



REVISED DRAFT BASIC ASSESSMENT REPORT

**THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND
THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.**

APRIL 2021

(For official use only)	
Pre-application Reference Number (if applicable):	
EIA Application Reference Number:	
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must Include an overview of the project including the Farm name/Portion/Erf number)

**THE PROPOSED EXPANSION OF AN INSTREAM DAM ON THE REMAINDER OF
FARM ZWARTFONTEIN NO. 792 AND PORTION 8 OF THE FARM ZWARTFONTEIN
NO. 792, ZWARTFONTEIN, MALMESBURY, WESTERN CAPE**



IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.
2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".
3. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
4. All applicable sections of this BAR must be completed.
5. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.
6. This BAR is current as of **November 2019**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at <http://www.westerncape.gov.za/eadp> to check for the latest version of this BAR.
7. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR 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 BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.
10. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.
11. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.
12. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.
13. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link

<https://screening.environment.gov.za/screeningtool> to generate the Screening Tool Report. The screening tool report must be attached to this BAR.

14. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('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: 021-483-2728/2705 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 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE: REGION 1 and REGION 2 (Region 1: City of Cape Town, West Coast District) (Region 2: Cape Winelands District & Overberg District)	GEORGE OFFICE: REGION 3 (Central Karoo District & Garden Route District)
<p>BAR must be sent to the following details:</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1 or 2) Private Bag X 9086 Cape Town, 8000</p> <p>Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town</p> <p>Queries should be directed to the Directorate: Development Management (Region 1 and 2) at: Tel: (021) 483-5829 Fax (021) 483-4372</p>	<p>BAR must be sent to the following details:</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530</p> <p>Registry Office 4th Floor, York Park Building 93 York Street George</p> <p>Queries should be directed to the Directorate: Development Management (Region 3) at: Tel: (044) 805-8600 Fax (044) 805 8650</p>

MAPS

Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.	
<p>Locality Map:</p>	<p>The scale of the locality map must be at least 1:50 000. For linear activities or 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:</p> <ul style="list-style-type: none"> • 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; and • a linear scale. <p>For 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.</p> <p>Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and</p>

	Public Works) that will be affected by the proposed development must be included in the Report.
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	<p>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:</p> <ul style="list-style-type: none"> • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly 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. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development 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 proposed development must be clearly 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): <ul style="list-style-type: none"> o Watercourses / Rivers / Wetlands o Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable); o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"); o Ridges; o Cultural and historical features/landscapes; 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 <p>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.</p>
Site photographs	<p>Colour photographs of the site that shows the overall condition 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 to this BAR as Appendix C. 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.</p>
Biodiversity Overlay Map:	<p>A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as Appendix D.</p>
Linear activities or development and multiple properties	<p>GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system.</p> <p>Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix.</p> <p>For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as Appendix A3.</p>

ACRONYMS

DAFF:	Department of Forestry and Fisheries
DEA:	Department of Environmental Affairs
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape

NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ (tick) or a x (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			✓ (Tick) or x (cross)
Appendix A:	Maps		
	Appendix A1:	Locality Map	✓
	Appendix A2:	Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning	N/A
	Appendix A3:	Map with the GPS co-ordinates for linear activities	✓
Appendix B:	Appendix B1:	Site development plan(s)	✓
	Appendix B2	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;	✓
Appendix C:	Photographs		✓
Appendix D:	Biodiversity overlay map		✓
Appendix E (See Appendix F2):	Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.		
	Appendix E1:	Final comment/ROD from HWC	✓
	Appendix E2:	Copy of comment from Cape Nature	✓
	Appendix E3:	Comment from the DWS	✓
	Appendix E3.1:	Existing Water Use Rights	✓
	Appendix E3.2:	WULA Process	✓
	Appendix E4:	Comment from the DEA: Oceans and Coast	x

	Appendix E5:	Comment from the DAFF	x
	Appendix E6:	Comment from WCG: Transport and Public Works	x
	Appendix E7:	Comment from WCG: DoA	✓
	Appendix E8:	Comment from WCG: DHS	x
	Appendix E9:	Comment from WCG: DoH	x
	Appendix E10:	Comment from DEA&DP: Pollution Management	x
	Appendix E11:	Comment from DEA&DP: Waste Management	x
	Appendix E12:	Comment from DEA&DP: Biodiversity	x
	Appendix E13:	Comment from DEA&DP: Air Quality	x
	Appendix E14:	Comment from DEA&DP: Coastal Management	x
	Appendix E15:	Comment from the local authority	✓
	Appendix E16:	Confirmation of all services (water, electricity, sewage, solid waste management)	x
	Appendix E17:	Comment from the District Municipality	x
	Appendix E18:	Copy of an exemption notice	x
	Appendix E19	Pre-approval for the reclamation of land	x
	Appendix E20:	Proof of agreement/TOR of the specialist studies conducted.	N/A – please refer to Appendix G
	Appendix E21:	Proof of land use rights	N/A
	Appendix E22:	Proof of public participation agreement for linear activities	N/A
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.		✓

	Appendix F1	I&AP Register	✓
	Appendix F2	Comments and Responses Report	✓
	Appendix F3	Proof of Notification	✓
	Appendix F4	Advertisement	✓
	Appendix F5	Proof of posters and notices	✓
	Appendix F6 (Please refer to Appendix C)	Site photos	✓
Appendix G:	Specialist Report(s)		
	Appendix G1	Botanical Assessment	✓
	Appendix G2	Freshwater Assessment	✓
	Appendix G3	Heritage (NID)	✓
	Appendix G4	Geophysical Survey	✓
	Appendix G5	Engineer's Technical Report	✓
Appendix H:	EMPr		✓
Appendix I:	DEA Screening Tool		
	Appendix I.1	Screening tool report	✓
	Appendix I.2	Motivation Report	✓
Appendix J:	The impact and risk assessment for each alternative		✓
Appendix K:	Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline		✓
Appendix L	Any other attachments must be included as subsequent appendices		
	Appendix L	EAP CV and Details of EAP	✓
Appendix M	Maintenance Management Plan (MMP) and associated Method Statements (Appendix M, M.1 – 4)		✓
Appendix N	Notification of Regulation 19 (1b) of EIA Regulations, 2014 (as amended)		✓

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	CAPE TOWN OFFICE:		GEORGE OFFICE:
	REGION 1 (City of Cape Town, West Coast District)	REGION 2 (Cape Winelands District & Overberg District)	REGION 3 (Central Karoo District & Garden Route District)
Duplicate this section where there is more than one Proponent Name of Applicant/Proponent: Name of contact person for Applicant/Proponent (if other): Company/ Trading name/State Department/Organ of State: Company Registration Number: Postal address: Telephone: E-mail:	Black Orchid Farming Pty (Ltd) Ms Mine van Wyk Black Orchid Farming Pty (Ltd) P.O. Box 6100 Roggebaai (021) 421 2129 Mine.van.wyk@uff.co.za		
	Postal code: 8012 Cell: 082 511 6036 Fax: (021) 421 0510		
Company of EAP: EAP name: Postal address: Telephone: E-mail: Qualifications: EAPASA registration no:	EnviroAfrica Anthony Mader P.O. Box 5367, Helderberg (021) 851 1616 anthony@enviroafrica.co.za BSc; BSc (Honours) - in Environment, Ecology and Conservation; PhD (currently completing) N/A		
	Postal code: 7135 Cell: 083 309 9211 Fax: (086) 512 0154		
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	Applicant is the Landowner Postal code: Cell: Fax: ()		
Name of Person in control of the land: Name of contact person for person in control of the land: Postal address: Telephone: E-mail:	Applicant is the Landowner Postal code: Cell: Fax: ()		
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall: Contact person: Postal address: Telephone: E-mail:	West Coast District Municipality Mr David Joubert P.O. Box 242 Moorreesburg (022) 433 8400 mm@wcdm.co.za		
	Postal code: 7310 Cell: N/A Fax: (086) 692 6113		

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INCLUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New		Expansion	✓
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
No, this project is for the proposed expansion of the existing Zwartfontein Dam.					
3.	For Linear activities or developments (N/A)				
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:				
N/A					
3.2.	Development footprint of the proposed development for all alternatives.				m ²
N/A					
3.3.	Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.				
N/A					
3.4.	Indicate how access to the proposed routes will be obtained for all alternatives.				
N/A					
3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives	N/A			
3.6.	Starting point co-ordinates for all alternatives				
	Latitude (S)				
	Longitude (E)				
	Middle point co-ordinates for all alternatives				
	Latitude (S)				
	Longitude (E)				
	End point co-ordinates for all alternatives				
	Latitude (S)				
Longitude (E)					
Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.					
4.	Other developments				
4.1.	Property size(s) of all proposed site(s):				
	Remainder of Farm Zwartfontein No. 792:	2 558 500m ² (255.85ha)			m ²
	Portion 8 of the Farm Zwartfontein No. 792:	961 300m ² (96.13ha)			
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):				
	Approximately 36 000m ² (3.6ha) of the proposed development footprint is already disturbed / transformed.				m ²
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:				
	No alternative properties / locations were investigated as this application is for the expansion of the existing Zwartfontein dam.				m ²
	A total development footprint (namely the expansion of the existing dam and associated infrastructure) of 145 000m ² (14.5ha) is expected of which approximately 36 000m ² (3.6ha) is existing /transformed. Therefore, a new disturbance footprint of 10.9ha (109 000m ²) is expected.				
4.4.	Provide a detailed description of the proposed development and its associated infrastructure (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).				
<p>Black Orchid Farming proposed the enlargement of the existing instream dam on the Remainder of Farm Zwartfontein No. 792 and Portion 8 of the Farm Zwartfontein No. 792, Wellington of which an existing water use license is in place.</p> <p>The proposed enlargement of the existing dam on the Zwartfontein Farm (located adjacent to Bonathaba Farm), forms part of a development plan to approximately double the productive hectares of the farm's</p>					

agricultural output. The aim of this development plan is to create a large-scale, sustainable citrus and grape operation, creating over 200 new employment opportunities while retaining over 600 jobs¹. Soil and climatic conditions, along with the farms' proximity to Cape Town Harbour (approximately 60km as the crow flies), provides suitable growing and export conditions for the grape and citrus production industry.

The proposed enlargement of the Zwartfontein Dam is in line with the West Coast District Municipality's IDP with regards to sustaining and supporting primary and secondary sectors within the District's economy. The West Coast District's economy is dominated by manufacturing (20.3% in 2016) and the agricultural sector (at 20.2%, generating R 5 482 300 in 2016), highlighting the need for sustainable agricultural developments. One of the main issues highlighted by the West Coast Districts Spatial Development Framework (SDF)² is the recent drought and the implications of drought on the agricultural sector. Various climatic drivers, namely higher temperatures and drier conditions further exacerbate the impact of drought events on the agricultural sector³, which require careful planning and adequate responses to sustain and grow the agricultural sector. The agricultural industry, and more specifically the Zwartfontein (and Bonathaba) Farm depend on water abstracted from the Bergrivier for irrigation. Due to the absence of rainfall during mid-summer when water is required (which is generally too little to sustain agricultural activities), water is generally abstracted during winter and subsequently stored in dams for irrigation during the summer months.

Therefore, the proposed project is comprised of the:

1. Enlargement of Zwartfontein Dam

The proposed enlargement/ expansion of the existing Zwartfontein Dam, of which various design alternatives were investigated, will comprise of:

- **Increased Storage capacity:** proposed expansion of the existing storage capacity of 150 000m³ to a total storage capacity of 915 000m³, effectively increasing the dam's storage capacity by 765 000m³ (83.60%);
- **Raising Dam Wall Height:** the current dam height of 11.7m will be raised to a total of 22.5m, proposed increase of 10.8m;
- **Increase in Dam Footprint:** the existing dam footprint of ±3.6ha (36 000m²) will be increased to a total of ±10.9ha (109 000m²), a proposed increase of ±7.3ha (73 000m²);
- **Total Development Footprint:** a total of 14.5ha (145 000m²) is expected of which approximately 3.6ha (36 000m²) is existing /transformed. Therefore, a new disturbance footprint of 10.9ha (109 000m²) is expected. The total development footprint includes the relocation of infrastructure associated with the Dam.

2. Relocation of Pumphouse

- The existing pumphouse is comprised of two sections, namely the (1) pump station (consisting of pumps and filters, compost pumps), and (2) compost tanks stored in a banded area (Figure 1 and Figure 4). The proposed pumphouse will have a footprint of approximately 200m².
- With the dam enlargement and raising of the dam wall it is proposed that the pumphouse and compost storage facility be split in two section and relocated. The co-ordinates of the proposed relocated pumphouse is 33°30'37.43"S, 18°54'45.57"E

3. Replacement and extension of outlet pipeline

- Replacement and extension of the existing outlet pipeline is proposed. It is proposed that the pipeline be replaced with a new pipeline of 500mm Ø (0.5m). The total pipeline length is expected to be 265m and will connect to the relocated pumphouse. Refer to Activity 45 of LN1.

4. Relocation of existing Eskom Infrastructure

- Existing Eskom electrical infrastructure (Figure 2), located directly below the existing dam embankment to downstream of the raised embankment footprint, will be relocated as per Eskom's legal requirements.

¹ <https://uff.co.za/wp-content/uploads/2018/08/Bonathaba-Farm-deal-sheet.pdf>

² <http://westcoastdm.co.za/wp-content/uploads/2020/09/WCDM-SDF-2020-1.pdf>

³ Zscheischler, J., Martius, O., Westra, S., Bevacqua, E., Raymond, C., Horton, R.M., van den Hurk, B., AghaKouchak, A., Jézéquel, A., Mahecha, M.D. and Maraun, D. 2020. A typology of compound weather and climate events. *Nature reviews earth & environment*, pp.1-15.

5. Relocation of irrigation pipelines

- Relocation and extension of irrigation pipelines. Pipeline Ø will vary from 110mm (0.11m) to 250mm (0.25m) and will be approximately $\pm 1\ 150$ m in length. Pipelines will be constructed within a previously transformed area (ploughed land).

6. Construction of access road

- The existing access roads around the existing dam footprint will be inundated by the proposed dam enlargement. It is therefore proposed that a 10m wide and 1 600m long road be constructed along the new dam footprint.



Figure 1: Existing pumphouse and compost containers in compost storage facility to be relocated. Viewed from the existing dam wall, looking in a south-eastern direction.

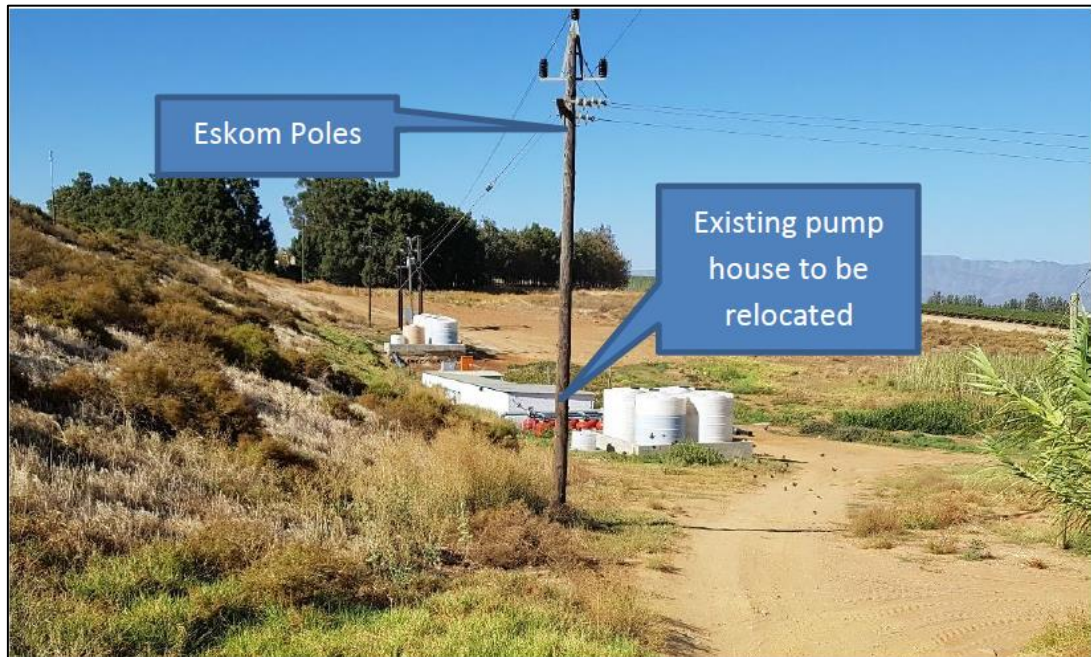


Figure 2: Existing Eskom Poles and existing pumphouse to be relocated. Source: Engineer's Technical Report, (2019). Photo taken looking in a north-easterly direction.

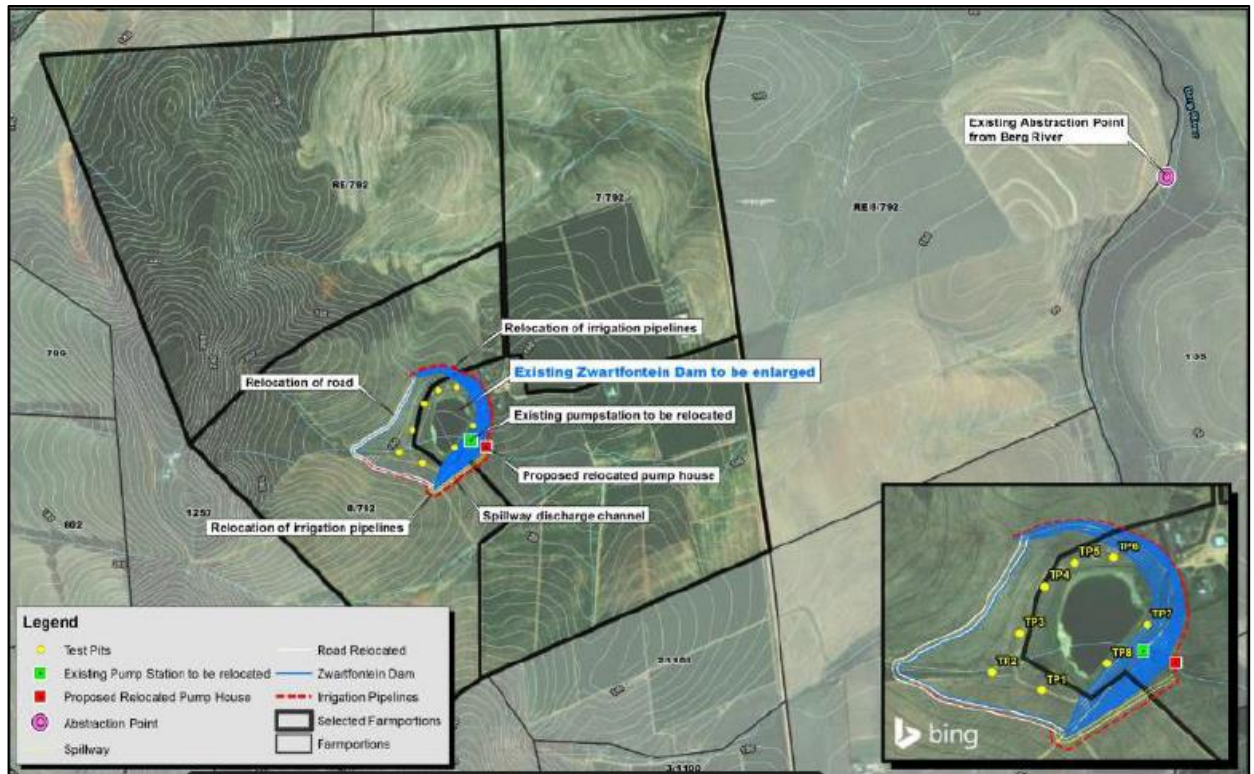


Figure 3: Site layout plan. Source: Engineer's Technical Report indicating the proposed and preferred relocation of dam infrastructure.

Services

No new water will be abstracted and therefore, a WULA in terms of s21(a) will not be required however, other activities (detailed above) trigger the need for a Water Use Authorisation (WUA) in terms of section 21(b), (c), and (i) of the National Water Act, Act No. 36 of 1998. Please refer to Appendix E3.1 and Appendix E3.2 for the WULA process. The dam will be filled from an existing abstraction point (which will remain as is) with existing water use rights enlisted under the Berg River Irrigation Board. As stated above, due to the downstream increase of the dam wall, associated dam infrastructure such as the existing pumphouse including compost storage facility, outlet pipe, and Eskom electrical infrastructure will need to be relocated (Figure 4). The dam enlargement will inundate the existing access road around the existing dam and therefore a new access road around the dam footprint is proposed. This project is for the proposed enlargement of the existing Zwartfontein Dam, and thus, sewage/effluent treatment will not take place (Appendix B1).

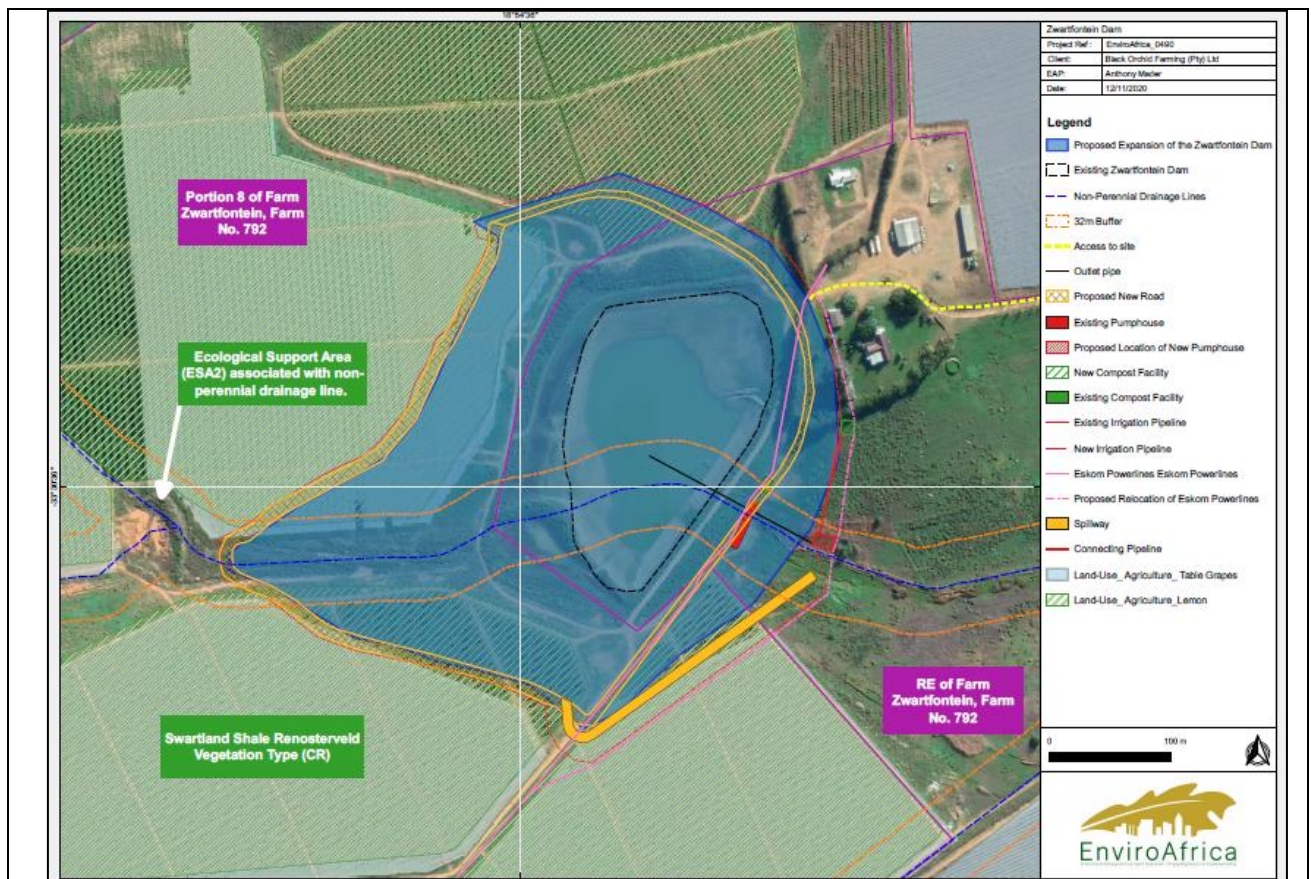


Figure 4. Site spatial/ development plan associated with the proposed expansion of the existing Zwartfontein Dam (Appendix B1.1).

4.5. Indicate how access to the proposed site(s) will be obtained for all alternatives.

The existing access roads around the existing Zwartfontein Dam footprint will be inundated by the proposed dam enlargement. It is therefore proposed that a 10m wide and 1600m long road be constructed along the new dam footprint. Proposed access roads, associated with the enlargement of the Zwartfontein Dam, will be linked to previously existing farm roads. Thus, other than the proposed access roads around the footprint of the proposed enlarged dam, no new access roads are required / will be constructed to link to the new dam access roads.

4.6	SG Digit Codes	Remainder of Farm Zwartfontein No. 792																		
		C	0	4	6	0	0	0	0	0	0	0	0	7	9	2	0	0	0	0
4.6	SG Digit Codes	Portion 8 of the Farm Zwartfontein No. 792																		
		C	0	4	6	0	0	0	0	0	0	0	0	7	9	2	0	0	0	8
4.7.	Coordinates of the proposed site(s) for all alternatives:																			
	No alternative location was investigated as the proposed project is for the enlargement of the existing Zwartfontein Dam.																			
	Latitude (S)	33°				30'				35.76"										
	Longitude (E)	18°				54'				37.26"										

SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. Exemption applied for in terms of the NEMA and the NEMA EIA Regulations

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	YES	NO
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2. Is the following legislation applicable to the proposed activity or development.

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	YES	NO
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1. A NID was submitted to HWC. HWC provided comments that no heritage resources will be impacted by the proposed enlargement (Appendix E1 / Appendix G3)	YES	NO
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3. There is no need to apply for a new water use license for the taking of water. Proof of existing water use to be provided; Francois Joubert from Schoeman en Vennote has initiated the eWULAA for other activities that trigger section 21 of the National Water Act. These are the following: <ul style="list-style-type: none"> • S21 (b) Storing of water • S21 (c) Impeding or diverting the flow of the water course • S21 (i) Altering the bed, bank, course or characteristic of a watercourse As per Dam safety regulations in terms of sections 117 to 123, chapter 12 of the National Water Act, 1998 (Act 36 of 1998)]. This application is still to be submitted.	YES	NO
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	YES	NO
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	NO
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	YES	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	NO
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	YES	NO

3. Other legislation

List any other legislation that is applicable to the proposed activity or development.
N/A

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.
N/A

5. Guidelines

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.	
DEADP Guidelines	The DEA&DP Guideline on Need & Desirability (2010), DEA&DP Guideline on Public Participation (2010), DEA&DP Guideline on Alternatives (2010), and DEA&DP Guideline for Environmental Management Plans (2005) were consulted and adhered to when undertaking this Basic Assessment Report.
National Environmental Management Act (107 of 1989) (NEMA) and Environmental Impact Assessment (EIA) Regulations, 2010	Principles of environmental management, procedures to be followed and adhered to for a Basic Assessment process and Environmental Authorisation
Guideline on need and desirability (2017)	Although some overlap with the DE&DP Guideline (2010), this guideline was consulted and adhered to with regards to considering the need and desirability aspects of the proposed Dam Enlargement.

Public Participation guideline in terms of NEMA (2017)	Although some overlap with the DE&DP Guideline (2010), this guideline was consulted and adhered to with regards to considering the public participation process required for the proposed project.
Impact significance, Integrated Environmental Management, Information Series 5 (2002) and Environmental Impact Reporting, Integrated Environmental Management, Information Series 15 (2004)	These guidelines were consulted and adhered to with regards to the assessment of the significance of impacts associated with the proposed enlargement of the Zwartfontein Dam.

6. Protocols

Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form	
Protocols included the general requirements for conducting initial verification of site sensitivity.	The DEA Screening Tool, as well as the nature of the proposed project (i.e. enlargement of an existing dam) identified the need for certain specialist studies. However, applicable specialist studies, namely Botanical and Freshwater Assessments were undertaken whereas a NID was submitted to HWC (please see section I.3).

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1	Describe the portion of the proposed development to which the applicable listed activity relates.
12	The development of infrastructure or structures with as physical footprint of 100m ² or more (a) within a watercourse; (c) if not development setback exists, within 32m of a watercourse, measured from the edge of the watercourse	With the proposed dam expansion, associated dam infrastructure will need to be relocated. The relocation of the pumphouse is proposed on the bank of the drainage line and will have a footprint of approximately 200m ² .
19	The moving of more than 10 m ³ of material within a watercourse.	The proposed dam is classified as an "in stream dam" and intersect a drainage line (non-perennial watercourse). The proposed earthmoving activities will exceed 10m ³ .
27	The clearance of an area of 1 ha or more, but less than 20 ha or more of indigenous vegetation	The proposed activity will result in the clearance of approximately 5ha (5 000m ²) of disturbed vegetation.
31	The decommissioning of existing facilities, structures or infrastructure for— (i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; (ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; (iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or (v) any activity regardless the time the activity was commenced with, where such activity: (a) is similarly listed to an activity in (i) or (ii) above; and (b) is still in operation or development is still in progress;	With the proposed dam expansion, the associated Dam infrastructure, including the pumphouse, will need to be relocated. Therefore, the proposed relocation of the pumphouse will result in the decommissioning of the pumphouse at its existing location. Moreover, the relocation will trigger Listed Activity 12 as per LN1 (see above).
45	The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure— (i) has an internal diameter of 0,36 metres or more; or (ii) has a peak throughput of 120 litres per second or more; and (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more; excluding where such expansion— (aa) relates to transportation of water or storm water within a road reserve or railway line reserve; or (bb) will occur within an urban area.	The proposed dam expansion infrastructure, namely the replacement and expansion of the outlet pipe, will trigger this listed activity as; (i) pipes with an internal diameter of more than 0.36m, (ii) a throughput capacity of more than 120 litres per second; where the (b) throughput capacity will be increased by more than 10% and is located outside the urban area of Malmesbury.

48	The expansion of dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100m ² or more (a) within a watercourse	The proposed dam is classified as an "in stream dam" and intersects a drainage line (non-perennial watercourse). The proposed activity will result in the expansion of a dam of more than 100m ² within a watercourse.
50	The expansion of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, where the combined capacity will be increased by 50 000m ³ or more	The proposed dam is located within a non-perennial watercourse (stream). Material will be excavated and used to increase the dam wall height. The dam capacity will be increased by 765 000m ³ .
66	The expansion of a dam where - (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more;	The proposed expansion of the existing dam will include the raising of the dam wall height where the current dam height of 11.7m will be raised to a total of 22.5m (increase of 10.8m).
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3	Describe the portion of the proposed development to which the applicable listed activity relates.
4	The development of a road wider than 4 meters with a reserve less than 13,5m (i) Western Cape (ii) Areas outside urban areas	It is proposed that a 10m wide, 1600m long access road be constructed around the proposed dam footprint.
12	The clearance of an area of 300 square metres or more of indigenous vegetation; i. Western Cape i. Within any 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	The proposed site for dam expansion is located within the Swartland Shale Renosterveld, a vegetation type classified as critically endangered (CR) in terms of the National Environmental Management: Biodiversity Act 2004, National List of Ecosystems that are threatened and in need of protection (NEMBA).
Note: <ul style="list-style-type: none"> The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted. Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority. 		

List the applicable waste management listed activities in terms of the NEM:WA

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Category A	Describe the portion of the proposed development to which the applicable listed activity relates.
N/A		

List the applicable listed activities in terms of the NEM:AQA

Activity No(s):	Provide the relevant Listed Activity(ies)	Describe the portion of the proposed development to which the applicable listed activity relates.
N/A		

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.
<p>No alternative site or properties were investigated as the proposed project is for the expansion of an existing Zwartfontein Dam on Portion RE and Portion 8 of Farm Zwartfontein, Farm No. 792.</p> <p>Therefore, the preferred alternative, as per the Engineer's Technical Report from Ingerop (Appendix G5), includes:</p> <ol style="list-style-type: none"> Enlargement of Zwartfontein Dam <ul style="list-style-type: none"> The proposed enlargement/ expansion of the existing Zwartfontein Dam, of which various design alternatives were investigated, will comprise of: <ul style="list-style-type: none"> Increased Storage capacity: proposed expansion of the existing storage capacity of 150 000m³ to a total storage capacity of 915 000m³, effectively increasing the dam's storage capacity by 765 000m³ (83.60%); Raising Dam Wall Height: the current dam height of 11.7m will be raised to a total of 22.5m, proposed increase of 10.8m; Increase in Dam Footprint: the existing dam footprint of ±3.6ha (36 000m²) will be increased to a total of ±10.9ha (109 000m²), a proposed increase of ±7.3ha (73 000m²); Total Development Footprint: a total of 14.5ha (145 000m²) is expected of which approximately 3.6ha (36 000m²) is existing /transformed. Therefore, a new disturbance footprint of 10.9ha (109 000m²) is expected. 	

<p>The total development footprint includes the relocation of infrastructure associated with the Dam (see below).</p> <p>Due to the downstream increase of the dam wall, associated dam infrastructure such as the existing pumphouse including compost storage facility, outlet pipe, and Eskom electrical infrastructure will need to be relocated. The proposed expansion of the dam will inundate the existing access road associated with the existing Dam and therefore, a new access road around the new dam footprint is proposed.</p> <p>2. Relocation of Pumphouse</p> <ul style="list-style-type: none"> The exiting pumphouse is comprised of two sections, namely the (1) pump station (consisting of pumps and filters, compost pumps), and (2) compost tanks stored in a bunded area (refer to Figure 1). The proposed pump house comprises of a footprint of approximately 200m². With the dam enlargement and raising of the dam wall it is proposed that the pumphouse and compost storage facility be split in two section and relocated. The co-ordinates of the proposed relocated pumphouse is 33°30'37.43"S, 18°54'45.57"E. <p>3. Replacement and extension of outlet pipeline</p> <ul style="list-style-type: none"> Replacement and extension of the existing outlet pipeline is proposed. It is proposed that the pipeline be replaced with a new pipeline of 500mm Ø (0.5m). The total pipeline length is expected to be 265m and will connect to the relocated pumphouse. Refer to Activity 45 of LN1. <p>4. Relocation of existing Eskom Infrastructure</p> <ul style="list-style-type: none"> Existing Eskom electrical infrastructure, located directly below the existing dam embankment to downstream of the raised embankment footprint, will be relocated as per Eskom's legal requirements. <p>5. Relocation of irrigation pipelines</p> <ul style="list-style-type: none"> Relocation and extension of irrigation pipelines. Pipeline Ø will vary from 110mm (0.11m) to 250mm (0.25m) and will be approximately ±1 150m in length. Pipelines will be constructed within a previously transformed area (ploughed land). <p>6. Construction of access road</p> <ul style="list-style-type: none"> The existing access roads around the existing dam footprint will be inundated by the proposed dam enlargement. It is therefore proposed that a 10m wide and 1600m long road be constructed along the new dam footprint. 	
2.	<p>Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.</p> <p>The property is zoned as Agriculture. The proposed expansion is in line with the existing land use rights.</p>
3.	<p>Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.</p> <p>N/A</p>
4.	<p>Explain how the proposed development will be in line with the following?</p>
4.1	<p>The Provincial Spatial Development Framework.</p> <p>The proposed enlargement of the dam would allow for the storage of summer irrigation water. The storage of water for irrigation would provide a more efficient use of water which has become a scarce resource, especially in the Western Cape. The water stored will be used for the irrigation of orchards (table grapes & citrus) contributing to the agricultural sector which remains the backbone of the Western Cape economy and would lead to economic gains.</p>
4.2	<p>The Integrated Development Plan of the local municipality.</p> <p>The proposed enlargement of the Zwartfontein Dam is in line with the West Coast District Municipality's IDP with regards to sustaining and supporting primary and secondary sectors within the District's economy. The West Coast District's economy is dominated by manufacturing (20.3% in 2016) and the agricultural sector (at 20.2%, generating R 5 482 300 in 2016), highlighting the need for sustainable agricultural developments. One of the main issues highlighted by the West Coast Districts Spatial Development Framework (SDF) is the recent drought and the implications of drought on the agricultural sector. Various climatic drivers, namely higher temperatures and drier conditions further exacerbate the impact of drought events on the agricultural sector, which require careful planning and adequate responses to sustain and grow the agricultural sector. The agricultural industry, and more specifically the Zwartfontein (and Bonathaba) Farm depend on water abstracted from the Bergrivier for irrigation. Due to the absence of rainfall during mid-summer when water is required (which is generally too little to sustain agricultural activities), water is generally abstracted during winter and subsequently stored in dams for irrigation during the summer months. Therefore, the proposed increase in storage capacity will help in securing the contribution of the Zwartfontein Farm to the agricultural sector within the Swartland Local Municipality. The approval of the proposed dam enlargement would not compromise the integrity of the West Coast District Municipality IDP and SDF but will contribute to the more efficient use of an existing water use, a scarce resource. The West Coast District Municipality's IDP and SDF identify and support the sustainability and growth of the agricultural sector. One of the main issues highlighted by the West Coast District's Spatial Development Framework (SDF) is the recent drought and the implications of drought on the agricultural sector. The water stored will be used for the irrigation of existing crops. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains within a local, district, and provincial context.</p>

4.3.	The Spatial Development Framework of the local municipality.
Agriculture is a main economic driver in the Swartland Local Municipality and is a major contributor to the socioeconomic stability of the area where the Swartland Local Municipality – identified as the most prominent agricultural Local Municipal area within the West Coast District. The approval of the proposed dam enlargement would not compromise the Swartland SDF as the proposed project will contribute to the more efficient use of an existing water use for primary sector.	
4.4.	The Environmental Management Framework applicable to the area.
The approval of the proposed project, with correct mitigation measures in place, will support environmental management strategic objectives as adopted by the West Coast District Municipality.	
5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.
<p>According to the Biodiversity and Freshwater Assessment, and comments received from Heritage Western Cape, the proposed enlargement of the Zwartfontein Dam will not have a significant impact on geographical, geological, physical, environmental, or heritage aspects as the site and associated drainage line is considered transformed with little-to-no indigenous vegetation present on site. This is due to past and current agricultural activities on the farm and surrounds. Specialist recommendations have been incorporated into this report (Draft BAR) and the Draft EMPr.</p> <p>Although a HIA/ AIA is not required, should any heritage resources (e.g. graves, human burials, archeologically material, and paleontological material) be discovered during construction activities associated with the proposed dam enlargement, all work must be stopped immediately and HWC must be notified without delay.</p> <p>It is the opinion of the Freshwater specialist and Botanical specialist that the footprint for the expansion is available due to the area being transformed where no water or botanical resources will be lost as a result of the proposed dam expansion.</p>	
6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.
<p>As per the Biodiversity Overlay Maps from Cape Farm Mapper (Figure 5) and the Botanical Assessment (Appendix G1), a small Critical Biodiversity Area (CBA) is situated within the existing Zwartfontein Dam. The dam will also impact an Ecological Support Area Class 2 (ESA2), associated with the non-perennial watercourse (Figure 5). The Botanical Assessment stipulated that special care was taken when this area was assessed in order to check for any special vegetation features. As per the Western Cape BSP Handbook, ESAs are classified as severely degraded or have no natural cover remaining and therefore require restoration (ESA 2). This is in line with specialist findings where the terrain, as well as its immediate surroundings, are considered heavily degraded and transformed with only a few hardy indigenous plant species remaining. It is recommended that topsoil removed from the drainage lines for construction be stored in a safe place and used for rehabilitation of the drainage lines, after construction. The Botanical Assessment concludes that the proposed development will not lead to any significant on any remaining vegetation or plant species of significant conservation value.</p>	

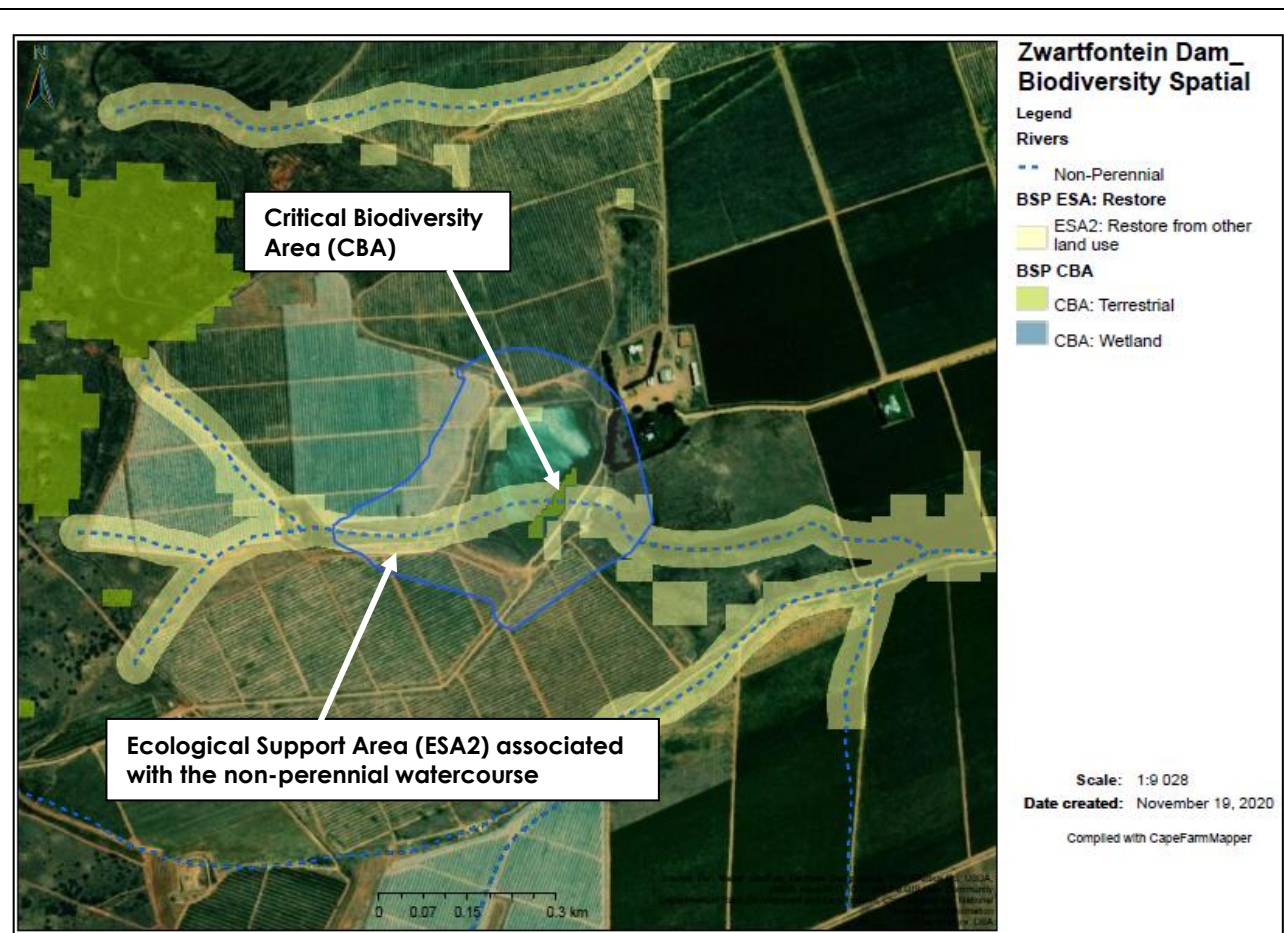


Figure 5. Biodiversity Spatial Plan (BSP) associated with the proposed expansion of the Zwartfontein Dam. Note, sections of the CBA and ESA2 (located within the total development footprint) have already been disturbed / transformed by the existing Zwartfontein Dam.

From an environmental perspective, the proposed dam enlargement, irrespective of Design option, will not cause further loss of protected vegetation or contribute to the transformation of the drainage line any further. However, with the preferred Dam Design/Layout Alternative A: Option 10, approximately 4.3ha agricultural land will be sacrificed.

The proposed relocation of the compost storage facility next to the house (Alternative A) will reduce further impact on the drainage line when compared to the original location and Alternative B, next to the new relocated pumphouse on the northern bank of the drainage line. Trucks delivering compost will utilise the existing farm road and avoid the drainage line completely.

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.
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N/A

8.	Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.
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No. The Screening Report (and motivation of specialist reports) are attached as Appendix I.

9.	Explain how the proposed development will optimise vacant land available within an urban area.
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The proposed site is located outside an urban area.

10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.
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The proposed project will incorporate the existing Zwartfontein Dam (as this project is for the enlargement of the existing Zwartfontein Dam). This will reduce impacts associated with a new dam development. The proposed project will enable adequate supply of irrigation water for existing agricultural activities on the property.

11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).
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Necessary services are available. There is no need to apply for a new water use license for the taking of water due to existing water use right. Mr Francois Joubert from Schoeman en Vennote has initiated the eWULAA for other activities that trigger section 21 of the National Water Act, namely:

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

The existing outlet pipe will be replaced and extended whereas new irrigation pipelines will be constructed. Pipelines will fall within ploughed land. Relocation of the existing Eskom electrical infrastructure, located directly below the existing dam embankment will be relocated downstream of the raised embankment footprint.

12. In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.

The consideration of "need and desirability" in EIA decision-making requires the consideration of the strategic context of the development proposal along with the broader societal needs and the public interest. While the concept of need and desirability relates to the type of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which need refers to *time* and *desirability* to *place* – i.e. Is this the *right time* and is it the *right place* for locating the type of land-use/activity being proposed? Need and desirability can be equated to *wise use of land* – i.e. The question of what the most sustainable use of land is.

The proposed enlargement of the dam would allow for the storage of summer irrigation water. The enlargement of the dam would provide a more efficient use of water which has become a scarce resource, especially in the Western Cape. The water stored will be used for the irrigation of orchards (table grapes & citrus) where agriculture remains the backbone of the Western Cape economy and would lead to economic gains.

The proposed development is required to ensure the long-term economic viability and sustainability of the production of table grapes and citrus. The West Coast District Municipality's IDP and SDF identify and support the sustainability and growth of the agricultural sector. One of the main issues highlighted by the West Coast Districts Spatial Development Framework (SDF)⁴ is the recent drought and the implications of drought on the agricultural sector. Various climatic drivers, namely higher temperatures and drier conditions further exacerbate the impact of drought events on the agricultural sector⁵, which require careful planning and adequate responses to sustain and grow the agricultural sector. Therefore, there is a need to increase the storage capacity of the Zwartfontein Dam to sustain and irrigate existing orchards especially with regards to the climatic drivers (i.e. higher temperatures and drier conditions).

This is especially the case for the study area located within the Swartland Local Municipality – identified as the most prominent agricultural Local Municipal area within the West Coast District. Moreover, the West Coast District's economy is dominated by manufacturing (20.3% in 2016) and the agricultural sector (at 20.2%, generating R 5 482 300 in 2016). Moreover, there is a need to create employment opportunities. Therefore, there is a need for the proposed dam development to ensure that agricultural productivity of the Zwartfontein Farm is sustained, along with creating employment opportunities, within the study area, local, and district municipal contexts.

The proposed location of the dam site is considered ideally suited for the construction of the Zwartfontein Dam due to the (i) environmental (namely soil and climatic conditions) and (ii) proximity to the Cape Town Harbour (situated approximately 60km as the crow flies). This provides the ideal location for the table grape and citrus industry to grow and contribute to socioeconomic development within local and district contexts. From an engineering perspective, the location was chosen to ensure the project life cycle costs are minimised where the decisive factors typically include basin characteristics with reference to available capacity versus demand, optimal costing of works, risk, etc. The location is preferred based on the location of the existing Zwartfontein Dam. The site is largely surrounded by agricultural activities and will therefore not be "out of character" with the surrounding land use and is expected to have a negligible impact on the visual character of the area.

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

N/A

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

Yes, please see table below for PP undertaken:

Table 1. Public participation undertaken for the proposed expansion of the existing Zwartfontein Dam.

4 <http://westcoastdm.co.za/wp-content/uploads/2020/09/WCDM-SDF-2020-1.pdf>

5 Zscheischler, J., Martius, O., Westra, S., Bevacqua, E., Raymond, C., Horton, R.M., van den Hurk, B., AghaKouchak, A., Jézéquel, A., Mahecha, M.D. and Maraun, D. 2020. A typology of compound weather and climate events. *Nature reviews earth & environment*, pp.1-15.

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

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

Yes, the following State Departments / organs of state were consulted:

Table 2. State Departments / Organs of State consulted for comment.

State Department / Organ of State	Date request was sent:	Date comment received:	Support / not in support
Department of Environmental Affairs and Development Planning (DEA&DP)	27 March 2019 (Letter) 04 April 2019 (NOI)	09 April 2019 15 April 2019	Acknowledged
Swartland Local Municipality	27 March 2019	29 March 2019	Acknowledged
West Coast District Municipality	27 March 2019	-	No comments received yet
Ward Councillor Swartland Local Municipality	27 March 2019	-	No comments received yet
DWS	27 March 2019	15 January 2020	Acknowledged
Cape Nature	27 March 2019	04 April 2019	Acknowledged
Heritage Western Cape	27 March 2019 (Letter) 14 April 2019 (NID submission)	30 April 2019 (NID Response)	Support
Western Cape Department of Agriculture – Land use Management	27 March 2019	28 March 2019	Acknowledged and received comment
Bergvrierv Irrigation Board	27 March 2019	-	No comments received yet

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

N/A

5. if any of the State Departments and Organs of State did not respond, indicate which.

Please see Table above in section F, subsection 3.

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

All comments and responses captured and addressed in the Comments and Response report, Appendix F. Please refer to Appendix F for original comments received.

DWS – Due to the nature of the project, a Water Use Authorisation (WUA) is required in terms of section 21 (b), (c), and (i) of the National Water Act, Act No. 36 of 1998.

DEA&DP – listed activities which must be included in the NEMA Application include; LN1 of GN No. R983 (Activity No. 12, 19, 45, 48). An environmental application must be lodged and it is prohibited to commence any listed activities prior to receipt of an environmental authorisation.

HWC - The enlargement of the dam will not impact on heritage resources and the comment dated 30 April 2019 still stands.

Department of Agriculture – Acknowledged receipt of and had no comment.

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that "*Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority.*"

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

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

SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. Groundwater

1.1.	Was a specialist study conducted?	YES	NO
1.2.	Provide the name and or company who conducted the specialist study.		
N/A			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
N/A			
1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.		
N/A			

2. Surface water

2.1.	Was a specialist study conducted?	YES	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
The Freshwater Assessment was undertaken by Dr Dirk van Driel from WATSAN.			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
The proposed project is for the enlargement of an existing, instream dam.			

3. Coastal Environment

3.1.	Was a specialist study conducted?	YES	NO
3.2.	Provide the name and/or company who conducted the specialist study.		
N/A			
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		
N/A			
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
N/A			
3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.		
N/A			

4. Biodiversity

4.1.	Were specialist studies conducted?	YES	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
The Botanical Assessment was undertaken by Mr Peet Bothes from PB Consult Environmental Management Services.			
4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.		
Desktop studies (including the Western Cape Biodiversity Spatial Plan, vegetation maps (Vegetation map of SA (Mucina & Rutherford, 2006), NFEPA, land-use map, google earth imagery and historical imagery) in combination with a site visit was performed to evaluate the proposed site in terms of potential impacts on botanical features of significance and to make recommendations on mitigation measures (should it be required). The site visit was conducted during March 2019 (after recent rains). The timing of the site visit was not ideal in that Renosterveld is generally known for its rich bulb component that usually shows best during spring. Non-the-less, the site is so degraded as a result of agricultural practices (over a long period of time) that it is considered highly unlikely that any significant species would have survived these practices.			
4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.		

<p>As stated in the Botanical Assessment, the 2017 Western Cape Biodiversity Spatial Plan (WCBSP) includes a map of biodiversity importance for the entire province, covering both the terrestrial and freshwater realms, as well as major coastal and estuarine habitats (Pool-Stanvliet, 2017). The WCBSP is the product of a systematic biodiversity plan that delineates, on a map, Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services.</p> <p>According to the Witzenberg spatial dataset of the WCBSP, the proposed dam may impact on a small CBA area and will further impact on an ecological support areas (ESA, Class 2) associated with the intermittent seasonal streams. Please note that the small CBA area as it is mapped at the moment, is located within the existing dam. However, special care was taken when these areas were studied in order to check for any special vegetation features.</p>	
4.5.	<p>Explain what impact the proposed development will have on the site specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.</p> <p>A CBA is located within the existing Zwartfontein Dam. The proposed enlargement of the Dam will impact a ESA2, associated with the non-perennial watercourse. The objective of CBAs are to keep such areas natural or near natural. The area, however, is no longer in a natural or near natural condition due to the existing Zwartfontein dam and surrounding agricultural activities. The ESA2 areas, which will be impacted by the proposed enlargement, are not essential for meeting biodiversity targets but play a role in supporting the functioning of Protected Areas and CBAs.</p>
4.6.	<p>If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.</p> <p>N/A</p>
4.7.	<p>Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.</p> <p>No animals were noted on site during the site visit however, conditions and measures have been addressed in the EMPr to mitigate potential impact(s) of the proposed development on animal species. The proposed site for dam enlargement will overlap areas that were already disturbed as a result of cultivation and associated practices.</p>

5. Geographical Aspects

<p>Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.</p> <p>According to the Biodiversity, Freshwater and comments from Heritage Western Cape, the proposed enlargement of Zwartfontein Dam will not have a significant impact on geographical, geological or physical environmental or heritage aspects as the site and associated drainage line is considered transformed with little no indigenous vegetation present on site. This is due to past and current agricultural activities on the farm and surrounds.</p>	
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6. Heritage Resources

6.1.	Was a specialist study conducted?	YES	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
Heritage Screener was undertaken by CTS Heritage.			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
	<p>The Heritage screener conducted by CTS Heritage (Appendix G3) concluded that no structures with heritage significance will be impacted by the proposed enlargement of the dam. In terms of archaeological, while it may be likely that, due to its proximity to the Berg River, that archaeological resources may be located within the proposed development area, it is unlikely that these resources will be in situ due to the extensive agricultural activity that has occurred on this site. Furthermore, no impacts to significant palaeontological resources are anticipated. HWC provided comment (Appendix E1) stating that the proposed dam enlargement will not impact on heritage resources.</p>		

7. Historical and Cultural Aspects

<p>Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.</p> <p>The Heritage screener conducted by CTS Heritage (Appendix G3) concluded that no structures with heritage significance will be impacted by the proposed enlargement of the dam. In terms of archaeological, while it may be likely that, due to its proximity to the Berg River, that archaeological resources may be located within the proposed development area, it is unlikely that these resources will be in situ due to the extensive agricultural activity that has occurred on this site. Furthermore, no impacts to significant palaeontological resources are anticipated. HWC provided comment (Appendix E1) stating that the proposed dam enlargement will not impact on heritage resources.</p>	
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8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.																												
	<p>According to the Department of Social Development's 2018 projections, the West Coast Municipality has a population of 450 610, placing it in the middle of other Districts, with the Garden Route and Cape Winelands being bigger, whilst Overberg and Central Karoo have smaller populations. This total is estimated to increase to 530 860 by 2024 which equates to 2.8 per cent average annual growth over this period. In terms of education, the grade 12 drop-out rate for learners within the West Coast District declined marginally from 28.8 per cent in 2015 to 28.4 per cent in 2016; decreasing further to 26.9 per cent in 2017. Within the West Coast District, the grade 12 drop-out rate was highest in Cederberg, at 37.9 per cent in 2015, declining to 33.0 per cent in 2017, while the lowest was for the Swartland municipal area, which increases slightly from 20.1 per cent in 2015 to 20.2 per cent in 2017. The Swartland rate was also the lowest in the Province. Drop-outs are influenced by a wide array of socioeconomic factors including unemployment, poverty and teenage pregnancies.</p> <p>Over the last decade, the West Coast District's unemployment rate has been rising steadily; it increased from 9.0 per cent in 2015 to 10.1 per cent in 2016 and 11.1 per cent in 2017. The West Coast District's unemployment rate in 2017 is considerably below that of the Province's 18.2 per cent and is one of the lowest District's rates in the Province. The local economy of the West Coast District municipal area is dominated by the manufacturing (R5 513.7 million or 20.3 per cent in 2016) followed by the agriculture, forestry and fishing sector (R5 482.3 million or 20.2 per cent), wholesale and retail trade, catering and accommodation sector (R4 169.8 million or 15.3 per cent), finance, insurance, real estate and business services (R3 093.7 million or 11.4 per cent) and general government (R2 839.2 million or 10.5 per cent). Combined, these top five sectors contributed R21.1 billion (or 77.7 per cent) to the West Coast District municipal economy, which was estimated be worth R27.2 billion in 2016. The agriculture, forestry and fishing sector contributed the most jobs in the West Coast District municipal area in 2016 (69 711 or 39.3 per cent), followed by the wholesale and retail trade, catering and accommodation sector (28 433 or 16.0 per cent); community and social services (19 020 or 10.7 per cent); general government (17 432 or 9.8 per cent) and manufacturing (16 001 or 9.0 per cent). Combined, these top five sectors contributed 150 598 or 84.8 per cent of the 177 604 jobs in 2016.</p>																												
8.2.	Explain the socio-economic value/contribution of the proposed development.																												
	<table border="1"> <tr> <td>Expected capital value of the project on completion?</td><td>R17 000 000.00</td></tr> <tr> <td>Expected yearly income or contribution to the economy that will be generated by or as a result of the project?</td><td>No additional contribution, but for water security prevent a significant loss.</td></tr> <tr> <td>Project contribution to service infrastructure?</td><td>YES</td><td>NO</td></tr> <tr> <td>Is the project a public amenity?</td><td>YES</td><td>NO</td></tr> <tr> <td>Number of new employment opportunities will be created during the development phase?</td><td>46</td></tr> <tr> <td>Expected value of the employment opportunities during the development phase?</td><td>R778,500</td></tr> <tr> <td>Percentage accruing to previously disadvantaged individuals?</td><td>20%</td></tr> <tr> <td colspan="3">This be ensured and monitored via CSR audits.</td></tr> <tr> <td>Number of permanent new employment opportunities will be created during the operational phase of the project?</td><td colspan="2">No additional job creation, the water security can prevent severe employment losses.</td></tr> <tr> <td>Expected current value of the employment opportunities during the first 10 years?</td><td colspan="2">R0</td></tr> <tr> <td>Percentage accruing to previously disadvantaged individuals?</td><td colspan="2">0%</td></tr> </table>	Expected capital value of the project on completion?	R17 000 000.00	Expected yearly income or contribution to the economy that will be generated by or as a result of the project?	No additional contribution, but for water security prevent a significant loss.	Project contribution to service infrastructure?	YES	NO	Is the project a public amenity?	YES	NO	Number of new employment opportunities will be created during the development phase?	46	Expected value of the employment opportunities during the development phase?	R778,500	Percentage accruing to previously disadvantaged individuals?	20%	This be ensured and monitored via CSR audits.			Number of permanent new employment opportunities will be created during the operational phase of the project?	No additional job creation, the water security can prevent severe employment losses.		Expected current value of the employment opportunities during the first 10 years?	R0		Percentage accruing to previously disadvantaged individuals?	0%	
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8.3.	Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.																												
	As per sections 8.1 and 8.2, the proposed project will create new employment opportunities during the construction phase – promoting socio-economic development within the area.																												
8.4.	Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.																												
	No negative health effects are expected for this project during construction / operations. The proposed dam enlargement will be on agricultural land and will fit in with the sense of place.																												

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. Details of the alternatives identified and considered

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred property and site alternative.	
<p><u>Location alternative in terms of Zwartfontein dam:</u></p> <p>The proposed project is situated on RE of Farm Zwartfontein, Farm No. 792 [approximately 2 558 500m² (255.85ha) in extent] and Portion 8 of Farm Zwartfontein, Farm No. 792 [961 300m² (96.13ha) in extent]. No alternative properties and locations were investigated as this application is for the proposed expansion of the existing Zwartfontein dam.</p> <p>No Location/ site alternatives were investigated in terms of the dam as this application is for the proposed enlargement of the existing Zwartfontein dam. Portion 8 and RE Farm Zwartfontein 792 is only location for the dam enlargement.</p> <p>Locality alternatives in terms of the pump station components were investigated.</p> <p><u>Location alternatives in term of relocation of pumphouse components:</u></p> <p>The exiting pumphouse comprises of two sections: The pump station comprising of pumps, filters and compost pumps as well as compost tanks stored in a bunded area. Please refer to Figure 1 for the existing facility. With the dam enlargement and raising of the dam wall it is proposed that the pumphouse and compost storage facility be split in two sections (1) The pump station containing pumps and filters and (2) the compost storage tanks in a bunded area. Locality alternative in terms of the compost storage facility was investigated.</p> <p><u>Locality Alternative A: Pump station (Only alternative):</u></p> <ul style="list-style-type: none"> It is proposed that the pump station containing pumps and filters be relocated approximately 65m SW downstream of the raised dam wall on the northern bank of the drainage line/stream. The footprint of the pumphouse will be ± 200m² on the bank the drainage line/stream. This location is favoured and considered the only viable alternative due to energy saving costs. Water will flow from the dam to the pumphouse via gravitation. <p><u>Locality Alternative A: Compost storage facility (Preferred Alternative):</u></p> <ul style="list-style-type: none"> It is proposed that the compost storage facility be constructed next to the house on the property (Alternative A – preferred, Appendix G5). This storage facility will store up to <u>maximum</u> 80 000L or 80m³ of compost and comprise of a cement slab with walls with no roof to contain any possible spills. The storage facility must comply to National Norms and Standards for the storage of Waste in terms of the National Environmental Management: Waste Act (Act No. 59 of 2008). The compost storage facility next to the house will have footprint of approximately 100m². The pump station and compost tanks are to be connected with an approximately 40mmØ, 100m pipeline. Alternative A is favoured due to ease of access for large delivery trucks delivering compost. An existing access road to the site exists and less disturbance to the environment will occur. <p><u>Locality Alternative B: Pumphouse components (Not preferred):</u></p> <ul style="list-style-type: none"> Another alternative location was considered in terms of the compost storage facility. Alternative B would be to relocate and construct the compost storage facility next to the proposed new pumphouse, downstream of the raised dam wall on the northern bank of the drainage line/stream However, the impact on the environment and drainage line would be more significant (when compared to Alternative A) as no access roads to the proposed site exists for delivery trucks. A road will have to be constructed and disturbance on the environment will be more significant when compared to Alternative A. It is for this reason that Alternative B is not preferred. <p><u>Location alternatives of associated infrastructure:</u></p> <p>Due to the downstream increase of the dam wall, associated dam infrastructure such as the existing pumphouse including compost storage facility, outlet pipe and Eskom electrical infrastructure will have to be relocated. The dam enlargement will inundate the existing access road around the existing dam and therefore a new access road around the dam footprint is proposed.</p> <p><u>Locality Alternative A: Irrigation Infrastructure (Only Alternative):</u></p> <ul style="list-style-type: none"> Relocation and extension of irrigation pipelines to connect to existing irrigation pipelines. Pipeline Ø will vary from 110mm to 250 mm and will be ± 1150m in length. Pipelines to fall within ploughed land. 	

Locality Alternative A: Eskom infrastructure (Only Alternative):

- Relocation of the existing Eskom electrical infrastructure located directly below the existing dam embankment wall to downstream of the raised dam wall footprint. Relocation in line with Eskom legal requirements.

Locality Alternative A: Access road (Only Alternative):

- Due to the enlargement of the dam, access roads around the existing dam will be inundated. Therefore, the allowance of a maximum 10m wide and 1600m long access road around the dam footprint was the only alternative considered and investigated.

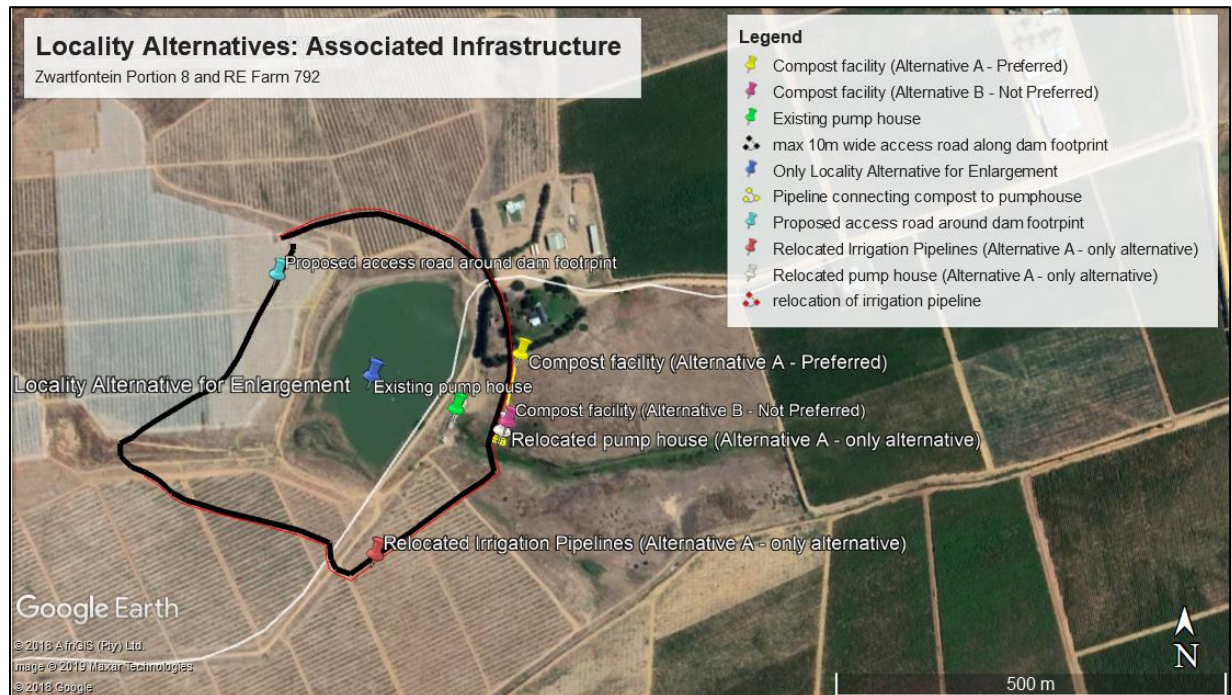


Figure 6: Google image showing locality alternatives investigated in terms of associated dam infrastructure relocation.

Provide a description of any other property and site alternatives investigated.

N/A

Provide a motivation for the preferred property and site alternative including the outcome of the site selection matrix.

The proposed project is for the enlargement of an existing dam on Portion RE and Portion 8 of Farm Zwartfontein, Farm No. 792. Therefore, the construction of a new dam at a different location will significantly increase impacts on the fauna, flora, and the receiving environment of the different location, compared with the current location which is already considered disturbed. It was the opinion of the Freshwater specialist and Botanical specialist that the footprint for the expansion is available due to the area being transformed meaning that not water or botanic resources will be lost because of the proposed expansion.

Moreover, the proposed location of the dam site is considered ideally suited for the construction of the Bonathaba Dam due to the (i) environmental (namely soil and climatic conditions) and (ii) proximity to the Cape Town Harbour (situated approximately 60km as the crow flies). This provides the ideal location for the table grape and citrus industry to grow and contribute to socioeconomic development within the area.

Provide a full description of the process followed to reach the preferred alternative within the site.

N/A (please see below)

Provide a detailed motivation if no property and site alternatives were considered.

The proposed project is for the enlargement of an existing dam on Portion RE and Portion 8 of Farm Zwartfontein, Farm No. 792. Therefore, the construction of a new dam at a different location will significantly increase impacts on the fauna, flora, and the receiving environment of the different location, compared with the current location which is already considered disturbed. It was the opinion of the Freshwater specialist and Botanical specialist that the footprint for the expansion is available due to the area being transformed meaning that not water or botanic resources will be lost because of the proposed expansion.

List the positive and negative impacts that the property and site alternatives will have on the environment.

Positive:

- Reduced impacts compared with development of new dam at different location;
- Employment opportunities;
- Proximity to Cape Town Harbour (export);
- Proximity of established orchards requiring irrigation.

Negative:

- Loss of vegetation within the Swartland Shale Renosterveld (CR, vegetation type);
- Impact on ESA2, associated with the non-perennial watercourses present within the proposed footprint (note, a small CBA is located within the existing dam);
- Dust;
- Visual

Please find detailed explanation below:

BSP:

From the Biodiversity Overlay Maps from Cape Farm Mapper (**Appendix D**) and the Botanical Assessment conducted by the Biodiversity Specialist (**Appendix G1**) the site falls within a small Critical Biodiversity Area (CBA). However, the small CBA is located within the dam. The dam will also further impact Ecological Support Area Class 2 (ESA2). The report further states that special care was taken when this area was studied in order to check for any special vegetation features. The terrain and its immediate surroundings are considered heavily degraded and transformed with only a few hardy indigenous species remains. It is recommended that topsoil removed from the drainage lines for construction be stored in a safe place and used for rehabilitation of the drainage lines, after construction. Properly managed and designed farm dams can attract a variety of bird, insect and animals to the area and so contribute to conservation of biodiversity.

Vegetation:

According to the Vegetation map from Cape Farm Mapper, Appendix D, the vegetation that would have been present on the site is Swartland Shale Renosterveld. This type of vegetation is classified as *Critically Endangered* in terms of the *National Environmental Management: Biodiversity Act 2004, National List of Ecosystems that are threatened and in need of protection (NEMBA)*. However, The Botanical assessment concludes that the proposed dam enlargement will not impact on any remaining vegetation or plant species of significant conservation value. Most of the terrain and its immediate surroundings are considered heavily degraded to transformed, only a few indigenous species and alien pioneer species remains. Therefore, the proposed dam enlargement, irrespective of Design option as well as associated infrastructure, will cause further loss of protected vegetation.

Freshwater resources:

According to the Freshwater Report, Appendix G2, the non-perennial stream which the Zwartfontein dam intersects, as indicated on the Water Resources Map from Cape Farm Mapper (Appendix D) is considered a drainage line. The drainage line is approx. 4.4km long. The drainage line upstream of the dam takes the shape of wide valleys with no discernible drainage line and with the same vegetation as elsewhere on the hill. The drainage line down-stream of the dam has been transformed into a straight agricultural return flow furrow, all the way down to its confluence with the Berg River. The drainage line is considered to be overgrown with reeds and is considered transformed and degraded.

The proposed dam will be filled with water from the Berg River, from an existing abstraction point with existing water use rights enlisted under the Berg River Irrigation Board. The existing abstraction point will remain as is. The freshwater report concludes that the existing legal water use is already fully utilised for irrigation and has already been discounted by the DWS against ecological flow requirements of the Berg river, and the proposed extra storage capacity would not alter the situation. However, with large irrigation schemes there is always the possibility of more agricultural return flow which impact the river system. However, the drainage lines have already been transformed into stormwater management systems and return flows and the enlargement of the dam will not add to these impacts.

From an environmental perspective, the proposed dam enlargement, irrespective of Design option, will not cause further loss of protected vegetation or contribute to the transformation of the drainage line any further. However, with the preferred Dam Design/Layout Alternative A: Option 10, approximately 4.3ha agricultural land will be sacrificed.

The proposed relocation of the compost storage facility next to the house (Alternative A) will reduce further impact on the drainage line when compared to the original location and Alternative B, next to the new relocated pumphouse on the northern bank of the drainage line. Trucks delivering compost will utilise the existing road and avoid the drainage line completely.


According to the Biodiversity, Freshwater and comments from Heritage Western Cape, the proposed enlargement of Zwartfontein Dam will not have a significant impact on geographical, geological or physical environmental or heritage aspects as the site and associated drainage line is considered transformed with little no indigenous vegetation present on site. This is due to past and current agricultural activities on the farm and surrounds.

1.2.	Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred activity alternative.	
No activity alternatives are investigated this application is for the proposed enlargement of the existing Zwartfontein dam.	
Provide a description of any other activity alternatives investigated.	
No activity alternatives are investigated this application is for the proposed enlargement of the existing Zwartfontein dam.	
Provide a motivation for the preferred activity alternative.	

The proposed activity is for the enlargement of an existing dam. Therefore, no alternative activities were feasible and considered.	
Provide a detailed motivation if no activity alternatives exist.	
The proposed activity is for the enlargement of an existing dam. Therefore, no alternative activities were feasible and considered.	
List the positive and negative impacts that the activity alternatives will have on the environment.	
<p><u>Positive:</u></p> <ul style="list-style-type: none"> - Inline with the applicant's storage demand; - Existing Dam will remain operational; - Dams can provide new habitat (i.e. providing habitat for breeding and nesting sites⁶). <p><u>Negative:</u></p> <ul style="list-style-type: none"> - Loss of vegetation; - Loss of ESA - Alteration of hydrology (i.e. impact on non-perennial watercourse present within the proposed development footprint); - Visual - Dust 	
1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts
Provide a description of the preferred design or layout alternative.	
<p><u>Dam Layout/ Design Alternatives in terms of the Enlargement of Zwartfontein Dam:</u></p> <p>According to the Engineers Technical Report (Appendix G5) various dam design were investigated. Different raising size options were considered, with upstream, downstream, and centre raising options investigated for a detailed cost comparison as summarised in Table 5 of the report (Appendix B1.2).</p> <p>The downstream raisings were preferred for keeping the existing dam in operation while constructing the raised embankment as well as ease of construction to avoid unnecessary sediment removal on the upstream side as well as creating sufficient working space on the downstream side for a complete new central core zone and core trench.</p> <p><u>Layout/Design Alternative A: Option 10 (Only viable alternative):</u></p> <p>The final layout/design Alternative A, Option10, is considered the only viable alternative. Table 5 in the report (Appendix G5) indicates the water/wall ration investigated and represents the volume of water gained per volume of fill required to construct the dam embankment. This is a good indication for selecting the most economical dam design. It is for this reason and the reasons as stated above that Alternative A, Option 10 is considered the best economical option and therefore the only viable dam design available. Alternative A, Option 10 was preferred due to its target storage capacity being in line with the storage demand.</p> <p>Design/ Layout Alternatives Option 1 – 9 (as per Table 3 below) are included in Appendix G5 and are not economically viable alternatives and will therefore not be investigated any further.</p>	
Provide a description of any other design or layout alternatives investigated.	

⁶ E.g. Sangode, V.K. and Rajkumar, B., 2020. Khairbandha Dam: a potential hotspot of avifaunal diversity and its socioeconomic impact on local communities in Gondia District, Maharashtra. *Journal of Experimental Zoology*, India, 23(2), pp.1531-1533.

Table 3. Zwartfontein dam layout alternatives. Source: Table 5 of Engineer's Technical Report (Appendix G5).

	Zwartfontein Dam - Option Analysis											
	Existing	Dam Raising Options 33°30'36.05"S, 18°54'42.68"E										
	-	Option 1 (upd survey)	Option 2 (upd survey)	Option 3 (upd survey)	Option 4 (upd survey)	Option 5 (upd survey)	Option 6 (upd survey)	Option 7 (upd survey)	Option 8 (upd survey)	Option 9 (upd survey)	Option 10 (upd survey) Preferred Option	
		270 000 m3 u/s raise	430 000 m3 u/s raise	510 000 m3 u/s raise	555 000 m3 u/s raise	300 000 m3 d/s raise	440 000 m3 d/s raise	550 000 m3 d/s raise	620 000 m3 d/s raise	655 000 m3 d/s raise	515 000 m3 d/s raise	
Proposed NOC (masl)	Varies from 52.7m to 52.5 m	55.0	57.5	58.5	59.5	55.5	56.9	58.1	58.7	59.0	61.0	
Proposed FSL (masl)	51.7	54.0	56.5	57.5	58.5	54.0	55.9	57.1	57.7	57.8	59.8	
Raising (m)	0	2.3	4.8	5.8	6.8	2.8	4.2	5.4	6.0	6.3	8.3	
Freeboard (m)	0.3 to 1m	1	1	1	1	1.5	1	1	1	1.2	1.2	
Maximum wall height (m)	11.90	14.20	16.70	17.70	18.70	15.00	16.40	18.10	18.70	20.00	22.50	
Proposed wall crest width (m)	6	6	6	6	6	6	6	6	6	6	6	
Downstream slope (Vertical:Horizontal)	1V:2.2H	1V:2.2H	1V:2.2H	1V:2.2H	1V:2.2H	1V:2H	1V:2H	1V:2H	1V:2H	1V:2H	1V:2H	
Upstream slope (Vertical:Horizontal)	1V:3.6-3.8H	1V:3H	1V:3H	1V:3H	1V:3H	1V:3.6-3.8H	1V:3.6-3.8H	1V:3.6-3.8H	1V:3.6-3.8H	1V:3.6-3.8H	1V:3.6-3.8H	
Fill volume required for dam wall (m³)	-	30 500	71 180	92 500	116 000	36 800	64 500	91 124	105 600	112 056	175 579	
Wall length (m)	280	425	487	515	596	438	475	532	580	575	696	
Capacity without cut from basin (m³)	-	238 000	368 600	415 000	470 500	260 000	372 500	458 560	511 550	540 000	739 000	
Water surface area at FSL (m²)	36 468	53 631	68 690	75 111	83 428	56 100	70 000	79 550	85 750	89 935	108 530	
Water surface area at FSL (Ha)	3.6	5.4	6.9	7.5	8.3	5.6	7.0	8.0	8.6	9.0	10.9	
Capacity Increase (m³)	-	119 000	280 000	358 000	437 000	147 000	287 000	400 000	467 000	502 000	765 000	
Total Capacity (m³)	160 000	289 000	430 000	608 000	687 000	287 000	437 000	660 000	817 000	862 000	816 000	
Estimated average core trench width (m)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Estimated average core trench depth (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Estimated core trench volume (m³)	11 200	12 800	13 500	13 500	15 600	11 500	12 500	14 000	15 200	15 100	18 300	
Removal of unsuitable material (m³)	4 000	4 000	4 000	4 000	4 000							
Percentage core trench volume of earthworks (%)	25%	15%	12%	12%	12%	24%	16%	13%	13%	12%	9%	
Total earthfill (m³)	45 700	87 980	110 000	135 600	135 600	48 300	77 000	105 124	120 800	127 156	193 879	
Wall Water Ratio (m³)	2.69	3.18	3.26	3.22	3.22	3.64	3.78	3.81	3.87	3.86	3.85	
Minimum basin level (m)	43.50	43.40	43.00	43.00	43.50	43.00	43.50	43.50	43.50	43.50	43.50	
Minimum downstream level (m)	40.80	40.80	40.80	40.80	40.80	40.50	40.50	40.00	40.00	39.00	38.50	
Maximum Storage depth (m)	8.2	10.6	13.5	14.5	15.0	11.0	12.4	13.6	14.2	14.3	16.3	
Preliminary & General (establish, fact, overheads)	R	76 000.00	R	76 000.00	R	76 000.00	R	76 000.00	R	76 000.00	R	76 000.00
Earthworks excluding diesel	R	1 689 600.00	R	3 079 300.00	R	3 860 000.00	R	4 748 000.00	R	5 089 340.00	R	6 786 779.81
Dry Tariff (R/m)	R	35.00	R	35.00	R	35.00	R	35.00	R	35.00	R	35.00
Diesel usage per m³ (liter)	R	1.00	R	1.00	R	1.00	R	1.00	R	1.00	R	1.00
Diesel cost (R/liter)	R	14.05	R	14.05	R	14.05	R	14.05	R	14.05	R	14.05
Diesel cost	R	642 086.00	R	1 238 119.00	R	1 646 600.00	R	1 906 189.00	R	2 081 860.00	R	2 724 006.89
Rebate (R/liter diesel)												
Minus rebate saving												
Outletworks (pipe, concrete, specials and valves), estimated	R	800 000.00	R	800 000.00	R	800 000.00	R	800 000.00	R	800 000.00	R	800 000.00
Total dam construction cost (excluding VAT)	R	3 116 686.00	R	6 180 419.00	R	6 276 600.00	R	7 628 180.00	R	8 244 116.00	R	9 881 332.20
Allow for 15% contingencies	R	467 487.75	R	778 562.85	R	940 575.00	R	1 128 527.00	R	1 236 617.25	R	1 557 717.85
Relocation of Eskom infrastructure	R	-	R	-	R	-	R	-	R	-	R	-
Loss of orchards (Cost/ha)	R	400 000.00	R	400 000.00	R	400 000.00	R	400 000.00	R	400 000.00	R	400 000.00
Orchard to be removed (ha)	R	0.20	R	1.30	R	2.00	R	2.90	R	2.00	R	3.45
Loss of orchards (Cost)	R	80 000.00	R	520 000.00	R	800 000.00	R	1 160 000.00	R	800 000.00	R	1 380 000.00
Moving of pumphouse & related infrastructure												
Professional fees, detail design and construction inputs	R	300 000.00	R	300 000.00	R	300 000.00	R	300 000.00	R	300 000.00	R	300 000.00
BAR and water use licence applications	R	230 000.00	R	230 000.00	R	230 000.00	R	230 000.00	R	230 000.00	R	230 000.00
Project cost (excluding VAT)	R	4 184 072.76	R	7 018 981.86	R	8 641 075.00	R	10 046 107.00	R	10 804 622.25	R	12 728 278.83
R/m² fill		91.77		75.79		77.55		76.29		159.64		127.40
Wind storage		15.69		16.32		16.81		17.62		25.96		22.45

Above, please find description of layout alternatives as per the Engineering Technical Report (Appendix G5).

Provide a motivation for the preferred design or layout alternative.

As per the Table above, Option 10 was the preferred alternative (see Table 4 below). The downstream raisings were preferred by the applicant which will keep the existing dam operational while constructing the raised embankment as well as ease of construction to avoid unnecessary sediment removal on the upstream side as well as creating sufficient working space on the downstream side for a complete new central core zone and core trench. This will also reduce water wastage. The final preferred dam layout (Option 10) was preferred due to its target storage capacity being in line with the applicant's storage demand.

Table 4. Preferred Zwartfontein Dam layout alternative. Source: Table 6 of the Engineer's Technical Report (Appendix G5).

Option 10 (Preferred)	
Proposed NOC (masl)	61
Proposed FSL (masl)	59.8
Raising (m) – of full supply level	8.3
Freeboard (m)	1.2
Maximum wall height (m)	22.5
Proposed wall crest width (m)	4
Downstream slope (Vertical: Horizontal)	1V:2H
Upstream slope ((Vertical: Horizontal)	1V:3.6 to 3.8H
Fill volume required for dam wall (m³)	175 579
Removal of unsuitable material (m³)	-
Wall length (m)	696
Capacity without cut from basin (m³)	739 000
Water surface area at FSL (ha)	10.9
Capacity Increase (m³)	765 000
Total Capacity (m³)	915 000
Estimated core trench volume (m³)	18 300
Total earthfill (m³)	193 879
Wall Water Ratio (m³)	3.95
Minimum basin level (m)	43.5
Minimum downstream level (m)	38.5
Maximum Storage depth (m)	16.3

Provide a detailed motivation if no design or layout alternatives exist.

N/A

List the positive and negative impacts that the design alternatives will have on the environment.

Positive:

- Preferred layout meets the applicant's target storage capacity and is in line with the applicant's storage demand;
- Existing Dam will remain operational;
- Reduced sediment will be removed on the upstream side;
- Sufficient workspace on the downstream side for a complete new central core zone and core trench.

Negative:

- Higher loss of vegetation;
- Higher loss of orchards
- Dust

1.4. 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.

Provide a description of the preferred technology alternative:

No technology alternatives were considered as the proposed expansion of the dam will allow for the better utilisation of an existing water use right and scarce resource. Associated infrastructure, namely the type of irrigation method was considered in which drip irrigation is proposed.

Moreover, technology alternatives associated with the location of the new pump house was considered relative to energy efficiency. The new position of the pump house (Alternative A – Preferred) was chosen due to gravitational benefits. Water will therefore not have to be pumped from the dam to the pumphouse from where it will be used for irrigation but will flow via gravity, reducing pumping cost.

Provide a description of any other technology alternatives investigated.	
Drip irrigation is proposed which will save water and energy.	
Provide a motivation for the preferred technology alternative.	
Drip irrigation is proposed which will save water.	
Provide a detailed motivation if no alternatives exist.	
N/A	
List the positive and negative impacts that the technology alternatives will have on the environment.	
<p><u>Positive:</u></p> <ul style="list-style-type: none"> - Reducing in leaching of any fertilizers to be used due to localization of irrigation; - Efficient water management relative to reducing water losses; - Reduction in weed growth (and need for pesticides) as only cultivated plants are watered; - Reduction in pumping cost due to gravitational feed. <p><u>Negative:</u></p> <ul style="list-style-type: none"> - Costs relative to replacement of drip valves, potential clogging, and/ or malfunctioning valves; - Potential pipe leakages. 	
1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred operational alternative.	
No operational alternatives considered or applicable.	
Provide a description of any other operational alternatives investigated.	
No operational alternatives were considered / investigated as the proposed project will be operated as a water storage dam for irrigation of existing orchards.	
Provide a motivation for the preferred operational alternative.	
No operational alternatives were considered / investigated as the proposed project will be operated as a water storage dam for irrigation of existing orchards.	
Provide a detailed motivation if no alternatives exist.	
No operational alternatives were considered / investigated as the proposed project will be operated as a water storage dam for irrigation of existing orchards.	
List the positive and negative impacts that the operational alternatives will have on the environment.	
<p><u>Positive:</u></p> <ul style="list-style-type: none"> - Operation of dam will provide water security for irrigation of orchards amid climate change; - Operation of proposed dam will enable better utilisation of an existing water use right and scarce resource; - Dam may provide new habitat. <p><u>Negative:</u></p> <ul style="list-style-type: none"> - Loss of terrestrial land and associated vegetation; - Loss of ESA2. 	
1.6.	The option of not implementing the activity (the 'No-Go' Option).
Provide an explanation as to why the 'No-Go' Option is not preferred.	
The no-go alternative will result in no further development, which will mean that there will be no impact on the environment. The 'status quo' will persist and the site will remain as is, transformed and disturbed. Although this no-go option will not result in potential negative environmental impacts, the potential social economic benefits from implementing the activity would not be achieved	
1.7.	Provide an explanation as to whether any 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	
1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.
<p>No site, activity, or operational activities were considered as the proposed project is for the enlargement of an existing dam where the proposed development footprint is disturbed. The following impacts associated with the project are detailed below:</p> <p><u>Vegetation:</u></p> <p>According to the Vegetation map from Cape Farm Mapper, Appendix D, the vegetation that would have been present on the site is Swartland Shale Renosterveld. This type of vegetation is classified as Critically Endangered in terms of the National Environmental Management: Biodiversity Act 2004, National List of Ecosystems that are threatened and in need of protection (NEMBA).</p> <p>However, The Botanical assessment concludes that the proposed dam enlargement will not impact on any remaining vegetation or plant species of significant conservation value. Most of the terrain and its immediate surroundings are considered heavily degraded to transformed, only a few indigenous species and alien pioneer species remains</p>	

Therefore, the proposed dam enlargement, irrespective of Design option as well as associated infrastructure, will cause further loss of protected vegetation (i.e. vegetation present within the Critically Endangered Vegetation Type, Swartland Shale Renosterveld).

Freshwater resources:

According to the Freshwater Report, Appendix G2, the non-perennial stream which the Zwartfontein dam intersects, as indicated on the Water Resources Map from Cape Farm Mapper (Appendix D) is considered a drainage line. The drainage line is approx. 4,4k long. The drainage line upstream of the dam takes the shape of wide valleys with no discernible drainage line and with the same vegetation as elsewhere on the hill. The drainage line down-stream of the dam has been transformed into a straight agricultural return flow furrow, all the way down to its confluence with the Berg River. The drainage line is considered to be overgrown with reeds and is considered transformed and degraded.

The proposed dam will be filled with water from the Berg River, from an existing abstraction point with existing water use rights enlisted under the Berg River Irrigation Board. The existing abstraction point will remain as is. The freshwater report concludes that the existing legal water use is already fully utilised for irrigation and has already been discounted by the DWS against ecological flow requirements of the Berg river, and the proposed extra storage capacity would not alter the situation. However, with large irrigation schemes there is always the possibility of more agricultural return flow which impact the river system. However, the drainage lines have already been transformed into stormwater management systems and return flows and the enlargement of the dam will not add to these impacts.

From an environmental perspective, the proposed dam enlargement, irrespective of Design option, will not cause further loss of protected vegetation or contribute to the transformation of the drainage line any further. However, with the preferred Dam Design/Layout Alternative A: Option 10, approximately 4.3ha agricultural land will be sacrificed.

The proposed relocation of the compost storage facility next to the house (Alternative A) will reduce further impact on the drainage line when compared to the original location and Alternative B, next to the new relocated pumphouse on the northern bank of the drainage line. Trucks delivering compost will utilise the existing road and avoid the drainage line completely.

As per Comment 2.8 (Appendix F2.0_ Comments and Response Table), please refer to the Maintenance Management Plan (MMP, appended as Appendix M) which details other mitigation measures.

2. "No-Go" areas

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).

Identified no-go areas include areas downstream of the proposed dam to be enlarged. Watercourses, outside of the proposed development footprint are identified as no-go areas.

3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

Please refer to Appendix J for more information.

The following impact rating approach used by EnviroAfrica CC is a basic exponential rating system to assess actual and potential negative and positive environmental impacts.

Environmental activities or aspects are identified, based on:

- the phases of the project,
- the nature (or description) of the actual and potential impacts of the activities.

For every project activity or aspect, various environmental impacts are listed. Every negative impact is allocated a negative (-) value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Consequence (Receiving Environment)
- Magnitude (Intensity/severity)

Every positive impact is allocated a positive (+) value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Magnitude (Intensity/severity)

Once a value is allocated for each of the criterion, the scores are averaged to determine the final impact rating see Table 2 below.

EnviroAfrica then further assesses environmental significance⁷, based on the nature of the impact, as per the score and colour key which forms part of Table 5 below. This results in impacts having either a low (indicated in green), medium (indicated in yellow) or high (indicated in orange and red) negative significance, and a low (light blue), medium (blue) or a high (dark blue) positive significance

Table 5. Environment Impact Significance criteria used to rank the significance of impacts associated with the proposed expansion of the Zwartfontein Dam.

SIGNIFICANCE CRITERIA	Very High	High	Medium	Low	Negligible (very-low)
Value	16	8	4	2	1
Probability (likelihood) (P)	Definite. Impact will definitely occur (impact will occur regardless of any prevention measures)	Highly probable. Very likely for impact to occur.	Probable. Impact may likely occur.	Improbable. Impact may occur. Distinct Possibility	Improbable. Low likelihood/unlikely for impact to occur.
Extent (E)	Impact potentially reaches beyond national boundaries	Impact has definite provincial/potential national consequences	Impact confined to regional area/ town	Impact confined to local region and impact on neighbouring properties	Impact confined to project property / site
Duration (D)	Permanent The impact is expected to have a permanent impact, with very little to no rehabilitation possible	Long-Term The impact is expected to last for a long time after construction with rehabilitation expected to be 15-50 years. Impact is reversible but only with long-term mitigation	Medium-term The impact is expected to last for some time after construction with rehabilitation expected to be 5 - 15 years. Impact is reversible but only with on-going mitigation	Short-term The impact is expected to last for a relatively short time with rehabilitation expected to be 2-5 years. The impact is reversible through natural process and/or some mitigation.	Very short/ temporary The impact is expected to be temporary and last for a very short time with rehabilitation expected to be less than 2 years. The impact is easily reversible through natural process and/or some mitigation.
Magnitude (Intensity/Severity) (M)	It is expected that the activity will have a very severe to permanent	It is expected that the activity will have a severe impact on the surrounding environment.	It is expected that the activity will have an impact on the surrounding	It is expected that the activity will have a perceptible impact on the	It is expected that the impact will have little or no effect on the integrity of the


⁷ As a baseline, impact rating values/scores are allocated taking the worst-case scenario into account i.e. with no mitigation. The baseline rating is compared with those after mitigation has been taken into account i.e. the post-mitigation rating. Post mitigation rating is used for the actual impact assessment.

	impact on the surrounding environment. Functioning irreversibly impaired. Rehabilitation often impossible or unfeasible	Functioning may be severely impaired and may be temporarily cease. Rehabilitation will be needed to restore system integrity	environment, but it will maintain its function, even if moderately modified (overall integrity not compromised). Rehabilitation easily achieved	surrounding environment, but it will maintain its function, even if slightly modified (overall integrity not compromised). Rehabilitation easily achieved	surrounding environment
Receiving environment (Consequence): (RE)	Very sensitive, pristine area – protected site or species permanently or seasonally present	Unused area containing only indigenous fauna / flora species	Unused area containing indigenous and alien fauna / flora species	Semi-disturbed area already rehabilitated / recovered from prior impact, or with moderate alien vegetation	Disturbed area/ transformed/ heavy alien vegetation

ENVIRONMENTAL RATING SIGNIFICANCE KEY:


Negative Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Very Significant	Very High	-11 to -16
Significant	High	-7 to <-11
Increasing Significance	Medium	-4 to <-7
Insignificant	Low	-2 to <-4
	Very Low	-1 to <-2



Positive Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Significant	High	10 to 16
Increasing Significance	Medium	4 to <10
Insignificant	Low	1 to <4



Environmental Significance Rating Methodology (rating criteria and significance key)

4. Assessment of each impact and risk identified for each alternative

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

Please find this section attached as Appendix J. Socioeconomic impact has been identified and assessed below. Please refer to comment 2.4 (page 34 of the Comments and Response Table).

Alternative:	Alternative 1 and 2 (Preferred alternative design)
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Socio-economic impact (positive)
Nature of impact:	Short-term job creation
Extent and duration of impact:	Very short / temporary
Consequence of impact or risk:	Local
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A. This is a positive impact.
Degree to which the impact can be reversed:	N/A. This is a positive impact.
Indirect impacts:	Slight increase in socio-economic development in the surrounding area.
Cumulative impact prior to mitigation:	Low positive
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low positive
Degree to which the impact can be avoided:	N/A. This is a positive impact.
Degree to which the impact can be managed:	N/A. This is a positive impact.
Degree to which the impact can be mitigated:	N/A. This is a positive impact.
Proposed mitigation:	N/A. This is a positive impact.
Residual impacts:	N/A. This is a positive impact.
Cumulative impact post mitigation:	N/A. This is a positive impact.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	N/A. This is a positive impact.
OPERATIONAL PHASE	
Potential impact and risk:	Socioeconomic impact (positive)
Nature of impact:	Job security: its envisaged that no job losses or lower production will take place but that the higher assurance of water supply for irrigation of cultivated areas will secure jobs and increase production. This will be a positive impact.
Extent and duration of impact:	Medium term
Consequence of impact or risk:	Local
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A. This is a positive impact.
Degree to which the impact can be reversed:	N/A. This is a positive impact.
Indirect impacts:	This will promote socioeconomic development in the surrounding area due to job security.
Cumulative impact prior to mitigation:	Medium Positive
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium Positive
Degree to which the impact can be avoided:	N/A. This is a positive impact.
Degree to which the impact can be managed:	N/A. This is a positive impact.
Degree to which the impact can be mitigated:	N/A. This is a positive impact.
Proposed mitigation:	N/A. This is a positive impact.
Residual impacts:	N/A. This is a positive impact.
Cumulative impact post mitigation:	N/A. This is a positive impact.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	N/A. This is a positive impact.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	The project as proposed does not require 'decommissioning' or 'closure', as such the potential impacts thereof is considered irrelevant.
Nature of impact:	N/A.
Extent and duration of impact:	N/A.

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

SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.
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Key findings regarding Biodiversity:

From the Biodiversity Overlay Maps from Cape Farm Mapper (Appendix D) and the Botanical Assessment conducted by the Biodiversity Specialist (Appendix G1) the site falls within a small Critical Biodiversity Area (CBA). However, the small CBA is located within the dam. The dam will also further impact Ecological Support Area Class 2 (ESA2).

According to the Vegetation map from Cape Farm Mapper, Appendix D, the vegetation that would have been present on the site is Swartland Shale Renosterveld. This type of vegetation is classified as Critically Endangered in terms of the National Environmental Management: Biodiversity Act 2004, National List of Ecosystems that are threatened and in need of protection (NEMBA).

Proposed recommendations include;

- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase.
- Before any work is done the site and access routes must be clearly demarcated (with the aim at minimal width/smallest footprint).
- 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.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.
- An integrated waste management approach must be implemented during construction.
- Use of topsoil for rehabilitation of drainage lines after construction.

However, The Botanical assessment concludes that the proposed dam enlargement will not impact on any remaining vegetation or plant species of significant conservation value. Most of the terrain and its immediate surroundings are considered heavily degraded to transformed, only a few indigenous species and alien pioneer species remains. No protected plant species were encountered.

Key findings regarding Freshwater resources:

According to the Freshwater Report, Appendix G2, the non-perennial stream which the Zwartfontein dam intersects, as indicated on the Water Resources Map from Cape Farm Mapper, Appendix D, is considered a drainage line as indicted in Figure 4 and Figure 5 above. The drainage line is approx. 4.4k long. The drainage line upstream of the dam takes the shape of wide valleys with no discernible drainage line and with the same vegetation as elsewhere on the hill. The drainage line down-stream of the dam has been transformed into a straight agricultural return flow furrow, all the way down to its confluence with the Berg River. The drainage line is considered to be overgrown with reeds.

Drainage line PES and EIS:

The drainage line has been classified as an "E" PES. This indicates that the drainage line has been significantly altered with a loss of ecological functioning. The proposed increase in the dam wall will not change this classification and the drainage line will not deteriorate any further.

In terms of the Ecological Importance of the drainage line, according to the freshwater report, the drainage line could not be considered as ecologically important. The drainage line is devoid of permanent water, apart from irrigation return flow. There are no fish or endangered plant or animal species in the drainage line.

The freshwater report states that the Zwartfontein drainage line, would never recover if agriculture was to cease and nature was to be left to its own devices. The report uses the ability for renosterveld to recover once removed as a well-known practical example, when the vegetation is removed for the purpose of agriculture and then left to recover, the natural vegetation does not grow back. Cultivated areas all over the area and that have been left alone for 50 or even 100 years, have not recovered. Likewise, it can be expected that the Zwartfontein drainage line would not recover. In this sense it can be considered as sensitive.

Berg river PES and EIS:

The Berg river was classified as a "C" PES. It has a list/ It has lost some ecological functioning because of water quality and invasive organisms both instream, and in the riparian zone. The score is better than the "D" score downstream, where the river is heavily overgrown with Eucalypts. According to the report, the better score can be attributed to the lack of return flow at the end of the dry season, later summer. The score was elevated by the removal of alien invasive vegetation removal campaign. Carp dominated instream habitat.

The Berg river qualifies as Ecologically Important due to the potential presence of two species on the Red Data List. These include Red fin minnows (*Pseudobarbus burgeri*) and white fish (*Barbus andrewi*), as listed by the IUCN as endangered. *Capa galaxioides* and Red fin minnows can be expected in the upper reaches of the watershed rather than at Zwartfontein. White fish (*Barbus andrewi*), could have been present some time ago and could have been decimated by the introduction of exotic and predatory small mouth black bass (*Micropterus dolomieu*) and trout. The Zwartfontein habitat has been taken over by carp (*Cyprinus carpio*)

According to the freshwater report, the Berg River at Zwartfontein has absorbed numerous and deep-cutting human impacts, yet it still functions as an aquatic ecosystem. In the highly improbable event of ceased human impact, the river here would probably bounce back to its previous glory. In this respect the river cannot be categorised as sensitive. It was pleasing to note the recovery of the riparian zone during the site visit. It still has a very long way to go if it were to resemble anything like the original vegetation. This would probably not happen for many decades and in this respect the riparian zone can be described as sensitive.

Recommendations by the Freshwater Specialist:

- The local irrigation board as well as the DWA has most likely already defined the schedule according to which water is to be taken from the Berg River. The DWA, according to its legal mandate, is already monitoring the Berg River water quality and water levels in terms of a long-standing national program. All that remains for Zwartfontein is to operate within the ambit of their water use license.
- The re-growth of eucalypts on the banks of the Berg River is worrisome and it would be helpful if Zwartfontein could maintain contact with Working for Water and similar initiatives. The region would benefit greatly if landowners could contribute as well to this ongoing, worth-while and large-scale undertaking.
- From time to time it may become necessary to maintain and clear the drainage lines. Although already straightened and wholly de-naturalized, it is still of concern to the DWA and other conservation authorities to protect the little ecological functioning that is still left. Maintenance should be done according to a premeditated plan, preferably in conjunction with a limnologist.
- The reeds in the drainage lines serve the purpose of trapping sediments that may come out of the orchards and vineyards during high rainfall events. Therefore, the reeds should be preserved as much as possible and allowed to re-establish following maintenance.
- Contemporary irrigation technology demands the measuring of soil moisture and irrigate accordingly. This would limit agricultural return flow.
- The pumping of seepage and return flow back into the dam is commended and should be expanded if volumes increase.
- The drainage lines above the dam are still intact, apart from the areas in the upper catchment that already has been transformed into vineyards and orchards. The natural vegetation and the drainage lines should be kept intact and not be further developed.
- The dam serves as a roost for water fowl. These birds should be monitored for disease and mortalities. Mortalities should be reported to relevant authorities.

The freshwater report concludes that the existing legal water use is already fully utilised for irrigation and has already been discounted by the DWS against ecological flow requirements of the Berg river, and the proposed extra storage capacity would not alter the situation. However, with large irrigation schemes there is always the possibility of more agricultural return flow which impact the river system. However, the drainage lines have already been transformed into stormwater management systems and return flows and the enlargement of the dam will not add to these impacts

Farm dams are often regarded as habitat for aquatic organisms. However, water levels vary widely, from full when filled during winter to empty at the end of summer. This makes for an aggressive aquatic environment with limited ecological functioning. With such a large turn-over of water in the dam water quality problems are less of a problem.

Key findings regarding Heritage Resources:

The Heritage screener conducted by CTS Heritage (Appendix G3) concluded that no structures with heritage significance will be impacted by the proposed enlargement of the dam. In terms of archaeological, while it may be likely that, due to its proximity to the Berg River, that archaeological resources may be located within the proposed development area, it is unlikely that these resources will be in situ due to the extensive agricultural activity that has occurred on this site. Furthermore, no impacts to significant palaeontological resources are anticipated. HWC provided comment (Appendix E1) stating that the proposed dam enlargement will not impact on heritage resources.

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr										
<p>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.</p> <p>It is further proposed that the compost storage facility (as part of the pump house components) be constructed next to the house (Alternative A – preferred) due to ease of access and to avoid delivery trucks from unnecessarily entering the drainage line.</p> <p>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).</p> <p>Recommendations on impact minimisation from the Biodiversity Impact Statement Report:</p> <ul style="list-style-type: none"> • A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase. • Before any work is done the site and access routes must be clearly demarcated (with the aim at minimal width/smallest footprint). • 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. • All areas impacted as a result of construction must be rehabilitated on completion of the project. • An integrated waste management approach must be implemented during construction. • Use of topsoil for rehabilitation of drainage lines after construction. <p>Mitigation measures from the Freshwater Specialist's technical Report:</p> <ul style="list-style-type: none"> • The local irrigation board as well as the DWA has most likely already defined the schedule according to which water is to be taken from the Berg River. The DWA, according to its legal mandate, is already monitoring the Berg River water quality and water levels in terms of a long-standing national program. All that remains for Zwartfontein is to operate within the ambit of their water use license. • The re-growth of eucalypts on the banks of the Berg River is worrisome and it would be helpful if Zwartfontein could maintain contact with Working for Water and similar initiatives. The region would benefit greatly if landowners could contribute as well to this ongoing, worth-while and large-scale undertaking. • From time to time it may become necessary to maintain and clear the drainage lines. Although already straightened and wholly de-naturalized, it is still of concern to the DWA and other conservation authorities to protect the little ecological functioning that is still left. Maintenance should be done according to a premeditated plan, preferably in conjunction with a limnologist. • The reeds in the drainage lines serve the purpose of trapping sediments that may come out of the orchards and vineyards during high rainfall events. Therefore, the reeds should be preserved as much as possible and allowed to re-establish following maintenance. • Contemporary irrigation technology demands the measuring of soil moisture and irrigate accordingly. This would limit agricultural return flow. • The pumping of seepage and return flow back into the dam is commended and should be expanded if volumes increase. • The drainage lines above the dam are still intact, apart from the areas in the upper catchment that already has been transformed into vineyards and orchards. The natural vegetation and the drainage lines should be kept intact and not be further developed. • The dam serves as a roost for water fowl. These birds should be monitored for disease and mortalities. Mortalities should be reported to relevant authorities. 											
3.	List the specialist investigations and the impact management measures that will not be implemented and provide an explanation as to why these measures will not be implemented.										
<p>Please refer to Appendixes F6.2, F6.5-F6.7 of the Revised DBAR.</p> <table border="1"> <thead> <tr> <th>No</th> <th>Specialist Assessment</th> <th>Comments/ Motivations</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Landscape/ Visual Impact Assessment</td> <td>The proposed site is zoned for agricultural purposes and is surrounded by agricultural land uses. Moreover, the proposed project is for the enlargement of an existing dam and is therefore, in line with the land-use. The type of development proposed is in line with the surrounding land use and therefore, will not be a novel visual impact. Therefore, it is envisaged that a Visual Impact Assessment will not be required.</td> </tr> <tr> <td>2</td> <td>Agricultural Theme</td> <td>The proposed enlargement of the existing dam is in line with the zoning of the proposed site, namely Agriculture. Although approximately 4.5ha of orchards will be lost due to the proposed enlargement of the Zwartfontein Dam, the preferred</td> </tr> </tbody> </table>			No	Specialist Assessment	Comments/ Motivations	1	Landscape/ Visual Impact Assessment	The proposed site is zoned for agricultural purposes and is surrounded by agricultural land uses. Moreover, the proposed project is for the enlargement of an existing dam and is therefore, in line with the land-use. The type of development proposed is in line with the surrounding land use and therefore, will not be a novel visual impact. Therefore, it is envisaged that a Visual Impact Assessment will not be required.	2	Agricultural Theme	The proposed enlargement of the existing dam is in line with the zoning of the proposed site, namely Agriculture. Although approximately 4.5ha of orchards will be lost due to the proposed enlargement of the Zwartfontein Dam, the preferred
No	Specialist Assessment	Comments/ Motivations									
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		layout meets the applicant's target storage capacity and is in line with the applicant's storage demand for the irrigation of existing orchards. Therefore, an assessment into agriculture potential was not envisaged.
3	Archaeological and Cultural Heritage Impact Assessment (HIA)	A Notice of Intent to Develop was submitted to HWC. As per comment received on NID, HWC stated that no further action under Section 38 of the National Heritage Resources Act (Act No. 25 of 1999) is required.
4	Palaeontological Impact Assessment	As per the PalaeoSensitivity Map , the site is located within an area of low paleontological sensitivity (accessed at: https://sahris.sahra.org.za/map/palaeo). As per the NID, no impacts to significant palaeontological resources are anticipated. HWC provided comment (Appendix E1) stating that the proposed dam enlargement will not impact on heritage resources. Therefore, although no palaeontological studies are required, a protocol for finds is required and will be included addressed in the Draft EIR phase.
5	Terrestrial Biodiversity Assessment	The proposed site is located within the Swartland Shale Renosterveld, a vegetation type classified as Critically Endangered (GN 1002, December 2011). No animals were noted on site during the site visit. It is envisaged that a Botanical Impact Assessment was required (please see comment/ motivation for No. 8) which will comment on and characterize aspects of the terrestrial biodiversity component present in the proposed site for development. Moreover, the proposed development is for the enlargement of an existing dam on an area previously transformed / disturbed. measures, to mitigate any potential impacts on terrestrial biodiversity. Therefore, it is envisaged that a Terrestrial Biodiversity Assessment will not be required for the proposed development.
6	Aquatic Biodiversity Impact Assessment	As per the DEA Screening Tool, a high sensitivity area is located within the existing dam. It was envisaged that a Freshwater Assessment was required and was conducted. The Freshwater Assessment was also required to support the proposed Water Use Authorisation (WUA) application.
7	Hydrological Assessment	Please see motivation above.
8	Socio-economic Assessment	All comments received from I&APs will be addressed and responded to by the relevant personnel, namely the EAP, Applicant, and/ or Specialists. Conditions and measures, have been addressed in the EMPr. Therefore, it is envisaged that a Socio-economic Assessment was not required.
9	Plant Species Assessment	Although the proposed site for dam enlargement has been previously disturbed / transformed, and the plant species theme was classified as Medium (see DEA Screening Tool), a Botanical Assessment was undertaken to determine the presence of any plant species of conservational value within the proposed development footprint.
10	Animal Species Assessment	No animals were noted on site during the site visit however, conditions and measures have been addressed in the EMPr to mitigate potential impact(s) of the proposed development on animal species. Moreover, the proposed development is for the enlargement of an existing dam on an area previously transformed / disturbed. Therefore, it is envisaged that no Animal Species Assessment will be required.
11	Defence Theme	The proposed project is for the enlargement of an existing dam and is therefore (i) in line with surrounding land use and will not be a novel visual impact, and (ii) will not impact any defence-related activities / themes. Thus, it was envisaged that an assessment associated with this defence theme was not required.
12	Civil Aviation Theme	The proposed project is for the enlargement of an existing dam and is therefore in line with surrounding land use and will not be a novel visual impact. Thus, it was envisaged that a civil aviation assessment was not required.
4.	Explain how the proposed development will impact the surrounding communities.	
The proposed dam enlargement will provide insurance of supply for irrigation of existing irrigation areas, strengthening the agriculture sector which has positive social economic spin off in the Western Cape. The proposed project is for the enlargement of an existing dam. This project will create new employment opportunities, promoting socio-economic development in the surrounding communities.		
5.	Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.	
The proposed enlargement of the dam will provide insurance of supply for irrigation of the existing irrigation areas. The recent drought in the Western Cape and uncertainties of the impact of climate change are the major drivers of this project. The West Coast District Municipality's IDP and SDF identify and support the sustainability and growth of the agricultural sector. One of the		

main issues highlighted by the West Coast Districts Spatial Development Framework (SDF) ⁸ is the recent drought and the implications of drought on the agricultural sector. Various climatic drivers, namely higher temperatures and drier conditions further exacerbate the impact of drought events on the agricultural sector ⁹ , which require careful planning and adequate responses to sustain and grow the agricultural sector. The proposed enlargement will ensure adequate supply of water for the irrigation of existing agricultural activities associated with the Zwartfontein Farm.	
6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.
N/A as recommendations made by specialists are not in conflict.	
7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.
The findings and recommendations have been incorporated as part of the EMP which must be complied with during the construction and operational (where applicable) phases.	
8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.
The mitigation hierarchy is comprised of four actions which are designed to be implemented sequentially ¹⁰ , namely (1) avoidance, (2) minimization, (3) rehabilitation, and (4) offset (if required), where the following actions are applicable and have been applied in the context of this environmental process to promote the best feasible environmental option:	
<p>(1) Avoidance: avoiding impacts on biodiversity within the proposed site of development and surrounding area and includes identifying potential risks and investigating alternatives¹¹. Avoidance was carried out in the context of this process as environmental components (namely potential botanical and freshwater impacts) were identified and rated by specialists (Appendix G). Moreover, design alternatives were also investigated. Due to the nature of this proposed development (namely the expansion of an existing dam), no site alternatives were investigated – this also aids in avoiding any potential negative impact(s) on pristine areas.</p> <p>(2) Minimize potential impacts: mitigation measures and recommendations have been proposed by the Botanical, Freshwater, Heritage, and Geotechnical Specialists to mitigate and reduce identified potential impacts. These mitigation measures and recommendations have been incorporated into the EMP and are to be implemented during the construction and operational (where applicable) phases.</p> <p>(3) Rehabilitation: as per action 2 above, mitigation measures, including the need to rehabilitate areas (which also aids in reducing erosion during the operational phase) outside the construction footprint has been included in the EMP.</p>	

SECTION J: GENERAL

1. Environmental Impact Statement

1.1.	Provide a summary of the key findings of the EIA.
<p>Key findings regarding Biodiversity:</p> <p>From the Biodiversity Overlay Maps from Cape Farm Mapper (Appendix D) and the Botanical Assessment conducted by the Biodiversity Specialist (Appendix G1) the site falls within a small Critical Biodiversity Area (CBA). However, the small CBA is located within the dam. The dam will also further impact Ecological Support Area Class 2 (ESA2).</p> <p>According to the Vegetation map from Cape Farm Mapper, Appendix D, the vegetation that would have been present on the site is Swartland Shale Renosterveld. This type of vegetation is classified as Critically Endangered in terms of the National Environmental Management: Biodiversity Act 2004, National List of Ecosystems that are threatened and in need of protection (NEMBA).</p> <p>However, The Botanical assessment concludes that the proposed dam enlargement will not impact on any remaining vegetation or plant species of significant conservation value. Most of the terrain and its immediate surroundings are considered heavily degraded to transformed, only a few indigenous species and alien pioneer species remains. No protected plant species were encountered.</p> <p>Key findings regarding Freshwater resources:</p> <p>According to the Freshwater Report, Appendix G2, the non-perennial stream which the Zwartfontein dam intersects, as indicated on the Water Resources Map from Cape Farm Mapper, Appendix D, is considered a drainage line as indicated in Figure 4 and Figure 5 above. The drainage line is approx. 4,4km long. The drainage line upstream of the dam takes the shape of wide valleys</p>	

⁸ <http://westcoastdm.co.za/wp-content/uploads/2020/09/WCDM-SDF-2020-1.pdf>

⁹ Zscheischler, J., Martius, O., Westra, S., Bevacqua, E., Raymond, C., Horton, R.M., van den Hurk, B., AghaKouchak, A., Jézéquel, A., Mahecha, M.D. and Maraun, D. 2020. A typology of compound weather and climate events. *Nature reviews earth & environment*, pp.1-15.

¹⁰ Arlidge, W.N., Bull, J.W., Addison, P.F., Burgass, M.J., Gianuca, D., Gorham, T.M., Jacob, C., Shumway, N., Sinclair, S.P., Watson, J.E. and Wilcox, C., 2018. A global mitigation hierarchy for nature conservation. *BioScience*, 68(5), pp.336-347.

¹¹ Phalan, B., Hayes, G., Brooks, S., Marsh, D., Howard, P., Costelloe, B., Vira, B., Kowalska, A. and Whitaker, S., 2018. Avoiding impacts on biodiversity through strengthening the first stage of the mitigation hierarchy. *Oryx*, 52(2), pp.316-324.

with no discernible drainage line and with the same vegetation as elsewhere on the hill. The drainage line down-stream of the dam has been transformed into a straight agricultural return flow furrow, all the way down to its confluence with the Berg River. The drainage line is considered to be overgrown with reeds.

Drainage line PES and EIS:

The drainage line has been classified as an "E" PES. This indicates that the drainage line has been significantly altered with a loss of ecological functioning. The proposed increase in the dam wall will not change this classification and the drainage line will not deteriorate any further.

In terms of the Ecological Importance of the drainage line, according to the freshwater report, the drainage line could not be considered as ecologically important. The drainage line is devoid of permanent water, apart from irrigation return flow. There are no fish or endangered plant or animal species in the drainage line.

The freshwater report states that the Zwartfontein drainage line, would never recover if agriculture was to cease and nature was to be left to its own devices. The report uses the ability for renosterveld to recover once removed as a well-known practical example, when the vegetation is removed for the purpose of agriculture and then left to recover, the natural vegetation does not grow back. Cultivated areas all over the area and that have been left alone for 50 or even 100 years, have not recovered. Likewise, it can be expected that the Zwartfontein drainage line would not recover. In this sense it can be considered as sensitive.

Berg river PES and EIS:

The Berg river was classified as a "C" PES. It has a list/ It has lost some ecological functioning because of water quality and invasive organisms both instream, and in the riparian zone. The score is better than the "D" score downstream, where the river is heavily overgrown with Eucalypts. According to the report, the better score can be attributed to the lack of return flow at the end of the dry season, later summer. The score was elevated by the removal of alien invasive vegetation removal campaign. Carp dominated instream habitat.

The Berg river qualifies as Ecologically Important due to the potential presence of two species on the Red Data List. These include Red fin minnows (*Pseudobarbus burgeri*) and white fish (*Barbus andrewi*), as listed by the IUCN as endangered. *Capa galaxias* and Red fin minnows can be expected in the upper reaches of the watershed rather than at Zwartfontein. White fish (*Barbus andrewi*), could have been present some time ago and could have been decimated by the introduction of exotic and predatory small mouth black bass (*Micropterus dolomieu*) and trout. The Zwartfontein habitat has been taken over by carp (*Cyprinus carpio*)

According to the freshwater report, the Berg River at Zwartfontein has absorbed numerous and deep-cutting human impacts, yet it still functions as an aquatic ecosystem. In the highly improbable event of ceased human impact, the river here would probably bounce back to its previous glory. In this respect the river cannot be categorised as sensitive. It was pleasing to note the recovery of the riparian zone during the site visit. It still has a very long way to go if it were to resemble anything like the original vegetation. This would probably not happen for many decades and in this respect the riparian zone can be described as sensitive.

The freshwater report concludes that the existing legal water use is already fully utilised for irrigation and has already been discounted by the DWS against ecological flow requirements of the Berg river, and the proposed extra storage capacity would not alter the situation. However, with large irrigation schemes there is always the possibility of more agricultural return flow which impact the river system. However, the drainage lines have already been transformed into stormwater management systems and return flows and the enlargement of the dam will not add to these impacts

Farm dams are often regarded as habitat for aquatic organisms. However, water levels vary widely, from full when filled during winter to empty at the end of summer. This makes for an aggressive aquatic environment with limited ecological functioning. With such a large turn-over of water in the dam water quality problems are less of a problem.

Key findings regarding Heritage Resources:

The Heritage screener conducted by CTS Heritage (Appendix G3) concluded that no structures with heritage significance will be impacted by the proposed enlargement of the dam. In terms of archaeological, while it may be likely that, due to its proximity to the Berg River, that archaeological resources may be located within the proposed development area, it is unlikely that these resources will be in situ due to the extensive agricultural activity that has occurred on this site. Furthermore, no impacts to significant palaeontological resources are anticipated. HWC provided comment (Appendix E1) stating that the proposed dam enlargement will not impact on heritage resources.

1.2.	Provide a map that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)
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	Please see Appendix B1 and Appendix B2 for attached maps.
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1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.
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Positive impact associated with the proposed expansion of Zwartfontein dam:

The proposed enlargement of Zwartfontein dam would allow for the storage of irrigation water, which is usually lost. The enlargement of the dam would provide a more efficient use of water which has become a scarce resource, especially in the Western Cape. The water stored will be used for the irrigation of existing fruit orchards. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains.

Another potential positive impact realised is the possible restoration of the degraded Class 2 Ecological Support Areas along drainage line. Ideally, these areas should be restored to its natural state. However, in this case, restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities. It is recommended that

topsoil removed from the drainage line before construction is safely stored and used for rehabilitation of the drainage line after construction.

Negative impact associated with the proposed expansion of Zwartfontein dam:

The specialists confirmed that due to past and ongoing agricultural activities, the site selected for the expansion of the dam, has already been transformed. No critical biodiversity, freshwater or heritage resources would be lost due to the expansion of Zwartfontein dam.

2. Recommendation of the Environmental Assessment Practitioner ("EAP")

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr
<p>Impact management, mitigation and monitoring measures are captured in the impact assessment and significance rating, attached as Appendix J, as well as in the Environmental Management Plan/Programme (EMPr) attached as Appendix H.</p> <p>The EMPr forms part of the contractual obligations to which all persons including but not limited to, contractors/sub-contractors or employees involved in construction, operation, maintenance or decommissioning work, must be committed. It also serves as a baseline information document for the project applicant and any entity working on behalf of the applicant, during the various phases of the proposed activity.</p> <p>The EMPr aims to comply with Section 24N of the National Environmental Management Act No. 107 of 1998, as amended (NEMA), as well as any additional specific information requested by any government department, including the regulating authority for this specific project, the DEA&DP.</p> <p>The overall objective of the EMPr is to direct and guide all responsible parties, binding all contractors, sub-contractors and all other persons working on the site to adhere to the terms and conditions of the EMPr during the construction, operation, maintenance and anticipated demolition/decommissioning phases of the project.</p> <p>The overall outcome of the EMPr is to prevent avoidable damage and/or minimise or mitigate unavoidable environmental damage associated with the construction, operation, maintenance and possible decommissioning phases of the proposed project.</p> <p>The specific outcomes of the EMPr will be achieved through ensuring that the mitigation and management measures detailed in the EMPr are implemented and adhered to throughout the project duration.</p> <p>Compliance monitoring and independent assessment/auditing allow the verification of achievement of the EMPr outcomes and ultimately, fulfilment of the EMPr objectives.</p> <p>The EMPr is partly prescriptive (identifying specific people or organisations to undertake specific tasks, in order to ensure that impacts on the environment are minimised) but it is also a dynamic, evolving document, in that information gained during the various activities and/or monitoring of procedures on site, could lead to changes in the EMPr.</p> <p>The EMPr:</p> <ul style="list-style-type: none"> identifies project activities that could cause actual environmental damage (or potential environmental risks) and provides a summary of actions required; identifies persons responsible for ensuring compliance with the EMPr; provides standard procedures to avoid and/or minimise the identified negative environmental impacts and to enhance the positive impact of the project on the environment; provides site and project specific rules and actions required, including a site plan/s showing: <ul style="list-style-type: none"> areas where construction, maintenance, or demolition work may be carried out; areas where any material or waste may be stored; allowed access routes, parking and turning areas for construction or construction related vehicles; forms a written record of procedures, responsibilities, requirements and rules for contractor/s, their staff and any other person who must comply with the EMPr; provides a monitoring and auditing programme to track and record compliance and identify and respond to any potential or actual negative environmental impacts; and provides a monitoring programme to record any mitigation measures that are implemented <p>The following aims to give a high level summary of potential impacts, objectives and mitigation measures as captured in the EMPr:</p> <p><u>Objective 1: Maintain a healthy biodiversity environment:</u></p> <p><u>Potential Impacts:</u></p> <ul style="list-style-type: none"> Further loss of Ecological Support Areas Class 2 (ESA2) Soil contamination from construction 	

The following mitigation/ monitoring measure can be implemented to reduce these impacts 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 from any watercourse/ stream and serviced regularly in order to prevent leakage/spillage. No portable toilets to be placed in watercourse 1 where the weir is 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.
- All alien plants must be removed from within the construction footprint and immediate surroundings.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.
- An integrated waste management approach must be implemented during construction.
- Ideally ecological support areas should be established along the small streams. As a potential off-set the re-establishment and protection (fencing them off) of a more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.

Objective 2: Protection of Freshwater resources:

Potential Impacts:

- Loss of riparian habitat
- Further degradation of the river systems
- Erosion and sedimentation

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

- 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.
- The dam and the spillway should be not any higher than the dam's full capacity, after the additional capacity to the dam has been added to the dam. This would ensure that if the dam is at its design capacity, it would overflow during exceptional very high rainfall events.
- During construction its footprint should be kept as small as possible;
- All building rubble should be removed following the completion of the dam;
- No building rubble should be allowed to wash into the stream;
- Building should take place during the dry summer months
- Monitor areas below the dam wall (at the spillway) after heavy rainfall events for erosion and sedimentation.
- Should erosion and incision be noted, immediate corrective measures must be undertaken.
- Erosion at the spillway 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, gabions, and the stabilization of gullies with silt fences. Rehabilitation will also include the vegetation of bare areas of soil, susceptible to erosion, within the construction footprint. Impact on areas outside of the designated construction area must be minimized and where applicable, rehabilitated with plant species characteristic of the Swartland Shale Renosterveld Vegetation Type. See Appendix H (EMPr) for more information on rehabilitation.
- Erosion mitigation measures¹² must be implemented where applicable.

¹² Erosion control methods include silt fences, retention basins, detention ponds, interceptor ditches, seeding and sodding, riprap of exposed embankments, erosion mats and mulching. Exposed areas, susceptible to erosion, must be rehabilitated. This includes planting vegetation, characteristic of the pertinent vegetation type, to stabilize the soil.

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.
- The grave (Site 665) must be fenced off prior to site preparation commencing. Alternatively, a buffer of 30m must be established around the site, which includes the modern kraal (Site 664).
- A guard should be appointed to enforce this no-go area if there is any possibility that it could be violated, whether intentionally or inadvertently, by construction staff or members of the public.
- 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.
- We recommend the appointment of a Stone Age Specialist if any large finds of stone tools are discovered during construction.

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

2.2.	Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.
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In terms of the compost storage facility:

- It is proposed that the compost storage facility is constructed next to the house (Alternative A), due to ease of access and to avoid large delivery trucks from unnecessarily entering the drainage line when delivering compost
- This storage facility will store up to maximum 80 000L or 80m³ of compost and comprise off a cement slab with walls with no roof to contain any possible spills. The storage facility must comply to National Norms and Standards for the storage of Waste in terms of the National Environmental Management: Waste Act (Act No. 59 of 2008).

In terms of Heritage Resources:

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

In terms of agricultural return flow:

- Contemporary irrigation technology demands the measuring of soil moisture and irrigate accordingly. This would limit agricultural return flow.
- The pumping of seepage and return flow back into the dam is commended and should be expanded if volumes increase.

Drainage line:

- The drainage lines above the dam are still intact, apart from the areas in the upper catchment that already has been transformed into vineyards and orchards. The natural vegetation and the drainage lines should be kept intact and not be further developed.
- Topsoil removed during site clearing from drainage lines must be stored and used for rehabilitation.

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/ method statement must be agreed upon and signed off by the ECO
- Provisions must be made for rehabilitation.
- 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.

2.3. Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.

The proposed expansion of the Zwartfontein Dam should be authorised for the following reasons

- The botanical specialist states that site and its immediate surrounding are considered transformed with no natural veld remaining. Only a few hardy (weedy) indigenous species remains, no protected species will be lost.
- With the proposed dam expansion the potential to restore degraded ESA associates with the drainage line realised;
- The Freshwater specialist states that the increase of the dam will not cause a further impact in the Berg river or drainage line.
- The dam enlargement will not impact on Heritage Resources.
- The proposed expansion of Zwartfontein is not expected to have any adverse effects on people's health and well-being.
- 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.
- The proposed development will result in better utilisation of an existing water use right and provide insurance of water supply for the irrigation of fruit orchards, strengthening the agricultural sector, the backbone of the Western Cape Economy contributing to positive social-economic spin offs.
- Properly managed and designed farm dams can attract a variety of bird, insect and animals to the area and so contribute to conservation of biodiversity.
- 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 and in the EMPr.

2.4. Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation 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.

2.5. The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.

The period within which commencement must occur;

Upon granting of the EA and WUL construction must occur within 2 years.

Construction of phase 1 is expected to take a period of 6 months. The EA should be granted for the maximum of 5 years.

To be confirmed.

3. Water

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.

The proposed enlargement of the dam will provide insurance of water supply for irrigation of the existing irrigation areas. The recent drought in the Western Cape and uncertainties of the impact of climate change are the major drivers of this project, and thus, water-saving measures are a high priority for this project. It is proposed that drip irrigation be used which does not only save water but also energy (pumping cost). The proposed expansion of the dam will allow for the better utilisation of an existing water use right and scarce resource. Any water leakages will be fixed immediately.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.

No treatment of effluent, wastewater, or sewage. No permanent toilets on site. Once construction starts, a portable chemical toilet must be made available on site. The toilet should not be placed within 32m of a watercourse/ river and should be serviced in a legal manner and removed after construction is completed. Waste receipts will be required as proof of safe disposal.

All waste generated on site (general and hazardous) must be collected, consolidated in dedicated bins, removed, and disposed of at registered disposal facilities. Waste must be separated into recyclable and non-recyclable material and disposed of at a dedicated recycling point (where applicable). Waste receipts are required as proof of safe disposal.

5. Energy Efficiency

8.1. Explain what design measures have been taken to ensure that the development proposal will be energy efficient.

The new position of the pump house (Alternative A – Preferred) was chosen due to gravitational benefits. Water will therefore not have to be pumped from the dam to the pumphouse from where it will be used for irrigation but will flow via gravity, reducing energy use and pumping cost.

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

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

I....., ID numberin my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
 - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
 - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
 - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
 - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
 - Legitimate costs in respect of specialist(s) reviews; and
 - the provision of security to ensure compliance with applicable management and mitigation measures;
- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

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

Signature of the Applicant:

Date:

Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I, EAPASA Registration number as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- 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 activity or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;

Signature of the EAP:

Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

I, EAPASA Registration number as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have 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
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP:

Date:

Name of company (if applicable):

DECLARATION OF 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:

- 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 of the NEMA EIA Regulations 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;
- I 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
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Signature of the EAP:

Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

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

- I have reviewed all the work produced by the Specialist(s):
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have 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 NEMA EIA Regulations.

Signature of the EAP:

Date:

Name of company (if applicable):