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

GRASSROOTS GROUP DAM ON FARM HARTEBEESKRAAL 88 PORTION 8, TULBAGH DISTRICT

February 2019

REPORT TYPE CATEGORY	REPORT REFERENCE NUMBER	DATE OF REPORT
Pre-Application Basic Assessment Report (if applicable)[1]	1438/18/PRE-BAR	23 April 2019
~~Draft Basic Assessment Report[2]~~		
~~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:	16/3/3/6/7/1/B5/14/1435/18
File reference number (EIA):	
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:

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:	Grassroots Group (Pty) Ltd		
Contact person:	Mr. Rikus Muller		
Postal address:	PO Box 16, Gouda		
Telephone:	021 020 0260	Postal Code:	6821
Cellular:	083 441 0193	Fax:	086 724 8519 (Reception)
E-mail:	ceo@grassrotsgroup.co.za		

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	Eco Impact Legal Consulting (Pty) Ltd		
Person who compiled this Report:	Lauren Abrahams		
EAP Reg. No.:	SACNASP Can.Sci.Nat (Biological Sciences) 100126/12		
Contact Person (if not author):	Lauren Abrahams		
Postal address:	PO Box 45707, Claremont		
Telephone:	021 671 1660	Postal Code:	7735
Cellular:	0662109892	Fax:	021 671 9976
E-mail:	admin@ecoimpact.co.za		
EAP Qualifications:	B Tech Oceanography: Cape Peninsula University of Technology (2010)		

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.

Ms Lauren Abrahams

Lauren Abrahams has completed her professional registration in terms of section 20(3) (b) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) as a Candidate Natural Scientist in the field of practice Biological Science (Registration number 100126/12). She obtained her B Tech in Oceanography at the Cape Peninsula University of Technology in 2010.

Lauren has trained as an Environmental Assessment Practitioner since July 2015 and has been involved in the compilation, coordination and management of Basic Assessment Reports, Environmental Impact Assessments, Environmental Management Programmes, Waste Licence Applications, Water Use Licence Applications and Baseline Biodiversity Surveys for numerous clients.
Curriculum Vitae of EAP included in Appendix K1.

EXECUTIVE SUMMARY OF THE BASIC ASSESSMENT REPORT:

The application is for the expansion of an existing instream dam.

This will consist of the establishment of a new dam wall with the following specification:

- Wall height = 4.9m
- Crest length = 143m
- Potential gross capacity = 55 000m3

The existing dam structure must be completely removed and rehabilitated.

SUMMARY OF ALTERNATIVES

Location alternative: The proposal is for the expansion of an existing dam on agricultural land.

The site chosen for the proposed dam is based on the location of the existing dam and the non-perennial river. Based on the engineering report (Appendix K2) there is limited options available for the dam to be located on the property due to the relative flat topography of the site.

Activity alternative: The activity applied for in this application is **EXPANSION** of the existing activity

conducted on the property.

No other reasonable or feasible activity alternative exists except the no-go option.

Layout alternative: The layout of the proposed dam is highly dependent on the site topography which is informed by the engineering report in Appendix K2.

Technology alternative: The layout of the proposed dam is highly dependent on the site topography which is informed by the engineering report in Appendix K2.

Operational alternative: An operational Maintenance Management Plan has been included as part of the EMP for the maintenance of the in-stream dam. The operational MMP is to be approved by the department prior to the commencing of the activity. The MMP will provide specific guidelines to avoid negative impacts and to mitigate any unavoidable negative impacts.

The EMP and MMP serve as guidelines for activities to minimise the activities negative impacts.

No-Go option: The no-go option would result in the current dams to remain as they presently are, washed away and not collecting water allocated to the property for the dry summer months. This would result in unnecessary demand on other water sources to the property and potentially a reduction in agricultural potential of the property.

SUMMARY OF IMPACTS

Positive:

- Job creation;
- Water security during summer months.

Negative:

- Soil and dust erosion;
- Loss of freshwater ecological habitat;
- Degradation / loss of naturally occurring / indigenous flora and habitats
- Flow modification;
- Water quality impairment
- Impact on archaeological, paleontological and heritage remains, etc

RECOMMENDATION OF THE EAP

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 Dam is operated in terms of all relevant applicable legislation, the EMPr and MMP.

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

Location of all proposed sites:	The property is located on farm Hartebeeskraal 88 portion 8, Tulbagh district, approximately 9.4 km north west of the town Gouda on the eastern bank of the Berg River.
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	Farm Hartebeeskraal no. 88/8, Tulbagh District
Property size(s) in m^2 for each proposed site:	170.72 ha
Development footprint size(s) in m^2:	2.4 ha
Surveyor General (SG) 21 digit code for each proposed site:	C07500000000008800008

2. PROJECT DESCRIPTION

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

~~YES~~	NO

Expansion and fixing of old dam with a dam wall height of 4.9m, crest length of 143m, water storage capacity of 55 000m^3 and a catchment surface area of 2.4ha.

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

The application is for the expansion of an existing instream dam.

This will consist of the establishment of a new dam wall with the following specification:
Wall height = 4.9m
Crest length = 143m
Potential gross capacity = 55 000m^3

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,	5 years
(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;	10 years
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	10 years
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	Unlimited

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):

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 983)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
12	The development of- ii) Infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs (a) within a watercourse;	Expansion of an existing dam by establishing a new dam with the following specifications: This will consist of the establishment of a new dam wall with the following specification: Wall height = 4.9m Crest length = 143m Capacity = 55 000m^3	Expansion
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;	Expansion of an existing dam by establishing a new dam with the following specifications: This will consist of the establishment of a new dam wall with the following specification: Wall height = 4.9m Crest length = 143m Capacity = 55 000m^3	Expansion and Operational (MMP – Operational)
48	The expansion of- ~~(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or~~ (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion occurs- (a) within a watercourse; ~~(b) in front of a development setback; or~~ ~~(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;~~ - ~~excluding-~~ ~~(aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;~~	Expansion of an existing dam by establishing a new dam with the following specifications: This will consist of the establishment of a new dam wall with the following specification: Wall height = 4.9m Crest length = 143m Capacity = 55 000m^3	Expansion

	~~(bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;~~ ~~(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;~~ ~~(dd) where such expansion occurs within an urban area; or~~ ~~(ee) where such expansion occurs within existing roads, road reserves or railway line reserves.~~		
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 985)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
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
No additional buildings are required for the proposed expansion.		
Infrastructure (*e.g.,* roads, power and water supply/ storage) Provide brief description below:	~~YES~~	NO
Not applicable.		
Processing activities (*e.g.,* manufacturing, storage, distribution) Provide brief description below:	~~YES~~	NO
Not Applicable.		
Storage facilities for raw materials and products (*e.g.,* volume and substances to be stored) Provide brief description below:	YES	~~NO~~
Not Applicable.		
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	YES	~~NO~~
The application is for the expansion of an existing instream dam. This will consist of the establishment of a new dam wall with the following specification: Wall height = 4.9m Crest length = 143m Potential gross capacity = 55 000m^3		
Storage and treatment of solid waste	~~YES~~	NO

Provide brief description below:		
Not Applicable.		
Facilities associated with the release of emissions or pollution. Provide brief description below:	~~YES~~	NO
Not Applicable.		
Other activities (*e.g.,* water abstraction activities, crop planting activities) – Provide brief description below:	~~YES~~	NO
The applicant has an Existing Lawful Water Use for abstraction of water from the Bergriver as confirmed by the Lower-Bergriver Irrigation Board, dated 01 February 2017.		

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	170.72	ha
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	NA	ha
(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)	2.4	ha
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	2.4	ha
~~(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal~~	~~(L)~~ ~~(W)~~	~~m~~ ~~m~~
(f) For storage facilities: Indicate the volume of the storage facility	55 000	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:

Not Applicable.

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 property is located on farm Hartebeeskraal 88 portion 8, Tulbagh district, approximately 9.4 km north west of the town Gouda on the eastern bank of the Berg River.

Coordinates of all the proposed activities on the property or properties (sites):	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec.)		
	33°	**14'**	**54.78"**	**18°**	**57'**	**09.48"**

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).

The application is for the expansion of an existing instream dam. This will consist of the establishment of a new dam wall with the following specification: • Wall height = 4.9m

- Crest length = 143m
- Potential gross capacity = 55 000m3

The existing dam structure must be completely removed and rehabilitated.

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

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:	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
• 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;

	○ 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	~~Dune~~	~~Sea front~~

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

The property is located in an area with a slope classification of 0 – 3%. The property is relatively flat in elevation.

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.

Soils and Geology:
Land Type: Db47
Soil: Prismacutanic and/or pedocutanic diagnostic horizons dominant, B horizons mainly not red.
Geology: Phyllite shale, schist, greywacke and quartzite of the Porterville and Norree Formations, Malmesbury Group. Valley floor covered by alluvium and terrace gravel.
Source: ENPAT. CapeFarmMapper. 20/02/2019. https://gis.elsenburg.com/apps/cfm/#

Soil Clay and Depth:
Symbol: CA
Class: Soils with a strong texture contrast.
Description: Soils with a marked clay accumulation, strongly structured and a non-reddish colour. In addition one or more of vertic, melanic and plinthic soils may be present.
Depth: >= 450 mm and < 750 mm
Clay: < 15%
Source: Department of Agriculture, Forestry and Fisheries. CapeFarmMapper. 20/02/2019. https://gis.elsenburg.com/apps/cfm/#

Soil Erodibility:
Erodibility: High
Erodibility Factor: 0.6
Source: SA Atlas of Climatology and Agrohydrology (R.E. Schulze, 2009). CapeFarmMapper. 20/02/2019. 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.

The dam wall is proposed to be built in relation to where the existing dam wall was located. The old dam wall has long since been washed away. The proposed dam will be built across a non-perennial tributary of the Bergriver. The proposed dam wall is proposed to be built outside of 32m from the Bergriver which runs adjacent to the proposed dam wall.

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 in which the proposed dam expansion is planned was identified as Ecological Support Areas (ESAs) in the latest Western Cape Biodiversity Spatial Plan 2017: Feature: Watercourse Category 1: ESA2: Restore from other land use			
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)	ESA's are supporting zones required to prevent the degradation of Critical Biodiversity Areas (CBAs) and Protected Areas. The Berg River adjacent and downs stream to the dam expansion site was identified as an Aquatic CBA and its buffer areas as an ESA. The proposed dam expansions are however outside the CBA and ESA areas identified. The dam wall and catchment of the dam will be outside the Berg River flood plain and buffer areas.			

(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%	0m^2	NA
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	0m^2	NA
Degraded (includes areas heavily invaded by alien plants)	0%	0m^2	NA
Transformed (includes cultivation,	100%	2.4ha	The non-perennial river in which the proposed dam expansion

dams, urban, plantation, roads, *etc.*)			is planned was identified as 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 (CBAs) and Protected Areas. The Berg River adjacent and downs stream to the dam expansion site was identified as an Aquatic CBA and its buffer areas as an ESA. The proposed dam expansions are however outside the CBA and ESA areas identified. The dam wall and catchment of the dam will be outside the Berg River flood plain and buffer areas

(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	Name: Swartland Shale Renosterveld Status 2016: CR (A1 and D1) Status 2014: Critically Endangered (CR) Status 2011: CR
	Endangered	NA
	Vulnerable	NA
	Least Threatened	NA

Aquatic Ecosystems						
Wetland (including rivers, depressions, channelled and unchannelled 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 site is located in the Berg River catchment (DWS Primary Drainage Region G)[1]. The proposed water uses would pass through sections of the G10F quaternary catchment which is drained primarily by the Berg, Diep and Steenbras rivers. The tributary in which the proposed water uses is planned flow into the Berg river. The natural vegetation on site used to be Swartland Shale renosterveld (Critically Endangered conservation status), (Refer to figure 2 below). The impacted and surrounding area is however mostly transformed and disturbed as a result of previous agricultural activities.

The non-perennial river in which the proposed dam expansion is planned was identified as 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 (CBAs) and Protected Areas. The Berg River adjacent and downs stream to the dam expansion site was identified as an Aquatic CBA and its buffer areas as an ESA. The proposed dam expansions are however outside the CBA and ESA areas identified. The dam wall and catchment of the dam will be outside the Berg River flood plain and buffer areas.

A photographic record of the impacted area was taken in order to provide a visual record of the condition of the assessment site as observed during the field assessment. The photographs taken are

[1] Department of Water and Sanitation, South Africa. January 2017. Determination of Water Resources Classes and Resource Quality Objectives in the Berg Catchment: Evaluation of Scenarios Report. Report No: RDM/WMA9/00/CON/CLA/0417.

presented (Photos 1-11), followed by a table (Table 4) summarising the observations for the various criteria made during the visual assessment undertaken at each point.

The non-perennial river in which the dam expansion is proposed is a tributary of the Berg River. The source of the non-perennial river is approximately 3km east of the proposed dam expansion site and flows into the Berg River west of the proposed dam site. The first approximately 2km river was channelized into a earthern channel into which agricultural engineered constructed contours runoff water feed into.

Photo 1: Upstream channelled non-perennial river.

The non-perennial river is crossed by a gravel access road and bridge before it flows into a dam.

Photo 2: Dam downstream of the road crossing in the Non-perennial river

The next 500m flow through an area consisting of natural vegetation in a poor to moderate ecological condition.

Photo 3: Non-perennial river downstream of dam

Photo 4: Non-perennial river upstream of proposed dam expansion site and catchment basin.

The last 350m of the non- perennial river (proposed dam expansion area) consists of area impacted by the existing dam and agricutural activities that resulted in the degradation of the non-perennial rivers PES. The PES for this section of the river and where the dam is proposed was assessed to have a poor PES status. The riparian system falls into the category E. This indicates that the loss of natural habitat, biota and basic ecosystem functions is extensive.

Photo 5: Upper catchment of the proposed dam expansion basin area (high water mark of dam when full).

Photo 6: Existing dam in the non-perennial river.

Photo 7: Ecological State of the non-perennial downstream of the existing dam that will be covered by water once the dam is constructed/completed.

Photo 8: Ecological State of the non-perennial downstream of the existing dam and terrestrial ecology that will be covered by water once the dam is constructed.

Photo 9: Ecological State of the non-perennial downstream of the existing dam and terrestrial ecology that will be covered by water once the dam is constructed.

Proposed Dam Impacting on the Non-Perennial River

Photo 10: Propose dam basin

Photo 11: Upstream of the proposed dam ecological condition of the non-perennial river.

Table 4: Descriptions of the location of dam in relation to mapped non-perennial river

Characteristics	Dam site	Upstream area	Downstream area
Significance of the point	This point is to be used as a reference point for the site. Any degradation from this point would serve as an indication of impacts on the surrounding area.	This point is to be used as a reference point for the site. Any degradation from this point would serve as an indication of impacts on the surrounding area.	This point is to be used as a reference point for the site. Any degradation from this point would serve as an indication of impacts on the surrounding area.
Surrounding anthropogenic activities	The site is situated at the area where the dam will impact on the non-perennial river.	The site is situated upstream where the dam will impact the non-perennial river.	The site is situated downstream where the dam will impact the non-perennial river.
Riparian zone characteristics	Limited riparian at this point and it is characterised by *Typha capensis* in the existing constructed dam basin and alien grasses (*Avena sativa*) as a result of the current and past agricultural activities in the area. Patches of *Eucalyptus camaldulensis* were recorded in the dam basin area. A small area of approximately 3% (floodplain of the non-perennial river) of the dam basin area where *Wurmbea stricta* is	Limited riparian at this point as a result of the onsite agricultural activities and upstream impacts on the non-perennial river such as the dam, channelization and road crossing. The vegetation is commonly dominated by alien grasses (*Avena sativa*) as a result of the current and past agricultural activities in the area. It is typically dominated by the *Juncus lomatophyllus* in the instream zone. Other species associated with the non-perennial river and its floodplain is *Pauridia aquatica* and *Zantedeschia aethiopica*.	Limited riparian at this point. The Berg River in the area are typically dominated by the common reed *Phragmites australis* in the instream zone and invasive alien trees such as River gums (*Eucalyptus camaldulensis*) and Port Jackson willows (*Acacia saligna*) dominating the riparian zones.

	dominant, was recorded. This area was the only area recorded that have natural wetter soils in winter as it is in the floodplain of the non-perennial river. The artificial dam area is the other area were plant species that is an indication of wet soils were recorded. *Wurmbea stricta* is common in the bigger area and was also recorded in areas where water logging occurs during winter next to constructed agricultural engineered contours and water discharged points at these outlets.		

Terrestrial Ecology:

The study area according to Mucina and Rutherford (2006) lies within the Fynbos Biome and would have consisted largely of Swartland Shale Renosterveld (Critically endangered). Much of this natural vegetation has been replaced by cultivated crops with remnants only remaining within the non-perennial river and its floodplain areas. The Berg River in the area are typically dominated by the Common reed *Phragmites australis* in the instream zone and invasive alien trees such as River gums *Eucalyptus camaldulensis* dominating the riparian zones. The natural Fynbos Riparian Vegetation associated with the Berg River is virtually non-existent in the current project area as a result of its destruction through farming activities and the clearing of the consequent invasion by exotic (alien) invader species such as *Eucalyptus camaldulendsis*, *Salix babylonica* and European annual grasses, such as *Avena sativa*.

An area with poor to moderate Swartland Shale Renosterveld vegetation occurs upstream of the proposed dam and its catchment basin. The vegetation is commonly dominated by alien grasses (*Avena sativa*) as a result of the current and past agricultural activities in the area. It is typically dominated by the *Juncus lomatophyllus* in the instream zone. Other species associated with the non-perennial river and its floodplain are *Pauridia aquatica* and *Zantedeschia aethiopica*. The following plant species were recorded in this area: *Amarylis belladona, Androcymbium capense, Asparagus capensis, Babiana odorata, Cyanella hyacinthoides, Dimorphotheca pluvialis, Empodium gloriosum, Eriocephalus africanus, Geishoriza aspera, Gladiolus alatus, Hermannia trifurca, Hermannia althaeifolia, Heamanthus coccineus, Indigofera incana, Ixia lutea, Lachenalia contaminata, Lachenalia unifolia, Lachenalia unicolour, Limeum africanum, Moreae polystachya, Moraea aspera, Moraea gawleri, Moraea fugacissima, Moraea fugax, Microloma sagittatum, Ornithogalum thyrsoides, Onixotis stricta, Oxalis hirta, Oxalis pes-caprea, Pelargonium triste, Romulea flava, Romulea tabularis, Spiloxene capensis, Spiloxene aquatica, Tetragonia herbacea, Wurmbea stricta* and *Zantedeschia aethiopica.* This area will not be impacted by the dam.

Limited riparian vegetation was recorded on the area that will be impacted by the dam wall and

catchment basin as a result of the onsite agricultural activities and upstream impacts on the non-perennial river such as the dam, channelization and road crossing. Riparian vegetation is characterised by *Typha capensis* in the existing constructed dam basin and alien grasses (*Avena sativa*) as a result of the current and past agricultural activities in the area. Patches of *Eucalyptus camaldulensis* were recorded in the dam basin area. A small area of approximately 3% (floodplain of the non-perennial river) of the dam basin area where *Wurmbea stricta* is dominant, was recorded. This area was the only area recorded that have natural wetter soils in winter as it is in the floodplain of the non-perennial river. The artificial dam area is the other area were plant species that is an indication of wet soils were recorded. *Wurmbea stricta* is common in the bigger area and was also recorded in areas where water logging occurs during winter next to constructed agricultural engineered contours and water discharged points at these outlets.

The area that will be impacted by the dam was classified having a poor ecological status.

Source - Appendix G1: Ecological Assessment

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 property is zoned as Agriculture and is predominantly used as such. The old dam and old dam wall is still evident on the property, the old dam has long since been washed away.

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 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):	Agri-processing facility is located north of the proposed development.			

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

The proposed development is located approximately 9.4km northwest of the town of Gouda.

The closest homesteads are located on the property about 150m away from the proposed dam. Agricultural activities surround the property on all sides with the bergriver running on the western boundary of the property.

Agri-Industries in relation to the proposed development:
- Grassroots Group Agri-processing is located 300m north of the proposed dam.

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.*).

Drakenstein Local Municipality is a Category B municipality and is situated in the Cape Winelands District of the Western Cape and is approximately 60km east of the Cape Town Central Business District.

The Municipality is strategically located on the national road and railway routes to the rest of South Africa and effectively forms the gateway to the City of Cape Town. The Drakenstein Municipality covers an area of 1,538 km² and comprises of the towns of Paarl, Wellington, Saron, Gouda, Hermon, Mbekweni and Simondium.

It is a strong economic centre of the region, with a strong agricultural, tourism, light manufacturing industry and business services base and has recorded positive economic growth over the period 2001 to 2009.

The Drakenstein Municipality stretches from just south of the N1 freeway including Simondium in the south up to and including Saron in the north. The Klein Drakenstein, Limiet and Saron Mountain range from its eastern edge and the agricultural area immediately to the west of the R45 its western border. Paarl and Wellington are the main urban centres in the Municipality located in close proximity to the N1 in the south with smaller rural settlements at Saron and Gouda in the north and Hermon in the mid-west.

Paarl
In the Drakenstein Municipal Jurisdictional Area Paarl, fondly known as the "Pearl of the Cape", is the major centre. Paarl is nestled in a fertile valley, along the banks of the Bergrivier. It is traditionally a farming town with many well maintained and attractive Cape Dutch houses, beautiful gardens and streets lined with old oak trees. Paarl has the longest main road (±10km) in South Africa, lined with fascinating examples of architectural history. Here you can find scenic drives, hiking trails and the Paarl wine route, with its many wine tasting opportunities and excellent restaurants. The Paarl Rock itself is popular for rock climbers.

Demographic Trends
The Drakenstein Municipality has the largest proportion of persons among municipalities in the Cape Winelands District Municipal (CWDM) Area at 31.9%. It the second most densely populated municipality with 163 persons living within a km², following behind Stellenbosch which has 187 living within a km². The Census 2011 data provided by Statistics South Africa (Stats SA) indicates that the

greatest proportion of the population in the municipality, with 44.6% of the 251,262 people residing in Paarl. The second most populous area is Wellington with 22.1%, followed by Drakenstein Non-Urban (NU) with 14.7% and then Mbekweni with 12.3%.

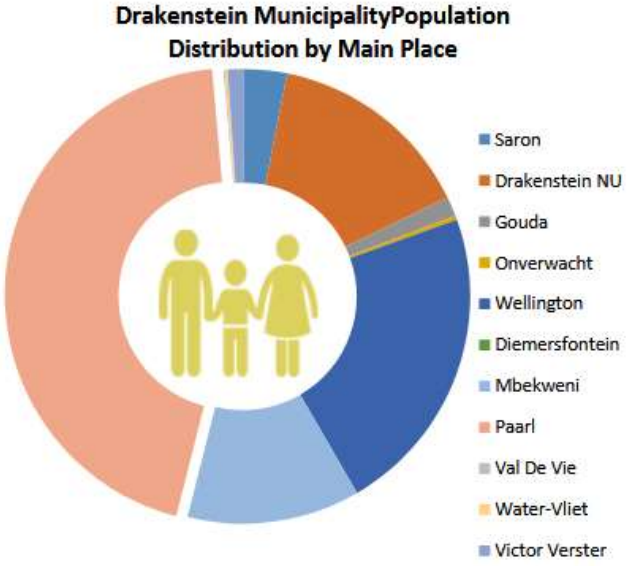


Figure 2.3: Population by main place

Population Distribution by Main Place: Census 2011	
Main Place	Percentage
Diemersfontein	0.0
Val De Vie	0.1
Water-Vliet	0.2
Onverwacht	0.3
Victor Verster	1.1
Gouda	1.4
Saron	3.1
Mbekweni	12.3
Drakenstein Non-Urban	14.7
Wellington	22.1
Paarl	44.6

Table 2.1: Population by main place

Key Economic Activities

The Community Survey of 2007 highlighted that the biggest specified employment contributors in 2007 were:

Key Economic Activities	%
Agriculture, hunting, forestry and fishing	16.7
Manufacturing	15.1
Community, Social and Personal Services	13.4
Wholesale and retail trade	11.1
Unspecified	19.8
Not adequately defined	5.8

The Municipal Economic Review & Outlook Report (MERO 2015) reports that, from a sectoral perspective, the financial and business services sector was the fastest growing sector in the region, both in terms of GDPR growth (6,7 percent) and employment creation (4,0 percent) over the period 2010 – 2013. Other sectors that grew above or equal to average during the 2000 – 2013 period are the construction sector (6,5 percent), wholesale and retail catering and accommodation sector (5,2 percent), transport storage and communication (5,8 percent) and the community, social and personal services sectors (3,7 percent).

In terms of providing services in the abovementioned objectives the Unit achieved the following:

- Establishment of Red Tape Reduction Steering Committee and the development of a LED Charter to mainstream LED throughout the organisation
- Development of informal trading markets in Paarl CBD and Arendsnes
- Creation of 1,000 work opportunities through the EPWP and CWP Projects and
- Establishment of LTO as vehicle to develop tourism in the Drakenstein.

Major Natural Resources

Major Natural Resources	Relevance to community
Berg River and tributaries	Important irrigation ,recreation and tourism feature
Paarl Mountain Reserve	Significant tourist and cultural asset
Arboretum	Scientific research and recreation
Several mountain Ranges	Water provision, recreation, contribution towards agriculture
Agriculture	Major employer of low skilled labour, export and local markets are serviced. Contributes towards local economy.

The Cape Winelands District economy has firm agricultural origins, the importance of which continues today and is reflected in the fact that one fifth of the region's work force is employed in this sector. Over the years, this sector has developed strong backward and forward linkages with manufacturing and services industries and the contemporary growth vehicle appears to be agri-tourism, reaching into all Cape Winelands District municipal areas.

The direct tourism linkage to agriculture is not high (4% of inputs into the tourism sector derives from agriculture), but the indirect value tourism has for the wine industry is related to the exposure local wines get to international markets and the marketing aspect of the tourism industry. The restaurant and tourist activity on wine farms also supplements the income of wine farmers and this in turn may be transferred to the agricultural sector. Also the presence of wine farms in the Cape Winelands District is a major attraction for tourism and this will boost expenditure on hotels and restaurants in the District which may be unrelated to the wine industry.

Socio Economic Indicators
The socio-economic information for the Municipal Area is as follows:

Housing Backlog	Unemployment Rate (%)	Households with No Income (%)	People older than 14 years illiterate (%)	HIV/AIDS Prevalence (%)
22,748	23	52.7	26	HIV: 8,151

Service delivery challenges
The following challenges are experienced by the municipality:
Environment
- Increasing number of illegal activities by inhabitation of Drakenstein leading to degradation of the environment.
- Lack of co-ordination between Departments in Drakenstein in ensuring the protection of the environment.
- Limited capacity for environmental education and awareness.

Infrastructure and Backlogs
- The major challenges within Waste Services are the limited airspace available at the Drakenstein
- Landfill Facility at Wellington and also the limited hydraulic load at the Wellington Wastewater
- Treatment Works. This will however be addressed in the 2015/16 and future financial years.
- The lack of highly qualified skilled personnel is also a concern especially at the landfill facility, wastewater treatment, potable water treatment, municipal plumbing, operations and technical staff.
- Delays in Environmental approvals.

Housing
- Delays in implementation of Housing Projects due to community dynamics.
- The condition of rental stock requires urgent attention. Funding and sufficient budget, however, remain a challenge link to the low rental collection rates;
- Illegal electricity connections by in informal settlements still continues to cause financial losses
- Farm worker evictions is reaching critical levels for which the Municipality has to seek financial

support from other spheres of government in order to provide emergency housing to meet the demand
- The difficulties posed by the Prevention of Illegal Evictions Act hinders the Municipality in its efforts to evict illegal occupants
- Impatient applicants on the waiting list who fail to accept the allocation processes are also a problem;
- Limited funding available to increase housing delivery continues to impact roll-out.
- Absence of sufficient land and bulk services capacity;
- Increase in erection of informal dwellings (linked to the lack of capacity to effectively monitor the erection);

Governance and capacity
- Ever increasing legislative requirements and compliance requirements.
- Retention and attraction of scarce skills technical personnel.
- Protracted procurement processes.
- Motivating staff to live by the Batho Pele Principles.

Safety and Security
- Law Enforcement: Rendering a 24 hour security service to municipal premises.
- Visible Traffic and Law Enforcement throughout the Municipal Area.
- Traffic and Licence capacity
- Fire and Rescue capacity
- Disaster Management

Social and Community Development
- Food security
- Youth
- Early Childhood Development
- Lack of play parks, libraries and other amenities.
- Substance Abuse

Source: Drakenstein Municipality Integrated Development Plan (IDP)2016/17 Revision

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:	Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), is applicable to the proposed development as the expansion of the site exceeds 10 000m^2 in extent.		
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:	The development will not impact on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999.		
Will any building or structure older than 60 years be affected in any way?	~~YES~~	NO	UNCERTAIN
If YES or UNCERTAIN, explain:	No building or structure older than 60 years will be impacted in any way.		
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:	No archaeologically significant resources were found during the foot survey. The site is ploughed and planted.		

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, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**ADMINISTERING AUTHORITY and how it is relevant to this application**	**TYPE Permit/license/authorisation/comment / relevant consideration** (*e.g.* rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, *etc.*)	**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	In Process
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	Western Cape Department of Environmental Affairs and	Waste Management Licence Application	NA

[NEMWA] and relevant regulations	Development Planning		
National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA]	Western Cape Department of Environmental Affairs and Development Planning		NA
National Environmental Management: Air Quality Act, 39 Of 2004 [NEMAQA] and Relevant Regulations	Western Cape Department of Environmental Affairs and Development Planning	NA	NA
National Water Act, 1998 (Act No. 36 of 1998) [NWA] and relevant regulations	Department of Water and Sanitation	Section 21 Application.	In Process
Conservation Of Agricultural Resources Act, 43 Of 1983 [CARA]	National Department of Agriculture, forestry and Fisheries Western Cape Department of Agriculture	Weeds and the tolerance thereof.	NA
National Health Act, 61 of 2003 [NHA]		Littering and causing a nuisance.	NA
Constitution of the Republic of South Africa, 1996		General application to individual rights of all on and adjacent to the sites.	NA
Fencing Act, 31 of 1963		NA	NA
National Building Regulations and Building Standards Act 103 of 1977 [NBRBSA]and relevant regulations		NA	NA
National Heritage Resources Act 25 of 1999 [NHRA]	Heritage Western Cape South African Heritage Resource Agency	HWC NID submitted.	Final Comment Received
National Veld and Forest Fire Act 101 of 1998 [NVFFA]		NA	NA
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	NA	NA
Western Cape Noise Control Regulations [P.N. 200/2003]		Operation of the facility must comply with the requirements of these regulations.	NA

(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:**
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

Circular EADP 0028/2014: "One Environmental Management System".	Western Cape Department of Environmental Affairs and Development Planning

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 Winelands District Municipality	Await Comment.		
CapeNature			
DEA&DP: Development Management (Competent Authority)			

DEA&DP: Pollution and Chemical Management	
DEA&DP: Waste Management	
Department of Agriculture, National Department	
Department of Agriculture, Western Cape	
Department of Water and Sanitation	
Drakenstein Heritage Foundation	
Drakenstein Local Municipality	
Heritage Western Cape	
Lower Bergriver Irrigation Board	

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**).

REGISTRATION PERIOD

Heritage Western Cape

You are hereby notified that, since there is no reason to believe that the proposed dam will impact on heritage resources, no further action under Section 28 of the National Heritage Resources Act (Act 25 of 1999) is required.

DEADP: Development management

Acknowledgement of NoI.

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.

Heritage Western Cape

Should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately, and Heritage Western Cape must be notified without delay.

DEADP: Development management

NA

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
The property is zoned as Agriculture and the application is for the expansion of an existing dam on agricultural land.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("**PSDF**").	YES	~~NO~~	Please explain
The application is for the expansion of an existing dam of agricultural land.			
(b) Urban edge / edge of **built environment** for the area.	~~YES~~	NO	Please explain
The area is outside the approved urban edge.			
(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 application is for the expansion of an existing dam of agricultural land.			
(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
In line with the EMF adopted for the area.			
(e) Any **other** Plans (*e.g.,* Integrated Waste Management Plan (for waste management activities), *etc.*)).	YES	~~NO~~	Please explain
The application is for the expansion of an existing dam of agricultural land.			
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 application is for the expansion of an existing dam of agricultural land.			
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 application is for the expansion of an existing dam of agricultural land.			
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 application is for the expansion of an existing dam of agricultural land. The abstraction of water from the Bergriver falls within the applicants existing lawful water use as included as part of the Engineering Report in Appendix K2.			
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
No services are required for the activity.			

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
No services are required for the activity.			
8. Is this project part of a **national programme** to address an issue of national concern or importance?	YES	~~NO~~	Please explain
The application is for the expansion of an existing dam of agricultural land.			
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 application is for the expansion of an existing dam of agricultural land.			
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
The site is located in the Berg River catchment (DWS Primary Drainage Region G)[2]. The proposed water uses would pass through sections of the G10F quaternary catchment which is drained primarily by the Berg, Diep and Steenbras rivers. The tributary in which the proposed water uses is planned flow into the Berg river. The natural vegetation on site used to be Swartland Shale renosterveld (Critically Endangered conservation status), (Refer to figure 2 below). The impacted and surrounding area is however mostly transformed and disturbed as a result of previous agricultural activities. The non-perennial river in which the proposed dam expansion is planned was identified as 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 (CBAs) and Protected Areas. The Berg River adjacent and downs stream to the dam expansion site was identified as an Aquatic CBA and its buffer areas as an ESA. The proposed dam expansions are however outside the CBA and ESA areas identified. The dam wall and catchment of the dam will be outside the Berg River flood plain and buffer areas. ***Source - Appendix G1: Ecological Assessment***			
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 application is for the expansion of an existing dam of agricultural land.			
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 application is for the expansion of an existing dam of agricultural land.			
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?			
Positive: • Job creation; • Water security during summer months. **Negative:** • Soil and dust erosion; • Loss of freshwater ecological habitat; • Degradation / loss of naturally occurring / indigenous flora and habitats • Flow modification; • Water quality impairment • Impact on archaeological, paleontological and heritage remains, etc.			
14. Is the development the **best practicable environmental option** for this land/site?	YES	~~NO~~	Please explain
The application is for the expansion of an existing dam of agricultural land.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The application is for the expansion of an existing dam of agricultural land.			
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:			

[2] Department of Water and Sanitation, South Africa. January 2017. Determination of Water Resources Classes and Resource Quality Objectives in the Berg Catchment: Evaluation of Scenarios Report. Report No: RDM/WMA9/00/CON/CLA/0417.

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

1. 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:

The proposal is for the expansion of an existing dam on agricultural land.

The site chosen for the proposed dam is based on the location of the existing dam and the non-perennial river. Based on the engineering report (Appendix K2) there is limited options available for the dam to be located on the property due to the relative flat topography of the site.

Motivation:
The proposed dam expansion is the only viable and feasible option to increase water capacity on the farm, as the dam can be expanded with minimal negative implications as a result. The impacts of the proposed dam expansion have been assessed and it will not differ from that of the existing dam (whilst it was in operation). The dam expansion is critical to ensure that water demands in summer months are met.

(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:

The activity applied for in this application is **EXPANSION** of the existing activity conducted on the property.

No other reasonable or feasible activity alternative exists except the no-go option.

(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:

The layout of the proposed dam is highly dependent on the site topography which is informed by the engineering report in Appendix K2.

(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:

No feasible or reasonable technological alternatives exist for the activities proposed.

(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:

An operational Maintenance Management Plan has been included as part of the EMP for the maintenance of the in-stream dam. The operational MMP is to be approved by the department prior to the commencing of the activity. The MMP will provide specific guidelines to avoid negative impacts and to mitigate any unavoidable negative impacts.

The EMP and MMP serve as guidelines for activities to minimise the activities negative impacts.

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

The no-go option would result in the current dams to remain as they presently are, washed away and not collecting water allocated to the property for the dry summer months. This would result in unnecessary demand on other water sources to the property and potentially a reduction in agricultural potential of the property.

(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:

No additional alternatives to avoid negative impacts were considered.

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

Location alternative: The proposal is for the expansion of an existing dam on agricultural land.

The site chosen for the proposed dam is based on the location of the existing dam and the non-perennial river. Based on the engineering report (Appendix K2) there is limited options available for the dam to be located on the property due to the relative flat topography of the site.

Activity alternative: The activity applied for in this application is **EXPANSION** of the existing activity conducted on the property.

No other reasonable or feasible activity alternative exists except the no-go option.

Layout alternative: The layout of the proposed dam is highly dependent on the site topography which is informed by the engineering report in Appendix K2.

Technology alternative: The layout of the proposed dam is highly dependent on the site topography which is informed by the engineering report in Appendix K2.

Operational alternative: An operational Maintenance Management Plan has been included as part of the EMP for the maintenance of the in-stream dam. The operational MMP is to be approved by

the department prior to the commencing of the activity. The MMP will provide specific guidelines to avoid negative impacts and to mitigate any unavoidable negative impacts.

The EMP and MMP serve as guidelines for activities to minimise the activities negative impacts.

No-Go option: The no-go option would result in the current dams to remain as they presently are, washed away and not collecting water allocated to the property for the dry summer months. This would result in unnecessary demand on other water sources to the property and potentially a reduction in agricultural potential of the property.

(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:

The proposal is for the expansion of an existing dam on agricultural land. Based on the alternatives considered above it is clear that the locality, activity, layout, technology and operation as proposed is the best reasonable and feasible alternative. The alternatives investigated specifically regarding activity and technology in the relevant sections above is not feasible or viable in this instance and therefore should not be considered.

1. PREFERRED ALTERNATIVE

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

The preferred and only alternative to be considered (other than the no-go option) is as follows:

The establishment of a new dam wall with the following specifications:
Wall height = 4.9m
Crest length = 143m
Potential gross capacity = 55 000m^3

The existing dam structure must be completely removed and rehabilitated.

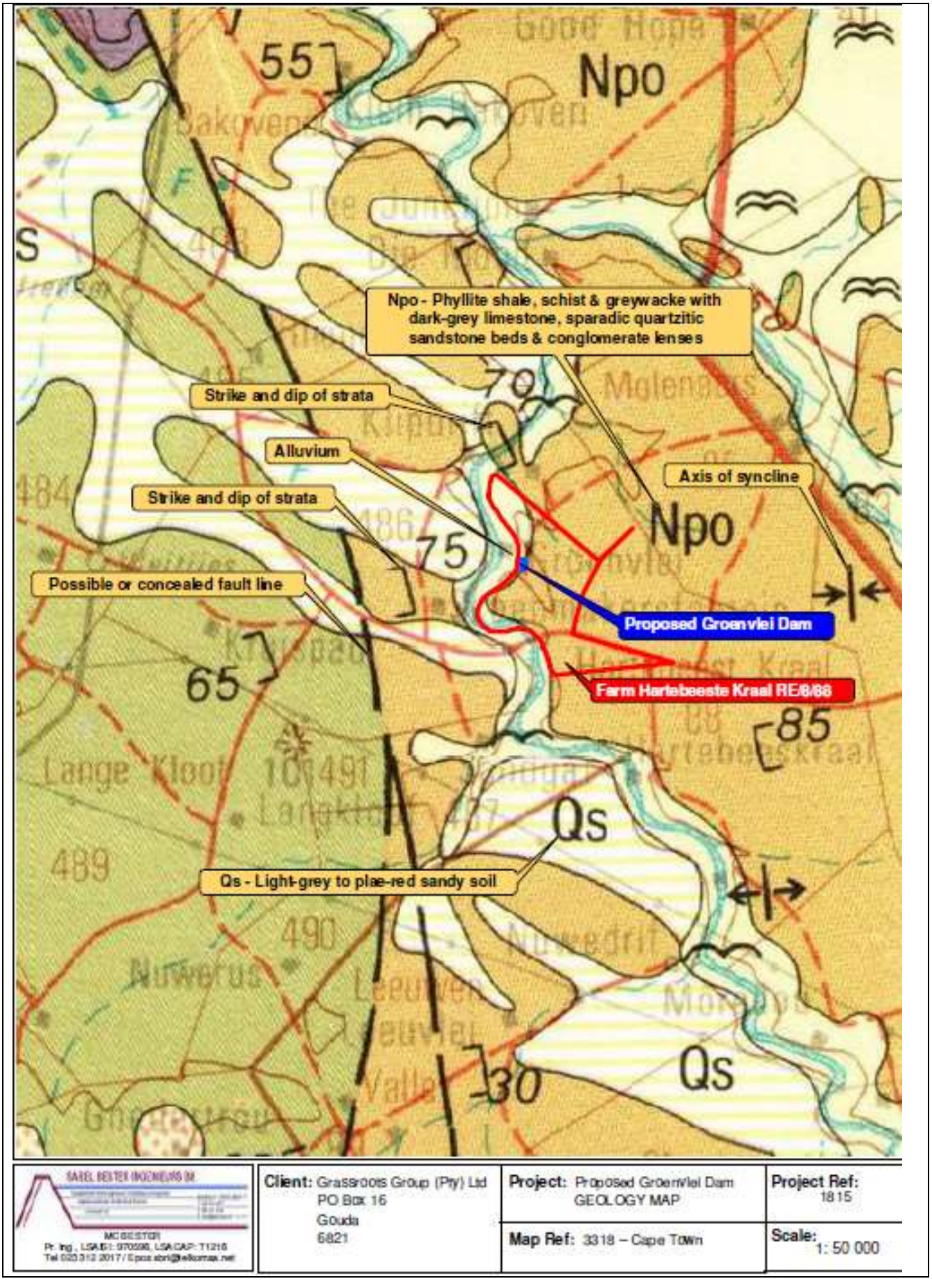
SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

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 property has a relatively flat topography with a slope classification of 0 – 3%.
The 1:250 000 Geological Map (3318Kaapstad) of South Africa describes the local and surrounding formations as follows:
Npo *~ Phyllite shale, schist and greywacke with dark-grey limestone, sporadic quartzitic sandstone beds and conglomerate lenses*
m *~ Alluvium*
Qs *~ Lightgrey to pale-red sandy soil*


55
Npo
S
Npo - Phyllite shale, schist & greywacke with dark-grey limestone, sparadic quartzitic sandstone beds & conglomerate lenses
70
Strike and dip of strata
Alluvium
Axis of syncline
Strike and dip of strata
75
Npo
Possible or concealed fault line
Proposed Groenvlei Dam
65
Farm Hartebeeste Kraal RE/8/88
85
Qs
Qs - Light-grey to plae-red sandy soil
Qs
30
Client: Grassroots Group (Pty) Ltd
PO Box 16
Gouda
6821
Project: Proposed Groenvlei Dam
GEOLOGY MAP
Project Ref: 1815
Map Ref: 3318 – Cape Town
Scale: 1: 50 000

(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 site is located in the Berg River catchment (DWS Primary Drainage Region G)[3]. The proposed water uses would pass through sections of the G10F quaternary catchment which is drained primarily by the Berg, Diep and Steenbras rivers. The tributary in which the proposed water uses is planned flow into the Berg river. The natural vegetation on site used to be Swartland Shale renosterveld (Critically Endangered conservation status), (Refer to figure 2 below). The impacted and surrounding area is however mostly transformed and disturbed as a result of previous agricultural activities.

The non-perennial river in which the proposed dam expansion is planned was identified as 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 (CBAs) and Protected Areas. The Berg River adjacent and downs stream to the dam expansion site was identified as an Aquatic CBA and its buffer areas as an ESA. The proposed dam expansions are however outside the CBA and ESA areas identified. The dam wall and catchment of the dam will be outside the Berg River flood plain and buffer areas.

Source - Appendix G1: Ecological Assessment

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 non-perennial river in which the proposed dam expansion is planned was identified as Ecological Support Areas (ESAs) in the latest Western Cape Biodiversity Spatial Plan (2017).

100% of the proposed development has the following Ecosystems Threat Status
Name: Swartland Shale Renosterveld
Status 2016: CR (A1 and D1)
Status 2014: Critically Endangered (CR)
Status 2011: CR

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 study area according to Mucina and Rutherford (2006) lies within the Fynbos Biome and would have consisted largely of Swartland Shale Renosterveld (Critically endangered). Much of this natural vegetation has been replaced by cultivated crops with remnants only remaining within the non-perennial river and its floodplain areas. The Berg River in the area are typically dominated by the Common reed *Phragmites australis* in the instream zone and invasive alien trees such as River gums *Eucalyptus camaldulensis* dominating the riparian zones. The natural Fynbos Riparian Vegetation associated with the Berg River is virtually non-existent in the current project area as a result of its destruction through farming activities and the clearing of the consequent invasion by exotic (alien) invader species such as *Eucalyptus camaldulendsis*, *Salix babylonica* and European annual grasses, such as *Avena sativa*.

An area with poor to moderate Swartland Shale Renosterveld vegetation occurs upstream of the proposed dam and its catchment basin. The vegetation is commonly dominated by alien grasses (*Avena sativa*) as a result of the current and past agricultural activities in the area. It is typically dominated by the *Juncus lomatophyllus* in the instream zone. Other species associated with the non-perennial river and its floodplain are *Pauridia aquatica* and *Zantedeschia aethiopica*. The following plant species were recorded in this area: *Amarylis belladona, Androcymbium capense, Asparagus capensis, Babiana odorata, Cyanella hyacinthoides, Dimorphotheca pluvialis, Empodium gloriosum, Eriocephalus africanus, Geishoriza aspera, Gladiolus alatus, Hermannia trifurca, Hermannia althaeifolia, Heamanthus coccineus, Indigofera incana, Ixia lutea, Lachenalia contaminata, Lachenalia unifolia, Lachenalia unicolour, Limeum africanum, Moreae polystachya, Moraea aspera, Moraea gawleri, Moraea fugacissima, Moraea fugax, Microloma sagittatum, Ornithogalum*

[3] Department of Water and Sanitation, South Africa. January 2017. Determination of Water Resources Classes and Resource Quality Objectives in the Berg Catchment: Evaluation of Scenarios Report. Report No: RDM/WMA9/00/CON/CLA/0417.

thyrsoides, Onixotis stricta, Oxalis hirta, Oxalis pes-caprea, Pelargonium triste, Romulea flava, Romulea tabularis, Spiloxene capensis, Spiloxene aquatica, Tetragonia herbacea, Wurmbea stricta and *Zantedeschia aethiopica*. This area will not be impacted by the dam.

Limited riparian vegetation was recorded on the area that will be impacted by the dam wall and catchment basin as a result of the onsite agricultural activities and upstream impacts on the non-perennial river such as the dam, channelization and road crossing. Riparian vegetation is characterised by *Typha capensis* in the existing constructed dam basin and alien grasses (*Avena sativa*) as a result of the current and past agricultural activities in the area. Patches of *Eucalyptus camaldulensis* were recorded in the dam basin area. A small area of approximately 3% (floodplain of the non-perennial river) of the dam basin area where *Wurmbea stricta* is dominant, was recorded. This area was the only area recorded that have natural wetter soils in winter as it is in the floodplain of the non-perennial river. The artificial dam area is the other area were plant species that is an indication of wet soils were recorded. *Wurmbea stricta* is common in the bigger area and was also recorded in areas where water logging occurs during winter next to constructed agricultural engineered contours and water discharged points at these outlets.

The area that will be impacted by the dam was classified having a poor ecological status.
Source - Appendix G1: Ecological Assessment

Describe the manner in which any other biological aspects will be impacted:		
Impacts on biological aspects are not considered to be significant if strict adherence to the EMPr is implemented.		
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.

NA

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	R Unknown	
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	R Unknown	
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?	Unknown	
What is the expected value of the employment opportunities during the development phase?	Unknown	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown	
How will this be ensured and monitored (please explain):		
Audited in terms of the authorizations.		

How many permanent new employment opportunities will be created during the operational phase of the project?	Unknown
What is the expected current value of the employment opportunities during the first 10 years?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown

How will this be ensured and monitored (please explain):
Audited in terms of the authorizations.
Any other information related to the manner in which the socio-economic aspects will be impacted:
NA

(d) Heritage and Cultural aspects:

Notice of Intent to Develop has been submitted to Heritage Western Cape to determine impacts and specialist studies required in terms of cultural and historical aspects potentially to be impacted upon. HWC has commented that no further action would be required. However should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the excavation of the activities above all works must be stopped immediately an Heritage Western Cape must be notified without delay. ***See Appendix E1**

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?		0m^3
All non-recyclable waste will be removed from site to a licensed landfill site. Waste that can be recycled will be used where possible.		

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?		m^3
Hazardous waste must not be disposed at a waste disposal facility but must be disposed at a hazardous waste handling and disposal facility (i.e. Vissershok). Hazardous waste however is not expected.		
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?		m^3
Some builder's rubble may be generated during the dam wall construction. This however will be minimal. Builder's rubble generated that cannot be used on site will be collected and disposed of at a licenced waste disposal facility. The application is for a dam expansion. No waste will be produced in the operational phase.		
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?		m^3
No waste will be generated. This application is for a dam expansion.		
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.**NA**	~~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? **NA**	~~YES~~	~~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. **NA**	~~YES~~	~~NO~~
Does the facility have an operating license? (If yes, please attach a copy of the licence.) **NA**	~~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:
No waste will be generated. This application is for a dam expansion.

(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?		m^3
Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:		
NA		

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:	55 000	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.		

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
There is an existing lawful water use for the taking of water as confirmed by the Lower-Bergriver Irrigation Board (see letter in Appendix K2). The development however falls within the regulated area and a water use application I terms of this activity would also be required prior to the construction of the proposed dam.

4. POWER SUPPLY

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

NA

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

NA

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.

Not applicable. The Application is for the expansion of an existing dam.

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

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

Noise during construction will occur. This will be mitigated in accordance with the EMPr. Noise would be temporary after which the noise on the property will return to normal as per activities conducted on the property.

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

8. OTHER

NA

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 irreplaceable loss of resources	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 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 environmental and ecosystems aspects.

(c) Please describe the underlying assumptions.

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

- The information provided by the Client/Applicant 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 EMPr 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 (Sarel Bester Ingenieurs BK) and as collected by the EAP during desktop studies, literature review etc. has been used to inform the current development proposal.

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.

Dam Expansion:	**Development Phase:** • Soil erosion and dust **(Low impact prior to mitigation and low impact with mitigation)**; • Loss of freshwater ecological habitat **(Medium impact prior to mitigation and low impact with mitigation)**; • Degradation / loss of naturally occurring / indigenous flora and habitats **(Medium impact prior to mitigation and low impact with mitigation)**; • Water quality impairment **(Low impact prior to mitigation and low impact with mitigation);**

	• Increase in jobs **(Low- POSITIVE)**; • Impact on archaeological, paleontological and heritage remains **(Low impact prior to mitigation and low impact with mitigation)**. **Operational Phase:** • Flow modification **(Low impact prior to mitigation and low impact with mitigation).** **Decommissioning and Closure Phase:** • Soil erosion and dust **(Low impact prior to mitigation and low impact with mitigation)**; • Loss of freshwater ecological habitat **(Medium impact prior to mitigation and low impact with mitigation)**; • Degradation / loss of naturally occurring / indigenous flora and habitats **(Medium impact prior to mitigation and low impact with mitigation)**; • Water quality impairment **(Low impact prior to mitigation and low impact with mitigation);** • Increase in jobs **(Low- POSITIVE)**; • Impact on archaeological, paleontological and heritage remains **(Low impact prior to mitigation and low impact with mitigation)**.
No-go Alternative:	The No-Go option will result in the site remaining as is presently.

(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).

SEE IMPACT TABLES INCLUDED AS APPENDIX J

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

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

The preferred and only alternative to be considered (other than the no-go option) is for the **expansion** of an existing instream dam.

This will consist of the establishment of a new dam wall with the following specification:
Wall height = 4.9m
Crest length = 143m
Potential gross capacity = 55 000m^3

(d) Outcome of the site selection matrix.

The preferred and only alternative to be considered (other than the no-go option) is as follows:
Development Phase:
- Soil erosion and dust **(Low impact prior to mitigation and low impact with mitigation)**;
- Loss of freshwater ecological habitat **(Medium impact prior to mitigation and low impact with mitigation)**;
- Degradation / loss of naturally occurring / indigenous flora and habitats **(Medium impact prior to mitigation and low impact with mitigation)**;
- Water quality impairment **(Low impact prior to mitigation and low impact with mitigation);**
- Increase in jobs **(Low- POSITIVE)**;
- Impact on archaeological, paleontological and heritage remains **(Low impact prior to mitigation and low impact with mitigation)**.

Operational Phase:

- Flow modification **(Low impact prior to mitigation and low impact with mitigation).**

Decommissioning and Closure Phase:

- Soil erosion and dust **(Low impact prior to mitigation and low impact with mitigation)**;
- Loss of freshwater ecological habitat **(Medium impact prior to mitigation and low impact with mitigation)**;
- Degradation / loss of naturally occurring / indigenous flora and habitats **(Medium impact prior to mitigation and low impact with mitigation)**;
- Water quality impairment **(Low impact prior to mitigation and low impact with mitigation);**
- Increase in jobs **(Low- POSITIVE);**
- Impact on archaeological, paleontological and heritage remains **(Low impact prior to mitigation and low impact with mitigation)**.

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.

Ecological Assessment
N. Hanekom – Eco Impact Legal Consulting (Pty) Ltd

Eco Impact Legal Consulting (Pty) Ltd was 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 main water features within the study area comprise of the Berg River and its minor tributary.

There are no significant wetland habitats within the study area. Those that do occur are closely associated with the watercourses in which they occur. The following comments are made with regards to the wetland habitats in the area:

- The only wetland habitat associated with the dam site is the artificial one as a result of the existing dam; and
- The Berg River approximately 50m downstream of the site consists largely of valley bottom wetland habitat. This wetland habitat is closely associated with the Berg River and the proposed dam will not have any impact on it.

From the assessment of freshwater features within the study area, it can be concluded that there are no significant freshwater features that would potentially be impacted by the proposed dam. The valley bottom wetland downstream of dam site associated with the Beg River will not be impacted. No water will be required to be released from the dam to maintain the downstream channel. The Berg River, when flowing in winter, will push water upstream into the non-perennial river towards the dam wall to maintain the downstream river ecological functioning.

The Department of Water and Sanitation, Western Cape Regional Office should be approached for approval of the water use aspects of the proposed activities. A risk assessment for the proposed activities that are associated with this project will be included in the final freshwater impact assessment report and Water Use Application after site visit and meeting with DWS officials on site.

Riparian Vegetation Response Assessment Index (VEGRAI)

The score attained for the VEGRAI indicated that the riparian system impacted by the proposed dam falls into the category E and this indicates that the loss of natural habitat, biota and basic ecosystem functions is extensive.

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/marginal ecological importance. The non-perennial river and proposed dam areas was also not identified as a Critical Biodiversity area or important area from a terrestrial ecology and botanical perspective.

The overall Ecological and Importance of the non-perennial river where the proposed dam expansion is planned is assessed to be Low to marginal.

This confirms the assessment results of the NFEPA study and State of the River report findings.

Mitigation measures for inclusion in the EMPr
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. The non-impacted areas of the water courses and wetlands, its riparian zones and 32m buffer areas is regarded as no go and no impact areas.
- Contractor laydown areas and stockpiles to be established outside of the 100m Zone of Regulation implemented around the water courses and wetlands.
- Vehicles to be serviced at the contractor laydown area and all re-fuelling is to take place outside of all relevant zones of regulation
- Care must be taken to ensure that all concrete mixing is done on batter boards or within suitably bunded areas and no cement laden run-off may enter into the preferential surface flow pathway or the downstream ephemeral stream
- Allow only essential construction personnel within 32m of all riparian systems;
- 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.
- Invasive vegetation to be removed during construction (the material that cannot be used for fire wood) 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.
- At no point may construction equipment stand unauthorised within or near the river.
- All excess sediment removed from the watercourses must be utilised as part of the building activities or be removed from site. At no point may this material be dumped on site or within any of the other freshwater features identified within the surrounding area. Topsoil will have a high density of alien invasive seeds which will need to be controlled into the operational phase.
- Soil surrounding the wingwalls must be suitably backfilled and sloped (minimum of a 1:3 ratio) and concrete aprons as well as gabion mattresses should be installed both up and downstream for energy dissipation and sediment trapping.

Operational Phase
- The amount abstracted from the Berg River should be reduced by the amount impeded from the catchment.
- Monitoring of the volume abstracted from the Berg River and that stored within the dam should be undertaken.

Conditions for inclusion in the environmental authorisation
- Appointment of Environmental Control Officer during construction phase.

Monitoring requirements for inclusion in the EMPr or Environmental Authorisation
- On-going aquatic ecological monitoring must take place by a suitably qualified assessor as per the conditions of the Water Use Authorization.

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

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

Positive:

- Job creation;
- Water security during summer months.

Negative:

- Soil and dust erosion;
- Loss of freshwater ecological habitat;
- Degradation / loss of naturally occurring / indigenous flora and habitats
- Flow modification;
- Water quality impairment
- Impact on archaeological, paleontological and heritage remains, etc.

(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.

Development Phase:

- Soil erosion and dust **(Low impact prior to mitigation and low impact with mitigation)**;
- Loss of freshwater ecological habitat **(Medium impact prior to mitigation and low impact with mitigation)**;
- Degradation / loss of naturally occurring / indigenous flora and habitats **(Medium impact prior to mitigation and low impact with mitigation)**;
- Water quality impairment **(Low impact prior to mitigation and low impact with mitigation);**
- Increase in jobs **(Low- POSITIVE)**;
- Impact on archaeological, paleontological and heritage remains **(Low impact prior to mitigation and low impact with mitigation)**.

Operational Phase:

- Flow modification **(Low impact prior to mitigation and low impact with mitigation).**

Decommissioning and Closure Phase:

- Soil erosion and dust **(Low impact prior to mitigation and low impact with mitigation)**;
- Loss of freshwater ecological habitat **(Medium impact prior to mitigation and low impact with mitigation)**;
- Degradation / loss of naturally occurring / indigenous flora and habitats **(Medium impact prior to mitigation and low impact with mitigation)**;
- Water quality impairment **(Low impact prior to mitigation and low impact with mitigation);**
- Increase in jobs **(Low- POSITIVE);**
- Impact on archaeological, paleontological and heritage remains **(Low impact prior to mitigation and low impact with mitigation)**.

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.

The key mitigation measure is impact avoidance. Where adverse impacts cannot reasonably be prevented, construction should be managed through the effective implementation of the Construction EMPr with a strong emphasis on post-construction rehabilitation. Please refer to the EMPr and MMP for more details on the mitigation and management measures.
***See Appendix H - EMPr and MMP for details**

(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.

Note that the proposed activities trigger water uses in terms of the National Water Act, 1998 (Act 36 of 1998). The required water uses are required to be in place prior to commencement of the activity.

(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 EMPr and MMP and the financial cost of all environmental control measures. In accordance with the requirements of the EMPr and MMP, the applicant must ensure that any person acting on their behalf complies with the conditions / specifications contained in this EMPr and MMP. In addition, an Environmental Control Officer would be appointed as the on-site implementing agent and would have the responsibility to ensure that their responsibilities are executed in compliance with the EMPr and MMP. Thus, the applicant has the ability to implement the recommended management, mitigation, and monitoring measures, as appropriate.

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

Not applicable.

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

Not applicable.

(f) 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 environmental impacts, biodiversity and ecosystems aspects.

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

- The information provided by the client 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, 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 Dam is operated in terms of all relevant applicable legislation, the EMPr and MMP.		
(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.		
• The relevant water use licences must be obtained from the department of water and sanitation. • The monitoring and management requirements that will be captured in the Water Use Authorization issued by the Department of Water and Sanitation to protect water resources. ***Mitigation measures for inclusion in the EMPr*** **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. The non-impacted areas of the water courses and wetlands, its riparian zones and 32m buffer areas is regarded as no go and no impact areas.
- Contractor laydown areas and stockpiles to be established outside of the 100m Zone of Regulation implemented around the water courses and wetlands.
- Vehicles to be serviced at the contractor laydown area and all re-fuelling is to take place outside of all relevant zones of regulation
- Care must be taken to ensure that all concrete mixing is done on batter boards or within suitably bunded areas and no cement laden run-off may enter into the preferential surface flow pathway or the downstream ephemeral stream
- Allow only essential construction personnel within 32m of all riparian systems;
- 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.
- Invasive vegetation to be removed during construction (the material that cannot be used for fire wood) 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.
- At no point may construction equipment stand unauthorised within or near the river.
- All excess sediment removed from the watercourses must be utilised as part of the building activities or be removed from site. At no point may this material be dumped on site or within any of the other freshwater features identified within the surrounding area. Topsoil will have a high density of alien invasive seeds which will need to be controlled into the operational phase.
- Soil surrounding the wingwalls must be suitably backfilled and sloped (minimum of a 1:3 ratio) and concrete aprons as well as gabion mattresses should be installed both up and downstream for energy dissipation and sediment trapping.

Operational Phase

- The amount abstracted from the Berg River should be reduced by the amount impeded from the catchment.
- Monitoring of the volume abstracted from the Berg River and that stored within the dam should be undertaken.

Conditions for inclusion in the environmental authorisation

- Appointment of Environmental Control Officer during construction phase.

(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 before 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. That the facility be audited on yearly bases by an external environmental auditor during operations.
- The relevant water use licences must be obtained from the department of water and sanitation.

(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;	5 years
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;	10 years
iii.	the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	10 years
iv.	the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	Unlimited

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX			Confirm that Appendix is attached
Appendix A:	**Locality map**		X
Appendix B:	**Site development plan(s)**		X
	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;		X
Appendix C:	**Photographs**		X
Appendix D:	**Biodiversity overlay map**		X
Appendix E:	**Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.**		NA
	Appendix E1:	**Copy of comment from HWC.**	X
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.**		X
Appendix G:	**Specialist Report(s)**		X
Appendix H1:	**EMPr**		X
Appendix H2:	**MMP**		
Appendix I:	**Additional information related to listed waste management activities (if applicable)**		X
Appendix J:	**If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.**		X
Appendix K:	**Any Other (if applicable).**		X
	Appendix K1: EAP CV		
	Appendix K2: Engineering Report		

SECTION J: DECLARATIONS TO BE SUBMITTED WITH THE FINAL BAR