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

WAGENBOOMSRIVIER & DARLING BRUG IRRIGATION BOARDS: PROPOSED WATER DISTRIBUTION STRUCTURE AND PIPELINE STRUCTURE IN THE SNELRIVER/ WAABOOMSRIVIER

[AUGUST 2018]

REPORT TYPE CATEGORY	REPORT REFERENCE NUMBER	DATE OF REPORT
Pre-Application Basic Assessment Report (if applicable)[1]	16/3/3/6/7/1/B5/2/1358/17 (NOI)	MARCH 2018
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/B5/16/1368/17 (NOI)
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:	Darlingbrug and Wagenboomsrivier Irrigation Boards		
Contact person:	Mr Douglas van Niekerk		
AppPostal address:	P.O. Box 6 Tulbag		
Telephone:	(023)230 1401	Postal Code:	6820
Cellular:	072 305 59221	Fax:	(086)698 8097
E-mail:	lekkerwater@webafrica.org.za		

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	EnviroAfrica		
Person who compiled this Report:	Inge Erasmus under supervision of Bernard De Witt		
EAP Reg. No.:			
Contact Person (if not author):			
Postal address:	P.O. Box 5367 Helderberg		
Telephone:	(021) 851 1616	Postal Code:	7135
Cellular:	0834170800	Fax:	(086)512 0154
E-mail:	admin@enviroafrica.co.za / inge@enviroafrica.co.za		
EAP Qualifications:	Inge – BA Hons Geography and Environmental Studies Bernard - B. Sc. in Forestry and a B. A. (Hons) in Public Administration		

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.

Inge completed her BA Honours Degree in Geography and Environmental Studies at Stellenbosch University in 2016. Before completing her honours degree Inge gained practical experience as a junior environmental consultant at Hatch Goba in Johannesburg from 2014 until 2015. Inge acted as an environmental control officer on a variety of projects in the Northern Cape, conducting environmental compliance audits, as well as being part of a project team working on a major resettlement project for Kumba Iron Ore.
Inge joined EnviroAfrica in February 2017, generally performing duties as an environmental assessment practitioner with regards to NEMA EIA applications. Inge is currently busy with a variety of projects of which include Basic Assessments and Waste License Applications for mining and development related projects in the Northern Cape. She is also in the process of conducting a variety of Scoping and Environmental Impact Assessments for projects in the Western Cape, obtaining Environmental Authorisation for new storage dams as well as new agricultural developments.

Bernard: After qualifying with a B. Sc. in Forestry and a B. A. (Hons) in Public Administration at the University of Stellenbosch Bernard joined the Department of Forestry as an Indigenous Forest Planner in 1983, going on to become Manager of the Table Mountain Reserve with the Cape Town Council. He then joined Cape Nature Conservation (CNC) and headed its Conservation Planning Section before taking up the position of District Manager of the Boland area (inc. the Hottentots Holland and Kogelberg). As a Regional Ecologist, he co-ordinated managerial and scientific inputs into Provincial Nature Reserves in the Boland, Overberg and West Coast regions. For the last four years of his employment he assessed and evaluated development applications, from an environmental perspective, on behalf of CNC (now DEA&DP). Since he left DEA&DP 10 years ago he has been involved in environmental consulting in the private sector as a member of **EnviroAfrica**.

CVs of the EAP Appendix L

EXECUTIVE SUMMARY OF THE BASIC ASSESSMENT REPORT:

Proposed Project:

Agriculture is the backbone of the Cape Winelands District economy. The Agriculture sector contributes to 24% of the formal employment opportunities which makes the sector essential to the livelihoods of the local residents.

Darling brug and Wagenboomsrivier Irrigation Boards is the applicant.

The project involves the investigation of the impact of a distribution structure according to and in line with a Supreme Court Ruling (dated 22 February 2017) (**Appendix K**), to distribute listed water from the Snel river according to an 80/20 ratio within a proposed division chamber. 80% of the water will be distributed with a new pipeline (2.7km long 350mm diameter) down the banks of the Waaboomsriver. The water will then be released in the river from where it will flow in the river to existing weir (of which the canal is proposed to be rehabilitated – discusses later) from where it will distributed to Darlingbrug and Wagenboombsrivier Irrigation Boards (according to a 60/40 ratio). The rest of the 20% will be distributed via existing pipeline structure to the other rightful users (Arbeidsvreugd Trust and Vredehoek Trust).

Without the proposed development (water division structure and pipelines) water was supposed to flow down the Waaboomsrivier to the existing weir and canal from where is it divided and distributed to the rightful water users – Darling Brug & Wagenboom Irrigation Boards. Unfortunately, because there is currently no regulation of the water flowing down the river, the water gets taken by other water users in the area (not their rightful water use).

It is important to note that the proposed structure should first and foremostly allow for the 17% ecological reserve to flow past before the 80/20 division of the rest of the allocated water.

Various alternatives were investigated and Alternatives as discussed in Section E of this report. The following section will discuss the preferred alternatives.

Various alternatives were investigated.

Water Structure:

Water Structure Alternative 1 was considered the preferred alternative as it would have a smaller impact and footprint on the receiving environment.

Water Structure Alternative 1 consist of the construction of a massfill and reinforced concrete weir across the river, with its connecting division chamber outside the river, along with the necessary piped outlet works from which a proposed new ±2,7km ø350mm pipeline originates. The weir will be connected to the division chamber (10m x 4,2m) via a 10m long ø900mm uPVC pipe to allow water to flow into the division chamber. From the division chamber both the existing private pipeline as well the proposed new ±2,7km ø350mm pipeline will be connected. The existing private pipeline will connect to an existing manhole and fountain and the new proposed ±2,7km ø350mm pipeline will lead along the banks of the Waboomrivier, mostly on established farm roads to a designed point (discussed below). Reserve and surplus water would be directed back to the main stream with a 15m long, 0,5m deep and 2m wide concrete or gabion channel structure.

Pipeline Routes:

A new pipeline is proposed which will connect to the proposed division chamber outside the river (Alternative 1), and will carry the 80% listed water allocated to Darlingbrug and Wagenboom irrigation boards along the banks of the Waboomsriver, mostly on established farm roads. The pipeline will be approximately 2,7km long with a diameter of 350mm. Two different pipeline routes were investigated and after discussions with the various landowners on which the pipeline will have to be established, Pipeline route 1 was agreed upon by the various involved land owners as well as determined to have a smaller impact on the receiving environment. (Please refer to **Appendix B1.2 & B2.2** for a map of the proposed pipeline routes).

It is important the note that as per recommendation of the biodiversity specialist, in an effort to reduce the destabilisation of the river bank and protect wats left of indigenous vegetation, that last 205m of the proposed pipeline route (Route 1 Alternative 1) be adjusted, as per **Appendix B1.2 Figure 2.**

The pipeline will stop under an existing bridge on Farm Onverwacht 918. It is proposed that the pipeline be constructed as far as possible on farm roads, it will then be placed closer to the river banks with a sharp turn into the river. To reduce possible erosion it is proposed that a head wall and stilling basin be constructed with stone baskets (gabions) from the natural river stones.

Water will then flow in the river towards an existing weir and division canal (33°30'35.87"S19°15'23.71"E) which will divide the water further according to the designated 40/60 ratio for the Darling Brug and Wagenboomsrivier irrigation boards respectively.

River crossing Structure:

It is proposed that new structure be constructed over which the proposed pipeline will cross over the river. Pipeline route 1 Alternative 1 is still the preferred route. It is proposed that the pipeline would go over the river at two points via four proposed Anchors (as the Waboomsriver splits and has a little non-perennial side stream). Please refer **Appendix B1.3** for the layout plan of the river crossing, **Appendix B3.2** on the CD for a kmz file indicating the position of the proposed river crossing.

Existing canal rehabilitation:

Please refer to **Appendix A** for locality of the existing weir and canal; **Appendix B3.1** for a kmz file indicating showing the site; **Appendix C** for the site photographs and

It is proposed that the canal which divides the listed water 40/60 for the irrigation boards be rehabilitated as it was damaged.

Water use:

There is no need to apply for a new water use license for the *taking of water.* Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards.

Sarel Bester Ingenieurs submitted the *EWULA WULA REF: WU7769: Darling- & Waboomsrivier Irr Board vir Waboomsrivier weir & 2,7km pyplyn.*for other activities that trigger section 21 of the National Water Act associated with the proposed pipeline route. It is proposed that the pipeline follow existing farm roads on the banks of the Waaboomriver and cross the river via structure. It is proposed four concrete anchors be constructed on the river banks to receive the bridge to carry the pipeline over the river.

Activities triggered in terms of the section 21 of the NWA:

- *S21 (c) Impeding or diverting the flow of the water course*
- *S21 (i) Altering the bed, bank, course or characteristic of a watercourse*

Site Description:

The proposed project is located approximately 20km SE of the town of Wolseley, 27km south of the Ceres, and just under 40km NE of Worcester. The site is situated in a mountainous area know as the Waaihoek berge and can only be accessed via private and commercial farmland from the R43 (Mitchells Pass).

The proposed project will involve seven properties with six different land owners. Please refer to **Appendix A for property information and locality maps.** Layout alternatives (Alternatives 2 – not preferred) will be discussed later in the report but will still involve the mentioned properties.

The properties involved with the proposed development on the specific property is represented in the table below. Development is based on Alternatives 1 (preferred alternatives) for all involved structures.

FARM NAME AND NUMBERS INCLUDING PORTIONS:	PROPERTY SIZE	PROPOSED DEVELOPMENT
Portion 2 of Farm Vredehoek No. 602, Worcester **(Vredehoek Vineyards CC)**	100.10 ha	Water structure (weir & division chamber)& pipeline
Portion 6 of Farm Vredehoek No. 602, Worcester **(Silver Spring Farms)**	46.09 ha	Water structure (weir)
Remaining Extent Farm Vredehoek No. 602, Worcester **(Silkbush Vineyards)**	137.72 ha	Pipeline and river crossing (Anchor 1,2,3)
Remaining Extent Farm 706 **(Arbeidsvreugd Trust)**	92.59	Pipeline
Portion 5 & 9 of Pietersvlei No. 196, Worcester **(Bowe Vineyards/ Arrow Point/ Drie Gewels)**	108.68 ha 192.68 ha	Pipeline and river crossing (Anchor 4).
Farm Onverwacht No. 918, Worcester **(Akkerbou Eiendomme PTY LTD**	75,24 ha	Existing canal rehabilitation

Services:

No new water will be abstracted so a WULA will not have to be conducted for the taking of water but for the storing but for other activities that trigger section 21 (c) & (i) of the National Water Act.

Should electricity be requited, electricity would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections.

Existing access roads will be used.

Environmental Legal Requirements:

The National Environmental Management Act (NEMA, Act 107 of 1998), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority based on the findings of an Environmental Assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). In the Western Cape, these powers are delegated to the Department of Environmental Affairs & Development Planning (DEA&DP). Section A(d) of this document, lists all the activities that were identified as "triggered" by the proposed activity. It also discusses activities that "might" be triggered, in terms of the 2014 EIA (Environmental Impact Assessment) Regulations as amended.

Significant Environmental Aspects:

Biodiversity:
The proposed development is expected to result in the temporary disturbance along the proposed construction footprint. Please note that this report does not address impact on the river system as this will be addressed in the Freshwater Specialist report. The proposed pipeline route was specifically chosen to fall within areas already disturbed and should not result in any significant impact on remaining natural veld (apart from potential impact on riparian vegetation where it cross the river). Impacts on natural vegetation outside of the remaining riparian zone are expected to be almost zero. The main environmental risk regarding this project is seen as potential destabilisation of the river bank (which may lead to future erosion), including potential impacts on the riparian zone itself (because of the restricted work area).

Geology & Soils: No special geology or soils were observed which may result in specialized vegetation. However, the soils associated with the areas adjacent to the stream are likely to unstable and care will have to be taken during construction to ensure that the river banks are not destabilised.

Vegetation status: Breede Alluvial Fynbos is an endangered vegetation type. However, the proposed footprint is located within already disturbed areas and no remaining natural veld that might be impacted by the proposed project was observed.
Breede Shale Fynbos is classified as Least Threatened. The proposed footprint will have a temporary impact on small section of a very disturbed version of this vegetation type. However, even in this area, the pipeline will be located in old roads (previously disturbed areas).

Conservation priority areas: Both the proposed pipeline route and the distribution chamber is located in CBA areas proposed within the Western Cape Biodiversity Spatial Plan (2017). But since the footprints were chosen specifically to overlay already disturbed areas and the impact of construction is temporary, the potential impact on the CBA's are expected to be insignificant.

Connectivity: The impact is temporary of nature and is not expected to have any significant impact on connectivity.

Protected or endangered plant species: No protected or endangered plant species was observed.

Invasive alien species: Special care must be taken with the removal of invasive alien plant species within the riparian buffer zone in order to ensure that it does not lead to future erosion.

The biodiversity specialist is of the opinion that the cumulative impact of the proposed development is expected to be medium/low but it is still important that mitigation measures are implemented in order to reduce the potential environmental impacts

Freshwater:

The Freshwater specialist states in his report (**Appendix G2**) the construction of the smaller water divide structure (Water Structure 1 Alternative 1) will have a smaller impact on the on the riparian zone, which is already classified as disturbed.

During construction of the Water Structure 1 Alternative 1 (**Appendix B1.1**), the riparian habitat will be lost. However, the riparian zone in which the water distribution structure is proposed has been classified as largely modified. The PES rating attributed to the instream habitat where the water distribution structure is proposed is A (near natural), but the river is also given a "moderate" rating in terms of its ability to tolerate disturbances and to recover from impacts (Ecological Sensitivity).

The construction and presence of the pipeline would not bring about further and unacceptable deterioration, where the pipeline crosses the river via concrete anchors and the anchors will have to be outside of the river bed.

The freshwater specialist is specifically concerned with the illegal abstraction of additional water in the Waaboomsrivier. It is the illegal abstraction of water that would have a negative effect on the river health, shortening the hydroperiod, extending the dry period lower down the river. If additional water is abstracted form the river to the level of the Ecological reserve, there is a high risk that the dry conditions as seen further down the river will creep up the river and aquatic biodiversity will be affected. As a mitigation measure it is proposed that illegal water offtakes along the river be stopped.

Heritage resources:

HWC confirms that the impact of the proposed development will not impact on heritage resources (**Appendix E1 & Appendix G3** for the Screener & NID).

Please refer to **Appendix G** for the Specialist reports.

Considering all the information, it is not envisaged that the proposed dam expansion pose any significant negative impact on the environment, while it is likely to result in a positive socio-economical outcome.

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

<table>
<tr><td>Location of all proposed sites:</td><td>Off the R43, between Wolseley and Worcester</td></tr>
<tr><td>Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:</td><td>
<table>
<tr><th>FARM NAME AND NUMBERS INCLUDING PORTIONS:</th><th>PROPERTY SIZE</th><th>PROPOSED DEVELOPMENT</th></tr>
<tr><td>Portion 2 of Farm Vredehoek No. 602, Worcester (Vredehoek Vineyards CC)</td><td>100.10 ha</td><td>Water structure & pipeline</td></tr>
<tr><td>Remaining Extent Farm Vredehoek No. 602, Worcester (Silkbush Vineyards)</td><td>137.72 ha</td><td>Pipeline and river crossing</td></tr>
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192.68 ha</td><td>Pipeline</td></tr>
<tr><td>Farm Onverwacht No. 918, Worcester (Akkerbou Eiendomme PTY LTD</td><td>75,24 ha</td><td>Existing weir upgrade</td></tr>
</table>
</td></tr>
<tr><td>Property size(s) in m² for each proposed site:</td><td>See table above or Appendix A for property information</td></tr>
<tr><td>Development footprint size(s) in m²:</td><td>
<table>
<tr><td>Total Permanent Footprint of proposed development (<u>without</u> pipeline)</td><td>0,0143m² (0,1ha)</td></tr>
<tr><td>Total Permanent Footprint of proposed development (<u>with</u> pipeline)</td><td>27 143 (2,7ha)</td></tr>
<tr><td>Total Construction Footprint of proposed development (<u>without</u> pipeline)</td><td>1871m² (0,19ha)</td></tr>
<tr><td>Total Construction Footprint of proposed development (<u>with</u> pipeline)</td><td>217 871m² (21,8ha)</td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Surveyor General (SG) 21 digit code for each proposed site:</td><td>C08500000000060200002
C08500000000060200000
C08500000000070600000
C08500000000019600005
C08500000000019600009
C08500000000091800000

Please refer to Appendix A for a table with detailed property information</td></tr>
</table>

2. PROJECT DESCRIPTION

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

YES	~~NO~~

The proposed project involves the development of a new water division structure, pipeline and river crossing structure.

It is also proposed that the existing canal down-stream be rehabilitated.

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

Agriculture is the backbone of the Cape Winelands District economy. The Agriculture sector contributes to 24% of the formal employment opportunities which makes the sector essential to the livelihoods of the local residents.

Darling brug and Wagenboomsrivier Irrigation Boards is the applicant.

The project involves the investigation of the impact of a distribution structure according to and in line with a Supreme Court Ruling (dated 22 February 2017) (**Appendix K**), to distribute listed water from the Snel river according to an 80/20 ratio within a proposed division chamber. 80% of the water will be distributed with a new pipeline (2.7km long 350mm diameter) down the banks of the Waaboomsriver. The water will then be released in the river from where it will flow in the river to existing weir (of which the canal is proposed to be rehabilitated – discusses later) from where it will distributed to Darlingbrug and Wagenboombsrivier Irrigation Boards (according to a 60/40 ratio). The rest of the 20% will be distributed via existing pipeline structure to the other rightful users (Arbeidsvreugd Trust and Vredehoek Trust).

Without the proposed development (water division structure and pipelines) water was supposed to flow down the Waaboomsrivier to the existing weir and canal from where is it divided and distributed to the rightful water users – Darling Brug & Wagenboom Irrigation Boards. Unfortunately, because there is currently no regulation of the water flowing down the river, the water gets taken by other water users in the area (not their rightful water use).

It is important to note that the proposed structure should first and foremostly allow for the 17% ecological reserve to flow past before the 80/20 division of the rest of the allocated water.

Various alternatives were investigated and Alternatives as discussed in Section E of this report. The following section will discuss the preferred alternatives.

WATER STRUCTURE:

Water Structure Alternative 1 (Preferred Alternative) is referred to as the "Buitebedding Struktuur" or Structure 2 in Sarel Bester Ingenieurs Exploration Document (**Appendix K**). Please refer to Layout Drawing **1724-08** for the proposed design of Alternative 1 in **Appendix B1.1.** The proposed Water Structure is proposed on Portion 2 and 6 of Farm Vredehoek 602.

Initially, two strategies were investigated (Water Structure Alternative 1 – preferred alternative and Water Structure Alternative 2 – not preferred). After discussion with BGCMA it was decided that Water Structure Alternative 1 would be the reasonable and feasible alternative, as it would have a much smaller footprint on the receiving environment. Water Structure Alternative 2 – not preferred alternative is discussed in Section E of the report for alternatives investigated

Water Structure Alternative 1 consist of the construction of a massfill and reinforced concrete weir across the river, with its connecting division chamber outside the river, along with the necessary piped outlet works from which a proposed new ±2,7km ø350mm pipeline originates. The weir will have a maximum total height of ±2m, a length of ±5m and a top width of ±300mm. It will be based on a foundation of ±9m wide and 800mm deep and will be equipped with a downstream flush valve. Coordinates of the proposed weir and division chamber is: 33°29'55.20"S 19°16'48.17"E. The weir will fall on Portion 2 & 6 of the Farm Vredehoek 602 and the division chamber and pipelines will fall on Portion 2 of the Farm Vredehoek 602.

The weir will be connected to the division chamber (10m x 4,2m) via a 10m long ø900mm uPVC pipe to allow water to flow into the division chamber. From the division chamber both the existing private pipeline as well the proposed new ±2,7km ø350mm pipeline will be connected. The existing private pipeline will connect to an existing manhole and fountain and the new proposed ±2,7km ø350mm pipeline will lead along the banks of the Waboomrivier, mostly on established farm roads to a designed point (discussed below). Reserve and surplus water would be directed back to the main stream with a 15m long, 0,5m deep and 2m wide concrete or gabion channel structure.

The total (permanent) footprint of Water Structure Alternative 1 (without pipeline works) would thus be:127m2

The Construction footprint/ laydown area (Water structure Alternative 1) within which the proposed weir, division chamber and associated infrastructure (as set out above) will fall will be approximately 25m x 35m = 875m².

Weir	9m x 5m = 45m²
Division Chamber	10m x 4,2m 42m²
Inlet Pipe	10m x 1m = 10m²
Surplus outlet channel	15m x 2m = 30m²
Total permanent footprint Water Structure Alternative 1 (without pipeline footprint)	**127m²**
Total construction footprint Water Structure Alternative 1(without pipeline footprint)	**875m²**

PIPELINE ROUTES:

A new pipeline is proposed which will connect to the proposed division chamber outside the river (Alternative 1), and will carry the 80% listed water allocated to Darlingbrug and Wagenboom irrigation boards along the banks of the Waboomsriver, mostly on established farm roads. The pipeline will be approximately 2,7km long with a diameter of 350mm. Two different pipeline routes were investigated and after discussions with the various landowners on which the pipeline will have to be established, Pipeline route 1 was agreed upon by the various involved land owners as well as determined to have a smaller impact on the receiving environment. (Please refer to **Appendix B1.2 & B2.2** for a map of the proposed pipeline routes).

Pipeline Route 1 Alternative 1 (Preferred Alternative) Appendix B1.2

Please refer to **Appendix B1 & B.1.2 (figure 1 & 2) & B1.2.1** for the proposed layout for Pipeline 1 and **Appendix B3.1** on the CD for the kmz file indicating the preferred pipeline route 1.

Pipeline route 1 (preferred route) will connect to the division chamber outside the river bed at point 33°29'55.20"S 19°16'48.17"E on Portion 2 of Farm Vredehoek 602 where it will follow existing farm roads on the northern banks of the river for approximately 1km towards the property border.

The pipeline will continue on existing farm roads on the northern banks of the river on the Remaining Extent of Farm Vredehoek 602 for approximately 500m form where it is proposed the pipeline will cross the river via a structure. It is proposed that the pipeline will go over the river at two points via four anchors as the Waboomsriver splits and has a little non-perennial side stream. The concrete anchor blocks will be built close to the river banks to receive a bridge to carry the pipeline over The pipeline will cross the river from Anchor 1 to Anchor 2 for ±15m on RE Farm Vredehoek 602(river crossing 1), from Anchor 2 to Anchor 3 for another ±15m on RE Farm Vredehoek 602 (which is not a river crossing), and then from Anchor 3 to Anchor 4 for ±5m on the southern banks of the river on Portion 5 of Farm Rietvalley 196 (River crossing 2). Please refer to River Crossing Section below for a detailed explanation of the proposed river crossings and **Appendix B3** for the layout plans.

From Anchor 4 the pipeline will continue on existing farm roads on the southern banks of the river for another ±36m on Portion 5 Portion 5 of Farm Rietvalley 196 where it will cross the property boundary to Remaining extent of Farm 706 for ±105m. The pipeline will continue on Portion 9 Farm Rietvalley 196 for approximately 860m on existing farm roads along the southern banks of the river.

Please note: As per recommendations by the biodiversity specialist it is recommended that the last 205m of the proposed pipeline route (Route 1 Alternative 1) be adjusted. As per **Appendix B1.2 Figure 1** is proposed that the last 205m of pipeline route 1 alternative 1 go through a Poplar bush (*Populus* cf. *alba*) in order to follow the stream more closely. The specialist is of the opinion that this is not recommended. Even though the bush is dominated by Poplar trees, there is still some indigenous vegetation in between the poplar trees which can be used as a basis for transforming the riparian vegetation back to more natural vegetation. Going through the bush also increases the risk of future erosion, which may result in costly

erosion control measures. It is recommended that the green line option is followed around this bush (as per **Appendix B1.2 Figure 2)** back to the river.

The pipeline will stop under an existing bridge on Farm Onverwacht 918. It is proposed that the pipeline be constructed as far as possible on farm roads, it will then be placed closer to the river banks with a sharp turn into the river. To reduce possible erosion it is proposed that a head wall and stilling basin be constructed with stone baskets (gabions) from the natural river stones.

Water will then flow in the river towards an existing weir and division canal (33°30'35.87"S19°15'23.71"E) which will divide the water further according to the designated 40/60 ratio for the Darling Brug and Wagenboomsrivier irrigation boards respectively.

Pipeline footprint (permanent):

The proposed pipeline will be approximately 2,7km long (27000m) with a diameter of 0,35m.

Permanent pipeline footprint = 27000m x 1m = 27000m²

Pipeline construction footprint**:**

The pipeline will be laid in a trench of about 1m wide. Additionally a construction footprint should be available for the stockpiling of excavated spoil and for construction vehicles to move around. A construction footprint of 6-8m should be catered for.

The total construction footprint for the proposed pipeline would thus be: 8m x 27000m = 216 000m² (21,6 ha).

As mentioned it is proposed that the pipeline be constructed on existing farm road, no natural vegetation will be lost.

Total permanent footprint for Pipeline route	27000m²
Total construction footprint for Pipeline route	±216000m² (21,6ha)

RIVER CROSSING STRUCTURE:

River Crossing Structure Alternative 1 (Preferred)

Please refer **Appendix B1.3** for the layout plan of the river crossing, **Appendix B3.2** on the CD for a kmz file indicating the position of the proposed river crossing.

It is proposed that new structure be constructed over which the proposed pipeline will cross over the river. Pipeline route 1 Alternative 1 is still the preferred route. It is proposed that the pipeline would go over the river at two points via four proposed Anchors (as the Waboomsriver splits and has a little non-perennial side stream).

It is proposed that the pipeline will go over the river at two points via four anchors. The concrete anchor blocks will be built close to the river banks to receive a bridge to carry the pipeline over. The pipeline will cross the river from Anchor 1 to Anchor 2 for ±15m on RE Farm Vredehoek 602(river crossing 1), from Anchor 2 to Anchor 3 for another ±15m on RE Farm Vredehoek 602 (which is not a river crossing), and then from Anchor 3 to Anchor 4 for ±5m on the southern banks of the river on Portion 5 of Farm Rietvalley 196 (River crossing 2).

Proposed structure	Coordinates	Relevant Property
Anchor 1	33°30'20.39"S 19°16'1.42"E	RE Farm Vredehoek 602
Anchor 2	33°30'20.89"S 19°16'2.13"E	RE Farm Vredehoek 602
Anchor 3	33°30'21.12"S 19°16'2.20"E	RE Farm Vredehoek 602
Anchor 4	33°30'21.52"S 19°16'2.09"E	Portion 5 of Farm Rietvalley 196

All four anchors will each have a footprint of 1m x 1m x 1m = ±1m² or 1m³

To be safe a 1m permanent footprint is added to each side of the concrete anchors. This will give a total permanent footprint of 2m x 2m = ±4m²

This will give a total permanent footprint of 16m² for the anchor structure 1,2,3 &4.

A construction footprint of 6m x 4m = 24m² is proposed for each anchor structure. Giving a total construction footprint for the anchor structure 1,2,3 & 4 of 96m²

Total permanent footprint river crossing Alternative 1 (four concrete anchors)	±16m²
Total construction footprint river crossing Alternative 1 (four concrete anchors)	±96m²

Existing canal rehabilitation:

Please refer to **Appendix A** for locality of the existing weir and canal; **Appendix B3.1** for a kmz file indicating showing the site; **Appendix C** for the site photographs and

It is proposed that the canal which divides the listed water 40/60 for the irrigation boards be rehabilitated as it was damaged.

It is proposed that the existing division canal be rehabilitated as it was damaged. The canal falls partially within the river (±17m) and partially outside the river (±25m). the canal is estimated to have a width of ±1m and the depth varies.

Proposed works include the rehabilitation of the concrete floor bottom of the canal in the river as well as the sides of the division canal outside the river bed. The footprint will not increase and therefore no Listed Activities in terms of. NEMA will be triggered.

A construction footprint/laydown area of 30m x 30m = ±900m² is proposed for rehabilitation of the exiting canal

Footprint of canal rehab remains unchanged	84m²
Total construction footprint river crossing Alternative 1 (four concrete anchors)	±900m²

Total Permanent Footprint of Water Structure Alternative 1 (weir & division chamber), Pipeline route 1 & River Crossing Alternative 1 (all Preferred Alternatives) is thus: 27 143m² (±2,7ha)

Permanent footprint of Water Structure Alternative 1	127m²
Permanent footprint Pipeline Route 1 Alternative 1	27 000m²
Permanent footprint River Crossing Alternative 1	16m²
Total permanent footprint of the proposed development	**27 143m² (2,7ha)**
Total permanent footprint of the proposed development (without pipeline footprint)	**143m² (0.1ha)**

Total construction footprint of all Preferred Alternatives is thus: 217 871m² (21.8ha)

Construction footprint of Water Structure Alternative 1	875m²
Construction footprint Pipeline Route 1 Alternative 1 (linear development)	216 000m² (21,6 ha)
Construction footprint River Crossing Alternative 1	±96m²
Construction footprint/ laydown area for canal rehabilitation	±900²
Total construction footprint of the proposed development	**217 871m² (21.8ha)**
Total construction footprint of the proposed development (without pipeline footprint)	**1871m² (0.19ha)**

The construction footprint should be rehabilitated to its natural condition after construction is completed.

Water use:
There is no need to apply for a new water use license for the *taking of water.* Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards.

Sarel Bester Ingenieurs submitted the *EWULA WULA REF: WU7769: Darling- & Waboomsrivier Irr Board vir Waboomsrivier weir & 2,7km pyplyn.*for other activities that trigger section 21 of the National Water Act associated with the proposed pipeline route. It is proposed that the pipeline follow existing farm roads on the banks of the Waaboomriver and cross the river via structure. It is proposed four concrete anchors be constructed on the river banks to receive the bridge to carry the pipeline over the river.

Activities triggered in terms of the section 21 of the NWA:

- *S21 (c) Impeding or diverting the flow of the water course*
- *S21 (i) Altering the bed, bank, course or characteristic of a watercourse*

In terms of the Listed Activities in terms of NEMA listed and specified activities in **paragraph (d)** below:

Listing Notice 1 Activity 9: The development of infrastructure exceeding 1000m in length for the bulk transportation of water or stormwater, (i) with an internal diameter of 0,36m or more; or (ii) with a peak throughout of 120 litres per second or more.
The proposed pipeline is expected to be ±2,7km (27000m) in length with a diameter of 0,35m.

Listing Notice 1 Activity 12: The development of (v) weirs, where the weir including infrastructure and water surface area, exceeds 100m² in size where such a development occurs – (a) within a watercourse.
The proposed weir, division chamber and associated infrastructure will have a construction footprint of ±875m² (exceeding 100m²) and is proposed within a watercourse.

Listing Notice 1 Activity 19: The infilling or depositing of any material of more than 10m³, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m³ from (i) a watercourse
The construction of the new weir and division chamber; river crossing structure; and existing canal rehabilitation will allow for the moving of more than 10 m³ in of material in a watercourse.

Listing Notice 1 Activity 27: The clearance of an area of 1 ha or more, but less than 20 ha or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) undertaking of linear activity
The construction of the weir, division chamber and associated infrastructure proposes the clearance of ±875m² of natural vegetation (not necessarily indigenous vegetation).
The construction footprint for the pipeline will be ±21,6ha but will be on existing farm roads

Listing Notice 3 Activity 12: The clearance of an area of 300m² or more of indigenous vegetation (i) Within a critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) within a CBA as identified in bioregional plans.
The proposed weir, division chamber and associated infrastructure with a construction footprint of ±875m² will not fall within a CBA but within an ESA.
The proposed pipeline with a construction footprint of ±21,6ha fall within a CBA2 (aquatic) but will be on existing farm roads

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,	Upon granting of the EA and WUL construction of the water structure and pipeline must occur within 2 years. To be confirmed.
(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;	To be confirmed.
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	N/A
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	N/A

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.
9	The development of infrastructure exceeding 1000m in length for the bulk transportation of water or stormwater, (i) with an internal diameter of 0,36m or more; or (ii) with a peak throughout of 120 litres per second or more.	The proposed pipeline is expected to be ±2,7km (27000m) in length with a diameter of 0,35m.	Development & Operational
12	The development of (v) weirs, where the weir including infrastructure and water surface area, exceeds 100m² in size where such a development occurs – (a) within a watercourse.	The proposed weir, division chamber and associated infrastructure will have a construction footprint of ±875m² (exceeding 100m²) and is proposed within a watercourse.	Development & Operational
19	The infilling or depositing of any material of more than 10m³, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m³ from (i) a watercourse	The construction of the new weir and division chamber; river crossing structure; and existing canal rehabilitation will allow for the moving of more than 10 m³ in of material in a watercourse.	Development & Operational
27	The clearance of an area of 1 ha or more, but less than 20 ha or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) undertaking of linear activity	The construction of the weir, division chamber and associated infrastructure proposes the clearance of ±875m² of natural vegetation (not necessarily indigenous vegetation). The construction footprint for the pipeline will be ±21,6ha but will be on existing farm roads.	Development & Operational
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.
12	The clearance of an area of 300m² or more of indigenous vegetation (i) Within a critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National	The proposed weir, division chamber and associated infrastructure with a construction footprint of ±875m² will not fall within a CBA but within an ESA. The proposed pipeline with a construction footprint of ±21,6ha fall within a CBA2	Expansion

	Spatial Biodiversity Assessment 2004; (ii) within a CBA as identified in bioregional plans.	(aquatic) but will be on existing farm roads.	

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
	N/A	

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.
	N/A	

(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 buildings required.		
Infrastructure (*e.g.,* roads, power and water supply/ storage) Provide brief description below:	YES	NO
Water use: There is no need to apply for a new water use license for the *taking of water.* Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards. Sarel Bester Ingenieurs submitted the *EWULA WULA REF: WU7769: Darling- & Waboomsrivier Irr Board vir Waboomsrivier weir & 2,7km pyplyn* for other activities that trigger section 21 of the National Water Act associated with the proposed pipeline route. It is proposed that the pipeline follow existing farm roads on the banks of the Waaboomriver cross the river via structure. It is proposed four concrete anchors be constructed on the river banks to receive the bridge to carry the pipeline over the river. Activities triggered in terms of section 21 of the NWA: • *S21 (c) Impeding or diverting the flow of the water course* • *S21 (i) Altering the bed, bank, course or characteristic of a watercourse* A pipeline of approximately 2,7km and diameter of 0,35m is proposed. Should electricity be required it, would come from Eskom's exiting connections. Existing access roads will be used.		
Processing activities (*e.g.,* manufacturing, storage, distribution) Provide brief description below:	~~YES~~	NO
N/A		
Storage facilities for raw materials and products (*e.g.,* volume and substances to be stored) Provide brief description below:	~~YES~~	NO
N/A		

Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	~~YES~~	NO
No treatment of effluent, waste water or sewage. No permanent toilets on site. Once construction starts, a portable chemical toilet should be made available on site. The toiled should not be placed within 32m of a watercourse/ river and should be serviced in a legal manner and removed after construction is completed.		
Storage and treatment of solid waste Provide brief description below:	~~YES~~	NO
No storage or treatment of solid waste. Solid waste produced during construction should be disposed of in a legal manner.		
Facilities associated with the release of emissions or pollution. Provide brief description below:	~~YES~~	NO
The activity is not expected to produce emissions or cause pollution.		
Other activities (*e.g.,* water abstraction activities, crop planting activities) – Provide brief description below:	YES	NO
There is no need to apply for a new water use license for the *taking of water.* Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards.		

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	Please refer to Section A 1 above Appendix A1 for property information and sizes.	m2
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	N/A	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)	Total **construction** footprint is ± ±**21,8 ha** (water structure & pipeline & river crossing structure, canal rehab laydown)	ha
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	Total **permanent** footprint is **±2,7ha** (water structure after rehab & pipeline after rehab & river crossing after rehab)	ha
	27000m (L)	m

(e)For linear development proposals: Indicate the length (L) and width (W) of the development proposal.	0,35m (w)	m
(f) For storage facilities: Indicate the volume of the storage facility	N/A	m3
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated	N/A	m3

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:

N/A Existing site assess roads will be used.

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 proposed project is located approximately 20km SE of the town of Wolseley, 27km south of the Ceres, and just under 40km NE of Worcester. The site is situated in a mountainous area know as the Waaihoek berge and can only be accessed via private and commercial farmland from the R43 (Mitchells Pass).

The proposed project will involve seven properties with six different land owners. Please refer to **Appendix A for property information and locality maps.** Layout alternatives (Alternatives 2 – not preferred) will be discussed later in the report but will still involve the mentioned properties.
The properties involved with the proposed development on the specific property is represented in the table below. Development is based on Alternatives 1 (preferred alternatives) for all involved structure.

FARM NAME AND NUMBERS INCLUDING PORTIONS:	PROPERTY SIZE	PROPOSED DEVELOPMENT
Portion 2 of Farm Vredehoek No. 602, Worcester **(Vredehoek Vineyards CC)**	100.10 ha	Water structure (weir & division chamber)& pipeline
Portion 6 of Farm Vredehoek No. 602, Worcester **(Silver Spring Farms)**	46.09 ha	Water structure (weir)
Remaining Extent Farm Vredehoek No. 602, Worcester **(Silkbush Vineyards)**	137.72 ha	Pipeline and river crossing (Anchor 1,2,3)
Remaining Extent Farm 706 **(Arbeidsvreugd Trust)**	92.59	Pipeline
Portion 5 & 9 of Pietersvlei No. 196, Worcester **(Bowe Vineyards/ Arrow Point/ Drie Gewels)**	108.68 ha 192.68 ha	Pipeline and river crossing (Anchor 4).
Farm Onverwacht No. 918, Worcester **(Akkerbou Eiendomme PTY LTD**	75,24 ha	Existing canal rehabilitation

It is proposed the water structure be on Portion 2 and 6 of Farm Vredehoek 602. The water structure consists of the weir and division chamber with associated pipeline. The weir will be constructed over the river and fall on the banks of Portion 2 & 6 of Farm Vredehoek 602 and the division chamber and associated pipelines on the river bed will fall on Portion 2 of Farm Vredehoek 602.

It is proposed that the pipeline fall on existing farm roads next to the Waagboomsriver on Portion 2 of Farm Vredehoek 602, Remaining Extent Farm Vredehoek 602, Remaining Extent of Farm 706, Portion 5 & 9 of Pietersvlei 196 and Onverwacht No. 918.

It is proposed that the river crossing structure (concrete anchors 1,2,3,4 and a bridge to carry the proposed pipeline over the river) will be on the banks of the river of Remaining Extent Farm Vredehoek 602 and Portion 5 of Farm Pietersvlei 196.

The existing water canal to be rehabilitated falls in Farm Onverwacht No. 918.

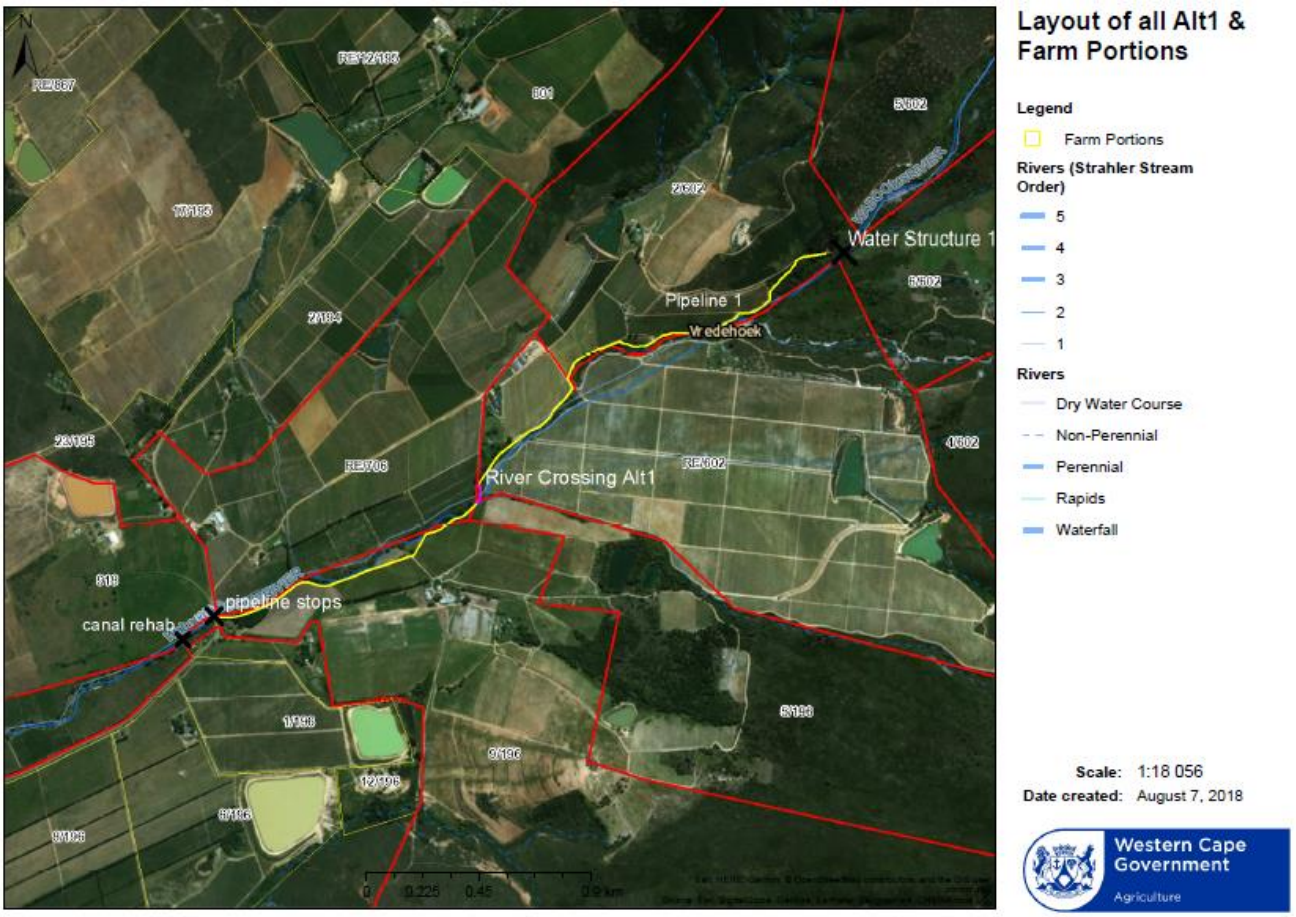

Figure 1: Map indicating the Waboomsriver (blue line) and the locations of the proposed pipeline route 1 (yellow line); river crossing (pink line)and the water structure pipeline and existing canal rehabilitation site (bkack crosses).

	Coordinates of proposed Water Structure Alternative 1 and start of the pipeline					
Coordinates of all the proposed activities on the property or properties (sites):	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec.)		
	33°	29 ´	55.20"S	19º	16‘	48.17“E
	Coordinates Anchor 1					
	33°	30‘	20.39“S	19º	16‘	1.42“E
	Coordinates Anchor 2					
	33°	30‘	20.89“S	19º	16‘	2.13“E
	Coordinates Anchor 3					
	33°	30‘	21.12“S	19º	16‘	2.20“E
	Coordinates Anchor 4					
	33°	30‘	21.52“S	19º	16‘	2.09“E
	End of pipeline					
	33º	30‘	34.11“S	19º	15‘	27.37“
	Coordinates of existing canal to be rehabilitated					
	33°	30‘	35.87“	19º	15‘	23.71“

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).

It is proposed the water structure be on Portion 2 and 6 of Farm Vredehoek 602. The water structure consists of the weir and division chamber with associated pipeline. The weir will be constructed over the river and fall on the banks of Portion 2 & 6 of Farm Vredehoek 602 and the division chamber and associated pipelines on the river bed will fall on Portion 2 of Farm Vredehoek 602.

It is proposed that the pipeline fall on existing farm roads next to the Waagboomsriver on Portion 2 of Farm Vredehoek 602, Remaining Extent Farm Vredehoek 602, Remaining Extent of Farm 706, Portion 5 & 9 of Pietersvlei 196 and Farm Onverwacht No. 918.

It is proposed that the river crossing structure will be on the banks of the river of Remaining Extent Farm Vredehoek 602 and Portion 5 of Farm Pietersvlei 196.

The existing water canal to be rehabilitated falls in Farm Onverwacht No. 918.

	Coordinates of proposed Water Structure Alternative 1 and start of the pipeline					
Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec.)		
	33°	29 ´	55.20"S	19°	16‘	48.17“E
	Coordinates Anchor 1					
	33°	30‘	20.39“S	19°	16‘	1.42“E
	Coordinates Anchor 2					
	33°	30‘	20.89“S	19°	16‘	2.13“E
	Coordinates Anchor 3					
	33°	30‘	21.12“S	19°	16‘	2.20“E
	Coordinates Anchor 4					
	33°	30‘	21.52“S	19°	16‘	2.09“E
	End of pipeline					
	33°	30‘	34.11“S	19°	15‘	27.37“
	Coordinates of existing canal to be rehabilitated					
	33°	30‘	35.87“	19°	15‘	23.71“

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).

Please refer to **Appendix B1.1** for the proposed pipeline route for Pipeline 1 and **Appendix B3.1** on the CD for a kmz file of the proposed pipeline route 1.

It is proposed that the pipeline (±2.7km and ø 0,35m) fall on existing farm roads next to the Waagboomsriver on Portion 2 of Farm Vredehoek 602, Remaining Extent Farm Vredehoek 602, Remaining Extent of Farm 706, Portion 5 & 9 of Pietersvlei 196 and Farm Onverwacht 918.

It is proposed the pipeline will cross the river (pipeline to go over the river) via a new structure to be constructed on the banks of the river on Remaining Extent Farm Vredehoek 602 and Portion 5 of Farm Pietersvlei 196.

Pipeline route 1 (preferred route) will connect to the division chamber outside the river bed at point 33°29'55.20"S 19°16'48.17"E on Portion 2 of Farm Vredehoek 602 where it will follow existing farm roads on the northern banks of the river for approximately 1km towards the property border.

The pipeline will continue on existing farm roads on the northern banks of the river on the Remaining Extent of Farm Vredehoek 602 for approximately 500m form where it is proposed the pipeline will cross the river via a structure. It is proposed that the pipeline will go over the river at two points via four anchors as the Waboomsriver splits and has a little non-perennial side stream.

The concrete anchor blocks will be built close to the river banks to receive a bridge to carry the pipeline over The pipeline will cross the river from Anchor 1 to Anchor 2 for ±15m on RE Farm Vredehoek 602(river crossing 1), from Anchor 2 to Anchor 3 for another ±15m on RE Farm Vredehoek 602 (which is not a river crossing), and then from Anchor 3 to Anchor 4 for ±5m on the southern banks of the river on Portion 5 of Farm Rietvalley 196 (River crossing 2). Please refer to River Crossing Section below for a detailed explanation of the proposed river crossings and **Appendix B1.3** for the layout plans.

From Anchor 4 the pipeline will continue on existing farm roads on the southern banks of the river for another ±36m on Portion 5 Portion 5 of Farm Rietvalley 196 where it will cross the property boundary to Remaining extent of Farm 706 for ±105m. The pipeline will continue on Portion 9 Farm Rietvalley 196 for approximately 860m on existing farm roads along the southern banks of the river.

The pipeline will stop under an existing bridge on Farm Onverwacht 918. It is proposed that the pipeline be constructed as far as possible on farm roads, it will then be placed closer to the river banks with a sharp turn into the river. To reduce possible erosion it is proposed that a head wall and stilling basin be constructed with stone baskets (gabions) from the natural river stones.

The pipeline will stop under an existing bridge on Farm Onverwacht 918. It is proposed that the pipeline be constructed as far as possible on farm roads, it will then be placed closer to the river banks with a sharp turn into the river. To reduce possible erosion it is proposed that a head wall and stilling basin be constructed with stone baskets (gabions) from the natural river stones.

Water will then flow in the river towards an existing weir and division canal (33°30'35.87"S19°15'23.71"E) which will divide the water further according to the designated 40/60 ratio for the Darling Brug and Wagenboomsrivier irrigation boards respectively.

For linear activities:	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
• Starting point of the activity	33°	29´	55.20"S	19°	16‘	48.17“E
• Middle point of the activity	33°	30‘	15.05“	19°	16‘	06.67“
• End point of the activity	33°	30‘	34.11“S	19°	15‘	27.37“

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.

Please refer to **Appendix B3.1 and B3.2** for the Google Earth kmz file for the proposed Pipeline Route 1 indicating the start of the proposed pipeline and water structure site, the proposed river crossings and the end of the proposed pipeline on the CD provided with the Pre-App BAR.

The table below provides the GPS points approximately every 250m on the proposed Pipeline Route from start to end.

Start of Pipeline (A)	33° 29’ 55.20”S 19°16’48.17”E
B	33°29'58.95"S 19°16'39.35"E
C	33°30'3.16"S 19°16'30.80"E
D	33°30'4.91"S 19°16'21.63"E
E	33°30'8.48"S 19°16'13.05"E
F	33°30'15.05"S 19°16'6.67"E
G	33°30'21.75"S 19°16'1.38"E
H	33°30'26.55"S 19°15'53.75"E
I	33°30'29.96"S 19°15'44.93"E
J	33°30'31.63"S 19°15'36.24"E
End of pipeline (K)	33° 30’34.11”S 19°15’27.37E

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

6. SITE PHOTOGRAPHS

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

SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Site/Area Description

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

1. GRADIENT OF THE SITE

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

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

2. LOCATION IN LANDSCAPE

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

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

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

Please see the explanation below:

The sites selected for the proposed development is located about 20km south east of Wolseley, 27km south of Ceres, and just under 40km north-east of Worcester. The site is situated in a mountainous area and can only be accessed via private and commercial farmland from the R43.

The proposed project falls within the Waboomriver catchment. The upper catchment is wedged into a deep bowl in the mountains of the Matroosberg Mountain Catchment. The Waboomriver catchment is a small sub-catchment and is one of many along the Breede River. The highest point of the sub-catchment is 2005m above sea level. The confluence with the Breede River is only at 226m above sea level. This difference in elevation over such a short distance is responsible for the dramatic landscape.

Apart from the upper parts against the very steep sloped of the mountains, the catchment area is developed into agricultural land. Grapes for the wine industry and fruit is extensively farmed with every available patch of land groomed into high-yielding crops. The Waboom River valley forms a part of a much larger agricultural industry all along the Breede River. Farms have been in existence since the early days of human settlement in the Western Cape and some farms have been family property for literally a hundred years and more.

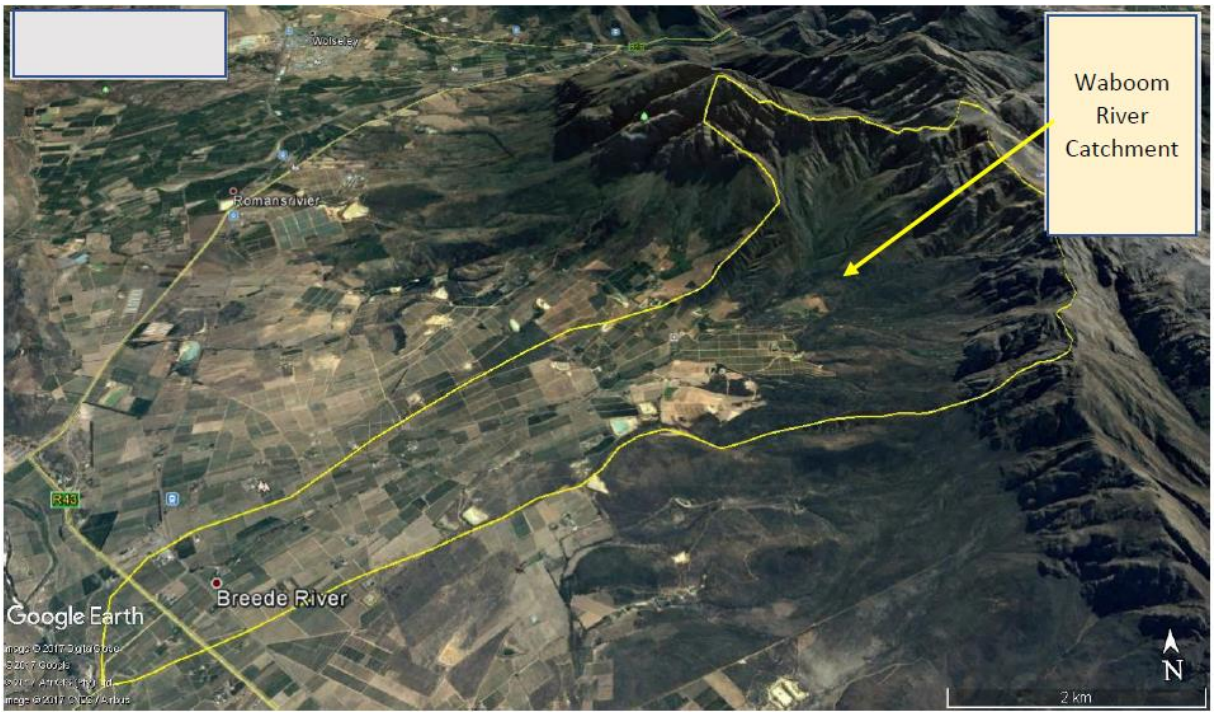

Figure 2: Waboom River catchment

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.						
Data from Cape Farm Mapper suggest that the entire area selected for the development falls on the geological formation known as: Phyllite shale, schist and greywacke of the Porterville Formation and the Malmesbury Group partly overlain by alluvium and talus gravel. The soil content consist of Glenrose and/or Mispah forms and lime is rare or absent in the entire landscape.						

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.

Please see the explanation on the next page.

The project takes place in and along the banks of the Snel river and Waaboomsrivier. The Snel River is located in the upper reaches of the Waaboomsrivier weir the water structure and weir is proposed, from there it is known as the Waabomsriver. The Waaboomsrivier is just upstream of its confluence with the Breede River. Figure 3 below show the proposed development (based on preferred alternatives) and the associated Waaboomsriver and its tributaries as well as the wetlands.

The freshwater specialist's Technical Report (**Appendix G1**) suggests that the flow of the Waaboomsriver is highly variable, it can be a raving torrent during flood conditions and only a mere trickle the year after. The specialist suggest that for 10 – 12 months of the year the standard deviation of the river is greater than the mean value, meaning that the river can be dry at times. Under natural drought conditions the river could have been dry some years for 4 or 5 months at point of discharge with the Breede River.

<u>Ecological Reserve:</u>

The technical report (**Appendix G1**) stated that a desktop study rendered an Ecological Water Requirement of 17.51% of the Mean Annual Runoff (MAR). this is a volume of 1.464million m³. This water should be left in the river to maintain an Ecological Category D.

The drought flow is only 10.29 % of the MAR or 0.862 million m3. This volume of water must be allowed to flow down the river right down to the point of discharge. This volume is not to be abstracted under any circumstances, dry weather flow or even drought flow, according to the National Water Act, and should always be left in the river.

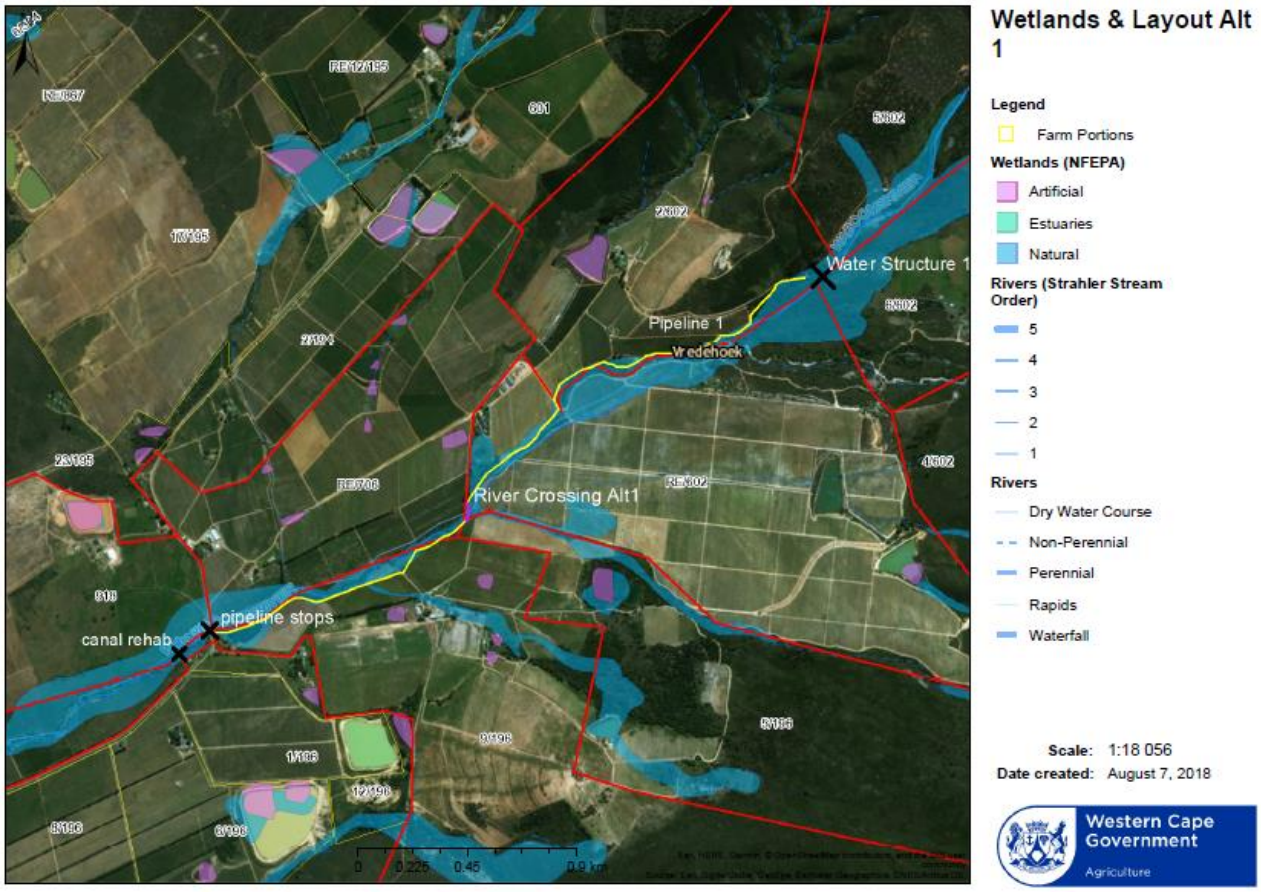

Figure 3: Proposed development and associated rivers and wetlands

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	From the Biodiversity Overlay Maps from Cape Farm Mapper (**Appendix D**) the proposed development falls within an CBA (Aquatic), ESA2. The Water Structure does not fall within a CBA (Aquatic) but within an ESA2. The proposed pipeline, river crossing and existing canal to be rehabilitated fall within a CBA (Aquatic) and ESA2. It is proposed that the pipeline be constructed as far as possible on existing farm roads and as far away from the river bed as possible to keep stability of the river bed. CBA (Aquatic) Definition: Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. The objective is to maintain these areas in a natural or			

	near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate. <u>ESA2 Definition:</u> Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services. The objective is to restore and/or manage these areas to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.
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)	The water structure will be a temporary impact on ESAs and riparian vegetation as the area is heavily impacted by alien vegetation. The pipeline will be a temporary impact, with hardly any impact on CBA or ESA's, since the pipeline is proposed within already disturbed areas. The existing weir of which the canal is to be rehabilitated will also not change the status of the area as it is already existing.

(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	%	m^2	
Near Natural (includes areas with low to moderate level of alien invasive plants)	<3%	±45m^2	New water structure in the river is proposed in an area that is considered to be in a near natural state with low to moderate level of alien invasive plans.
Degraded (includes areas heavily invaded by alien plants)	<15%	±150m^2	The upper section of the pipeline (±350m) and the division chamber and outlet pipes (<±55m^2)
Transformed (includes cultivation, dams, urban, plantation, roads, *etc*.)	72%	±2300 m^2	Remainder of the pipeline (approximately 2.35km)

(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	
	Endangered	According to the Vegetation Map (**Appendix D1**) and the Botanical Impact report (**Appendix G1**) the proposed footprint may overlap Breede Alluvium Fynbos (an endagnred vegetation type) along the lower reaches of the proposed pipeline. However, along the lower reaches of the proposed pipeline, no remaining natural veld was encountered within the proposed footprint.
	Vulnerable	
	Least Threatened	According to the Vegetation Map (**Appendix D1**) and the Botanical Impact report (**Appendix G1**) the proposed footprint may overlap Breede Shale Fynbos (least threatened) along the upper half of the proposed pipeline. However, along the upper parts of the proposed footprint remaining natural veld was only found at the foothills of the Waaihoek Mountains (areas too steep for agriculture) and even there the vegetation was very degraded as a result of past agricultural activities, old roads and tracks, excavated quarry areas and dense alien infestation.

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.

Please see the description below:

The following information was taken from the Botanical Impact Report (Appendix G1) and focusses on the Biodiversity/ Vegetation aspects of the site.

From the Vegetation Maps from Cape Farm Mapper (**Appendix D** and Figure 4 below) and the Botanical Impact Assessment conducted by the Biodiversity Specialist (**Appendix G1)** the proposed the proposed footprint may overlap, Breede Alluvium Fynbos (an Endangered Vegetation type in terms of NEMBA List of Ecosystmes that are threatened and in need of protection) along the lower reaches of the proposed pipeline and Breede Shale Fynbos (Least Threatened in terms of NEMBA) along the upper half of the proposed pipeline route.

Along the lower reaches of the proposed pipeline route (within the Breede Alluvium Fynbos) no remaining natural veld was encountered within the proposed footprint (apart from small sections of riparian vegetation). Along the upper parts of the proposed footprint (Breede Shale Fynbos) remaining natural veld was only found at the foothills of the Waaihoek Mountains (areas too steep for agriculture) and even there the vegetation was very degraded as a result of past agricultural activities, old roads and tracks, excavated quarry areas and dense alien infestation.

Generations of farming has left almost no remaining natural veld in the lower reaches of this valley and even the Wabooms River has been severely constricted, channelized (in certain areas) and degraded as a result alien infestation and the constant efforts by adjacent land owners to contain the river in this constricted channel (in its natural state the river would most likely have changed its path from time to time, but is now restricted as a result of agricultural pastures right up to the river banks). Riparian vegetation is mostly replaced by invasive alien plants and is very seldom wider than two meters. Unfortunately, this combination of being restricted, alien infestation and loss of its riparian buffer zone has resulted in the river frequently eroding its banks and overflowing into adjacent agricultural land (which leads to further disturbances as landowners struggle to repair these breaches / contain the river).

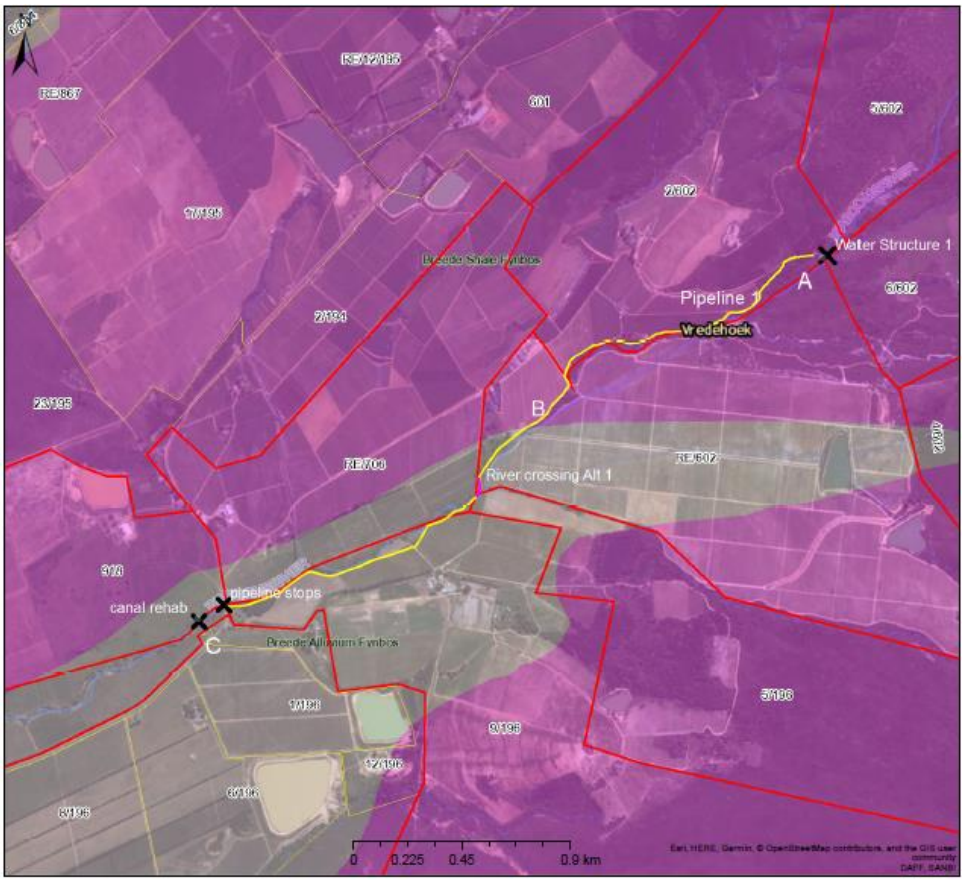

Figure 4: Vegetation Map

According the Biodiversity Overlay Maps (**Appendix D2** and Figure 5 below) from Cape Farm Mapper and Botanical Impact Assessment, the proposed project falls within CBAs and ESAs (terrestrial and aquatic).

- **Critical biodiversity areas (CBA's)** are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species

and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses.

- **Ecological support areas (ESA's)** are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas.

According to the Biodiversity Overlay Maps the proposed pipeline and distribution chamber will be located within proposed critical biodiversity areas (CBA's) both terrestrial and aquatic. However, the proposed pipeline route and distribution chamber will be located within existing transformed areas (e.g. roads) and is unlikely to add significantly to the proposed CBA's. It is also proposed that at the point where the pipeline will cross the river, it will be done by lifting the pipeline over the river (not under the river), which will minimise the impact considerably with regards to the potential impact on the river and its remaining riparian zone.

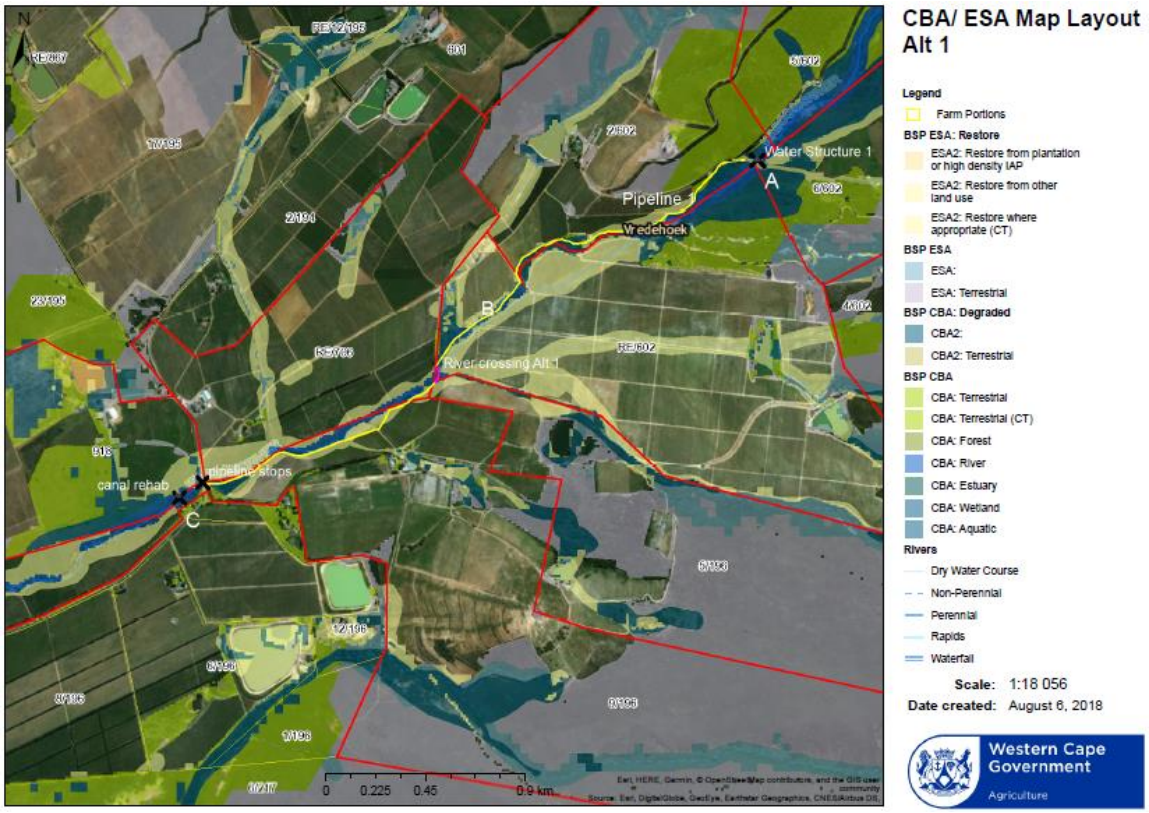

Figure 5: Biodiversity Overlay Map

Description of the vegetation encountered by the Botanist (Botanical Imapct Statement Appendix G1)

The pipeline route and the distribution chamber was chosen to follow or be placed within existing disturbed or transformed areas. The only remaining natural veld that were encountered associated with the proposed footprint was at the foot of the Waaihoek Mountains, where the distribution chamber will be located, and the first section of the pipeline will overlap. But it is important to note, that even here the distribution chamber will be located in a very disturbed area, while the pipeline will follow old access roads down towards the valley bottom. It is also important that this section of the lower foothills is overall much degraded as a result of dense alien infestation and past human activities (roads, quarry sites etc.).

Water structure and distribution chamber:
The vegetation in the vicinity of the proposed distribution chamber location can only be described as disturbed fynbos, presently almost replaced by dense strands of alien invasive plant species such as

Acacia Cyclops (Port Jackson), *Acacia mearnsii* (Black wattle), *Eucalyptus* species (Gum trees), *Pinus* species (Pine trees) and *Rubus* species (Bramble). The under layer was often dominated by *Pennisetum clandestinum* (Kikuyu grass) and even single *Opuntia species* (Prickly pear) individuals were observed. Almost the only remaining indigenous plants observed (apart from a few weedy species) were the hardy fern, *Pteridium aquilinum, Cannomois virgate* (Besemriet, next to the stream) and *Searsia angustifolia* (which was also common along most of the stream).

Figure 6: Proposed location for the new distribution chamber. Note the degraded area and dominated by alien invasive species(Botanical Impact Report).

Pipeline route: Upper section

Coming down from the distribution chamber the upper section of the pipeline route (the, between the arrows) will follow an old rood through the dense alien infested area, before it links up with farm roads on Portion 2 of the Farm Vredehoek no. 602. The vegetation type expected was Breede Shale Fynbos.

Figure 7: The preferred pipeline route (light blue) within dense alien infested woodland. Alternative pipeline route (green) (Botanical Impact Report)

Apart from *Zantedeschia aethiopica* (Arum lily), and stands of young *Dodonaea viscosa*, the only other indigenous plants observed in the immediate vicinity (not in the footprint) was *Cliffortia ruscifolia*, *Elytropappus rhinocerotis, Eriocephalus africanus* and *Stoebe cinerea*. Evidence of alien clearing can be seen, which resulted in indigenous plants slowly coming back. Slightly to the north of this section (higher up the mountain) a more natural veld starts to appear.

The alternative pipeline route (Pipeline Route 2) as represented in in green Figure 7 above will go through much more natural veld, with evidence of seepage also present. The potential impact on natural vegetation and ecosystems would be much higher. Both pipeline routes are located in CBAs, but the preferred route (Pipeline route 1 Alternative 1) is proposed within a disturbed/ transformed footprint, while the alternative would have result in an impact on remaining indigenous vegetation.

Pipeline Route: Middle Section

In the Botanical Impact Report (**Appendix G1**) the middle section refers to the section of the pipeline route that will be located within existing farm roads next to a stream on Portion 2 of Farm Vredehoek 602 and Remainder of Farm Vredehoek 602. Please refer to the Figure 8 below, the yellow arrows indicate the section refereed to as the middle section.

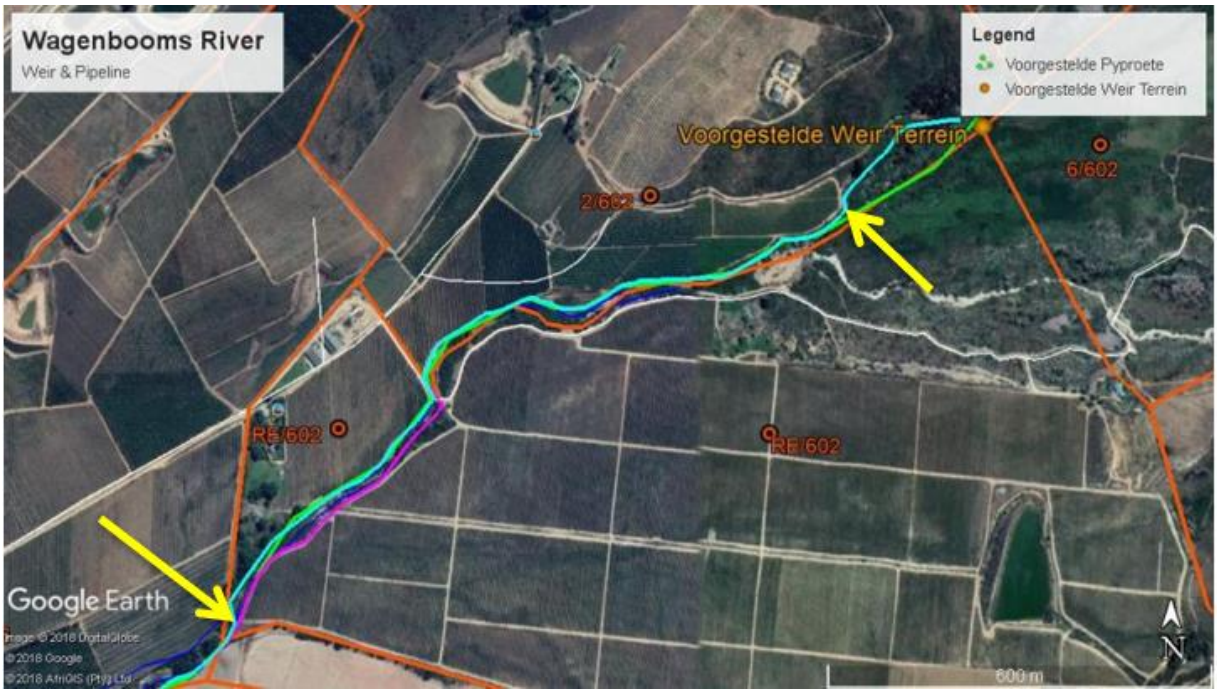

Figure 8: Image indicating the middle section of pipeline route 1(Botanical Impact Statement)

The preferred pipeline (light blue) will be located within existing farm roads, between existing vineyards and the riparian vegetation along the river (Please refer to the image below). The route was specifically chosen to fall within degraded / transformed areas and will in itself not result in any additional impact on any remaining natural veld (since there is no natural veld remaining). However, the proposed route will be located very close to the edge of the riparian vegetation along the Wagenbooms River and no impact on the riparian vegetation or destabilisation of the river bank may result.

Figure 9: Photo showing the road on which the pipeline will be installed (transformed). However, please not the well-kept indigenous riparian zone next to the river itself (to the left of the picture). All efforts must be made to ensure that the riparian zone is not impacted (Botanical Impact Assessment).

On these properties, even though the riparian buffer zone was mostly very narrow (sometimes less than 2 m), it stood out from the rest of the river properties visited in that it still shows an almost natural species composition and remains in the best condition of all that was investigated during this study (**Error! Reference source not found.**). The land owner should be commended for his efforts. Invasive alien plant species seems to be well controlled and has resulted in a healthy (although very narrow) buffer zone along the river. It also seems as if this pay's-off huge dividends as erosion issues are much less visible in this section (a slightly wider buffer zone would have been the only improvement). This section of the river supports a number of indigenous plants, including a number of beautiful indigenous trees.

The riparian vegetation was mostly dominated by *Searsia angustifolia* (forming dense clumps or bushes) but also included species like *Brabejum stellatifolium* (Wild almond), *Cassine peragua*, *Chasmanthe* species, *Cliffortia strobilifera*, *Freylinia lanceolata* (Honey bells), *Grubbia* cf. *rosmarinifolia*, *Halleria eliptica* (Bush honeysuckle), *Ilex mitis*, *Kiggelaria africana* (Wild Peach), *Myrsine africana*, *Searsia glauca* and *Zantedeschia aethiopica*.

The alternative option (purple line in Figure 8) will have the pipeline crossing to the south side of the river over an existing bridge running along the south of river from here on to its end. Again the pipeline will run within existing farm roads next to the river. Even though this is potentially also a viable option, it might result in an impact on a very dense and beautiful section of indigenous riparian vegetation (which is not recommended), in which case the preferred option will remain the option with the least impact.

Proposed rive crossing:

The construction of concrete pillars on either side of the river, away from the riparian zone, with a ladder like bridge on top of these pillars on which the pipeline will be attached will result in a much smaller construction footprint with almost no impact on the riparian vegetation. The river crossing location and method is supported by the botanical specialist since it will result in the minimum impact. The proposed location for the river crossing in in an areas already showing signs of degradation.

Figure 10: Photo showing site selected for the river crossing showing signs of degradation.

Pipeline route: Lower section:

The last section of the pipeline will run to the south of the Wabooms River, again within existing farm roads or within agricultural land (no natural veld remaining, apart from some indigenous plants still remaining in a much compromised riparian zone next to the river). Again the footprint will not impact on any remaining natural vegetation. At this point the construction footprint is not restricted since the adjacent land is mostly grazing pastures (which will easier accommodate construction). Unfortunately, the riparian vegetation along this section of the river is in poor condition and mostly dominated by alien invasive species (with erosion much more prominent).

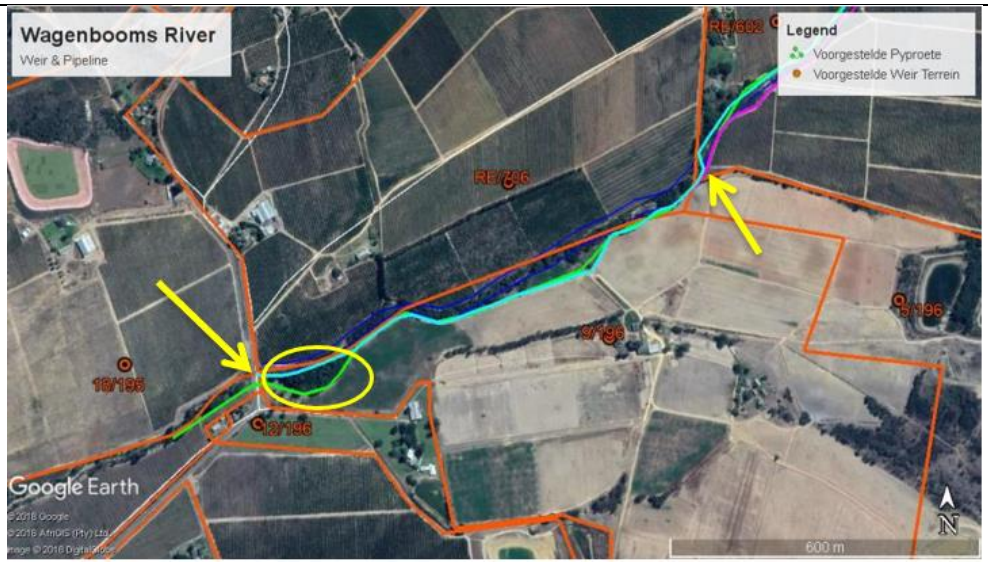

Figure 11: Lower section of the proposed pipeline route (light blue) (Botanical Impact Statement).

From where the pipeline cross the river to its southern bank the pipeline will run in degraded agricultural land with no additional impact on any remaining natural veld (expected to be Breede Alluvial Fynbos). As long as the pipeline and construction does not impact on the riparian zone (even though it is also in poor condition) there should be no additional impact on natural vegetation.

The photo below shows a poplar bush (*Populus* cf. *alba*) which is located within the yellow circle in Figure 8. The preferred alternative (light blue line in Figure 11 above) shows the pipeline going through this bush (in order to follow the stream more closely). This is not recommended. Even though the bush is dominated by Poplar trees, there is still some indigenous vegetation in between the poplar trees which can be used as a basis for transforming the riparian vegetation back to more natural vegetation. Going through the bush also increases the risk of future erosion, which may result in costly erosion control measures. It is recommended that the green line option (Figure 11) is followed around this bush back to the river. This recommendation will be discussed with the engineers and included in die section discussing Alternatives (Section E of this report)

Figure 12: Poplar bush located within the yellow circle in Figure 11

Figure 13: The point where the pipeline will dispose its water back into the Wabooms River (with the Poplar bush just showing in the back ground).

The following information was taken from the Freshwater Specialist's Technical Report (Appendix G2) and focusses on the aquatic features of the site.

The freshwater specialist took samples at various points in the Waaboomsrivier. The upper sampling point was conducted at the site where the water division structure is proposed. The lower sampling point was conducted before the existing weir and canal, of which it is proposed that the canal be rehabilitated. A third sampling point included a dry cobble bed, further down stream from the existing weir and canal , where a road crosses the Waaboomrivier and there is not water in the river.

The upper sampling point or water structure site:
This part of the Waaboomsrivier/ upper mountain stream can be described as a cobble bed up against the mountain side, with fast flowing water. (Probably why that part of the river is sometimes referred to as the Snel River). The water is described as clear, and does not have the vegetation-stained brown colour typical of waters in the mountain Fynbos. The incline is steam with sandstone bedrock, stones (in and out of current) and a small pool with turbulent water. The vegetation consisted of a few patches of moss. The stream was approximately 5m wide. The depth varied from a couple of centimetres in the riffles to a meter in the pond. The riparian zone is heavily infested by alien invasive trees such as black wattle (*Acacia mearnsi*), *Eucalyptus* gum trees and thorny brambles (*Rubus fruticosus*).

Figure 14: Upper sampling point/ water structure site

The lower sampling point before the existing weir and canal (canal to be rehabilitated):

The lower sampling point can be described as a fast flowing lower mountain steam of approximately 5m wide. The incline is more gradual than up the mountain. The water was clear. The extensive cobble bed has some large rocks that can be classified as bedrock, in and out of the current. There was much emerging indigenous vegetation (sedge *Cyperus denudatus*) growing right into the stream.

Figure 15: Lower sampling point (before existing weir and canal)

Figure 16: Existing weir & canal

The riparian zone is degraded, with the sides banked up with cobbles to from berms along most of the stream. It is clear that stream was straightened out since the start of farming in the area for a hundred years and more. Vineyards and fruit orchards wee right up to the banks of the stream. Much of the banks were taken over by Black Wattle, interspersed by the indigenous taaibos trees (*Searsia* species).

SASS5 Score:

The SASS5 score at the upper sampling point indicated a healthy aquatic environment with an excellent biodiversity for such a small stream, even though the upper sampling point has been affected by human impact and water extractions. Biodiversity in the upper sampling point is seen as excellent with little if any human impact (class A).

There is a marked drop n the SASS5 score from the upper to the lower sampling point. This is despite the lower sampling point having a good flow of water and wider variety of habitat during the site visit. Biodiversity in the lower sampling point is good, with some impact (class B). The low score could be attributed to agricultural return flow, which was evident along the river.

The dry cobble bed is devoid of aquatic macroinvertebrates and has no SASS5 score.

Figure 17: Dry cobble bed

Water Quality

The overall water quality is considered good. It did not explain the lowering of the SASS5 score at the lower sampling point. The presence of insecticides in the water might have been the reason.

PES and EIS

The freshwater specialist stated that the according to DWS, the Present Ecological State (PES), referring to the habitat integrity of the Waaboomsriver was assigned a Categrory D/E (moderately to largely modified), as most tributaries of the Breede River. The Ecological Importance (EI) referring to the diversity, rarity, uniqueness of habitats and biota and reflects the importance of protecting there ecological attributes, has been rated as “Low” by DWS. Whereas the “Ecological Sensitivity”, referring to the ability of an ecosystem to tolerate disturbances and recover from impacts, was rated as “Moderate” by DWS.

The Freshwater specialist stated that the habitat assessment paints a different picture as that of DWS as discussed above. According to the current instream assessment the upper sampling point habitat integrity is given a PES rating of A (near natural condition), the rating quickly declines to a D (largely modified) at the lower sampling point and then to an E(extensively modified) at the dry cobble bed where all the water is abstracted.

In terms of the riparian zone, which is heavily invaded by alien vegetation such as Black Wattle and Blue gum trees, with only a few indigenous bushes left, the PES at the upper sampling point is given a D (largely modified rating), declining to E (extensively modified) at the lower sampling point and a F at the dry cobble bed.

The ES refers to a rivers potential to bounce back to an ecological condition closer to the situation prior to human impact.

The freshwater specialist states that a number of indigenous fish species can potentially be present in the river and recorded many *S. Capensis*, during site visits. When the river is dry either because of natural fluctuations such as seasonal rainfall of water abstraction for agriculture, fish and macroinvertebrates disappear. However, fish and macroinvertebrates reappear in the freshly flooded river following heavy rainfall in the mountains as recruitment takes place from the upper river reaches. Recruitment of macroinvertebrates

occurs as flying insects colonise the newly available habitat. This phenomenon has been recorded in other similar rivers as the Snel River, such as the Jan du Toit River.

The specialist concludes that the Snel River is not sensitive to dry conditions and will predictably recover as the flow of water returns. If an adequate volume of water is allowed to flow down the river, this would happen all the way to the confluence.

The area carries a vested agricultural industry that in effect destroyed most of the riparian zone. It does not seem realistic to expect that the berms will ever be removed, the river be allowed to naturally meander and that the natural vegetation will be re-planted. The almost non-existent riparian zone can nevertheless be categorised as most sensitive. It will not easily return to its former state, even if aided by a major rehabilitation program.

During construction of the Water Structure 1 Alternative 1 (**Appendix B1.1**), the riparian habitat will be lost, However, the riparian zone in which the water distribution structure is proposed has been classified as largely modified. The PES rating attributed to the instream habitat where the water distribution structure is proposed is A (near natural), but the river is also given a "moderate" rating in terms of its ability to tolerate disturbances and to recover from impacts (Ecological Sensitivity).

Rather, it is the abstraction of water that would have a negative effect on the river health, shortening the hydroperiod, extending the dry period lower down the river. If additional water is abstracted form the river to the level of the Ecological reserve, there is a high risk that the exposed cobble bed without any flow of water will creep up the river and aquatic biodiversity will be affected. As a mitigation measure it is proposed that illegal water offtakes along the river be stopped.

The Freshwater specialist states in his report (**Appendix G2**) the construction of the smaller water divide structure (Water Structure 1 Alternative 1) will have a smaller impact on the on the riparian zone, which is already classified as disturbed.

The construction and presence of the pipeline would not bring about further and unacceptable deterioration, where the pipeline crosses the river via concrete anchors and the anchors will have to be outside of the river bed.

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 properties on which the proposed development falls is zoned for Agriculture. From the Land use map Figure 14 below (and **Appendix D**) it is clear that the properties are dominated by agricultural activities, specifically vineyards and fruit orchards. The figure below also shows the Waaboomsriver running through the relevant properties.

The relevant properties fall within the Waboomsrivier catchment. The upper catchment is wedged into a deep bowl in the mountains of the Matroosberg Mountain Catchment. The Waboomriver catchment is a small sub-catchment and is one of many along the Breede River. The highest point of the sub-catchment is 2005m above sea level. The confluence with the Breede River is only at 226m above sea level. This difference in elevation over such a short distance is responsible for the dramatic landscape.

Apart from the upper parts against the very steep sloped of the mountains, the catchment area is developed into agricultural land. Grapes for the wine industry and fruit is extensively farmed with every available patch of land groomed into high-yielding crops. The Waboom River valley forms a part of a much larger agricultural industry all along the Breede River. Farms have been in existence since the early days of human settlement in the Western Cape and some farms have been family property for literally a hundred years and more.

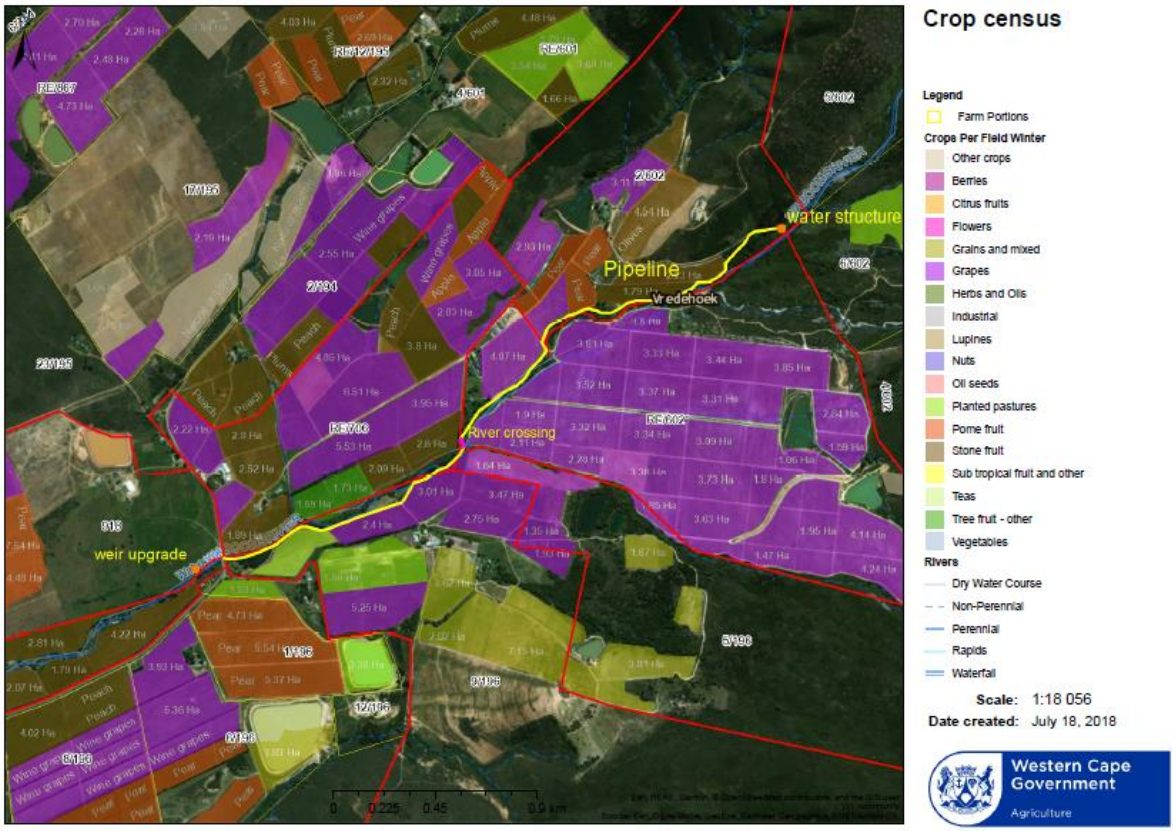

Figure 18: Land-use map, showing the proposed development in yellow on the relevant properties, surrounded by agricultural activities

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):				

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

The Land Use Map, **Figure 18** above show that land uses surrounding the property is also dominated by agricultural activities, mainly wheat farming.

Also refer to the Locality Map, **Appendix A**, which shows the locality of the proposed development in relation to surrounding towns. The sites selected for the proposed development is located about 20km south east of Wolseley, 27km south of Ceres, and just under 40km north-east of Worcester. The site is situated in a mountainous area and can only be accessed via private and commercial farmland from the R43.

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.*).

The following information was taken from the 2017 Wizenberg Municipality Social Economic Profile (SEP).

In 2018 the Witzenberg municipality will have an estimated population of 130 607 and after five years this population is estimated to be 139 972.

In terms of education, the learner enrolment in Witzenberg topped off from 18 181 in 2015 to 18048 in 2016. The drop-out rates for learners within Witzenberg municipal area that enrolled between 2015 and 2016 remained unchanged at 35.5 per cent. These high levels of drop-outs are influenced by a wide array of economic factors including unemployment, poverty, indigent households, high levels of households with no income or rely on less than R515 a month and teenage pregnancies. In 2016, Witzenberg had a total of 54 schools. Witzenberg matric pass rate declined slightly from 75.1 per cent to 72.5 per cent between 2014 and 2015. However, the matric pass increased to 74.5 per cent in 2016, which could improve access for learners to higher education to broaden their opportunities. The matric pass rate within the Witzenberg area remains well below that of the other regions in the Cape Winelands District

Unemployment has been steadily rising in the Witzenberg municipal area over the last decade, with an unemployment rate of 6.9 per cent recorded in 2015. In 2016, the unemployment rate of the Witzenberg municipal area is estimated to have increased to 7.0 per cent, which is lower than that of the Cape Winelands District (11.6 per cent) and significantly lower than that of the Province (18.7 per cent in 2016).

T**he local economy of the Witzenberg municipal area is driven by the agriculture,** forestry and fishing sector (17.3 per cent), the wholesale and retail trade, catering and accommodation sector (16.9 per cent), the finance and business services sector (15.4 per cent) and the manufacturing sector (14.2 per cent). Combined, these sectors contribute more than R5.0 billion to the economy.

In terms of labour, the sectors contributed the most to the 63 361 jobs in the Witzenberg municipal area in 2015 were the **agriculture**, forestry and fishing sector (34.7 per cent) and the wholesale and retail trade, catering and accommodation sector (18.4 per cent). Even though the manufacturing sector contributes R1.1 billion (14.2 per cent) to the GDPR, this sector only employed 3 605 people (5.7 per cent of employment) in 2015 indicating that the manufacturing sector within the Witzenberg municipal area is less labour intensive and more dependent on mechanisation.

The **agriculture**, forestry and fishing sector in the Witzenberg municipal area has shed 5 684 jobs between 2005 and 2015, however, it has experienced a significant increase in agricultural jobs in 2012, 2013 and 2015, which is in line with the change in employment in this sector for the District over the same period. Employment in this sector is volatile, with job losses in 2011, 2014 and 2016. Labour needs within the agricultural, forestry and fishing sector are seasonal i.e. not permanent, which depends on the harvest each year. Changes in the number of hectares under production will also have an impact on the demand for labour. Favourable economic conditions resulting in new investment from farmers to expand their orchards and vineyards will increase the demand for labour and vice versa.

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:	The proposed development will exceed 5000m² CTS Heritage conducted a Heritage Screener (**Appendix G3.1**) as well as submitted a NID (**Appendix G3.2**) to Heritage Western Cape (HWC). HWC sent back comments (**Appendix E1**) stating that the proposed development will not impact on heritage resources under Section 38 of the National Heritage Resources Act.		
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:	No, findings from the Heritage Screener (**Appendix G3.1**) suggest that the proposed development will not have any impact on heritage resources.		
Will any building or structure older than 60 years be affected in any way?	~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	No, there are no buildings in the vicinity that will be affected.		
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, findings from the Heritage Screener (**Appendix G3.1**) suggest that the proposed development will not have any impact on heritage resources.		

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 EIA Regulations 2014 (As amended)	Department of Environmental Affairs and Development Planning ("DEA&DP")	Environmental Authorisation	The Basic Assessment process (this report) is currently underway.
National Water Act, 1998 (Act No. 36 of 1998)	BGCMA	Sarel Bester Ingenieurs submitted the EWULA for other activities that trigger section 21 of the National Water Act. These are the following: • *S21 (c) Impeding or diverting the flow of the water course* • *S21 (i) Altering the bed, bank, course or characteristic of a watercourse*	EWULA in process **WULA REF: WU7769**
National Heritage Resources Act 1999 (Act 25 of 1999)	Heritage Western Cape	Notice of Intent to Develop (NID)	A NID was submitted to HWC (**Appendix G3.2**). HWC commented (**Appendix E1**) on the NID and concluded that no heritage resources will be lost due to the proposed development.

(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:**
DEADP Guidelines	All guidelines were consulted and adhered to when undertaking this Basic Assessment Report.

National Environmental Management Act, 1998 (Act 107, 1998).	This application is being undertaken according to the National Environmental Management Act, 1998.
National Water Act (Act 36 of 1998)	There is no need to apply for a new water use license for the *taking of water.* Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards. Sarel Bester Ingenieurs submitted the EWULA for other activities that trigger section 21 of the National Water Act. These are the following: • *S21 (c) Impeding or diverting the flow of the water course* • *S21 (i) Altering the bed, bank, course or characteristic of a watercourse* **WULA REF: WU7769**
National Heritage Resources Act (Act 25 of 1999)	A NID was submitted to HWC (**Appendix G3.2**). HWC commented (**Appendix E1**) on the NID and concluded that no heritage resources will be lost due to the proposed development.

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
Department of Environment and Development Planning (DEADP)	27 October 2017	09 November 2018	DEADP acknowledged receipt of the Notice of Intent to Develop
DEADP	27 October 2017	16 November 2018	No decision made yet. Standard comments from DEADP. See comments and response report (C&RR) **Appendix F1**.
Witzenberg Local Municipality	10 November 2017	No comments received yet	No comments received yet
Cape Winelands District Municipality	10 November 2017	No comments received yet	No comments received yet

Ward 3 & 5 Councillors Witzenberg Local Municipality	10 November 2017	No comments received yet	No comments received yet
Cape Nature	10 November 2017	22 November	No decision made yet. Please see comments in C&RR **Appendix F1.**
Breede-Gouritz Catchment Management Area (BGCMA)	10 November 2017	14 December 2017	No decision made yet Please see comments in C&RR **Appendix F1.**
Heritage Western Cape NID submitted to HWC	8 March 2018	18 April 2018	HWC confirms that the project would not have any affect on any Heritage Resources Please see Appendix E1 for comments from HCW.
Western Cape Department of Agriculture – Land use Management	10 November 2017	No comments received yet	No comments received yet

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**).

Standard comments received from DEADP
Standard comments received from BGCMA
Comments received from Cape Nature

All I&APs and Organs of State will have the chance to comment on this Pre-Application BAR (for comment).

All comments and responses captured and addressed in the comments and response report (**Appendix F.1**).

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

Please refer to Cape Natures comments (point 3) and the best possible response to these comments (at this time) in the comments and response report **Appendix F.1**.

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).

Interested and Affected Parties (I&APs) were identified throughout the process. Landowners adjacent to the proposed site, relevant organs of state, organizations, ward councillors and the Local and District Municipality were added to this database. A complete list of organisations and individual groups identified to date is shown in **Appendix F5.**

Public Participation was conducted for this proposed dam in accordance with the requirements outlined in Regulation 41, 42, 43 and 44 of the NEMA EIA Regulations 2014 as amended, as well as the Department of Environmental Affairs and Development Planning's guideline on Public Participation 2011. The issues and concerns raised during the scoping phase will be dealt with in the EIA phase of this application.

As such each subsection of Regulation 54 contained in Chapter 6 of the NEMA EIA Regulations will be addressed separately to thereby demonstrate that all potential Interested and Affected Parties (I&AP's) were notified of the proposed development.

Please refer to the table below which indicate the public participation process conducted this far

R41	Posters, Advertisement & Notification letters
(2) (a) (i)	Two large posters (A2) were displayed on RE Extent of Farm Vredehoek, which is one of the properties on which the proposed development will fall at designated points where it was thought the public would have access i.e. the UCT hiking notice board and a bridge on the way to site. Smaller posters (A3) and notification letters were also placed at the Agrimark in Wolseley, Cape Winelands District Municipality, and at Botha Winkel on the R43, Worcester. Please see **Appendix F2 (maildrops) & F3 (proof of posters)**
(ii)	N/A Proposed alternatives are located on the same property.
(2) (b) (iii)	Notification letters were sent to the municipal ward councilor at the Witzenburg Local Municipality & Cape Winelands District Municipality. Please see **Appendix F4**
(iv)	Notification letters were sent to Witzenberg Local Municipality Please see **Appendix F4**

(v)	Notification letters were sent to the following organs of state: • Department of Environment and Development Planning • Breede-Gourtiz Catchment Management Area • Cape Nature • Heritage Western Cape • WC Department of Agriculture and Land Use Management Please see **Appendix F4**
(vi)	Notification letters were sent to neighbours Please see **Appendix F4**
(2) (c) (i)	An advert was placed in the Worcester Standard 9 November 2017. Please see **Appendix F6**
R42 & 34	**Register of I&AP**
(a), (b), (c), (d)	A register of interested and affected parties was opened and maintained and is available to any person requesting access to the register in writing Please see **Appendix F5**
R43	**Registered I&AP entitled to comments**
3	I&AP were given 30 days for comments during the initial public participation phase and will be giver 30 day to comment on the Pre-Application BAR (this report).
R44	**I&AP to be recorded**
	A summary of issues raised by I&AP are addressed in the comments and response report (C&RR). Please see **Appendix F1** for the C&RR and **F1.1 – F1.5** for the original comments received this far.

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 for Agriculture.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("**PSDF**").	YES	~~NO~~	~~Please explain~~
The proposed development of the water division structure with associated pipeline and rehabilitation of the existing canal will allow for the better utilisation and distribution of listed water to rightful water users for the agricultural purposes . Water has become a scarce resource in the Western Cape. The efficient use of listed water for irrigation leads to economic gains as Agriculture remains the backbone of the Western Cape economy.			
(b) Urban edge / edge of **built environment** for the area.	YES	~~NO~~	~~Please explain~~
The properties are part of the existing agricultural environment associated with the larger area and not near any build 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 approval of the proposed development of the water division structure with associated pipeline and rehabilitation of the existing canal would not compromise the integrity of the Witzenberg Local Municipality's IDP and SDF but will contribute to the better utilisation and distribution of listed water to rightful water users for the agricultural purposes. Water has become a scarce resource in the Western Cape. The efficient use of listed water for irrigation leads to economic gains as Agriculture remains the backbone of the Western Cape economy.			
(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~~
An EMF has been adopted by the Cape Winelands District Municipality and approval of the proposed project, with correct mitigation measures in place, will support environmental management priorities as adopted in the EMF.			
(e) Any **other** Plans (*e.g.,* Integrated Waste Management Plan (for waste management activities), *etc.*)).	~~YES~~	NO	~~Please explain~~
N/A			
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 approval of the proposed development of the water division structure with associated pipeline and rehabilitation of the existing canal would not compromise the integrity of the Witzenberg Local Municipality's IDP and SDF but will contribute to the better utilisation and distribution of listed water to rightful water users for agricultural purposes. Water has become a scarce resource in the Western Cape. The efficient use of listed water for irrigation leads to economic gains as Agriculture remains the backbone of the Western Cape economy.			
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~~
N/A			
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 approval of the proposed development of the water division structure with associated pipeline and rehabilitation of the existing canal would not compromise the integrity of the Witzenberg Local Municipality's IDP and SDF but will contribute to the better utilisation and distribution of listed water to rightful water users for agricultural purposes. Water has become a scarce resource in the Western Cape. The efficient use of listed water for irrigation leads to economic gains as Agriculture remains the backbone of the Western Cape economy.			
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~~
There is no need to apply for a new water use license for the *taking of water.* Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards.			

Sarel Bester Ingenieurs submitted the EWULA for other activities that trigger section 21 of the National Water Act. These are the following:

- *S21 (c) Impeding or diverting the flow of the water course*
- *S21 (i) Altering the bed, bank, course or characteristic of a watercourse*

Existing access roads will be used.

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~~

This development is not expected to have any significant impact on infrastructure plans for the Municipality. It will not result in additional infrastructure or water use (or in impact on any existing infrastructure of the Municipality).

8. Is this project part of a **national programme** to address an issue of national concern or importance?	~~YES~~	NO	~~Please explain~~

N/A

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~~

Yes, the location favours the land use. Properties involved are zoned agriculture and the project involves a water distribution structure for distribution of water to rightful water users for irrigation purposes.

Without the proposed development (water division structure and pipelines) water was supposed to flow down the Waaboomsrivier to the existing weir and canal (of which it is proposed that the canal be rehabilitated) from where is it divided and distributed to the rightful water users – Darling Brug & Wagenboomsrivier Irrigation Boards. Unfortunately, because there is currently no regulation of the water flowing down the river, the water gets taken by other water users in the area (not their rightful water use) and does not reach the division canal to be distributed to the rightful irrigation boards.

The rightful water users (Darling Brug & Wagenboomsrivier Irrigation Boards) took the matter to court and therefore, as per the Supreme Court ruling dated 22 February (**Appendix K),** this project involves the investigation of the impact of a water division/ distribution structure on the chosen land/ properties involved.

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~~

From the Botanical Impact Assessment (**Appendix G1**), Freshwater Specialist's Technical Report (**Appendix** G2) and the Heritage Screener (**Appendix G3**) the conclusion can be made that the proposed development will not impact on sensitive, natural and cultural areas.

Comments from Heritage Western Cape confirm that the proposed development will not impact on heritage resources (**Appendix E1**).

The Freshwater specialist is of the opinion that during construction of the water distribution structure, the riparian habitat will be lost, but this should not affect the downstream habitat. However, the riparian zone in which the water distribution structure is proposed has been classified as largely modified. The PES rating attributed to the instream habitat where the water distribution structure is proposed is A (near neutral), but the river is also given a "moderate" rating in terms if its ability to tolerate disturbances and to recover from impacts (Ecological Sensitivity). Rather, it is the abstraction of water that would have a negative effect on the river health, shortening the hydroperiod, extending the dry period lower down the river (mitigation measures discussed later in the report). The Freshwater specialist states in his report (**Appendix G2**) the construction of the smaller water divide structure (Water Structure 1 Alternative 1) will have a smaller impact on the on the riparian zone, which is already classified as disturbed.

The distribution chamber and associated infrastructure will fall on vegetation which could be described as disturbed fynbos, presently almost replaced by dense stands of alien invasive plant species, such as Black Wattle.

The pipeline route has also been carefully chosen to fall within degraded/ transformed areas which will not result in any additional impacts on any remaining natural veld. The preferred pipeline route (last 205m) has also been adjusted to avoid the loss of indigenous vegetation and destabilisation of the river bank, as per recommendations form the Botanical Specialist.

The location and method of River crossing Alternative 1 (preferred alternative, associated with preferred pipeline route 1), is supported by the botanical specialist. The area selected for river crossing alternative 1 is also degraded. River Crossing Alternative 2 associated with pipeline route 2, (not preferred) would have resulted that the pipeline could impact on a very dense and beautiful section of indigenous vegetation. The freshwater specialist agrees that the construction and presence of the pipeline would not bring about further and unacceptable deterioration, where the pipeline crosses the river via concrete anchors and the anchors will have to be outside of the river bed

The proposed canal rehabilitation would not result in an enlargement of the footprint, the area is already transformed.

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~~

No negative health effects are expected for this project during construction / operations. The proposed development will be on agricultural land and will fit in with the sense of place.

12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	~~YES~~	NO	Please explain

The proposed development will not result in unpredictable opportunity costs but will contribute to the more efficient distribution of an existing water use and a scarce resource, to rightful water users.

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:

- The proposed development will allow for the better utilisation and distribution of listed water to **rightful** water users for the agricultural purposes.
- This investigation of the proposed project could bring attention to authorities regarding rightful water offtakes in the Waaboomsrivier and the omission of water offtakes along the river apart from the formal ones. The construction of the envisaged project could formalise current abstractions and allow for better control by authorities.

Negative:

- Although the areas selected for proposed development is mostly degraded, the proposed development would contribute to the further transformation of the area.

14. Is the development the **best practicable environmental option** for this land/site?	YES	~~NO~~	~~Please explain~~

At present there are no other viable alternative land use options for these sites (unless it to keep it natural).

15. What will the benefits be to society in general and to the local communities?	Please explain

The proposed development will ensure rightful water use distribute to rightful water users.

16. Any **other** need and desirability considerations related to the proposed development?	Please explain
N/A	

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

The general objectives of Integrated Environmental Management have been taken into account through the following:

- The actual and potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management – *please refer to Section F below*.
- The effects of the activity on the environment have been considered before actions taken in connection with them – *alternatives have been considered and investigated (please refer to Section E below).*
- Adequate and appropriate opportunity for public participation is ensured through the public participation process
- The environmental attributes have been considered in the management and decision-making of the activity – *an EMP has been included (**Appendix H**) with the proposed activity and must adhere to the requirements of all applicable state Authorities.*

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

The principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs have been placed at the forefront while serving their physical, psychological, developmental, cultural and social interests – *the proposed activity will have a beneficial impact on people, regarding their cultural believes.*
- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. - *Although the activity is expected to have little to no environmental impact, these impacts have been considered, and mitigation measures have been put in place.*
- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence of EMP.
- The use of non-renewable natural resources is responsible and equitable – *no exploitation of non-renewable natural resources occurs with the proposed activity, the activity aims to better utilize an existing water use.*
- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied - *refer to Section F below*.
- The interests, needs and values of all interested and affected parties will be taken into account in any decisions through the Public Participation Process
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits – *refer to Section F below.*
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option – *the proposed activity is expected to have minimal/negligible environmental impacts, especially after mitigation measures as described under Section F and in the EMP are implemented.*

SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

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

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

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

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

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

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

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

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

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

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

No viable property alternatives.

(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:

N/A. No activity alternatives were investigated (or viable activity alternatives identified).

(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:

Water structure alternative:
Water Structure Alternative 2 (Not preferred alternative):

Water Structure Alternative 2 is referred to as the "Binnebedding Struktuur" or Structure 1 in Sarel Bester Ingenieurs Exploration Document (Appendix K). Please refer to Layout Drawing **1724-08** for the proposed design of Alternative 2 in **Appendix B2.1.** The proposed Water Structure is proposed on Portion 2& 6 of Farm Vredehoek 602.

Water Structure Alternative 2 entails an extremely large structure/ weir across the Snelriver, with an instream division chamber and along with the necessary piped outlet works from which a proposed new ±2,7km ø350mm pipeline originates as well as the existing pipeline.

The total expected (permanent) footprint for Alternative 2 (without the proposed new pipeline) would be:

Weir and instream division chamber: 13,2m x 22,3m = 294,36m² = ±3ha

Construction footprint for Alternative 2 (without the proposed new pipeline) would be:

294,36m² + 748m² = ±1042,36 (±10,5ha)

Total permanent footprint Water Structure Alternative 2 (without pipeline footprint)	±3ha
Total construction footprint Water Structure Alternative 2 (without pipeline footprint)	±10,5ha

Pipeline Route Alternatives and River Crossings:

Pipeline Route 2 Alternative 2 (not preferred) (**Appendix B2.2**)
Pipeline Route 2 (not preferred) will also connect to the division chamber outside the river bed at point 33°29'55.20"S 19°16'48.17"E on Portion 2 of Farm Vredehoek 602 where it will follow existing farm roads to the north of the river banks for approximately 1km. It was proposed that the pipeline will cross the river via an existing bridge on Remaining Extent of Farm Vredehoek 602 (River crossing 2 Alternative 2) from where is will follow existing farm roads all along the southern banks of the river across Portion 5 of Farm Rietvalley 198, Remaining extent of Farm 706 and Portion 9 Farm Rietvalley 198.

The pipeline will stop under the bridge on Farm Onverwacht 918. Water will flow in the river towards an existing weir and division canal (33°30'35.87"S19°15'23.71"E) which will divide the water further according to the designated 40/60 ratio for the Darling Brug and Wagemboomsrivier irrigation boards.

This pipeline route (route 2) could not be agreed upon as the owner of Remaining Extent of Farm Vredehoek 602, would not give consent to use the existing bridge as a river crossing. Therefore pipeline route 1 would be the preferred alternative.

The footprint of Pipeline Route 2 (not preferred) would be the same as Pipeline route 1 (preferred)
Total permanent footprint of the pipeline: 27 000m²
Construction footprint of pipeline: 216 000m² (21,6 ha).

River crossing alternative:
River crossing 2 Alternative 2 (Not preferred) – over the river on an existing bridge
It was initially proposed that the pipeline should cross the river on an existing bridge associated with Pipeline 2 Alternative 2.
It was initially proposed that the pipeline cross the river on Remaining Extent of Farm Vredehoek 602 from where it will follow existing farm roads all along the southern banks of the river.

(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 technology applicable.

(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:

The operational alternatives could also refer to the proposed Water structures Alternatives (as discussed above).

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

The no-go alternative will result in no development, which will mean the listed water dedicated to the rightful water users (80% to Darling Brug & Wagenboomriver Irrigation Boards and the other 20% to Portion 2 Vredeheok 602 and Arbeidsvreugd as per the High Court Ruling) will be lost to other farmers in the area.

The 'status quo' persisting as long as there was no unanticipated disturbance, the sites will remain as is, transformed and disturbed.

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

N/A

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

WATER STRUCTURE ALTERNATIVES

Water Structure 1 Alternative 1 (Preferred Alternative)

Water structure Alternative 1 (Preferred Alternative) is referred to as the "Buitebedding Struktuur" or Structure 2 in Sarel Bester Ingenieurs Exploration Document (Appendix K). Please refer to Layout Drawing **1724-08** for the proposed design of Alternative 1 in **Appendix B1.1.** The proposed Water Structure is proposed on Portion 2 & 6 of Farm Vredehoek 602.

Water Structure Alternative 1 the construction of a massfill and reinforced concrete weir, with its connecting division chamber outside the river, along with the necessary piped outlet works from which a proposed new ±2,7km ø350mm pipeline originates. The weir will have a maximum total height of ±2m, a length of ±5m and a top width of ±300mm. It will be based on a foundation of ±9m wide and 800mm deep and will be equipped with a downstream flush valve. Coordinates of the proposed weir and division chamber is: 33°29'55.20"S 19°16'48.17"E. The weir will fall on Portion 2 & 6 of the Farm Vredehoek 602 and the division chamber and pipelines will fall on Portion 2 of the Farm Vredehoek 602.

The weir will be connected to the division chamber (10m x 4,2m) via a 10m long ø900mm uPVC pipe to allow water to flow into the division chamber. From the division chamber both the existing private pipeline as well the proposed new ±2,7km ø350mm pipeline will be connected. The existing private pipeline will connect to an existing manhole and fountain and the new proposed ±2,7km ø350mm pipeline will lead along the banks of the Waboomrivier, mostly on established farm roads to a designed point (discussed below). Reserve and surplus water would be directed back to the main stream with a 15m long, 0,5m deep and 2m wide concrete or gabion channel structure.

The total (permanent) footprint of Water Structure Alternative 1 (without pipeline works) would thus be: 127m2

Weir	9m x 5m = 45m²
Division Chamber	10m x 4,2m 42m²
Inlet Pipe	10m x 1m = 10m²
Surplus outlet channel	15m x 2m = 30m²
Total permanent footprint Water Structure Alternative 1 (without pipeline footprint)	**127m²**
Total construction footprint Water Structure Alternative 1(without pipeline footprint)	**875m²**

The Construction footprint/ laydown area (Water structure Alternative 1) within which the proposed weir, division chamber and associated infrastructure (as set out above) will fall will be approximately 25m x 35m = 875m².

Water Structure 2 Alternatives2 (Not Preferred):

Water Structure Alternative 2 is referred to as the "Binnebedding Struktuur" or Structure 1 in Sarel Bester Ingenieurs Exploration Document (**Appendix K**). Please refer to Layout Drawing **1724-08** for the proposed design of Alternative 2 in **Appendix B2.1.** The proposed Water Structure is proposed on Portion 2 &6 of Farm Vredehoek 602.

Water Structure Alternative 2 entails an extremely large structure/ weir across the Snelriver, with an instream division chamber and along with the necessary piped outlet works from which a proposed new ±2,7km ø350mm pipeline originates as well as the existing pipeline.

The total expected (permanent) footprint for Water Structure Alternative 2 (without the proposed new pipeline) would be:

Weir and instream division chamber: 13,2m x 22,3m = 294,36m² = ±3ha

Construction footprint for Water Structure Alternative 2 (without the proposed new pipeline) would be:

294,36m² + 748m² = ±1042,36 (±10,5ha)

Total permanent footprint Water Structure Alternative 2 (without pipeline footprint)	±3ha
Total construction footprint Water Structure Alternative 2 (without pipeline footprint)	±10,5ha

Outcome and reason for decision that Water Structure Alternative 1 is the preferred alternative:
When considering the footprints of the proposed alternative and after discussions with BGCMA in the pre-application meeting, it was decided that Water Structure Alternative 1 would be the preferred alternative as it would have a much smaller footprint on the receiving environment.

PIPELINE ROUTE ALTERNATIVES AND RIVER CROSSINGS;

A new pipeline is proposed which will connect to the proposed division chamber outside the river (Pipeline Route 1 Alternative 1), and will carry the 80% listed water allocated to Darlingbrug and Wagenboom irrigation boards along the banks of the Waboomsriver, mostly on established farm roads. The pipeline will be approximately 2,7km long with a diameter of 350mm. Two different pipeline routes were investigated and after discussions with the various landowners on which the pipeline will have to be established, Pipeline route 1 Alternative 1 was agreed upon. (Please refer to **Appendix B1.2 & B2.2** for a maps of the proposed pipeline routes).

Pipeline Route 1 Alternative 1 (Preferred Alternative) (**Appendix B1.2**)

Please refer to **Appendix B.1.2 (**Figure 1 & 2) and for the proposed layout for Pipeline route 1. Please also refer to **Appendix B3.1** on the CD for a kmz file indicating the proposed pipeline route.

Pipeline route 1 (preferred route) will connect to the division chamber outside the river bed at point 33°29'55.20"S 19°16'48.17"E on Portion 2 of Farm Vredehoek 602 where it will follow existing farm roads on the northern banks of the river for approximately 1km towards the property border.

The pipeline will continue on existing farm roads on the northern banks of the river on the Remaining Extent of Farm Vredehoek 602 for approximately 500m form where it is proposed the pipeline will cross the river via a structure. It is proposed that the pipeline will go over the river at two points via four anchors as the Waboomsriver splits and has a little non-perennial side stream. The concrete anchor blocks will be built close to the river banks to receive a bridge to carry the pipeline over The pipeline will cross the river from Anchor 1 to Anchor 2 for ±15m on RE Farm Vredehoek 602(river crossing 1), from Anchor 2 to Anchor 3 for another ±15m on RE Farm Vredehoek 602 (which is not a river crossing), and then from Anchor 3 to Anchor 4 for ±5m on the southern banks of the river on Portion 5 of Farm Rietvalley 196 (River crossing 2). Please refer to River Crossing Section below for a detailed explanation of the proposed river crossings and **Appendix B1.3** for the layout plans.

From Anchor 4 the pipeline will continue on existing farm roads on the southern banks of the river for another ±36m on Portion 5 Portion 5 of Farm Rietvalley 196 where it will cross the property boundary to Remaining extent of Farm 706 for ±105m. The pipeline will continue on Portion 9 Farm Rietvalley 196 for approximately 860m on existing farm roads along the southern banks of the river.

Please note: As per recommendations by the biodiversity specialist it is recommended that the last 205m of the proposed pipeline route (Route 1 Alternative 1) be adjusted. As per **Appendix B1.2 Figure 1** is proposed that the last 205m of pipeline route 1 alternative 1 go through a Poplar bush (*Populus* cf. *alba*) in order to follow the stream more closely. The specialist is of the opinion that this is not recommended. Even though the bush is dominated by Poplar trees, there is still some indigenous vegetation in between the poplar trees which can be used as a basis for transforming the riparian vegetation back to more natural vegetation. Going through the bush also increases the risk of future erosion, which may result in costly erosion control measures. It is recommended that the green line option is followed around this bush (as per **Appendix B1.2 Figure 2)** back to the river.

Alternatives are suggested for the river crossing and will be discussed below.

Pipeline Route 2 Alternative 2 (not preferred) (**Appendix B2.2)**
Pipeline Route 2 (not preferred) will also connect to the division chamber outside the river bed at point 33°29'55.20"S 19°16'48.17"E on Portion 2 of Farm Vredehoek 602 where it will follow existing farm roads to the north of the river banks for approximately 1km. It was proposed that the pipeline will cross the river via an existing bridge on Remaining Extent of Farm Vredehoek 602 (River crossing Alternative 2) from where is will follow existing farm roads all along the southern banks of the river across Portion 5 of Farm Rietvalley 198, Remaining extent of Farm 706 and Portion 9 Farm Rietvalley 198.

Both pipeline routes will stop under the bridge on Farm Onverwacht 918. Water will flow in the river towards an existing weir and division canal (33°30'35.87"S19°15'23.71"E) which will divide the water further according to the designated 40/60 ratio for the Darling Brug and Wagemboomsrivier irrigation boards.

Both pipeline routes will have the same footprints:

Total permanent footprint for Pipeline routes	27000m²
Total construction footprint for Pipeline routes	±2,7ha

Outcome and reason for decision that Pipeline Route 1 Alternative 1 is the preferred alternative:
Pipeline route 2 Alternative 2 could not be agreed upon as the owner of Remaining Extent of Farm Vredehoek 602, would not give consent to use the existing bridge as a river crossing (River Crossing 2 Alternative 2). Therefore Pipeline Route 1 (Alternative 1) would be the preferred alternative.

RIVER CROSSING ALTERNATIVES:

River Crossing Alternative 1 (Preferred)
Please refer to **Appendix B1.3** for the layout.
It is proposed that new structure be constructed over which the proposed pipeline will cross over the river. Pipeline route 1 Alternative 1 is still the preferred route. It is proposed that the pipeline would go over the river at two points via 4 proposed Anchors (as the Waboomsriver splits and has a little non-perennial side stream).
It is proposed that the pipeline will go over the river at two points via four anchors. The concrete anchor blocks will be built close to the river banks to receive a bridge to carry the pipeline over. The pipeline will cross the river from Anchor 1 to Anchor 2 for ±15m on RE Farm Vredehoek 602(river crossing 1), from Anchor 2 to Anchor 3 for another ±15m on RE Farm Vredehoek 602 (which is not a river crossing), and then from Anchor 3 to Anchor 4 for ±5m on the southern banks of the river on Portion 5 of Farm Rietvalley 196 (River crossing 2).

Proposed structure	Coordinates	Relevant Property
Anchor 1	33°30'20.39"S 19°16'1.42"E	RE Farm Vredehoek 602
Anchor 2	33°30'20.89"S 19°16'2.13"E	RE Farm Vredehoek 602
Anchor 3	33°30'21.12"S 19°16'2.20"E	RE Farm Vredehoek 602
Anchor 4	33°30'21.52"S 19°16'2.09"E	Portion 5 of Farm Rietvalley 196

Total permanent footprint River crossing 1 Alternative 1	±16m²
Total construction footprint River crossing 1	±96m²

River Crossing Alternative 2 (not preferred)
It was initially proposed that the pipeline should cross the river on an existing bridge associated with Pipeline 2 Alternative 2 (**Appendix B2.3**).
It was initially proposed that the pipeline cross the river on Remaining Extent of Farm Vredehoek 602 from where it will follow existing farm roads all along the southern banks of the river.

Outcome and reason for decision that River Crossing Alternative 1 is the preferred alternative:
River crossing Alternative 1 would be the preferred alternative as the owner of Remaining Extent of Farm Vredehoek 602, would not give consent to use the existing bridge as a river crossing (River Crossing 2 Alternative 2) associated with Pipeline route 2 Alternative 2.

(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:

Please refer to the reasons summarised above for all proposed alternatives.

2. PREFERRED ALTERNATIVE

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

Having considered all the investigated alternatives (as described above), taking in consideration findings from specialist impact studies and comments from BGCMA, it is proposed that Water Structure 1, Alternative 1 (**Appendix B1.1)**; Pipeline Route 1, Alternative 1 (**Appendix B1.2 Figure 1 & Figure 2)**; and River Crossing Alternative 1 (**Appendix B1.3**); be considered as the proposed alternatives.

Outcome and reason for decision that Water Structure Alternative 1 is the preferred alternative:
When considering the footprints of the proposed alternatives and after discussions with BGCMA in the pre-application meeting, it was decided that Water Structure Alternative 1 on Portion 2 & 6 of Farm Vredehoek 602 would be the preferred alternative as it would have a much smaller footprint on the receiving environment **(Appendix B1.1).**

Outcome and reason for decision that Pipeline Route 1 Alternative 1 is the preferred alternative:
Pipeline route 1 Alternative 1 is the preferred alternative as pipeline route 2 Alternative 2 could not be agreed upon as the owner of Remaining Extent of Farm Vredehoek 602, would not give consent to use the existing bridge as a river crossing (River Crossing Structure 2 Alternative 2). As a result Pipeline Route 1 Alternative 1 is the preferred alternative. The pipeline will fall on existing farm roads next to the Waagboomsriver on Portion 2 of Farm Vredehoek 602, Remaining Extent Farm Vredehoek 602, Remaining Extent of Farm 706, Portion 5 & 9 of Pietersvlei 196 and Farm Onverwacht No. 918.
(Appendix B1.2)

Additionally in terms of the upper part of the pipeline leaving the distribution structure, when considering the alternative pipeline route (Pipeline Route 2) as represented in green in the Figure 7 of Section B6(d) above (and the botanical specialist findings) will go through much more natural veld,with evidence of seepage also present. The potential impact on natural vegetation and ecosystems would be much higher. Both pipeline routes are located in CBAs, but the preferred route (Pipeline route 1 Alternative 1) is proposed within a disturbed/ transformed footprint, while the alternative would have result in an impact on remaining indigenous vegetation.

Please note: As per recommendations by the biodiversity specialist it is recommended that the last 205m of the proposed pipeline route (Route 1 Alternative 1) be adjusted. As per **Appendix B1.2 Figure 1** is proposed that the last 205m of pipeline route 1 alternative 1 go through a Poplar bush (*Populus* cf. *alba*) in order to follow the stream more closely. The specialist is of the opinion that this is not recommended. Even though the bush is dominated by Poplar trees, there is still some indigenous vegetation in between the poplar trees which can be used as a basis for transforming the riparian vegetation back to more natural vegetation. Going through the bush also increases the risk of future erosion, which may result in costly erosion control measures. It is recommended that the green line option is followed around this bush (as per **Appendix B1.2 Figure 2)** back to the river.

Outcome and reason for decision that River Crossing Alternative 1 is the preferred alternative
(Appendix B1.3)
River crossing Alternative 1 would be the preferred alternative as the owner of Remaining Extent of Farm Vredehoek 602, would not give consent to use the existing bridge as a river crossing (River Crossing 2 Alternative 2) associated with Pipeline route 2 Alternative 2. River crossing Alternative 1 will involve the construction of four Anchors, Anchors 1,2 & 3 will fall on RE of Farm Vredehoek 602 and Anchor 4 will fall on Portion 5 Pietersvlei 196.

The location and method of River crossing Alternative 1 (preferred alternative, associated with preferred pipeline route 1), is supported by the botanical specialist. The area selected for river crossing alternative 1 is also degraded. River Crossing Alternative 2 associated with pipeline route 2, (not preferred) would have resulted that the pipeline could impact on a very dense and beautiful section of indigenous vegetation.

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:

Please see the explanation on the next page.

Having considered all the investigated alternatives (as described above), taking in consideration findings from specialist impact studies and comments from BGCMA, it is proposed that Water Structure 1, Alternative 1 (**Appendix B1.1)**; Pipeline Route 1, Alternative 1 (**Appendix B1.2 Figure 1 & Figure 2)**; and River Crossing Alternative 1 (**Appendix B1.3**); be considered as the proposed alternatives.

From the Botanical Impact Assessment (**Appendix G1**), Freshwater Specialist's Technical Report (**Appendix** G2) and the Heritage Screener (**Appendix G3**) the conclusion can be made that the proposed development will not have a significant impact on geographical, geological or physical environmental aspects

Comments from Heritage Western Cape confirm that the proposed development will not impact on heritage resources (**Appendix E1**).

Vegetation
From the Vegetation Maps from Cape Farm Mapper (**Appendix D** and the figure below) and the Botanical Statement conducted by the Biodiversity Specialist (**Appendix G1)** the proposed footprint may overlap, Breede Alluvium Fynbos (an Endangered Vegetation type in terms of NEMBA List of Ecosystems that are threatened and in need of protection) along the lower reaches of the proposed pipeline and Breede Shale Fynbos (Least Threatened in terms of NEMBA) along the upper half of the proposed pipeline route.

The pipeline has been carefully chosen to fall within degraded/ transformed areas which will not result in any additional impacts on any remaining natural veld. The preferred pipeline route (last 205m) has been adjusted to avoid the loss of indigenous vegetation and destabilisation of the river bank, as per recommendations form the Botanical Specialist **(Appendix B1.2 Figure 2).**

The botanical specialist states that Breede Alluvial Fynbos is an endangered vegetation type. However, the proposed footprint is located within already disturbed areas and no remaining natural veld that might be impacted by the proposed project was observed.

Breede Shale Fynbos is classified as Least Threatened. The proposed footprint will have a temporary impact on small section of a very disturbed version of this vegetation type. However, even in this area, the pipeline will be located in old roads (previously disturbed areas).

The vegetation in the vicinity of the proposed distribution chamber location can only be described as disturbed fynbos, presently almost replaced by dense strands of alien invasive plant species such as *Acacia Cyclops* (Port Jackson), *Acacia mearnsii* (Black wattle), *Eucalyptus* species (Gum trees), *Pinus* species (Pine trees) and *Rubu*s species (Bramble).

Topography/ Geomorphology
The geomorphology of the river is considered to have been substantially modified.
Generations of farming has left almost no remaining natural veld in the lower reaches of this valley and even the Wabooms River has been severely constricted, channelized (in certain areas) and degraded as a result alien infestation and the constant efforts by adjacent land owners to contain the river in this constricted channel (in its natural state the river would most likely have changed its path from time to time, but is now restricted as a result of agricultural pastures right up to the river banks). Riparian vegetation is mostly replaced by invasive alien plants and is very seldom wider than two meters. Unfortunately, this combination of being restricted, alien infestation and loss of its riparian buffer zone has resulted in the river frequently eroding its banks and overflowing into adjacent agricultural land (which leads to further disturbances as landowners struggle to repair these breaches / contain the river).

Care would have to be taken during construction to ensure the river banks are not destabilised.

Rivers & Riparian habitat
During construction of the Water Structure 1 Alternative 1 (**Appendix B1.1**), the riparian habitat will be lost, However, the riparian zone in which the water distribution structure is proposed has been classified as largely modified. The PES rating attributed to the instream habitat where the water distribution structure is proposed is A (near natural), but the river is also given a "moderate" rating in terms of its ability to tolerate disturbances and to recover from impacts (Ecological Sensitivity).

Rather, it is the abstraction of water that would have a negative effect on the river health, shortening the hydroperiod, extending the dry period lower down the river. If additional water is abstracted form the river to the level of the Ecological reserve, there is a high risk that the exposed cobble bed without any flow of water will creep up the river and aquatic biodiversity will be affected. As a mitigation measure it is proposed that illegal water offtakes along the river be stopped.

The riparian habitat in which the pipeline is proposed is also considered disturbed and denaturalised. The construction of concrete pillars on either side of the river, away from the riparian zone, with a ladder like bridge on top of these pillars on which the pipeline will be attached will result in a much smaller construction footprint with almost no impact on the riparian vegetation. The location and method proposed for River Crossing alternative 1 (**Appendix B1.**3) is supported by the botanical specialist since it will result in the minimum impact. The proposed location for the river crossing in in an areas already showing signs of degradation.

CBAs/ Ecological Support Areas
According to the Biodiversity Overlay Maps and Botanical Impact Assessment the proposed pipeline and water structure will be located within proposed critical biodiversity areas (CBA's) both terrestrial and aquatic. However, the proposed pipeline route and water structure will be located within existing transformed areas (e.g. roads) and is unlikely to add significantly to the proposed CBA's. It is also proposed that at the point where the pipeline will cross the river, it will be done by lifting the pipeline over the river (not under the river), which will minimise the impact considerably with regards to the potential impact on the river and its remaining riparian zone.

(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
No, please refer to the explanation above.		
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
No, please refer to the explanation above.		
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 freshwater specialist states that a number of indigenous fish species can potentially be present in the river and recorded many *S. Capensis*, during site visits. When the river is dry either because of natural fluctuations such as seasonal rainfall of water abstraction for agriculture, fish and macroinvertebrates disappear. However, fish and macroinvertebrates reappear in the freshly flooded river following heavy rainfall in the mountains as recruitment takes place from the upper river reaches. Recruitment of macroinvertebrates occurs as flying insects colonise the newly available habitat. This phenomenon has been recorded in other similar rivers as the Snel River, such as the Jan du Toit River. Cape Nature initially suggested that a Fish Study be conducted, but Deam Impson from Cape Nature went out on site and concluded that a fish study will not be required. Please refer to **Appendix F1** for the Comments and Repose Report (C&RR) and **Appendix F1.3.1** for email correspondence.		
Describe the manner in which any other biological aspects will be impacted:		
No, please refer to the explanation above.		
Will the proposed development also trigger section 63 of the NEM: ICMA?	YES	NO

If yes, describe the following: (i) the extent to which the applicant has in the past complied with similar authorisations; (ii) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development proposal or listed activity is consistent with the purpose for establishing and protecting those areas; (iii) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area; (iv) the likely socio-economic impact if the listed activity is authorised or is not authorised; (v) the likely impact of coastal environmental processes on the proposed development; (vi) whether the development proposal or listed activity— (a) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations; (b) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17 of NEM: ICMA; (c) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18 of NEM: ICMA; (d) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated; (e) is likely to be significantly damaged or prejudiced by dynamic coastal processes; (f) would substantially prejudice the achievement of any coastal management objective; or (g) would be contrary to the interests of the whole community; (vii) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land; (viii) whether the proposed development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and (ix) the objects of NEM: ICMA, where applicable.
N/A

(c) Social and Economic aspects:

Because the proposed project is based on a Supreme Court Ruling, to distribute listed water to righfull water users, there will be no social economic impacts for the proposed project.

What is the expected capital value of the project on completion?	R	
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	R	
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?		
What is the expected value of the employment opportunities during the development phase?	R	
What percentage of this will accrue to previously disadvantaged individuals?		%
How will this be ensured and monitored (please explain):		
How many permanent new employment opportunities will be created during the operational phase of the project?		
What is the expected current value of the employment opportunities during the first 10 years?	R	
What percentage of this will accrue to previously disadvantaged individuals?		%
How will this be ensured and monitored (please explain):		
Any other information related to the manner in which the socio-economic aspects will be impacted:		

(d) and Cultural aspects:

HWC comments (**Appendix E1**) confirm that the proposed project will not impact on cultural aspects.

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?	Unsure m^3	
Excavations from construction of the water structure should ne disposed of in a legal manner if it is not used as construction material in constructing the weir. Some rubble might be produced from the rehabilitation of the existing canal, which will be disposed of in a legal manner at a registered landfill site. Care should be taken that not rubble wash down stream.		

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
No waste to be produced during operations.		

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
No waste to be produced during operations.		
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 to be produced during operations.		
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. N/A	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? N/A	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. N/A	YES	NO
Does the facility have an operating license? (If yes, please attach a copy of the licence.) N/A	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:
Litter on site should be minimised with bins dedicated for food scraps and plastic/paper. Recyclable waste should be disposed of at a dedicated recycle point.

(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:
No emissions to be produced

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)

Please refer **Appendix E2** for the proof of existing water use rights allocated to Darling Brug and Wagenboomsrivier Irrigation boards.

Sarel Bester Ingenieurs submitted the *EWULA WULA REF: WU7769: Darling- & Waboomsrivier Irr Board vir Waboomsrivier weir & 2,7km pyplyn*, for other activities that trigger section 21 of the National Water Act associated with the proposed pipeline route. It is proposed that the pipeline follow existing farm roads on the banks of the Waaboomriver and cross the river via structure. It is proposed four concrete anchors be constructed on the river banks to receive the bridge to carry the pipeline over the river.

Activities triggered in terms of the section 21 of the NWA:

- *S21 (c) Impeding or diverting the flow of the water course*
- *S21 (i) Altering the bed, bank, course or characteristic of a watercourse*

(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:	3 281 200	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.		

Please refer to explanation above.
The application to DWS was done on the EWULA system.
Sarel Bester Ingenieurs submitted the *EWULA WULA REF: WU7769: Darling- & Waboomsrivier Irr Board vir Waboomsrivier weir & 2,7km pyplyn*

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
This proposed development (water division structure and pipeline) aims to distribute an existing water use right to the rightful water users (Darling brug & Wagenboomsrivier Irrigation boards) to avoid the taking of water by other users in the area to who the water does not belong. Authorities should stop the illegal taking of water in the Waaboomsriver. Most of the farms utilise a drip irrigation system to save water.

4. POWER SUPPLY

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

This development does not require electricity. Should electricity be provided it would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections.

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

development does not require electricity. Should electricity be provided it would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections.

5. ENERGY EFFICIENCY

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

N/A

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

N/A

6. TRANSPORT, TRAFFIC AND ACCESS

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

Existing access roads will be used. Vehicles will only be allowed to stay in the roads and within the demarcated footprint set out for development.

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

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

No noise or odours is expected during construction or operations.

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

8. OTHER

Should other factors impacted the environment be identified they will be addressed.

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.

Please refer to **Appendix J1** for the methodology applied for the environmental impacts and risk assessment for the proposed development.

(b) Please describe any gaps in knowledge.

There are no significant gaps of knowledge that have been identified.

(c) Please describe the underlying assumptions.

The following assumptions are made:

- The information on which the report is based (i.e. project information) is correct.
- The construction and management of this proposed development will be in line with the recommendations in this report, which will be enforced by the implementation of detailed Environmental Management Plan. Much of the long-term success lies in the effective implementation of the measures prescribed in the Environmental Management Plan.

(d) Please describe the uncertainties.

There are no uncertainties that we are aware of at present.

(e) Describe adequacy of the assessment methods used.

The assessment criteria are based on the EIA Guidelines, published by the Department of Environmental Affairs and Tourism (June 2006) in support of the EIA Regulations, 2014 (as amended 2017).

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

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

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

Alternative 1:	**for example, choose from: geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / *etc*.**
Alternative 2:	**for example, choose from: geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / *etc*.**
Alternative x:	**for example, choose from: geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / *etc*.**
No-go Alternative:	

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

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

Alternative 1 : **All Proposed Alternative 1's is considered the Preferred Alternatives. Please refer to Appendix J2 for the comprehensive Impact Rating Matrix**	**Geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / *etc*.**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
OPERATIONAL PHASE	
Potential impact and risk:	
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	
Nature of impact:	
Extent and duration of impact:	

Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

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

Please refer to Appendix J1 App for the method methodology applied for the environmental impacts and risk assessment for the proposed development
Appendix J2.1-J2.4 for the Environmental impacts and risk assessment (Impact Rating Matrix)

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

With the correct mitigation measures in the impact significance can be summarised as the following:

Pre construction & Construction Phase:
Botanical:
Loss of Vulnerable and endangered vegetation and associated habitat – very low significance
Loss of CBA/ESA – very low significance
Soil contamination from vehicles – very low significance
Destabilisation of river banks and erosion – very low significance
Water:
Loss of riparian habitat – very low significance
Alternation of hydrology– very low significance
Heritage:
Loss of heritage resources – very low significance

Dust – very low significance
Visual – very low significance
Noise – very low significance

Operational Phase:
Water
Alternation of hydrology– very low significance
Erosion & Sedimentation - very low significance

Dust – very low significance
Visual – very low significance
Noise – very low significance

Rehabilitation/ Decommission:
Botanical:
Soil contamination from vehicles on site – very low significance

Water:
Loss of riparian habitat – very low significance
Alternation of hydrology - very low significance

Dust – very low significance
Visual – very low significance
Noise – very low significance

(d) Outcome of the site selection matrix.

It is expected that the proposed expansion will have an insignificant negative impact on the receiving environment if the correct mitigation measures as described in the risk matrix is implemented.
ESA, Vegetation.

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.

The following mitigation measures/ recommendations from the specialists were included in the Environmental Management Plan (**Appendix H**) which should be complied with by the Applicant and relevant contractors. These mitigation measures were also considered while conducting the Impact significant ratings (Impact Rating Matrix) (**Appendix J).**

Recommendations on impact minimisation from the Biodiversity Impact Report Report:

- All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report.
- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies.
- Access must be limited to routes approved by the ECO.
- When working in any remaining natural veld and next to the river, the natural veld and riparian vegetation must be demarcated and access routes pre-determined and approved by the ECO.
- All efforts must be made to protect the remaining buffer zone and its vegetation next to the stream.
- When working next to the river, the pipeline must be placed as far away from the riverbank as possible in order to minimise the risk or riverbank destabilisation.
- All alien invasive plant species within the footprint must be removed. In the riparian zone alien vegetation must be removed by hand, leaving the root system intact so that it can still bind the soil. However, where necessary the correct chemicals must be used to ensure that the alien invasive plant will die.
- It is recommended that the pipeline is placed outside of the Poplar bush (**Appendix B1.2 Figure 2**) in order to prevent riverbank destabilisation and to minimise impacts on remaining indigenous riparian species.
- Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
- Indiscriminate clearing of any area outside of the construction footprint must be avoided.
- All areas impacted as a result of construction must be rehabilitated on completion of the project:

    - This included the removal of all excavated material, spoil and rocks, all construction related material.
    - It also include replacing the topsoil back on top of the excavation as well as shaping the area to represent original shape of the environment
- An integrated waste management approach must be implemented during construction"
    - Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites
    - Construction related general and hazardous waste may only be disposed of at.
    - All rubble and rubbish should be collected and removed from the site to a suitable registered waste disposal site.

Mitigation measures from the Freshwater Specialist's technical Report:

- The clearing of the construction site involves the removal of the riparian vegetation and the loose rocks in the stream to expose the bedrock. This can be done minimally, as little as possible, without excessive impact. There will be a permanent instream impact, but it can be limited to an area as small as possible.
- Likewise, as little as possible building material can be stockpiled on the building site, with no more than is immediately required. Care should be taken that sand and other debris do not get washed into the river along with storm water.
- If the actual construction of the weir is carried out with due consideration for the riparian and instream environment, the impact can be limited to the building site and prevented from having an impact further down the stream. The single most significant mitigation measure in this respect is the timing of the construction phase. It should be done during the dry season, February and March, when water levels in the Snel River are low.
- The long-term abstraction of water will predictably have an impact that can only be mitigated to limited extent. Mitigation includes the omission of water offtakes along the river apart from the formal ones at the two dividing structures. All existing offtakes upstream of the end of the envisaged pipe should be incorporated into the proposed weir. This would be predictably met with fierce resistance from those with vested interest.
- The draw down could be less than to the level of the Ecological Reserve. In this event the creep of dry conditions up the river would be less. The hydroperiod would not be shortened as much. Exactly to what extent the creep and hydroperiod would be affected can be predicted by hydrological modelling. However, this is another project with a separate budget.
- The clearing of the site following the construction phase can be done with due care and without letting any loose material into and down the river.
- Erosion control measures should be implemented. Suitable vegetation should be planted upon completion of the project.
- Finally, and most importantly, if the flow at the site of the proposed weir is 50 litres per second or more, there should be at least 2 of 3 litres per second flowing from the Waboom River into the Breede River. This would keep a currently highly compromised river alive. It should not be allowed that all the water is taken. These figures are only meant to serve as an example. Observation and adjustment of the operational rules are necessary to sustain ecological responsibility.
- A permanent river warden could be appointed to regularly inspect the water provision system and to enforce agreed upon operational rules. Such a person would probably be employed by the irrigation boards.

Recommendations from Heritage Western Cape:

- Should any heritage resources, including evidence of traces and human burials, archaeological material

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

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

Key findings regarding Biodiversity:

The botanical specialist (Report Appendix G1) concludes with the following:

The proposed development is expected to result in the temporary disturbance along the proposed construction footprint. Please note that this report does not address impact on the river system as this will be addressed in the Freshwater Specialist report. The proposed pipeline route was specifically chosen to fall within areas already disturbed and should not result in any significant impact on remaining natural veld (apart from potential impact on riparian vegetation where it cross the river). Impacts on natural vegetation outside of the remaining riparian zone are expected to be almost zero. The main environmental risk regarding this project is seen as potential destabilisation of the river bank (which may lead to future erosion), including potential impacts on the riparian zone itself (because of the restricted work area).

Geology & Soils: No special geology or soils were observed which may result in specialized vegetation. However, the soils associated with the areas adjacent to the stream are likely to unstable and care will have to be taken during construction to ensure that the river banks are not destabilised.

Vegetation status: Breede Alluvial Fynbos is an endangered vegetation type. However, the proposed footprint is located within already disturbed areas and no remaining natural veld that might be impacted by the proposed project was observed.
Breede Shale Fynbos is classified as Least Threatened. The proposed footprint will have a temporary impact on small section of a very disturbed version of this vegetation type. However, even in this area, the pipeline will be located in old roads (previously disturbed areas).

Conservation priority areas: Both the proposed pipeline route and the distribution chamber is located in CBA areas proposed within the Western Cape Biodiversity Spatial Plan (2017). But since the footprints were chosen specifically to overlay already disturbed areas and the impact of construction is temporary, the potential impact on the CBA's are expected to be insignificant.

Connectivity: The impact is temporary of nature and is not expected to have any significant impact on connectivity.

Protected or endangered plant species: No protected or endangered plant species was observed.

Invasive alien species: Special care must be taken with the removal of invasive alien plant species within the riparian buffer zone in order to ensure that it does not lead to future erosion.

The biodiversity specialist is of the opinion that the cumulative impact of the proposed development is expected to be medium/low but it is still important that mitigation measures are implemented in order to reduce the potential environmental impacts.

Key findings regarding Freshwater resources:

Upper sampling point or water structure site:

This part of the Waaboomsrivier/ upper mountain stream can be described as a cobble bed up against the mountain side, with fast flowing water. (Probably why that part of the river is sometimes referred to as the Snel River). The water is described as clear, and does not have the vegetation-stained brown colour typical of waters in the mountain Fynbos. The incline is steam with sandstone bedrock, stones (in and out of current) and a small pool with turbulent water. The vegetation consisted of a few patches of moss. The stream was approximately 5m wide. The depth varied from a couple of centimetres in the riffles to a meter in the pond. The riparian zone is heavily infested by alien invasive trees such as black wattle (*Acacia mearnsi*), *Eucalyptus* gum trees and thorny brambles (*Rubus fruticosus*).

The lower sampling point before the existing weir and canal (canal to be rehabilitated):

The lower sampling point can be described as a fast flowing lower mountain steam of approximately 5m wide. The incline is more gradual than up the mountain. The water was clear. The extensive cobble bed has some large rocks that can be classified as bedrock, in and out of the current. There was much emerging indigenous vegetation (sedge *Cyperus denudatus*) growing right into the stream.

The riparian zone is degraded, with the sides banked up with cobbles to from berms along most of the stream. It is clear that stream was straightened out since the start of farming in the area for a hundred years and more. Vineyards and fruit orchards wee right up to the banks of the stream. Much of the banks were taken over by Black Wattle, interspersed by the indigenous taaibos trees (*Searsia* species).

SASS5 Score:

The SASS5 score at the upper sampling point indicated a healthy aquatic environment with an excellent biodiversity for such a small stream, even though the upper sampling point has been affected by human impact and water extractions. Biodiversity in the upper sampling point is seen as excellent with little if any human impact (class A).

There is a marked drop n the SASS5 score from the upper to the lower sampling point. This is despite the lower sampling point having a good flow of water and wider variety of habitat during the site visit. Biodiversity in the lower sampling point is good, with some impact (class B). The low score could be attributed to agricultural return flow, which was evident along the river.

The dry cobble bed is devoid of aquatic macroinvertebrates and has no SASS5 score.
Water Quality
The overall water quality is considered good. It did not explain the lowering of the SASS5 score at the lower sampling point. The presence of insecticides in the water might have been the reason.

PES and EIS:

DWS rated the PES for the entire Waaboomsrivier a Categrory D/E (moderately to largely modified), as most tributaries of the Breede River. The Ecological Importance (EI) referring to the diversity, rarity, uniqueness of habitats and biota and reflects the importance of protecting there ecological attributes, has been rated as “Low” by DWS. Whereas the “Ecological Sensitivity”, referring to the ability of an ecosystem to tolerate disturbances and recover from impacts, was rated as “Moderate” by DWS.

The Freshwater specialist stated that the habitat assessment paints a different picture as that of DWS as discussed above. According to the current instream assessment the upper sampling point habitat integrity is given a PES rating of A (near natural condition), the rating quickly declines to a D (largely modified) at the lower sampling point and then to an E(extensively modified) at the dry cobble bed where all the water is abstracted.

In terms of the riparian zone, which is heavily invaded by alien vegetation such as Black Wattle and Blue gum trees, with only a few indigenous bushes left, the PES at the upper sampling point is given a D (largely modified rating), declining to E (extensively modified) at the lower sampling point and a F at the dry cobble bed.

The ES refers to a rivers potential to bounce back to an ecological condition closer to the situation prior to human impact.

During construction of the Water Structure 1 Alternative 1 (Appendix B1.1), the riparian habitat will be lost. However, the riparian zone in which the water distribution structure is proposed has been classified as largely modified. The PES rating attributed to the instream habitat where the water distribution structure is proposed is A (near natural), but the river is also given a “moderate” rating in terms of its ability to tolerate disturbances and to recover from impacts (Ecological Sensitivity). The Freshwater specialist states in his report (Appendix G2) the construction of the smaller water divide structure (Water Structure 1 Alternative 1) will have a smaller impact on the on the riparian zone, which is already classified as disturbed.

The construction and presence of the pipeline would not bring about further and unacceptable deterioration. Where the pipeline crosses the river via concrete anchors and the anchors will have to be outside of the river bed.

The freshwater specialist is specifically concerned with the illegal abstraction of additional water in the Waaboomsrivier. It is the illegal abstraction of water that would have a negative effect on the river health, shortening the hydroperiod, extending the dry period lower down the river. If additional water is abstracted form

the river to the level of the Ecological reserve, there is a high risk that the dry conditions as seen further down the river will creep up the river and aquatic biodiversity will be affected. As a mitigation measure it is proposed that illegal water offtakes along the river be stopped.

Key findings regarding Heritage Resources:

HWC confirms that the impact of the proposed development will not impact on heritage resources (Appendix E1 & Appendix G3 for the Screener & NID).

(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? Refer to the layout plans (**Appendix B**) and Sensitivity maps (**Appendix D**). Consolidated map still to be provided	YES	NO

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

Negative impact associated with the proposed expansion of Driefontein dam:

The specialists confirmed that due to past and ongoing agricultural activities, the almost the entire area, has already been transformed and disturbed. The proposed development would contribute to the further transformation of the area.

Positive impact associated with the proposed expansion of Development:

The need existed to investigate the impact of a water distribution structure and associated infrastructure in the Snel River according to and in line with a Supreme Court Ruling dated 22 February 2017 (**Appendix K**) to distribute listed water to Darlingbrug and Wagenboombsrivier Irrigation Boards. Without the proposed development the listed water gets taken by other water users in the area (of which that water is not their right). The proposed development will allow for the better utilisation and distribution of listed water to rightful water users for the agricultural purposes.

This investigation of the proposed project could bring attention to authorities regarding rightful water offtakes in the Waaboomsrivier and the omission of water offtakes along the river apart from the formal ones. The construction of the envisaged project could formalise current abstractions and allow for better control by authorities in order to protect the vulnerable Waaboomsrivier.

The proposed development has also brought the incentive for the Darling Brug and Waaboomsrivier Irrigation boards to commit funds for the clearing of alien trees along the Breederivier (Please see **Appendix X** email correspondence between the applicant, Cape Nature & the land care manager of Cape Winelands District).

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.

Objective 1: Maintain a healthy biodiversity environment:

Potential Impacts:

- Further loss of CBAs/ ESA
- Destabilisation of river banks
- Soil contamination from construction

The following mitigation/ monitoring measure can be implemented to reduce these impact and ultimately achieve Objective 1:

- A suitably qualified ECO must be appointed;
- Environmental Awareness training to be conducted with all workers
- Ensure construction activities are restricted to the demarcated footprint, strictly prohibit any vehicles or construction related activities outside of the demarcated footprint area
- Access roads to the dam should be limited to a single circular route in and out. Ensure construction vehicles stay on existing roads and erect signs to remind workers not to deviate from the roads.
- No concrete will be mixed on site and surplus must be disposed of in the correct manner.
- Inspect all vehicles daily for the early detection of deterioration or leaks.
- The contractor should ensure drip trays are placed under stationary vehicles.
- Spill kits must be available. Workers should be trained how to use spill kits to rectify a spill immediately. Records must be kept of any spills.
- Portable toilets must be placed no less than 32m form any watercourse/ stream and serviced regularly in order to prevent leakage/spillage. No portable toilets to be placed in watercourse 1 where the weir it to be rehabilitated.
- Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
- Indiscriminate clearing of areas must be avoided.
- An integrated waste management approach must be implemented during construction.
- When working in any remaining natural veld and next to the river, the natural veld and riparian vegetation must be demarcated and access routes pre-determined and approved by the ECO.
- All efforts must be made to protect the remaining buffer zone and its vegetation next to the stream.
- When working next to the river, the pipeline must be placed as far away from the riverbank as possible in order to minimise the risk or riverbank destabilisation.
- All alien invasive plant species within the footprint must be removed. In the riparian zone alien vegetation must be removed by hand, leaving the root system intact so that it can still bind the soil. However, where necessary the correct chemicals must be used to ensure that the alien invasive plant will die.
- It is recommended that the pipeline is placed outside of the Poplar bush (**Appendix B1.2 Figure 2**) in order to prevent riverbank destabilisation and to minimise impacts on remaining indigenous riparian species.
- All areas impacted as a result of construction must be rehabilitated on completion of the project
- This includes the removal of all excavated material, spoil and rocks, all construction related material and all waste material.
- It also included replacing the topsoil back on top of the excavation as well as shaping the area to represent the original shape of the environment.
- An integrated waste management approach must be implemented during construction.
- Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
- All rubble and rubbish should be collected and removed from the site to a suitable registered waste disposal site.

<u>Objective 2: Protection of Freshwater resources/ aquatic environment:</u>

<u>Potential Impacts:</u>

- Loss of riparian habitat
- Degradation of the aquatic habitat
- Erosion and sedimentation

<u>The following mitigation/ monitoring measure can be implemented to reduce these impact and ultimately achieve Objective 2:</u>

- A suitably qualified ECO must be appointed;

- Environmental Awareness training to be conducted with all workers
- Ensure construction activities are restricted to the demarcated footprint, strictly prohibit any vehicles or construction related activities outside of the demarcated footprint area
- Access roads to the dam should be limited to a single circular route in and out. Ensure construction vehicles stay on existing roads and erect signs to remind workers not to deviate from the roads.
- No concrete/ cement will be mixed on site and surplus must be disposed of in the correct manner.
- Inspect all vehicles daily for the early detection of deterioration or leaks.
- During construction its footprint should be kept as small as possible;
- All building rubble should be removed following the completion of the project;
- No building rubble/ stockpiled material should be allowed to wash into the stream;
- Building should take place during the dry summer months
- Monitor structures after heavy rainfall events for erosion and sedimentation.
- Should erosion and incision be noted, immediate corrective measures must be undertaken.
- Erosion at the structures can be prevented by using rip-rap mattresses or spreaders.
- Nuisance vegetation and sedimentation to be removed to ensure overflow;
- Rehabilitation measures may include the filling of erosion gullies and rills, and the stabilization of gullies with silt fences.
- Should water be present during construction (as in the case with the rehabilitation of the existing weir of which the canal will be rehabilitated), the stream and surface water should be collected and diverted through or around the construction site by way of a combination of temporary works including cut-off and bypass channels, a small coffer dam, temporary pumps if necessary, etc, to collect and contain the water in order to ensure safe and acceptable working conditions. The outlet pipe will be installed early in order to be used as bypass when and if further construction takes place in the stream bed.

Objective 3: Prevent the loss of any heritage resources

Potential Impact : Loss of paleontological or archaeological resources

The following mitigation/ monitoring measure can be implemented to reduce these impact and ultimately achieve Objective 3:

- A suitably qualified ECO must be appointed;
- Environmental Awareness training to be conducted with all workers
- Ensure construction activities are restricted to the demarcated footprint, strictly prohibit any vehicles or construction related activities outside of the demarcated footprint area
- Access roads to the dam should be limited to a single circular route in and out. Ensure construction vehicles stay on existing roads and erect signs to remind workers not to deviate from the roads.
- In the case of any significant new fossil finds exposed during dam construction (e.g. concentrations of well-preserved fossil shells such as “starfish beds”), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to Heritage Western Cape (Att: Mr Andrew September 021 483 9543).
- All construction within a radius of at least 20m of the indicator should cease. This distance should be increased at the discretion of supervisory staff if heavy machinery or explosives could cause further disturbance to the suspected heritage resource.
- This area must be marked using clearly visible means, such as barrier tape, and all personnel should be informed that it is a no-go area.
- No measures should be taken to cover up the suspected heritage resource with soil, or to collect any remains such as bone, ceramics or stone.
- If a heritage practitioner has been appointed to monitor the project, s/he should be contacted and a site inspection arranged as soon as possible.
- All parties concerned should respect the potentially sensitive and confidential nature of the heritage resources, particularly human remains, and refrain from making public statements until a mutually agreed time.

- Any extension of the project beyond its current footprint involving vegetation and/or earth clearance should be subject to prior assessment by a qualified heritage practitioner, taking into account all information gathered during this initial heritage impact assessment.

Any potential unforeseen impacts are covered in the EMPr (**Appendix H**) which should be implemented.

(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.

- Compliance with the Environmental Management Program (**Appendix H**) must be mandatory; and
- Appointment of an Environmental Control Officer during the construction phase;
- A rehabilitation plan must be agreed upon and provisions must be made for rehabilitation.

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

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts.

The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of this EMP complies with the relevant legislation and the conditions of the environmental authorisation.

The Applicant will be responsible for the development and implementation of the conditions of the Environmental Authorisation in terms of the design of the development and construction thereof. The developer will thus be responsible for the implementation of this EMP.

The applicant has shown commitment to implement management, mitigation and monitoring measures as specified in the recommendations in and the EMP.

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

Provisions must be made available for rehabilitation. A rehabilitation plan must be agreed upon and the rehabilitation must occur after construction.
More information regarding financial provisions to be included.

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

Please refer to (d) above. More information to be provided.

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

The following assumptions are made:

- The information on which the report is based (i.e. project information) is correct.
- The construction and management of this proposed development will be in line with the recommendations in this report, which will be enforced by the implementation of detailed Environmental Management Plan. Much of the long-term success lies in the effective implementation of the measures prescribed in the Environmental Management Plan.

There are no significant gaps of knowledge that have been identified.

There are no uncertainties that we are aware of at present.

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

The proposed development should be authorised for the following reasons

- The proposed development will allow for the better utilisation and distribution of **listed water to rightful water users** for the agricultural purposes.
- This investigation of the proposed project could bring attention to authorities regarding rightful water offtakes in the Waaboomsrivier and the omission of water offtakes along the river apart from the formal ones. The construction of the envisaged project could formalise current abstractions and allow for better control by authorities in order to protect the vulnerable Waaboomsrivier.
- The proposed development has also brought the incentive for the Darling Brug and Waaboomsrivier Irrigation boards to commit funds for the clearing of alien trees along the Breederivier (Please see Appendix M email correspondence between the applicant, Cape Nature & the land care manager of Cape Winelands District).
- The botanical specialist confirms that the proposed project will have a temporary impact on a small section of very disturbed vegetation. Efforts have been made to adjust the proposed layouts to avoid impact any natural veld.
- Footprints have been chosen to overlay disturbed areas (i.e. existing roads for the pipeline) and the impact of construction is temporary, the potential impact on CBAs are expected to be insignificant.
- No protected or endangered plants were observed.
- The Freshwater specialist states that the construction of the smaller water divide structure (Water Structure 1 Alternative 1) will have a smaller impact on the on the riparian zone, which is already classified as disturbed. The construction and presence of the pipeline would not bring about further and unacceptable deterioration, where the pipeline crosses the river via concrete anchors and the anchors will have to be outside of the river bed.
- Heritage Western Cape confirms that the proposed development will not impact on any heritage resources.
- It is also not expected to produce any unacceptable noise or odours during the construction or operational phases.
- The proposed expansion of the dam, is not expected to have any significant negative impact on the visual character of the area.

Considering all the information, it is not envisaged that the proposed development any significant negative impact on the environment, but will allow for listed water being distributed to the rightful water users.

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.

(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.

All efforts should be made to avoid destabilising the river bank and to protect the remaining buffer zone and its vegetation next to the river. Care should be taken when alien plants are removed. It is suggested that the riparian zone alien vegetation be removed by hand leaving the root system intact so that it can still bind the soil. The correct chemicals must be used to ensure the alien invasive plant will die.

The pipeline should also ne places as far away from the river bank to minimise risk of destabilisation.

(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.		
A suitably qualified ECO should be appointed to oversee the project. Recommendations as set out by the specialists and captured in the EMPr should be adhered to at all times. A rehabilitation plan should be agreed upon and implemented after construction.		
(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;	To be confirmed.
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;	To be confirmed.
iii.	the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	N/A
iv.	the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	N/A

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX			Confirm that Appendix is attached
Appendix A:	**Locality map**		Yes
Appendix B:	**Site development plan(s)**		Yes
	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;		No To be provided
Appendix C:	**Photographs**		Yes
Appendix D:	**Biodiversity overlay map**		Yes
Appendix E:	**Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.**		Yes
	Appendix E1:	**Copy of comment from HWC.**	Yes
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.**		Yes
Appendix G:	**Specialist Report(s)**		Yes
Appendix H :	**EMPr**		Yes
Appendix I:	**Additional information related to listed waste management activities (if applicable)**		N/A
Appendix J:	**If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.**		Yes
Appendix K:	**Any Other (if applicable).** **Sarel Bester Ingenieurs BK Reports**		Yes
Appendix L:	**CVs**		Yes

SECTION J: DECLARATIONS

THE APPLICANT

Note: Duplicate this section where there is more than one applicant.

I ……..……., in my personal capacity or duly authorised thereto, hereby declare/affirm all the information submitted as part of this Report is true and correct, and that I –

- am aware of and understand the content of this report;
- am fully aware of my responsibilities in terms of the NEMA, the EIA Regulations in terms of the NEMA (Government Notice No. R. 982, refers) (as amended) and any relevant specific environmental management Act and that failure to fulfil these requirements may constitute an offence in terms of relevant environmental legislation;
- have provided the EAP and Specialist, Review EAP (if applicable), and Review Specialist (if applicable), and the Competent Authority with access to all information at my disposal that is relevant to the application;
- will be responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority;
- will be responsible for the costs incurred in complying with the conditions that may be attached to any decision(s) issued by the Competent Authority;

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the Applicant: _____

Name of Organisation: _____

Date: _____

THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I ……., as the appointed EAP hereby declare/affirm:

- the correctness of the information provided as part of this Report;
- that all the comments and inputs from stakeholders and I&APs have been included in this Report;
- that all the inputs and recommendations from the specialist reports, if specialist reports were produced, have been included in this Report;
- any information provided by me to I&APs and any responses by me to the comments or inputs made by I&APs;
- that I have maintained my independence throughout this EIA process, or if not independent, that the review EAP has reviewed my work (Note: a declaration by the review EAP must be submitted);
- that I have throughout this EIA process met all of the general requirements of EAPs as set out in Regulation 13;
- I have throughout this EIA process disclosed to the applicant, the specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application;
- have ensured that information containing all relevant facts in respect of the application was distributed or was made available to I&APs and that participation by I&APs was facilitated in such a manner that all I&APs were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all I&APs were considered, recorded and submitted to the Department in respect of the application;
- have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, if specialist inputs and recommendations were produced;
- have kept a register of all I&APs that participated during the PPP; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the EAP: _____

Name of Company: _____

Date: _____

THE REVIEW ENVIRONMENTAL ASSESSMENT PRACTITIONER

I ……., as the appointed Review EAP hereby declare/affirm:

- that I have reviewed all the work produced by the EAP;
- the correctness of the information provided as part of this Report;
- that I have, throughout this EIA process met all of the general requirements of EAPs as set out in Regulation 13;
- I have, throughout this EIA process disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Review EAP: _____

Name of Company: _____

Date: _____

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I ……, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist: _____

Name of Company: _____

Date: _____

THE REVIEW SPECIALIST

I ……., as the appointed Review Specialist hereby declare/affirm:

- that I have reviewed all the work produced by the Specialist(s);
- the correctness of the specialist information provided as part of this Report;
- that I have, throughout this EIA process met all of the general requirements of specialists as set out in Regulation 13;
- I have, throughout this EIA process disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of Review Specialist: _____

Name of Company: _____

Date: _____