BASIC ASSESSMENT REPORT
IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED)

October 2017

PROJECT TITLE

CONSTRUCT A STORMWATER WEIR WALL IN A NON-PERRENIAL DRAINAGE LINE (VREDEBES HOUSING PROJECT: PORTIONS 18 & 72 OF FARM 364, VREDEBES, CERES)

REPORT TYPE CATEGORY	REPORT REFERENCE NUMBER	DATE OF REPORT
MMP	**16/3/3/6/3/B5/2/1186/19**	20 June 2019
Draft Basic Assessment Report[2]	**16/3/3/6/3/B5/2/1186/19**	
Final Basic Assessment Report[3] or, if applicable Revised Basic Assessment Report[4] (strikethrough what is not applicable)		
Final Basic Assessment Report[3] or, if applicable ~~Revised Basic Assessment Report[4]~~ (strikethrough what is not applicable)		

Notes:

1. In terms of Regulation 40(3) potential or registered interested and affected parties, including the Competent Authority, may be provided with an opportunity to comment on the Basic Assessment Report prior to submission of the application but must again be provided an opportunity to comment on such reports once an application has been submitted to the Competent Authority. The Basic Assessment Report released for comment prior to submission of the application is referred to as the "Pre-Application Basic Assessment Report". The Basic Assessment Report made available for comment after submission of the application is referred to as the "Draft Basic Assessment Report". The Basic Assessment Report together with all the comments received on the report which is submitted to the Competent Authority for decision-making is referred to as the "Final Basic Assessment Report".

2. In terms of Regulation 19(1)(b) if significant changes have been made or significant new information has been added to the Draft Basic Assessment Report , which changes or information was not contained in the Draft Basic Assessment Report consulted on during the initial public participation process, then a Final Basic Assessment Report will not be submitted, but rather a "Revised Basic Assessment Report", which must be subjected to another public participation process of at least 30 days, must be submitted to the Competent Authority together with all the comments received.

DEPARTMENTAL REFERENCE NUMBER(S)

Pre-application reference number:	**16/3/3/6/3/B5/2/1186/19**
File reference number (EIA):	**16/3/3/6/3/B5/2/1186/19**
NEAS reference number (EIA):	
File reference number (Waste):	
NEAS reference number (Waste):	
File reference number (Air Quality):	
NEAS reference number (Air Quality):	

File reference number (Other):	
NEAS reference number (Other):	

CONTENT AND GENERAL REQUIREMENTS

Note that:

1. The content of the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended), any subsequent Circulars, and guidelines must be taken into account when completing this Basic Assessment Report Form.
2. This Basic Assessment Report is the standard report format which, in terms of Regulation 16(3) of the EIA Regulations, 2014 (as amended) must be used in all instances when preparing a Basic Assessment Report for Basic Assessment applications for an environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA")and the EIA Regulations, 2014 (as amended) and/or a waste management licence in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("NEM:WA"), and/or an atmospheric emission licence in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA") when the Western Cape Government: Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority/Licensing Authority.
3. This report form is current as of October 2017. It is the responsibility of the Applicant/ Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the report form have been released by the Department. Visit the Department's website at **http://www.westerncape.gov.za/eadp** to check for the latest version of this checklist.
4. The required information 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 tables may be expanded where necessary.
5. The use of "not applicable" in the report must be done with circumspection. All applicable sections of this report form must be completed. Where "not applicable" is used, this may result in the refusal of the application.
6. While the different sections of the report form only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.
7. Unless protected by law, all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for believing that the information is protected.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this report must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This Report must be submitted to the Department and the contact details for doing so are provided below.
10. Where this Department is also identified as the Licencing Authority to decide applications under NEM:WA or NEM:AQA, the submission of the Report must also be made as follows, for-
    - Waste management licence applications, this report must also (*i.e.*, another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office.
    - Atmospheric emissions licence applications, this report must also be (*i.e.*, another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (tel: 021 483 2798 and fax: 021 483 3254) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE		GEORGE REGIONAL OFFICE
REGION 1 **(City of Cape Town & West Coast District)**	**REGION 2** **(Cape Winelands District & Overberg District)**	**REGION 3** **(Central Karoo District & Eden District)**
Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 1) at: Tel.: (021) 483-5829 Fax: (021) 483-4372	Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 2) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 2) at: Tel.: (021) 483-5842 Fax: (021) 483-3633	Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530 Registry Office 4th Floor, York Park Building 93 York Street George Queries should be directed to the Directorate: Development Management (Region 3) at: Tel.: (044) 805-8600 Fax: (044) 805 8650

TABLE OF CONTENTS:

Section	Page(s)
Section A: Project Information	5
Section B: Description of the Receiving Environment	10
Section C: Public Participation	25
Section D: Need and Desirability	30
Section E: Details of all the Alternatives considered	35
Section F: Environmental Aspects Associated with the Alternatives	37
Section G: Impact Assessment, Impact Avoidance, Management, Mitigation and Monitoring Measures	41
Section H: Recommendations of the EAP	57
Section I: Appendices	58
Section J: Declarations	59

ACRONYMS USED IN THIS BASIC ASSESSMENT REPORT AND APPENDICES:

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DEA&DP	Western Cape Government: Environmental Affairs and Development Planning
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process

DETAILS OF THE APPLICANT

Applicant / Organisation / Organ of State:	Witzenberg Local Municipality		
Contact person:	Municipal Manager		
Postal address:	P.O. Box 44, Ceres		
Telephone:	023 316 1854	Postal Code:	6835
Cellular:	NA	Fax:	023 316 1877
E-mail:	admin@witzenberg.gov.za		

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	Eco Impact Legal Consulting (Pty) Ltd		
Person who compiled this Report:	Nicolaas Hanekom		
EAP Reg. No.:	-		
Contact Person (if not author):	NA		
Postal address:	PO Box 45070		
Telephone:	(021) 671 1660	Postal Code:	7735
Cellular:	072 240 3092	Fax:	(021) 671 9967
E-mail:	admin@ecoimpact.co.za		
EAP Qualifications:	M.Tech Nature Conservation. Cape Peninsula University of Technology. EMS ISO 14001. North West University Environmental Audit ISO 19011. North West University		

Please provide details of the lead EAP, including details on the expertise of the lead EAP responsible for the Basic Assessment process. Also attach his/her Curriculum Vitae to this BAR.

Mr Hanekom is a registered Professional Natural Scientist in the ecological science field with the South African Council for Natural Scientific Professions ("SACNASP") and a qualified EAP who holds a Masters Technologiae, Nature Conservation ("Vegetation Ecology and Biodiversity Assessment") degree from the Cape Peninsula University of Technology.

He further qualified in Environmental Management Systems ISO 14001:2004, at the Centre for Environmental Management, North-West University, as well as Environmental Management Systems ISO 14001:2004 Audit: Internal Auditors Course to ISO 19011:2003 level, from the Centre for Environmental Management, North-West University qualifying him to audit to ISO/SANS environmental compliance and EMS standards.

Mr Hanekom has been responsible for many environmental impact assessments and several EIA, waste license and atmospheric emission license applications as well as being involved in the implementation of several environmental management systems.

Refer to Appendix K: EAP CV

EXECUTIVE SUMMARY OF THE PRE-APPLICATION BASIC ASSESSMENT REPORT:

Upgrading of the weir in the drainage line:

- A stormwater weir will be constructed in the non-perennial drainage line at the site where an old weir wall was constructed upstream of the sewer pipeline crossing. The weir will be constructed using rock gabions and concrete pipes and construction material, which will be constructed on a concrete foundation platform. The length of the weir wall through the drainage line will be 9 m. The weir wall will be approximately 9.7 m wide and will consist of 4m wide gabion wall structure and 300mm rock mattresses upstream and downstream of the gabion wall and weir. Two concrete pipes, one 1050mm and the other 900mm will be laid in the weir to allow for normal stream flow. An overflow is designed in the gabion weir wall to allow for the 1 in 50 and 1 in100 years flood overflow.

Eco Impact Legal Consulting (Pty) Ltd were appointed to undertake a Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) analysis of the freshwater and riparian resources as part of the Water Use Authorization application.

The proposed project form part of service delivery.

Based on the impact assessment it is evident that there are six possible impacts on the freshwater ecology of the area observed. In considering the impacts and mitigation, it is assumed that a high level of mitigation will take place without high prohibitive costs. From the table it is evident that prior to mitigation, the impacts on the loss of freshwater ecology habitat, disturbance to subsurface geological layers, degradation / loss of naturally occurring / indigenous flora and habitats are medium level impacts, which can be mitigated and will be reduced to low and very- low level impacts. The other tree impacts identified all has low impacts that is reduce to very low with the proposed mitigation measures.

Habitat Assessment

From the results of the application of the IHIA to the impacted site, it is evident that the rivers reach is modified and that the loss of natural habitat, biota and basic ecosystem functions is extensive. Instream impacts included a large impact from flow modifications, inundation as well as bed and channel modifications. Overall, the site achieved a 72.16 % score for instream integrity. Riparian impacts included a large impact from flow modifications, inundation, alien vegetation encroachment as well as bed and channel modifications. Overall, the site achieved an 80.68 % score for instream integrity. The site obtained an overall IHIA rating of 76.42%, which indicates the loss of natural habitat, biota and basic ecosystem functions is extensive. (Class E conditions).

Riparian Vegetation Response Assessment Index (VEGRAI)

The score attained for the VEGRAI indicated that the riparian system falls into the category E/F. This indicates that the loss of natural habitat, biota and basic ecosystem functions is extensive. Modifications have reached a critical level and the system has been modified completely with almost complete loss of natural habitat and biota. In worst instances basic ecosystem functions have been destroyed and changes are irreversible.

Based on the findings of this study it is the opinion of the freshwater ecologists that the proposed construction of the weir be considered favourably, from a freshwater ecological point of view, provided that the mitigatory measures presented in this report are strictly adhered to.

Ecological Importance and Sensitivity (EIS)

EIS considers a number of biotic and habitat determinants surmised to indicate either importance or sensitivity. The determinants are rated according to a four-point scale. The median of the resultant score is calculated to derive the EIS category.

The non-perennial river is considered to be of low to marginal ecological importance.

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

Location of all proposed sites:	The construction of a weir and the maintenance of the channelled non-perennial between the R 46 road and the weir. Thank you for the comments. Just want to clarify and confirm your point 4.3 in attached letter. The area is inside the urban area of Ceres. Also inside the approved SDF and urban edge of Ceres. More specific, the area is bordered on the southern and western boundaries by Light Industrial activities. (fruit pack stores), on the east the authorized Vredebes Housing project (residential development) and the northern-

	western boundary (weir and non-perennial river boundary) as agriculture but inside the SDF urban edge. The storm water pond is therefore on three boundaries bordered by developments.
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	Farm 364 Portion 18, Ceres
Property size(s) in m^2 for each proposed site:	63.75ha
Development footprint size(s) in m^2:	Approximately 100m^2
Surveyor General (SG) 21-digit code for each proposed site:	C01900000000036400018

2. PROJECT DESCRIPTION

(a) Is the project a new development? If "NO", explain:

YES	~~NO~~

NA

(b) Provide a detailed description of the scope of the proposed development (project).

Upgrading of the weir in the drainage line:
A stormwater weir will be constructed in the non-perennial drainage line at the site where an old weir wall was constructed upstream of the sewer pipeline crossing. The weir will be constructed using rock gabions and concrete pipes and construction material, which will be constructed on a concrete foundation platform. The length of the weir wall through the drainage line will be 9 m. The weir wall will be approximately 9.7 m wide and will consist of 4m wide gabion wall structure and 300mm rock mattresses upstream and downstream of the gabion wall and weir. Two concrete pipes, one 1050mm and the other 900mm will be laid in the weir to allow for normal stream flow. An overflow is designed in the gabion weir wall to allow for the 1 in 50 and 1 in100 years flood overflow.

Please note: This description must relate to the listed and specified activities in paragraph (d) below.

(c) Please indicate the following periods that are recommended for inclusion in the environmental authorisation:

(i)	the period within which commencement must occur,	Within 5 years of obtaining Environmental Authorisation
(ii)	the period for which the environmental authorisation should be granted and the date by which the activity must have been concluded, where the environmental authorisation does not include operational aspects;	Within 10 years of obtaining Environmental Authorisation
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	Within 10 years of obtaining Environmental Authorisation
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	Ongoing maintenance of infrastructure and implementation of MMP until decommissioning.

Please note: The Department must specify the abovementioned periods, where applicable, in an environmental authorisation. In terms of the period within which commencement must occur, the period must not exceed 10 years and must not be extended beyond such 10 year period, unless the process to amend the environmental authorisation contemplated in regulation 32 is followed.

(d) List all the listed activities triggered and being applied for.

Please note: The onus is on the applicant to ensure that all the applicable listed activities are applied for and assessed as part of the EIA process. Please refer to paragraph (b) above.

EIA Regulations Listing Notices 1 and 3 of 2014 (as amended):

Activity	Provide the relevant **Basic Assessment Listed Activity(ies)** as set out in **Listing Notice 1** (GN No. R. 983)

No(s):	
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;
Activity No(s):	Provide the relevant **Basic Assessment Listed Activity(ies)** as set out in **Listing Notice 3** (GN No. R. 985)
NA	
Activity No(s):	Provide the relevant **Scoping and EIR Listed Activity(ies)** as set out in **Listing Notice 2** (GN No. R. 984)
NA	
Activity No(s):	Provide the relevant **Category A Waste Management Activity(ies)** as set out in **List of Waste Management Activities** (GN No. R. 921)
NA	
Activity No(s):	Provide the relevant **Category B Waste Management Activity(ies)** as set out in **List of Waste Management Activities** (GN No. R. 921)
NA	

Waste management activities in terms of the NEM: WA (GN No. 921):

Category A Listed Activity No(s):	Describe the relevant Category A waste management activity in writing as per GN No. 921	Describe the portion of the development that relates to the applicable listed activity as per the project description
NA		

Note: If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I.**

Atmospheric emission activities in terms of the NEM: AQA (GN No. 893):

Listed Activity No(s):	Describe the relevant atmospheric emission activity in writing as per GN No. 893	Describe the portion of the development that relates to the applicable listed activity as per the project description.
NA		

(e) Provide details of all components (including associated structures and infrastructure) of the proposed development and attach diagrams (*e.g.,* architectural drawings or perspectives, engineering drawings, process flowcharts, *etc*.).

Buildings Provide brief description below:	~~YES~~	NO
None		
Infrastructure (*e.g.,* roads, power and water supply/ storage) Provide brief description below:	YES	~~NO~~
Upgrading of the weir in the drainage line: A stormwater weir will be constructed in the non-perennial drainage line at the site where an old weir wall was constructed upstream of the sewer pipeline crossing. The weir will be constructed using rock gabions and concrete pipes and construction material, which will be constructed on a concrete foundation platform. The length of the weir wall through the drainage line will be 9 m. The weir wall will be approximately 9.7 m wide and will consist of 4m wide gabion wall structure and 300mm rock mattresses upstream and downstream of the gabion wall and weir. Two concrete pipes, one 1050mm and the other 900mm will be laid in the weir to allow for normal stream flow. An overflow is designed in the gabion weir wall to allow for the 1 in 50 and 1 in100 years flood overflow.		
Processing activities (*e.g.,* manufacturing, storage, distribution) Provide brief description below:	~~YES~~	NO
NA		
Storage facilities for raw materials and products (*e.g.,* volume and substances to be stored) Provide brief description below:	~~YES~~	NO
NA		
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	~~YES~~	NO
NA		
Storage and treatment of solid waste Provide brief description below:	~~YES~~	NO
NA		
Facilities associated with the release of emissions or pollution. Provide brief description below:	~~YES~~	NO
NA		
Other activities (*e.g.,* water abstraction activities, crop planting activities) – Provide brief description below:	~~YES~~	NO

NA

3. PHYSICAL SIZE OF THE PROPOSED DEVELOPMENT

(a) Property size(s): Indicate the size of all the properties (cadastral units) on which the development proposal is to be undertaken	63.75	ha
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	Approximately 100m^2	
(c) Development footprint: Indicate the area that will be physically altered as a result of undertaking any development proposal (*i.e.,* the physical size of the development together with all its associated structures and infrastructure)	Approximately 100m^2	
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	Approximately 100m^2	
(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal	(L) NA	km
	(W) NA	m
(f) For storage facilities: Indicate the volume of the storage facility	NA	m^3
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated	NA	m^3

4. SITE ACCESS

(a) Is there an existing access road?	YES	~~NO~~
(b) If no, what is the distance in (m) over which a new access road will be built?		m

(c) Describe the type of access road planned:

No access required

Please note: The position of the proposed access road must be indicated on the site plan.

5. DESCRIPTION OF THE PROPERTY(IES) ON WHICH THE LISTED ACTIVITY(IES) ARE TO BE UNDERTAKEN AND THE LOCATION OF THE LISTED ACTIVITY(IES) ON THE PROPERTY

5.1 Provide a description of the property on which the listed activity(ies) is/are to be undertaken and the location of the listed activity(ies) on the property, as well as of all alternative properties and locations (duplicate section below as required).

The construction of a weir and the maintenance of the channelled non-perennial between the R 46 road and the weir. Thank you for the comments. Just want to clarify and confirm your point 4.3 in attached letter. The area is inside the urban area of Ceres. Also inside the approved SDF and urban edge of Ceres. More specific, the area is bordered on the southern and western boundaries by Light Industrial activities. (fruit pack stores), on the east the authorized Vredebes Housing project (residential development) and the northern-western boundary (weir and non-perennial river boundary) as agriculture but inside the SDF urban edge. The storm water pond is therefore on three boundaries bordered by developments.			
Coordinates of all proposed sites: Latitude (S)	33^o	21‘	31.12“
Longitude (E)	19^o	19‘	39.27“

Note: For land where the property has not been defined, the coordinates of the area within which the development is proposed must be provided in an addendum to this report.

5.2 Provide a description of the area where the aquatic or ocean-based activity(ies) is/are to be undertaken and the location of the activity(ies) and alternative sites (if applicable).

NA

Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"

5.3 For a linear development proposal, please provide a description and coordinates of the corridor in which the proposed development will be undertaken (if applicable).

NA

For linear activities: (See Appendix J)	Latitude (S):			Longitude (E):		
• Starting point of the activity						
• Middle point of the activity						
• End point of the activity						

Note: For linear development proposals longer than 1000m, please provide an addendum with co-ordinates taken every 250m along the route. All important waypoints must be indicated and the GIS shape file provided digitally.

5.4 Provide a location map (see below) as **Appendix A** to this report that shows the location of the proposed development and associated structures and infrastructure on the property; as well as a detailed site development plan / site map (see below) as **Appendix B** to this report; and if applicable, all alternative properties and locations. The GIS shape files (.shp) for maps / site development plans must be included in the electronic copy of the report submitted to the competent authority.

Locality Map:	The scale of the locality map must be at least 1:50 000. For linear development proposals 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 accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; • a linear scale; • the prevailing wind direction (during November to April and during May to October); and • GPS co-ordinates (to 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). For an ocean-based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Coordinates must be provided in degrees, minutes and seconds using the Hartebeesthoek94; WGS84 co-ordinate system.

Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be indicated on the site plan. • The position of each element of the application as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the development must be indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): o Watercourses / Rivers / Wetlands - including the 32 meter set back line from the edge of the bank of a river/stream/wetland; o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable; o Ridges; o Cultural and historical features; o Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.

	The GIS shape file for the site development plan(s) must be submitted digitally.

6. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached as **Appendix C** to this report. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.

SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Site/Area Description

For linear development proposals (pipelines, *etc*.) as well as development proposals that cover very large sites, it may be necessary to complete copies of this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area that is covered by each copy on the Site Plan.

1. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

Flat	~~Flatter than 1:10~~	~~1:10 – 1:4~~	~~Steeper than 1:4~~

2. LOCATION IN LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es).

~~Ridgeline~~	~~Plateau~~	~~Side slope of hill / mountain~~	~~Closed valley~~	~~Open valley~~	Plain	Undulating plain/low hills/~~inland dunes~~	~~Dune~~	~~Sea front~~

(b) Provide a description of the location in the landscape.

The construction of a weir and the maintenance of the channelled non-perennial between the R 46 road and the weir. Thank you for the comments. Just want to clarify and confirm your point 4.3 in attached letter. The area is inside the urban area of Ceres. Also inside the approved SDF and urban edge of Ceres. The construction of a weir and the maintenance of the channelled non-perennial between the R 46 road and the weir. Thank you for the comments. Just want to clarify and confirm your point 4.3 in attached letter. The area is inside the urban area of Ceres. Also inside the approved SDF and urban edge of Ceres. The non-perennial river flows in a north westerly direction underneath the R 46 in an earth channel for 250m until it reached the point where the sewer pipeline and weir will cross the non-perennial river. In this stretch of river there is and will be a stormwater inlet and a water reticulation pipeline parallel to the road, a pedestrian footbridge approximately 180m from the road and the sewer pipeline and stormwater weir crossing the non-perennial river. The municipality may need to remove silt and do maintenance work to these structures when required. Erosion possibilities are low, but silt may wash into this stretch of the non-perennial river that will need removal in order to open up the pipes underneath the foot bridge and weir, as well as the stormwater inlet. Alien trees must be removed and any obstacles that may block the flow of the water in the non-perennial river.

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	YES	~~NO~~	~~UNSURE~~
Seasonally wet soils (often close to water bodies)	YES	~~NO~~	~~UNSURE~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	NO	~~UNSURE~~

Dispersive soils (soils that dissolve in water)	~~YES~~	NO	~~UNSURE~~
Soils with high clay content	YES	~~NO~~	~~UNSURE~~
Any other unstable soil or geological feature	~~YES~~	NO	~~UNSURE~~
An area sensitive to erosion	~~YES~~	NO	~~UNSURE~~
An area adjacent to or above an aquifer.	~~YES~~	NO	~~UNSURE~~
An area within 100m of a source of surface water	YES	~~NO~~	~~UNSURE~~
An area within 500m of a wetland	YES	~~NO~~	~~UNSURE~~
An area within the 1:50 year flood zone	YES	~~NO~~	~~UNSURE~~
A water source subject to tidal influence	~~YES~~	NO	~~UNSURE~~

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (Information in respect of the above will often be available at the planning sections of local authorities. The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

(c) Indicate the type of geological formation underlying the site.

~~Granite~~	Shale	~~Sandstone~~	~~Quartzite~~	~~Dolomite~~	~~Dolorite~~	Other (describe)

Provide a description.

Geology:
Alluvium on shale and greywacke of the Porterville Formation, Malmesbury Group.
Soil:
Soils with limited pedological development. Soils with negligible to weak profile development, usually occurring on recent flood plains.
Depth: >=750mm
Clay: <15%
Erodibility: Moderate with an erodibility factor of 0.48.

Sources:
Soils and Geology (ENPAT). https://gis.elsenburg.com/apps/cfm/#. 30/01/2019.
Soil Types. Department of Agriculture Fisheries and Forestry. https://gis.elsenburg.com/apps/cfm/#.
Soil Erodibility. SA Atlas of Climatology and Agrohydrology (R.E. Schulze, 2009). https://gis.elsenburg.com/apps/cfm/#.

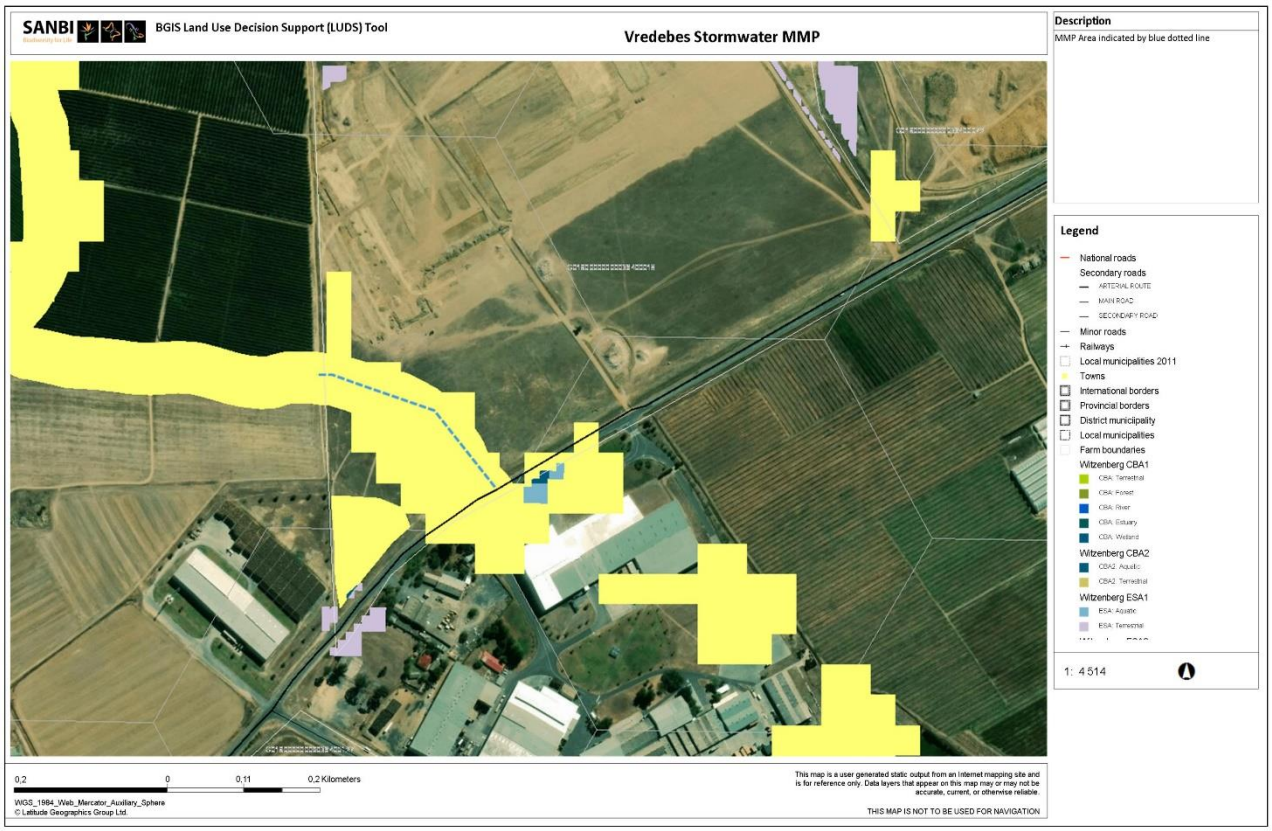
4. SURFACE WATER

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	~~YES~~	NO	~~UNSURE~~
Non-Perennial River	YES	~~NO~~	~~UNSURE~~
Permanent Wetland	~~YES~~	NO	~~UNSURE~~
Seasonal Wetland	YES	~~NO~~	~~UNSURE~~
Artificial Wetland	~~YES~~	NO	~~UNSURE~~
Estuarine / Lagoon	~~YES~~	NO	~~UNSURE~~

(b) Provide a description.

Two biodiversity conservation mapping initiatives are of relevance to the freshwater ecosystems within the river maintenance management area; the Western Cape Biodiversity Spatial Plan mapping initiatives that were undertaken on a regional basis and the National Freshwater Ecosystem Priority Areas (NFEPA) mapping initiative. The non-perennial river that will be impacted was identified as an Ecological Support Areas (ESAs) in the latest Western Cape Biodiversity Spatial Plan (2017). ESA's are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. A natural valley floor depression wetland was identified in the NFEPA study.



The non-perennial river flows in a north westerly direction underneath the R 46 in an earth channel for 250m until it reached the point where the sewer pipeline and weir will cross the non-perennial river. In this stretch of river there is and will be a stormwater inlet and a water reticulation pipeline parallel to the road, a pedestrian footbridge approximately 180m from the road and the sewer pipeline and stormwater weir crossing the non-perennial river. The municipality may need to remove silt and do maintenance work to these structures when required. Erosion possibilities are low, but silt may wash into this stretch of the non-perennial river that will need removal in order to open up the pipes underneath the foot bridge and weir, as well as the stormwater inlet. Alien trees must be removed and any obstacles that may block the flow of the water in the non-perennial river.

5. THE SEAFRONT / SEA

(a) Is the site(s) located within any of the following areas? (highlight the appropriate boxes).
If the site or alternative site is closer than 100m to such an area, please provide the approximate distance in (m).

AREA	YES	NO	UNSURE	If "YES": Distance to nearest area (m)
An area within 100m of the high water mark of the sea	~~YES~~	NO	~~UNSURE~~	
An area within 100m of the high water mark of an estuary/lagoon	~~YES~~	NO	~~UNSURE~~	
An area within the littoral active zone	~~YES~~	NO	~~UNSURE~~	
An area in the coastal public property	~~YES~~	NO	~~UNSURE~~	
Major anthropogenic structures	~~YES~~	NO	~~UNSURE~~	
An area within a Coastal Protection Zone	~~YES~~	NO	~~UNSURE~~	
An area seaward of the coastal management line	~~YES~~	NO	~~UNSURE~~	
An area within the high risk zone (20 years)	~~YES~~	NO	~~UNSURE~~	
An area within the medium risk zone (50 years)	~~YES~~	NO	~~UNSURE~~	
An area within the low risk zone (100 years)	~~YES~~	NO	~~UNSURE~~	
An area below the 5m contour	~~YES~~	NO	~~UNSURE~~	
An area within 1km from the high water mark of the sea	~~YES~~	NO	~~UNSURE~~	
A rocky beach	~~YES~~	NO	~~UNSURE~~	
A sandy beach	~~YES~~	NO	~~UNSURE~~	

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

6. BIODIVERSITY

Note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed development. To assist with the identification of the biodiversity occurring on site and the ecosystem status, consult http://bgis.sanbi.org or BGIShelp@sanbi.org . Information is also available on compact disc ("cd") from the Biodiversity-GIS Unit, Tel.: (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) must be provided as an overlay map on the property/site plan as **Appendix D** to this report.

(a) Highlight the applicable biodiversity planning categories of all areas on preferred and alternative sites and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category. Also describe the prevailing level of protection of the Critical Biodiversity Area ("CBA") and Ecological Support Area ("ESA") (how many hectares / what percentages are formally protected).

Systematic Biodiversity Planning Category	~~CBA~~	ESA	~~Other Natural Area ("ONA")~~	No Natural Area Remaining ("NNR")
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	The non-perennial river was classified as an ESA			
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what percentages are formally protected locally and in the province)	Two biodiversity conservation mapping initiatives are of relevance to the freshwater ecosystems within the river maintenance management area; the Western Cape Biodiversity Spatial Plan mapping initiatives that were undertaken on a regional basis and the National Freshwater Ecosystem Priority Areas (NFEPA) mapping initiative. The non-perennial river that will be impacted was identified as an Ecological Support Areas (ESAs) in the latest Western Cape Biodiversity Spatial Plan (2017). ESA's are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. A natural valley floor depression wetland was identified in the NFEPA study. (Refer to Freshwater Impact Assessment for more detail).			

(b) Highlight and describe the habitat condition on site.

Habitat Condition	**Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m^2)**		**Description and additional comments and observations (including additional insight into condition, *e.g.* poor land management practises, presence of quarries, grazing/harvesting regimes, *etc.*)**
Natural	0%	m^2	
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	m^2	
Degraded (includes areas heavily invaded by alien plants)	100%	m^2	
Transformed (includes cultivation, dams, urban, plantation, roads, *etc.*)	0%	m^2	

(c) Complete the table to indicate:
(i) the type of vegetation present on the site, including its ecosystem status; and
(ii) whether an aquatic ecosystem is present on/or adjacent to the site.

Terrestrial Ecosystems		Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	~~Critically~~	NA
	~~Endangered~~	
	Vulnerable	As according to Mucina and Rutherford (2006) the type of natural vegetation originally occurring both sites are classified as Ceres Shale Renosterveld (*Vulnerable*). Please take note that the entire site is developed, and no natural vegetation is left on the site.
	~~Least Threatened~~	NA

Aquatic Ecosystems						
Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
YES	~~NO~~	~~UNSURE~~	~~YES~~	NO	~~YES~~	NO

(d) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

The proposed project form part of service delivery and the connection of sewer networks from the housing development to Ceres main sewerage network line as well as stormwater management.

Based on the impact assessment it is evident that there are six possible impacts on the freshwater ecology of the area observed. In considering the impacts and mitigation, it is assumed that a high level of mitigation will take place without high prohibitive costs. From the table it is evident that prior to mitigation, the impacts on the loss of freshwater ecology habitat, disturbance to subsurface geological layers, degradation / loss of naturally occurring / indigenous flora and habitats are medium level impacts, which can be mitigated and will be reduced to low and very- low level impacts. The other tree impacts identified all has low impacts that is reduce to very low with the proposed mitigation measures.

Habitat Assessment

From the results of the application of the IHIA to the impacted site, it is evident that the rivers reach is modified and that the loss of natural habitat, biota and basic ecosystem functions is extensive. Instream impacts included a large impact from flow modifications, inundation as well as bed and channel modifications. Overall, the site achieved a 72.16 % score for instream integrity. Riparian impacts included a large impact from flow modifications, inundation, alien vegetation encroachment as well as bed and channel modifications. Overall, the site achieved an 80.68 % score for instream integrity. The site obtained an overall IHIA rating of 76.42%, which indicates the loss of natural habitat, biota and basic ecosystem functions is extensive. (Class E conditions).

Riparian Vegetation Response Assessment Index (VEGRAI)

The score attained for the VEGRAI indicated that the riparian system falls into the category E/F. This indicates that the loss of natural habitat, biota and basic ecosystem functions is extensive. Modifications have reached a critical level and the system has been modified completely with almost complete loss of natural habitat and biota. In worst instances basic ecosystem functions have been destroyed and changes are irreversible.

Based on the findings of this study it is the opinion of the freshwater ecologists that the proposed construction of the sewer line and weir be considered favourably, from a freshwater ecological point of view, provided that the mitigatory measures presented in this report are strictly adhered to.

Ecological Importance and Sensitivity (EIS)

EIS considers a number of biotic and habitat determinants surmised to indicate either importance or sensitivity. The determinants are rated according to a four-point scale. The median of the resultant score is calculated to derive the EIS category.

The non-perennial river is considered to be of low to marginal ecological importance.

7. LAND USE OF THE SITE

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

Untransformed area	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	~~Agriculture~~	River, stream or wetland	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
~~Other land uses (describe):~~				

(a) Provide a description.

The non-perennial river flows in a north westerly direction underneath the R 46 in an earth channel for 250m until it reached the point where the sewer pipeline and weir will cross the non-perennial river. In this stretch of river there is and will be a stormwater inlet and a water reticulation pipeline parallel to the road, a pedestrian footbridge approximately 180m from the road and the sewer pipeline and stormwater weir crossing the non-perennial river. The municipality may need to remove silt and do maintenance work to these structures when required. Erosion possibilities are low, but silt may wash into this stretch of the non-perennial river that will need removal in order to open up the pipes underneath the foot bridge and weir, as well as the stormwater inlet. Alien trees must be removed and any obstacles that may block the flow of the water in the non-perennial river.

8. LAND USE CHARACTER OF THE SURROUNDING AREA

(a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

Untransformed area	~~Low density residential~~	Medium density residential	High density residential	~~Informal residential~~
~~Retail~~	Commercial & warehousing	Light industrial	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/ consulting room~~	~~Military or police base/ station/ compound~~	~~Casino/ entertainment complex~~	~~Tourism & Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/ medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes or more)~~	~~Airport~~

~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	Agriculture	River, stream or wetland	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):				

(b) Provide a description, ~~including~~ the distance and direction to the nearest residential area, industrial area, agri-industrial area.

The construction of a weir and the maintenance of the channelled non-perennial between the R 46 road and the weir. Thank you for the comments. Just want to clarify and confirm your point 4.3 in attached letter. The area is inside the urban area of Ceres. Also inside the approved SDF and urban edge of Ceres.

More specific, the area is bordered on the southern and western boundaries by Light Industrial activities. (fruit pack stores), on the east the authorized Vredebes Housing project (residential development) and the northern-western boundary (weir and non-perennial river boundary) as agriculture but inside the SDF urban edge. The storm water pond is therefore on three boundaries bordered by developments.

9. SOCIO-ECONOMIC ASPECTS

a) Describe the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (for example, population characteristics/demographics, level of education, the level of employment and unemployment in the area, available work force, seasonal migration patterns, major economic activities in the local municipality, gender aspects that might be of relevance to this project, *etc.*).

Source: Witzenberg Spatial Development Plan 2012.

Introduction

Witzenberg Municipality (WC022) is a Category B (Local) Municipality. It borders on the Northern Cape Province to the north and north-east, while the Laingsburg Municipality forms the eastern boundary. To the west it is bounded by the West Coast District Municipality and to the south-east by the Drakenstein Municipality and Breede Valley Municipality, respectively. The Municipality was established in terms of Provincial Notice 487 of the Provincial Gazette 5590 dated 22 September 2000 and originally consisted of the disestablished municipality of Ceres, Matroosberg Transitional Representative Council, Municipality of Prince Alfred's Hamlet, Tulbagh Municipality, Witzenberg Transitional Representative Council and the Municipality for the area of Wolseley. In 2011, the Witzenberg Municipality was extensively enlarged by incorporating most of the previous District Management Area (DMA) of the Cape Winelands District Municipality into its jurisdiction. The Witzenberg Municipality includes the following main settlements:

a) Bella Vista (next to Ceres).
b) Ceres.
c) Nduli (near to Ceres).
d) Op-die-Berg.
e) Prince Alfred Hamlet.
f) Steinthal (close to Tulbagh).
g) Tulbagh.
h) Wolseley

The Witzenberg Municipality covers 50% of the Cape Winelands District Municipality and is by far the largest local municipality. The largest contributors to the Municipality's economy are agriculture and manufacturing followed by the wholesale, retail trade, catering and accommodation sector. Although Witzenberg's economy is the smallest in the district, the importance of the agriculture sector's contribution to the Western Cape's economy is reflected by the fact that over 6% of all agricultural production occurs in this area (Witzenberg IDP, 2007-2011).

Witzenberg is characterised by a unique diversity of landscapes and areas that have historically been identified (intuitively, in terms of bioregional principles) such as the Warm Bokkeveld, Koue Bokkeveld, Tankwa and Ceres Karoo and the Land of Waveren.

Ceres (after the mythical Goddess of Agriculture and Fertility) is the main town of the Witzenberg Municipality and is the hub of administrative activities in the region.

Population

The 2001 Census data puts the population of the Witzenberg Municipality at approximately 83 568 people, with a fairly even distribution according to age and gender. The average density ratio is 31.98 persons per square kilometre with 7.67 black people per km², 2.91 white people per km², 21.35 coloured people per km², and 0.05 Asians per km².

The population of the amended Witzenberg Municipality is estimated to be 90 066 people with the major ethnic group being the Coloured population, representing approximately 70% of the entire population (refer to Table B13). The sex structure is almost equal with 50.1% (45 114) of the total population being female. The male population constitutes the remaining 49.9% (44 952).

ETHNIC GROUP									
BLACK		COLOURED		WHITE		INDIAN/ASIAN		TOTAL POPULATION	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
9 869	8 076	30 999	32 904	4 013	4 173	71	52	44 952	45 114
17 945		63 812		8 186		123		90 066	

(Adapted 2001 Census, as amended in 2005).

The compound population growth rate between 1996 and 2008 was 1.7%, characterised by the following breakdown per racial group (Global Insight in Witzenberg IDP 2007-2011):

- Blacks at 6.2%
- Coloureds at 0.9%
- Asians at 5.3%
- Whites at -0.7%

In stark contrast to the above, the 2012-2017 Witzenberg IDP estimated the population of the Municipality to be 75 152 people in 2007 with a negative growth rate of 1.8% between 2001 and 2007. According to the IDP, the Coloured population group represented 68.5% of the population in 2007, followed by Africans at 18.9%, Whites at 12.7% and Asians at 0.02%. Discrepancies such as these present a major challenge to ensure proper forward planning for any municipality.

As mentioned in the note above, for the purpose of strategic planning, the adapted data from the 2001 Census, as amended in 2005, therefore remains the baseline data for the purpose of the SDF.

Education

Education is a strong lever for change and normally has a direct bearing on better prospects of employment as it increases chances of securing employment in the presence of job-creating economic growth.

A good education also escalates the likelihood of better health prospects and is a key influence on those with a higher socio-economic standing (Witzenberg IDP 2007-2011). Only 7% of the population of Witzenberg is illiterate and approximately 24% is functional illiterate. The high rate of literacy contributes to the Municipality's above national average HDI, which is indicative of relatively highly developed society.

	LITERACY LEVELS	
	TOTAL	%
% Totally Illiterate	6 615	7.34%
% Functional Illiterate	21 190	23.52%
Some secondary	17 006	18.88%
Complete Grade 12	6 934	7.69%
Higher Education	3 211	3.56%

(Adapted 2001 Census, as amended in 2005).

More recent data from Global Insight Southern Africa (2008) pertaining to the level of education in the Witzenberg Municipality is summarised in the table below.

	No schooling	Grade 0 - 6	Grade 7-11	Grade 12	Grade 12 & Certificate/Degree
Black	1697	3856	9132	1718	269
White	44	86	1619	2512	2426
Coloured	2373	8473	23184	6279	1506
Asian	5	34	34	36	-
TOTAL	**4 119**	**12 449**	**33 969**	**10 545**	**4 201**

(Source: Global Insight Southern Africa, 2008 in Witzenberg IDP 2007-2011).

Health

Effective health systems and primary health care services are vital for the sustainability and overall quality of life of communities. A strong health care system not only promotes the population's longevity, but can also contribute towards the region's economic development. The population relies on government to administer and deliver affordable and quality health care services that encompass critical health care treatment, diagnosis, rehabilitation and disease prevention.

In the prevalence of a weak social fiber—and consequently, low human and social capital—the healthcare sector bears the brunt of negative consequences arising from risky behaviour, skew distribution of resources, and social and economic exclusion.
Settlement patterns (influenced by inner city gentrification, destitution, informal settlements, etc.), high levels of substance abuse and high tuberculosis (TB) prevalence are a few examples which demonstrate the extent that societal values have been eroded.

The Witzenberg IDP (2007-2011) identified tuberculosis and HIV/AIDS as the leading causes of premature death at 16,3%, and 15,4% respectively. It is suggested that the high TB death rate can be contributed to a low cure rate. The increase in HIV infections is very disconcerting. Recent figures of the Witzenberg Department of Socio-Economic Development indicates an alarming increase in the HIV/AIDS figures of more than 13 times year on year from 1996 to 2010. The municipality has 1 anti-retroviral treatment (ART) service sites and 15 TB clinics (Witzenberg IDP, 2012-2017).

The Infant Mortality Rate (IMR) is an important measure of the well-being of infants, children and pregnant women and is indicative of a number of factors such as maternal
health, quality and access to medical care, socio-economic conditions, and public health practices.

The Witzenberg Municipality IMR of 42 per 1000 live births, with an under-five mortality
rate of 51 per 1000 live births was the highest in the Boland/Overberg region when measured in 2005.

It has been suggested that the leading causes of infant and child deaths were pre-maturity, congenital abnormalities, HIV, diarrhoea, protein energy malnutrition, and ill-defined natural causes (Witzenberg IDP 2007-2011).

Clearly the provision of primary health care and access thereto could be improved in the Municipality. The current circumstances warrant a paradigm shift in the approach to population health and resource allocation. The facts stated above should form the basis of the parameters for health investment decisions. Investments should be directed to those areas that have the greatest potential to positively influence health.

Employment Income Status

It is recognized that poverty remains the core obstacle to a stable and prosperous future in South Africa. Despite commendable efforts of government and state-supported efforts, poverty continues to be chronic problem for much of South Africa's population, including Witzenberg Municipality.

The Poverty Index indicates that unemployment and the poverty levels of the Cape Winelands District have gradually increased over the past few years. The Witzenberg Municipality, at 21.42 points on the index, ranks as the highest in the district. Comparative figures show a disconcerting trend in Witzenberg, e.g. the 1996 Census showed a figure of 18.2, climbing marginally to 18.6 in 2001, and the most recent available estimate according to Stats SA's Community Survey 2007 shows that the poverty index for Witzenberg increased to 21.42.

Global Insight's published figures indicate that 30.1% of the Witzenberg residents live in poverty while the number of people accessing social grants are estimated at 10 173 (Witzenberg IDP 2012-2017).

Access to Services and Infrastructure

According to the 2001 census data, there are 22 398 households present in the Municipality. Of these households, approximately 83% live in formal dwellings, whilst 10% live in informal dwellings. Recent figures by the Directorate Community Services: Housing of the Witzenberg Municipality indicate the number of people on the waiting list for subsidised housing at 7 119. This figure excludes an estimate of 2 800 farm dwellers who also qualifies. The figure below summarises the number of applicants on the housing waiting list per settlement.

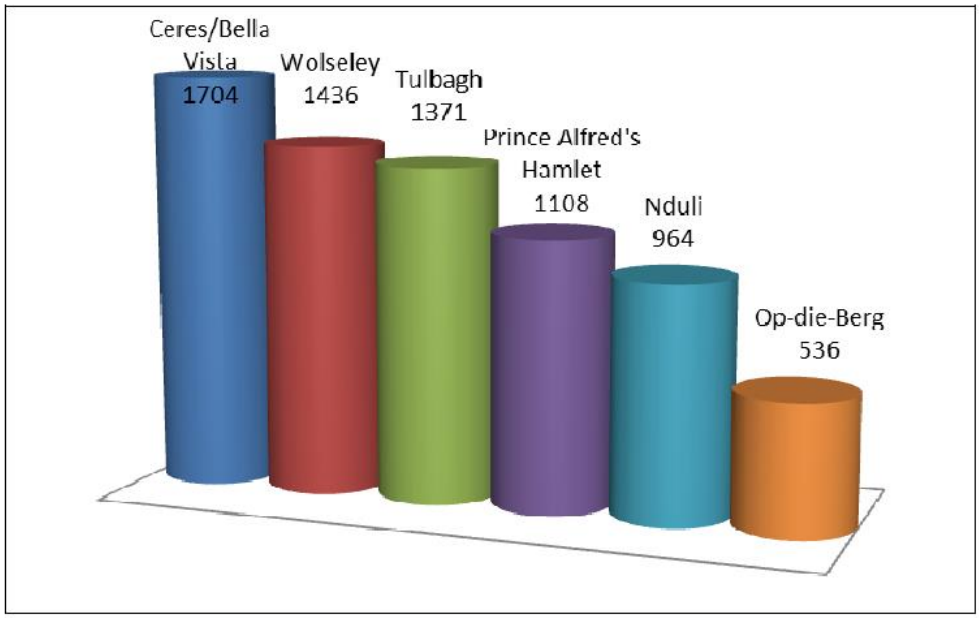


Figure B10: Housing waiting list (Source: Witzenberg Municipality, 2011).

Sewage:

In 2001, approximately 4 000 households in the current Witzenberg Municipality did not have access to water borne sanitation. This figure represents 18% of the total number of households in the Municipality. According to the SA Census 2001 statistics, approximately 82% of households have flush toilets and approximately 9.79% of households have no sanitation facilities.

In 2007, 91% of households had access to flush toilets (connected to sewerage/septic tank). The use of pit toilets decreased as 2% of households made use of pit toilets as a means of sanitation in 2007. The municipality has also experienced a decrease in the use of the bucket toilet system from 1.8 to 1.2% of households. Although there had been an improvement in access to sanitation, 2.3% of households still did not have access to sanitation in 2007 (Witzenberg IDP 2012-2017).

Water Reticulation:

In 2011, the Witzenberg Municipality achieved the prestigious Blue Drop status for excellent water quality and management, which implies that the Municipality complied with 95% of the weighted criteria in the biannual assessment. According to Farmer (2011), the Blue Drop assessment for 2009 and 2010 of Witzenberg Municipality is as follows:

SYSTEM	2009 (%)	2010 (%)
Ceres	77	96.15
Op die Berg	77	93.5
Prince Alfred Hamlet	49	95
Tulbagh	77	92
Wolseley	77	89.75
Overall 2009 (%)	71.4	
Overall 2010 (%)	93.3 (improvement of 21.9%)	

(Source: Farmer, 2011).

More than 88% of households have access to running water either by means of water points situated on their erven (20.9%) or from taps within their dwelling (67.37%). Approximately 61% of households rely on a regional or local water scheme as their source of potable water with the remaining households relying on boreholes, natural springs, dams, rivers and water vendors for their supply of water.

Roads and Streets:

The road network of the Witzenberg Municipality consists of proclaimed provincial roads, under the authority and ownership of the Provincial Roads Authority, and a local street network, which is the responsibility of the Municipal Roads Authority. The proclaimed roads are the main distribution network in the Province and may towns and settlements have formed around these roads. As a result, the road reserve widths should be taken note of and respected.

The road network through Witzenberg consists of approximately 1970km of provincial roads. Major provincial roads include MR310 (R301) from Ceres, past Op-die-Berg towards Citrusdal, TR22/1 and TR22/2 (R46), and MR302 (R43). Provincial roads are classified into four categories according to function, and include trunk roads, main roads, divisional roads and minor roads. Trunk roads and main roads link larger towns and provide access to bordering districts. Divisional roads link rural areas to trunk and main roads, while minor roads provide local access (Witzenberg IDP 2012-2017).

Refuse Removal:

According to the Witzenberg IDP 2012-2017, the current waste management system in Witzenberg is fairly successful in the collection and disposal of municipal waste, however, no or very little effort is made to reduce the generation of waste within the municipal area. Due to the relatively small amount of waste generated, mainly due to the below population figures, the economic feasibility of waste recovery through recycling and composting should be carefully investigated. The analyses of the current waste management system have shown the following (Witzenberg IDP, 2012-2017):

a) All formal urban residential erven are receiving a weekly door-to-door waste collection service.
b) All collected municipal waste is disposed at the municipality's engineered and licensed waste disposal site near Wolseley. The permit for this site expires in 2013.
c) No significant waste recovery is done, except for private enterprises.
d) No significant waste avoidance is done.

The majority of households in the Witzenberg Municipality have access to refuse removal, either by the Municipality or by their own arrangements. Almost 57% of households are serviced by the Municipality/private company either once a week (54.62%) or less often (2.72%). Approximately 40% of households in the Witzenberg Municipality make their own arrangements with only 2.9% that has no access to refuse removal services at all (Rode Plan, 2009 in SRK Consulting, 2011).

Integrated Waste Management Plan:

The Witzenberg Municipality Integrated Waste Management Plan (December 2010) prepared by Jan Palm Consulting Engineers states the municipality is committed to a system of waste management that will see the least possible amount of waste going to modern engineered landfills. This will be achieved through the use of education, law enforcement and material recovery, and treatment plants. New and emerging technologies, where applicable and affordable, will also play a part in overall waste management. The Waste Management Strategic Objectives for Witzenberg Municipality on which this Waste Management Plan is based, commits the municipality to:

a) Create an atmosphere in which the environment and natural resources of the region are conserved and protected.
b) Develop a communication/information/education strategy to help ensure acceptance of 'ownership' of the strategic objectives among members of the public and industry throughout the municipality and to promote co-operative community action.
c) Provide a framework to address the municipality's growing problem of waste management in accordance with best prevailing norms, financial capacity and best environmental practice.
d) Provide solutions for the three main objectives:

- The avoidance of waste generation.
- The reduction of waste volumes.
- The safe disposal of waste.

No significant waste minimisation efforts could be identified in Witzenberg, but the ideal is to avoid the creation of waste in the first place. Waste avoidance refers to a pro-active approach by industrial as well as domestic waste producers to minimise the volume of waste, by not creating the waste in the first place. Regular audits should be conducted by an independent entity on the avoidance practices, to form a basis for applying incentives/penalties. An important tool for monitoring purposes is a proper Waste Information System (WIS). This WIS should be developed for Witzenberg and be aligned with the provincial and national guidelines in order to feed information directly into these systems.

The best place to start implementing waste avoidance would be at the well-established industries on a voluntary basis. A joint venture between such industries and the Witzenberg Municipality may be mutually beneficial. The industry will receive positive advertising of these 'green' initiatives through the media, whilst Witzenberg will be taking a leading a role in South Africa through proactively spawning waste avoidance to the benefit of the community and the environment. Successful waste avoidance will result in further lowering of the demand on the Witzenberg waste management infrastructure and the functions of collection, recovery and disposals will be done more efficiently.

Currently, there is no need to replace the fleet of waste collecting vehicles, and the vehicles should ideally not be operated beyond 7 to 8 years in age since the maintenance costs increase dramatically with age. A waste collection service is provided by Witzenberg Municipality for all residents in urban areas, and all formal residential erven are receiving a weekly door-to-door collection service. Furthermore, all the towns in Witzenberg receive a street cleansing service in the CBD areas.

Witzenberg Municipality has no formal facilities for waste recovery as yet. There is however a private company operating a materials recovery facility between Ceres and Prince Alfred Hamlet, sorting source separated wastes and baling it for transport to Cape Town as well as a number of smaller recyclers operating in Tulbagh area. The private companies in total recover approximately 11% of Witzenberg's waste stream.

Household garden waste generated in the Witzenberg municipal area (only urban areas) amounts to approximately 45 tons per month on average. In order to operate a central composting facility economically a minimum garden waste volume of 350 tons per month is required. However, in Witzenberg Municipality, due to its unique agricultural activities, large volumes of fruit wastes are produced in the Ceres area. Combining this with the garden waste generated by the urban residents a composting facility may be borderline economically sustainable.

It has been shown that home composting can reduce the waste stream by 20% to 30% if carried out properly. This is a prime example of 'reduction at source' or waste avoidance. This should be promoted in the Witzenberg Municipality. Another method to decompose composts is vermicomposting – the deliberate introduction of earthworms during early stages of the composting process. Vermicomposting lends itself well to household-sized ventures, as it requires very careful control, but produces very high quality compost in a relative short period of time.

Witzenberg Municipality currently operates three landfills:
(i) Wolseley landfill: It receives waste form Ceres, Wolseley, Tulbagh and Prince Alfred Hamlet. This

site is used as interim landfill until a permanent site has been permitted and the current permit expires in 2013. The technical location of the site is good and consideration should be given to modifying this site's status to permanent. The future of the Wolseley site will also be depending on the outcome of the investigation into a regional landfill for the district municipality.
(ii) Tulbagh landfill: Is used for garden waste and builder's rubble only, and operation of the site is average.
(iii) Op-die-Berg landfill: Is licensed as a communal site and is operated according to the trench method and operation is average to good.

The previous Ceres landfill has been closed and partially rehabilitated, and the rehabilitation of this site should be finalised. Witzenberg Municipality has no dedicated builder's rubble sites since all existing waste sites receive builder's rubble, and there are no waste transfer stations in Witzenberg. There are no public drop-off facilities to date in any of the towns within the municipal area.

Electricity:
Electricity is supplied by Witzenberg Municipality for the towns of Ceres, Wolseley and Tulbagh. Prince Alfred's Hamlet and the rural areas are directly supplied by Eskom. Statistics South Africa differentiates between the percentage of households using electricity for lighting, cooking and heating. In 2001 approximately 84% of households' dwellings were provided with electricity, while some 16% of households still had not have access to electricity and have to rely on candles or paraffin for lighting purposes. It is interesting to note that not all of these households make use of electricity for cooking purposes.

10. HISTORICAL AND CULTURAL ASPECTS

(a) Please be advised that if section 38 of the NHRA is applicable to your proposed development, you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Heritage Western Cape must be given an opportunity, together with the rest of the I&APs, to comment on any Pre-application BAR, a Draft BAR, and Revised BAR.

Section 38 of the NHRA states the following:
"*38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-*
(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000m² in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000m² in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

(b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the NHRA, must also be investigated, assessed and evaluated. Section 3(2) states the following:
"*3(2) Without limiting the generality of subsection (1), the national estate may include—*
(a) places, buildings, structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds, including—
(i) ancestral graves;
(ii) royal graves and graves of traditional leaders;
(iii) graves of victims of conflict;
(iv) graves of individuals designated by the Minister by notice in the Gazette;
(v) historical graves and cemeteries; and
(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including—
(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;

(ii) objects to which oral traditions are attached or which are associated with living heritage;
(iii) ethnographic art and objects;
(iv) military objects;
(v) objects of decorative or fine art;
(vi) objects of scientific or technological interest; and
(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)".

Is Section 38 of the NHRA applicable to the proposed development?		~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA			
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?		~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA			
Will any building or structure older than 60 years be affected in any way?		~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA			
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including Archaeological or paleontological sites, on or close (within 20m) to the site?		~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA			

Note: If uncertain, the Department may request that specialist input be provided **and** Heritage Western Cape must provide comment on this aspect of the proposal. (Please note that a copy of the comments obtained from the Heritage Resources Authority must be appended to this report as Appendix E1).

11. APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

(a) Identify all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the development proposal and associated listed activity(ies) being applied for and that have been considered in the preparation of the BAR.

LEGISLATION	**ADMINISTERING AUTHORITY**	**TYPE** **Permit/ license/ authorisation/comment / relevant consideration** (e.g. rezoning or consent use, building plan approval)	**DATE (if already obtained):**
National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] and relevant regulations	Western Cape Department of Environmental Affairs and Development Planning	Environmental Authorisation Application	N/A
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [NEMWA] and relevant regulations	Western Cape Department of Environmental Affairs and Development Planning	N/A	N/A
National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA]	Western Cape Department of Environmental Affairs and Development Planning	N/A	N/A
National Environmental Management: Air Quality Act, 39 of 2004 [NEMAQA] and Relevant Regulations	Western Cape Department of Environmental Affairs and Development Planning	N/A	N/A
National Water Act, 1998 (Act No. 36 of 1998) [NWA] and relevant regulations	Breede Gouritz Catchment Management Agency	Water Use Authorization for infrastructure within regulated zone.	N/A

LEGISLATION	ADMINISTERING AUTHORITY	TYPE **Permit/ license/ authorisation/comment / relevant consideration** (e.g. rezoning or consent use, building plan approval)	DATE **(if already obtained):**
Conservation of Agricultural Resources Act, 43 of 1983 [CARA]	National Department of Agriculture, forestry and Fisheries Western Cape Department of Agriculture	N/A	N/A
National Health Act, 61of 2003 [NHA]		N/A	N/A
Constitution of the Republic of South Africa, 1996 [CRSA]		General application of individual rights of all on and adjacent to the site	N/A
Fencing Act, 31 of 1963 [FA]		N/A	N/A
National Building Regulations and Building Standards Act 103 of 1977 [NBRBSA] and relevant regulations		N/A	N/A
National Heritage Resources Act 25 of 1999 [NHRA]	Heritage Western Cape South African Heritage Resource Agency	N/A	N/A
National Veld and Forest Fire Act 101 of 1998 [NVFFA]		N/A	N/A
Fertilizers, Farm Feeds, Agricultural Remedies And Stock Remedies Act, 36 Of 1947 [FFFARSRA] and Relevant Regulations	National Department of Agriculture, forestry and Fisheries Western Cape Department of Agriculture	N/A	N/A
Section 42 of Spatial Planning and Land Use Management Act (16 of 2013) ("SPLUMA")	Witzenberg Municipality	N/A	N/A
Western Cape Land Use Planning Act, 2014 ("LUPA")	Witzenberg Municipality	N/A	N/A

POLICY/ GUIDELINES/BY-LAWS	ADMINISTERING AUTHORITY
Guideline on Public Participation	Western Cape Department of Environmental Affairs and Development Planning
Guidelines on Alternatives	Western Cape Department of Environmental Affairs and Development Planning
Guideline on Need and desirability	Western Cape Department of Environmental Affairs and Development Planning
Guideline for Environmental Management Plans (EMP's)	Western Cape Department of Environmental Affairs and Development Planning
Guideline of Specialist Reports	Western Cape Department of Environmental Affairs and Development Planning

(b) Describe how the proposed development **complies with and responds** to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	Describe how the proposed development complies with and responds to:
NEMA	Basic Assessment Process conducted to assess potential environmental impacts and apply for Environmental Authorisation
NEMWA	If applicable all waste management activities to be conducted during the proposed development to adhere to the NEMWA requirements
NEMBA	If applicable potential impacts on biodiversity features of the site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
NEMAQA	If applicable potential impacts on air quality on site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	Describe how the proposed development complies with and responds to:
NWA	If applicable potential impacts on ground- and surface water resources assessed during basic assessment process and if required a water use authorisation under section 21 will be applied for.
CARA	If applicable the landowner/applicant is reminded of his/her responsibility to manage and eradicated certain weed and alien plant vegetation on his/her property and requirements are incorporated into the EMP.
National Health Act	If applicable potential impacts on the health and wellbeing of human population on the site and surrounds are assessed and mitigation measure are proposed during the basic assessment process.
Constitution of the RSA	General application to individual rights of all on and adjacent to the sites.
Fencing Act	If applicable potential impacts and requirements concerning fencing of the site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
National Building Regulations and Building Standards Act	If applicable potential impacts and requirements concerning erection of building on the site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
NHRA	If applicable potential impacts on graves and burial sites and any structures older than 60 years are assessed and mitigation measures proposed during the basic assessment process.
NVFFA	If applicable any activities that could result in the start of veld fires are assessed and mitigated during the basic assessment process.
FFFARSRA	If applicable any potential impacts of activities associated with pest control, the use of agricultural remedies and with providing / manufacturing fertiliser are assessed and mitigated during the basic assessment process.
Guideline on Public Participation	The public participation guideline is used to determine the requirements in terms of implementing the public participation process during the basic assessment process to be conducted. The guideline was also used to determine the most effective communication strategies for public participation.
Guidelines on Alternatives	The guidelines for alternatives assessment was used to develop a methodology for alternatives assessment. This methodology was applied to determine and assess the most viable alternatives to the project. The assessment was undertaken against the baseline environment (i.e. the no-go option).
Guideline on Need and desirability	The guideline was taken into account to determine whether the project complied according to the concept of Best Practicable Environmental Option as well as environmental and social sustainability.
Guideline for EMP's	The guideline for EMP's was taken into account to determine the most effective minimize, mitigation and management measures to minimise or prevent the potential environmental impacts identified during the basic assessment process

Note: Copies of any comments, permit(s) or licences received from any other Organ of State must be attached to this report as **Appendix E**.

Section C: PUBLIC PARTICIPATION

The PPP must fulfil the requirements outlined in the NEMA, the EIA Regulations, 2014 (as amended) and if applicable, the NEM: WA and/or the NEM: AQA. This Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must also be taken into account.

1. Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was an exemption applied for.

In terms of Regulation 41 of the EIA Regulations, 2014 (as amended) -

(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i) the site where the activity to which the application relates, is or is to be undertaken; and	YES	~~EXEMPTION~~	
(ii) any alternative site	YES	~~EXEMPTION~~	~~N/A~~
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to –			
(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	~~EXEMPTION~~	~~N/A~~
(ii) owners, persons in control of, 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;	YES	~~EXEMPTION~~	
(iii) 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;	YES	~~EXEMPTION~~	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	~~EXEMPTION~~	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	~~EXEMPTION~~	
(vi) any other party as required by the Department;	YES	~~EXEMPTION~~	~~N/A~~
(c) placing an advertisement in -			
(i) one local newspaper; or	YES	~~EXEMPTION~~	
(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;	~~YES~~	~~EXEMPTION~~	N/A
(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 district municipality in which it is or will be undertaken	~~YES~~	~~EXEMPTION~~	N/A
(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	YES	~~EXEMPTION~~	~~N/A~~
If you have indicated that "EXEMPTION" is applicable to any of the above, proof of the exemption decision must be appended to this report.			
Please note that for the NEM: WA and NEM: AQA, a notice must be placed in at least two newspapers circulating in the area where the activity applied for is proposed.			
If applicable, has/will an advertisement be placed in at least two newspapers?	~~YES~~	~~NO~~	
If "NO", then proof of the exemption decision must be appended to this report.			

2. Provide a list of all the State Departments and Organs of State that were consulted:

State Department / Organ of State	**Date request was sent:**	**Date comment received:**	**Support / not in support**
Cape Nature	13 July 2018	12 June 2019	In the light of the above, particularly point 3 (,It is noted that an application for a Water Use Licence has been submitted to BGCMA) there are no objections from CapeNature to the proposed development.
DEA&DP: Development Management	13 May 2019	20 June 2019	It is noted that the proposed development is for the construction of a new weir and associated infrastructure within a watercourse, as opposed to maintenance actions on an existing structure

			and therefore cannot be deemed as maintenance, as defined in terms of the NEMA EIA Regulations, 2014. Activity 19 of Listing Notice 1, with specific reference to the development of the weir and associated infrastructure. A Basic Assessment process for Environmental Authorization must be followed.
DEA&DP: Waste Management	13 May 2019	11 June 2019	The Directorate has no objection to the construction of a storm water weir wall in a non-perennial drainage line on Portions 18 and 72 of farm 364, Vredebes, Ceres
DEA&DP: Pollution and Chemicals Management	13 May 2019	19 June 2019	Thus, it is requested that the Competent Authority be consulted in order to confirm whether the compilation and submission of a MMP in terms of the Environmental Impact Assessment Regulations, 2014 (as amended), is an appropriate mechanism for approval and adoption of the entirety of the propose new infrastructure as opposed to maintenance relate activities, including alien vegetation removal, only.
Breede Gouritz Catchment Management Agency	13 May 2019	21 June 2019	The Breede-Gouritz Catchment Management Agency (BGCMA) has reviewed the information provided and supports the proposed development with the following further conditions. The construction of a weir and the maintenance of the

			channelled non-perennial between the R46 road and the weir triggers water use authorization and can be applied for in this office; The above water use activities are not included in the submitted Water Use Licence Application (WULA), the WULA that is in process is for Section 21(c) & (i) water use: sewer pipeline construction for Vredebes Housing Project; Method statement of how the weir will be constructed must also be submitted; and The BGCMA decision regards proposed activity will be guided by the outcomes of a public participation process.

3. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated, or the reasons for not including them.
(The detailed outcomes of this process, including copies of the supporting documents and inputs must be included in a Comments and Response Report to be attached to the BAR (see note below) as **Appendix F**).

Joubert Van Vuuren Inc. (3 June 2019). We act on behalf of our client Morceaux Agri (Pty) Ltd and wish to object to the application Authorization to construct a stormwater weir wall in a non-perennial drainage line on portions 18 and 72 of Farm 364, between Ceres (Vredebes Housing Project).

Our client is the owner of Erf 8048, Ceres, Extent 93.3711 hectares, held under Title Deed T10865/2018 as per the attached Windeed search marked Annexure "A".

We also attach hereto several correspondence on behalf of our client regarding safety concerns and correspondence with Witzenberg Municipality, Cape Lowlands Environmental Services and Macroplan regarding Vredebes Housing Project which is self explanatory.

On behalf of our client we object to the proposed construction on Vredebes Until such time as our client's concerns regarding security and nuisance are addressed. Our client did not receive any cooperation regarding these matters from the developer.
We request a meeting with the contractor and municipality as land owner.

Adri Fourie on behalf of Gerrit van Vuuren. (28 March 2019). Geagte Menere,

Ons verwys na vorige korrespondensie en vergarderings.

Ons is nou weer deur ons kliente, wat 'n 605 swart beheerde maatskappy is, opdrag gegee om dringend regstappe te oorweeg weens die feit dat hul huidige vrugte oeste en boerdery infrastruktuur beskadig en bedreig word, deur toegang wat ongemagtigde persone verkry vanaf die Vredebes grond.

In die onlangse paar dae het daar boerbokke in ons klient see peerboorde gekom vanaf Vredebes en skade aan die peerboorde aangerig. 'n Paar dae gelede het daar ook ongemagtigde vrugtesmouse vanaf Vredebes met 'n bakkie toegang tot ons klient se grond verkry en 'n halwe bakkievrag vrugte "geoes" en gesteel voordat die plaasbestuurder op hom afgekom en die polisie ontbied het.

Ons plaas op rekord dat ons klient se mentor Laastedrif Boerdery asook die minderheidsaandeelhouer die Morceaux Boerdery Trust 'n goeie verhouding van samewerking met u as munisipaliteit het en handhaaf. Dit is egter nou uiters dringend dat daar drastiese stappe geneem word om ons klient se belange te beskerm en sy regte uit te oefen.

Ons klient en ons klient se mentor, het destyds dit op rekord geplaas dat hul nie van voorneme is om beswaar aan te teken teen die beoogde beshuisingsontwikkeling nie, op voorwaarde dat daar 'n behoorlike sekuriteitsheining deur die Munisipaliteit en ontwikkelaar opgerig word. In hierdie verhand het ons reeds afskrifte van die skrywes aan die cape Lowlands Environmental Services gedateer 22 Junie 2011, asook voreere skrywes van 2009 en 2010 aan u oorhandig. Ons het da nook aan Macroplan in 2013 bevestig dat die nodige sekuriteitsmaatreesl getref moet word om die beveiliging van ons klient se infrastruktuur en oeste, soos vrugte en groente te verseker. Ons firma het ook namens die Dutoit Groep in 2013 en namens Morceaux sedert 2013, 2016 2017 en 2018 met u gekorrespondeer.

Ten spyte van talle gesprekke in 'n goeie gees met u as Munisipaliteit, is ons klient se insruksies dat hierdie aangeleentheid nou so dringend is da tons nie nog 'n week kan laat verbygaan nie. In die omstandighede ontvang ons graag die ontwikkelaar en die Munisipaliteit se onderneming dat finansieel bygedra sal word tot 'n behoorlike sekuriteitsheining wat nou dringend opgerig moet word. Indien u alternatiewe voorstelle het om hierdie dringende probleem aan te spreek, is u welkom om met ons te skakel.

Ons klient wil nie graag hofaansoeke bring om sy belange en bates te beskerm nie, maar is die direkteure van ons klient ook verplig om die nodige stappe te neem om verdere skade vir die aandeelhouers en begunstigdes van hierdie grondhervormingsprojek te verhoed.

4. Provide a summary of any conditional aspects identified / highlighted by any Organs of State, which have jurisdiction in respect of any aspect of the relevant activity.

Please take note that various meetings as requested was scheduled and cancelled. Also, these comments relate to the Vredebes housing project. To date, all the conditions related to the Environmental Authorization and EMPr issued and authorized for the Vredebes Housing project has been complied with. The municipality will again schedule a meeting to discuss your concerns raised above. The construction of the storm water weir will however not have any impacts on the security and nuisance concerns raised. These concerns are applicable to the housing project.

Note:
Even if pre-application public participation is undertaken as allowed for by Regulation 40(3), it must be undertaken in accordance with the requirements set out in Regulations 3(3), 3(4), 3(8), 7(2), 7(5), 19, 40, 41, 42, 43 and 44.

If the "exemption" option is selected above and no proof of the exemption decision is attached to this BAR, the application will be refused.

A list of all the potential I&APs, including the Organs of State, notified and a list of all the registered I&APs must be submitted with the BAR. The list of registered I&APs must be opened, maintained and made available to any person requesting access to the register in writing.

The BAR must be submitted to the Department when being made available to I&APs, including the relevant Organs of State and State Departments which have jurisdiction with regard to any aspect of the activity, for a commenting period of at least 30 days. Unless agreement to the contrary has been reached between the Competent Authority and the EAP, the EAP will be responsible for the consultation with the relevant State Departments in terms of Section 24O and Regulation 7(2) – which consultation must happen simultaneously with the consultation with the I&APs and other Organs of State.

All the comments received from I&APs on the BAR must be recorded, responded to and included in the Comments and Responses Report included as **Appendix F** of the BAR. If necessary, any amendments made in response to comments received must be effected in the BAR itself. The Comments and Responses Report must also include a description of the PPP followed.

The minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded, must also be submitted as part of the public participation information to be attached to the final BAR as **Appendix F.**

Proof of all the notices given as indicated, as well as notice to I&APs of the availability of the Pre-Application BAR (if applicable), Draft BAR, and Revised BAR (if applicable) must be submitted as part of the public participation information to be attached to the BAR as **Appendix F**. In terms of the required "proof" the following must be submitted to the Department:

- a site map showing where the site notice was displayed, a dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION D: NEED AND DESIRABILITY

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website: **http://www.westerncape.gov.za/eadp**). In this regard, it must be noted that the *Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010* published by the national Department of Environmental Affairs on 20 October 2014 (GN No. 891 on Government Gazette No. 38108 refers) (available at: http://www.gov.za/sites/www.gov.za/files/38108_891.pdf) also applied to EIAs in terms of the EIA Regulations, 2014 (as amended).

1. Is the development permitted in terms of the property's existing land use rights?	YES	~~NO~~	Please explain
Property authorized and zoned for residential development.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("**PSDF**").	YES	~~NO~~	Please explain
Property authorized and zoned for residential development.			
(b) Urban edge / edge of **built environment** for the area.	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments			
(c) Integrated Development Plan and Spatial Development Framework of the Local Municipality (*e.g.,* would the approval of this application compromise the integrity of the existing approved and credible municipal **IDP and SDF**?).	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments			
(d) An Environmental Management Framework ("**EMF**") adopted by this Department. (*e.g.,* Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	~~YES~~	NO	~~Please explain~~
No EMF adopted for the area.			
(e) Any **other** Plans (*e.g.,* Integrated Waste Management Plan (for waste management activities), *etc.*)).	~~YES~~	NO	~~Please explain~~
NA			
3. Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments			
4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments. The proposed stormwater pond and weir will protect the surrounding developments and infrastructure.			

5. Does the community/area need the project and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (*e.g.,* development is a National Priority, but within a specific local context it could be inappropriate.)	YES	~~NO~~	Please explain
The proposed stormwater pond and weir will protect the surrounding developments and infrastructure. Application for funding under the Municipal Infrastructure grant was submitted and approved for the construction of the weir.			
6. Are the necessary **services** available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project? (Confirmation by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	YES	~~NO~~	Please explain
The proposed stormwater pond and weir will protect the surrounding developments and infrastructure. Application for funding under the Municipal Infrastructure grant was submitted and approved for the construction of the weir.			
7. Is this project provided for in the **infrastructure planning** of the municipality and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	YES	~~NO~~	Please explain
The proposed stormwater pond and weir will protect the surrounding developments and infrastructure. Application for funding under the Municipal Infrastructure grant was submitted and approved for the construction of the weir.			
8. Is this project part of a **national programme** to address an issue of national concern or importance?	~~YES~~	NO	~~Please explain~~
9. Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments. The proposed stormwater pond and weir will protect the surrounding developments and infrastructure.			
10. Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	YES	~~NO~~	Please explain
ESA Identified.			
11. Will the development impact on people's health and well-being (*e.g.,* in terms of noise, odours, visual character and 'sense of place', *etc.*)?	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments. The proposed stormwater pond and weir will protect the surrounding developments and infrastructure and allow for proper and safe stormwater management.			
12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	~~YES~~	NO	~~Please explain~~
The proposed stormwater pond and weir will protect the surrounding developments and infrastructure. Application for funding under the Municipal Infrastructure grant was submitted and approved for the construction of the weir.			
13. What will the **cumulative impacts** (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?			
The area is inside the approved urban edge. Stormwater management for residential developments. The proposed stormwater pond and weir will protect the surrounding developments and infrastructure and allow for proper and safe stormwater management.			
14. Is the development the **best practicable environmental option** for this land/site?	YES	~~NO~~	Please explain
The area is inside the approved urban edge. Stormwater management for residential developments. The proposed stormwater pond and weir will protect the surrounding developments and infrastructure and allow for proper and safe stormwater management.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The area is inside the approved urban edge. Stormwater management for residential developments. The proposed stormwater pond and weir will protect the surrounding developments and infrastructure and allow for proper and safe stormwater management.			
16. Any **other** need and desirability considerations related to the proposed development?			Please explain
NA			

17. Describe how the **general objectives of Integrated Environmental Management** as set out in Section 23 of the NEMA have been taken into account:

All decisions during the planning and assessment by all involved for the activity promote the integration of the principles of environmental management set out in section 2 to minimize and mitigate any significant effect on the environment. All these mitigations and management measures are included and written into the EMP.

18 Describe how the **principles of environmental management** as set out in Section 2 of the NEMA have been taken into account:

NATIONAL ENVIRONMENTAL MANAGEMENT PRINCIPLES

2. Principles

(1) The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and

(a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;

(b) serve as the general framework within which environmental management and implementation plans must be formulated;

(c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;

(d) serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and

(e) guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.

(2) Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
The proposed environmental management requirements have been determined by assessing all potential impacts that the development may have on people and their needs and aims to prevent or if prevention is not possible to mitigate any potential negative impacts on the environment and people.

(3) Development must be socially, environmentally and economically sustainable.
The proposed development has been planned, designed and assessed in such as manner as to ensure that it is socially, environmentally and economically sustainable.

(4)

(a) Sustainable development requires the consideration of all relevant factors including the following:

(i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

(ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

(iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;

(iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;

(v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;

(vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;

(vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and

(viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

The assessment conducted aimed to identify all potential negative impacts on the environment and on people's environmental rights (as listed above and more), and where such potential negative impacts as identified and assessed could not be altogether prevented/avoided mitigation measures were recommended and incorporated into the Environmental Management Programme to minimise the significance of the potential negative impacts as far as possible. The assessment also aimed to determine whether or not the proposed development will lead to the unacceptable exploitation of renewable and non-renewable resources and associated ecosystems.

(b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.
An integrated environmental assessment approach was followed acknowledging that all elements of the environment are linked and interrelated and realising that effects of decisions may have cumulative impacts on the environment and people and that the best practicable environmental option must therefore be selected.

(c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.
Environmental justice was pursued to prevent discrimination against any person, particularly vulnerable and disadvantage persons.

(d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.
Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being was pursued and special measures implemented if required ensure access.

(e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
As per the recommended EMP requirements the Applicant (as per the EA stipulations) remains responsible for the environmental health and safety consequences of the proposed activity/ies throughout its life cycle.

(f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.
Adequate and appropriate opportunity for public participation was provided and proof thereof included in Appendix F as per the guidelines and regulations in decisions that may affect the environment.

(g) Decisions must take into account the interests, needs and values of all interested and affected

parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.
All decision regarding the proposed activity/ies took into account the interests, needs and values of all potential interested and affected parties.

(h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.
Depending on the scope of the proposed activity community awareness campaigns will be conducted as and if required.

(i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
All potential negative and positive impacts associated with the proposed development are assessed and mitigated during the assessment process.

(j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
As per standard EMP requirements all relevant health and safety legislation must be adhered to during the implementation of the proposed activities.

(k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.
As per public participation process regulations all information relating to the proposed activities are public knowledge and available to the public for perusal and comments during the assessment process.

(l) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.

(m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.
Comments from all relevant organs of state are requested, recorded and addressed during assessment process.

(n) Global and international responsibilities relating to the environment must be discharged in the national interest.
Applied as and when relevant to the proposed activities.

(o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.
All potential impacts on environmental resources are assessed and mitigated to prevent unacceptable exploitation of renewable and non-renewable resources and associated ecosystems.

(p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
As per standard EMP requirements the applicant, as per the EA issued, will remain financially responsible for remedying any negative environmental and health effects cause by or due to the proposed activities.

(q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.
If applicable the role of women and youth in environmental management and development related to the proposed activities will be assessed and incorporated into EMP requirements during the assessment process.

(r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure. *All sensitive, vulnerable, highly dynamic or stressed ecosystems must be identified during the assessment process and the significance of any potential impacts on these systems must be determined and appropriate prevention, or if prevention is not possible mitigation measures must be incorporated into the EMP requirements.*

SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website **http://www.westerncape.gov.za/eadp**.

The EIA Regulations, 2014 (as amended) defines "*alternatives*" as " *in relation to a proposed activity, means different means of fulfilling the general purpose and requirements of the activity, which may include alternatives to the—*
(a) property on which or location where the activity is proposed to be undertaken;
(b) type of activity to be undertaken;
(c) design or layout of the activity;
(d) technology to be used in the activity; or
(e) operational aspects of the activity;
(f) and includes the option of not implementing the activity;"

The NEMA (section 24(4)(a) and (b) of the NEMA, refers) prescribes that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, with respect to every application for environmental authorisation –

- ensure that the general objectives of integrated environmental management laid down in the NEMA and the National Environmental Management Principles set out in the NEMA are taken into account; and
- include an investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity.

The general objective of integrated environmental management (section 23 of NEMA, refers) is, *inter alia*, to "*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management*" set out in the NEMA.

The identification, evaluation, consideration and comparative assessment of alternatives directly relate to the management of impacts. Related to every identified impact, alternatives, modifications or changes to the activity must be identified, evaluated, considered and comparatively considered to:

- in terms of negative impacts, firstly avoid a negative impact altogether, or if avoidance is not possible alternatives to better mitigate, manage and remediate a negative impact and to compensate for/offset any impacts that remain after mitigation and remediation; and
- in terms of positive impacts, maximise impacts.

1. DETAILS OF THE IDENTIFIED AND CONSIDERED ALTERNATIVES AND INDICATE THOSE ALTERNATIVES THAT WERE FOUND TO BE FEASIBLE AND REASONABLE

Note: A full description of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exists.

(a) Property and **location/site** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

No other location or site alternatives were assessed as no feasible or reasonable alternative exists. The property is included in the urban edge of Ceres town and development already in process. The stormwater management infrastructure is required to ensure proper stormwater management.

(b) **Activity** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

No other activity alternatives were assessed as no feasible or reasonable alternative exists. The property is included in the urban edge of Ceres town and development already in process. The stormwater management infrastructure is required to ensure proper stormwater management.

(c) **Design or layout** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

No other layout or design alternatives were assessed as no feasible or reasonable alternative exists. The property is included in the urban edge of Ceres town and development already in process. The stormwater management infrastructure is required to ensure proper stormwater management. The stormwater infrastructure was designed by engineers applying the necessary norms and standards and used calculations to ensure proper and safe stormwater management.

(d) **Technology** alternatives (*e.g.,* to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The only technological alternatives assessed and considered, or applicable to the development. The stormwater infrastructure will not use any technology.

(e) **Operational** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Operational alternatives were not assessed as they are not feasible or reasonable. The only operational activity applicable to the development relates to maintenance.

(f) The option of **not implementing** the activity (the '*No-Go*' Option):

The No-Go option will result in the site remaining as is and no stormwater management infrastructure will be installed.

(g) **Other** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

N/A

(h) Provide a **summary** of all alternatives investigated and the outcome of each investigation:

Location alternatives – No other location or site alternatives were assessed as no feasible or reasonable alternative exists. The property is included in the urban edge of Ceres town and development already in process. The stormwater management infrastructure is required to ensure proper stormwater management.

Activity alternatives - No other activity alternatives were assessed as no feasible or reasonable alternative exists. The property is included in the urban edge of Ceres town and development already in process. The stormwater management infrastructure is required to ensure proper stormwater management.

Layout alternatives – No other layout or design alternatives were assessed as no feasible or reasonable alternative exists. The property is included in the urban edge of Ceres town and development already in process. The stormwater management infrastructure is required to ensure proper stormwater management. The stormwater infrastructure was designed by engineers applying the necessary norms and standards and used calculations to ensure proper and safe stormwater management.

Technology alternatives - The only technological alternatives assessed and considered, or applicable to the development. The stormwater infrastructure will not use any technology.

Operational alternatives – Operational alternatives were not assessed as they are not feasible or reasonable. The only operational activity applicable to the development relates to maintenance.

The No-Go Option - The No-Go option will result in the site remaining as is and no stormwater management infrastructure will be installed.

(i) Provide a detailed **motivation for not further considering** the alternatives that were found not feasible and reasonable, including a description and proof of the investigation of those alternatives:

Refer to points (a) – (f) above.

2. PREFERRED ALTERNATIVE

(a) Provide a **concluding statement** indicating the preferred alternative(s), including preferred location, site, activity and technology for the development.

The preferred alternative is to install the stormwater infrastructure as per the design in the Site Development Plan. A stormwater weir will be constructed in the non-perennial drainage line at the site where an old weir wall was constructed upstream of the sewer pipeline crossing. The weir will be constructed using rock gabions and concrete pipes and construction material, which will be constructed on a concrete foundation platform. The length of the weir wall through the drainage line will be 9 m. The weir wall will be approximately 9.7 m wide and will consist of 4m wide gabion wall structure and 300mm rock mattresses upstream and downstream of the gabion wall and weir. Two concrete pipes, one 1050mm and the other 900mm will be laid in the weir to allow for normal stream flow. An overflow is designed in the gabion weir wall to allow for the 1 in 50 and 1 in100 years flood overflow.

SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

Note: The information in this section must be DUPLICATED for all the feasible and reasonable ALTERNATIVES.

1. DESCRIBE THE ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT AND ITS ALTERNATIVES, FOCUSING ON THE FOLLOWING:

(a) Geographical, geological and physical aspects:

The proposed action will not have a significant adverse cumulative effect on topography, slopes, soils and groundwater resources, if operational and construction mitigation measures included in MMP are implemented. The proposed development will not be a potential source of contamination to the underlying groundwater and will cause no significant degradation of the potable drinking water supply.

(b) Ecological aspects:

Will the proposed development and its alternatives have an impact on CBAs or ESAs? If yes, please explain: Also include a description of how the proposed development will influence the quantitative values (hectares/percentage) of the categories on the CBA/ESA map.	~~YES~~	NO

The proposed project form part of service delivery and the connection of sewer networks from the housing development to Ceres main sewerage network line as well as stormwater management.

Based on the impact assessment it is evident that there are six possible impacts on the freshwater ecology of the area observed. In considering the impacts and mitigation, it is assumed that a high level of mitigation will take place without high prohibitive costs. From the table it is evident that prior to mitigation, the impacts on the loss of freshwater ecology habitat, disturbance to subsurface geological layers, degradation / loss of naturally occurring / indigenous flora and habitats are medium level impacts, which can be mitigated and will be reduced to low and very- low level impacts. The other tree impacts identified all has low impacts that is reduce to very low with the proposed mitigation measures.

Habitat Assessment

From the results of the application of the IHIA to the impacted site, it is evident that the rivers reach is modified and that the loss of natural habitat, biota and basic ecosystem functions is extensive. Instream impacts included a large impact from flow modifications, inundation as well as bed and channel modifications. Overall, the site achieved a 72.16 % score for instream integrity. Riparian impacts included a large impact from flow modifications, inundation, alien vegetation encroachment as well as bed and channel modifications. Overall, the site achieved an 80.68 % score for instream integrity. The site obtained an overall IHIA rating of 76.42%, which indicates the loss of natural habitat, biota and basic ecosystem functions is extensive. (Class E conditions).

Riparian Vegetation Response Assessment Index (VEGRAI)

The score attained for the VEGRAI indicated that the riparian system falls into the category E/F. This indicates that the loss of natural habitat, biota and basic ecosystem functions is extensive. Modifications have reached a critical level and the system has been modified completely with almost complete loss of natural habitat and biota. In worst instances basic ecosystem functions have been destroyed and changes are irreversible.

Based on the findings of this study it is the opinion of the freshwater ecologists that the proposed construction of the sewer line and weir be considered favourably, from a freshwater ecological point of view, provided that the mitigatory measures presented in this report are strictly adhered to.

Ecological Importance and Sensitivity (EIS)

EIS considers a number of biotic and habitat determinants surmised to indicate either importance or sensitivity. The determinants are rated according to a four-point scale. The median of the resultant score is calculated to derive the EIS category.

The non-perennial river is considered to be of low to marginal ecological importance.

Will the proposed development and its alternatives have an impact on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)? If yes, please explain:	~~YES~~	NO
The site is situated on old cultivated lands with no indigenous vegetation.		
Will the proposed development and its alternatives have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species? If yes, please explain:	~~YES~~	NO
The site is situated on old cultivated lands with no indigenous vegetation.		
Describe the manner in which any other biological aspects will be impacted:		
Not applicable. The areas to be impacted upon by the facility are all disturbed areas.		
Will the proposed development also trigger section 63 of the NEM: ICMA?	~~YES~~	NO
If yes, describe the following: (i) the extent to which the applicant has in the past complied with similar authorisations; (ii) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development proposal or listed activity is consistent with the purpose for establishing and protecting those areas; (iii) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area; (iv) the likely socio-economic impact if the listed activity is authorised or is not authorised; (v) the likely impact of coastal environmental processes on the proposed development; (vi) whether the development proposal or listed activity— (a) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations; (b) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17 of NEM: ICMA; (c) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18 of NEM: ICMA; (d) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated; (e) is likely to be significantly damaged or prejudiced by dynamic coastal processes; (f) would substantially prejudice the achievement of any coastal management objective; or (g) would be contrary to the interests of the whole community; (vii) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land; (viii) whether the proposed development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and (ix) the objects of NEM: ICMA, where applicable.		
N/A		

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	Unknown
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	None

Will the project contribute to service infrastructure?	YES	~~NO~~
Is the project a public amenity?	YES	~~NO~~
How many new employment opportunities will be created during the development phase?	Unknow	
What is the expected value of the employment opportunities during the development phase?	Unknow	
What percentage of this will accrue to previously disadvantaged individuals?	As much as possible	
How will this be ensured and monitored (please explain):		
Employment opportunities to be allocated, as according to municipal policy/guidelines which promote the employment and appointment of previously disadvantaged individuals.		
How many permanent new employment opportunities will be created during the operational phase of the project?	NA	
What is the expected current value of the employment opportunities during the first 10 years?	NA	
What percentage of this will accrue to previously disadvantaged individuals?	NA	
How will this be ensured and monitored (please explain):		
NA		
Any other information related to the manner in which the socio-economic aspects will be impacted:		
-		

(d) Heritage and Cultural aspects:

Not applicable. No heritage sensitive areas and the impacted areas are mainly disturbed.

2. WASTE AND EMISSIONS

(a) Waste (including effluent) management

Will the development proposal produce waste (including rubble) during the development phase?	YES	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	$1m^3$ – Inert	
Construction and operational waste will be generated. Construction waste will consist of construction waste and possible contaminated soil as result of leaking or re-fuelling of construction vehicles. Inert and access soil waste will be recycled where possible on site. Contaminated soil that cannot be reused will be disposed at a licensed waste disposal facility.		

Will the development proposal produce waste during its operational phase?	YES	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	Cleared aliens and silt removed	
Operational waste (hazardous and general) will be waste generated during the operations. All waste will link to Witzenberg Municipal Waste Management services and the waste will be transported by Witzenberg municipality to highlands landfill site.		

Will the development proposal require waste to be treated / disposed of on site?	~~YES~~	NO
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	NA	
NA		
If no, where and how will the waste be treated / disposed of? Please explain. Indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?		
Disposed off at municipal landfill site		
Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? If yes, provide written confirmation from the municipality or relevant authority.	~~YES~~	NO
Will the development proposal produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream?	No	
If yes, has this facility confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? Provide written confirmation from the facility.	~~YES~~	~~NO~~
Does the facility have an operating license? (If yes, please attach a copy of the licence.)	~~YES~~	NO

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

Describe the measures that will be taken to reduce, reuse or recycle waste:
Recycle waste as far as possible.

(b) Emissions into the atmosphere

Will the development proposal produce emissions that will be released into the atmosphere?	~~YES~~	NO
If yes, does this require approval in terms of relevant legislation?	~~YES~~	~~NO~~
If yes, what is the approximate volume(s) of emissions released into the atmosphere?	N/A	
Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:		
N/A		

3. WATER USE

(a) Indicate the source(s) of water for the development proposal by highlighting the appropriate box(es).

Municipal	~~Water board~~	~~Groundwater~~	~~River, Stream, Dam or Lake~~	~~Other~~	~~The project will not use water~~

Note: Provide proof of assurance of water supply (e.g. Letter of confirmation from the municipality / water user associations, yield of borehole)

(b) If water is to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	N/A	m^3

(c) Does the development proposal require a water use permit / license from DWS?	YES	~~NO~~
If yes, please submit the necessary application to the DWS and attach proof thereof to this application as an Appendix.		
N/A		

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
N/A

4. POWER SUPPLY

(a) Describe the source of power *e.g.* municipality / Eskom / renewable energy source.

Will not use electricity

(b) If power supply is not available, where will power be sourced?

N/A

5. ENERGY EFFICIENCY

(a) Describe the design measures, if any, that have been taken to ensure that the development proposal will be energy efficient:

NA

(b) Describe how alternative energy sources have been taken into account or been built into the design of the project, if any:

NA

6. TRANSPORT, TRAFFIC AND ACCESS

Describe the impacts in terms of transport, traffic and access.

Existing access roads will be used. No formal access roads required.

7. NUISANCE FACTOR (NOISE, ODOUR, etc.)

Describe the potential nuisance factor or impacts in terms of noise and odours.

NA

Note: Include impacts that the surrounding environment will have on the proposed development.

8. OTHER

Refer to Section G below for summary of potential positive and negative impacts as assessed.

SECTION G: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

1. METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

(a) Describe the **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed development and alternatives.

The assessment criteria were developed based on the Department of Environmental Affair's Integrated Environmental Management Series guideline documents.

Criteria	**Description**		
Nature	a description of what causes the effect, what will be affected, and how it will be affected.		
	Type	**Score**	**Description**
Extent (E)	None (No)	1	Footprint
	Site (S)	2	On site or within 100 m of the site
	Local (L)	3	Within a 20 km radius of the centre of the site
	Regional (R)	4	Beyond a 20 km radius of the site
	National (Na)	5	Crossing provincial boundaries or on a national / land wide scale
Duration (D)	Short term (S)	1	0 – 1 years
	Short to medium (S-M)	2	2 – 5 years
	Medium term (M)	3	5 – 15 years
	Long term (L)	4	> 15 years
	Permanent(P)	5	Will not cease
Magnitude (M)	Small (S)	0	will have no effect on the environment
	Minor (Mi)	2	will not result in an impact on processes
	Low (L)	4	will cause a slight impact on processes
	Moderate (Mo)	6	processes continuing but in a modified way
	High (H)	8	processes are altered to the extent that they temporarily cease
	Very high (VH)	10	results in complete destruction of patterns and permanent cessation of processes.
Probability (P) the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned	Very improbable (VP)	1	probably will not happen
	Improbable (I)	2	some possibility, but low likelihood
	Probable (P)	3	distinct possibility
	Highly probable (HP)	4	most likely
	Definite (D)	5	impact will occur regardless of any prevention measures
Significance (S)	Determined through a synthesis of the characteristics described above: **S = (E+D+M) x P** Significance can be assessed as low, medium or high		
Low: < 30 points:	The impact would not have a direct influence on the decision to develop in the area		
Medium: 30 – 60 points:	The impact could influence the decision to develop in the area unless it is effectively mitigated		
High: > 60 points:	The impact must have an influence on the decision process to develop in the area		
No significance	When no impact will occur or the impact will not affect the environment		
Status	Positive (+)		Negative (-)
The degree to which the impact can be reversed	Completely reversible (R)	90-100%	The impact can be mostly to completely reversed with the implementation of the correct mitigation and rehabilitation measures.
	Partly reversible (PR)	6-89%	The impact can be partly reversed providing that mitigation measures as stipulated in the EMP are implemented and rehabilitation measures are undertaken
	Irreversible (IR)	0-5%	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures taking place
The degree to which the impact may cause	Resource will not be lost (R)	1	The resource will not be lost or destroyed provided that mitigation and rehabilitation measures as stipulated in the EMP are

irreplaceable loss of resources			implemented
	Resource may be partly destroyed (PR)	2	Partial loss or destruction of the resources will occur even though all management and mitigation measures as stipulated in the EMP are implemented
	Resource cannot be replaced (IR)	3	The resource cannot be replaced no matter which management or mitigation measures are implemented.
The degree to which the impact can be mitigated	Completely mitigatable (CM)	1	The impact can be completely mitigated providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly mitigatable (PM)	2	The impact cannot be completely mitigated even though all management and mitigation measures as stipulated in the EMP are implemented. Implementation of these measures will provide a measure of mitigatibility
	Un-mitigatable (UM)	3	The impact cannot be mitigated no matter which management or mitigation measures are implemented.

(b) Please describe any gaps in knowledge.

EAP is only knowledgeable with regards to the potential environmental and ecosystems aspects. Limited knowledge with regard to the potential services impacts at this stage as enginering services report and municipal services confirmation are still to be provided.

(c) Please describe the underlying assumptions.

In undertaking the investigation and compiling this report, the following have been assumed:

- The information provided by the client, specialists and engineers, is accurate and unbiased;
- The scope of this investigation is to assess the direct and cumulative environmental impacts associated with the development; and
- Should the proposed project be authorised, the applicant will incorporate the recommendations and mitigation measures outlined in this BAR, the EMP and the EA into the detailed design and construction contract specifications and operational management system for the proposed project.

(d) Please describe the uncertainties.

None at this stage.

(e) Describe adequacy of the assessment methods used.

Based on the EAP's assessment, information was provided to address the concerns and assess the impacts of the proposed development on the environment. Information as provided by the applicant, specialist, engineers and as collected by the EAP during site surveys etc. have been used to inform the current development proposal and impact assessment.

2. IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

Note: In this section the focus is on the identified issues, impacts and risks that influenced the identification of the alternatives. This includes how aspects of the receiving environment have influenced the selection.

(a) List the identified impacts and risks for each alternative.

Alternative 1:	**Construction phase:** • Loss of freshwater ecology habitat (**Medium impact before mitigation and low impact with mitigation measures**); • Disturbance to subsurface geological layers - (**Low impact before mitigation and low impact with mitigation measures**); • Degradation / loss of naturally occurring / indigenous flora and habitats - (**Medium impact before mitigation and low impact with mitigation measures**); • Damage to existing infrastructure - (**Low impact before mitigation and low impact with mitigation measures**); **Operational phase:** • Infrastructure failure - (**Low impact before mitigation and low impact with mitigation measures**);

	Decommissioning phase: • Similar to impacts associated with construction phase.
Alternative 2:	NA
No-go Alternative:	The No-Go option will result in the site remaining as is at present.

(b) Describe the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. (The EAP has to select the relevant impacts identified in blue in the table below for each alternative and repeat the table for each impact and risk).

Alternative 1 : Preferred Layout	**Loss of freshwater ecology habitat**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Loss of freshwater ecology habitat**
Nature of impact:	**Discussion:** **Habitat destruction is the alteration of a natural habitat to the point that it is rendered unfit to support the species dependent upon it as their home territory. Many organisms previously using the area are displaced or destroyed, reducing biodiversity. Globally modification of habitats for agriculture is the chief cause of such habitat loss. Other causes of habitat destruction include surface mining, deforestation, slash-and-burn practices and urban development. Habitat destruction is presently ranked as the most significant cause of species extinction worldwide. Additional causes of habitat destruction include water pollution, introduction of alien species, overgrazing and overfishing. Riverine systems and particularly ephemeral riverine systems or river systems that have very low flows as part of their annual hydrological cycles are particularly susceptible to changes in habitat condition. The proposed development project has the potential to lead to habitat loss and/or alteration of the aquatic and riparian resources on the study area.** **It is however important to note that the freshwater ecology, and especially aquatic habitats of most of the systems has been seriously to critically impaired and as such the risk to the receiving environment as a result of the proposed project is reduced to some degree.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 - Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Essential mitigation measures:** • **Limit the footprint area of the construction activity to what is absolutely essential in order to minimise the loss of aquatic habitats in the area.** • **Keep all demarcated sensitive zones outside of the construction area off limits during the construction phase of the project;** • **On-going aquatic ecological monitoring must take place on a 6 monthly basis by a suitably qualified assessor.** **Recommended mitigation measures** • **Permit only essential construction personnel within 32m of all riparian systems;** • **No infrastructure should encroach into any major drainage lines;** **Restrict construction activities to the drier summer months, if possible, to avoid sedimentation and siltation of riparian features in the vicinity of the proposed development and aim for completion in early spring**

	at which time revegetation should take place allowing for a full summer growing season to become established.
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Loss of freshwater ecology habitat**
Nature of impact:	**Discussion:** **Habitat destruction is the alteration of a natural habitat to the point that it is rendered unfit to support the species dependent upon it as their home territory. Many organisms previously using the area are displaced or destroyed, reducing biodiversity. Globally modification of habitats for agriculture is the chief cause of such habitat loss. Other causes of habitat destruction include surface mining, deforestation, slash-and-burn practices and urban development. Habitat destruction is presently ranked as the most significant cause of species extinction worldwide. Additional causes of habitat destruction include water pollution, introduction of alien species, overgrazing and overfishing. Riverine systems and particularly ephemeral riverine systems or river systems that have very low flows as part of their annual hydrological cycles are particularly susceptible to changes in habitat condition. The proposed development project has the potential to lead to habitat loss and/or alteration of the aquatic and riparian resources on the study area.** **It is however important to note that the freshwater ecology, and especially aquatic habitats of most of the systems has been seriously to critically impaired and as such the risk to the receiving environment as a result of the proposed project is reduced to some degree.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Maintenance activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 - Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Essential mitigation measures:** • **Limit the footprint area of the construction activity to what is absolutely essential in order to minimise the loss of aquatic habitats in the area.** • **Keep all demarcated sensitive zones outside of the construction area off limits during the construction phase of the project;** • **On-going aquatic ecological monitoring must take place on a 6 monthly basis by a suitably qualified assessor.** **Recommended mitigation measures** • **Permit only essential construction personnel within 32m of all riparian systems;** • **No infrastructure should encroach into any major drainage lines;** **Restrict construction activities to the drier summer months, if possible, to avoid sedimentation and siltation of riparian features in the vicinity of the proposed development and aim for completion in early spring at which time revegetation should take place allowing for a full summer growing season to become established.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	
Nature of impact:	**Loss of freshwater ecology habitat**

Extent and duration of impact:	**Discussion:** **Habitat destruction is the alteration of a natural habitat to the point that it is rendered unfit to support the species dependent upon it as their home territory. Many organisms previously using the area are displaced or destroyed, reducing biodiversity. Globally modification of habitats for agriculture is the chief cause of such habitat loss. Other causes of habitat destruction include surface mining, deforestation, slash-and-burn practices and urban development. Habitat destruction is presently ranked as the most significant cause of species extinction worldwide. Additional causes of habitat destruction include water pollution, introduction of alien species, overgrazing and overfishing. Riverine systems and particularly ephemeral riverine systems or river systems that have very low flows as part of their annual hydrological cycles are particularly susceptible to changes in habitat condition. The proposed development project has the potential to lead to habitat loss and/or alteration of the aquatic and riparian resources on the study area.** **It is however important to note that the freshwater ecology, and especially aquatic habitats of most of the systems has been seriously to critically impaired and as such the risk to the receiving environment as a result of the proposed project is reduced to some degree.**
Consequence of impact or risk:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Probability of occurrence:	**Construction and excavation activities can result in loss of freshwater ecology.**
Degree to which the impact may cause irreplaceable loss of resources:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact can be reversed:	**Low**
Indirect impacts:	**High**
Cumulative impact prior to mitigation:	**Disturbance to freshwater ecology features**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**It is not anticipated that the impact will be high.**
Degree to which the impact can be avoided:	**36 - Medium**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**High**
Residual impacts:	**Essential mitigation measures:** • **Limit the footprint area of the construction activity to what is absolutely essential in order to minimise the loss of aquatic habitats in the area.** • **Keep all demarcated sensitive zones outside of the construction area off limits during the construction phase of the project;** • **On-going aquatic ecological monitoring must take place on a 6 monthly basis by a suitably qualified assessor.** **Recommended mitigation measures** • **Permit only essential construction personnel within 32m of all riparian systems;** • **No infrastructure should encroach into any major drainage lines;** **Restrict construction activities to the drier summer months, if possible, to avoid sedimentation and siltation of riparian features in the vicinity of the proposed development and aim for completion in early spring at which time revegetation should take place allowing for a full summer growing season to become established.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**It is not anticipated that the impact will be high**

No Go Option	**Freshwater Ecology Impacts**
No Go Option	
Potential impact and risk:	**None. No development.**
Nature of impact:	**None. No development.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**None. No development.**
Probability of occurrence:	**None. No development.**
Degree to which the impact may cause irreplaceable loss of resources:	**NA**

Degree to which the impact can be reversed:	**NA**
Indirect impacts:	**None. No development.**
Cumulative impact prior to mitigation:	**None. No development.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None -continue as per current land use**
Degree to which the impact can be avoided:	**NA**
Degree to which the impact can be managed:	**NA**
Degree to which the impact can be mitigated:	**NA**
Proposed mitigation:	**None**
Residual impacts:	**None**
Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None**

Alternative 1 : Preferred Layout	**Disturbance to subsurface geological layers.**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Disturbance to subsurface geological layers.**
Nature of impact:	**Construction and excavation activities will affect the underlying geological layers on site to some extent.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Construction and excavation activities can result in erosion and dust.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 – Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Due to the nature of the impacts, not much can be done to mitigate the impact, only the severity of it can be managed. Mitigation and management for affecting geology is to ensure that removal of soil is kept to a minimum – removal of soil should only be in areas where infrastructure will be established. Disturbance through the river must preferably be in summer and definitely not when the river flows. The pipe must be laid and the area compacted in the water course and its banks in one time and the area must be immediately filled, shaped, compacted and rehabilitated.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Disturbance to subsurface geological layers.**
Nature of impact:	**Construction and excavation activities will affect the underlying geological layers on site to some extent.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Construction and excavation activities can result in erosion and dust.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 – Medium**
Degree to which the impact can be avoided:	**High**

Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Due to the nature of the impacts, not much can be done to mitigate the impact, only the severity of it can be managed. Mitigation and management for affecting geology is to ensure that removal of soil is kept to a minimum – removal of soil should only be in areas where infrastructure will be established. Disturbance through the river must preferably be in summer and definitely not when the river flows. The pipe must be laid and the area compacted in the water course and its banks in one time and the area must be immediately filled, shaped, compacted and rehabilitated.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Disturbance to subsurface geological layers.**
Nature of impact:	**Construction and excavation activities will affect the underlying geological layers on site to some extent.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Construction and excavation activities can result in erosion and dust.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 – Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Due to the nature of the impacts, not much can be done to mitigate the impact, only the severity of it can be managed. Mitigation and management for affecting geology is to ensure that removal of soil is kept to a minimum – removal of soil should only be in areas where infrastructure will be established. Disturbance through the river must preferably be in summer and definitely not when the river flows. The pipe must be laid and the area compacted in the water course and its banks in one time and the area must be immediately filled, shaped, compacted and rehabilitated.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**

No Go Option	**Geographical and Physical Impacts**
NO GO OPTION	
Potential impact and risk:	**Soil erosion and dust**
Nature of impact:	**Activities will cause a disturbance to the soil and the vegetation cover on the site. This disturbance, unless carefully managed, could spread as a result.** **Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during construction. Due to the sloping nature of the terrain, it is unlikely that a shallow perched water table will develop on site. Residual soils are also expected to have a very low permeability and due to low infiltration rates and the sloping terrain, water will tend to runoff from surface in a downslope direction.** **Soil erosion can occur due to wind (wind erosion causes dust pollution).**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Activities can result in erosion and dust.**

Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**None**
Residual impacts:	**None**
Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**

Alternative 1 : Preferred Layout	**Degradation / loss of naturally occurring / indigenous flora and habitats.**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Degradation / loss of naturally occurring / indigenous flora and habitats.**
Nature of impact:	**Although the area is considered as mostly transformed or degraded. Special precaution is to be taken during the construction of pipeline portion that falls within the regulated area as determined in the NWA. Construction activities must be controlled to ensure that the river and its buffer areas are not negatively impacted.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 - Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Undertake construction activities only in identified and specifically demarcated areas.** **Invasive vegetation to be removed during construction to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**10 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Degradation / loss of naturally occurring / indigenous flora and habitats.**
Nature of impact:	**Although the area is considered as mostly transformed or degraded. Special precaution is to be taken during the construction of weir portion that falls within the regulated area as determined in the NWA. Construction activities must be controlled to ensure that the river and its buffer areas are not negatively impacted.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Maintenance and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**

Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 - Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Undertake construction activities only in identified and specifically demarcated areas.** **Invasive vegetation to be removed during construction to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**10 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Degradation / loss of naturally occurring / indigenous flora and habitats.**
Nature of impact:	**Although the area is considered as mostly transformed or degraded. Special precaution is to be taken during the construction of pipeline portion that falls within the regulated area as determined in the NWA. Construction activities must be controlled to ensure that the river and its buffer areas are not negatively impacted.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**36 - Medium**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Undertake construction activities only in identified and specifically demarcated areas.** **Invasive vegetation to be removed during construction to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**10 - Low**

Alternative 1 : No Go Option	**Degradation / loss of naturally occurring / indigenous flora and habitats.**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**None. No development.**
Nature of impact:	**None. No development.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**None. No development.**
Probability of occurrence:	**None. No development.**
Degree to which the impact may cause irreplaceable loss of resources:	**NA**
Degree to which the impact can be reversed:	**NA**
Indirect impacts:	**None. No development.**
Cumulative impact prior to mitigation:	**None. No development.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None -continue as per current land use**
Degree to which the impact can be avoided:	**NA**

Degree to which the impact can be managed:	**NA**
Degree to which the impact can be mitigated:	**NA**
Proposed mitigation:	**None**
Residual impacts:	**None**
Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None**

Alternative 1 : Preferred Layout	**Damage to existing infrastructure**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Damage to existing infrastructure**
Nature of impact:	**Construction activities will impact upon existing sewer pipelines that may occur along the pipeline route as well as when connected to the existing sewer line. Damage to private property of adjacent landowners may potentially occur.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**24 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Care should be taken when conducting construction activities in close proximity to infrastructure and private property; Should any damage occur to existing infrastructure or private property as a result of construction activities; the relevant service provider / landowner must be contacted and the repair/replacement must be commissioned to the satisfaction of the service provider / landowner. Should spillage occur, the BGCMA and DEA&DP: Pollution and chemical management directorate must be informed immediately.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**9 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Damage to existing infrastructure**
Nature of impact:	**Construction activities will impact upon existing sewer pipelines that may occur along the pipeline route as well as when connected to the existing sewer line. Damage to private property of adjacent landowners may potentially occur.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Maintenance and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**24 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Care should be taken when conducting construction activities in close proximity to infrastructure and private property; Should any damage occur to existing infrastructure or private**

	property as a result of construction activities; the relevant service provider / landowner must be contacted and the repair/replacement must be commissioned to the satisfaction of the service provider / landowner. Should spillage occur, the BGCMA and DEA&DP: Pollution and chemical management directorate must be informed immediately.
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**9 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Damage to existing infrastructure**
Nature of impact:	**Construction activities will impact upon existing sewer pipelines that may occur along the pipeline route as well as when connected to the existing sewer line. Damage to private property of adjacent landowners may potentially occur.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**24 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Care should be taken when conducting construction activities in close proximity to infrastructure and private property; Should any damage occur to existing infrastructure or private property as a result of construction activities; the relevant service provider / landowner must be contacted and the repair/replacement must be commissioned to the satisfaction of the service provider / landowner. Should spillage occur, the BGCMA and DEA&DP: Pollution and chemical management directorate must be informed immediately.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**9 - Low**

Alternative 1 : Preferred Layout	**Waste management.**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Waste management.**
Nature of impact:	**General construction waste will be generated during the construction phase. Poor waste management practices on site may lead to dumping and windblown litter creating a negative visual impact and nuisance for adjacent landowners / users as well as impacting the natural environment.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**Dumping; Windblown litter causing nuisance; Pollution / degradation of the natural environment.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**18 - Low**
Degree to which the impact can be avoided:	**High**

Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**All waste generated on site shall be collected and disposed of at a registered landfill facility;** **All safe disposal certificates and waste manifests from service providers to be kept and maintained;** **All staff to receive training on correct waste management practices.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Waste management.**
Nature of impact:	**General construction waste will be generated during the construction phase. Poor waste management practices on site may lead to dumping and windblown litter creating a negative visual impact and nuisance for adjacent landowners / users as well as impacting the natural environment.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Maintenance and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**Dumping;** **Windblown litter causing nuisance;** **Pollution / degradation of the natural environment.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**18 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**All waste generated on site shall be collected and disposed of at a registered landfill facility;** **All safe disposal certificates and waste manifests from service providers to be kept and maintained;** **All staff to receive training on correct waste management practices.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Waste management.**
Nature of impact:	**General construction waste will be generated during the construction phase. Poor waste management practices on site may lead to dumping and windblown litter creating a negative visual impact and nuisance for adjacent landowners / users as well as impacting the natural environment.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**Dumping;** **Windblown litter causing nuisance;** **Pollution / degradation of the natural environment.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**18 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**

Proposed mitigation:	**All waste generated on site shall be collected and disposed of at a registered landfill facility;** **All safe disposal certificates and waste manifests from service providers to be kept and maintained;** **All staff to receive training on correct waste management practices.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**

Alternative 1 : No Go Option	**Waste Management**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**None. No development.**
Nature of impact:	**None. No development.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**None. No development.**
Probability of occurrence:	**None. No development.**
Degree to which the impact may cause irreplaceable loss of resources:	**NA**
Degree to which the impact can be reversed:	**NA**
Indirect impacts:	**None. No development.**
Cumulative impact prior to mitigation:	**None. No development.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None -continue as per current land use**
Degree to which the impact can be avoided:	**NA**
Degree to which the impact can be managed:	**NA**
Degree to which the impact can be mitigated:	**NA**
Proposed mitigation:	**None**
Residual impacts:	**None**
Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None**

Alternative 1 : Preferred Layout	**Infrastructure failure**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Infrastructure failure**
Nature of impact:	**Infrastructure failure will result in the spillage of raw sewerage into the receiving environment.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**Pollution of the receiving environment as well as offensive odours from the spillage causing a nuisance to adjacent landowners / users.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**18 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Regular inspection and maintenance of the sewer pipeline.** **Infrastructure failure reported or identified to be fixed as a priority.** **Spillage of raw sewerage to be mitigated and remediated where required.** **Should any damage occur to existing infrastructure or private property as a result of construction activities; the relevant service provider / landowner must be contacted and the repair/replacement must be commissioned to the satisfaction of the service provider / landowner. Should spillage occur, the BGCMA and DEA&DP: Pollution and chemical management directorate must be informed immediately.**

Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**14 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Infrastructure failure**
Nature of impact:	**Infrastructure failure will result in the spillage of raw sewerage into the receiving environment.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Maintenance and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**Pollution of the receiving environment as well as offensive odours from the spillage causing a nuisance to adjacent landowners / users.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**18 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Regular inspection and maintenance of the sewer pipeline. Infrastructure failure reported or identified to be fixed as a priority. Spillage of raw sewerage to be mitigated and remediated where required. Should any damage occur to existing infrastructure or private property as a result of construction activities; the relevant service provider / landowner must be contacted and the repair/replacement must be commissioned to the satisfaction of the service provider / landowner. Should spillage occur, the BGCMA and DEA&DP: Pollution and chemical management directorate must be informed immediately.**
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**14 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Infrastructure failure**
Nature of impact:	**Infrastructure failure will result in the spillage of raw sewerage into the receiving environment.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Construction and excavation activities can result in loss of freshwater ecology.**
Probability of occurrence:	**5 (impact will occur regardless of any prevention measures)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to freshwater ecology features**
Cumulative impact prior to mitigation:	**Pollution of the receiving environment as well as offensive odours from the spillage causing a nuisance to adjacent landowners / users.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**18 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Regular inspection and maintenance of the sewer pipeline. Infrastructure failure reported or identified to be fixed as a priority. Spillage of raw sewerage to be mitigated and remediated where required. Should any damage occur to existing infrastructure or private property as a result of construction activities; the relevant service provider / landowner must be contacted and the repair/replacement must be commissioned to the satisfaction of the service provider / landowner. Should spillage occur, the BGCMA and DEA&DP: Pollution and chemical management directorate must be informed**

	immediately.
Residual impacts:	**It is not anticipated that the impact will be high**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**14 - Low**

No Go Option	**Infrastructure failure**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**None. No development.**
Nature of impact:	**None. No development.**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**None. No development.**
Probability of occurrence:	**None. No development.**
Degree to which the impact may cause irreplaceable loss of resources:	**NA**
Degree to which the impact can be reversed:	**NA**
Indirect impacts:	**None. No development.**
Cumulative impact prior to mitigation:	**None. No development.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None -continue as per current land use**
Degree to which the impact can be avoided:	**NA**
Degree to which the impact can be managed:	**NA**
Degree to which the impact can be mitigated:	**NA**
Proposed mitigation:	**None**
Residual impacts:	**None**
Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None**

Note: The EAP may decide to include this section as Appendix J to the BAR.

NA

(c) Provide a summary of the site selection matrix.

The property was the only alternative considered. One layout alternatives were assessed against the no go or no development option.

(d) Outcome of the site selection matrix.

Construction phase:

- Loss of freshwater ecology habitat (**Medium impact before mitigation and low impact with mitigation measures**);
- Disturbance to subsurface geological layers - (**Low impact before mitigation and low impact with mitigation measures**);
- Degradation / loss of naturally occurring / indigenous flora and habitats - (**Medium impact before mitigation and low impact with mitigation measures**);
- Damage to existing infrastructure - (**Low impact before mitigation and low impact with mitigation measures**);

Operational phase:

- Infrastructure failure - (**Low impact before mitigation and low impact with mitigation measures**);

Decommissioning phase:

- Similar to impacts associated with construction phase.

3. SPECIALIST INPUTS/STUDIES, FINDINGS AND RECOMMENDATIONS

Note: Specialist inputs/studies must be attached to this report as **Appendix G** and must comply with the content requirements set out in Appendix 6 of the EIA Regulations, 2014 (as amended). Also take into account the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "*One Environmental Management System*" and the EIA Regulations, 2014, any subsequent Circulars, and guidelines available on the Department's website (**http://www.westerncape.gov.za/eadp**).

Provide a summary of the findings and impact management measures identified in any specialist report and an indication of how these findings and recommendations have been included in the BAR.

Eco Impact Legal Consulting (Pty) Ltd were appointed to undertake a Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) analysis of the freshwater and riparian resources as part of the Water Use Authorization application.

The proposed project form part of service delivery.

Based on the impact assessment it is evident that there are six possible impacts on the freshwater ecology of the area observed. In considering the impacts and mitigation, it is assumed that a high level of mitigation will take place without high prohibitive costs. From the table it is evident that prior to mitigation, the impacts on the loss of freshwater ecology habitat, disturbance to subsurface geological layers, degradation / loss of naturally occurring / indigenous flora and habitats are medium level impacts, which can be mitigated and will be reduced to low and very- low level impacts. The other tree impacts identified all has low impacts that is reduce to very low with the proposed mitigation measures.

Habitat Assessment

From the results of the application of the IHIA to the impacted site, it is evident that the rivers reach is modified and that the loss of natural habitat, biota and basic ecosystem functions is extensive. Instream impacts included a large impact from flow modifications, inundation as well as bed and channel modifications. Overall, the site achieved a 72.16 % score for instream integrity. Riparian impacts included a large impact from flow modifications, inundation, alien vegetation encroachment as well as bed and channel modifications. Overall, the site achieved an 80.68 % score for instream integrity. The site obtained an overall IHIA rating of 76.42%, which indicates the loss of natural habitat, biota and basic ecosystem functions is extensive. (Class E conditions).

Riparian Vegetation Response Assessment Index (VEGRAI)

The score attained for the VEGRAI indicated that the riparian system falls into the category E/F. This indicates that the loss of natural habitat, biota and basic ecosystem functions is extensive. Modifications have reached a critical level and the system has been modified completely with almost complete loss of natural habitat and biota. In worst instances basic ecosystem functions have been destroyed and changes are irreversible.

Based on the findings of this study it is the opinion of the freshwater ecologists that the proposed construction of the weir be considered favourably, from a freshwater ecological point of view, provided that the mitigatory measures presented in this report are strictly adhered to.

Ecological Importance and Sensitivity (EIS)

EIS considers a number of biotic and habitat determinants surmised to indicate either importance or sensitivity. The determinants are rated according to a four-point scale. The median of the resultant score is calculated to derive the EIS category.

The non-perennial river is considered to be of low to marginal ecological importance.

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

(i) A summary of the key findings of the EIA.

Construction phase:

- Loss of freshwater ecology habitat (**Medium impact before mitigation and low impact with mitigation measures**);
- Disturbance to subsurface geological layers - (**Low impact before mitigation and low impact with mitigation measures**);
- Degradation / loss of naturally occurring / indigenous flora and habitats - (**Medium impact**

before mitigation and low impact with mitigation measures);
- Damage to existing infrastructure - (**Low impact before mitigation and low impact with mitigation measures**);

Operational phase:
- Infrastructure failure - (**Low impact before mitigation and low impact with mitigation measures**);

Decommissioning phase:
Similar to impacts associated with construction phase.

(ii) Has a map of appropriate scale been provided, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers?	YES	~~NO~~

(iii) A summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.

Refer to Section G: 2(a) above.

5. IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

(a) Based on the assessment, describe the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the EMPr. The EMPr must be attached to this report as Appendix H.

Refer to MMP for details on mitigation and monitoring.

(b) Describe any provisions for the adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question.

None.

(c) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

The applicant is ultimately responsible for the implementation of the EA and MMP and the financial cost related thereto. In accordance with the requirements of the EA and MMP, the applicant must ensure that any person acting on their behalf complies with the conditions / specifications contained in this EA, MMP and any other relevant permits/licences/legislation etc. related to the activities. In addition, an Environmental Control Officer must be appointed to review, monitor and report on compliance with the relevant requirements. Thus, if the applicant intends to commence with the proposed and authorised activities, he/she must ensure that he/she is able to implement the required management, mitigation and monitoring measures throughout the lifespan of the project.

(d) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

Unknown at his stage.

(e) Describe any assumptions, uncertainties, and gaps in knowledge which relate to the impact management, mitigation and monitoring measures proposed.

EAP is only knowledgeable with regards to the potential environmental and ecosystems aspects.

In undertaking the investigation and compiling this report, the following have been assumed:
•The information provided by the client and engineers is accurate and unbiased;
•The scope of this investigation is to assess the direct and cumulative environmental impacts associated with the development; and
•Should the proposed project be authorised, the applicant will incorporate the recommendations and mitigation measures outlined in this BAR, the MMP and the EA into the detailed design and construction contract specifications and operational management system for the proposed project.

SECTION H: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

(a) In my view as the appointed EAP, the information contained in this BAR and the documentation attached hereto is sufficient to make a decision in respect of the listed activity(ies) applied for.	YES	~~NO~~

(b) If the documentation attached hereto is sufficient to make a decision, please indicate below whether, in your opinion,

the listed activity(ies) should or should not be authorised:		
Listed activity(ies) should be authorised:	YES	~~NO~~
Provide reasons for your opinion		
All possible impacts on the environment have been assessed and can be mitigated and managed. The assessment did not lead to any fatal flaws, if the development is approved, provided that the facility is operated in terms of all relevant applicable legislation and the MMP management activities implemented.		
(c) Provide a description of any aspects that were conditional to the findings of the assessment by the EAP and Specialists which are to be included as conditions of authorisation.		
Compliance with EA and MMP conditions.		
(d) If you are of the opinion that the activity should be authorised, please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an environmental authorisation.		
Recommended that the EA prescribe that: • Should any heritage artefacts be exposed during construction that all activities be stopped, and Heritage Western Cape contacted pre any further action being permitted. • The project implementation process should be subject to standard Environmental Management Programme prescripts and conditions under supervision of a competent and diligent ECO, during its construction and decommissioning phases.		
(e) Please indicate the recommended periods in terms of the following periods that should be specified in the environmental authorisation:		
i.	the period within which commencement must occur;	Within 5 years of obtaining Environmental Authorisation
ii.	the period for which the environmental authorisation is granted and the date on which the development proposal will have been concluded, where the environmental authorisation does not include operational aspects;	Within 10 years of obtaining Environmental Authorisation
iii.	the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	Within 10 years of obtaining Environmental Authorisation
iv.	the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	Ongoing maintenance of infrastructure and implementation of EMP until decommissioning.

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX			Confirm that Appendix is attached
Appendix A:	**Locality map**		Y
Appendix B:	**Site development plan(s)**		Y
	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;		NA
Appendix C:	**Photographs**		Y
Appendix D:	**Biodiversity overlay map**		Y
Appendix E:	**Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.**		
	Appendix E1:	**Copy of comment from HWC.**	NA
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses report, proof of notices, advertisements and any other public participation information as is required in Section C above.**		Y
Appendix G:	**Specialist Report(s)**		Y
Appendix H :	**EMP & MMP**		Y
Appendix I:	**Additional information related to listed waste management activities (if applicable)**		NA
Appendix J:	**If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.**		NA
Appendix K:	**Any Other (if applicable).** **AppendixK1: EAP CV**		Y

SECTION J: DECLARATIONS

Original signed copies of the declarations to be provided with the Final Basic Assessment Report to be submitted to the Department of Environmental Affairs and Development Planning for a final decision.