted traffic through the WWTW.

Activity 2 – No-Go Alternative.
Drying Grit and Sludge and Disposal to Hazardous Landfill

The legal way of disposing the grit and sludge would be disposal to a permitted hazardous waste landfill. The grit is first taken to a central site by tankers, dumped on the ground for drying (there is no lining) and then placed into skips with a TLB. If this was to continue, the design and operations of these drying facilities would need to be assessed and upgraded as required. At present the area used to dry is at risk of contamination due to a lack of lining. Although the approach of disposing the grit to a hazardous landfill is simplistic, the costs over a 25 year period are substantial when compared to the grit washing facility. The impacts on landfill, mainly on airspace are not desirable because of the cost of developing hazardous landfills, making the airspace in these landfills valuable.

Financially, this option will be a risk for the NMBM, it has therefore been considered as the No-go Alternative (as per the discussion below).

Cost comparison of activity 1 and activity 2

The cost of constructing and operating the grit and sludge treatment facility as well as the cost for disposal of the grit and sludge to a hazardous waste disposal site were made by the consulting engineers (NMBM Sewerage grit and sludge treatment facility: Feasibility Report, November 2017). The Net Present Value which includes capital, operational, maintenance and transport costs for developing the grit and sludge treatment facility over a 25 year life cycle is R89, 958,902 compared to the Net Present Value of drying grit and disposal to hazardous landfill over a 25 year life cycle which is R162, 197,343. This equates to an estimated R0.32/ m³ for treatment and disposal of grit to general landfill compared to an estimated R 0.57/m³ for the disposal of dried grit to hazardous landfill.

Non-viable activity alternatives:

Activity 3 – <u>Status Quo: Drying and disposal to general landfill:</u>

The status quo for disposal of grit and sludge removed from sewage infrastructure being practiced in the NMBM is to dry the grit and dispose of it at a municipal general solid waste landfill site. The grit is dumped on the ground (there is no lining) and then placed into skips with a TLB. The dumping onto the ground allows the heavy metals and other contaminants to infiltrate the water table. The current grit drying facility used in NMBM is a public health hazard in its current state and locality. The dried grit obtained from this facility has been classified as a hazardous material and should be treated as such. The status quo is not considered a legal method of disposal as it does not comply with the Minimum Requirements (2005), the National 'Environmental Management: Waste Act (NEMWA) and the National Environmental Management Act (NEMA), due to the hazardous properties of the grit and sludge, and is thus **<u>not a viable alternative.</u>**

Activity 4 – <u>Delisting dried grit and disposal to general landfill:</u>

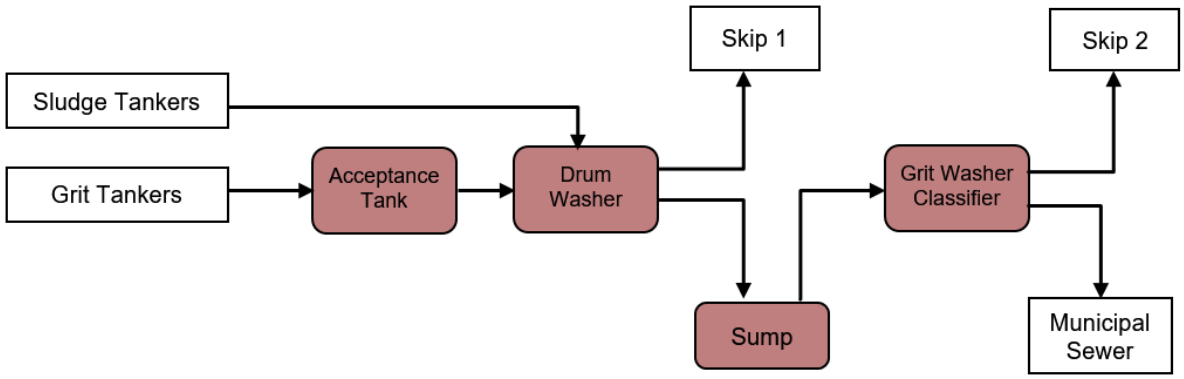
The option of applying for delisting the unwashed grit as a hazardous material has been investigated but the delisting process was anticipated to only result in the hazard rating of the grit and sludge reducing from a hazardous level of 3 to a hazard level of 4. This means that treatment other than washing grit is not likely to be of a low enough hazardous level to enable the delisted grit and sludge to be able to be taken to general landfill. Due to the definitions of hazardous materials and the nature of grit removed from sewerage infrastructure it is highly unlikely that the material will be considered inert or non-hazardous/general waste after delisting treatment. Delisting the waste was therefore assessed to be **<u>not a viable alternative.</u>**

(c) the design of the activity;

The grit and sludge treatment facility would require several key components including:

- Access road, weighbridge, hardstand and enclosed area for washing, stormwater control, treated effluent supply, potable water supply, sewer connection, and fencing. For the purposes of traffic flow it is necessary to have a circular flow of traffic.

Treatment Process (Preferred)



HUBER have videos available on their website showing how grit is accepted, washed and classified through each part of the treatment process. A 5 minute long animated version of the treatment process which shows in the interior and exterior of the treatment facility is accessible on the internet using the following link:
https://www.youtube.com/watch?v=MGrAG0bs4xQ

Planning for future grit and sludge generation in NMBM.

The preliminary investigation estimated the total amount of grit to be disposed of at the facility to be in the region of 30m³ per day. It did not estimate the amount of sludge originating from septic tanks. The records were however incomplete and this value is expected to be far higher once all service providers cleaning sewage infrastructure within the NMBM are diverted to this facility. Unfortunately, there are no accurate records of the actual quantities of grit and sludge being collected from sewerage infrastructure in NMBM.

The proposed equipment from Huber Technologies for the treatment process has a capacity of approximately 55m³ per hour. This gives the treatment facility the ability to treat a total of 440 m³ per day if the treatment facility operates for 8 hours a day. This is 14 times greater than the estimate of grit currently generated in NMBM. This extra capacity makes allowance for a larger quantity of grit than records show is currently generated, as well as future expansion of the NMBM. The population of NMBM has grown by 1.09% over preceding 5 years. If it assumed that the grit and sludge generation increases by the same rate as the current population growth rate, then the treatment facility will have sufficient capacity to treat grit and sludge quantities generated for the next 105 years. However, population growth rate is not a constant and is generally increasing in Metropolitans in South Africa. Using an aggressive growth projection, by assuming that the population growth rate doubles every 15 years, the treatment facility would have sufficient capacity to treat grit and sludge for over 65 years.

It is also possible to increase the capacity of the facility at a future stage without extending the footprint, should this be required. This can be done by a retrofitting the facility with higher capacity components or by adding an additional component to the existing facility **within the current footprint.**

(e) the operational aspects of the activity; and

Operational aspects of the treatment process are linked to the type of treatment technology used.

Mechanised grit washing and classifying
If a mechanised grit washing and classifying treatment process is used, the common requirements for this type of treatment process are the use a force (electric or gravitational) to separate larger and smaller particles as well as a medium for washing the grit to remove hazardous organic particles.

These types of mechanised grit treatment facilities operate using electric pumps, a combination of pipes, rotating drums, rotating screws and require a treatment medium.

A manual washing and classifying of grit is not viable from a quality control, time, financial, water efficiency or health and safety perspective.

(f) the option of not implementing the activity.

The no-go alternative has been defined as the continuing with grit drying but implementing disposal to hazardous landfill. This has been assessed as an activity alternative (Alternative A2) in the impact assessment. See Activity 2 in **(b)** above.

Improvements to the current drying facilities could mitigate the impacts of workers health and safety, soil, stormwater and groundwater contamination at the facility. However, the high cost of this option related to disposal of a privately owned hazardous waste site remains, and this cannot be mitigated, and would result in high financial outputs for NMBM.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.
List alternative sites if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1[1] (preferred or only site alternative)	33°	52'58.80"S	25°	36'55.64"E
Alternative S2 (if any)	°	'	°	'
Alternative S3 (if any)	°	'	°	'

There is only one viable site alternative, which is Erf 419, Swartkops.

In the case of linear activities:

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1 (preferred or only route alternative)				
• Starting point of the activity	°	'	°	'
• Middle point of the activity	°	'	°	'
• End point of the activity	°	'	°	'
Alternative S2 (if any)				
• Starting point of the activity	°	'	°	'
• Middle point of the activity	°	'	°	'
• End point of the activity	°	'	°	'
Alternative S3 (if any)				
• Starting point of the activity	°	'	°	'
• Middle point of the activity	°	'	°	'
• End point of the activity	°	'	°	'

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[2] (preferred activity alternative)	15,400 m²
Alternative A2 (if any) **NO-GO Alternative**	N/A
Alternative A3 (if any)	N/A

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

There are two viable activity alternatives:
-Activity 1: The development of a Grit and Sludge Facility (as in Layout 1 and 2), and

[1] "Alternative S.." refer to site alternatives.
[2] "Alternative A.." refer to activity, process, technology or other alternatives.

-Activity 2: No-go alternative where grit and sludge is dried and taken to a hazardous landfill.

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	31,529 m^2
Alternative A2 (if any)	N/A
Alternative A3 (if any)	N/A

5. SITE ACCESS

Does ready access to the site exist?	YES	NO X
If NO, what is the distance over which a new access road will be built	75m	

Describe the type of access road planned:

New Access Road

- A new access road of 7 m wide, 75 m long (S1) (or 40 m long for S2) concrete block paved access road from John Tallant Road to the access control point.

Upgrading existing roads

- Widening of the eastern side of John Tallant Road by the addition of two extra lanes, each with a total width of 7.4 m and 110 m long from the entrance to Fish Water Flats Waste Water Treatment Works to the Grahamstown Road intersection and extension of the existing culvert beneath John Tallant Road to the east by approximately 10m to accommodate the additional lanes.
- Construction of a slip lane 14 m wide (at the widest point) on the north-east of the intersection and a slip lane 25 m wide (at the widest point) south-east of the intersection. Development of three rest bays approximately 4 m wide and 40 m long near to the intersection.
- The western side of John Tallant Road also requires upgrades in the future and could potentially be included in the contract for the development of this facility.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

Refer to Layout plans in Appendix A

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;

6.2 the property boundaries and numbers of all the properties within 50 metres of the site;

6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;

6.4 the exact position of each element of the application as well as any other structures on the site;

6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

6.6 all trees and shrubs taller than 1.8 metres;

6.7 walls and fencing including details of the height and construction material;

6.8 servitudes indicating the purpose of the servitude;

6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;

- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.10 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 41,050.00 excl. VAT	
What is the expected yearly income that will be generated by or as a result of the activity?	TBC. The rates charged for the public and private companies to dispose of grit and sludge have yet to be determined.	
Will the activity contribute to service infrastructure?	YES X	[redacted]
Is the activity a public amenity?	[redacted]	NO X
How many new employment opportunities will be created in the development phase of the activity?	40 (approximately)	
What is the expected value of the employment opportunities during the development phase?	R 6 million	
What percentage of this will accrue to previously disadvantaged individuals?	90%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	4	
What is the expected current value of the employment opportunities during the first 10 years?	R 15 million	
What percentage of this will accrue to previously disadvantaged individuals?	The percentage of the employment value allocated to PDIs will be in line with the Employment Equity Act	

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The benefits of developing a grit and sludge treatment facility are summarised as follows:

- Cost Saving: Disposing grit and sludge to hazardous landfill would cost NMBM an estimated R72,238,441.00 more than developing (capitals costs) and operating (operational costs) a grit and sludge treatment facility over a 25 year period. The construction and operation of a grit and sludge treatment facility will also result in limited job creation.
- Landfill Space Saving: As per the waiver issued by DEA once the grit and sludge have been washed the grit can be reused for construction purposes, disposed of at a general waste landfill and used as cover material at a general landfill site. If the grit is reused it would result in a saving of landfill site airspace.
- Reducing of Landfill and WWTW impacts: Unwashed grit / sludge is currently either disposed of at the Koedoeskloof landfill site, disposed of at the WWTWs inlet works or the disposed of at an unknown location. Koedoeskloof is a general waste landfill site. The disposal of grit / sludge at WWTW's increases wear and tear on the inlet works mechanical components.
- Improved distribution of treated effluent: The secondary purpose of the facility will be to manage the collection of treated effluent used by municipal and private users for various purposes such as construction and maintenance activities. Currently contractors and private users are collecting treated effluent directly from the Fish Water Flats WWTW, which has caused issues for Fish Water Flats WWTW with regards to access control, health and safety of public accessing the WWTW, traffic flow within the facility and security. The new facility is expected to have a greater ability to enforce restricted access as it will a standalone facility with much smaller scope of operations, personnel and users. In addition no public vehicles will be required to enter Fish Water Flats WWTW once the grit and sludge facility is in operation.
- Legal Compliance: The facility will provide NMBM a means of treating grit and sludge from sewage collected from the NMBM so that it delisted from a hazardous to a general waste. Currently grit and sludge is disposed to a municipal general waste landfill site which is not compliant with waste legislation. When treated, the waste can be legally disposed of at a general landfill in accordance with the waiver issued by DEA. Please refer to the DEA waiver attached in Appendix G.

A detailed explanation of compliance with waste legislation and calculating the costs of disposal versus treatment are contained in the Sewage Grit and Sludge Treatment Facility Feasibility Report (Lukhozi Consulting Engineers, 2017), attached in Appendix D.

Indicate any benefits that the activity will have for society in general:

Society in general will benefit by following positive environmental impacts associated with the development of the grit and sludge facility:

- Landfill space saving: Treating the grit and sludge will enable it to be reclassified as general waste and can either be reused for construction purposes or disposed of at a general waste landfill and used as capping material. This will lead to both general and hazardous landfill space saving. This is a positive environmental impact as it can lead to an extended lifespan of general and hazardous landfills which means that the expense and transformation of land associated with developing or extending the general and hazardous landfills will be reduced.
- Reducing of landfill impacts: Unwashed grit / sludge is currently either disposed of at the Koedoeskloof landfill site, disposed of at the WWTWs inlet works or the disposed of at an unknown location. While the NMBM will eventually need to extend existing or develop a new general landfill sites, diverting grit from landfill can contribute to a longer lifespan for the landfills. The treatment of grit and sludge at a centralised location with a weighbridge measuring incoming loads will enable the NMBM to exert more control over the treatment and disposal of grit and sludge and thus reduce the opportunity for grit and sludge dumping without NMBM's knowledge and can lead to reducing environmental impacts associated with illegal dumping of grit and sludge.
- Reducing wear and tear on the inlet works: The disposal of grit / sludge at WWTW increases wear and tear on the inlet works mechanical components. Thus, treating grit and sludge at a treatment works rather than disposing of grit and sludge at the WWTW can contribute to an extended lifespan of the WWTW inlet works

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The following benefits for the local community are associated with developing a grit and sludge facility:

- Cost Saving to the local Metropolitan Municipality: Disposing grit and sludge to hazardous landfill would cost NMBM an estimated R72,238,441 more than developing (capitals costs) and operating (operational costs) a grit and sludge treatment facility. This means that this money can be used by the Waste Water Conveyance Department to improve or develop sewerage infrastructure in the NMBM.

- Better management of treated effluent distribution: The secondary purpose of the facility will be to manage the collection of treated effluent used by municipal and private users for various purposes such as construction and maintenance activities. Currently contractors and private users are collecting treated effluent directly from the Fish Water Flats WWTW, which has caused problems for Fish Water Flats WWTW with regards to access control, health and safety of public accessing the WWTW, traffic flow within the facility and security. The new facility is expected to have a greater ability to enforce restricted access as it will a much smaller scope of operations, personnel and users. This can also lead to quicker distribution of treated effluent to local contractors.
- Employment opportunities: The estimated value of employment opportunities is R 6 million during construction phase and R1.5 million per annum during operational phase. Local contractors and local employees will be given work opportunities in accordance with the Employment Equity Act.

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of the Republic of South Africa (Act 108 of 1996)	Minister for Justice and Constitutional Development.	1996
National Environmental Management Act (Act 107 of 1998)	Department of Environmental Affairs	1998
Government Notice 40772 No 326 of 2017 Environmental Impact Assessment Regulations (2017)	Department of Economic Development, Environmental Affairs and Tourism	2017
Nelson Mandela Bay Metropolitan Municipality Metropolitan Spatial Development Framework (2015)	Nelson Mandela Bay Metropolitan Municipality Metropolitan	2015
National Water Act (Act 36 of 1998)	Department of Water and Sanitation	1998
Government Notice 40713 No. R267 of 2017, Regulations Regarding The Procedural Requirements For Water Use Licence Applications And Appeals (2017)	Department of Water and Sanitation	2017
Government Notice 40229 No R506 of 2016, General Authorisation (2016)	Department of Water and Sanitation	2016
National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)	Department of Environmental Affairs	2008
National Heritage Resources Act (1999)	Eastern Cape Provincial Heritage Resources Authority	1999
Alien and Invasive Species Regulations (R506 of 2004) published under the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) (NEM:BA)	Department of Environmental Affairs	2004
National Environmental Management, Waste Act (2008)	Department of Environmental Affairs	2008
National Environmental Management, Waste Amendment Act (2014)	Department of Environmental Affairs	2014
Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste, Third Edition (2005)	Department of Environmental Affairs	2005
Government Notice 36784 No. R634 Waste Classification and Management Regulation (2013)	Department of Environmental Affairs	2013
Government Notice 36784 No. R635, National Norms and Standards for the Assessment of Waste for Landfill Disposal (2013)	Department of Environmental Affairs	2013
Government Notice 36784 No. R636 National Norms and Standards for Disposal of Waste to Landfill (2013).	Department of Environmental Affairs	2013
National norms and standards for the storage of waste. (GN926 of 2013)	Department of Environmental Affairs	2013
SANS 10103 (Noise Regulations)	Standards South Africa	2008
Hazardous Substances Act, 1973 (Act no.15 of 1973) (HSA)	Department of the Prime Minister	1973

Legislation	Relates to
National Environmental Management Act, 1998 (Act no. 107 of 1998) (NEMA))	NEMA is the key environmental management legislation and states in section 2(4) (k) that "the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people's common heritage" thereby paving the way for EIA process to assess developments that may have a harmful impact on the environment.
National Water Act, 1998 (Act no. 36 of 1998) (NWA)	This Act provides for the protection and management of water resources. For the purpose of this project, a Water Use License has been issued as activities in terms of the NWA were triggered.
National Environmental Management: Waste Act, 2008 (Act no. 59 of 2008) (NEM: WA) as amended.	This Act provides for regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation. Also to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities. In terms of the Waste Amendment Act of 2014, ''hazardous waste'' means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment. The preliminary investigation classified the grit and sludge removed from sewage pump station sumps in terms of the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste, Third Edition, 2005 as a both toxic and infectious with a hazard rating of 3.
Government Notice 36784 No. R634 Waste Classification and Management Regulation (2013)	In terms of regulation 4(1) of the *Waste Classification and Management Regulation*, waste listed in Annexure 1 of this regulation does not require classification in terms of SANS10234. The grit / sludge can be classified in terms of Annexure 1 as (2) (b) (ii) "Hazardous Mixed General Waste, excluding domestic waste, which contains hazardous waste or hazardous chemicals". Regulation 8(1a) of the *Waste Classification and Management Regulation* requires that waste generators ensure that their waste is disposed of in accordance with the National Norms and Standards for Assessment of Waste to Landfill. These norms and standards specify the total concentration and leachable concentration thresholds which are acceptable for several parameters. Based on the results of laboratory testing the waste is classified as a type 0 (most hazardous) to type 4 waste (least hazardous). The purpose of the grit and sludge treatment facility is to pre-treat the grit / sludge, by means of washing. Regulation 7(2) of the *Waste Classification and Management Regulation* allows waste to be pre-treated to enable the re-use, recycling, recovery or treatment; or to reduce the risk associated with the management of the waste. In terms of regulation 13 of the *Waste Classification and Management Regulation,* failure to comply with these regulations may result in a fine not exceeding R 10 million or imprisonment for a period not exceeding 10 years or both." (Lukhozi Consulting Engineers, 2017).
Government Notice 36784 No. R636 National Norms and Standards for Disposal of Waste to Landfill, 2013.	The disposal requirements for the different waste types are specified in the *National Norms and Standards for Disposal of Waste to Landfill*. Therefore, in terms of regulation 4(3) of the *National Norms and Standards for Disposal of Waste to Landfill*, the untreated grit / sludge may only be disposed of at a hazardous landfill site, Class A (Hh/HH). In terms of regulation 5(2) of the *National Norms and Standards for Disposal of Waste to Landfill*, the deadline for compliance with the regulations is five years after the regulations come into effect. The regulations came into effect on 23 August 2013. The due date for compliance is therefore 23 August 2018.
Government Notice 36784 No. R635, National Norms and Standards for the Assessment of Waste for Landfill Disposal (2013)	As the grit / sludge will be pre-treated, the treated grit / sludge and waste (wash water) must then be re-classified in terms of SANS 10234 in accordance with regulation 4(5) of the *Waste Classification and Management Regulation* and in terms of the *National Norms and Standards for Assessment of Waste to Landfill*. This must be undertaken within 180 days of the facility becoming operational.
National norms and standards for the storage of waste. (GN926 of 2013)	Hazardous waste storage facilities that have the capacity to store 80m^3 continuously must register in with the competent authority within 90 days prior to the construction taking place.

Legislation	Relates to
National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)	The applicant is responsible for taking reasonable measures to prevent pollution of surface and groundwater resources that he owns controls, occupies or uses on the land in question including water resources in close proximity to the proposed development, such as the Swartkops River estuary as well as the freshwater wetlands that have been identified within the study area.
Alien and Invasive Species Regulations (R506 of 2004) published under the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) (NEM:BA)	The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting. The identification of alien invasive vegetation will be in accordance with the national list of invasive species
Hazardous Substances Act, 1973 (Act no.15 of 1973) (HSA)	Provides for the definition, classification, use, operation, modification, and disposal or dumping of hazardous substances such as fuels, oils and paints.
SANS 10103 (Noise Regulations)	The measurement and rating of environmental noise with respect to annoyance and to speech communication.
Constitution of the Republic of South Africa	The constitution paved the way for the protection of the natural environment and heritage resources through the recognition of the rights to a safe and healthy environment.

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES X
If yes, what estimated quantity will be produced per month?	180m^3 excavated soil. 2m^3 mixed general waste 0.2 m^2 of hazardous waste including empty chemical containers, oil/fuel contaminated soil or rags.

How will the construction solid waste be disposed of (describe)?

Topsoil will be kept on site for use in rehabilitation. The excess soil from excavations will be taken to general landfill to be used as cover material. Mixed general waste to be taken to general landfill. Hazardous waste to be taken to a hazardous landfill.

Where will the construction solid waste be disposed of (describe)?

Construction waste will be disposed of at one of the NMBM;'s two licensed landfill sites, Arlington or Koedoeskloof.

Will the activity produce solid waste during its operational phase?	**YES**
If yes, what estimated quantity will be produced per month?	Between 780m³ and 5,720m³ per month of washed screenings and washed grit will be produced. This is based on 30m³ and 220m³ per day of washed screenings and washed grit will be produced on working days (Monday – Saturday).

How will the solid waste be disposed of (describe)?

The washed screenings and washed grit will be disposed of at the Koedoeskloof Landfill in NMBM. The Public Health Directorate has confirmed that the Koedoeskloof landfill has the capacity to accept a maximum volume of 220 m^3 per day of washed grit and washed screenings. Please refer to the letter of confirmation of landfill capacity at Koedoeskloof written by NMBM in Appendix G.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Not applicable. The solid waste will be taken to the municipal landfill site, Koedoeskloof.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	YES - a quantity of approximately 0.2 m^2 per month of hazardous waste will be produced during the construction phase. This waste includes empty chemical containers, oil/fuel contaminated soil or rags, the type of hazardous waste produced at most construction sites.

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?	YES

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Please refer to the letter written to DEDEAT with regards to the listed activities triggered in the Environmental Impact Assessment regulations (2017) and the List of Waste Management Activities that are likely to have a Detrimental Effect on the Environment (2013), attached in Appendix G.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES
If yes, what estimated quantity will be produced per month?	Between 0.02 m^3 and 576 m^3 of effluent will be produced per day. This effluent originally comes from Fish Water Flats WWTW, is used to wash the grit and sludge and is returned to the WWTW for treatment. This means that between 0.52 m^3 and 14,976 m^3 of effluent is produced per month.
Will the activity produce any effluent that will be treated and/or disposed of on site?	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES

If yes, provide the particulars of the facility:

Facility name:	Fish Water Flats Waste Water Treatment Works		
Contact person:	Rito Makena		
Postal address:	PO BOX 7. Port Elizabeth, 6001		
Postal code:	6001		
Telephone:	041 506 2868	Cell:	N/A
E-mail:	jngobeni@mandelametro.gov.za	Fax:	N/A

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The treatment facility will use treated effluent from the Fish Water Flats WWTW to wash the sewage grit and sludge, thereby re-using effluent that would otherwise be discharged to outfall sewer.

After the treated effluent has been used to wash the grit and sludge, it will be directed back to Fish Water Flats WWTW for treatment and then discharged to the Kwazakhele outfall sewer. Please to Appendix G for the letter from NMBM that confirms that the existing 900mm diameter Kwazakhele outfall sewer has sufficient capacity to cater for an additional hydraulic loading of 20 ℓ/s.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	
If yes, is it controlled by any legislation of any sphere of government?		NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

The treatment plant has a capacity of treating 55 m^3 of grit and sludge per day. Low concentrations of Volatile Organic Compounds (VOCs) and ammonia will be released as grit and sludge are transferred from delivery trucks into the acceptance tank and drum washer. The air emissions will cause unpleasant odour associated with sewage in the immediate vicinity of the treatment facility. The equipment is mostly enclosed to contain odours. Odour control equipment will be used to mitigate odours from the facility.

The activity is not listed in GN 893 of 22 November 2013: List of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage.

11(d) Generation of noise

Will the activity generate noise?	YES	
If yes, is it controlled by any legislation of any sphere of government?		NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

All the equipment to be installed at the facility is low noise units, having maximum noise emissions of approximately 80db. The equipment has small gearboxes with electrical motors on will emit noise. The larger noise emissions will come from the trucks entering and leaving the premises. However the site occurs in an industrial zone and adjacent to a busy intersection, and the estimated increase of 14 vehicles (consisting of skip trucks, vacuum tankers and water tanker trucks) accessing the area per hour is unlikely to significantly increase the noise levels in the area.

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

Municipal √	water board	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:	0 litres
Does the activity require a water use permit from the Department of Water Affairs?	YES

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

A Water Use License has been granted previously for this project and is still valid. Attached Annexure G.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The use of The HUBER Coanda Grit Washing Plant combines grit classifying and grit washing in a single and compact unit. By using the Coanda effect the process of classifying can be combined with the process of sorting to ensure continuously high separation efficiency and washing performance. The ROSF 4 uses 0.1 kWh/(PT•a).

The mechanical and electrical equipment required will consist of:

- Acceptance bin (ROSF 7), drum washer (ROSF 9), sump pump, grit washer classifier (ROSF 4) mechanical equipment and associated electrical motor control centre, cabling, etc. as proposed by Huber Technologies.
- Entry and exit weighbridges, with associated electronic sensors and control equipment.
- Ventilation for the main structure.
- Area lighting and general internal power points, lighting, and electrical equipment.
- Pumping equipment including all controls and electrical equipment for the treated effluent supply consisting of two pumps. One pump for the treatment process and one pump for washing of vehicles and collection of treated effluent.

The following features will be incorporated into the facility to reduce energy consumption:

- Energy efficient lighting (energy saver Light Emitting Diodes bulbs) will be used A rated energy efficient equipment such as a fridge and microwave will be used

- Lighting will either be on a sensor or timer to prevent lights being left on
- Solar panels will be installed to provide hot water

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The use of roof mounted solar panels will be incorporated into the power supply for the facility. This will result in a reduced demand for electricity. It is anticipated that 250 / 255W solar panels will be installed.

The HUBER Coanda Grit Washing Plant is particularly efficient for the following reasons:

- High grit and gravel yield
- Organic content reduction to < 3% loss on ignition which makes it suitable for re-use in construction or as a cover material for landfilling. This is a form of energy recovery as useful materials are recovered from waste.
- No additional preceding screening of grit or sludge is required
- Suitable for treatment of grit from sewers, gully waste, road sweepings
- Unit sizes available for up to 3 m^3 solids per hour
- Large diameter screws for a high solids throughput. Grit removal screw supported on both ends to minimise malfunctioning of screws.
- Dewatering of washed grit to approx. 90% DR
- Separate organics discharge allows for separate further treatment of organics
- High corrosion protection to lengthen the lifespan of equipment.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES**

If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.
Alternative S1:

Flat	**1:50 – 1:20 (General gradient)**	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	**Steeper than 1:5 (Wetland channel)**

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline
2.2 Plateau
2.3 Side slope of hill/mountain
2.4 Closed valley
2.5 Open valley
2.6 Plain √
2.7 Undulating plain / low hills
2.8 Dune
2.9 Seafront

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)		NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas		NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES		YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES		YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES		YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO	YES	NO	YES	NO
Any other unstable soil or geological feature		NO	YES	NO	YES	NO

An area sensitive to erosion	YES	[redacted]	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition [E]
4.2 Natural veld – scattered aliens [E] √
4.3 Natural veld with heavy alien infestation [E]
4.4 Veld dominated by alien species [E]
4.5 Gardens
4.6 Sport field
4.7 Cultivated land
4.8 Paved surface
4.9 Building or other structure
4.10 Bare soil

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

[redacted]	**Natural veld with scattered aliens**[E] √	[redacted]		
		Paved surface √	**Building or other structure** √	**Bare soil** √

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area √
5.2 Low density residential
5.3 Medium density residential
5.4 High density residential
5.5 Informal residential
5.6 Retail commercial & warehousing √
5.7 Light industrial √
5.8 Medium industrial [AN] √
5.9 Heavy industrial [AN] √
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam[A]
5.14 Quarry, sand or borrow pit

5.15 Dam or reservoir
5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant[A] √
5.22 Train station or shunting yard [N]
5.23 Railway line [N] √
5.24 Major road (4 lanes or more) [N]
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture
5.34 River, stream or wetland √
5.35 Nature conservation area
5.36 Mountain, koppie or ridge
5.37 Museum
5.38 Historical building
5.39 Protected Area √
5.40 Graveyard
5.41 Archaeological site
5.42 Other land uses (describe)

If any of the boxes marked with an "N "are ticked, how will this impact / be impacted upon by the proposed activity.

5.23 Railway line N√. A railway line runs on an adjacent property to the south of the site. An access road to the railway runs along the Eastern fence line. No infrastructure or other will be placed in the access road. The access road will remain clear to allow maintenance vehicles to drive through the site and access the railway line.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.
If YES, specify and explain:

The light industry within 500 meters of the site is warehousing and the medium industry is freight forwarding services. The freight forwarder acts as an intermediary between a shipper and various transportation services such as ocean shipping on cargo ships, trucking, expedited shipping by air freight, and moving goods by rail. The heavy industry within 500 meters of the site consists of a tyre rubber factory, named 'Orion Engineered Carbons', hereafter referred to as 'Orion'. Orion's facility neighbors the proposed site and its fence line abuts the border of the proposed site to the East. The potential impacts on the surrounding industry are as follows:

Construction phase:

- Damage to existing service lines. Although the existing service lines have been mapped from drawings obtained from the NMBM, the service lines are not always in the exact position shown in the plans.
- Noise emissions.
- Increased traffic on access roads

Operational phase

- Increased traffic on access roads
- Odour emissions
- Noise emissions

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.
If YES, specify and explain:

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?		NO
If YES, explain:	-	

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:	Palaeontological Impact Assessment Prof Marion Bamford was appointed to undertake a Palaeontological Impact Assessment (PIA) of the proposed development. A copy of the PIA report, dated July 2023, is attached hereto as Appendix D. A desktop palaeontological impact assessment of the site was undertaken by the specialist: Prof Marion Bamford. The site is underlain by potentially fossil bearing geological formations. The impact of the site is rated as low significance provided that the site overlies highly disturbed terrain and excavation into previously undisturbed bedrock is not required. If this is not the case, then the impact of the development on palaeontological resources would be rated as moderate significance. If fresh bedrock containing fossils is uncovered during excavations this bedrock should be inspected by a professional palaeontologist. Note: During the geotechnical investigation ten trial pit holes were dug and soil samples from these were analysed. The excavations for the trial pits were 3 meters, as this will also be the maximum depth of excavations done during construction. No bedrock was intersected in any of the trial pits. All trail pits ended in the estuarine sand horizons. Archaeological Impact Assessment Booth Heritage Consulting was appointed to undertake an Archaeological Impact Assessment (AIA) of the proposed development. A copy of the AIA report, dated April 2018, is attached hereto as Appendix D. The archaeological impact assessment of the site was undertaken by the specialist: Celeste Booth. No archaeological heritage remains were observed within the proposed development area. Development may proceed as planned however the following recommendations must be considered during the course of development: 1. If concentrations pre-colonial archaeological heritage material (such as shell middens and associated material) and/or human remains (including graves and burials) are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the archaeological / heritage site will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue.

2. A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. These recommendations have been included into the draft EMPr.	

Will any building or structure older than 60 years be affected in any way?		NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;

(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;

(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and

(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—

(i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;

(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;

(iii) the nature and location of the activity to which the application relates;

(iv) where further information on the application or activity can be obtained; and

(iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

The standard Public Participation Process as set out in Chapter 6 of EIA regulations 2017 will be followed. Additional public participation measures are not considered necessary in the case of this application due to the nature and location of the proposed site as well as the nature of the proposed development.
The following described the public participation to be conducted for this application:

1. Development and maintenance of an interested and affected party (I&AP) database which consist of:
    - Adjacent landowners and neighbours
    - Servitude holders
    - The ward councillor
    - Authorities (DEDEAT, Department of Water and Sanitation, Eastern Cape Provincial Heritage Resources Authority, DFFE Oceans and Coast, Eastern Cape Department of Roads and Public Works)
    - Conservation groups
    - Any parties who requested to be registered
2. Placement of a site notice board at the proposed site (note, no alternative sites have been identified): 02 November 2023
3. Giving written notice to neighbours, the ward councillor, authorities: Please refer to the Public Participation Process Report
4. Placing a notice in the Herald newspaper informing the public of the project and calling for registrations as interested and affected parties.: 13 November 2023.
5. Releasing the draft basic assessment report, specialist studies and environmental management programme for 30 days: 14 November – 13 December 2023.
6. Capturing comments received from interested and affected parties during the 30 days review period and responding to them in a comments and responses report.
7. Notifying I&APs of the outcome of the application within the timeframes given in the environmental authorisation. This will take place once the decision from DEDEAT has been communicated with the EAP.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

Authorities that will be notified once the Draft BAR has been made available for public review: • Eastern Cape Department of Economic Development Environmental Affairs and Tourism (DEDEAT) • Regional Department of Water and Sanitation (DWS) • Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (NID submitted to ECPHRA on • Department of Environment, Forestry and Fisheries (DFFE Oceans and Coasts) • Department of Roads and Public Works

List of authorities from whom comments have been received:

	ECPHRA This list will be updated in the FBAR.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

This will be included in the final BAR once the commenting period for the draft BAR has concluded.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

This will be included in the final BAR once the commenting period for the draft BAR has concluded.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

This will be included in the final BAR once the commenting period for the draft BAR has concluded.

2.IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase,

decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Please find below a list of direct, indirect and cumulative impacts for each alternative. Mitigation measures for impacts have been considered in full in the Impacts Assessment for each alternative contained in Appendix G.

ALTERNATIVES ASSESSED:

Layout 1: (Construction of the grit and sludge treatment facility at the preferred location – location 1 on erf 419, 0 Swartkops).
No-go alternative (Drying of grit at contractor's facilities and disposal of grit to hazardous landfill).

Phase	Layout 1 (preferred alternative)	No-go Alternative
Planning and Design Phase	***Direct impacts.*** • None ***Indirect impacts:*** • None ***Cumulative impacts:*** • None	N/A
Construction Phase	***POSITIVE IMPACTS*** ***Direct impacts:*** • Employment for construction ***NEGATIVE IMPACTS*** ***Direct impacts:*** • Vegetation loss including vegetation on wetland banks • Noise emissions • Soil contamination • Stormwater contamination • Damage to existing services ***Cumulative impacts:*** • Establishment of invasive vegetation • Additional Traffic Loading (Capacity impact) (Safety impact) • Additional Axle Loading (impact on pavement) • Change to water quality in wetland	N/A
Operational Phase	***POSITIVE IMPACTS*** ***Direct impacts:*** • Employment for operations • Management of treated effluent distribution • Legal compliance ***Indirect impacts:*** • Reduced risk of soil and ground water contamination from grit handling • Reduced risk of health impacts to workers / informal reclaimers at general landfill • Recycling of grit ***Cumulative impacts:*** • N/A ***NEGATIVE IMPACTS*** ***Direct impacts:*** • Odour emissions • Noise emissions • Energy use • Loss of vegetation including vegetation on wetland banks ***Indirect impacts:*** • Stormwater contamination ***Cumulative impacts:*** • Changes to hydrology in wetland	***Status Quo impacts of current grit and sludge handling with disposal to hazardous landfill.*** ***NEGATIVE IMPACTS*** ***Direct impacts:*** • High cost of disposing to hazardous landfill • Health risk to workers • Soil contamination • Groundwater contamination • Noise emissions • Odour emissions ***Indirect impacts:*** • Health hazard to vermin / fauna / humans • Stormwater contamination ***Cumulative impacts:*** • Landfill airspace consumption • Groundwater contamination

	• Changes to water quality in wetland	
Decommissioning and Closure Phase	The current application is the construction and operation of the grit washing facility. If the facility is decommissioned in the future the necessary approvals will need to be obtained prior to decommissioning commencing. Decommissioning will be assessed through these procedures. The below list is for anticipated impacts during decommissioning. ***POSITIVE IMPACTS*** ***Direct impacts:*** • Employment for decommissioning and closure ***NEGATIVE IMPACTS*** ***Direct impacts:*** • Noise emissions ***Indirect impacts:*** • Stormwater contamination • Damage to existing services ***Cumulative impacts:*** • Soil contamination • Damage or loss of vegetation • Erosion	Not Assessed

3. CLIMATE CHANGE ASSESSMENT

Climate change issues must be considered as part of the EIA process Please consider the Climate Change guideline. EAP must determine:

a) The potential impact of climate change on society and the economy, whether the impact is negative or positive, considering that society needs to be at the centre of the proposed development;
The grit and sludge treatment facility will not directly result in generation of additional green house gases, however it will use electricity for its operation. The majority of electricity in South Africa is generated from coal fired power stations. Emissions from these power station contribute to climate change.

b) The potential alternatives of the proposed development, alternatives that will have less impact on climate change (environment and generation of waste included), the society and economy;
The alternative to the construction and operation of a grit washing facility is the disposal of the grit at a hazardous landfill site. Once the grit is washed it will be suitable for reuse in construction projects or cover material for landfill sites. This will reduce waste generation.

c) whether, and to what extent, the proposed development will result in the release of greenhouse gas (GHG) emissions;
Refer to point a.

d) whether the proposed development is necessary to achieve long term decarbonisation goals;
The facility itself is not necessary to achieve long term decarbonisation goals.

e) the impact of the development on social, economic, natural and built environment that are crucial for climate change, adaptation and resilience;
The social impacts of the facility have been assessed and are deemed to be positive as the construction and operation of the facility will result in job creation and improve municipal services (sewage).

f) the projected impact of climate change on proposed development; and surrounding environment, and implications for the development.
Climate change may result in more severe weather such as flooding and storms. The facility contains two water retaining structures, a sludge pit and an underground 150kl storage tank located adjacent to the treated effluent pump station. These components will be designed and checked against floatation in the event of a raised water table during floods.

Flooding of the facility may occur if the hydrological functioning of the wetland system is reduced through the expansion of culvert. The culverts may be design and constructed to avoid this happening during flood events.

Erosion has been identified as a potential impact during construction, climate changes, heavy or more frequent rainfall could exacerbate erosion. There are control measures in the EMPr to manage erosion.

g) Explanation of how the impacts is likely to be exacerbated or minimised as result of climate change and what measures are likely to be implemented to accommodate and manage (adapt to) the anticipated worst scenario where applicable
Refer to point f above.

h) whether, and to what extent, the impacts identified in (a) -(g) can be mitigated.
The impacts identified above can be mitigated through ensuring the facility is constructed as per the propose design and ensuring the EMPr is implemented on site.

4. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

The construction and operation of a grit and sludge washing facility will result in a number of positive and negative environmental and social impacts. The impacts have been identified by the EAP and a team of specialists. None of the impacts were deemed to be fatal flaws and all of the negative impacts can be mitigated to acceptable levels.
Please find the full impact assessment which takes into account duration, extent, and severity, impact on irreplaceable resources, consequence, likelihood, and significance of each impact for Layout 1and the No-go Alternative in Appendix G. An explanation of the methodology for assessing impacts is also included in Appendix G.

Below is a summary of impacts identified during the full impact assessment

Layout 1 - Impacts summary: After mitigation

Impact	Type	Duration	Likelihood	Significance
Planning and design phase				
None				
Construction phase				
Employment construction work	Direct impact	Short term	Definite	Low positive
Loss of wetland vegetation	Direct impact	Short term	Likely	Very low negative
Establishment of invasive vegetation	Direct & cumulative impact	Temporary	Unlikely	Very low negative
Soil contamination	Direct & cumulative impact	Temporary	Unlikely	Very low negative
Damage to existing services	Direct impact	Temporary	Unlikely	Very low negative
Additional Traffic Loading (Capacity)	Cumulative impact	Temporary	Likely	Very low negative
Additional Axle Loading (impact on pavement)	Cumulative impact	Temporary	Likely	Very low negative
Additional Traffic Loading (Safety Impacts)	Cumulative impact	Temporary	Likely	Very low negative
Noise emissions	Direct & cumulative impact	Short term	Likely	Very low negative
Stormwater contamination	Direct & cumulative impact	Temporary	Unlikely	Very low negative
Changes to water quality in wetland	Direct & cumulative impact	Short term	Likely	Very low negative
Damage/ destruction of fossils	Direct impact	Long term	Definite	Low positive
Damage/ destruction of archaeological material and unmarked human burials	Direct impact	Long term	Unlikely	Very low negative
Operational phase				
Employment for operations	Direct impact	Long term	Definite	Moderate positive
Recycling of grit	Indirect impact	Long term	Likely	Low positive
Additional Traffic Loading (Capacity)	Cumulative impact	Long term	Likely	Very low negative

Impact	Type	Duration	Likelihood	Significance
Additional Axle Loading (impact on pavement)	Cumulative impact	Long term	Definite	Low negative
Additional Traffic Loading (Safety Impacts)	Cumulative impact	Long term	Likely	Very low negative
Legal compliance	Direct impact	Long term	Definite	Low positive
Reduced risk of soil and ground water contamination through improved handling of grit and sludge	Indirect impact	Long term	Definite	Low positive
Reduced risk of health impacts to workers / informal reclaimers at general landfill	Indirect impact	Long term	Likely	Low positive
Odour emissions	Direct impact	Long term	Definite	Low negative
Noise emissions	Direct impact	Long term	Definite	Very low negative
Energy use	Direct impact	Long term	Definite	Very low negative
Stormwater contamination	Indirect impact	Long term	Likely	Very low negative
Changes to hydrology in wetland	Cumulative impact	Long term	Definite	Very low negative
Loss of vegetation including wetland vegetation	Direct impact	Long term	Unlikely	Very low negative
Changes to water quality in wetland	Cumulative impact	Long term	Unlikely	Very low negative

No-go Alternative (continue to dispose at general waste landfill site) - Impacts summary: After mitigation

Impact	Type	Duration	Likelihood	Significance
Planning and design phase				
Not applicable				
Construction phase				
Not applicable				
Operational phase				
Non-compliance with environmental legislation	Direct impact	Long term	Definite	Moderate negative
Health risk to workers and informal reclaimers at NMBM landfill sites	Direct impact	Long term	Definite	Low - negative
Soil contamination	Direct impact	Long term	Likely	Very low negative
Health hazard to fauna	Indirect impact	Long term	Likely	Low -negative
Landfill contamination and airspace loss	Cumulative impact	Long term	Likely	Low negative
Stormwater contamination	Indirect impact	Long term	Likely	Very low negative
Groundwater contamination	Cumulative impact	Long term	Likely	Very low negative
Odour emissions	Direct impact	Long term	Definite	Very low negative
Noise emissions	Direct impact	Long term	Definite	Very low negative
Decommissioning phase				
Not assessed				

SECTION E. RECOMMENDATIONS OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES
Is an EMPr attached?	YES

The EMPr must be attached as Appendix F.

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

The following section presents mitigation measures identified by the EAP and specialists.

Planning Phase:

- The proposed culvert should be sized to accommodate connectivity between the wetlands / water course, and also so that it does not result in back flooding of the grit washing facility.
- For the operational phase, all designs should include bunds or other suitable mechanisms to prevent any additional water quality impacts from reaching the wetland channel.
- Soil to be removed from site must be tested and disposed according to a programme that is compliant with waste management legislation current at the time of testing and disposal. This programme should be approved by DEDEAT and implemented prior to the Contractor moving onto site.
- The EMPr must be implemented on site and an ECO must be appointed to oversee the implementation of the EMPr.
- A rehabilitation plan should be compiled prior to construction commencing
- A faunal search and rescue to be undertaken prior to construction commencing

Construction Phase:

- Employment opportunities are given to local companies in order to benefit the local community.
- The construction camp and necessary ablution facilities meant for construction workers must be well removed from the wetlands, outside of the 50 meter wetlands buffer.
- No-refueling or servicing of vehicles or stockpiling of materials within 10 meters of the wetland channel.
- Vegetation clearing should occur in parallel with the construction progress to minimise erosion and/or run-off.
- Suitable erosion protection such as gabions or stone pitching should also be included, to prevent any erosion/sedimentation.
- Appropriate action must be taken in advance to protect works should heavy rains / storm event be forecasted.
- Hazardous substances should be properly labeled, contained and stored at all times to ensure that spillage cannot it the container falls over is damaged. This means that lids, secondary containment and drip trays will be required.
- Eradication of invasive vegetation found propagating on site during the construction phase before plants reach maturity.
- Revegetation of cleared areas should be promoted via appropriate soil and seed spreading and watering.

Operational Phase

- Facility maintenance to be adheres to a maintenance plan to avoid overflowing of the sump or damage to equipment or pipes.
- Washed grit must be tested on a regular basis according to an operational management plan to ensure that the quality of washed grit remains consistent.
- Solar panels to be installed on the roof of the facility.
- Emergency plans must be in place in case of spillages onto road surfaces and wetlands /water courses.
- Chemicals used during operations must be stored safely on site and surrounded by bunds.
- Vehicles and pedestrian access to the wetland must be prohibited.
- If the wetland area is disturbed, the affected areas should be revegetated with appropriate indigenous plant species with suitable erosion protection.
- Any damage and loss of soil resulting from a storm is to be remedied immediately.

Decommissioning Phase

- A rehabilitation plan should be developed and approved by DEDEAT prior to decommissioning commencing
- All pipelines, sumps and storage areas must properly empty and cleaned prior to demolition.

All the recommendations and mitigations listed above have been included in the EMPr in Appendix F.

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

Appendix G1. Water use license

Appendix G2. Confirmation of availability of municipal services

Appendix G3. Detailed impact assessment tables

Appendix G4. EAP declaration, CV and registrations

Appendix G5.Engineering design report

Appendix G6. Proof of project announcement