environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, 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, 2010 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.

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 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.

7. No faxed or e-mailed reports will be accepted.

8. The report must be compiled by an independent environmental assessment practitioner.

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.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? YES ■
If YES, please complete the form entitled "Details of specialist and declaration of interest"
for appointment of a specialist for each specialist thus appointed:
Any specialist reports must be contained in **Appendix D**. (APPENDIX D)

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

Applicable legislation is as follows: Sections 24(2) and 24(D) of the National Environmental Management Act, 1998 (Act 107 of 1998); EIA Regulations 2010, Listing Notice 1, states that a basic assessment is required for:

Indicate the number and date of the relevant notice:	**Activity No (s) (in terms of the relevant notice) :**	**Describe each listed activity as per project description[2]:**
Applicable legislation is as follows: Sections 24(2) and 24(D) of the National Environmental Management Act, 1998 (Act 107 of 1998); Listing Notice 1, states that a basic assessment is required for:	Activity No. 23	The transformation of undeveloped, vacant or derelict land to- (ii) Residential, retail, commercial, recreational, industrial or institutional use, outside an urban area, and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) Government Notice No.718, July 2009: Category B:	Activity (7)	"The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic meters or more".
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) Government	Activity (10)	-disposal of general waste to land covering an area in excess of 200m2

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.
[2] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

Notice No.718, July 2009: Category B:		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) Government Notice No.718, July 2009: Category B:	Activity (11	The construction of facilities for activities listed in category B of this schedule…

PROJECT DESCRIPTION: The project is located within Jozini Local Municipality on portions of Erf 326, 327, and 328. The proposed site consists of vacant, undeveloped land located less than a kilometre west of the centre of the town of Ingwavuma. The site adjoins the existing Imgwavuma Police Station, which is situated on Main Street, Ingwavuma.
The National Department of Public Works proposes to construct a correctional facility within the Ingwavuma area, Jozini Local Municipality. The site is located on portions Erf 326, 327, and 328, and spans a total of 6.3643 hectares.

The existing prison on the site is capable of housing approximately 100 inmates and will be upgraded as part of the proposed project. The new prison is proposed to house a total of approximately 250 inmates. The prison facility will have a new building area of approximately 4000m² and the existing structure will be renovated.

Various options are currently being tabled, one of the options is to refurbish the existing facility to accommodate female prisoners totally separate and the new infrastructure will accommodate the male prisoners.
The proposed development includes the construction of correctional facility buildings such as housing units, a multipurpose hall, a kitchen, and a laundry; an electrical substation; parking spaces; and a sports field and netball field. The development will be provided with typical municipal services such as the supply of water and electricity, appropriate sewerage disposal in the form of a package plant, the regular removal of refuse, etc.
According to the Jozini Municipality 2009/2010 IDP, crime was identified as one of the top ten development priority issues for the district. A correctional facility such as the one proposed for construction at Ingwavuma would no doubt assist in achieving the objectives of this development priority.
In prison buildings live those individuals which we as a society fear the most; whether they are common criminals, murderers, or rapists. Prisons serve as a valuable and necessary component of every nation. They serve to make a country‘s citizens feel protected and safe in the knowledge that those who threaten society are locked away.
Prisons serve a set of complex, mutually conflicting and hard-to-achieve goals. Prisons must house people in a humane manner but simultaneously appeal to the punitive nature of prisons — order and security must be maintained while providing an effective deterrent, and appease political opinion (Muntingh, 2007).
The Correctional Services Act (111 of 1998), in section 2, articulates three objectives for the South African prison system: to implement the sentences of the court in the prescribed manner; to detain all prisoners in safe custody while ensuring their human dignity; and to promote the social responsibility and human development of all prisoners and persons under community corrections.
Safety, dignity, social responsibility and human development are values derived from the Preamble to the Constitution and section 7(1) of the Constitution, and it thus follows that these should be given expression in the daily functioning of prisons. The challenge therefore lies in creating a prison environment that inculcates the values and habits enabling released

prisoners to fulfill their roles as constructive citizens.
The purpose of imprisonment, as described in section 36 of the Correctional Services Act, renders further expression to the right to dignity by acknowledging the inherent potential of each sentenced prisoner to contribute to society and be able to lead a —socially responsible and crime free life‖.

Electricity upgrade for the prison: the Department of Public Works has entered into a Service Level Agreement with the Mkhanyakude District municipality for the upgrading of electricity. The Department has also paid the municipality R941 041.10 in honour of the signed agreement. (attached agreement, Annexure D

The National Department of Public Works is of the intention to ALSO renovate or add additions to the following 3 x governmental facilities at Ingwavuma Town:

- ✓ *Department of Justice: Ingwavuma Magistrates Court. (New accommodation and alterations to existing.) the project comprises of the upgrading of existing building and construction of additional accommodation. The extent for additions is approximately 2000m².*
- ✓ *Department of Correctional Services: Ingwavuma Prison.(New prison with alterations and renovations to existing).*
- ✓ *South African Police Services: (Future planned renovations and or new complex.)*

THESE RENOVATIONS DO NOT TRIGGER ANY OF THE LISTED ACTIVITIES.

In this regard, the National Department of Public Works ALSO proposes the upgrading of water supply and sanitation infrastructure that will serve the SAPS, Magistrates court and the proposed prison. The sanitation facility is proposed on erf 422 adjacent to the properties of the Ingwavuma prison.

Sanitation (Refer Consolidated Services Report, Annexure D):
Currently there is no existing waterborne sewerage facility available in the town of Ingwavuma. The onsite handling of sewage is challenging. Therefore, at present sewage is treated by septic tank systems. It was reported that the septic tanks overflow into soak-away systems.

It is recommended that a sewerage treatment plant 4: Biological Trickling Filter Plant be selected as preferred sewerage treatment process. In addition, it was also confirmed with the NDPW Engineer that, in lieu of a primary settling tank in combination with a digester to cater for sludge, DPW will settle for an appropriately designed “Anaerobic Reactor”.

Location of Site: The proposed sewer plant is to be located on Lot 422.
Water supply options: (Refer Consolidated Services Report, Annexure D):

The existing Shemula Scheme's bulk rising main water pipe is installed along the MR 443 road passing through Ingwavuma town. As mentioned, this pipeline is currently dry. It is however proposed that a permanent water connection be made to the existing Shemula Scheme's Bulk Rising Main water pipe (*and not the reticulation network*) complete with a pressure sustaining valve and bulk water meter, to supply water directly to the facilities once the scheme is in full operation again.
From our past experience with rural water supply schemes, we are of the opinion that water supply to the Shemula Scheme would remain intermitted and unreliable. We therefore extended our investigation to secure a dedicated water supply for the three facilities in Ingwavuma.
During a planning meeting at NDPW offices in Pretoria on 12 February 2013 it was concluded that funding be made available for the drilling of at least 6 boreholes in the area. These boreholes would serve as back-up water supply, should the municipal water supply scheme fail to be re-instated.
During the month of March 2013, drilling commenced. 7 x Boreholes were drilled and 5 boreholes produced remarkably good yields. borehole water is intended to serve as back-up water supply.

Borehole Water Supply Recommendations: (Refer Consolidated Services Report, Annexure D):
During a planning meeting at NDPW offices in Pretoria on 12 February 2013 it was concluded that funding be made available for the drilling of at least 6 boreholes in the area. These boreholes would serve as back-up water supply, should the municipal water supply scheme fail to be re-instated.
During the month of March 2013, drilling commenced. 7 x Boreholes were drilled and 5 boreholes produced remarkably good blow yields.
Boreholes KZN 130065 / KZN 130066 are located in close proximity of the three governmental *facilities.*

- *The two boreholes KZN 130067 & KZN 130068 are located approximately 2.1km North East of the 3 x* governmental *facilities.*
- *Borehole KZN 130071 is located 1.3km South East of the three* governmental *facilities nearby Mosvold Provincial Hospital.*

Borehole water is intended to serve as back-up water supply.

- The water quality results of all boreholes have been received from the Laboratory. From these results, the water is classified as Class II – *"Suitable for human consumption if disinfected and not to be used over prolonged periods if untreated."* accept for Borehole KZN 130066 that produced water with a high Fluoride content and is unacceptable for human consumption without treatment.
- Boreholes KZN 130069 & KZN 130070 was either dry or produced low yields and it was decided not to continue with pump testing of these boreholes.

Borehole Water Supply Recommendations:

- ✓ *The "Expected Daily Yield" of the tested boreholes totals 515kl and exceeds the Average Daily Water Demand (ADD) of 200kl.*
- ✓ *It is further recommended that the NDPW equips at least boreholes KZN 130067 and KZN 130065 with pumps. The "Expected Daily Yield" from these two boreholes is 315kl.*
- ✓ *Borehole KZN 130067 will be the main supply borehole, fitted with a ±40kW line shaft pump, whilst Borehole KZN 130065 will be a supplementary supply borehole, fitted with a submersible pump.*
- ✓ *Eskom power supply is available in close proximity of the boreholes proposed to be equipped. Application for dedicated transformers and meters connections will have to be processed for the main Borehole KZN 130067.*
- ✓ *Water supply from all the borehole sources will have to be disinfected. It is proposed that a self propelled granular chlorine dispenser be installed at the new 600kl concrete reservoir.*
- ✓ *Should, in future, it be decided to use the borehole water supply as permanent source of supply, a Reverse Osmoses Water Treatment process will have to be introduced to remove unwanted sol ids / minerals i.e. Iron, Manganese etc.*
- ✓ *Supply rising main pipelines will have to be constructed from the boreholes to a proposed new 600kl concrete storage reservoir near the three governmental facilities (see figure 3),.*
- ✓ *The rising main pipeline from the main supply borehole (KZN 130067) was calculated to be at least a 110mm dia pipe. (Q = 7.6 l/s & V = 0.9m/s) With reference to figure 3 below, the blue line represents the proposed new 110 dia. pipeline route that will follow the existing water supply pipeline (Red line) supplying Mosvold Hospital. The new pipeline route then diverts around the back of the Ingwavuma Town CBD, along the cadastral boundary to the proposed concrete reservoir located at a high point near the three government facilities.*
- ✓ *The rising main pipeline from the second supplementary supply borehole (KZN 130065), fitted with a submersible pump will have a short pipeline directed through the new prison development to the proposed 600kl concrete reservoir. This rising main pipeline is estimated to be a 63mm Dia HDPE pipeline.*
- ✓ *Furthermore, it is proposed that a 25m high elevated steel water tank with a capacity of 34kl be installed. This is to ensure that there is sufficient pressure for reticulation for fire water and domestic consumption. The elevated tank will eliminate the need for booster pumping water into the fire and reticulation network.*
- ✓ *A booster pump will be used to pump water from the 600 kl reservoir to the elevated water*

tank.

- ✓ *The Architects are encouraged to include storage tanks for roof rainwater harvesting when finalising the facilities design. This water will be used to water gardens and for cleaning purposes.*

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.

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.

CORRECTIONAL FACILITY:

	Latitude (S):		Longitude (E):	
Alternative:				
Alternative S1[3] (preferred or only site alternative)	27°	08‘ 00.4”	31°	59‘ 42.6”

(Correctional facility located on portions Erf 326, 327, and 328: *The site, located on portions Erf 326, 327, and 328, spans a total of 6.3643 hectares and consists of mostly veld grass and some overgrown alien invasive vegetation. Topographically, the site is terraced and flat to gently sloping. The site is bound to the south-east by the existing Ingwavuma Prison, as well as staff quarters and a few homes. The site is devoid of ecologically valuable attributes.)*

Alternative S2 (if any): **n/a**
No alternative site exists, as this is an extension to the existing facility.

Latitude (S): **Longitude (E):**

SEWAGE PLANT: (Sewage plant-LOCATED ON lot 422, Ingwavuma)

Alternative:				
Alternative S1[4] (preferred)	27°	07‘ 48.0”S	31°	59‘ 47.4”E

	Latitude (S):		Longitude (E):	
Alternative:				
Alternative S2[5] (site alternative)				

(Sewage plant-AS PER LAYOUT PLAN, OPTION 2, erf 362)

WATER SUPPLY:

	Latitude (S):	Longitude (E):
Alternative:		
Alternative S1[6] (preferred): boreholes: KZN 310065 & KZN 310067	27 07’ 59.7”	31 59’ 42.6”
	27 07’ 36.1”	32 01’ 00.5”

In the case of linear activities: *permanent water connection to the existing Shemula schemes bulk rising main water pipe. a supply rising main from borehole to proposed 600kl reservoir.*

(start and end of the reticulation for connection to Shemula Water Scheme-co-ordinates)

Alternative S2[7]: latitude longitude

[3] “Alternative S...” refer to site alternatives.
[4] “Alternative S...” refer to site alternatives.
[5] “Alternative S...” refer to site alternatives.
[6] “Alternative S...” refer to site alternatives.
[7] “Alternative S...” refer to site alternatives.

(shemula water scheme): START	27 08' 02.67"S	31 59' 52.20"E
END (600L/DAY RESERVOIR)	27 08' 00.8"S	31 59' 48.8"E

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[8] (preferred activity alternative) (preferred activity alternative) *Prison Layout-The preferred layout for the prison comprises visitors' facilities, an admissions processing building, a medical facility, a kitchen, a vocational training and education building, and a cook's unit at the south-eastern end of the site, which adjoins a sports field; a housing unit at the north-western end of the site; a female housing unit, female visitors' building, and administrative section adjoining a netball field toward the southern end of the site; and a logistic store facility, garage, and electrical sub-station at the southern-most reaches of the proposed site. A sewage package plant is proposed, and there are requirements for complete electrification of the facility. Refuse removal services are deemed adequate for the proposed facility.* *The existing prison shall be retained for use as the female prison with no requirements for links to the rest of the prison, in this instance it will not be altered or demolished (a permit from Amafa would be required for alteration or demolition). The male prison shall be constructed on the vacant area just behind this.* *This layout will include: public parking, electric substation, shaded staff parking, pre-existing units, an administrative section, visitors facilities, admissions processing facility, medical facility, a kitchen, laundry, a street, a vocational training and education facility, a segregation unit, a cook's unit, a multipurpose hall, a housing unit, a recreational area, a sports field, a future housing unit with extended walkways, a logistic store facility, a garage with covered walkways, and the existing prison building to be used as the new female prison. The new development will cover an area of 8625.784m2, with the total coverage*	11250.956m^2

[8] "Alternative A.." refer to activity, process, technology or other alternatives.

accounting for 11250.956m2.	
Alternative layout-prison: Alternative A2 (if any) *The alternative layout would entail the decommissioning and destruction of the present correctional facility, with the re-construction of the newly proposed correctional facility in its place. The new layout would entail the construction of public parking, an electrical substation, shaded staff parking, an administrative section, a female visitors facility, female housing unit, netball court, visitors facilities, an admissions processing facility, a medical facility, a kitchen, laundry, a street, a vocational training and education facility, a segregation unit, cook's unit, a multipurpose unit, a housing unit, a recreational area, sports field, space for future housing units, a logistic store facility, and a garage. The new development will cover an area of 8668.357m2, with the total building coverage amounting to 9839.128m2.*	9839.128m^2

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)-	6.3643 ha

TECHNOLOGY ALTERNATIVES

SEWAGE **Alternative A1: sewage treatment plant:**	**Size of the activity:**
Alternative A1[9] (preferred activity alternative)	11 442m2

Alternative A2: soak-away pit on each of the facility sites or (ii) using conventional Dry Pit Toilets or a Septic Tank and Evaporative Pond System in areas where there is low permeability of the subsoil. However, all these treatment processes could contaminate the borehole ground water and is also not recommended in terms of the Environmental Impacts.

- a Septic Tank and Evaporative Pond System - as this system requires far less maintenance and is much easier to operate. The initial capital cost is however slightly higher than a package treatment facility, but outweighs long term operational cost.

WATER SUPPLY:

[9] "Alternative A..." refer to activity, process, technology or other alternatives.

Alternative A1: groundwater/boreholes (*KZN 130067 and KZN 130065)* Borehole water is intended to serve as back-up water supply.

Alternative A2: bulk water: *The town of Ingwavuma is supplied with treated water by the Shemula Water Supply Scheme. Water is pumped utilising a number of consecutive pump stations from the Makhatini / Ndumo flats, up the Ingwavuma hill, towards the town. Water is at present not reaching the town of Ingwavuma due to the increased demand on the lower laying area.*
An upgrade of the Shemula Water Treatment Works is in progress and should be completed within the next 12-14 months, The existing Shemula Scheme's bulk rising main water pipe is installed along the MR 443 road passing through Ingwavuma town. As mentioned, this pipeline is currently dry. It is however proposed that a permanent water connection be made to the existing Shemula Scheme's Bulk Rising Main water pipe (and not the reticulation network) complete with a pressure sustaining valve and bulk water meter, to supply water directly to the facilities once the scheme is in full operation again.
From past experience with rural water supply schemes, we are of the opinion that water supply to the Shemula Scheme would remain intermitted and unreliable.

or, for linear activities: *Supply rising main pipelines will have to be constructed from the boreholes to a proposed new 600kl concrete storage reservoir near the three governmental facilities*

Alternative:	**Length of the activity:**
Alternative L1 (**preferred layout alternative**)	2.7km

The reticulation will follow the road existing Hospital supply steel pipeline and cadastral boundary (as per layout Annexure B, "Consolidated Services Report).

5. SITE ACCESS (A TRAFFIC ASSESSMENT WAS UNDERTAKEN, REFER APPENDIX D)

Does ready access to the site exist?	[redacted] NO
If NO, what is the distance over which a new access road will be built :	m

Describe the type of access road planned:

The municipal access road to the existing sites is by means of gravel road off a surfaced main road.
Currently the gravel road does not follow the road reserve and cuts through the site of the proposed new Magistrates court. The gravel road has to be re-aligned along the existing road reserve. The access road will also have to be upgraded to a 6 m wide road and using pavement materials i.e. G5, G7, in order to ensure that it is up to the required road standards.
Furthermore, roadside drainage infrastructure has to be installed, i.e. pipe culverts: storm water head walls and roadside V-drains with catch pits.(as per consolidated Services Report, Annexure D

AS PER THE TIA:

- ✓ The municipal access road to the existing sites is by means of gravel road off a surfaced main road. Currently the gravel road does not follow the road reserve and cuts through the site of the proposed new Magistrates court. The gravel road has to be re-aligned along the existing road reserve.
- ✓ The access road will also have to be upgraded to a 6 m wide road and using pavement materials i.e. G5, G7, in order to ensure that it is up to the required road standards.
- ✓ Furthermore, roadside drainage infrastructure has to be installed, i.e. pipe culverts: storm water head walls and roadside V-drains with catch pits.
- ✓ The additional traffic volume as a result of the proposed facility upgrade is comparatively minor and has little effect on the external impact development.
- ✓ The gravel loop access road (Road 2) must be upgraded to black top standards including intersections № 1 & 2.
- ✓ Additional public transport bays at intersection № 1 and pedestrian walkways should be constructed.

- ✓ The both intersections does not warrant signalisation currently, but should be assessed in the future by the Municipality in terms of the Municipal Signal warrants and policies.

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.

6. SITE OR ROUTE PLAN (APPENDIX A)-amended layout

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);

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

7. SITE PHOTOGRAPHS (APPENDIX B)

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 (APPENDIX C)-package plant

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?	R100,000,000	
What is the expected yearly income that will be generated by or as a result of the activity?	N/A – No Rental or income	
Will the activity contribute to service infrastructure?	YES	~~NO~~
Is the activity a public amenity?	YES	~~NO~~

How many new employment opportunities will be created in the development phase of the activity?	Direct= 250 Indirect= 150
What is the expected value of the employment opportunities during the development phase?	R 140, 000,000
What percentage of this will accrue to previously disadvantaged individuals?	95%
How many permanent new employment opportunities will be created during the operational phase of the activity?	200
What is the expected current value of the employment opportunities during the first 10 years?	R 360,000,000
What percentage of this will accrue to previously disadvantaged individuals?	95%

9(b) Need and desirability of the activity

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

NEED:			
1.	Was the relevant provincial planning department involved in the application?	YES	[redacted]
2.	Does the proposed land use fall within the relevant provincial planning framework?	YES	[redacted]
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?	YES	[redacted]
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	YES	[redacted]
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	[redacted]
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
5.	Will the proposed land use / development impact on the sense of place?	[redacted]	NO
6.	Will the proposed land use / development set a precedent?	YES	[redacted]
7.	Will any person's rights be affected by the proposed land use / development?	[redacted]	NO
8.	Will the proposed land use / development compromise the "urban edge"?	[redacted]	NO
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		
	According to the Jozini Municipality 2007/2008 IDP, crime was identified as one of the top ten development priority issues for the district. A correctional facility such as the one proposed for construction at Ingwavuma would no doubt assist in achieving the objectives of this development priority. It has been noted that the handling of crime is particularly difficult in the Umkhanyakude District due to the fact that the district is bordered by both Swaziland and Mozambique. Criminals are very dangerous persons that defy the legal system incorporated to ensure the safety of a nation. Prison Systems are the tool used to ensure that dangerous criminals are kept out of society, and is a place where programmes of re-education and rehabilitation can be enforced in order to prevent their future crimes. As an Institution, prisons are a requirement and potentially important in rural areas, especially in communities that are struggling economically. Communities look at prisons as a sound economic development strategy; a stable recession-proof industry that promises stable jobs and a new economic base. More importantly a prison or correctional facility will serve as a deterrent to criminal activity in the area.		

	Job creation is primarily one of the main characteristics leading towards the benefit of having prisons within a community. It is perceived that the prison will provide the local community with a needed economic boost and is also supported by the expectation of new "spin-off" businesses moving into the area as a result of the prison's presence. Crime in South Africa is a serious problem affecting the lives of every individual, to the extent that every person at some point or the other has witnessed or been the victim of some kind of crime. Prisons are currently inundated and over-populated, yet crime in the country still persists. In KwaZulu-Natal at present there are only two maximum security prisons (Westville and Kokstad prison), thus in order to shed some relief the Ingwavuma Correctional Facility is proposed to be upgraded and extended. This will not only benefit the local community but the rest of KwaZulu-Natal and ultimately South Africa. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase. Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. These benefits will not materialize should the development not proceed. The proposed development is a necessary one that includes the construction of correctional facility buildings such as housing units, a multipurpose hall, a kitchen, and a laundry; an electrical substation; parking spaces; and a sports field and netball field. **Sewage treatment:** No municipal sewage treatment facility is available. Sewage is currently being treated on site by means of septic tanks. Due to the additional accommodation being developed on the sites, a sewage treatment plant will have to be provided on an adjacent site

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	YES	■
2.	**Explain:** The construction of a correctional facility will undoubtedly benefit society by reducing crime by acting as deterrent to other would-be criminals, by removing criminals from society; and by hopefully rehabilitating prisoners to positively re-enter society at a later stage		
3.	Will the land use / development have any benefits for the local communities where it will be located?	YES	■
4.	**Explain:**		
	Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase. Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will decrease.		

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:**
Section 24 of the National Environmental Management Act, (Act No. 107) of 1998. EIA Regulations 2010.	Department of Environmental Affairs	2010
Section 3 of the Development Facilitation Act, (Act No. 67) of 1995.	Department of Environmental Affairs	1998

Occupational Health and Safety Act, (Act No. 85) of 1993.	Department of Manpower	1993
Section 19 of the National Water Act, (Act No. 36) of 1998.	Department of Water Affairs	1998
National Environmental Management Biodiversity Act (Act No. 10 of 2004)	Department of Environmental Affairs	2004
National Heritage Resources Act 25 of 1999	SAHRA	1999
Provincial Heritage Act 4 of 2008	AMAFA KZN	2008
National Environmental Management, Waste Act (Act No.59 of 2008)	Department of Environmental Affairs	2009

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	■
If yes, what estimated quantity will be produced per month?	+/-80m^3	

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

Construction rubble shall be gathered in skips and transported to pre-agreed, demarcated spoil dumps or landfills that have been approved by the Project Engineer.

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

All waste will be removed from the site and transported to permitted landfill sites. Construction rubble shall be disposed off in a pre-agreed demarcated spoil dumps that have been approved by the Project Engineer.

Will the activity produce solid waste during its operational phase?	YES	■
If yes, what estimated quantity will be produced per month?	24m^3	

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

Solid waste will be transported and disposed off at pre-agreed registered landfill sites or spoil dumps, domestic waste will be municipally collected and disposed off at a registered and licensed waste disposal site.

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

Waste will be taken up within the municipal stream.

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?	■	NO

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?	■	NO

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. :N/A

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	NO
If yes, what estimated quantity will be produced per month?:	m^3	
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	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. (THIS HAS BEEN ASSESSED IN THIS BAR)

Will the activity produce effluent that will be treated and/or disposed of at another facility?		NO

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

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

- Special attention should be paid to the water saving potential of toilet suites that are designed as a unit, to operate efficiently and safely on a standard flush of 4.5 liters instead of the current norm of 9 liters.
- When installing or replacing toilets, models with low-flow tanks should be selected.
- Also, water used in the construction and operational phases of the proposed development will be released into the municipal sewer systems. The water will then be transported to the municipal water works, treated and released, and reused.
- Low maintenance indigenous landscaping should be used for the upliftment of the site.
- Water reuse in the operational phase of the proposed development:
- Water saving devices is encouraged for toilets and leaking toilets and pipelines are urged to be repaired.

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:

During construction, activities carried out by construction vehicles and machinery will result in variable quantities of dust being released into the atmosphere. This, however, will reduce and eventually cease once construction activities have been completed. Should dust pollution become a problem during the construction, dust amelioration measures (periodic wetting of exposed surfaces) will have to be put in place.

CONCENTRATION: LOW-MODERATE

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:

- During construction, activities carried out by construction vehicles and machinery is likely to generate noise. This will subside once construction is complete. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract. Should after-hour construction work be essential, then adjacent landowners need to be notified of the activity.
- CONCENTRATION: LOW-MODERATE

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:	6 000M3/MONTH
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.(Proof of submission)

13. ENERGY EFFICIENCY

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

- For the sewage plant: flow will be mainly via gravity
- For the water supply: high efficiency motors will be installed to maximise efficient pumping.
- Applying an energy-effective design and operating approach to lighting installations can achieve performance and visual satisfaction. The facility to be designed is to make optimal use of natural light.
- Building materials to be utilised that would have a natural cooling effect in hot weather and a warming effect in cold weather.
- Lamps and control gear of highest efficacy should be used. In this respect, the following lamp properties should be considered: color appearance, color rendering, luminance, luminous flux, lamp lumen depreciation, life, size, starting-up and running characteristics, and dimming possibilities. Fluorescent/energy saving lamps should be used.
- Install insulation in the roof and around the geyser. The geyser setting should be around 55-60 degrees.
- Environmental Education and Awareness should be taught to the construction workers before the commencement of construction. The utilization of energy during construction, in a responsible manner should also be included within this program.
- Glass waste products, which are to be used in the proposed development, should be stored separately and disposed of in an authorized glass waste depot. The recycling of glass products is excellent in large energy saving.
- Maximize the thermal properties of each unit in the facility by using building materials that have excellent heat absorbance ability.
- Implement Geo-thermal heating. This is done using vertical bores in which the system extracts heat from the ground and retains a consistent temperature throughout the year. This system can run to an efficiency of up to 400%, comparing favourably to a gas boiler, which achieves a 90% efficiency rate. Some electricity is needed to run the heat pump in the system, but it is still much more efficient. CO_2 emissions are 1,180 tonnes lower than emissions from conventional heating and hot water systems. If 'green' electricity is supplied, carbon emissions can be regarded as zero.
- A building's location and surroundings play a key role in regulating its temperature and illumination. For example, trees, landscaping, and hills can provide shade and block wind.
- Tight building design, including energy-efficient windows, well-sealed doors, and additional thermal insulation of walls, basement slabs, and foundations can reduce heat loss by 25 to 50 percent.
- Proper placement of windows and skylights and use of architectural features that reflect light into a building can reduce the need for artificial lighting.
- Compact fluorescent lights use two-thirds less energy and may last 6 to 10 times longer than incandescent light bulbs. Newer fluorescent lights produce a natural light, and in most applications they are cost effective, despite their higher initial cost, with payback periods as low as a few months.
- Effective energy-efficient building design can include the use of low cost Passive Infra Reds (PIR's) to switch-off lighting when areas are unoccupied such as toilets, corridors or even office areas out-of-hours.
  Smart meters can be incorporated for internal monitoring purposes to ensure that the building's energy usage is in a dynamic presentable format. The use of Power Quality Analyzers can be introduced into an existing building to assess usage, harmonic distortion, peaks, swells and interruptions amongst others to ultimately make the building more energy-efficient. Often such meters communicate by using wireless sensor networks.

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

- Use of solar powered geysers for the facility should be promoted. Initial cost may seem high, but these will reduce energy consumption in the long run.
- Never put water down the drain when there may be another use for it such as watering a plant or garden, or cleaning.
- Water the gardens during the early morning hours when temperatures and wind speed are the lowest. This reduces losses from evaporation.
- Position sprinklers/hoses so that the water lands on the lawn and shrubs ... not the paved areas.
- Plant indigenous and/or drought-tolerant grasses, ground covers, shrubs and trees. Once established, they do not need to be watered as frequently and they usually will survive a dry period without any watering. Group plants together based on similar water needs.
- Create an awareness of the need for water conservation among the employees during construction and after.
- Be aware of and follow all water conservation and water shortage rules and restrictions which may be in effect in the area.
- Report all significant water losses (broken pipes, open hydrants, errant sprinklers, abandoned free-flowing wells, etc.) to the property owner, local authorities or DWA.

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 the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:
All specialist reports must be contained in **Appendix D**.

Property description/physical address:	The proposed development includes the construction of a correctional facility; buildings such as housing units, a multipurpose hall, a kitchen, a laundry; an electrical substation; parking spaces; a sports field and netball field. The development will be provided with typical municipal services such as the supply of water and electricity, appropriate sewerage disposal in the form of a package plant, the regular removal of refuse, etc. The existing prison is situated in the town of Ingwavuma. Ingwavuma town centre is located approximately 45 km north of Jozini, with its infrastructure and utility services supplied by the Jozini Municipality and/or Umkhanyakude District Municipality. The National Department of Public Works proposes to construct a correctional facility in the Ingwavuma area, Jozini Local Municipality. The site is located on portions Erf 326, 327, and 328, and spans a total of 6.3643 hectares. The proposed site consists of vacant, undeveloped land located less than a kilometre west of the centre of the town of Ingwavuma. The site adjoins the existing Ingwavuma Police Station which is situated on Main Street, Ingwavuma. The existing prison on the site is capable of housing approximately only 100 inmates and will be upgraded as part of the proposed project. The new prison is proposed to house a total of 250 inmates. The prison facility will have a new building area of approximately 4000m² and the existing structure will be renovated. Department of Justice, the project comprises of the upgrading of existing building and construction of additional accommodation. The extent for additions is approximately 2000m².

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

The correctional facility site is located on portions Erf 326, 327, and 328
Water supply and sanitation infrastructure for the magistrates court and police station: the police station and magistrates court is located on erf 391

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:	The proposed site for the correctional facility consists of vacant, undeveloped land located less than a kilometre west of the centre of the town of Ingwavuma. The site adjoins the existing Ingwavuma Police Station which is situated on Main Street, Ingwavuma.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.

Is a change of land-use or a consent use application required?	[redacted]	NO
Must a building plan be submitted to the local authority?	YES	[redacted]

Locality map:
(APPENDIX A)

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (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)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.
Alternative S1:

~~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

(REFER ATTACHED FORM)

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

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

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

~~Natural veld - good condition~~[E]	Natural veld with scattered aliens[E]	~~Natural veld with heavy alien infestation~~[E]	~~Veld dominated by alien species~~[E]	Gardens
~~Sport field~~	~~Cultivated land~~	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 does 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[A]~~
~~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?

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:
If YES, specify:

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:
If YES, specify:

6. CULTURAL/HISTORICAL FEATURES (REFER APPENDIX D, SPECIALIST STUDY)

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 paleontological sites, on or close (within 20m) to the site?	■	NO
	~~Uncertain~~	
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:	***The sites earmarked for the proposed correctional facilities development project did not yield any significant archaeological finds. However, there is an existing correctional facility older than 60 years on a portion of the development site. The building is automatically protected as historical property under the National Heritage Resources Act 25 of 1999 as well as the Provincial Heritage Act 4 of 2008. The proposed new correctional centre is not dependent on the existing building.*** ***However, the building may have to be altered/ renovated or completely demolished subject to its structural and engineering safety status as well as future planned land use. Apart from this existing historical building, the project area is heavily degraded with portions that are terraced from previous farming activities and demolished building remains. The degraded nature of the project area limits the chances of identifying any visible archaeological signatures on the surface, should they have existed before.***	

Some recommendations postulated in the Heritage Impact Assessment specialist study include:

- ***No archaeological finds are associated with the project area and as such the proposed development has low to no potential impact on archaeological heritage resources. However, this study did not involve any form of subsurface testing. As a cautionary measure, the project EMP should include chance archaeological finds and the procedures involved under the circumstances.***
- ***The existing correctional building is presently under use. Although no detailed historical architectural study was conducted on the facility, preliminary site condition surveys did not identify any features listed as historical properties of any recognised heritage significance. Should any work involve interfering with this facility, it is recommended that an AMAFA KZN alteration or demolition permit be applied for and issued prior to any work on the building.***
- ***It is the concluding recommendation that the heritage authority approve the project to proceed as planned on site (except for portions where the present building is situated. This building may be tampered with only after AMAFA issues a demolition or renovation permit).***
- ***No further archaeological studies are necessary for this proposed development. The heritage authority may also approve the recommendations herein made for inclusion into the correctional facilities development project construction Environmental Management Plan (EMP) for any chance subsurface archaeological finds.***

It is also the recommendation of this study that should the development proponent deem it necessary to alter the existing building, a permit from AMAFA for any changes to the existing structure of over 60 years old should be sought and AMAFA may issue such a permit subject to applicable demolition conditions stipulated in the AMAFA and SAHRA policies in this regard.

Phase 1:archaeological and heritage Phase Report for water pipeline and sewage works, August 2013:

No archaeological sites or materials were recorded along the water pipeline servitude within the Zululand servitude sections. The project area portions accessed were degraded for any archaeological material to be found in situ. This is specially so given the fact that there is an existing water pipeline along this servitude.

No grave or burial grounds were recorded on site or in vicinity of the servitude. However, the entire project area is an active cultural landscape with both historic and contemporary settlements and sites including burial grounds and cemeteries. None of these are on the direct path of the proposed pipeline route. The proposed pipeline development will be situated within an environment and associated cultural landscape, which, although developed by existing settlements, remains representative of the original historical environment and cultural landscape of this part of KZN area. The local communities consider the project area a cultural landscape linked to their ancestors and history. However, the proposed developments will not alter this aesthetic value in any radical way since it will add to the constantly changing and developing settlements specially given the fact that the pipeline will be subsurface in most parts. As such the borehole field area and the pipeline servitude project area has low potential to retain intact significant

archaeological site deposits. However, should intact archaeological sites be recorded within the area and immediate surrounding areas, they may retain scientific evidence that may add value to the local and regional history. The area earmarked for the sewage treatment facility is currently covered in dense vegetation. Effective ground surface survey was limited. This report concludes that the proposed borehole and water treatment facilities, the associated Water Pipeline development and the sewage water treatment facility may be approved by Amafa KwaZulu Natali PHRA to proceed as planned.	
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 sub regulation 54(c) (ii); and

(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person desires of but unable to participate in the process due to—

(i) illiteracy;
(ii) disability; or
(iii) any other disadvantage.

Public participation processes undertaken for the proposed project include the following Activities: (Copy of BID, APPENDIX B)

An information package containing a description of the project and planned scope of work was compiled and distributed to relevant Authorities and Interested Parties that were identified at the project outset. The background document contained a description of the project, explained the aims and objectives of the environmental assessment and invited comment on the proposed development. The background document was also hand delivered to neighbours within 100 m's of the project site.

The proposed development was advertised in the Ilanga local newspaper on the 15 October 2009.

Six onsite notices in both English and Zulu were displayed for public viewing and comment, at the project site, the Ingwavuma Police Station, the Ingwavuma office of the Jozini Municipality, at the SupaTrade Spar Complex outside Pep, and at the Jozini Municipality building.

The Draft BAR was placed at the library for public viewing and comment. All I&APs were informed via email, telephone, and fax of this report. Copies of the draft report were mailed to relevant authorities (WESSA, EKZN WILDLIFE, DWA, AMAFA, DOT, DLGTA, DEPT OF AGRIC, JOZINI LOCAL MUNICIPALITY and UMKHANYAKUDE DISTRICT MUNICIPALITY).

Public participation processes undertaken for the amended report:

- The on-site notices were displayed on the 25 July 2013 at the following locations:
- Correctional facility; Ingwavuma Police Station, the Ingwavuma office of the Jozini Municipality, at the SupaTrade Spar Complex outside Pep, Magistrates court, taxi rank.
- The adverts were placed on the 05 August 2013 in the Zululand Observer (English advert) and in the Isolezwe.(Zulu advert)

- Copies of the amended BAR resubmitted for comments to all relevant authorities ON THE 02 September 2013 (30 day comments period as per DEA instruction).

The I&Aps included:

- ✓ Ezemvelo KZN Wildlife;
- ✓ Department of Water Affairs;
- ✓ AMAFA Heritage KZN;
- ✓ Wildlife and Environmental Society of South Africa (WESSA);
- ✓ Jozini Local Municipality;
- ✓ Umkhanyakude District Municipality;
- ✓ Department of Transport;
- ✓ Surrounding Property Owners;
- ✓ Department of Local Government and Traditional Affairs;
- ✓ Department of Agriculture.

a. 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;
b. 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.

c. 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.

d. 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.

E. COMMENTS AND RESPONSE REPORT (APPENDIX E)

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**.

f. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

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.

List of authorities informed:

Ezemvelo KZN Wildlife;
Department of Water Affairs;
AMAFA Heritage KZN;
Wildlife and Environmental Society of South Africa (WESSA);
Jozini Local Municipality;
Umkhanyakude District Municipality;
Department of Transport;
Surrounding Property Owners;
Department of Local Government and Traditional Affairs;
Department of Agriculture.

List of authorities from whom comments have been received:

UMKHANYAKUDE DISTRICT MUNICIPALITY (: Mr. Sifiso Xulu)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
JOZINI LOCAL MUNICIPALITY (Town Planner)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
WILDLIFE AND ENVIRONMENT SOCIETY OF SOUTH AFRICA (WESSA) Mrs. C Schwegman	**Comment on BID:** – Satisfied that a construction environmental management plan will be sufficient to avoid environmental deterioration while the facility is being built. – Have concerns about the operational phase and its reliance on a package plant for sewage treatment. It is expected that ownership of the plant is retained by the supplier with management/maintenance contracts in order to ensure efficient and safe functioning of the sewage disposal system. – No discussion on the receiving environment for effluent discharge at this stage- could treatment to Special Standards to be implemented if discharge is directly into a natural drainage system? – Provided that adequate provision is made for sewage disposal, WESSA have no wish to participate further in the project. **Comment on Draft BAR:** **Sewage:** Percolation tests have shown the site to be suitable for on-site sanitation via septic tank/French drain; however, it seems that a sewage solution for the project has not been identified.	Noted. An EMP will be submitted with this BAR Noted. Has been incorporated in the EMP, all these issues have been addressed in the Bulk Services Report. (Attached under **Annexure D**) The anticipated volume of sewage generated has been based on figures slated in the National Building Regulations. Allowance for day workers is 90l/day/person. Including a 15% allowance for infiltration gives an average

	– **Septic tank**: the bulk services report, 4.2.2, has identified that maximum French drains lengths and an evapo-transpiration area of considerable size are required for the predicted effluent loading and thus advices against septic tank/soak away systems. – **Package plant**: the recommended alternative is an Eco Wyatt Africa plant and no information is provided on this alternative either in the bulk services report or the BAR. WESSA would expect an assessment of the receiving environment to be undertaken, the position of the package plant given, proposed discharged point of treated effluent etc. Should guidelines for the installation and operation of sewage package plants not have been adopted by the relevant water and sanitation authority we trust that the licensing procedure will ensure measures are in place for the management of the system in the long term. **Electricity:**	daily flow of 73.6 kl. For design purposes we would recommend a peak factor of 3.25 giving an average flow of 0.85l/s and a peak flow 2.77l/s. Currently no sewer reticulation exists in the area. The existing facility disposes of its effluent via septic tank and French drains (i.e. on-site disposal). Observations during our site visit revealed flowing grey water at surface probably due to either clogging or an overload of the system. Percolation testing during the geotechnical investigation revealed that the site is suitable for on site disposal. However the effluent application rate to French drains is in line with the lower bounds limit of SABS 0400-1990 and will therefore require maximum French drains lengths and evapo-transpiration area. Based on an effluent loading of 90kl/day and the best case percolation rate of 102mm/hr will require approximately 565m length of French drain and an evapo-transpiration area of 38 000m^2 and is therefore not considered feasible. An alternative option would be to use a small sewage treatment plant installation. Based on discussions with a typical plant manufacturer and supply (Wyatt Africa), they have proposed the Eco Wyatt Africa plant with a septic tank size of 15m x 3m x 3m. Umkhanyakude District Municipality is responsible for the electricity supply to the facility. Initial discussions with the Municipality's Energy Services Manager (Mr. S. Manqele) has indicated that their current grid is under capacity at present and have applied to ESKOM for an increase supply to their grid network in 2007 without success to date.

	There is currently no capacity to supply electricity to the facility. **<u>Water:</u>** There is no capacity to meet the additional demand required for the upgraded facility. The bulk services report concludes that although the site is considered feasible for the proposed upgrade the problems with water and electricity supply need to be discussed with the relevant parties. The BAR does not indicate that this is in hand.	Typical data for the water demand at facilities such as this is not available. Various methods were used to estimate the demand including the Red Book 'Guidelines for Human Settlement Planning and Design'. Based on typical flows of high density high rise multiple dwelling unit buildings using the lower limit of 450l/day and assuming two persons per unit an average daily flow would be 112.5 kl. Allowing for staff at 140l/day plus losses increases the demand to 129.3 kl/day. Peak factor of 3.0 for daily flow and 4 for instantaneous flow should be adopted. Umkhanyakude District Municipality are responsible for supply of potable water to the area and although in our initial discussions they indicated their supply to Ingwavuma is limited but should improve with the commissioning of the new booster pump station. In subsequent correspondence (refer attached A) they advise that they do not have sufficient capacity to meet the additional demand required for the facility upgrade. The advice that the demand could be met if certain other projects are implemented. Enquiry with the local Ingwavuma Hospital confirmed that they have outsourced the disposal of their medical waste to a private specialist service provider (i.e. Compass Medical Waste). The volume of the medical waste that will be generated by the prison upgrade will be negligible; it is recommended that the Department of Correctional Services procures the services of a private specialist service provider to dispose of its medical waste as this will be most feasible and an economical option.

	Waste: A medical facility is described (BAR 3.2b) and correct disposal of medical waste must be ensured. The disposal of medical waste is not addressed. With respect to services, WESSA would like the capacity to render the relevant service from the appropriate providers confirmed.	
DEPARTMENT OF WATER AFFAIRS (DWA) **Mr S. C Sikhosana**	**Comment on BID:** – No comments received. **Comment on Draft BAR:** **Specific Comment** – The applicant will need to contact Department of Agriculture, Environmental Affairs and Rural Development for the necessary authorization for the above project. – The applicant must establish a surface and groundwater monitoring programme which must be submitted to this Department. – Please provide this Department with the geo-hydrological report. – The route chosen must have the least impact on the surrounding environment and have no impact on ecological significant areas. – Base line surface and sub surface assessments must be carried out to determine current water quality conditions, the results of which must be submitted to this Department.	Reminders sent Noted. Report will need to be sent to DEA. Noted. Has been addressed in the EMP A geo-hydrological study has been attached addressing this **(Annexure D)** Noted. Has been addressed in the EMP.

	2. <u>Solid waste management</u> All waste generated at the proposed development must be disposed off in a suitable manner so as not to cause any surface or sub surface water pollution or health hazard. All solid waste generated must be disposed of at a permitted landfill site allowed to accept such waste, proof of this must be made available if required. This Department must be contacted if any other disposal route is to be followed. This Department fully supports recycling of waste generated as a result of day-to-day activities of the development. **3. <u>Sewage and wastewater management:</u>** Contaminated wastewater must be managed in a suitable manner so as not to cause any surface or sub surface pollution or health hazard. This management plan must be submitted to this Department prior to construction commencing. Effluent treatment and disposable facilities, other infrastructure and the developments as a whole must preferably be located outside the 1:50 year flood line, with the former away from boreholes. The 1:100 year flood line must be indicated on the development plans. Washing, refuelling maintenance of vehicles or transferring of hazardous substances must be done within a demarcated hard surface area.	Noted. Has been addressed in the EMP. Noted. Has been addressed in the EMP. Noted. Has been addressed in the EMP. A geo-hydrological study has been attached addressing this **(Annexure D**. The project will utilise a package plant. Noted. Included in the EMP.

	Chemical toilets must not cause any pollution to water recourses as well as pose a health hazard and these toilets must be located out of the 1:100 year flood line of a watercourse. This Department requires AIDE MeMOIRE for preparation of a water quality management report to support the application for licenses for sewage treatment works in terms of requirement of the National Water Act of 1998. (Act No 36 of 1998) **4. <u>Storm water management:</u>** Please provide this Department with the storm water management plan. Please note that the storm water plan must follow the *Best Practice Guidelines for Storm water Management* (2006) as set by this Department. A storm water management plan/system needs to be drawn up and implemented to ensure proper management of storm water on the site during and after construction and must comply with the following: – These networks must be designed and constructed in such a manner that storm water of a suitable quality will drain into the Municipal Storm water System. – After construction, the site should be graded to ensure free flow of runoff and to prevent ponding of water. – Drainage must be controlled to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further from the site. – The water containing waste emanating from within the dwellings or any other building on the property must	Noted.- as per EMP.

	not contaminate the storm water system. – The storm water management plan should ensure that the ultimate flow from the development does not result in any negative impacts on downstream properties or watercourse and must therefore ensure that storm water is managed within the overall site as effectively as possible. **5. <u>Erosion control:</u>** Soil erosion on site must be prevented at all times, i.e. pre-, during-, and post construction activities. Suitable erosion control measures must be implemented in areas sensitive to erosion such as near water supply joints and edges of slopes. These measures include: – The prompt rehabilitation of exposed soil areas with indigenous vegetation to ensure that soil is protected from the elements. – The removal of vegetation, only as it becomes necessary for work to proceed. – Prevent unnecessary removal of vegetation especially on steep areas. – All the necessary precautions in terms of design and construction of earthworks, cuts and fills must be taken. The soil or any other materials shall not be allowed near a watercourse or water body to prevent pollution or impediment to surface run off. **6. <u>Wetlands, Riparian areas, Watercourses and Flood plan:</u>** • Any wetlands on site must be delineated according to	Noted. No wetlands on site.

	this Department's guidelines entitled "*A practical field procedure for identification and delineation of wetlands and riparian areas"*. (DWA 2005) • This Department requires a 20m buffer from the edge of the temporary wet zone of the wetland to the edge of any structural development. • Should the applicant (i.e. National Department if Works) not be in agreement with the 20m buffer zone, a functional assessment must be carried out to determine an appropriate buffer zone so that the wetland functioning is not impacted on. The functional assessment will form part of the motivation as to why this Department should consider construction within the wetland or within the prescribe buffer. The document must address the issue as to how important that part of the wetland being destroyed is, compared with the overall functioning of the wetland. • Authorisation may be required if the applicant wishes to encroach upon the prescribed buffer zone. • Areas to be utilized by heavy machinery, etc must be clearly demarcated and a responsible person must be appointed to ensure that there is full compliance with the EMP. **7. <u>Water use authorizations</u>** • Mr. Norman Ward from the Water Resource Management Section of this Department must be contacted on (031) 336 2700 in order to obtain the necessary authorizations, for	Noted. Addressed in the EMP Noted.

	any alterations to the bed, banks, course or characteristics of a watercourse or any impedance or diversion of flow of a watercourse as well as any abstraction and/or storage of water. **8. <u>General</u>** • No forms of secondary pollution should arise from the disposal of sewage and refuse. Any pollution problems arising from the above development is to be addressed immediately by the Applicant. • There must be no unacceptable impact on the quality of both surface and groundwater area. Adequate measures must be put in place to prevent pollution to surface and groundwater during the construction phase. • Adequate measures must be taken to ensure that there is no damage to the gas pipelines, underground piping/lines/cables or other existing servitude in the area during the construction phase. • The removal of any indigenous trees would need to be authorized. Please contact (033) 3428001. • The proposed development must not be in conflict with any South African legislation, local municipal plans or by-laws. • All procedures and equipment used must be in accordance with the Occupational Health and Safety Act and Regulations of South Africa. • The developer must exercise suitable precautions with the storage, handling and transport of all materials that	

	could adversely affect the environment. Such precautions may include the use of bund walls, if pollution of any surface or groundwater occurs, it shall immediately be reported to this Department and appropriate mitigation measures must be employed. • The conditions stated on the EMP must be adhered to at all time. • Storage of materials, chemicals, fuels etc must not pose a risk to the surrounding environment and this includes surface and groundwater. Such storage areas must be located outside the 1:100 year flood line of any watercourse and must be fenced to prevent any unauthorized access into the area. Temporary bunds must also be constructed around chemical of fuel storage areas to contain possible spillages. • Good housekeeping and suitable waste minimization techniques must be implemented to reduce the total quantity of waste emanating from the above development. • The details of the process used as well as the chemical content of the effluent produced as a result of such processes must be provided to this Department. This Department does not view dilution as a suitable means of establishing an effluent quality appropriate for discharge to sewer. Hence alternative methods for achieving the required effluent quality must be investigated and reported to this Department prior to construction commencing.	

	• Every effort must be made by the applicant to ensure that any ecologically significant areas such as wetlands or marshes are protected during construction. A means to ensure continued protection of the sensitive areas after construction must also be implemented. Notwithstanding the above, the responsibility rests with the applicant to identify any sources or potential sources of pollution from his undertaking and to take appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the National Water Act (Act 36 of 1998) could lead to legal action being instituted against the applicant.	
AMAFA KWAZULU NATAL (Ms.W.Tshabalala)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
EZEMVELO KZN WILDLIFE (Nongcebo Hlongwa)	**Comment on BID:** – No biodiversity concerns have been identified. – Only forward further documentation should any biodiversity concerns arise in the course of the scoping process. **Comment on Draft BAR:** – No comments received.	Noted. Reminders sent
DEPARTMENT OF TRANSPORT (Mr.R.Ryan)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
DEPARTMENT OF AGRICULTURE (Mr.R.Baca)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Communicated in July 2011 and are aware that comments are outstanding but they are

		short staffed.

a. 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 sub regulation to the extent and in the manner as may be agreed to by the competent authority.
Proof of any such agreement must be provided, where applicable.

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):

All comments and responses can be viewed in **Annexure E.**

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, 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.

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 as Annexure E):**

All comments and responses can be viewed in **Annexure E.**

B. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

UMKHANYAKUDE DISTRICT MUNICIPALITY (: Mr. Sifiso Xulu)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
JOZINI LOCAL MUNICIPALITY (town Planner)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
WILDLIFE AND ENVIRONMENT SOCIETY OF SOUTH AFRICA (WESSA) Mrs. C Schwegman	**Comment on BID:** – Satisfied that a construction environmental management plan will be sufficient to avoid environmental deterioration while the facility is being built. – Have concerns about the operational phase and its reliance on a package plant for sewage treatment. It is expected that ownership of the plant is retained by the supplier with management/maintenance contracts in order to ensure efficient and safe functioning of the sewage disposal system. – No discussion on the receiving environment for effluent discharge at this stage- could treatment to Special Standards to be implemented if discharge is directly into a natural drainage system? – Provided that adequate	Noted. An EMP will be submitted with this BAR Noted. Has been incorporated in the EMP, all these issues have been addressed in the Bulk Services Report. (Attached under **Annexure D**)

	provision is made for sewage disposal, WESSA have no wish to participate further in the project. **Comment on Draft BAR:** **Sewage:** Percolation tests have shown the site to be suitable for on-site sanitation via septic tank/French drain; however, it seems that a sewage solution for the project has not been identified. – **Septic tank**: the bulk services report, 4.2.2, has identified that maximum French drains lengths and an evapo-transpiration area of considerable size are required for the predicted effluent loading and thus advices against septic tank/soak away systems. – **Package plant**: the recommended alternative is an Eco Wyatt Africa plant and no information is provided on this alternative either in the bulk services report or the BAR. WESSA would expect an assessment of the receiving environment to be undertaken, the position of the package plant given, proposed discharged point of treated effluent etc. Should guidelines for the installation and operation of sewage package plants not have been adopted by the relevant water and sanitation authority we trust that the licensing procedure will ensure measures are in place for the management of the system in the long term.	The anticipated volume of sewage generated has been based on figures slated in the National Building Regulations. Allowance for day workers is 90l/day/person. Including a 15% allowance for infiltration gives an average daily flow of 73.6 kl. For design purposes we would recommend a peak factor of 3.25 giving an average flow of 0.85l/s and a peak flow 2.77l/s. Currently no sewer reticulation exists in the area. The existing facility disposes of its effluent via septic tank and French drains (i.e. on-site disposal). Observations during our site visit revealed flowing grey water at surface probably due to either clogging or an overload of the system. Percolation testing during the geotechnical investigation revealed that the site is suitable for on site disposal. However the effluent application rate to French drains is in line with the lower bounds limit of SABS 0400-1990 and will therefore require maximum French drains lengths and evapo-transpiration area. Based on an effluent loading of 90kl/day and the best case percolation rate of 102mm/hr will require approximately 565m length of French drain and an evapo-transpiration area of 38 000m^2 and is therefore not considered feasible. An alternative option would be to use a small sewage treatment plant installation. Based on discussions with a typical plant manufacturer and supply (Wyatt Africa), they have proposed the Eco Wyatt Africa plant with a septic tank size of 15m x 3m x 3m.

		Umkhanyakude District Municipality is responsible for the electricity supply to the facility. Initial discussions with the Municipality's Energy Services Manager (Mr. S. Manqele) has indicated that their current grid is under capacity at present and have applied to ESKOM for an increase supply to their grid network in 2007 without success to date.
	Electricity: There is currently no capacity to supply electricity to the facility.	Typical data for the water demand at facilities such as this is not available. Various methods were used to estimate the demand including the Red Book 'Guidelines for Human Settlement Planning and Design'. Based on typical flows of high density high rise multiple dwelling unit buildings using the lower limit of 450l/day and assuming two persons per unit an average daily flow would be 112.5 kl. Allowing for staff at 140l/day plus losses increases the demand to 129.3 kl/day.
	Water: There is no capacity to meet the additional demand required for the upgraded facility. The bulk services report concludes that although the site is considered feasible for the proposed upgrade the problems with water and electricity supply need to be discussed with the relevant parties. The BAR does not indicate that this is in hand.	Peak factor of 3.0 for daily flow and 4 for instantaneous flow should be adopted. Umkhanyakude District Municipality are responsible for supply of portable water to the area and although in our initial discussions they indicated their supply to Ingwavuma is limited but should improve with the commissioning of the new booster pump station. In subsequent correspondence (refer attached A) they advise that they do not have sufficient capacity to meet the additional demand required for the facility upgrade. The advice that the demand could be met if certain other projects are implemented.
		Enquiry with the local Ingwavuma Hospital confirmed that they have

		outsourced the disposal of their medical waste to a private specialist service provider (i.e. Compass Medical Waste). The volume of the medical waste that will be generated by the prison upgrade will be negligible; it is recommended that the Department of Correctional Services procures the services of a private specialist service provider to dispose of its medical waste as this will be most feasible and an economical option.
	Waste: A medical facility is described (BAR 3.2b) and correct disposal of medical waste must be ensured. The disposal of medical waste is not addressed. With respect to services, WESSA would like the capacity to render the relevant service from the appropriate providers confirmed.	
DEPARTMENT OF WATER AFFAIRS (DWA) **Mr S. C Sikhosana**	**Comment on BID:** – No comments received. **Comment on Draft BAR:** **Specific Comment** – The applicant will need to contact Department of Agriculture, Environmental Affairs and Rural Development for the necessary authorization for the above project. – The applicant must establish a surface and groundwater monitoring programme which must be submitted to this Department.	Noted. Report will be sent to DEA A geo-hydrological study has been attached addressing this **(Annexure D**. A geo-hydrological study has been attached addressing this **(Annexure D** Noted.

	– Please provide this Department with the geo-hydrological report. – The route chosen must have the least impact on the surrounding environment and have no impact on ecological significant areas. – Base line surface and sub surface assessments must be carried out to determine current water quality conditions, the results of which must be submitted to this Department. **9. <u>Solid waste management</u>** All waste generated at the proposed development must be disposed off in a suitable manner so as not to cause any surface or sub surface water pollution or health hazard. All solid waste generated must be disposed of at a permitted landfill site allowed to accept such waste, proof of this must be made available if required. This Department must be contacted if any other disposal route is to be followed. This Department fully supports recycling of waste generated as a result of day-to-day activities of the development. **10. <u>Sewage and wastewater management:</u>** Contaminated wastewater must be managed in a suitable manner so as not to cause any surface or sub surface pollution or health hazard. This management plan must be submitted to this Department prior to construction commencing. Effluent treatment and disposable facilities, other	Has been addressed in the EMP Noted. Has been addressed in the EMP. Noted. Has been addressed in the EMP. Noted. Has been addressed in the EMP. Noted. Has been addressed in the EMP. A geo-hydrological study has been attached addressing this **(Annexure D**.

	infrastructure and the developments as a whole must preferably be located outside the 1:50 year flood line, with the former away from boreholes. The 1:100 year flood line must be indicated on the development plans. Washing, refuelling maintenance of vehicles or transferring of hazardous substances must be done within a demarcated hard surface area. Chemical toilets must not cause any pollution to water recourses as well as pose a health hazard and these toilets must be located out of the 1:100 year flood line of a watercourse. This Department requires AIDE MeMOIRE for preparation of a water quality management report to support the application for licenses for sewage treatment works in terms of requirement of the National Water Act of 1998. (Act No 36 of 1998) **11. <u>Storm water management:</u>** Please provide this Department with the storm water management plan. Please note that the storm water plan must follow the *Best Practice Guidelines for Storm water Management* (2006) as set by this Department. A storm water management plan/system needs to be drawn up and implemented to ensure proper management of storm water on the site during and after construction and must comply with the following: – These networks must be designed and constructed in such a manner that storm water of a suitable quality will drain into the Municipal Storm water System.	Noted. Included in the EMP. Noted.

	– After construction, the site should be graded to ensure free flow of runoff and to prevent ponding of water. – Drainage must be controlled to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further from the site. – The water containing waste emanating from within the dwellings or any other building on the property must not contaminate the storm water system. – The storm water management plan should ensure that the ultimate flow from the development does not result in any negative impacts on downstream properties or watercourse and must therefore ensure that storm water is managed within the overall site as effectively as possible. **12. <u>Erosion control:</u>** Soil erosion on site must be prevented at all times, i.e. pre-, during-, and post construction activities. Suitable erosion control measures must be implemented in areas sensitive to erosion such as near water supply joints and edges of slopes. These measures include: – The prompt rehabilitation of exposed soil areas with indigenous vegetation to ensure that soil is protected from the elements. – The removal of vegetation, only as it becomes necessary for work to proceed. – Prevent unnecessary removal of vegetation especially on steep areas. – All the necessary precautions in terms of design and construction of	Noted. No wetlands on site.

	earthworks, cuts and fills must be taken. The soil or any other materials shall not be allowed near a watercourse or water body to prevent pollution or impediment to surface run off.	Noted. Addressed in the EMP
	13. <u>Wetlands, Riparian areas, Watercourses and Flood plan:</u> • Any wetlands on site must be delineated according to this Department's guidelines entitled "*A practical field procedure for identification and delineation of wetlands and riparian areas"*. (DWA 2005) • This Department requires a 20m buffer from the edge of the temporary wet zone of the wetland to the edge of any structural development. • Should the applicant (i.e. National Department if Works) not be in agreement with the 20m buffer zone, a functional assessment must be carried out to determine an appropriate buffer zone so that the wetland functioning is not impacted on. The functional assessment will form part of the motivation as to why this Department should consider construction within the wetland or within the prescribe buffer. The document must address the issue as to how important that part of the wetland being destroyed is, compared with the overall functioning of the wetland. • Authorisation may be required if the applicant wishes to encroach upon the prescribed buffer zone. • Areas to be utilized by heavy machinery, etc must be clearly demarcated and a	Noted.

	responsible person must be appointed to ensure that there is full compliance with the EMP. **14. <u>Water use authorizations</u>** • Mr. Norman Ward from the Water Resource Management Section of this Department must be contacted on (031) 336 2700 in order to obtain the necessary authorizations, for any alterations to the bed, banks, course or characteristics of a watercourse or any impedance or diversion of flow of a watercourse as well as any abstraction and/or storage of water. **15. <u>General</u>** • No forms of secondary pollution should arise from the disposal of sewage and refuse. Any pollution problems arising from the above development is to be addressed immediately by the Applicant. • There must be no unacceptable impact on the quality of both surface and groundwater area. Adequate measures must be put in place to prevent pollution to surface and groundwater during the construction phase. • Adequate measures must be taken to ensure that there is no damage to the gas pipelines, underground piping/lines/cables or other existing servitude in the area during the construction phase. • The removal of any indigenous trees would need to be authorized. Please contact (033) 3428001. • The proposed development	

	must not be in conflict with any South African legislation, local municipal plans or by-laws. • All procedures and equipment used must be in accordance with the Occupational Health and Safety Act and Regulations of South Africa. • The developer must exercise suitable precautions with the storage, handling and transport of all materials that could adversely affect the environment. Such precautions may include the use of bund walls, if pollution of any surface or groundwater occurs, it shall immediately be reported to this Department and appropriate mitigation measures must be employed. • The conditions stated on the EMP must be adhered to at all time. • Storage of materials, chemicals, fuels etc must not pose a risk to the surrounding environment and this includes surface and groundwater. Such storage areas must be located outside the 1:100 year flood line of any watercourse and must be fenced to prevent any unauthorized access into the area. Temporary bunds must also be constructed around chemical of fuel storage areas to contain possible spillages. • Good housekeeping and suitable waste minimization techniques must be implemented to reduce the total quantity of waste emanating from the above development. • The details of the process used as well as the chemical content of the effluent	

	produced as a result of such processes must be provided to this Department. This Department does not view dilution as a suitable means of establishing an effluent quality appropriate for discharge to sewer. Hence alternative methods for achieving the required effluent quality must be investigated and reported to this Department prior to construction commencing. • Every effort must be made by the applicant to ensure that any ecologically significant areas such as wetlands or marshes are protected during construction. A means to ensure continued protection of the sensitive areas after construction must also be implemented. Notwithstanding the above, the responsibility rests with the applicant to identify any sources or potential sources of pollution from his undertaking and to take appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the National Water Act (Act 36 of 1998) could lead to legal action being instituted against the applicant.	
AMAFA KWAZULU NATAL(Ms. W.Tshabalala)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
EZEMVELO KZN WILDLIFE (Nongcebo Hlongwa)	**Comment on BID:** – No biodiversity concerns have been identified. – Only forward further documentation should any biodiversity concerns arise in the course of the scoping process. **Comment on Draft BAR:**	Noted.

	– No comments received.	Reminders sent
DEPARTMENT OF TRANSPORT (Mr.R.Ryan)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Reminders sent
DEPARTMENT OF AGRICULTURE (Mr.R.Baca)	**Comment on BID:** – No comments received. **Comment on Draft BAR:** – No comments received.	Reminders sent Communicated in July 2011 and are aware that comments are outstanding but they are short staffed.

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.

IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

a. **Site alternatives**

Alternative S1 (preferred site alternative-correctional facility) -erf 326,327,328

Direct impacts:

- **Geotechnical aspects**
- **Storage areas**
- **Storm water controls**
- **Aesthetics**
- **Identification of services and servitudes**
- **Construction camp**
- **Social impacts**
- **Waste management**

PREFERRED SITE S1-(SEWAGE PACKAGE PLANT), LOT 422

- **geohydrological**
- **Geotechnical aspects**
- **Storage areas**
- **Storm water controls**
- **Aesthetics**
- **Identification of services and servitudes**
- **Noise /dust**
- **Social impacts**
- **Waste management**

S2: Package PLANT: -ERF 362

- **Geotechnical aspects**
- **Storage areas**
- **Storm water controls**
- **Aesthetics**
- **Identification of services and servitudes**
- **Noise /dust**
- **Social impacts**
- **Economic**

S1: water supply-boreholes (*KZN 130067 and KZN 130065)*

- **Storm water controls**
- **Leaks/spills from treatment works upslope**

Indirect impacts:
 None at this stage

Cumulative impacts:
 Economic boom as a result of future job creation

No-go alternative (compulsory)
Direct impacts:
 Should this development not proceed, then the status of the site will remain as vacant veld grass and negative space.

Indirect impacts:
 None at this stage

Cumulative impacts:
 Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1 (correctional facility) at erf 326,327,328 AND SEWAGE PACKAGE PLANT LOCATED AT LOT 422

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Geohydrological (SEWAGE PACKAGE PLANT)	High	– No major or minor geological features appear to traverse the proposed site as was confirmed by previous geophysical investigations. – Groundwater use in the effective catchment area is expected to be insignificant based on current records and therefore not a strategic resource in this area. – *No obvious fatal flaws* were noted that should prevent the construction of the sewer treatment works at the proposed location, provided the engineering design and construction includes all required physical precautions and the long term operation of the facility is carried out responsibly	low
Geotechnical aspects-Earthworks	Medium	– Minor earthworks will be required in the form of leveled cut to fill platforms to accommodate structures. – Soft excavation to at least 3-4m is deemed	Low

Founding recommendations		achievable throughout the majority of the site. Exception is the upper SE site portions (vicinity of IP1, IP6, IP7, IP13, IP14) where intermediate and hard excavation is to be expected at <3.0m depth. Localized areas of boulder excavation are also to be expected in the form of cornerstones above bedrock and along the present terrace retaining walls. – Appropriate foundation type relative to structure will vary considerable across the site due to: – Variable ground conditions which range from shallow rock (in upslope areas) and very stiff clay/silt/sand mixtures, to firm/stiff silty sands/sandy silts with a collapse potential, to silty clays/clayey silts with a limited heave potential. – Existing site terracing resulting in loose/uncompacted fill in the fill portions of platforms.	
Storage areas	medium	– Prevalent winds and on-site topography need to be considered when determining storage areas. – The construction site/storage area should not be accessible to criminals, vagrants, or children, and should be fenced if necessary. – Storage areas to be situated away from wet areas.	Low
Storm water control	Low-medium	– A good temporary storm water management system needs to be put in place, and an approved permanent scheme is to be implemented. – Control of stormwater runoff is essential due to the variable subsoil conditions and potential for both collapse settlement and limited heave. – Sites should be designed such that storm water from on site does not cascade down slope over other sites, and rainwater down-pipes should not discharge directly onto platform surfaces, but rather should be carried away in a controlled manner.	Low
Aesthetics	Medium-high	– Planning should be such that visual blight is avoided as far as possible. – Screening measures should be implemented where possible to intercept light. The strategic planting of vegetation should be done between light sources to intercept light. – The development may be screened wherever necessary.	Low
Identification of services and servitudes	medium	– All underground services and servitudes need to be identified so as to avoid their disruption.	Low
Noise / dust	Medium	– Clearance of grassland within works footprint only as is necessary for construction to	Low

		proceed.	
Construction camp/ablutions	Low-medium	– The choice of site for construction camps, if any, have to be approved by the Engineer, and needs to recognize residences, ecologically sensitive areas and unstable zones. – Construction camp is not to be situated close to the drainage channel for the preferred site. – -Bins/skips shall be provided at convenient intervals for waste disposal within the construction areas. Bins should have liner bags for efficient control and safe waste disposal. Ensure that these can be closed to prevent waste removal by the elements; these would also need to be emptied at a suitable waste/landfill/or by municipal waste collectors on a daily basis. – -Construction camp to be situated at least 32m away from wet areas.	Low
Social impacts	Medium	– Construction staff are to be exposed to environmental awareness programs and given environmental training prior to construction. – The general public needs to be notified of all activities pertaining to the project. The work times and possible disruptions to services need to be clearly stated here. – There should be a complaints register on hand, of which the residents and members of the nearby school need to be informed of, to forward queries and complaints. – Personnel to be given environmental education and specifications on the way work is to be carried out. – Fire control implements to be at hand at all times. – Remuneration and rehabilitation with regard to possible damage to private property shall be undertaken via the Jozini Municipality.	Low
Heritage Impacts	High	– The Heritage Impact Assessment was been undertaken so that possible sites are plotted and mitigation is taken should any archaeological artifacts be threatened by the construction of the prison and associated infrastructure. – Amafa is to be contacted if any graves or heritage objects are identified during earthmoving activities, and work is to cease until further instructions are received. – No structures older than 60 years will be demolished, altered or destructed without a permit. – Some recommendations postulated in the Heritage Impact Assessment specialist study include: – No direct conflicts between archaeological	low

		and physical cultural heritage properties or burial grounds and the proposed development are anticipated when construction begins. The proposed new prison centre development is independent from the existing historic facility situated on a portion of the main development site. As such, the approval of the development is not in any way linked to any future or current proposal to alter or demolish the historic prison building. It is the recommendation of this study that there are no archaeological or significant physical cultural property barriers that were recorded for the proposed development. Therefore, the proposed correctional facilities development may be approved by the heritage authorities subject to the further recommendation made below. – The existing prison building is protected as a historic site because of its age (60 years old). As such, the building may not be demolished without a proper heritage permit from Amafa KZN Council. Should Amafa issue a demolition or alteration permit depending on the final proposal by the developer, the build should be document into file record. – The foot print impact correctional facilities development and associated infrastructure developments should be kept to minimal to limit the possibility of encountering chance finds. – All construction activities including construction campsites should be located within the surveyed project area on previously disturbed ground. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave), construction activities must be stopped and the heritage authority should be notified immediately. The overriding objective, where remedial action is warranted, is to minimize disruption in construction scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the NHRA. – It may be necessary to implement emergency measures to mitigate unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant chance archaeological sites. – Furthermore, the construction team should be informed about the value of the cultural heritage resources in general so as to ensure that they do not destroy the chance archaeological sites they may encounter during subsurface construction working on sites. – In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface	

		construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities. – Subject to the recommendations herein made, there are no significant cultural heritage resources barriers to the correctional facilities development in Ingwavuma town in Jozini, KZN Province. – The Project Public Participation Process should ensure that any cultural heritage related matter for this project is given due attention whenever it arises and is communicated KNZ PHRA throughout the proposed project development. – Furthermore, since the area earmarked for the sewage treatment facility was not fully accessible due to vegetation cover, it is recommended that the area be inspected by an archaeologist once the vegetation is clear and before earth moving activities area conducted. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave or discovering previously unrecorded archaeological remains on development site), construction activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities.	
Waste management	medium	– Waste from chemical toilets to be disposed of responsibly in a chemical treatment plant. All waste/ excess materials must be stored responsibly in designated skips or other specified areas as approved by the Engineer/ECO, or sent to a registered landfill. These should not be left to obstruct natural water flow. – Skips should be used for retention of solid waste that will be used for backfill. – All potentially hazardous or polluting substances should be underlain by a plastic sheet that leads to a low point, where such spills or leaks can be collected and dealt with professionally.	low

Alternative S2-alternative site-sewage plant – at erf 362

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Geotechnical aspects-Earthworks	Medium	– Minor earthworks will be required in the form of leveled cut to fill platforms to accommodate structures. – Soft excavation to at least 3-4m is deemed achievable throughout the majority of the site. Exception is the upper SE site portions (vicinity	Low

		of IP1, IP6, IP7, IP13, IP14) where intermediate and hard excavation is to be expected at <3.0m depth. Localized areas of boulder excavation are also to be expected in the form of cornerstones above bedrock and along the present terrace retaining walls.	
Founding recommendations	MEDIUM	– Appropriate foundation type relative to structure will vary considerable across the site due to: – Variable ground conditions which range from shallow rock (in upslope areas) and very stiff clay/silt/sand mixtures, to firm/stiff silty sands/sandy silts with a collapse potential, to silty clays/clayey silts with a limited heave potential.	Low
On Site Sewerage Disposal	high	– Percolation testing revealed that the site is suitable for on-site sanitation via septic tank, French drain. It is recommended that: – The lower bound effluent application rate of 40l/m^2/day is used as representative of the whole site. – Evapo-transpiration areas not placed in the shallower rock areas (i.e. in the vicinity of IP6, IP7) – Evapo-transpiration areas not be placed in the shallow very stiff sandy clay areas (vicinity of IP10)	medium
Storage areas	medium	– Prevalent winds and on-site topography need to be considered when determining storage areas. – The construction site/storage area should not be accessible to criminals, vagrants, or children, and should be fenced if necessary. – Fire control facilities are to be on hand at all times. – Storage areas to be situated away from wet areas.	Low
Storm water control	Low-medium	– A good temporary storm water management system needs to be put in place, and an approved permanent scheme is to be implemented.. – Sites should be designed such that storm water from on site does not cascade down slope over other sites, and rainwater down-pipes should not discharge directly onto platform surfaces, but rather should be carried away in a controlled manner.	Low
Aesthetics	high	– Planning should be such that visual blight is avoided as far as possible. – Screening measures should be implemented where possible to intercept light. The strategic planting of vegetation should be done between light sources to intercept light. – The development may be screened wherever necessary.	medium

Identification of services and servitudes	medium	– All underground services and servitudes need to be identified so as to avoid their disruption.	Low
Noise and dust	Medium	– Clearance of grassland within works footprint only as is necessary for construction to proceed.	Low
Construction camp/ablutions	Low-medium	– The choice of site for construction camps, if any, have to be approved by the Engineer, and needs to recognize residences, ecologically sensitive areas and unstable zones. – Construction camp is not to be situated close to the drainage channel for the preferred site. – -Construction camp to be situated at least 32m away from wet areas.	Low
Social impacts	Medium	– Construction staff are to be exposed to environmental awareness programs and given environmental training prior to construction. – The general public needs to be notified of all activities pertaining to the project. The work times and possible disruptions to services need to be clearly stated here. – There should be a complaints register on hand, of which the residents and members of the nearby school need to be informed of, to forward queries and complaints. – Personnel to be given environmental education and specifications on the way work is to be carried out. – Fire control implements to be at hand at all times. – Remuneration and rehabilitation with regard to possible damage to private property shall be undertaken via the Jozini Municipality.	Low
Heritage Impacts	High	– The Heritage Impact Assessment was been undertaken so that possible sites are plotted and mitigation is taken should any archaeological artifacts be threatened by the construction of the prison and associated infrastructure. – Amafa is to be contacted if any graves or heritage objects are identified during earthmoving activities, and work is to cease until further instructions are received. – No structures older than 60 years will be demolished, altered or destructed without a permit. – Some recommendations postulated in the Heritage Impact Assessment specialist study include: – No direct conflicts between archaeological and physical cultural heritage properties or burial grounds and the proposed development are anticipated when construction begins. The proposed new prison centre development is independent from the existing historic facility situated on a portion of the main development site. As such, the approval of the development is not in any way linked to any	low

		future or current proposal to alter or demolish the historic prison building. It is the recommendation of this study that there are no archaeological or significant physical cultural property barriers that were recorded for the proposed development. Therefore, the proposed correctional facilities development may be approved by the heritage authorities subject to the further recommendation made below. – The existing prison building is protected as a historic site because of its age (60 years old). As such, the building may not be demolished without a proper heritage permit from Amafa KZN Council. Should Amafa issue a demolition or alteration permit depending on the final proposal by the developer, the build should be document into file record. – The foot print impact correctional facilities development and associated infrastructure developments should be kept to minimal to limit the possibility of encountering chance finds. – All construction activities including construction campsites should be located within the surveyed project area on previously disturbed ground. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave), construction activities must be stopped and the heritage authority should be notified immediately. The overriding objective, where remedial action is warranted, is to minimize disruption in construction scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the NHRA. – It may be necessary to implement emergency measures to mitigate unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant chance archaeological sites. – Furthermore, the construction team should be informed about the value of the cultural heritage resources in general so as to ensure that they do not destroy the chance archaeological sites they may encounter during subsurface construction working on sites. – In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities. – **Subject to the recommendations herein made, there are no significant cultural heritage resources barriers to the correctional facilities development in Ingwavuma town in Jozini, KZN Province.**	

Economic-space constraints	High	– Further extensions to site will be required to accommodate the plant. – Site to be extended. This may encroach on surrounding areas.	Medium-high

Allternative S1: water supply boreholes: (*KZN 130067 and KZN 130065)*

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Stormwater controls	medium	– Sites should be designed such that storm water from on site does not cascade down slope over other sites, and rainwater down pipes should not discharge directly onto platform surfaces, but rather should be carried away in a controlled manner.	low
Leaks and spills from treatment works upslope	high	– Precautions should be taken to ensure that the surface run-off, potential leaks or spills do not flow into any production boreholes located downstream of the proposed sewer treatment site plot 422. – A protection zone of 100 m around any groundwater abstraction borehole and surface water resource that has been proposed and should be adhered to. – Construction of the new sewer treatment plant should not change the nature of the "protective" clayey overburden to such a degree that fast infiltration becomes possible resulting in increased pollutant transport times and changes to expected flow direction. – Shallow monitoring wells with piezometers must be installed during construction around the reed beds to ensure that any potential leakage past the reed beds is detected in time. – Quarterly groundwater quality monitoring of all production boreholes downstream of the facility and monitoring wells is recommended. – Sampling and analysis should allow for all major chemical, physical and bacteriological constituents as per SANS 241. – The monitoring data should be reviewed by a hydrogeologist to establish performance trends for the boreholes.	low

a. Process, technology, layout or other alternatives

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

CORRECTIONAL FACILITY: LAYOUT ALTERNATIVES

Alternative A1 (preferred alternative)-CORRECTIONAL FACILITY- -AS PER LAYOUT (ANNEXURE A)

Direct impacts:

- Earthworks
- Storage areas
- Storm water controls
- Aesthetics
- Identification of services and servitudes
- Noise and dust
- Construction camp/ablutions
- Social impacts

Indirect impacts:

- Economic growth

Cumulative impacts:

- Job creation

No-go alternative (compulsory)

Direct impacts:

- Should this development not proceed, then the status of the site will remain as vacant veld grass. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase.
- Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. It can be proposed that if the development goes ahead the area as a whole can be regarded as being much safer and having a greater sense of security. These benefits will not materialize should the development not proceed.

Indirect impacts:

- None at this stage

Cumulative impacts:

- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Earthworks	Medium	– Large scale earthworks will not be required to establish building platforms or major embankments or cuttings for road construction. – Excavations and trenching to depths of 2.0m will be feasible with standard equipment, given that the site is underlain by residual sub-soils and sandstone bedrock. – Excavations exceeding 2.0m in depth should be approached with caution as difficult excavations requiring the use of compressors and/or localized blasting should be expected. – Standard strip footings are recommended as the most economical founding solution for the single storey buildings due to the presence of residual sandstone sub-soils and standard bedrock. – Trenching for services could be problematic at depths in excess of 2.0m due to the bedrock encountered.	Low
Storage areas	Medium	– Prevalent winds and on-site topography need to be considered when determining storage areas. – The construction site/storage area should not be accessible to criminals, vagrants, or	Low

		children, and should be fenced if necessary. – Harmful substances to be stored separately, using impermeable lining, and is to be properly signed. – Fire control facilities are to be on hand at all times. – Storage areas to be situated away from wet areas.	
Storm water control	Low-medium	– Large storm water volumes are not anticipated as the site is located at the high point in town and is fairly flat. Furthermore, management of storm water will be done by means of concrete surface V-drains, storm water culverts, ducts and the provision of gutters and downpipes to specific designated areas and paving. – Furthermore, attention shall be given to the waterproofing of basements and the removal of subsurface water in buildings and soil retaining structures, the water will be channelled to daylight or to other storm water channels. – A good temporary storm water management system needs to be put in place, and an approved permanent scheme is to be implemented. – Storm water scheme and proper drainage needs to be implemented for the development.	Low
Aesthetics	Medium-high	– Planning should be such that visual blight is avoided as far as possible. – Lighting to be directed downwards, use of sodium lamps. – No light sources should be visible; rather all visible light should comprise reflected light. Only reflected light would be visible on the walls of the residential unit and adjacent units. – Screening measures should be implemented where possible to intercept light. The strategic planting of vegetation should be done between light sources to intercept light. – The development may be screened wherever necessary.	Low
Identification of services and servitudes	medium	– All underground services and servitudes need to be identified so as to avoid their disruption.	Low
Noise and dust	Medium	– Use of silencers in heavy vehicles/machinery – Adherence to stipulated works times. – Provision of water carts to wet exposed surfaces. – Clearance of grassland within works footprint only as is necessary for construction to proceed.	Low
Construction camp/ablutions	Low-medium	– The choice of site for construction camps, if any, have to be approved by the Engineer, and needs to recognize residences, ecologically sensitive areas and unstable zones. – Where water borne sewerage is not readily	Low

		available/accessible, an approved company must provide chemical toilets. It is forbidden to use the surrounding land, or drainage channel, as a toilet facility. These toilets are strictly to be moved along with the workforce. – Construction camp is not to be situated close to the drainage channel for the preferred site. – The mobile toilets are to be situated away from the drainage channel, and to be kept in a good, clean manner and cleaned regularly by a registered chemical waste company. Also ensure that these are not situated on any sensitive areas. – Bins/skips shall be provided at convenient intervals for waste disposal within the construction areas. Bins should have liner bags for efficient control and safe waste disposal. Ensure that these can be closed to prevent waste removal by the elements; these would also need to be emptied at a suitable waste/landfill/or by municipal waste collectors on a daily basis. – Provisions for removal and safe disposal of spoil to be made prior to contractor occupying site. – Construction camp to be situated at least 32m away from wet areas.	
Social impacts	Medium	– Construction staff are to be exposed to environmental awareness programs and given environmental training prior to construction. – The general public needs to be notified of all activities pertaining to the project. The work times and possible disruptions to services need to be clearly stated here. – There should be a complaints register on hand, of which the residents and members of the nearby school need to be informed of, to forward queries and complaints. – The handling of equipment should be supervised to prevent injury. – Children should not be allowed entry onto the boundary of the works. – No work force may stay on site during the night. – Access to the construction crew camp, only for work personnel. – Do not carry out the works during times of school going/leaving activity or other sensitive social situations. – Personnel to be given environmental education and specifications on the way work is to be carried out. – Introducing a new range of 'safer' cell furniture which can be produced by low risk prisoners in prison workshops from sustainably sourced materials. Initially for use in new prison accommodation, this will ultimately be rolled out as replacement furniture across the public sector prisons estate. It is an example of	Low

		meaningful employment which provides prisoners with training, fitting them for resettlement employment, whilst improving the cell environment and safety for fellow prisoners. This has the added benefit of obviating the need to go to commercial procurement with the consequent financial savings. – Fire control implements to be at hand at all times. – Efficient points men to be employed to direct traffic should the need arise; this is especially so in the event that traffic would need to be diverted from a particular lane. – Remuneration and rehabilitation with regard to possible damage to private property shall be undertaken via the Jozini Municipality.	

Alternative A2 (Alternative 2)- *decommissioning and destruction of the present correctional facility, with the re-construction of the newly proposed correctional facility in its place*

Direct impacts:
- Earthworks
- Storage areas
- Storm water controls
- Aesthetics
- Identification of services and servitudes
- Noise and dust
- Construction camp/ablutions
- Social impacts
- Heritage impacts

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

No-go alternative (compulsory)

Direct impacts:
- Should this development not proceed, then the status of the site will remain as vacant veld grass. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase.
- Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. It can be proposed that if the development goes ahead the area as a whole can be regarded as being much safer and having a greater sense of security. These benefits will not materialize should the development not proceed.

Indirect impacts:
- None at this stage

Cumulative impacts:
- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A2

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Earthworks	high	– Large scale earthworks will not be required to establish building platforms or major embankments or cuttings for road construction. – Excavations and trenching to depths of 2.0m will be feasible with standard equipment, given that the site is underlain by residual sub-soils and sandstone bedrock.	Medium-high

		– Excavations exceeding 2.0m in depth should be approached with caution as difficult excavations requiring the use of compressors and/or localized blasting should be expected. – Standard strip footings are recommended as the most economical founding solution for the single storey buildings due to the presence of residual sandstone sub-soils and standard bedrock. – Trenching for services could be problematic at depths in excess of 2.0m due to the bedrock encountered.	
Storage areas	medium	– Prevalent winds and on-site topography need to be considered when determining storage areas. – Fire control facilities are to be on hand at all times. – Storage areas to be situated away from wet areas.	Low
Storm water control	Medium-high	– A good temporary storm water management system needs to be put in place, and an approved permanent scheme is to be implemented. – Storm water scheme and proper drainage needs to be implemented for the development. – Sites should be designed such that storm water from on site does not cascade down slope over other sites, and rainwater down pipes should not discharge directly onto platform surfaces, but rather should be carried away in a controlled manner.	medium
Aesthetics	Medium-high	– Planning should be such that visual blight is avoided as far as possible. – Screening measures should be implemented where possible to intercept light. The strategic planting of vegetation should be done between light sources to intercept light. – The development may be screened wherever necessary.	Low
Identification of services and servitudes	medium	– All underground services and servitudes need to be identified so as to avoid their disruption.	Low
Noise and dust	high	– Use of silencers in heavy vehicles/machinery – Adherence to stipulated works times. – Provision of water carts to wet exposed surfaces. – Clearance of grassland within works footprint only as is necessary for construction to proceed.	Low
Construction camp/ablutions	Low-medium	– The choice of site for construction camps, if any, have to be approved by the Engineer, and needs to recognize residences, ecologically sensitive areas and unstable zones. – Where water borne sewerage is not readily available/ accessible, an approved company must provide chemical toilets. It is forbidden to use the surrounding land, or drainage channel, as a toilet facility. These toilets are strictly to be moved along with the workforce. – Construction camp is not to be situated close	Low

		to the drainage channel for the preferred site. – The mobile toilets are to be situated away from the drainage channel, and to be kept in a good, clean manner and cleaned regularly by a registered chemical waste company. Also ensure that these are not situated on any sensitive areas. – Bins/skips shall be provided at convenient intervals for waste disposal within the construction areas. Bins should have liner bags for efficient control and safe waste disposal. Ensure that these can be closed to prevent waste removal by the elements; these would also need to be emptied at a suitable waste/landfill/or by municipal waste collectors on a daily basis. – Provisions for removal and safe disposal of spoil to be made prior to contractor occupying site. – Construction camp to be situated at least 32m away from wet areas.	
Social impacts	Medium-high	– Construction staff are to be exposed to environmental awareness programs and given environmental training prior to construction. – The general public needs to be notified of all activities pertaining to the project. The work times and possible disruptions to services need to be clearly stated here. – There should be a complaints register on hand, of which the residents and members of the nearby school need to be informed of, to forward queries and complaints. – The handling of equipment should be supervised to prevent injury. – Children should not be allowed entry onto the boundary of the works. – -No work force may stay on site during the night. – Access to the construction crew camp, only for work personnel. – Do not carry out the works during times of school going/leaving activity or other sensitive social situations. – Personnel to be given environmental education and specifications on the way work is to be carried out. – Introducing a new range of 'safer' cell furniture which can be produced by low risk prisoners in prison workshops from sustainable sourced materials. Initially for use in new prison accommodation, this will ultimately be rolled out as replacement furniture across the public sector prisons estate. It is an example of meaningful employment which provides prisoners with training, fitting them for resettlement employment, whilst improving the cell environment and safety for fellow prisoners. This has the added benefit of obviating the need to go to commercial	Low

		procurement with the consequent financial savings. – Fire control implements to be at hand at all times. – Efficient points men to be employed to direct traffic should the need arise; this is especially so in the event that traffic would need to be diverted from a particular lane. – Remuneration and rehabilitation with regard to possible damage to private property shall be undertaken via the Jozini local Municipality.	
Heritage Impacts	High-	– The Heritage Impact Assessment was undertaken so that possible sites are plotted and mitigation is taken should any archaeological artifacts be threatened by the construction of the prison and associated infrastructure. – Amafa is to be contacted if any graves or heritage objects are identified during earthmoving activities, and work is to cease until further instructions are received. – No structures older than 60 years will be demolished, altered or destructed without a permit. – Some recommendations postulated in the Heritage Impact Assessment specialist study include: – No archaeological finds are associated with the project area and as such the proposed development has low to no potential impact on archaeological heritage resources. However, this study did not involve any form of subsurface testing. As a cautionary measure, the project EMP should include chance archaeological finds and the procedures involved under the circumstances. – The existing correctional building is presently under use. Although no detailed historical architectural study was conducted on the facility, preliminary site condition surveys did not identify any features listed as historical properties of any recognized heritage significance. Should any work involve interfering with this facility, it is recommended that an Amafa KZN alteration or demolition permit be applied for and issued prior to any work on the building. – It is the concluding recommendation that the heritage authority approve the project to proceed as planned on site (except for portions where the present building is situated. This building may be tampered with only after Amafa issues a demolition or renovation permit). – It is also the recommendation of this study that should the development proponent deem it necessary to alter the	Medium-High (-)

		existing building, a permit from Amafa for any changes to the existing structure of over 60 years old should be sought and Amafa may issue such a permit subject to applicable demolition conditions stipulated in the Amafa and SAHRA policies in this regard. – The existing prison centre is more than 60 years old. Therefore it is protected by the heritage legislations. – The building may be destroyed/demolished or altered to either put new facilities or to continue using the facility. – A heritage permit must be sought from Amafa either to renovate or destroy the building. Alternatively the building may be left in situ with minimal renovations as part of the upgrade to allow continued use. – Proper monitoring measures need to be issued for construction work on site where such development projects commence, and if required a Heritage Permit to affect the existing building.	

TECHNOLOGY ALTERNATIVES: SEWAGE

Alternative A1 (sewage treatment plant), as per Annexure D, Plan no. Sewage 01/02
Biological Trickling Filter Plant in combination with a digester to cater for sludge

Direct impacts:
- Earthworks
- Storage areas
- Storm water controls
- Aesthetics
- Noise / dust/odour
- Heritage/archaeological
- Geohydrology
- WASTE management

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

Alternative A1-sewage treatment plant

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
– Earthworks/trenching	high	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services. – Do not dump excavated soil into drainage	low

		channels.	
– Storage areas	medium	– The choice of storage areas are to be predetermined, taking note of topography, prevailing winds and ease of access. All hazardous materials are to be stored separately and signed. They also need to be proofed against pollution causing leakage, spills etc. – Transportation of harmful material should be done in sealed apparatus, and the handling of potentially hazardous substances is to be done on a demarcated, impermeable surface.	low
– Storm water controls	Medium	– Storm water management plan and control measures for the site needs to be drawn up. – Plan to make optimum use of dry season for construction works.	low
– Aesthetics	medium	– The choice of storage areas are to be predetermined, taking note of topography, prevailing winds and ease of access. All hazardous materials are to be stored separately and signed. They also need to be proofed against pollution causing leakage, spills etc. – The construction site may be screened where necessary. – Residents of the respective sites are to be notified of the works.	low
– Noise / dust/odour	Medium-high	– Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. – Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. – Equipment that is fitted with noise reduction facilities will be used as per operating instructions and maintained properly during site operations. – Odour nuisances at critical sections like the inlet works may need to be covered and enclosed.	low
– Heritage/archaeological	Medium-high	– The Project Public Participation Process should ensure that any cultural heritage related matter for this project is given due attention whenever it arises and is communicated KNZ PHRA throughout the proposed project development. – Furthermore, since the area earmarked for the sewage treatment facility was not fully	low

		accessible due to vegetation cover, it is recommended that the area be inspected by an archaeologist once the vegetation is clear and before earth moving activities area conducted. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave or discovering previously unrecorded archaeological remains on development site), construction activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously – unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities.	
– geohydrological	Medium	– No major or minor geological features appear to traverse the proposed site as was confirmed by previous geophysical investigations. – Groundwater use in the effective catchment area is expected to be insignificant based on current records and therefore not a strategic resource in this area. – *No obvious fatal flaws* were noted that should prevent the construction of the sewer treatment works at the proposed location, provided the engineering design and construction includes all required physical precautions and the long term operation of the facility is carried out responsibly	low
– Waste management		– All waste/ excess materials must be stored responsibly in designated skips or other specified areas as approved by the Engineer/ECO, or sent to a registered landfill. These should not be left to obstruct natural water flow. – Waste to be cleared from the sites at the end of each working day, no stripped tar, materials etc should be left lying on the roads, especially those frequented by pedestrians/vehicles. – All potentially hazardous or polluting substances should be underlain by a plastic sheet that leads to a low point, where such spills or leaks can be collected and dealt with professionally.	

Alternative A2 (soak-away pit on each of the facility sites or (ii) using conventional Dry Pit Toilets or a Septic Tank and Evaporative Pond System in areas where there is low permeability of the subsoil

Direct impacts:

– Earthworks – Storm water controls – Aesthetics – Noise / dust/odour – Groundwater/surface water pollution – Waste management ***Indirect impacts:*** – Job creation ***Cumulative impacts:*** – Economic growth

Alternative A1-soak away

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
– Earthworks	high	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services. – Do not dump excavated soil into drainage channels.	medium
– Storage areas	medium	– The choice of storage areas are to be predetermined, taking note of topography, prevailing winds and ease of access. All hazardous materials are to be stored separately and signed. They also need to be proofed against pollution causing leakage, spills etc. – Transportation of harmful material should be done in sealed apparatus, and the handling of potentially hazardous substances is to be done on a demarcated, impermeable surface.	low
– Storm water controls		– Storm water management plan and control measures for the site needs to be drawn up. – Plan to make optimum use of dry season for construction works.	
– Aesthetics	high	– The choice of storage areas are to be predetermined, taking note of topography, prevailing winds and ease of access. All hazardous materials are to be stored separately and signed. They also need to be proofed against pollution causing leakage, spills etc. – The construction site may be screened where necessary. – Transportation of harmful material should be done in sealed apparatus, and the handling of potentially hazardous substances is to be done on a demarcated, impermeable surface. – Residents of the respective sites are to be	medium

		notified of the works.	
– Noise / dust/odour	high	– Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. – Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. – Equipment that is fitted with noise reduction facilities will be used as per operating instructions and maintained properly during site operations. – Odour nuisances at critical sections will need to be covered and enclosed.	Medium-high
– Groundwater/surface water pollution	high	– The existing sanitation systems will have to be upgraded to help ensure that both the natural and anthropogenic environments are improved, i.e. to avoid surface and groundwater pollution, as well as possible health hazards. A major concern with the use of septic tanks is the potential for polluting groundwater. Septic tanks are amongst the worst threat to groundwater quality, as they dispose of a lot more water than other systems into the ground, which acts a carrier of contaminants to the groundwater, and groundwater contamination has occurred where there has been high densities of septic systems, through contamination by high amounts of organic contaminants from septic systems (potential inorganic contaminants from septic tanks are nitrogen, phosphorous, metals). With the elimination of septic tanks, one huge threat to water quality, as well as anthropogenic health, will be eliminated.	medium
– Waste management		– Waste from chemical toilets to be disposed of responsibly in a chemical treatment plant. – All waste/ excess materials must be stored responsibly in designated skips or other specified areas as approved by the Engineer/ECO, or sent to a registered landfill. These should not be left to obstruct natural water flow. – Concrete and cement, is to be mixed on a demarcated area protected by an impermeable lining. A Mechanical mixer should preferably do the mixing of concrete/cement. – All spoil that will not be used should be removed daily and disposed of in a pre-approved spoil site.	

		– Skips should be used for retention of solid waste that will be used for backfill. – Waste to be cleared from the sites at the end of each working day, no stripped tar, materials etc should be left lying on the roads, especially those frequented by pedestrians/vehicles. – All potentially hazardous or polluting substances should be underlain by a plastic sheet that leads to a low point, where such spills or leaks can be collected and dealt with professionally. – Should accidental waste spillage occur, prompt action should be taken to rehabilitate and clean the area, with significant spills being reported to the relevant authorities.	

TECHNOLOGY ALTERNATIVES: WATER SUPPLY:
Alternative A1-groundwater/boreholes with rising main

Direct impacts:
- Earthworks
- Stormwater controls
- Vegetation
- Heritage/archaeological

Rising main:
- Soil erosion
- Visual
- Noise/Dust

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

Alternative A1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
– Earthworks	Medium-high	– Ahead of all construction, strip the entire available topsoil layer. In the absence of a recognizable topsoil layer, strip the uppermost 150-200mm of soil. Stockpile topsoil stripped from different sites separately. Do not mix topsoil obtained from different sites. – Position topsoil and spoil stockpiles on the higher side of the disturbed area. Ensure that topsoil is stored in such a way that it does not cause the damming up of water, erosion gullies, or wash away (trenches are to be open and closed on the same day as far as is feasible). Spoil that has not been used as backfill is to be gathered and removed immediately to an approved spoil site at the close of each day. Protect stockpiles retaining them in a berm or use	low

		of Hessian mats.	
– Stormwater controls	medium	– Storm water control measures need to be implemented throughout the duration of construction of this project.	low
– Vegetation disturbance	medium	– Disturbed areas should be rehabilitated and monitored to ensure successful reestablishment of natural/desirable vegetation.	low
– Heritage/archaeological		– The Project Public Participation Process should ensure that any cultural heritage related matter for this project is given due attention whenever it arises and is communicated KNZ PHRA throughout the proposed project development. – A heritage-monitoring plan herein presented should be incorporated into the project EMP for the construction period of the water pipeline. This would be a cautionary measure to ensure that should any subsurface archaeological materials be unearthed, appropriate rescue or salvage operations would be implemented. – water pipeline: development should be approved to proceed as planned under observation that construction work does not extend beyond the surveyed servitude and previously disturbed areas. The foot print impact of the proposed Water Pipeline development and associated infrastructure should be kept to minimal to limit the possibility of encountering chance finds within servitude and surrounded areas around the Water Pipeline servitude. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave or discovering previously unrecorded archaeological remains on development site), construction activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities. – A professional archaeologist should be retained to monitor all significant earth moving activities that may be	

		implemented as part of the proposed Water Pipeline development on sections where suspected archaeological materials or remains may be uneathed. The monitoring process would ensure that should any archaeological or human remains be disturbed during subsurface construction work at the Sites of Interest, immediate remedial rescue and salvage work would be actioned without delay.	
Soil erosion(rising main)	medium	– If clearing of land occurs on gradients greater than 1:1.5, precautions must be taken to prevent soil erosions such as the use of berms and hessian sheets. – To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bermed area. – Locate any stockpiles away from concentrated flows and divert storm water around them. – Stabilise stockpiles	low
Visual(rising main)	medium	– The construction site may be screened where necessary. – Transportation of harmful material should be done in sealed apparatus, and the handling of potentially hazardous substances is to be done on a demarcated, impermeable surface.	low
Noise/dust(rising main)	medium	– Attenuation methods need to be investigated during this stage. – Dust amelioration methods need to be considered and implemented, where significant quantities of dust are anticipated, methods may be wetting of surfaces or wind screening. – In any instance noise levels are not to exceed SABS 0130 specified noise thresholds. – Construction vehicles to adhere to speed limits, fitted with silencers if need be.	low

Alternative A2-bulkwater-Shemula water supply scheme

Direct impacts:
- Earthworks
- Noise/dust
- social

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

Alternative A2

IMPACTS	SIGNIFICANCE	MITIGATION	SIGNIFICANCE

	UNMANAGED		MANAGED
– Earthworks	high	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services. – Do not dump excavated soil into drainage channels. – Fill and transported soils (thick colluvium) – 1:2 (vertical: horizontal) – Residual clay soils and ferricrete layer – 1:1 – Completely to highly weathered bedrock – 1: 0.75 – Slightly to moderately weathered bedrock with low discontinuity apertures – vertical	Medium-low
– Noise/dust	high	– Restriction of noisy activity as per Project Specifications or General Conditions of Contract, and notification of residents of the activities. – Equipping construction vehicles and machinery with silencers and ensuring their maintenance, and other noise attenuation methods such as buffering through use of vegetation. – Make use of noise mufflers as required during removal of concreted surfaces. – Where dust emission is significant, screening and amelioration methods such as wetting of surfaces may be required, and residents may need to be notified. – The stockpiles may be protected via use of a covering, such as Hessian mats.	low
– social	High negative	– Points men to direct traffic in cases where road obstruction/traffic diversion is unavoidable. – The municipality to address issues concerning incidental damage to private property. – The existing Shemula Scheme's bulk rising main water pipe is installed along the MR 443 road passing through Ingwavuma town. this pipeline is currently dry. water supply from the Shemula Scheme would remain intermitted and unreliable.	Medium negative

3. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

Alternative S1 (preferred site alternative-correctional facility) -erf 326,327,328

S1: sewage package plant: LOT 422

Direct impacts:

– Erosion

- Excavations
- Storm water/run off
- Visual
- Surface and groundwater quality
- Waste management
- Heritage Impacts
- Economic (alternative site-sewage package plant, ERF 362)

Indirect impacts:

- Noise and dust

Cumulative impacts:

- None at this stage

No-go alternative (compulsory)

Direct impacts:

- Should this development not proceed, then the status of the site will remain as vacant grass veld. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase.
- Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. These benefits will not materialize should the development not proceed.

Indirect impacts:

- None at this stage

Cumulative impacts:

- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1:correctional facility, sewage package plant

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Erosion	Low-Medium	– Necessary temporary measures as approved must be implemented. – Storm water controls need to be established to prevent the accumulation of water in excavated areas. – Open trenches/excavations should not allow for the prolonged accumulation and stagnation of water. Where possible, water flow should be diverted away from the excavated areas using storm water/drainage facilities/berms. Trenches will be open and closed on the same day as far as possible. – Erosion remediation measures are to be implemented prior to commencement of construction, within all areas displaying signs of erosions. – Clearing of grassland vegetation progressively, only as it becomes necessary for work to proceed. – Undertake any excavation carefully, incorporating drainage measures. – Protect stockpiles by use of a covering during excessively windy conditions. – Stockpiles should not be higher than 2m, to avoid compaction. Protect materials stockpiled for a long period of time by retaining them in a berm. – The energy/velocity of storm water runoff should be dissipated using metre drains at appropriate intervals. – Do not allow storm/surface water to be	Low

		concentrated or flow down cut and fill slopes or pipeline routes without erosion protection measures being in place. – Avoid over wetting, saturation and unnecessary run-off during dust control activities. – Temporary cut off drain to be installed on embankments to prevent water from cascading down the face and causing erosion.	
Excavations	Medium	– Trenches excavated in sandy material will require lateral support as will trenches excavated in areas of groundwater seepage. – Trenches deeper than 1.2m will be shored in any event. – As a guide, side slopes of trench excavations should be restricted to fill and transported soils and saturated residual clayey soils where groundwater seepage is present. – It is recommended that excavations be carried out in the dry season. – Ahead of all construction, strip the entire available topsoil layer. In the absence of a recognizable topsoil layer, strip the uppermost 150-200 mm of soil. Stockpile topsoil stripped from different sites separately. Do not mix topsoil obtained from different sites. – Ensure that no trench longer than 500m is exposed at any one time. – Excavations should preferably be opened and closed on the same day, if practical. Do not leave trenches open for longer than two days. – Program excavations to take place once materials are on site. – Motorists to be notified pending disturbance to traffic due to such activities, as well as qualified points men directing traffic. – Drainage needs to be implemented on paved surfaces that have been excavated so as to avoid accumulation of and possible stagnation of water therein. – Ensure than topsoil is stored in such a way that it does not cause the damming up of water, erosion gullies, or wash away (trenches are to be open and closed on the same day as far as feasible. Spoil that has not been used as backfill is to be gathered and removed immediately to an approved spoil site at the close of each day. Protect stockpiles retaining them in a berm or use Hessian mats. – Store spoil and topsoil separately. – Stockpile topsoil and spoil in windrows parallel to the excavation.	Low

		– Do not store spoil or topsoil on a drainage line. – Ensure that spoil and topsoil do not mix. – Trenching for services could be problematic at depths in excess of 2.0m due to the bedrock encountered.	
Storm water/run off	Medium	– There should also be a periodic checking of the site's drainage system to ensure that water flow is unobstructed. – Discharge points should be small and numerous, ensure that discharge does not occur onto down slope properties. Storm water to be treated before being discharged. – An approved, proper scheme is to be implemented, and should not be located along the buffer zone of the drainage channel. – Care must be taken during construction to avoid future erosion and to provide adequate storm water control due to the erosion potential of the soils on site.	Low
Visual	Low-Medium	– The construction site may be screened where it is essential and viable. – When vertical structures/surfaces are lit, light should be directed downwards and subdued. – Lighting to be used to ensure maximum security, to be energy efficient, and to pose limited intrusion on surrounding households and general traffic. – The use of spot lights on site should be discouraged.	Low
Surface and groundwater quality	Medium	– Construction vehicles to be kept in good working order to avoid risk of fuel/lubricant leaks. – Surface water draining off contaminated areas containing oil etc would need to be channeled towards a sump, which will separate the oil and water. – Oil residue to be treated with oil absorbent and this material to be removed to a licensed disposal site. – Do not allow the use of the drainage channel for cleaning tools, clothing or equipment. – Under no circumstance may the drainage channels/wetland areas be used for purposes. – Cement mixing to be done on demarcated areas, on a tray and not on exposed soil. – Spill kits must be available in all vehicles that transport fuel for dispensing to other vehicles on site, with dispensing devices being compatible with vehicles they are dispensing, and ensuring that these do not spill or drip afterwards. Refueling should take place in centrally located area and must comply with the Occupational Health	Low

		and Safety Act. 85 of 1993. – Care to be taken such that water points do not turn into mud ponds or open pools of stagnant water. – Do not allow cement, paint, oil or varnish to be washed onto the buffer area of the drainage channel – Transportation of harmful material should be done in sealed apparatus, and the mixing of potentially hazardous substances (cement) is to be done on a demarcated, impermeable surface, or, preferably, in a dumper. – An impermeable material to prevent any harmful substance, such as paint, herbicides, oil and pesticides, from permeating into the ground should line storage areas. – Do not locate any storage area for any substance that may cause pollution within any drainage line/wetland.	
Waste management	Medium-high	– Waste from chemical toilets to be disposed of responsibly in a chemical treatment plant. All waste/excess materials must be stored responsibly in designated skips or other specified areas as approved by the Engineer/ECO, or sent to a landfill. These should not be left to obstruct natural water flow. – Concrete and cement is to be mixed on a demarcated area protected by an impermeable lining. A mechanical mixer should preferably do the mixing of concrete/cement. – Skips should be used for retention of solid waste that will be used for backfill. – Waste to be cleared from the sites at the end of each working day, no stripped tar, materials, etc should be left lying on the roads, especially those frequented by pedestrians/vehicles. – All potentially hazardous or polluting substances should be underlain by a plastic sheet that leads to a low point, where such spills or leaks can be collected and dealt with professionally. – Should accidental waste spillage occur prompt action should be taken to rehabilitate and clean the area, with significant spills being reported to the relevant authorities. – Suitable waste, as per geotechnical report, may be used as backfill.	Low
Noise	Medium-low	– Restriction of noisy activity as per Project Specifications or General Conditions of Contract, and notification of members of nearby school of the activities. – Equipping construction vehicles and machinery with silencers and ensuring	Low

		their maintenance and that the construction vehicles adhere to speed limits at all times. – Make use of noise mufflers as required during removal of concreted surfaces. – Adherence to stipulated work times.	
Dust emission	Medium-low	– Where dust emission is significant, screening and amelioration methods such as wetting of surfaces may be required, and members of the nearby school may need to be notified. – Material/topsoil stockpiles may be protected via use of a covering, such as Hessian mats. – Provision of water carts to wet exposed surfaces. – Clearance of grassland within works footprint only as is necessary for construction to proceed.	Low
Heritage Impacts	High	– The Heritage Impact Assessment was undertaken so that possible sites are plotted and mitigation is taken should any archaeological artifacts be threatened by the construction of the prison and associated infrastructure. – Amafa is to be contacted if any graves or heritage objects are identified during earthmoving activities, and work is to cease until further instructions are received. – No structures older than 60 years will be demolished, altered or destructed without a permit. – Some recommendations postulated in the Heritage Impact Assessment specialist study include: – No archaeological finds are associated with the project area and as such the proposed development has low to no potential impact on archaeological heritage resources. However, this study did not involve any form of subsurface testing. As a cautionary measure, the project EMP should include chance archaeological finds and the procedures involved under the circumstances. – The existing correctional building is presently under use. Although no detailed historical architectural study was conducted on the facility, preliminary site condition surveys did not identify any features listed as historical properties of any recognized heritage significance.	Low

		Should any work involve interfering with this facility, it is recommended that an Amafa KZN alteration or demolition permit be applied for and issued prior to any work on the building. – It is the concluding recommendation that the heritage authority approve the project to proceed as planned on site (except for portions where the present building is situated. This building may be tampered with only after Amafa issues a demolition or renovation permit). – It is also the recommendation of this study that should the development proponent deem it necessary to alter the existing building, a permit from Amafa for any changes to the existing structure of over 60 years old should be sought and Amafa may issue such a permit subject to applicable demolition conditions stipulated in the Amafa and SAHRA policies in this regard. – The existing prison centre is more than 60 years old. Therefore it is protected by the heritage legislations. – The building may be destroyed/demolished or altered to either put new facilities or to continue using the facility. – A heritage permit must be sought from Amafa either to renovate or destroy the building. Alternatively the building may be left in situ with minimal renovations as part of the upgrade to allow continued use. – Proper monitoring measures need to be issued for construction work on site where such development projects commence, and if required a Heritage Permit to affect the existing building. – Add hia	
Economic-space constraints (OPTION S2 –SEWAGE PLANT, ERF 362)	High	– Further extensions to site will be required to accommodate the plant. – Site to be extended. This may encroach on surrounding areas.	Medium-high

Alternative S1 (boreholes-: (*KZN 130067 and KZN 130065)*

Direct impacts:

- earthworks
- Storm water controls
- Vegetation
- heritage and archaeological

Indirect impacts:
Cumulative impacts:
- None at this stage

No-go alternative (compulsory)

Direct impacts:
- Should this development not proceed, then the status of the site will remain as vacant grass veld. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase.
- Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. These benefits will not materialize should the development not proceed.

Indirect impacts:
- None at this stage

Cumulative impacts:
- Social

Alternative S1 (boreholes-: (*KZN 130067 and KZN 130065)*

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
EARTHWORKS	MEDIUM	– Ahead of all construction, strip the entire available topsoil layer. In the absence of a recognizable topsoil layer, strip the uppermost 150-200mm of soil. Stockpile topsoil stripped from different sites separately. Do not mix topsoil obtained from different sites. – Position topsoil and spoil stockpiles on the higher side of the disturbed area. Ensure that topsoil is stored in such a way that it does not cause the damming up of water, erosion gullies, or wash away (trenches are to be open and closed on the same day as far as is feasible). Spoil that has not been used as backfill is to be gathered and removed immediately to an approved spoil site at the close of each day. Protect stockpiles retaining them in a berm or use of Hessian mats. – Store spoil and topsoil separately.	low
Stormwater controls	medium	– Storm water control measures need to be implemented throughout the duration of construction of this project. – Precautions should be taken to ensure that the surface run-off, potential leaks or spills do not flow into any production boreholes located downstream of the proposed sewer treatment site plot 422. – A protection zone of 100 m around any groundwater abstraction borehole and surface water resource that has been proposed and should be adhered to.	low
Vegetation	medium	– It is to be noted that no protected tree or plant, as well as other indigenous vegetation, is to be removed without prior permission from the authorities. An ECO will identify indigenous trees. – Imported material to be used for the project should be checked for contamination by alien seedlings or weeds. These need to be removed by use of herbicides, with stockpiles	low

		being monitored daily.	
Heritage and archaeological		– The Project Public Participation Process should ensure that any cultural heritage related matter for this project is given due attention whenever it arises and is communicated KNZ PHRA throughout the proposed project development. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave or discovering previously unrecorded archaeological remains on development site), construction activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities.	

a. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the construction phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)- AS PER LAYOUT (ANNEXURE A)

Direct impacts:
- Trenching activity
- Waste management
- Erosion
- Noise and dust

Indirect impacts:
-None at this stage

Cumulative impacts:
- None at this stage

No-go alternative (compulsory)

Direct impacts:
- Should this development not proceed, then the status of the site will remain as vacant grass veld. Furthermore, once the correctional facility is developed, it is likely that crime in the area will be reduced. This will not materialize should the development not proceed.

Indirect impacts:
- None at this stage

Cumulative impacts:
- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Trenching activity	Medium	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services.	Low

Waste management	Medium-high	– Store inert rubble as indicated on the approved ESM&R Plan. – Rubble must be disposed of at the nearest registered solid waste disposal facility. – Provide litterbins at regular positions, with spacing not exceeding 100m throughout the work sites. – Where necessary dedicate storage areas along the route for collection of construction waste. – Store hazardous waste as indicated on the approved ESM&R Plan. All excavated solid matter (concrete, tar, cement, paving material, etc) to be moved to appropriate landfills, and not left along the roads. No waste matter should be left lying along the road verges at the end of each working day. – Ensure that all spoil that may not be re-used is removed to a registered spoil site daily. Spoil to be re-used should be stored in a skip until use, protected from the elements, and should not be mixed with topsoil at any time. – Ensure that the site is devoid of all litter at all times, bins will be provided	Low
		– Waste from chemical toilets to be disposed of responsibly in a chemical treatment plant. -The use of the surrounding landscape as a toilet is strictly prohibited. – No toilet or sanitary convenience to be located within the drainage line or watercourse. – Deflection of clean water away from any dirty water. – Transport harmful waste carefully to avoid spillage on route. – Maintain and clean all site toilets regularly to keep them in acceptable hygiene levels and in good working order. – Earth, stone and rubble is to be sufficiently disposed of so as not to obstruct natural water flow, or cause pollution, and all waste needs to be sent to a landfill. – Store inert rubble as indicated on the approved ESM&R Plan. – Oil spills to be cleaned as a matter of urgency. – Do not hose oil or fuel spills or leakages into a storm water drain or sewer or the natural environment, or the drainage channel. – Temporary vehicle maintenance areas to be underlain by an impervious layer. – Deflect any unpolluted water/runoff away from any dirty area. – Provision of litterbins at convenient intervals.	

		– The site is to be cleared of litter at all times. – Try to retain the large rocks/boulders on site for use during rehabilitation/landscaping.	
Erosion	Low-medium	– Necessary temporary measures as approved must be implemented. – Storm water controls need to be established to prevent the accumulation of water in excavated areas. – Open trenches/excavations should not allow for the prolonged accumulation and stagnation of water. Where possible, water flow should be diverted away from the excavated areas using storm water/drainage facilities/berms. Trenches will be open and closed on the same day as far as possible. – Erosion remediation measures are to be effected prior to commencement of construction, within all areas displaying signs of erosions. – Clearing of grassland vegetation progressively, only as it becomes necessary for work to proceed. – Undertake any excavation carefully, incorporating drainage measures. – Protect stockpiles by use of a covering during excessively windy conditions. – Stockpiles should not be higher than 2m, to avoid compaction. Protect materials stockpiled for a long period of time by retaining them in a berm. – The energy/velocity of storm water runoff should be dissipated using metre drains at appropriate intervals. – Do not allow storm/surface water to be concentrated or flow down cut and fill slopes or pipeline routes without erosion protection measures being in place. – Avoid over wetting, saturation and unnecessary run-off during dust control activities. – Temporary cut off drain to be installed on embankments to prevent water from cascading down the face and causing erosion.	Low
Noise	Medium	– Restriction of noisy activity as per Project Specifications or General Conditions of Contract, and notification of residents of the activities. – Equipping construction vehicles and machinery with silencers and ensuring their maintenance. – Vehicles transporting material and equipment should be restricted to off peak times if possible, and should rather transport material in bulk to be stored on site, to limit crowding of the roads and	Low

		inconveniences to other road users. Speed limits should be restricted to 40km/hr.	
Dust	Medium-low	– Use of water or non-toxic chemicals to control dust around stockpiles. – Driving speed of construction vehicles on cleared surfaces at the site to be limited to 20km/hr, and 40 km on the public road. – Material stockpiles to be covered using tarpaulins when use of water/chemicals is insufficient to prevent particulate matter from dispersing and becoming airborne. – Topsoil to be protected during windy conditions by use of Hessian mats.	Low

Alternative A2 (Alternative 2)- *decommissioning and destruction of the present correctional facility, with the re-construction of the newly proposed correctional facility in its place*

Direct impacts:
- Trenching activity/earthworks
- Waste management
- Erosion
- Noise and dust
- Heritage Impacts

Indirect impacts:
- None at this stage

Cumulative impacts:
- None at this stage

No-go alternative (compulsory)

Direct impacts:
- Should this development not proceed, then the status of the site will remain as vacant grass veld. Furthermore, once the correctional facility is developed, it is likely that crime in the area will be reduced. This will not materialize should the development not proceed.

Indirect impacts:
- None at this stage

Cumulative impacts:
- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A2:

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Trenching activity/earthworks	Medium-high	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services.	Low
Waste management	Medium-high	– Store inert rubble as indicated on the approved ESM&R Plan. – Rubble must be disposed of at the nearest registered solid waste disposal facility. – Provide litterbins at regular positions, with spacing not exceeding 100m throughout the work sites. – Where necessary dedicate storage areas along the route for collection of construction waste. – Store hazardous waste as indicated on	Low

		the approved ESM&R Plan. All excavated solid matter (concrete, tar, cement, paving material, etc) to be moved to appropriate landfills, and not left along the roads. No waste matter should be left lying along the road verges at the end of each working day. – Ensure that all spoil that may not be re-used is removed to a registered spoil site daily. Spoil to be re-used should be stored in a skip until use, protected from the elements, and should not be mixed with topsoil at any time. – Ensure that the site is devoid of all litter at all times, bins will be provided	
		– Waste from chemical toilets to be disposed of responsibly in a chemical treatment plant. -The use of the surrounding landscape as a toilet is strictly prohibited. – No toilet or sanitary convenience to be located within the drainage line or watercourse. – Deflection of clean water away from any dirty water. – Transport harmful waste carefully to avoid spillage on route. – Maintain and clean all site toilets regularly to keep them in acceptable hygiene levels and in good working order. – Earth, stone and rubble is to be sufficiently disposed of so as not to obstruct natural water flow, or cause pollution, and all waste needs to be sent to a landfill. – Store inert rubble as indicated on the approved ESM&R Plan. – Oil spills to be cleaned as a matter of urgency. – Do not hose oil or fuel spills or leakages into a storm water drain or sewer or the natural environment, or the drainage channel. – Temporary vehicle maintenance areas to be underlain by an impervious layer. – Deflect any unpolluted water/runoff away from any dirty area. – Provision of litterbins at convenient intervals. – The site is to be cleared of litter at all times. – Try to retain the large rocks/boulders on site for use during rehabilitation/landscaping.	
Erosion	medium	– Necessary temporary measures as approved must be implemented. – Storm water controls need to be established to prevent the accumulation of water in excavated areas. – Open trenches/excavations should not	Low

		allow for the prolonged accumulation and stagnation of water. Where possible, water flow should be diverted away from the excavated areas using storm water/drainage facilities/berms. Trenches will be open and closed on the same day as far as possible. – Erosion remediation measures are to be effected prior to commencement of construction, within all areas displaying signs of erosions. – Clearing of grassland vegetation progressively, only as it becomes necessary for work to proceed. – Undertake any excavation carefully, incorporating drainage measures. – Protect stockpiles by use of a covering during excessively windy conditions. – Stockpiles should not be higher than 2m, to avoid compaction. Protect materials stockpiled for a long period of time by retaining them in a berm. – The energy/velocity of storm water runoff should be dissipated using metre drains at appropriate intervals. – Do not allow storm/surface water to be concentrated or flow down cut and fill slopes or pipeline routes without erosion protection measures being in place. – Avoid over wetting, saturation and unnecessary run-off during dust control activities. – Temporary cut off drain to be installed on embankments to prevent water from cascading down the face and causing erosion.	
Noise	Medium-high	– Restriction of noisy activity as per Project Specifications or General Conditions of Contract, and notification of residents of the activities. – Equipping construction vehicles and machinery with silencers and ensuring their maintenance. – Vehicles transporting material and equipment should be restricted to off peak times if possible, and should rather transport material in bulk to be stored on site, to limit crowding of the roads and inconveniences to other road users. Speed limits should be restricted to 40km/hr.	Low
Dust	Medium	– Use of water or non-toxic chemicals to control dust around stockpiles. – Driving speed of construction vehicles on cleared surfaces at the site to be limited to 20km/hr, and 40 km on the public road. – Material stockpiles to be covered using tarpaulins when use of water/chemicals is insufficient to prevent particulate matter	Low

		from dispersing and becoming airborne. – Topsoil to be protected during windy conditions by use of Hessian mats.	
Heritage Impacts	High -	– The Heritage Impact Assessment was undertaken so that possible sites are plotted and mitigation is taken should any archaeological artifacts be threatened by the construction of the prison and associated infrastructure. – Amafa is to be contacted if any graves or heritage objects are identified during earthmoving activities, and work is to cease until further instructions are received. – No structures older than 60 years will be demolished, altered or destructed without a permit. – Some recommendations postulated in the Heritage Impact Assessment specialist study include: – No archaeological finds are associated with the project area and as such the proposed development has low to no potential impact on archaeological heritage resources. However, this study did not involve any form of subsurface testing. As a cautionary measure, the project EMP should include chance archaeological finds and the procedures involved under the circumstances. – The existing correctional building is presently under use. Although no detailed historical architectural study was conducted on the facility, preliminary site condition surveys did not identify any features listed as historical properties of any recognized heritage significance. Should any work involve interfering with this facility, it is recommended that an Amafa KZN alteration or demolition permit be applied for and issued prior to any work on the building. – It is the concluding recommendation that the heritage authority approve the project to proceed as planned on site (except for portions where the present building is situated. This building may be tampered with only after Amafa issues a demolition or renovation permit). – It is also the recommendation of this study that should the development proponent deem it necessary to alter the existing building, a permit from Amafa for any changes to the	High -

		existing structure of over 60 years old should be sought and Amafa may issue such a permit subject to applicable demolition conditions stipulated in the Amafa and SAHRA policies in this regard. – The existing prison centre is more than 60 years old. Therefore it is protected by the heritage legislations. – The building may be destroyed/demolished or altered to either put new facilities or to continue using the facility. – A heritage permit must be sought from Amafa either to renovate or destroy the building. Alternatively the building may be left in situ with minimal renovations as part of the upgrade to allow continued use. – - Proper monitoring measures need to be issued for construction work on site where such development projects commence, and if required a Heritage Permit to affect the existing building.	

TECHNOLOGY ALTERNATIVES: SEWAGE

Alternative A1 (package plant)-LOT 422 and alternative A2 (soak-away pit on each of the facility sites or (ii) using conventional Dry Pit Toilets or a Septic Tank and Evaporative Pond System in areas where there is low permeability of the subsoil

Direct impacts:
- Earthworks
- Storage areas
- Storm water controls
- Noise / dust/odour
- Heritage/archaeological
- Geohydrology
- WASTE management

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

Alternative A1/A2

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
– Earthworks	MEDIUM	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates	low

		immediate layout of services. – Do not dump excavated soil into drainage channels.	
– Storage areas	medium	– Prevalent winds and on-site topography need to be considered when determining storage areas. – The construction site/storage area should not be accessible to criminals, vagrants, or children, and should be fenced if necessary. – Harmful substances to be stored separately, using impermeable lining, and is to be properly signed. – Fire control facilities are to be on hand at all times. – Storage areas to be situated away from wet areas.	low
– Storm water controls	medium	– Control of stormwater runoff is essential. – Sites should be designed such that storm water from on-site does not cascade down slope over other sites.	low
– Noise / dust/odour	medium	– Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. – Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. – Equipment that is fitted with noise reduction facilities will be used as per operating instructions and maintained properly during site operations. – Odour nuisances at critical sections like the inlet works may need to be covered and enclosed.	low
– Heritage/archaeological		– The Project Public Participation Process should ensure that any cultural heritage related matter for this project is given due attention whenever it arises and is communicated KNZ PHRA throughout the proposed project development. – Furthermore, since the area earmarked for the sewage treatment facility was not fully accessible due to vegetation cover, it is recommended that the area be inspected by an archaeologist once the vegetation is clear and before earth moving activities area conducted. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave or discovering previously unrecorded archaeological remains on development site), construction	

		activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities.	
– geohydrological	MEDIUM	No major or minor geological features appear to traverse the proposed site as was confirmed by previous geophysical investigations. Groundwater use in the effective catchment area is expected to be insignificant based on current records and therefore not a strategic resource in this area. – *No obvious fatal flaws* were noted that should prevent the construction of the sewer treatment works at the proposed location, provided the engineering design and construction includes all required physical precautions and the long term operation of the facility is carried out responsibly	low
– Geohydrological (A2)	High	– Septic tank treatment is too inefficient to treat 140m3/day at 48hr retention. The hydraulic loading is too high, implying there is little BOD or COD removal. A large area will be required for percolation (soak-away) or evapotranspiration beds. Up-scaling the current system is considered unviable due to space requirements.	Medium-high
– Waste management	medium	– Rubble must be disposed of at the nearest registered solid waste disposal facility. – Provide litterbins at regular positions, with spacing not exceeding 100m throughout the work sites. – Where necessary dedicate storage areas along the route for collection of construction waste. – Store hazardous waste as indicated on the approved ESM&R Plan. All excavated solid matter (concrete, tar, cement, paving material, etc) to be moved to appropriate landfills, and not left along the roads. No waste matter should be left lying along the road verges at the end of each working day. – Do not place such material within proximity to the drainage channel. – Ensure all spoil that may not be re-used is removed to a registered spoil site daily. Spoil to be re-used should be stored in a skip until use, protected from the elements, and should not be mixed with topsoil at any time. – Ensure that the site is devoid of all litter at all times, bins will be provided for this purpose. At no point should there be evidence of garbage, cool drink bottles,	low

		cement bags, other waste or paper on the route.	
– Noise / dust/odour (A2)	HIGH	– Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. – Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. – Equipment that is fitted with noise reduction facilities will be used as per operating instructions and maintained properly during site operations. – Odour nuisances at critical sections may need to be covered and enclosed.	Medium-high

TECHNOLOGY ALTERNATIVES: WATER SUPPLY:

Alternative A1-groundwater/boreholes (*KZN 130067 and KZN 130065)* **with rising main**

Direct impacts:
- Earthworks
- Stormwater controls
- Vegetation
- Heritage/archaeological

Rising main:
- Soil erosion
- Visual
- Noise/Dust

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

Alternative A1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
– Earthworks	medium	– Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services. – Do not dump excavated soil into drainage channels.	low
– Earthworks (rising main)	high	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services.	low

		– Do not dump excavated soil into drainage channels.	
– Stormwater controls	MEDIUM	– Sites should be designed such that storm water from on site does not cascade down slope over other sites	low
– vegetation	medium	– It is to be noted that no protected tree or plant, as well as other indigenous vegetation, is to be removed without prior permission from the authorities. An ECO will identify indigenous trees. – Imported material to be used for the project should be checked for contamination by alien seedlings or weeds. These need to be removed by use of herbicides, with stockpiles being monitored daily.	low
– Vegetation(rising main)	high	– It is to be noted that no protected tree or plant, as well as other indigenous vegetation, is to be removed without prior permission from the authorities. An ECO will identify indigenous trees. – Imported material to be used for the project should be checked for contamination by alien seedlings or weeds. These need to be removed by use of herbicides, with stockpiles being monitored daily.	low
– Heritage/archaeological (rising main)		– The Project Public Participation Process should ensure that any cultural heritage related matter for this project is given due attention whenever it arises and is communicated KNZ PHRA throughout the proposed project development. – In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave or discovering previously unrecorded archaeological remains on development site), construction activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities. – A professional archaeologist should be retained to monitor all significant earth moving activities that may be implemented as part of the proposed Water Pipeline development on sections where suspected archaeological materials or remains may be uneathed. The monitoring process would ensure that should any archaeological or	

		human remains be disturbed during subsurface construction work at the Sites of Interest, immediate remedial rescue and salvage work would be actioned without delay.	
Soil erosion(rising main)	Medium-high	– Necessary temporary measures as approved must be implemented. – Storm water controls need to be established to prevent the accumulation of water in excavated areas. – Do not allow runoff to be concentrated or flow along the pipeline route without erosion protection measures being in place, or to accumulate in trenches. – Avoid access into seasonally wet soils during or immediately after rainy periods until the soil is dry. – Open trenches/excavations should not allow for the prolonged accumulation and stagnation of water. Where possible, water flow should be diverted away from the excavated areas using storm water/drainage facilities/berms.	low
Visual(rising main)	medium	– The choice of storage areas are to be predetermined, taking note of topography, prevailing winds and ease of access. All hazardous materials are to be stored separately and signed. They also need to be proofed against pollution causing leakage, spills etc. – The construction site may be screened where necessary. – Transportation of harmful material should be done in sealed apparatus, and the handling of potentially hazardous substances is to be done on a demarcated, impermeable surface. – Residents of the respective sites are to be notified of the works.	low
Noise/dust(rising main)	high	– Where dust emission is significant, screening and amelioration methods such as wetting of surfaces may be required, and residents may need to be notified. – The stockpiles may be protected via use of a covering, such as Hessian mats.	low

Alternative A2-bulkwater-Shemula water supply scheme

Direct impacts:
- Earthworks
- Noise/dust
- social

Indirect impacts:
- Job creation

Cumulative impacts:
- Economic growth

Alternative A2

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
– Earthworks	high	– Ensure that no trench longer than 500m is exposed at any one time. – Excavations will be opened and closed on the same day if possible; but will not be left standing for longer than two days. – Program excavations to take place once materials are on site, which facilitates immediate layout of services. – Do not dump excavated soil into drainage channels.	Medium-low
– Noise/dust	medium	– Where dust emission is significant, screening and amelioration methods such as wetting of surfaces may be required, and residents may need to be notified. – The stockpiles may be protected via use of a covering, such as Hessian mats.	low
– social	Medium-high	– All residents need to be notified of work times, and should be encouraged to fill in complaints and comments on a special complaints register. Restriction of activities to contract stated work times. – Try to avoid carrying out the works along key access roads during peak hour traffic periods. – Prevent pedestrians from accessing the sites, or from being in too close proximity by cordoning of the area can reinforce safety. – Stacked pipes should be bound and secured. – The contractor is responsible for worker safety on site.	low

4. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

i. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:
Alternative S1 (preferred alternative-correctional facility), PREFERRED AND ALTERNATIVE SITES (SEWAGE PACKAGE PLANT; S1-PREFERRED WATER SUPPLY, BOREHOLES)

Direct impacts:
– Rehabilitation
– Storm water runoff
Indirect impacts:
– Waste management
Cumulative impacts:
– None at this stage

No-go alternative (compulsory)

Direct impacts:
– Should this development not proceed, then the status of the site will remain as vacant grass veld. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase.
– Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. These benefits will not materialize should the development not proceed.

Indirect impacts:

– None at this stage ***Cumulative impacts:*** – Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Rehabilitation	High-medium	– Cleansing of campsite to remove any substances that may later harm the environment, such as oil, cement etc. – General removal of litter, temporary work materials, tools etc. – Removal of all pollution containment structures. – Ensure that all surfaces are restored to a condition no worse than it was prior to construction/upgrade of the pipeline or pump stations. – Ensure that any indigenous vegetation removed has been replanted or that areas have been re-grassed.	Low
Storm water runoff	Medium	– The Local Municipality must be contacted with regard to any discharges either to the storm water drainage system or to the municipal sewer system. – All leftover building materials must be returned to the depot, the Contractor also has to check that all watercourses are free from building rubble, spoil and waste materials. – No uncontrolled discharges from the site/working area to depressions shall be permitted. All discharge points will need approval. – All storm water to be carried off site. – The system must be maintained and inspected regularly. – Storm water channels to be checked and cleaned of any litter. All cement/paint preparation areas to be removed responsibly.	Low
Waste management/pollution control	High-medium	– The site needs to be cleansed thoroughly. – Unless otherwise specified by the EO/ECO, any accumulated waste should be removed and stored in the nearest registered solid waste disposal facility. – Solid waste should be transported properly avoiding waste spills en-route.	Low

		– Any contaminated soil should be disposed of responsibly. – Remove all hazardous waste/substance stores, as well as pollution containment structures. – Cement/paint mixing area is to be removed, disposed in an approved landfill, and the area on which it was situated is to be thoroughly ameliorated to prevent infiltration into groundwater. – Remove all temporary sanitation structures and waste water disposal systems, taking care to avoid leaks, overflows and spills. – Under no circumstance is waste of any nature to be burned or buried on site without approval/permission. – Ensure that the buffer area/drainage channel if free from litter or waste.	

a. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the operational phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)-as per Annexure A; A2 (*decommissioning and destruction of the present correctional facility, with the re-construction of the newly proposed correctional facility in its place*

Direct impacts:
– Rehabilitation
– Waste management

Indirect impacts:
– None at this stage

Cumulative impacts:
– None at this stage

No-go alternative (compulsory)

Direct impacts:
– Should this development not proceed, then the status of the site will remain as vacant veld grass.

Indirect impacts:
– None at this stage

Cumulative impacts:
– Social

Alternative A1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Rehabilitation	High-medium	– Rehabilitation and Conservation measures have been included within the EMP. – All measures to be implemented as per EMP for identified sensitive areas. – All areas that have been disturbed by construction activities (including the construction camp area) must be cleared of alien vegetation and exotics to be removed. – Only indigenous plant species may be used for the enhancement of the	Low

		proposed development site. – Ensure all open and vacant areas within the site are vegetated with indigenous plant species or removed vegetation is replaced. – Open areas are to be re-planted as per the re-vegetation specification. – The establishment of any functional habitats is recommended to encourage biodiversity, such as bird nesting boxes. – Alien plants are to be removed from the site and responsibly disposed of, as such that the likelihood of their re-establishment on the site and adjacent areas is greatly reduced. – Alien vegetation that has established on any part of the site is to be removed mechanically from the root, or use of permitted/approved mild herbicides as a last resort. – If possible, try to remove the alien invasive species outside of the footprint of the development to reduce chances of encroachment. Invasive and weed species from adjacent properties to be managed – Rip/scarify all disturbed areas of the construction site, including temporary access routes and roads, compacted during the construction. – Rip/scarify along contours to prevent the creation of down slope channels. – Do not rip/scarify areas under wet conditions. – Surfaces to mimic original state as far as possible. – Only non polluting activities should be permitted i.e. no quad bikes, motorized model planes, loud music etc. – Ongoing monitoring and management of the grassland on the site and beyond, as well as the wetlands areas and their water quality, and riparian vegetation is required. – Residents to be informed that capturing of fauna is prohibited and harvesting of plants for any reason is prohibited. Pets are not allowed on the property. – All sensitive areas outside of the footprint may be formally protected through legal proclamation or registration of conservation servitude with the authorities. – Fire control equipment to be kept on hand at all times, including hoses,	

		hydrants and contact details of the fire department, maintained within the residence's maintenance offices.	
Waste management	Medium	– Unless otherwise specified by the EO/ECO, all domestic waste should be removed and stored in the nearest registered solid waste disposal facility. – Solid waste should be transported properly avoiding waste spills en-route. – If solid waste disposal is to take place on site, ensure that only non-toxic materials which have no risk of polluting groundwater, are buried in designated approved areas at acceptable depths below ground level. The necessary approvals and permits are to be in place before any such disposal takes place. – No solid waste may be burned on site. – The introduction of de-watering and composting technology to process food waste has proved an innovative process that can be incorporated into the standard kitchens requirements for new build and refurbishment schemes. – All waste material must be disposed off at a permitted landfill site that is authorised to accept such waste. – All contaminated material to be disposed of at a permitted hazardous landfill site. – Clear out all inert waste and rubble, including foundations etc. Load and haul spoil and rubble to fill in dongas, or to dump sites indicated by the EO/ECO. – Removal of all domestic waste and dispose at a registered site. – Complex to be designed to include a walled bin area for municipal waste collection. – Sewage is to be collected by waterborne means and discharged directly into the plant for treatment. – The Local Municipality must be contacted with regard to any discharges either to the storm water drainage system or to the municipal sewer system.	Low

Alternative A1 (Alternative-sewage package plant); A2-soak away: erf 362

Direct impacts:
- Rehabilitation
- Waste management
- SOCIAL

Indirect impacts:

- None at this stage

Cumulative impacts:

- None at this stage

No-go alternative (compulsory)

Direct impacts:

- Should this development not proceed, then the status of the site will remain as vacant veld grass and negative space.

Indirect impacts:

- None at this stage

Cumulative impacts:

- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A2

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Rehabilitation	High-medium	- Cleaning of campsite to remove any substances that may later harm the environment, such as oil, cement etc. - General removal of litter, temporary works materials, any delineation structures, tools etc. - Ensure that the drainage channel is free from leftover material, etc, and that all waste is removed completely. - Removal of all pollution containment structures. - Ensure that all surfaces are restored to a condition no worse that it was prior to construction/upgrade of the pipeline or pump stations. - Ensure that any indigenous vegetation removed has been replanted or that areas have been regrassed.	Low
Waste management	Medium	- Unless otherwise specified by the EO/ECO, any accumulated waste should be removed and stored in the nearest registered solid waste disposal facility. - Solid waste should be transported properly avoiding waste spills en-route. - No waste disposal is to take place on site. - Ensure all excess spoil, is removed to a registered spoil site. - It is strictly prohibited to dump spoil in back areas, drainage	Low

		channel, wetlands or any other wet area. – No solid waste may be burned on site. – All waste material must be disposed off at a permitted landfill site that is authorised to accept such waste. – All contaminated material to be disposed of at a permitted hazardous landfill site. – All waste along the route is to be promptly removed. – As per contract, the approved, reputable chemical toilet provider should ensure that waste is properly handled and disposed of.	
social		– All social environments to be considered during the final completion of the project.	

Alternative A1 (BOREHOLES); A2-BULK WATER

Direct impacts:
- Rehabilitation
- waste

Indirect impacts:
- None at this stage

Cumulative impacts:
- None at this stage

No-go alternative (compulsory)

Direct impacts:
- Should this development not proceed, then the status of the site will remain as vacant veld grass and negative space.

Indirect impacts:
- None at this stage

Cumulative impacts:
- Social

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1/2

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Rehabilitation-BH	High-medium		Low
Rehabilitation-BULKWATER	high	– Clearing of campsite to remove any substances that may later harm the environment, such as oil, cement etc. – General removal of litter, temporary works materials, any delineation structures, tools etc. – Ensure that the drainage channel is free from leftover material, etc, and that all waste is removed completely. – Removal of all pollution containment	low

		structures. – Ensure that all surfaces are restored to a condition no worse that it was prior to construction/upgrade of the pipeline or pump stations. – Ensure that any indigenous vegetation removed has been replanted or that areas have been regrassed. – Any disturbance that has taken place around the footprint of the installation must be rehabilitated. – Exposed land must be rehabilitated immediately after construction is complete. – Disturbed soil around crossings and diversions must be stabilised immediately after construction. – River channel embankments must be restored to the pre-existing (or improved) profile. – Topsoil containing the valuable seedbed that has been stockpiled for rehabilitation purposes, must be spread over the subsoil (minimum of 20cm) in areas requiring rehabilitation for the facilitation of vegetation establishment. – Top soiling must be carried out prior to the rainy season and or to any expected wet weather conditions. – No vehicles must be allowed access onto top soiled areas. – Areas where soil has been compacted must be ripped and landscaped if necessary to approximate a natural gradient. – After topsoil placement is complete, cleared and stockpiled vegetation must be spread over the top soiled area. – Monitoring should ensure successful re-establishment of natural/desirable vegetation. – Rehabilitation and long term monitoring to ensure re-establishment of natural vegetation, and ongoing removal of alien vegetation and weeds.	
waste	Medium	– Majority of the waste will be used for the backfill. – Unless otherwise specified by the EO/ECO, any accumulated waste should be removed and stored in the nearest registered solid waste disposal facility. – Solid waste should be transported properly avoiding waste spills en-route. – No waste disposal is to take place	Low

		on site. – Ensure all excess spoil, is removed to a registered spoil site. It is strictly prohibited to dump spoil in back areas, drainage channel, wetlands or any other wet area. – No solid waste may be burned on site. – All waste material must be disposed off at a permitted landfill site that is authorised to accept such waste. – All contaminated material to be disposed of at a permitted hazardous landfill site. – All waste along the route is to be promptly removed. – As per contract, the approved, reputable chemical toilet provider should ensure that waste is properly handled and disposed of.	

5. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE – N/A

– This section is not applicable as this is a correctional facility upgrade and infrastructure provision, and will exist indefinitely through continued demand for sanitation services and further upgrades.

PROPOSED MONITORING AND AUDITING:

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

Alternative S1 (preferred site); PREFERRED AND ALTERNATIVE SITES (SEWAGE PACKAGE PLANT)

Impacts/mitigation will be monitored/audited during the construction phase on a monthly basis as per an approved EMP.

Alternative A1 (preferred alternative)

Impacts/mitigation will be monitored/audited during the construction phase on a monthly basis as per an approved EMP.

3. 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.

Alternative S1 (preferred site-prison) and PREFERRED SITE (sewage package plant)

In line with the National Environmental Management Act (No. 107 of 1998), the development must be socially, economically and environmentally sustainable with the implications that:

– Pollution and degradation of the environment are avoided.
– Waste is avoided/minimised and re-used or re-cycled where possible.
– Hazardous substances are handled and installed with extreme care and caution.
– Only the utilisation of indigenous plant species in the landscaping and up-liftment of site be permitted.
– Negligence by construction workers is avoided wherever possible.
– Construction vehicles and machinery are in good working order meeting manufactures specifications for anthropogenic and environmental safety.

Potential impacts were identified by professional judgment, project information, experience of similar projects, a review of available literature, site visits and consultation with authorities and the public.

Significant impacts identified include the following:

- **Erosion**
- **Storm water control**
- **Waste management**
- **Natural assets**
- **Social**

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
Storm water	Short term	Probable	Medium	Low
Erosion	Short term	Probable	Medium-High	Low
Waste management	Short term	Probable	Medium	Low
Natural assets	Long term	Probable	Low	Low
Social	Long term	Probable	Medium	Low
Heritage impacts	Long term	Probable	High	Low

Alternative S2 (alternative site-sewage package plant)

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
Storm water	Short term	Probable	Medium	Low
Erosion	Short term	Probable	Medium-High	Low
Waste management	Short term	Probable	Medium	Low
Natural assets	Long term	Probable	Low	Low
Social	Long term	Probable	Medium	Low
Heritage impacts	Long term	Probable	High	Low
economic	Long term	Probable	High	Medium-high

Alternative A1 (preferred alternative)-as per Annexure A

Significant impacts identified include the following:

- **Erosion**
- **Storm water control**
- **Waste management**
- **Natural assets**
- **Social**
- **Heritage Impacts**

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
earthworks	Short term	Probable	high	low
Storm water	Short term	Probable	Medium	Low
Erosion	Short term	Probable	Medium-High	Low
Waste management	Short term	Probable	Medium	Low
Noise/dust	Long term	Probable	medium	Low
Social	Long term	Probable	Medium	Low

Alternative A2 (Alternative 2) *decommissioning and destruction of the present correctional facility, with the re-construction of the newly proposed correctional facility in its place*

Significant impacts identified include the following:

- **Earthworks**
- **Storm water control**
- **Erosion**
- **Noise/dust**
- **Waste management**
- **Heritage Impacts**

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
Storm water	Short term	Probable	Medium	Low
earthworks	Short term	Probable	High	low
Waste management	Short term	Probable	Medium	Low
erosion	Short term	Probable	high	low
social	Long term	Probable	Medium	Low
Heritage Impacts	Long term	Probable	High	High negative

No-go alternative (compulsory)

- Should this development not proceed, then the status of the site will remain as vacant veld grass and negative space. Numerous temporary employment opportunities will be created during the development phase, and some permanent opportunities will be created during the operational phase.
- Along with these socio-economic benefits, once the correctional facility is developed, it is likely that crime in the area will be reduced. These benefits will not materialize should the development not proceed.

TECHNOLOGY ALTERNATIVES: SEWAGE

Significant impacts identified include the following:

Alternative A1 (sewage treatment plant)-Lot 422

- Earthworks
- Storage areas
- Storm water controls
- Aesthetics
- Noise / dust/odour
- Heritage/archaeological
- Geohydrology
- WASTE management

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
– Earthworks	Short term	Probable	medium	low
– Storage areas	Short term	Probable	medium	low
– Storm water controls	Short term	Probable	medium	low
– Noise / dust/odour	Short term	Probable	medium	low
– Heritage/archaeological	Long term	Probable	medium	low
– geohydrology	Long term	Probable	medium	low
– waste management	Short term	Probable	medium	low

Alternative A2 (soak-away pit on each of the facility sites or (ii) using conventional Dry Pit Toilets or a Septic Tank and Evaporative Pond System in areas where there is low permeability of the subsoil

Significant impacts identified include the following:

- Earthworks
- Storm water controls
- Noise / dust/odour
- geohydrological
- Waste management

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
– Earthworks	Short term	Probable	high	low
– Storm water controls	Short term	Probable	high	low
– Noise / dust/odour	Short term	Probable	high	Medium-high
– geohydrological	long term	Probable	high	Medium-high
– Waste management	short term	Probable	high	Medium-high

TECHNOLOGY ALTERNATIVES: WATER SUPPLY:
Alternative A1-groundwater/boreholes with rising main

Significant impacts identified include the following:

- Earthworks
- Stormwater controls
- Vegetation
- Heritage/archaeological

Rising main:

- Soil erosion
- Visual
- Noise/Dust

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
– Earthworks	Short term	Probable	medium	low
– Stormwater controls	Short term	Probable	medium	low
– Vegetation	Short term	Probable	medium	low
– Heritage/archaeological	short term	Probable	medium	low
Rising main:				
– Soil erosion	Short term	Probable	high	low
– vegetation	Short term	Probable	high	low
– earthworks	Short term	Probable	high	low
– Visual	short term	Probable	Medium-high	low
– Noise/Dust	short term	Probable	Medium-high	low

Alternative A2-bulkwater-Shemula water supply scheme

- **Significant impacts identified include the following:**

- Earthworks
- Noise/dust

– social

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
– Earthworks	Short term	Probable	high	Medium-high
– Noise/dust	Short term	Probable	high	medium
– social	Short term	Probable	high	Medium-low

SECTION E. RECOMMENDATION 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	~~NO~~

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):

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:

It is advised that this project be authorized, as it is an essential project that will ultimately benefit the community within which it is to be instated.

It is recommended that the proposed PREFERRED site for the prison (S1) and preferred layout alternative A1 be accepted (as per Annexure A), as these alternatives do not pose any impacts of significance that cannot be effectively managed. It is also recommended that the PREFERRED SITE for the sewage plant, located on Lot 422 be authorised, and the Technology alternative A1: Biological Trickling Filter Plant in combination with a digester to cater for sludge be authorised as the technology option for the sewage plant. With regard to water supply, it is recommended that the following option be opted for:

- ***Supply rising main pipeline constructed from boreholes (KZN 130067 and KZN 130065)to a proposed new 600kl concrete storage reservoir near the three governmental facilities with pumps.***

The impacts associated with these alternatives are minimal, and biodiversity will not be impacted upon due to the fact that the site has already been disturbed and does not host any fauna or flora of significance.

The impacts associated with this project can be sufficiently mitigated, as indicated in the EMP. It is further suggested that the attached EMP, subject to approval, be employed to help ensure environmental best practices throughout the developmental stages, via an ECO.

Is an EMPr attached?	**YES**	**~~NO~~**

The EMPr must be attached as **Appendix F**.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A:	Site plan(s)
Appendix B:	BID (Background Information Document) & Site Photographs
Appendix C:	Facility illustration(s)
Appendix D:	Specialist reports (Archaeological and Heritage Impact assessment, Geotechnical Report, Hydrogeological Study and Bulk Services Report)., signed service level agreement
Appendix E:	Details of the public participation process (correspondence to and from authorities, copy of adverts/ on-site notices –proof)
Appendix F:	Impact Statement
Appendix G:	Other information (Environmental Management Plan (EMP)