Project report

Amendment Assessment Report - Muldersvlei 300 Mℓ reservoir and associated infrastructure

City of Cape Town

Submission date: 2023/01/30

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Author signature	2023.01.27 14:26:07 +02'00'	Approver signature	
Name	Jarryd Finkelstein	Name	Corlie Steyn
Title	Senior Consultant	Title	Environmental Assessment Practitioner

Contents

Appendices

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Appendix 1 of the 2014 EIA Regulations (as amended) contains the required contents of a Basic Assessment Report / Amendment Report. The checklist below serves as a summary of how these requirements were incorporated into this Amendment Report.		
NEMA requirements for an Amendment Assessment Report		
Appendix 1	Content as required by NEMA	Section
3 (1)(a)	(i) details of the EAP who prepared the report; and	Appendix L
	(ii) details of the expertise of the EAP, including a curriculum vitae;	
(b)	the location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including:	Section B
	(i) the 21 digit Surveyor General code of each cadastral land parcel;	
	(ii) where available, the physical address and farm name;	
	(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	N/A
(c)	a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is-	Appendix A, B and D
	(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	
	(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	
(d)	a description of the scope of the proposed activity, including-	Section B, C and D
	(i) all listed and specified activities triggered and being applied for; and	
	(ii) a description of the associated structures and infrastructure related to the development'	
(e)	a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;	Section C
(f)	a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred development footprint within the approved site as contemplated in the accepted scoping report;	Section E and Appendix K
(g)	a motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report;	EA – Appendix E and Section H
(h)	a full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report, including:	Section G, Section H and Appendix I and J
	(i) details of the development footprint amendments/alternatives considered;	
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	

	(iv) the environmental attributes associated with the development footprint amendments/alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;	Section G, Section H and Appendix I and J
	(vii) positive and negative impacts that the proposed activity and amendments/ alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section G, Section H and Appendix I and J
	(viii) the possible mitigation measures that could be applied and level of residual risk;	
	(ix) if no alternative development footprints for the activity were investigated, motivation for not considering such; and	N/A
	(x) a concluding statement indicating the development footprint within the approved site as contemplated in the accepted scoping report;	Section J
(i)	a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including -	Section G, Section H and Appendix I and J
	(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	
	(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	
(j)	an assessment of each identified potentially significant impact and risk, including -	Section G, Section H and Appendix I and J
	(i) cumulative impacts;	
	(ii) the nature, significance and consequences of the impact and risk;	
	(iii) the extent and duration of the impact and risk;	
	(iv) the probability of the impact and risk occurring;	
	(v) the degree to which the impact and risk can be reversed;	
	(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and	
	(vii) the degree to which the impact and risk can be mitigated;	
(k)	where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;	
(l)	an environmental impact statement which contains -	
	(i) a summary of the key findings of the environmental impact assessment;	

	(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers; and	Section G, Section H and Appendix I and J
	(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified amendments/alternatives;	
(m)	based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;	Section I and EMPr Appendix H
(n)	the final proposed amendments/alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;	Section I
(o)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section J
(p)	a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section J
(q)	a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section J
(r)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalized;	Section J
(s)	an undertaking under oath or affirmation by the EAP in relation to-	Section M
	(i) the correctness of the information provided in the reports;	
	(ii) the inclusion of comments and inputs from stakeholders and I&APs;	
	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and	
	(iv) any information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by I&APs;	
(t)	where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(u)	an indication of any deviation from the approved scoping report, including the plan of study, including -	N/A
	(i) any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and	
	(ii) a motivation for the deviation;	
(v)	any specific information that may be required by the competent authority; and	N/A
(w)	any other matters required in terms of section 24(4)(a) and (b) of the Act.	
(2)	Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to an environmental impact assessment report the requirements as indicated in such notice will apply.	

AMENDMENT ASSESSMENT REPORT

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

NOVEMBER 2019

(For official use only)	
Pre-application Reference Number (if applicable):	
EIA Application Reference Number:	14/3/1/1/B4/45/0244/17
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date Amendment Report received by Department:	
Date Amendment Report received by Directorate:	
Date Amendment Report received by Case Officer:	

1 GENERAL PROJECT DESCRIPTION

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

The current holder of the EA, City of Cape Town (CCT) wishes to amend the EA (Appendix E21.1-E21.3) in reference to the access corridor, the EMPr and the relocation of the Wynland pipeline. The description of the EA is summarised under point 1 below and the proposed amendments are summarised under point 2.

1) The EA approved the following:

A potable water treatment plant (WTP), reservoir and bulk pipelines are required by the City of Cape Town (CCT) to augment its bulk water supply system.

Please note: The description below is for both Phase 1 and Phase 2 of the proposed development.

The Muldersvlei Component of the City of Cape Town's Bulk Water Augmentation Scheme comprises of the following components as per the Environmental Authorisation obtained in 2013 (Refer Appendix E21.1-E21.3. Below is a summary of the description of both the Phase 1 and 2 authorised infrastructures. A map of Phase 1 and Phase 2 of the Muldersvlei Component is shown in Figure 1 below.

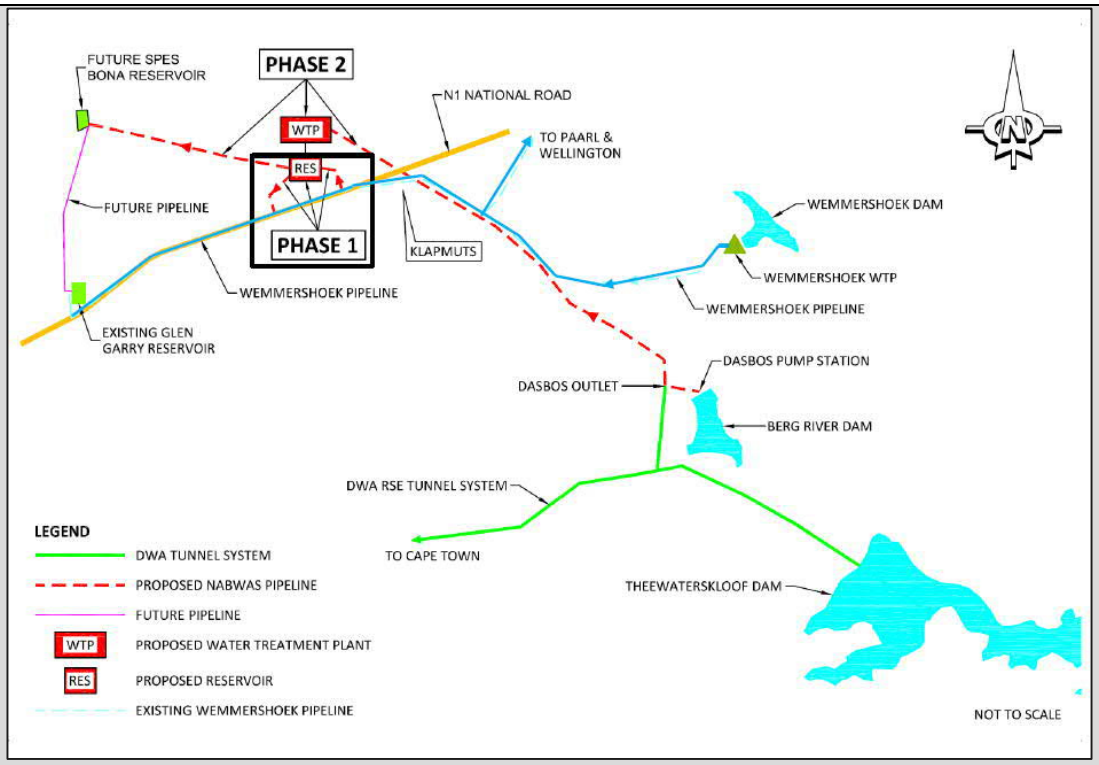

Figure 1 Map of Phase 1 and Phase 2 of the Muldersvlei Infrastructure component of BWAS

Water treatment plant:
A water treatment plant with a capacity of 500 megalitres per day (Ml/day) consisting of various underground and aboveground reinforced concrete and brick structures.

Storage reservoir:
A reservoir with a capacity of 300Ml with ancillary buildings and services. The reservoir will occupy an area of approximately 31 500m² and will be a rectangular excavation and embankment-type reservoir that is concrete lined and fully enclosed.
The major components of the water treatment plant and reservoir complex constitute the most visible portions and include the following:

- Individual lime silos of approximately 11.5m in height located approximately 7m above ground level;
- Treatment residue tanks of approximately 8.7m in height and 30m in diameter, projecting aboveground, with an average size of 1 500m²;
- The inlet building extending approximately 8.6m above ground level;
- Double-storeyed administration buildings of approximately 8m high and 900m² in size;
- Workshop buildings that are approximately 6m in height;
- Filter buildings of approximately 4m high and 1000m² in size;
- A flammable store; and
- A disinfection building comprising of on-site sodium hypochlorite generation units and storage tanks.
  The below-ground components of the development will comprise of the following:
- Filter beds of approximately 4000m² in size; and
- Settling tanks of approximately 14 800m² in size.

Access roads:
A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. Existing gravel roads that can be utilised and new roads that will be constructed, will be paved. These roads will have a road reserve of 20m with a 9.5m surfaced roadway.

Ancillary services:
Ancillary services for the water treatment plant and reservoir include domestic water supply, solid waste removal, sewage treatment, effluent disposal, storm water drainage, telecommunications, electricity supply and lighting.

Electricity will be supplied by Eskom. A backup diesel generator will be located on site for emergencies. Eskom confirmed current electrical capacity available on the Muldersvlei Farmers 2 substation to handle the load of 600 kVA for the reservoir and water treatment plant.

Sewage will be treated on site by means of a commercial sewage treatment package plant. The plant will treat a maximum capacity of approximately 5m³ of effluent per day, with a total annual capacity of approximately 500m³ per year. The treated effluent will mainly be irrigated onto landscaped areas located around the water treatment plant facility. It is anticipated that the treated effluent will be discharged in the watercourse during the winter months, which is located to the southwest of the facility.

Pipelines:
The total length of the pipeline required is approximately 40km in length, ranging in sizes from between 1200mm to 2000mm in diameter. The general 60m wide pipeline corridor routes are as follows:
Between the Dasbos pump station and the water treatment plant in the Muldersviei area:

- This pipeline is approximately 1700mm in diameter and will convey raw water from either the Berg River Dam (via the Dasbos pump station) or from the Theewaterskioof Dam (via the Dasbos outlet) to the water treatment plant.

Between the Wemmershoek pipeline and the proposed Muldersvlei reservoir:

- Treated water will be conveyed to and from the existing Wemmershoek pipeline that is located in the road reserve of the N1 National Road, to the proposed Muldersviei reservoir, via connecting pipelines of approximately 1200mm to 1500mm in diameter.

Between the proposed Muldersvlei reservoir and the Spes Bona reservoir:

- This pipeline is approximately 1700mm to 2000mm in diameter and will convey water treated at the water treatment plant and stored at the Muldersvlei reservoir to the Spes Bona reservoir.

Cathodic protection infrastructure, as well as surge tanks, will be included, where required, along the pipeline routes described above.

Changes noted from the Amendment of the Appeal Environmental Authorisation letter received and dated 07 August 2017
The entire development will be undertaken in two overlapping phases. The reservoir and its links to the Wemmershoek pipeline will be constructed first, followed by the construction of the water treatment plant and its pipelines from Dasbos to Spes Bona.

The preferred route alternative from WA2 to M1 on the site development plans submitted as part of the amendment application which was authorised in the Appeal EA is amended to run from the N1 (at Point WA3 on the site development plans) and along the eastern boundary of the Hoopenberg Farm Property until it reaches the dirt road (Point B on the site development plans submitted with the amendment application).

From Point B on the site development plans submitted with the amendment application, the pipeline will turn west and run along the southern boundary of the dirt road until it joins the original route at point M1 on the site development plans submitted with the amendment application.

Properties:

The water treatment plant and reservoir will be situated in the Muldersvlei area, comprising of the Farms Hohenfelde[1] (Erf 475-2) and Rock Ridge (Weltevrede) Erf 719-2. The list of properties affected by the Phase 1 and Phase 2 infrastructure is presenting in Table 1 and Table 2 , respectively.

Table 1 List of properties affected by Phase 1 infrastructure

Farm Portion	Farm name	Name of contact person[2]
2/475	Hohenhelde/Hercules Pilaar	JMA Louw
12/475	Hercules Pilaar	City of Cape Town
2/719	Weltevreden	KET Starke (The Starke Farm Trust)
		LET Starke[3] (The Starke Farm Trust)
3/719	Weltevreden	Mrs De Vos (AC De Vos Family Trust)
RE/721	Weltevreden	Paul and Anneke Myburgh / Koolmar Pty Ltd
9/721	Weltevreden	Tyrrel and Philip Myburgh / Bakenrug Trust
28/32	Hoopenberg	Johann Conradie / Delfibix Pty Ltd
29/32	Hoopenberg	Johann Conradie / Alsicraft Pty Ltd
RE/15/730	Kleinjoostenberg	James Fisk
RE/1370	Romance	Henning Olivier / Astral Operations Ltd (County Fair)

[1] Hohenfelde is also called Farm: Herculus Pilaar. The above is captured as per EA.

[2] Please note that landowners are as per EA and information received from the previous consultants. Where applicable, landowners have been updated as indicated per footnote.

[3] LET Starke has passed away, please refer to Appendix K.1 for the most recent update.

Table 2 List of properties affected by Phase 2 Infrastructure

Farm			Farm Name	Name of contact Person
Erf number	Portion	Split		
1619	0		Mountain-to-Ocean Forestry	Mr Mark Wilmot
1159	13		Waterfall	Ms J Moxon
1610	0		Bellingham	Mr G Baumgarten
1269	0		Bellingham	Mr G Baumgarten
1015	2		Bellingham	Mr G Baumgarten
1610	0		Bellingham	Mr G Baumgarten
1289	0		Bellingham	Mr G Baumgarten
1014	4		L'Ormarins/Fredericksburg La Motte	Mr Pietie le Roux
1159	5		Waterfall	Mr C Malan
1166	0		L'Ormarins/Fredericksburg	Mr Pietie le Roux
1646	17		L'Ormarins/Fredericksburg	Mr Pietie le Roux
1165	0		L'Ormarins/Fredericksburg	Mr Pietie le Roux
1162	10		L'Ormarins/Fredericksburg	Mr Pietie le Roux
1162	9		L'Ormarins/Fredericksburg	Mr Pietie le Roux
1162	8		Brakkefontein	Mr A Wilding
1281	1		Klein Normandie	Mr Gert Kruger
1646	16		No registered name available	Mr Herb Kortoff c/o Mr Hein du Plessis
1674	11		Boschendal	Mr G Johnson (MD) A Schoeman
1674	10		Boschendal	Mr G Johnson (MD) A Schoeman
1460	1		Daltameer	Ms W Pickstone
1475	3		No registered name available	Mr P Turner
1631	4		No registered name available	Mr Jan van Zyl
9960	0		No registered name available	No contact details available
896	3		No registered name available	No contact details available
1674	4		Boschendal	Mr G Johnson / A Schoema
973	0		Boschendal	Mr G Johnson / A Schoema
1510	0		Nelshoewe	Mr B du Toit
974	0		Elsenkloof (Londerzeel Estate)	Mr G J C Goosen

975	0		Londerzeel Estate	Mr G J C Goosen
976	0		Londerzeel Estate	Mr G J C Goosen
978	7		Tonis Fontyn (Londerzeel Estate)	Mr G J C Goosen
1509	0		Plaisire de Merle	Mr Hannes van Rensburg
968	0		Plaisire de Merle	Mr Hannes van Rensburg
949	0		Plaisire de Merle	Mr Hannes van Rensburg
950	1		Plaisire de Merle	Mr Hannes van Rensburg
950	4		Vrede & Lust	Mr E Buys
950	0		Vrede & Lust	Mr E Buys
950	5		Vrede & Lust	Mr E Buys
936	1		Rust & Vreugd	Mr Eric van der Vorm / Ms Liesl King / Mr Quintis le Roux
935	0		Rust & Vreugd	Mr Eric van der Vorm / Ms Liesl King / Mr Quintis le Roux
1602	0		L'Orimans/Fredericksburg	Mr Pietie le Roux
1574	0		Stellenpak	Mr K Koen
956	0		Donkerhoek	Mr R Koch
957	0		Dawn Mountain	Mr Gunther
956	3		Drakensig	Mr Marais Viljoen
1274	0		Rustenburg	Ms E Lilje
1419	0		Uitkomst	Mr Steyn Pienaar
801	2		Donkerhoek Fruit Syndicate	Mr M Koch
1379			Bloemendal	Mr Gideon Malherbe
1379			Noble Hill Vineyards	Mr John Cowlin
1380			Klein Babylonstoren Backsberg	Mr Michael Back
1268			Bloemendal	Mr Gideon Malherbe
959	0		Babylonstoren Estate (Pty) Ltd	Mrs Margie Louw
1268	2		Babylonstoren Estate (Pty) Ltd	Mrs Margie Louw
784			Klein Simonsvlei	Mr Daan Joubert
791	28		No registered name available	Mrs Caroline Goodden

791	15		Klein Simonsvlei	Mr Daan Joubert
784	0		Klein Simonsvlei	Mr Daan Joubert
791	8		Simonshoogte	Mr Selwyn Sherling
791	9		Klein Simonsvlei	Mr Daan Joubert
777	1		Klein Simonsvlei	Mr Daan Joubert
784	2		Klein Paradys	Mr P Einthoven
791	14		Klein Simonsvlei	Mr Daan Joubert
791	0	1	Glen Carlou	Mr David Finlayson
791	17		Dalewood Farm	Mr Rob Visser
750	3		Backsberg	Mr Michael Back
748	37	0	Anura Vineyards	Mr Bauma
748	40		Mount Vernon Farms	Mr Dave Hooper
748	33		Backsberg	Mr Michael Back
751	0		No registered name available	The Property Owner
767	5		No registered name available	PGWC: Roads Infrastructure Branch
754	0		No registered farm name available	PGWC: Roads Infrastructure Branch
755	0		No registered name available	Mr S van Rhyn
717	0		No registered name available	Klomp Konsult
716	27		Groenfontein Annex	Mr Mark Eiseman
716	3		Groenfontein Annex	Mr Gielie du Toit
716	7		Uitkoms	Mr J Livingstone-Louw
744	2		Stellenbosch Wine and Country Estate	Mr H Steyn
744			Stellenbosch Wine and Country Estate	Mr H Steyn
739			Stellenbosch Municipality	Mr Kobus Fourie
736	0	2	Stellenbosch Municipality	Mr Kobus Fourie
742	3		Stellenbosch Hills Wine and Country Estate	Mr H Steyn
742	0		East Hill	Mr I S T Starke

737	15		No registered name available	Mr Isola
737	7		No registered name available	Mr S Coetzee
737	6		No registered name available	Mr I Kurtin
737	3		No registered name available	Mr Isola
736	0	1	Rustwel (Drakenstein Municipality)	The Municipal Manager
737	2		Vergelegen	Mr Willem Nel
737	4		No registered name available	Mr A Foguet
738	1		Ohlhoff	Mr G van der Westhuizen
738	0		Vaalkop	Mr G van der Westhuizen
32	15	0	Hoopenberg	Mr Kim van Zyl
1151			No registered name available	Mr J Starke
721	8		Klein Joostenberg	Mr Philip Myburgh
721	9		Bakenrug	Mr Philip Myburgh
721	10		Weltevreden	Mr du Preez
721	0		Klipdam	Ms Wilna Myburgh
719	2		Weltevreden	Mrs Karen Starke
730	15		The Pink Geranium	Mr R J Fisk
719	3		Weltevreden	Mrs Agnes de Vos
475	2		Hohenfelde	Mr J M A Louw
479	6		Spinneykop Farm	Dr Peter Roth
478	0		Steenkamp Broers Trust)	Mr Jorda Steenkamp
478	2		No registered name available	A D Lenox
1571	0		Bez Boerdery	Mr J J (Basie) Bezuidenhout
1242	0		Herculas Pilar	Mr S S de Wit
478	1		Nu-Rust	Mr Piet Gerritsen
1284	1		Nu-Rust	Mr Piet Gerritsen
474	6		Nu-Rust	Mr Piet Gerritsen
474	1		Joosfontein	Mr B Rumble
474	5		Joosfontein	Mr B Rumble
724	4		No registered name available (Garden Cities)	Mr Renier Smith

724	3		No registered name available(Garden Cities)	Mr Renier Smith
724	19		No registered name available (Garden Cities)	Mr Renier Smith
1248			No Correspondence	City of Cape Town
175	2		County Fair Foods	Mr Dickman
175	0		Kims Farms	No contact details available
175	1		Glenfair Prop	Mr Jeremy Nel
168	23		Avenue Heights	Mr Paul Day
724	2		Durbanville Memorial Park	Mr Pierre Steyn
724	5		Mountainview	Mr Andries Roux
168	33		County Fair Foods	Mr Dickman
168	32		No name available	Mr M J Stewart
168	6		Durbanville Memorial Park	Mr Pierre Steyn
168	9		Rodeo Riding Centre	Mrs A Cresswell
183	1		Weltevreden	Mr Zive
1446	0		Grootfontein	Mr Ben van der Westhuizen
170	0		Annex Uitzien	Mr Zive
168	2		SA Navy : Radio Station Goedverwacht	Mrs Mlandu
168	45		Pendle Hill	Mr B J Cooper
168	21		Goedverwacht	Mr F Brink

2) The applicant CCT, wishes to apply for the following amendments to the description under point (1) to the following:

2.1) Amendments to Access Road Corridor:

Approval for the access road was granted for a 20m road reserve and a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. Based on the refined route, an amendment is requested for the access road.

This amendment application is therefore applying to amend the alignment of the preliminary access route approved through the 2012 EIA Report.

2.2) Amendments to the Construction Phase EMP:

The following amendments to the Construction Phase Environmental Management Programme (cEMP) are proposed:

Environmental Specification 23 on page 69

1. The second sentence of the first bullet after the interleading works "*in order to protect the County Fair farm, the following measures shall be implemented*" shall be replaced with the following "*in the event of any repairs to a breakage in the pipeline being required, such repair shall be effected on the same but in the event of a breakage occurring in the late afternoon, such repairs shall be effected by 09h00 on the next day.*"
2. The expression "*n-go zone*" in the second bullet shall be changed to read "*no-go zone*".
3. In the second line of the third last bullet, the words "*our client's property*" shall be replaced with "*County Fair's property*".

2.3) Wynland pipeline relocation amendment:

There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence.

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

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)~~
Amendment Report must be sent to the following details: 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 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 1 and 2) at: Tel: (021) 483-5829 Fax (021) 483-4372	~~BAR must be sent to the following details:~~ ~~Western Cape Government~~ ~~Department of Environmental Affairs and Development Planning~~ ~~Attention: Directorate: Development Management (Region 3)~~ ~~Private Bag X 6509~~ ~~George,~~ ~~6530~~ ~~Registry Office~~ ~~4th Floor, York Park Building~~ ~~93 York Street~~ ~~George~~ ~~Queries should be directed to the Directorate: Development Management (Region 3) at:~~ ~~Tel: (044) 805-8600~~ ~~Fax (044) 805-8650~~

MAPS

Provide a location map (see below) as Appendix A1 to this Amendment Report that shows the location of the proposed development and associated structures and infrastructure on the property.	
Locality Map:	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: • 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. 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. 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 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 Amendment Report; and if applicable, all alternative properties and locations.	
Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be 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): 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 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.
Site photographs	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 Amendment Report 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.
Biodiversity Overlay Map:	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 Amendment Report as Appendix D.

Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. 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 Amendment Report as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this Amendment Report as Appendix A3.

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 Amendment Report as per the list below. Please use a ✓ (tick) or a x (cross) to indicate whether the Appendix is attached to the Amendment Report.

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-B.5	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 D1-D.2:	Biodiversity overlay map		✓
Appendix E:	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:	Final Comment from the DWS	Comment requested as part of PPP
	Appendix E4:	Comment from the DEA: Oceans and Coast	x N/A
	Appendix E5:	Comment from the DAFF	Western Cape Dept of Agri included in PPP
	Appendix E6:	Comment from WCG: Transport and Public Works	Comment requested as part of PPP
	Appendix E7:	Comment from WCG: DoA	Comment requested as part of PPP
	Appendix E8:	Comment from WCG: DHS	x N/A
	Appendix E9:	Comment from WCG: DoH	Comment requested as part of PPP
	Appendix E10:	Comment from DEA&DP: Pollution Management	x N/A
	Appendix E11:	Comment from DEA&DP: Waste Management	x N/A
	Appendix E12:	Comment from DEA&DP: Biodiversity	Comment requested as part of PPP
	Appendix E13:	Comment from DEA&DP: Air Quality	x N/A
	Appendix E14:	Comment from DEA&DP: Coastal Management	x N/A
	Appendix E15:	Comment from the local authority	Comment requested as part of PPP
	Appendix E16:	Confirmation of all services (water, electricity, sewage, solid waste management)	Comment requested as part of PPP

			During the PPP of the EA confirmation for all services were secured (Refer Appendix E.23 – E 25 as well as E.6 and E16.)
	Appendix E17:	Comment from the District Municipality	Comment requested as part of PPP
	Appendix E18:	Copy of an exemption notice	x N/A
	Appendix E19	Pre-approval for the reclamation of land	x N/A
	Appendix E20:	Proof of agreement/TOR of the specialist studies conducted.	Included in specialist reports
	Appendix E21:	Proof of land use rights	EA in Appendix E21
	Appendix E22:	Proof of public participation agreement for linear activities	Appendix F
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 F and to be updated for Final Amendment Report
Appendix G:	Specialist Report(s)		✓
Appendix H:	EMPr		✓
Appendix I:	Screening tool report		✓
Appendix J:	The impact and risk assessment for each alternative		Section H of the Amendment Report
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		In the report and Appendix K ✓
Appendix L:	EAP CV		✓
Appendix M:	Specialist declarations		✓
Appendix N:	Applicant declaration		✓
Appendix O:	Revised Part 2 amendment application		✓

2 SECTION A: ADMINISTRATIVE DETAILS

<table>
<tr><td rowspan="2">Highlight the Departmental Region in which the intended application will fall</td><td colspan="2">CAPE TOWN OFFICE:</td><td>~~GEORGE OFFICE:~~</td></tr>
<tr><td>~~REGION 1~~

~~(City of Cape Town,~~
~~West Coast District~~</td><td>REGION 2

(Cape Winelands District &
Overberg District)</td><td>~~REGION 3~~

~~(Central Karoo District & Garden Route District)~~</td></tr>
<tr><td>Duplicate this section where there is more than one Proponent
Name of Applicant/Proponent:</td><td colspan="3">City of Cape Town</td></tr>
<tr><td>Name of contact person for Applicant/Proponent (if other):</td><td colspan="3">Gavin George</td></tr>
<tr><td>Company/ Trading name/State Department/Organ of State:</td><td colspan="3">Municipality: City of Cape Town</td></tr>
<tr><td>Company Registration Number:</td><td colspan="3">Not Applicable</td></tr>
<tr><td>Postal address:</td><td colspan="3">Not available in compliance with POPI Act</td></tr>
<tr><td></td><td colspan="2"></td><td>Postal code: Not available</td></tr>
<tr><td>Telephone:</td><td colspan="2">Not available in compliance with POPI Act</td><td>Cell: Not available in compliance with POPI Act</td></tr>
<tr><td>E-mail:</td><td colspan="2">Not available in compliance with POPI Act</td><td>Fax: Not available</td></tr>
<tr><td>Company of EAP:</td><td colspan="3">Zutari (Pty) Ltd</td></tr>
<tr><td>EAP name:</td><td colspan="3">Corlie Steyn</td></tr>
<tr><td>Postal address:</td><td colspan="3">Not available in compliance with POPI Act</td></tr>
<tr><td></td><td colspan="2"></td><td>Postal code: Not available</td></tr>
<tr><td>Telephone:</td><td colspan="2">Not available in compliance with POPI Act</td><td>Cell: Not available in compliance with POPI Act</td></tr>
<tr><td>E-mail:</td><td colspan="2">Not available in compliance with POPI Act</td><td>Fax: Not available</td></tr>
<tr><td>Qualifications:</td><td colspan="3">MPhil (Environmental Management)</td></tr>
<tr><td>EAPASA registration no:</td><td colspan="3">2019/999</td></tr>
<tr><td>Duplicate this section where there is more than one landowner
Name of landowner:</td><td colspan="3">Property 12/475
Amendment affected landowner: City of Cape Town</td></tr>
<tr><td>Name of contact person for landowner (if other):</td><td colspan="3">Gavin George</td></tr>
<tr><td>Postal address:</td><td colspan="3">Not available in compliance with POPI Act</td></tr>
<tr><td></td><td colspan="2"></td><td>Postal code: Not available</td></tr>
</table>

Telephone: E-mail:	Not available in compliance with POPI Act	Cell: Not available in compliance with POPI Act
	Gavin.george@capetown.gov.za	Fax: Not available
Name of Person in control of the land:	As Above	
Name of contact person for person in control of the land:		
Postal address:		
		Postal code:
Telephone:	( )	Cell:
E-mail:		Fax: ( )
Duplicate this section where there is more than one landowner Name of landowner:	Property 2/719 Amendment affected landowner: The Starke Farm Trust	
Name of contact person for landowner (if other):	KET Starke	
Postal address:	Not available in compliance with POPI Act	
		Postal code: Not available
Telephone:	Not available in compliance with POPI Act	Cell: Not available in compliance with POPI Act
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Name of Person in control of the land:	As Above	
Name of contact person for person in control of the land:		
Postal address:		
		Postal code:
Telephone:	( )	Cell:
E-mail:		Fax: ( )
Duplicate this section where there is more than one landowner Name of landowner:	Property RE/719 Amendment affected landowner: Koolmar (Pty) Ltd	
Name of contact person for landowner (if other):	Paul and Anneke Myburgh	
Postal address:	Not available in compliance with POPI Act	
		Postal code:
Telephone:	Not available in compliance with POPI Act	Cell: Not available in compliance with POPI Act
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Name of Person in control of the land:	As Above	

Name of contact person for person in control of the land:		
Postal address:		
		Postal code:
Telephone:	( )	Cell:
E-mail:		Fax: ( )
Duplicate this section where there is more than one landowner Name of landowner:	Property 3/719 Amendment affected landowner: ACE De Vos Family Trust	
Name of contact person for landowner (if other):	Mrs De Vos Jaco Lourens	
Postal address:	Not available in compliance with POPI Act	
	E	Postal code: Not available
Telephone:	Not available in compliance with POPI Act	Cell: Not available in compliance with POPI Act
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Name of Person in control of the land:	As Above	
Name of contact person for person in control of the land:		
Postal address:		
		Postal code:
Telephone:	( )	Cell:
E-mail:		Fax: ( )
Duplicate this section where there is more than one landowner Name of landowner:	Property RE/1370 Amendment affected landowner: Astral Operations LTD (County Fair)	
Name of contact person for landowner (if other):	Stephen Levetan (curator - ENSAfrica) Henning Olivier (Agricultural Manager – Cape Region)	
Postal address:	Not available in compliance with POPI Act	
	Cape Town	Postal code: Not available
Telephone:	Not available in compliance with POPI Act	Cell: Not available in compliance with POPI Act
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Name of Person in control of the land:	As Above	
Name of contact person for person in control of the land:		
Postal address:		
		Postal code:

Telephone:	( )	Cell:
E-mail:		Fax: ( )
Duplicate this section where there is more than one landowner Name of landowner	Please refer also to Appendix F for full list of landowners for entire project (Phases 1 and 2).	

Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Stellenbosch Local Municipality	
Contact person:	Schalk van der Merwe	
Postal address:	Not available in compliance with POPI Act	
		Postal code: Not available
Telephone	Not available in compliance with POPI Act	Cell: Not available
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Drakenstein Local Municipality	
Contact person:	Cindy Winter	
Postal address:	Not available in compliance with POPI Act	
		Postal code: Not available
Telephone	Not available in compliance with POPI Act	Cell: Not available
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Cape Winelands District Municipality	
Contact person:	Quinton Balie	
Postal address:	Not available in compliance with POPI Act	
		Postal code: Not available
Telephone	Not available in compliance with POPI Act	Cell: Not available
E-mail:	Not available in compliance with POPI Act	Fax: Not available
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Cape Town Metropolitan Municipality	

Contact person:	Sonja Warnich-Stemmet	
Postal address:	Not available in compliance with POPI Act	
		Postal code: Not available
Telephone	Not available in compliance with POPI Act	Cell: Not available in compliance with POPI Act
E-mail:	Not available in compliance with POPI Act	Fax: Not available

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

1.	Is the proposed development (please tick):	New	✓ (amendment)	Expansion	
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
This report is for a Part 2 Amendment Assessment. An existing Environmental Authorisation is in place and the Part 2 Amendment Assessment is for the realignment of the access road, relocation of the existing Wynland pipeline, and edits to the Environmental Management Programmes (EMPr). The amendments are for infrastructure to be completed under Phase 1 of the Muldersvlei Component which consists of the 300Ml reservoir, access road, incoming and outgoing pipeline connections to the Wemmershoek pipeline, and relocation of the Wynland pipeline.					
3.	For Linear activities or developments				
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:				
<u>Phase 1 of the Muldersvlei Component:</u> Portion 12 of Farm 475 (12/475) Portion 2 of Farm 719 (2/719) Portion 3 of Farm 719 (3/719) Remaining Extent of Farm 721 (RE/721) Remaining Extent of Farm 1370 (RE/1370)					
3.2.	Development footprint of the proposed development for the amendment.				62 000m²
<u>Proposed development footprint of the amendments:</u> Access Road = 32 000m² (including 20m road reserve) Wynland pipeline relocation = 30 000m² (including 15m construction zone)					
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 the amendment.				
<u>Phase 1 of the Muldersvlei Component:</u> <u>Access Road:</u> 1 600m long, 9.5m wide access road. The access road reserve is 20m wide. <u>Wynland Pipeline Relocation:</u> Removal of pipeline that is in the way of the reservoir construction – 1 033m long, DN160 pipeline Installation of new pipeline in new alignment – 904m long, DN160 pipeline					
3.4.	Indicate how access to the proposed routes will be obtained for the amendment.				
The access road is planned to be constructed first as per the auhorised EA, to allow access to the Muldersvlei reservoir site from the R304. Should access to the Muldersvlei reservoir site be required prior to the construction of the access road (e.g., for the Wynland pipeline relocation) then access will be requested from the neighbouring farm properties (e.g. Farm 2/475, Farm 2/719 or Farm RE/721).					
3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all amendments/alternatives				

	12/475	C	0	5	5	0	0	0	0	0	0	0	0	0	4	7	5	0	0	0	1	2
	2/719	C	0	5	5	0	0	0	0	0	0	0	0	0	7	1	9	0	0	0	0	2

	3/719	C	0	5	5	0	0	0	0	0	0	0	0	0	7	1	9	0	0	0	0	3
	RE/721	C	0	5	5	0	0	0	0	0	0	0	0	0	7	2	1	0	0	0	0	0
	RE/1370	C	0	5	5	0	0	0	0	0	0	0	0	1	3	7	0	0	0	0	0	0

3.6.	Starting point co-ordinates for EA approved access road alignment			
	Latitude (S)	33º	47‘	50.97“
	Longitude (E)	18º	47‘	48.73“
	Middle point co-ordinates for EA approved access road alignment			
	Latitude (S)	33º	48‘	4.44“
	Longitude (E)	18º	47‘	30.40“
	End point co-ordinates for EA approved access road alignment			
	Latitude (S)	33º	48‘	14.91“
	Longitude (E)	18º	47‘	5.83“
	Starting point co-ordinates for amendment access road alignment			
	Latitude (S)	33º	47‘	50.44“
	Longitude (E)	18º	47‘	50.55“
	Middle point co-ordinates for amendment access road alignment			
	Latitude (S)	33º	48‘	3.86“
	Longitude (E)	18º	47‘	30.92“
	End point co-ordinates for amendment access road alignment			
	Latitude (S)	33º	48‘	11.39“
	Longitude (E)	18º	46‘	59.90“
	Starting point co-ordinates for current existing Wynland pipeline route			
	Latitude (S)	33º	47‘	53.51“
	Longitude (E)	18º	48‘	5.26“
	Middle point co-ordinates for current existing Wynland pipeline route			
	Latitude (S)	33º	47‘	44.38“
	Longitude (E)	18º	47‘	53.78“
	End point co-ordinates for current existing Wynland pipeline route			
	Latitude (S)	33º	47‘	42.24“
	Longitude (E)	18º	47‘	44.72“
	Starting point co-ordinates for proposed relocation of Wynland pipeline route			
	Latitude (S)	33º	47‘	53.51“
	Longitude (E)	18º	48‘	5.26“
	Middle point co-ordinates for proposed relocation of Wynland pipeline route			
	Latitude (S)	33º	47‘	53.40“
	Longitude (E)	18º	47‘	50.14“
	End point co-ordinates for proposed relocation of Wynland pipeline route			
	Latitude (S)	33º	47‘	42.24“
	Longitude (E)	18º	47‘	44.72“

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 Amendment Report as Appendix A3.																									
~~4.~~	~~Other developments~~																								
~~4.1.~~	~~Property size(s) of all proposed site(s):~~																								~~m^2~~
~~4.2.~~	~~Developed footprint of the existing facility and associated infrastructure (if applicable):~~																								~~m^2~~
~~4.3.~~	~~Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:~~																								~~m^2~~
~~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).~~																								
~~4.5.~~	~~Indicate how access to the proposed site(s) will be obtained for all alternatives.~~																								
~~4.6.~~	~~SG Digit code(s) of the proposed site(s) for all alternatives:~~																								
~~4.7.~~	~~Coordinates of the proposed site(s) for all alternatives:~~																								
	~~Latitude (S)~~							~~o~~						~~'~~						~~"~~					
	~~Longitude (E)~~							~~o~~						~~'~~						~~"~~					

4 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

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.	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.	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.			
LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	ADMINISTERING AUTHORITY and how it is relevant to this application	TYPE Permit/license/authorisation/comment / relevant consideration (e.g. rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, etc.)	DATE (if already obtained):
National Environmental Management Act (Act 107 of 1998 as amended)	DEA&DP	Environmental Authorisation	1) The Environmental Authorisation (EA) for the City of Cape Town's (CCT) proposed bulk water scheme: Muldersvlei component was obtained in terms of the (i) Environmental Conservation Act (ECA), 1989 (Act No, 73 of 1989), (ii) the National Environmental

			Management Act (NEMA), 1998 (Act No. 107 of 1998) and (iii) the Environmental Impact Assessment Amendment Regulations of 2010. The date that the EA was signed was on 30/1/2013. 2) An Appeal was lodged in terms of Section 43 of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998) and the Appeal was granted in favour of the applicant City of Cape Town and signed on 16/9/2013. 3) An Application for the Amendment of the Appeal in terms of the 2014 EIA Regulations was granted on 7/8/2017.
National Environmental Management Laws Amendment Act (Act 25 of 2014)	DEA&DP	Public participation as part of the Environmental Authorisation	For the existing EA: 16/9/2013 For the Amendment: In process
National Environmental Management: Biodiversity Act (Act 10 of 2004)	DEA&DP	Removal of invasive vegetation / impact on threatened ecosystem type	None
National Water Act (Act 36 of 1998)	Department of Water & Sanitation	A WULA is being applied for in reference to the existing EA. In terms of this amendment the following water uses below forms part of the WULA application: ▪ Section 21(c) Impeding or diverting the flow of water in a watercourse; ▪ Section 21(i) Altering the bed, banks, course or characteristics of a watercourse.	Pending
National Forest Act (Act 84 of 1998)	Department of Forestry	None	None
Conservation of Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture	Removal of invasive vegetation	None

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.	
LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	*Describe how the proposed development complies with and responds:*
National Environmental Management Act (Act 107 of 1998 as amended)	Environmental Impact Assessment is being undertaken in terms of Chapter 5 of NEMA using the 2017 EIA regulations.
National Environmental Management Laws Amendment Act (Act 25 of 2014)	The public participation is being undertaken in terms of this Act, specifically the 30-day comment period prescribed.
National Environmental Management: Biodiversity Act (Act 10 of 2004)	The identification of the onsite vegetation and the ecosystem status associated with the vegetation is undertaken in terms of this Act. This Act also applies to the control and management of Alien Invasive Species (AIS), which includes animals and vegetation.
National Water Act (Act 36 of 1998)	A WULA is being applied for in reference to the existing EA. In terms of this amendment the following water uses below forms part of the WULA application: ▪ Section 21(c) Impeding or diverting the flow of water in a watercourse; ▪ Section 21(i) Altering the bed, banks, course or characteristics of a watercourse.
National Forest Act (Act 84 of 1998)	Not applicable.
Conservation of Agricultural Resources Act (Act 43 of 1983)	This Act applies for the removal and control of alien invasive vegetation, protection of water resources and the prevention of soil erosion.
Land Use Planning Ordinance (Act 15 of 1985)	Not applicable
National Waste Management Strategy	All waste from construction to decommissioning will be dealt with in terms of this strategy. Refer to the Environmental Specification 11 in OEMPr, Environmental Specification 21 in CEMP)
Outeniqua Sensitive Coastal Areas Act (OSCA)	Not applicable
National Protected Area Expansion Strategy	There are no NPAES focus areas near the proposed amendments.
Municipal Biodiversity Summary Project	The summary provides a tool with which to evaluate the impact of the development on the environment.

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.	
Guideline for Environmental Management Plans (2005)	An updated EMPr has been included with this Amendment Report to provide practical and implementable actions to ensure that the development maintains sustainability and minimise impacts through all its phases. The document is drafted as per the Guidelines and requirements of NEMA.

Guideline for Public Participation (2013)	The PPP for this process is based on this Guideline and also includes any updated regulations.
Guideline on Alternatives (2013)	Feasible and reasonable alternatives must be considered alongside the development proposal in order to ensure the Best Practicable Environmental Option (BPEO). These Guidelines have been used and resulted in the Application for Amendment to the current and existing EA.
Guideline on Need & Desirability (2013)	Need & Desirability refers to the temporal and spatial need of an area for a specific development. This Guideline was used to define the requirements and implications of Need & Desirability.
The Klapmuts Spatial Development Framework (SDF) 2009.	The Klapmuts Spatial Development Framework (SDF) was approved by Council in 2009. The key section in the Klapmuts SDF (2009) with reference to the Social Impact Assessment (SIA) of the approved EA, specifically the proposed site, is the section on the urban edge. The proposed amendment will fall within this area that has been approved as per the EA.

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
The following protocols apply: • Site sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed. • Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity • Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species. • Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity • Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species. Please refer to Appendix G for the site sensitivity verification reports. Assessment Studies was undertaken in accordance with the Protocol for the specialist assessment and minimum report content requirements for environmental impacts on freshwater, terrestrial animal species and terrestrial biodiversity (Government Gazette 43855 & 43110) as and where possible, but it should be noted that the original assessment reports were done under ECA and NEMA 2010 regulations.

5 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.
9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	*Wynland pipeline relocation:* There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence. The new pipeline will have a diameter of 160mm (0.16m). The pipeline relocation will pass through an aquatic ecosystem.
12	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; — excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	*Access road alignment amendment:* A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. These roads will have a road reserve of 20m with a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. The access road passes through an aquatic ecosystem. *Wynland pipeline relocation:* There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence. The new pipeline will have a diameter of 160mm (0.16m). The pipeline relocation will pass through an aquatic ecosystem.
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;	*Access road alignment amendment:* A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. These roads will have a road reserve of 20m with a 9.5m surfaced roadway.

	but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. The access road passes through an aquatic ecosystem. *Wynland pipeline relocation* There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence. The new pipeline will have a diameter of 160mm (0.16m). The pipeline relocation will pass through an aquatic ecosystem.
24	The development of a road— (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road— (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	*Access road alignment amendment:* A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. These roads will have a road reserve of 20m with a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. The access road passes through an aquatic ecosystem.
67	Phased activities for all activities— (i) listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices; excluding the following activities listed in this Notice- 17(i)(a-d); 17(ii)(a-d); 17(iii)(a-d); 17(iv)(a-d); 17(v)(a-d); 20; 21; 22; 24(i); 29; 30; 31; 32; 34; 54(i)(a-d); 54(ii)(a-d); 54(iii)(a-d); 54(iv)(a-d); 54(v)(a-d); 55; 61; 64; and 65; or (ii) listed as activities 5, 7, 8(ii), 11, 13, 16, 27(i) or 27(ii) in Listing Notice 2 of 2014 or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices; where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.	The proposed development (inclusive of the proposed amendment) will consists of a Phase 1 and a Phase 2 development.

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 metres with a reserve less than13,5 metres. i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. Areas outside urban areas; (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	*Access road alignment amendment:* A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. These roads will have a road reserve of 20m with a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. The access road passes through an aquatic ecosystem.
14	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour	*Access road alignment amendment:* A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. These roads will have a road reserve of 20m with a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. The access road passes through an aquatic ecosystem. *Wynland pipeline relocation* There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence. The new pipeline will have a diameter of 160mm (0.16m). The pipeline relocation will pass through an aquatic ecosystem.
26	Phased activities for all activities— i. listed in this Notice and as it applies to a specific geographical area, which commenced on or after the effective date of this Notice; or ii. similarly listed in any of the previous NEMA notices, and as it applies to a specific geographical area, which commenced on or after the effective date of such previous NEMA Notices	The proposed development (inclusive of the proposed Amendment) consists of a Phase 1 and a Phase 2 development

Note:

- 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		

6 SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.

The proposed amendment entails minor changes to the (i) access road corridor and the (ii) relocation of the Wynland pipeline.

(i) Approval for the access road was granted for a 20m road reserve and a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. Based on the refined route, an amendment is requested for the access road. This amendment application is therefore applying to amend the alignment of the preliminary access route approved through the 2012 EIA Report.

(ii) There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence

Specifications: Phase 1 of the Muldersvlei Component:

300Ml Reservoir:

The structure comprises a rectangular floor measuring 184 m long by 84 m wide and 1:2.5 (V:H) sloping interior sides and 1:2.5 (V:H) sloping exterior sides. The floor area of the proposed reservoir is approximately 15 500 m^2 and the surface area is 32 200 m^2.

Incoming Pipeline:

4 285m long, DN1525 incoming pipeline (from Wemmershoek pipeline to reservoir). The working width is 27m and the pipeline corridor is 60m.

Outgoing Pipeline:

2 403m long, DN1200 outgoing pipeline (from reservoir to Wemmershoek pipeline). The working width is 27m and the pipeline corridor is 60m.

Access Road:

1 600m long, 9.5m wide access road. The access road reserve is 20m wide.

Wynland Pipeline Relocation:

Removal of pipeline that is in the way of the reservoir construction – 1 033m long, DN160 pipeline

Installation of new pipeline in new alignment – 904m long, DN160 pipeline

2.	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 E21.1-21.3.

The proposed Amendment is in reference to the already approved EA dated16/09/2013.

Master planning conducted for the CCT's Bulk Water Supply System has projected that a new bulk water reservoir will be required by 2014 to augment stressed sections of the System, and that a new water treatment plant and bulk conveyance will be required by 2016 to increase the overall treatment and conveyance capacity of the System. Timing of implementation is however dependent on demand growth and the impact of implementation of the City's Water Demand Management Strategy.

Due to increasing water demands within the Cape Metropolitan Area (CMA), and with new raw water supplies that became available upon completion of the Berg Water Project [BWAS Component 1], the CCT proposes to implement new infrastructure to increase the CCT's water treatment and bulk storage capacity and to increase the flexibility of the bulk water distribution network.

3.	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.

The EA was authorised on16/09/2013 and there is no conflict with respect to any other approvals.

4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework.

The proposed Amendment to the authorised project is in line with the identified as priorities within the Integrated Development Plan. Please note that the EA was authorised on16/09/2013. Master planning conducted for the CCT's Bulk Water Supply System has projected that a new bulk water reservoir will be required by 2014 to augment

stressed sections of the System, and that a new water treatment plant and bulk conveyance will be required by 2016 to increase the overall treatment and conveyance capacity of the System. Timing of implementation is however dependent on demand growth and the impact of implementation of the City's Water Demand Management Strategy.

Due to increasing water demands within the Cape Metropolitan Area (CMA), and with new raw water supplies that became available upon completion of the Berg Water Project [BWAS Component 1], the CCT proposes to implement new infrastructure to increase the CCT's water treatment and bulk storage capacity and to increase the flexibility of the bulk water distribution network.

Furthermore, please note that for the proposed Amendment the development both the Cape-Winelands Integrated Development Plan (IDP) of the 5th Generation (2022/23– 20226/27) as well as the Cape Winelands Spatial Development Framework (2019-2024) identified Water Infrastructures as one of the focus areas to meet to current demand of basic services to the growing population.

4.2	The Integrated Development Plan of the local municipality.

The proposed Amendment to the authorised project is in line with the identified as priorities within the Integrated Development Plan. Please note that the EA was authorised on16/09/2013.

Due to increasing water demands within the Cape Metropolitan Area (CMA), and with new raw water supplies that became available upon completion of the Berg Water Project [BWAS Component 1], the CCT proposes to implement new infrastructure to increase the CCT's water treatment and bulk storage capacity and to increase the flexibility of the bulk water distribution network.

Furthermore, please note that for the proposed Amendment the development both the Cape-Winelands Integrated Development Plan (IDP) of the 5th Generation (2022/23

– 20226/27) as well as the Cape Winelands Spatial Development Framework (2019-2024) identified Water Infrastructures as one of the focus areas to meet to current demand of basic services to the growing population.

4.3.	The Spatial Development Framework of the local municipality.

The proposed amendment to the authorised project is located beyond the urban edge. Rural development and the provision of low-income housing are priorities for the Stellenbosch and Drakenstein Municipality. In this regard Klapmuts has been identified as one of the three growth nodes for the Stellenbosch Municipality. The land towards the west of Klapmuts (where the site is located) has been identified as suitable for urban development. This land has lower agricultural potential.

The Klapmuts Spatial Development Framework (SDF) was approved by Council in 2009. The key section in the Klapmuts SDF (2009) with reference to the Social Impact Assessment (SIA), specifically the proposed site, is the section on the urban edge. In terms of the Klapmuts SDF edge, portion 1, which forms the western most portion of the edge cuts across the area identified for the development.

The area occupied by the proposed site has therefore been identified as suitable for future urban growth, including residential development. The Stellenbosch Head Planner has indicated that an internal process is currently underway to contest the approval of certain elements of the approved SDF.

In addition, Klapmuts is identified as a future growth node in the Draft Stellenbosch Municipal SDF (2009).

Furthermore, please note that for the proposed Amendment the development both the Cape-Winelands Integrated Development Plan (IDP) of the 5th Generation (2022/23 – 20226/27) as well as the Cape Winelands Spatial Development Framework (2019-2024) identified Water Infrastructures as one of the focus areas to meet to current demand of basic services to the growing population.

4.4.	The Environmental Management Framework applicable to the area.

The Environmental Management Framework 2018 (Stellenbosch) highlights that mitigation measures should be applied as stipulated by specialists where necessary development will take place.

5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

During the previous EIA process, the Freshwater and Biodiversity specialists highlighted negative impacts on biodiversity and mitigation measures were provided and captured in the EMPr. For the proposed Amendments influence on biodiversity has been captured below by the appointed specialists:

The new access road and the relocation of the Wynland pipeline through the Reservoir site will affect a seasonal watercourse and its associated wetlands on the upper reaches of the Mosselbank River, identified as "Stream k" in Appendix 1 (Refer Specialist Report), and Aquatic Ecosystem 3 in the Water Use Licence Application Report for the Reservoir and infrastructure. (Refer to Appendix G). The additional mitigation measures have been captured in the updated EMPr.

No Faunal SoCC are expected to be resident in or dependant on habitat within the study area, but a few may pass through fairly regularly. Blue Crane (*Anthropoides paradiseus*; Vulnerable) is the most likely, and is fairly regularly observed in the area, and may even overnight in some of the farm dams nearby when there is water.

Development within the proposed areas would not result in loss of any mapped CBAs or ESAs in terms of the CoCT BioNet, but some of the Medium sensitivity areas in the south are part of the recently declared Damarakloof Conservation Area, a partnership between the City and the landowner.

6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

The WCBSP was utilised to determine the sensitivities associated with the site.The original EIA was completed in 2009, and updated in 2010, before several amendments to existing EIA legislation and the introduction of new legislation guiding the assessment of environmental impacts, specifically those affecting aquatic biodiversity. Since these amendments have been made in late 2022, all effort has been made to adhere to the current legislation. This assessment is guided by the gazetted "Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity" (Government Notice 370, March 2020), which replaces Appendix 6 of the EIA Regulations as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

Furthermore, vegetation and fauna in the study area were identified in a regional context, including its status in terms of the CoCT Biodiversity Network (CBA/ESA/ONA, etc), also making reference to the recent conservation area application (Damarakloof).

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

Not applicable.

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.

Not applicable.

9.	Explain how the proposed development will optimise vacant land available within an urban area.

Not applicable.

10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.

The existing entrance will be used to the property.
Phase 1 will be tying into the existing Wemmershoek pipeline and creating an additional 300ML of storage, and in Phase 2 new infrastructure will connect to the existing Berg River Dam and take some of the water to treat and add to the Wemmerhoek pipeline. This will create connectivity and resilience across the water supply network.

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).

All services as available as approved by the EA. Municipal water could also be sourced and will be determined by the contractor. Also refer to Appendix E23 – E25 as well as E.6.

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 Amendment Report as Appendix K.

The 'need and desirability' of the project is evaluated against the strategic context of the development proposal along with the broader societal needs and the public interest. According to the national Department of Environmental Affairs (DEA) Guideline on Need and Desirability (2017), the concept of 'need and desirability' relates to the nature, scale and location of development being proposed, as well as the wise use of land. The concept of 'need and desirability' can be explained in terms of the broader meaning of its two components, need primarily refers to time, and desirability refers to place. It is acknowledged that 'need and desirability' are interrelated and the two components collectively should be considered in an integrated and holistic manner. While the concept of 'need and desirability' relates to the type of development being proposed, essentially the concept can be equated to wise use of land and answering the question of what the most suitable use of land is. The principles of environmental management as set out in NEMA have been taken into account through the compliance with the requirements of the relevant legislation. The proposed Amendment is considered the most feasible and practical solution. Further to this, this Amendment Assessment Process Part 2 has considered all three aspects. The Amendment Assessment process has been applied to sequentially avoid, minimise or remedy disturbance to the ecosystem. The proposal activity applies a risk averse and cautious approach, which is included in the Environmental Management Programme (EMPr). The project has included a detailed Public Participation Process, allowing all stakeholders to comment on the proposal.
Please refer to Appendix K for the additional information on the need and desirability of the proposal.

7 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 E.22.

The proposed Public Participation Plan and is in accordance with Regulation 41 (2) of the NEMA regulations.

Landowner consultation: All landowners have been consulted by the proponent as an agreement regarding their land.

Relevant stakeholders who have been identified (Refer Appendix F) will be individually notified of the availability of the draft Amendment Report for comment. The initial database includes landowners, adjacent landowners, relevant district and local municipalities, relevant national government officials and organisations in the area. This database will be augmented via chain referral during the Amendment process and will be continually updated as new I&APs are identified throughout the project life cycle.

The following method of contact (as per correspondence from DEA&DP, dated 13 December 2022 (AnnexureL.5) will be used to inform the public, and interested and affected parties:

- *Registered interested and affected parties ("I&APs"), landowners, the ward councillor, and State Departments/organs of state will be notified via email.*
- *An advertisement will be placed in the local and provincial newspapers.*
- *Notices will be placed boards placed at visible locations at the site – location where the access road will turn off the R304.*
- *The draft Amendment Report will be placed on the website of Zutari*

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

The PPP is being undertaken as per the Application form, and this section will be updated once the comment period is completed. The PPP will be undertaken as per the DEA&DP letter dated 13 December 2022 (Appendix F

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

It is proposed that the following State Departments would be considered as part of the Amendment application and PPP process:

- National Department of Water and Sanitation
- Western Cape Government, Department of Environmental Affairs & Development Planning
- Western Cape Government, Department of Public Works
- Western Cape Government, Department of Agriculture
- Heritage Western Cape
- CapeNature
- Stellenbosch Local Municipality
- Drakenstein Local Municipality
- Municipality City of Cape Town (Applicant)

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.

Pending the outcome of the PPP

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.

Pending the outcome of the PPP

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 Amendment Report (if applicable and the draft Amendment Report 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).

8 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.		
Not applicable			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
Not applicable			
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.		
Not applicable			

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.		
FCG Consulting (The Freshwater Consulting Group) Me K Snaddon			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		

The presence of the following watercourses and wetlands has influenced the proposed amendment and mitigation measures have been proposed (FGC, 2023).

The new access road and the relocation of the Wynland pipeline through the Reservoir site will affect a seasonal watercourse and its associated wetlands on the upper reaches of the Mosselbank River, and Aquatic Ecosystem 3 in the Freshwater Report (Appendix G) for the Reservoir and infrastructure (Figure 2). The watercourse type – non-perennial upper foothill river in the Southwestern Coastal Ecoregion – is critically endangered and poorly protected. The wetlands include a West Coast Renosterveld seep at the upper end of the ecosystem (Figure 3), and a West Coast Renosterveld valley-bottom wetland at the lower end where the access road crosses, both of which are critically endangered, poorly protected wetland types.

The affected watercourse and wetlands arise in the vicinity of the proposed Muldersvlei Reservoir, and then flow in a westerly direction down a slope before going under the R304 and joining with the Mosselbank River. The watercourse arises as a fairly wide seep, with patches of *Cenchrus setaceus* but otherwise dominated by alien grasses such as *Lolium multiflorum* (ryegrass). The wetland spreads around and between a series of three small impoundments (Figure 4). The upper seep wetland is significantly impacted by the presence of the three impoundments, but the section of watercourse that leads down to the R304 is relatively unimpacted.

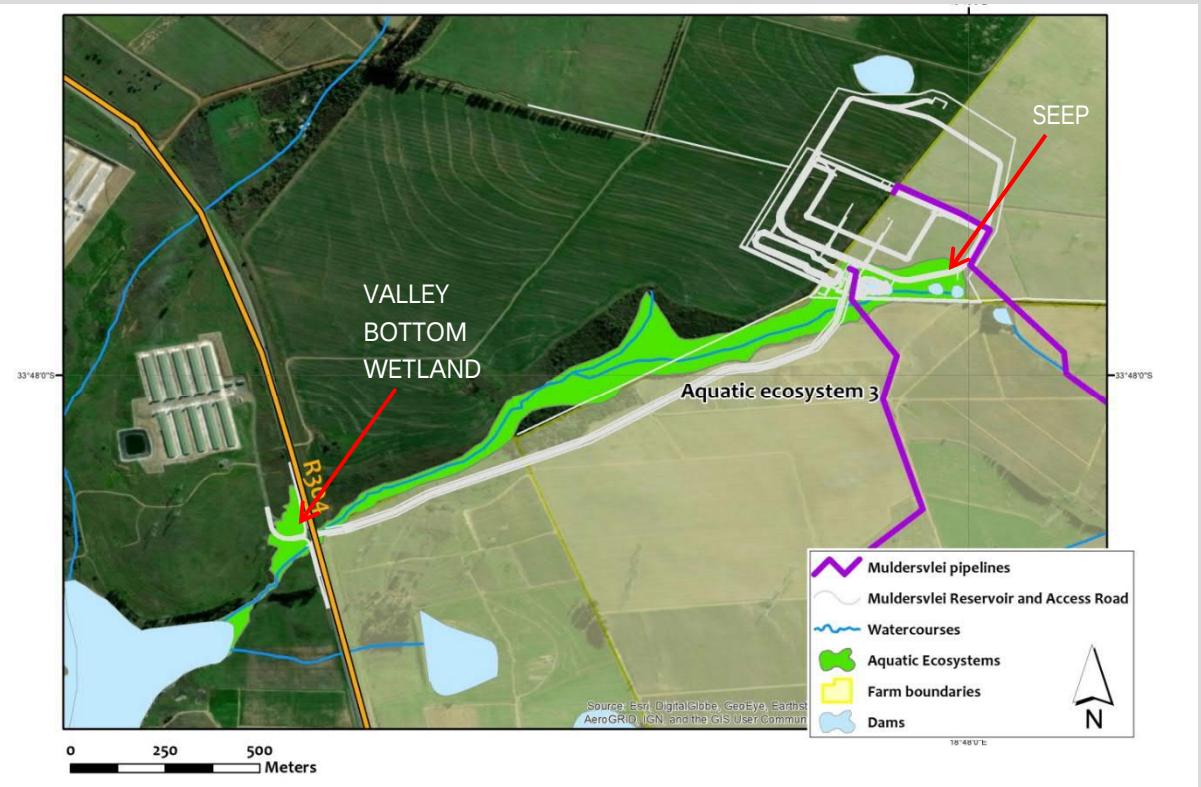

Figure 2 Aquatic Ecosystem 3 in relation to the proposed pipelines, access road, and Reservoir. A seep is located at the upper end of the ecosystem, and a valley-bottom wetland at the lower end, with a watercourse connecting the two.

Figure 3 View of Aquatic Ecosystem 3 from the upstream end in the vicinity of the proposed Reservoir and WTP, looking down the watercourse from the seep towards the R304.

Figure 4 One of the small farm dams in the seep at the upper end of Aquatic Ecosystem 3**.**

As the watercourse nears the R304, the wetland broadens into a valley-bottom wetland around the channel (Figure 5), which becomes incised, down to approximately 0.5m, before it passes under the road in a 1.8 x 1.5 m box culvert (Figure 6). Additional runoff from alongside the R304 also enters the channel on the up- and downstream sides of the road. Below the road the watercourse runs westwards in an unlined channel towards a farm dam (Figure 7).

It is likely that the valley-bottom wetland at the lower end of the ecosystem has been influenced by the roads in that area – water may accumulate against the obstruction of the roads, but also may be drained, due to the straightened

and deepened (incised) channel leading water away from the wetland. At the time of the spring 2022 site visit, masses of chincherinchees (*Ornithogalum thyrsoides*) were flowering in the wetland (Figure 8).

Soil samples taken in the seep wetland between the impoundments showed few indicators of soil wetness (Figure 5) and thus it is likely that this area around the impoundments is at most temporarily wet due to seepage from the dams. According to the delineation guideline, however, these still qualify as wetland soils.

Details of soil samples from the seep:

Depth	Soil colour chart: value/chroma	Mottles
0 – 10 cm	10YR:5/3	At 40 – 50 cm
10 – 30 cm	10YR: 5/3	At 40 – 50 cm
30 – 50 cm	10YR: 5/3	At 40 – 50 cm

Figure 5 View of Aquatic Ecosystem 3 from the downstream end, looking upstream at the valley-bottom wetland adjacent to the R304.

Figure 6 Culvert under the R304, carrying the watercourse (Aquatic Ecosystem 3) under the road.

Figure 7 Channelised watercourse as it runs downstream of the R304, towards a farm dam.

Figure 8 The common chink (*Ornithogalum thyrsoides*) flowering in the valley-bottom wetland below the R304 (Aquatic Ecosystem 3).

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.		
Not applicable			
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.		
Not applicable			
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
Not applicable			
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.		

4. Biodiversity

4.1.	Were specialist studies conducted?	YES	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
Nick Helme Botanical Surveys Mr Nick Helme			
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.		

The following systemic conservation planning and biodiversity tools were utilised:

- SANBI Vegetation Maps 2018;
- Terrestrial ecosystem threat status assessment 2018;
- Terrestrial Ecosystem Threat Status 2011;
- National Freshwater Ecosystem Priority Areas (NFEPA);
- Western Cape Biodiversity Spatial Plan (WCBSP, 2017;

The study area is part of the West Coast Renosterveld bioregion (Mucina & Rutherford 2006), and is part of the Fynbos biome, located within what is now known as the Core Region of the Greater Cape Floristic Region (GCFR; Manning & Goldblatt 2012). The GCFR is one of only six Floristic Regions in the world and is the only one largely confined to a single country (the Succulent Karoo component extends into southern Namibia). It is also by far the smallest floristic region, occupying only 0.2% of the world's land surface, and supporting about 11500 plant species, over half of all the plant species in South Africa (on 12% of the land area). At least 70% of all the species in the Cape region do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Many of the lowland habitats are under pressure from agriculture, urbanisation and alien plants, and thus many of the range restricted species are also under severe threat of extinction, as habitat is reduced to extremely small fragments. Data from the nationwide plant Red Listing project indicate that 67% of the threatened plant species in the country occur only in the southwestern Cape, and these total over 1800 species (Raimondo *et al* 2009). It should thus be clear that the southwestern Cape is a major national and global conservation priority and is quite unlike anywhere else in the country in terms of the number of threatened plant species (Helme, Addendum 2023).

The West Coast Renosterveld bioregion is characterised by moderate to relatively high winter rainfall, rich clay soils, rather low topographic diversity, and very high levels of cultivation. Due to this combination of factors the loss of natural vegetation in this bioregion has been extremely severe (>90% of original extent lost within the region), and the bioregion has an exceptionally high number of threatened plant species (Raimondo *et al* 2009). The lowland regions of the Cape metropole (stretching from Atlantis in the north, southeast to near Somerset West), generally known as the Cape Flats, are under enormous pressure, and the area has been described as a "conservation mega-disaster" (Rebelo *et al* 2011), in terms of the number of severely threatened plants (some already extinct) and habitats within the area. The study area lies on the eastern fringes of what is normally considered the "Cape Flats".

Surprisingly, the City of Cape Town's Biodiversity Network (Holmes *et al* 2016, 2018 update) indicates that no habitat remnants are present within the study area, with no CBAS (Critical Biodiversity Areas), Red Flags or areas of concern. No copy of this map is shown as it adds little value.

This specialist ecological Addendum report was requested to inform the environmental authorisation process being followed for the proposed access road to the new Muldersvlei bulk water reservoir, as well as a pipeline relocation, in the Joostenberg area of Cape Town, in the Western Cape. Three access road options were assessed in the botanical report of Helme (2010), including Option A, which was very similar to the new alternative here assessed. Helme (2010) identified an area of elevated botanical sensitivity within the current road study area, just south of the point where it joins the proposed pipeline relocation (Refer Figure 9).

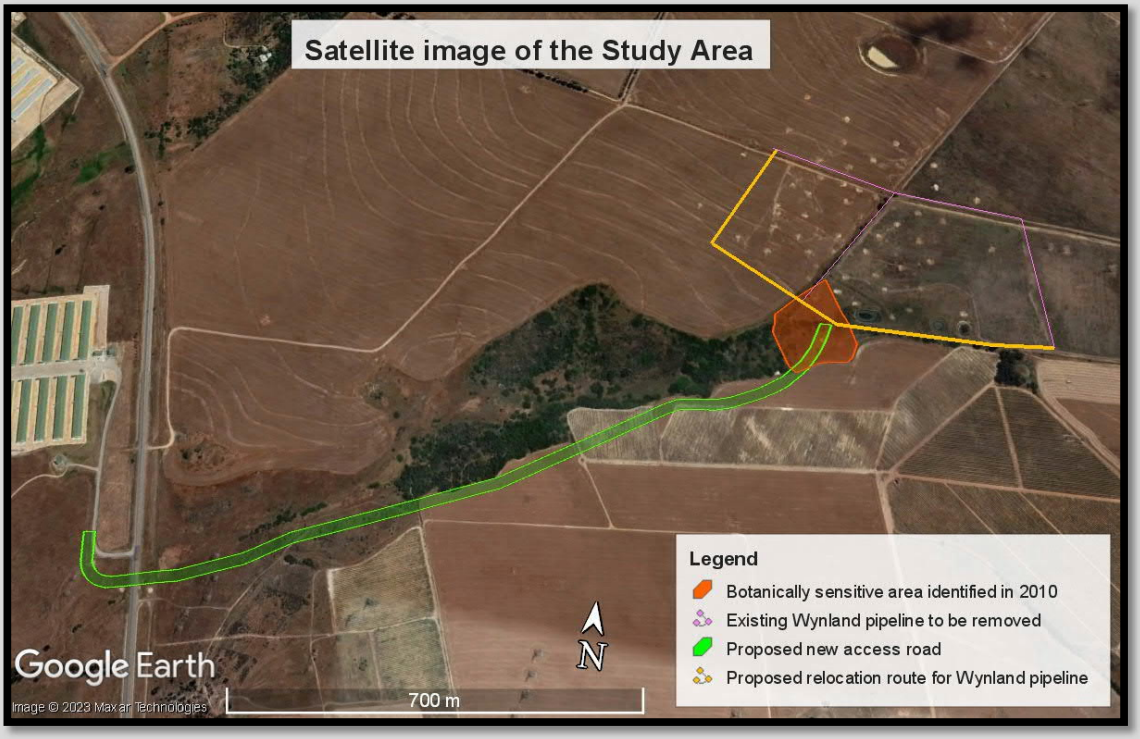

Figure 9 Satellite image of the study area

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.

The WCBSP's specific objectives are to:

- *Serve as the primary source of biodiversity information for all land use planning and decision-making in the Western Cape, to be used in conjunction with information from other sectors.*
  The WCBSP was used by the EAP and the specialists in considering the biodiversity information applicable to the property.
- *Ensure that the Western Cape's ecological infrastructure is maintained, ecosystem fragmentation and loss is avoided, and the resilience of ecosystems and human communities to the impacts of climate change is strengthened.*
  The Amendments have been identified as the best option as it will incur the lowest negative impact.
- *Provide a spatial framework for environmentally sustainable development and resource use.*
  The WCBSP was used to consider the development within geographic area.
- *Inform municipalities and other land use planners and regulators about spatial biodiversity priorities in order to promote the wise management of biodiversity, and to streamline and monitor land use decision-making.*
  The municipality has incorporated the WCBSP spatial data into their SDF.
- *Focus on-the-ground conservation and restoration action in biodiversity priority areas, thus supporting CapeNature in implementing its biodiversity mandate, including working with landowners to consolidate and expand the provincial protected area network.*
  The co-operation with landowners is critical, and the applicant is committed to ensuring that the properties retain its importance in conservation.
- *Mainstream biodiversity conservation into the daily activities of a range of development and production sectors whose primary business is not biodiversity conservation, thus promoting greater synergy between biodiversity conservation and development through implementation of the WCBSP.*
  Refer to the summary below.

The terms of reference for this Amendment Report were as follows:

- Undertake a site visit to assess the vegetation and fauna in the study area (the new road routing and the pipeline relocation area;)
- Identify and describe the vegetation and fauna in the study area and place it in a regional context, including its status in terms of the CoCT Biodiversity Network (CBA/ESA/ONA, etc), and making reference to the recent conservation area application (Damarakloof)
- Identify and locate any (likely) plant and animal Species of Conservation Concern in the study area, based on observation, literature and iNaturalist website review
- Provide an overview of the botanical and faunal conservation significance (sensitivity) of the new road routing and pipeline relocation area
- Identify and assess (according to standard IA methodology) the potential impacts of the project including impacts associated with the construction and operational phases, and compare this to the approved road routing
- Indicate the acceptability of the project proposal from a botanical and faunal perspective
- Identify and describe the potential cumulative impacts of the proposed development in relation to proposed and existing developments in the surrounding area
- Recommend mitigation measures to avoid and/or minimise impacts and/or optimise benefits associated with the proposed project.

This study was undertaken in accordance with the Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species and terrestrial biodiversity (Government Gazette 43855 & 43110) as and where possible, but it should be noted that the original assessment reports were done under ECA regulations. The associated Screening Tool has animal species as high sensitivity and plant species as medium sensitivity for most of the study area. It is assumed that all the vegetation and habitat within the proposed road corridor will be lost during the construction phase. The width of the likely disturbance corridor for the pipe installations and relocation was not provided, but is assumed to be about 5-6m, as not only will a trench be required, but digger access and temporary soil stockpiling will be required alongside.

4.5.	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.

According to the SA Vegetation Map the original natural vegetation in the study area is a mix of Swartland Granite Renosterveld and Swartland Shale Renosterveld (Mucina & Rutherford 2016; see Figure 10).

Swartland Shale Renosterveld is gazetted as a Critically Endangered habitat on a national basis (DEA 2011) and the latest study, as yet ungazetted, has supported this (Skowno *et al* 2019). Less than 9% of its total original extent remains intact, less than 1% is conserved, and the national conservation target is 26% (Mucina & Rutherford 2006). Primary threats to the habitat include cultivation, urban expansion and alien invasive vegetation. The unit is known to support a very large number of plant Species of Conservation Concern (Raimondo *et al* 2009). This unit occurs on loamy clay soils, and the topography is often relatively flat. This vegetation type needs fire for optimal ecological functioning (Helme *et al* 2016).

Swartland Granite Renosterveld is gazetted as a Critically Endangered habitat on a national basis (DEA 2011) and the latest study, as yet ungazetted, has downlisted this to Endangered (Skowno *et al* 2019). Less than 20% of its total original extent remains intact, less than 1% is conserved, and the national conservation target is 26% (Mucina & Rutherford 2006). Primary threats to the habitat include cultivation, urban expansion and alien invasive vegetation. The unit is also known to support a very large number of plant Species of Conservation Concern (Raimondo *et al* 2009), and occurs on loamy clay soils, and the topography is often slightly hillier than Shale Renosterveld. This vegetation type also needs fire for optimal ecological functioning (Helme *et al* 2016).

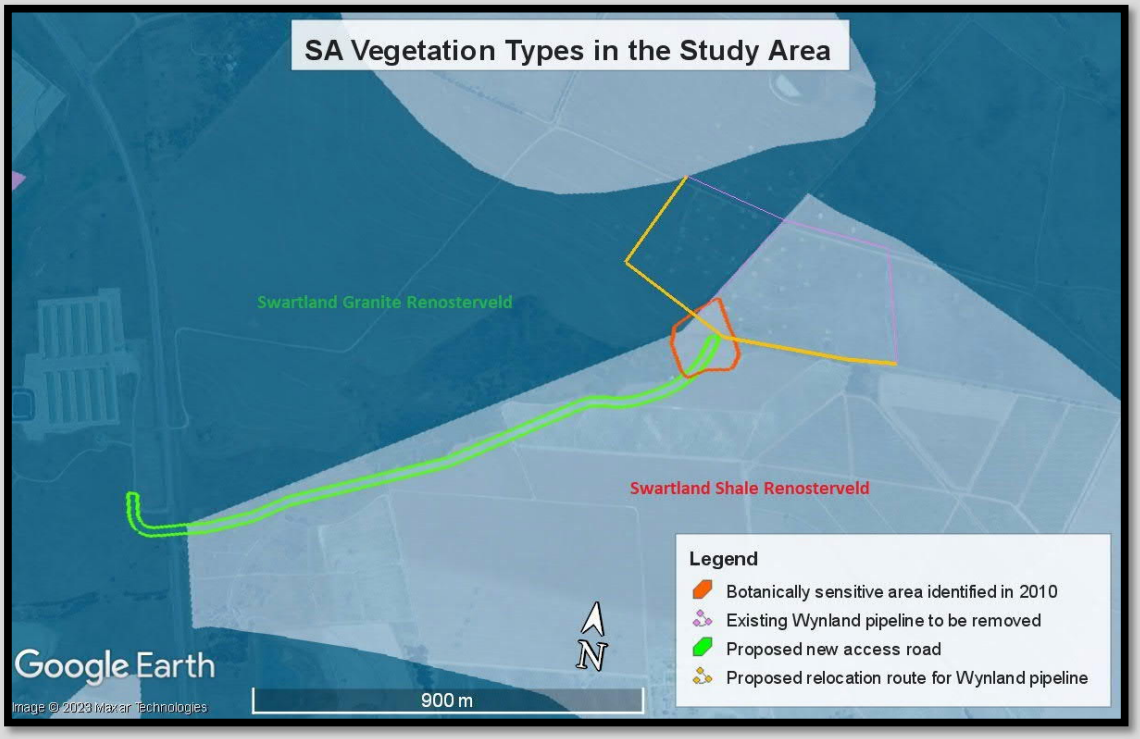

Figure 10 Extract of the SA Vegetation Map of the study area

Figure 11: View of the botanically sensitivity area, looking southwest from northern end of proposed new road route.

The proposed road would pass through the large alien black wattle (*Acacia mearnsii*) at right. And would essentially remove all vegetation to the right of the orange line, including a most of the High sensitivity area shown in blue (habitat of the Endangered shrub *Athanasia capitata*). The proposed relocation of the pipeline would pass through and disturb the area between the dam wall (at left) and the orange line.

Figure 12: View looking southwest from the northern end of the proposed new road route.

The road route would go through the large alien invasive *Acacia mearnsii* at left and then more or less follow the left hand (southern) edge of the drainage line.

Figure 13: Athanasia capitata

Athanasia capitata is an Endangered shrubby daisy species restricted to seasonally wet loamy soils in the southern Swartland, and a significant population of about 40 plants lies within the proposed road route where it crosses the drainage line.

Figure 14: Wild olive shrubs

Wild olive shrubs in previously disturbed areas in the southern part of the road corridor looking south towards the R304. This area is of Medium ecological sensitivity.

There is currently natural vegetation in only about 20% of the study area, with most areas either currently cultivated or being fallow lands that were previously cultivated at some time. In some areas these fallow areas have been undergoing natural rehabilitation over many decades, but it is still clear that they were previously cultivated, as plant diversity here is <15% of what it is in the adjacent uncultivated areas.

The Very High sensitivity area supports the highest plant diversity in the study area, Medium sensitivity areas support about 30-50% of the diversity in the Very High sensitivity areas, and the Low sensitivity areas are essentially cultivated or otherwise heavily degraded.

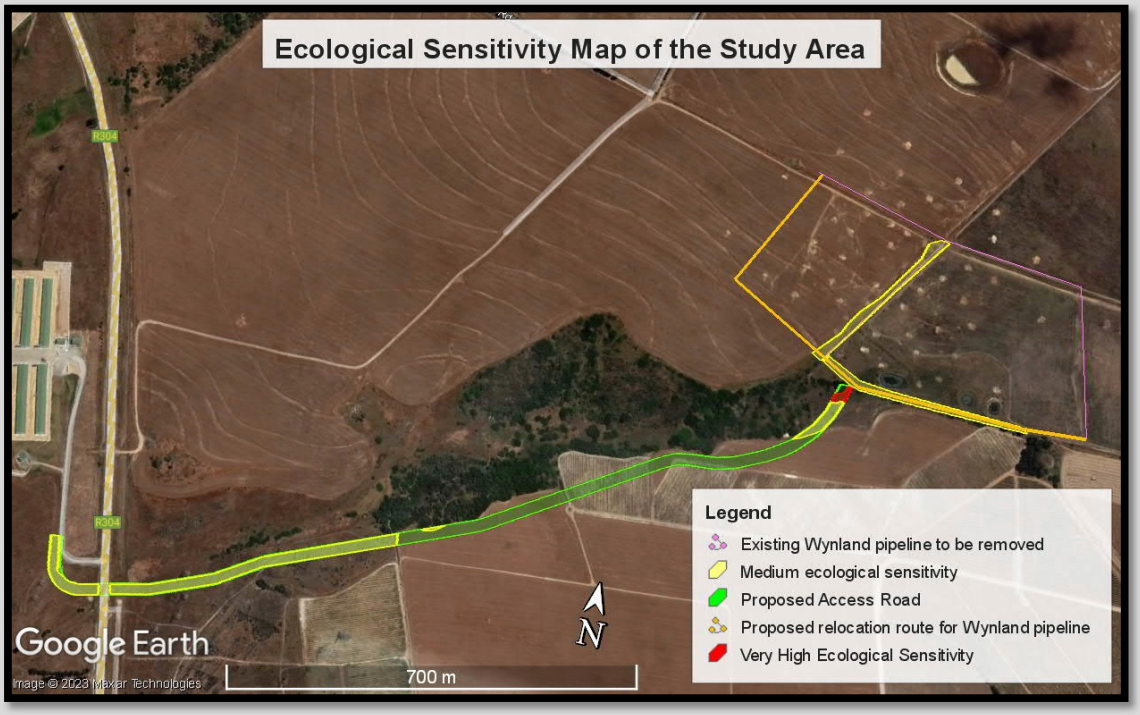

Figure 15: Ecological Sensitivity map of the study area

Areas within the study area that are not indicated as Medium or Very High sensitivity are of Low sensitivity. Note that extensive Very High sensitivity areas close to but outside the actual survey area have not been mapped.

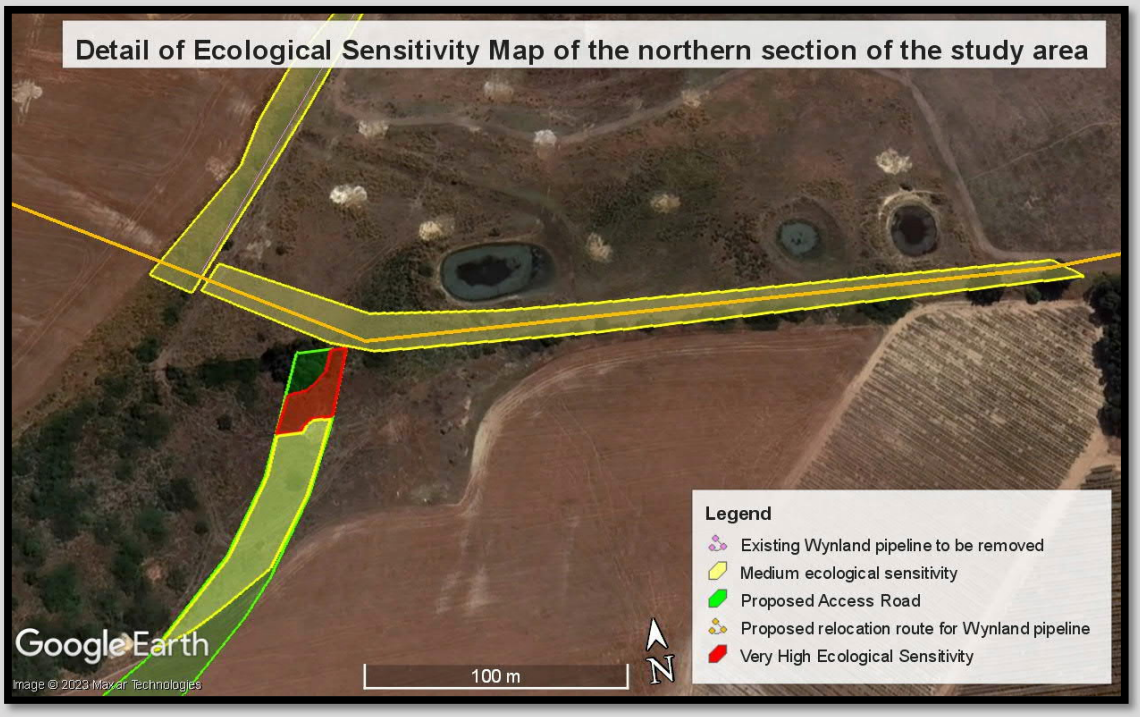

Figure 16 Zoomed in detail of the ecological sensitivity map of the northern part of the study area.

Low sensitivity areas are essentially cultivated (vines or cereals) or otherwise heavily degraded. A wide range of alien invasive species is present in these areas, including kikuyu grass (*Pennisetum clandestinum*), *Trifolium angustifolium,*

Plantago lanceolata (ribwort plantain), *Xanthium spinosum* (cocklebur), *Helminthotheca echioides, Echium plantagineum* (Patterson's curse), *Lolium* sp. (ryegrass), *Avena* sp. (oats) and *Bromus pectinatus* (ripgut brome). Current indigenous plant cover is generally low in these areas and varies widely from place to place (<10% to about 60% cover), made up of the following species: *Cynodon dactylon* (kweekgras; dominant), *Athanasia trifurcata* (klaaslouwsbos), *Arctotheca calendula* (Cape weed), *Ornithogalum thyrsoides* (chinkerinchee), *Senecio pterophorus* and *Senecio burchellii*. No plant of Species of Conservation Concern (SoCC) was recorded within the Low sensitivity areas on site, and none are likely, given the history of soil disturbance.

4.6.	If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.
N/A	
4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.
No Faunal SoCC are expected to be resident in or dependant on habitat within the study area, but a few may pass through regularly. Blue Crane (*Anthropoides paradiseus*; Vulnerable) is fairly regularly observed in the area and may even overnight in some of the farm dams nearby when there is water. Great White Pelican (*Pelecanus onocratalus*; Near Threatened) frequent the nearby chicken farms for scraps but are unlikely in the study area.	

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
No geographical aspects will be affected.

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.		
N/A Refer to the letter dated 5 December 2022 and the response from Heritage Western Cape on 8 December 2022 (Appendix E1).			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
	Refer to the letter dated 5 December 2022 and the response from Heritage Western Cape on 8 December 2022 (Appendix E1)		

7. Historical and Cultural Aspects

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.
A letter dated 8 December 2022 from Heritage Western Cape confirmed that the design changes are considered minor (Appendix E1).

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.

	Cape Town is a growing city and due to population and economic growth, it continues to experience a resultant growth of water demand. This growth necessitates increasing the raw water resources available to the City, as well as increasing the treatment, storage, and conveyance capacity of the City's water supply system to be able to continue supplying the growing water demand, particularly during peak demand periods during the hot dry summer months. The construction of the Berg River Dam and Supplement Scheme was completed in 2008, increasing the raw water resources available to the CCT by 81 million m^3 per annum. Additional bulk water supply infrastructure is now required to increase the water treatment, bulk storage, and conveyance capacity of the CCT's Bulk Water Supply System to ensure that this system can continue to supply water during peak demand periods. If this infrastructure (inclusive of the proposed amendments) is not implemented timeously, the risk of having to implement water restrictions in some areas or across the entire city of Cape Town during the peak water demand periods in the hot dry summer months will progressively increase. Master planning conducted for the CCT's Bulk Water Supply System has projected that a new bulk water reservoir will be required by 2014 to augment stressed sections of the System, and that a new water treatment plant and bulk conveyance will be required by 2016 to increase the overall treatment and conveyance capacity of the System. Timing of implementation is however dependent on demand growth and the impact of implementation of the City's Water Demand Management Strategy.
8.2.	Explain the socio-economic value/contribution of the proposed development.
The proposed amendment to the authorised project will result in positive outcomes and provide clean water to as a basic service to the community. The efficient and beneficial use of water in public interest is motivated by the need of the proposed reservoir in one of South Africa's most intensive winter rainfall farming districts where wine, fruit, wheat and livestock are produced. The region also supports mountain conservation/water catchment areas and has significant urban development with major road and rail transport routes traversing the area. More than 95% of the area that would be traversed by the infrastructure is designated as agricultural. The application for water supply is required by CCT to augment its bulk water supply system to meet future demands. The proposed infrastructure will also improve flexibility of the bulk water distribution system as well as the security of supply.	
8.3.	Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.
The existing approved development would have provided social benefit by means of temporary construction employment and longer-term employment for a limited number of people during the operational phase.	
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.
The proposed amendment to the authorised project will result in positive outcomes and provide clean water to as a basic service to the community. The efficient and beneficial use of water in public interest is motivated by the need of the proposed reservoir in one of South Africa's most intensive winter rainfall farming districts where wine, fruit, wheat and livestock are produced. The region also supports mountain conservation/water catchment areas and has significant urban development with major road and rail transport routes traversing the area. More than 95% of the area that would be traversed by the infrastructure is designated as agricultural. The application for water supply is required by CCT to augment its bulk water supply system to meet future demands. The proposed infrastructure will also improve flexibility of the bulk water distribution system as well as the security of supply.	

9 SECTION H: AMENDMENT, METHODOLOGY AND ASSESSMENT OF AMENDMENT

1. Details of the implementation of previous authorisation

1.1.	Was the activity commenced with during the validity period of the environmental authorisation? If yes, please describe the implementation of the previous environmental authorisation to date:

No, the activity has not been commenced with.

List the positive and negative impacts that the activity amendment will have on the environment.

Due to increasing water demands within the Cape Metropolitan Area (CMA), and with new raw water supplies that became available upon completion of the Berg Water Project [BWAS Component 1], the CCT proposes to implement new infrastructure to increase the CCT's water treatment and bulk storage capacity and to increase the flexibility of the bulk water distribution network. Therefore, a potable water treatment plant (WTP), reservoir and pipelines (are required by the CCT to augment its bulk water supply system.

The objectives are:

- Optimise the operation of the existing bulk water supply system;
- Assist with the maximisation of existing and future water resources;
- Assist in making optimal decisions where constraints on the bulk water supply system necessitate;
- Operational changes; and
- Assist in the planning and optimisation of future capital works.

In doing the above the environment will experience a positive impact due to optimizing the water resource for the community.

Provide a description of the proposed amendment

Below is a concise summary of the proposed amendments. Please also refer to the Application Form for the various technical details and figures in Appendix O.

1.1 Amendments to Access Road Corridor:

Approval for the access road was granted for a 20m road reserve and a 9.5m surfaced roadway. Approval was granted on a preliminary route for the access road which has since, due to existing infrastructure and the natural topography, been refined. Based on the refined route, an amendment is requested for the access road.

This amendment application is therefore applying to amend the alignment of the preliminary access route approved through the 2012 EIA Report.

Motivation

Amendments to Access Road Corridor:

1. The intersection with the R304 was shifted to allow for a perpendicular connection between the access road and the R304 as per Western Cape Provincial Government: Department Transport and Public Works requirements.
2. The City of Cape Town agreed to relocate the existing access road to County Fair on the eastern side of the R304. This will result in a single intersection for both access roads which will result in a significant improvement in the road safety. This was also a requirement from Western Cape Provincial Government: Department Transport and Public Works. County Fair has also given consent for the relocation of their access road as per attached documentation.
3. The access road alignment had to be adjusted for the first 100m after the intersection for the road to navigate through the existing Eskom pylons as safely as possible. The current alignment provides optimal clearances from the pylons and thus minimising the impact on Eskom and improving the safety through which vehicles can travel through the pylons.
4. Other minor refinements to the access road were required to minimise the vertical slopes and provide improved sight distance for users of the access road. These changes are required to improve the road safety.

1.2 Amendments to the Construction Phase EMP:

The following amendments to the Construction Phase Environmental Management Programme (cEMP) are proposed:

Environmental Specification 23 on page 69

1. The second sentence of the first bullet after the interleading works "*in order to protect the County Fair farm, the following measures shall be implemented*" shall be replaced with the following "*in the event of any repairs to a breakage in the pipeline being required, such repair shall be effected on the same but in the event of a breakage occurring in the late afternoon, such repairs shall be effected by 09h00 on the next day.*"
2. The expression "*n-go zone*" in the second bullet shall be changed to read "*no-go zone*".
3. In the second line of the third last bullet, the words "*our client's property*" shall be replaced with "*County Fair's property*".

Motivation

A letter was sent by Edward Nathan Sonnenbergs (ENS) Inc. (representing County Fair farms) on 31 October 2022 and was received by Zutari Pty Ltd., and the letter indicated that a previous letter, dated 17 August 2012, was submitted to the previous consultants on the project to affect the above amendment to the cEMP and these amendments were not implemented

1.3 Wynland pipeline relocation amendment:

There is an existing pipeline from Wynland Water that is routed through the proposed reservoir and water treatment plant site. This pipeline must be relocated before the construction of the reservoir can commence.

Motivation:

Due to the incoming pipelines, there is a corridor of 70m that has been assessed (of the 100m of the red rectangle) leaving only 30m of unassessed area. However, access Road Option C, which was the eastern most entry to the reservoir, has a buffer of assessment (at least 20m) that has been assessed for impacts.

1. The proposed new pipeline route was selected so as to stay within the boundaries of the City of Cape Town's property as far as possible. Where the pipeline could not be retained in the City's property, the pipeline runs through the authorised design corridors for the DN1525 incoming pipeline and the DN1700 raw water pipeline. This approach was adopted to ensure the pipeline is routed, as far as possible, within previously assessed areas.
2. Wynland Water agreed to the proposed relocation route.
3. The affected landowner on farm portion 2/719 has provided consent for the proposed relocation route.
4. The new pipeline will have a diameter of only 160mm. Where it is not within City of Cape Town property, the servitude will be limited to 4m wide corridor, or a right-of-way agreement will be concluded with the landowner.

2. "No-Go" areas

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

Freshwater:

Table 3 Freshwater buffers

Buffer attributes	Buffer details	
	Aq ecosystem 3 – wetlands	Aq ecosystem 3 – watercourse
Slope of the buffer	Very gentle	Very gentle
Vegetation characteristics (Construction phase)	Dense vegetation with good basal cover	Dense vegetation with good basal cover
Vegetation characteristics (Operational phase)	Dense vegetation with good basal cover	Dense vegetation with good basal cover
Soil permeability	Moderately low	Moderately low
Topography of the buffer zone	Dominantly uniform	Dominantly uniform
Construction Phase Buffer	15m	15m
Operational Phase Buffer	15m	15m

1. Pathways and temporary access roads must be routed around the wetlands and should cross drainage channels as seldom as possible. Sensitive areas must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. Sensitive areas must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. These are no-go areas during the construction process.
2. The sensitive areas (i.e. the edges of the buffers around the wetlands, watercourses) not affected by construction must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. These are no-go areas during the construction process, except where work is occurring.

3. Ideally, alignment of the pipelines and access road should attempt to avoid wetlands and watercourses and their ecological buffers. This mitigation measure is not considered a reality, as the layout provided for this assessment is assumed to be final. In all instances, the recommended minimum buffer for the affected aquatic ecosystems is 15m, for both the construction and operational phases, assuming that the vegetation cover currently observed surrounding these ecosystems is maintained or rehabilitated.

Biodiversity

An area of about 300m² in the northern tip of the proposed access road corridor is deemed to be of Very High botanical sensitivity and is the only part of the study area of Very High sensitivity. Note that extensive Very High sensitivity areas close to but outside the actual survey area have not been mapped. This is an undisturbed, seasonally wet area that supports the only population (estimated 30-50 plants) of the Endangered daisy *Athanasia capitata* within the study area. The species is present in various other patches within this same drainage line, and the total population within about 150m of the study area is likely to be about 150-200 plants (pers. obs.). This species, being a deep-rooted shrub, is not likely to survive translocation attempts. There may be as many as 8 other plant SoCC in this area, but these are probably seasonally evident bulbs, that would not have been evident or identifiable during the January survey. Seasonally evident plant SoCC that have been recorded nearby in the same drainage line (see inaturalist.org) and that could be present within the Very High sensitivity area include *Gladiolus watsonioides* (Near Threatened), *Babiana odorata* (Endangered), *B. angustifolia* (Near Threatened), *Geissorhiza purpureolutea* (Near Threatened), *Eriospermum capense ssp. stoloniferum* (Vulnerable), *Oxalis strigosa* (Endangered), *Wachendorfia brachyandra* (Vulnerable), *Codonorhiza azurea* (Endangered) and *Pelargonium ternifolium* (Near Threatened).

Please note that applicant agreed to the following mitigation measures:

1. *Relocation of the Endangered plant species recorded in the Very High sensitivity is not the first choice, as the adult plants are very unlikely to survive, but an attempt should be made to take seed (in April/May) and cuttings (April/May), and an effort must be to translocate all the live plants (April/May) of Athanasia capitata from within the approved development footprint to nearby similar but secure habitat. As the Medium and Very High sensitivity habitat may support various other plant SoCC the CoCT Environmental Management Branch staff should undertake Search and Rescue in the approved development footprints on at least two occasions in the appropriate seasons (July – late September) prior to any earthmoving on site.*
2. *The applicant (CoCT Bulk Water) must provide all necessary funding for all the required mitigation (including ongoing site management), and must transfer management responsibility and al necessary funding for the 5.5ha conservation area to the CoCT Environmental Management Branch, within three months of any project approval.*
3. *The 1ha of currently cultivated or fallow area north of the road that has been expropriated must be rehabilitated to local indigenous Renosterveld vegetation as soon as possible, and should form part of the main drainage line conservation area.*
4. *During construction an ECO must ensure that no animals are trapped in the construction and pipeline trenches, and remove any that are. These should be checked every morning before work starts. Trenches should be infilled as soon as possible.*

Positive impacts could come about at the operational phase, through implementation of the required mitigation, which includes ongoing ecological management of the 4.5ha of currently natural vegetation expropriated by the City in this area (north of proposed road), as well as about 1ha of currently cultivated or fallow land that will be rehabilitated (also north of proposed road). These positive ecological impacts would go some way to balancing out the negative ecological impacts of the construction phase, so that the overall, mitigated impact of the proposd development is reduced to an acceptable Low negative level.

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

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 amendments/ 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.
Assessment Methodology The assessment of the significance of impacts for a proposed development is by its nature, a matter of judgement. To deal with the uncertainty associated with judgement and ensure repeatable results, Zutari rates impacts using a standardised and internationally recognised methodology adhering to ISO 14001 and World Bank/International Finance Corporation (IFC) requirements. This section outlines the proposed method for assessing the significance of the potential environmental impacts. For each predicted impact, criteria are ascribed, and these include the intensity (size or degree scale), which also includes the type of impact, being either a positive or negative impact; the duration (temporal scale); and the extent (spatial scale), as well as the probability (likelihood). The methodology is quantitative, whereby professional judgement is used to identify a rating for each criterion based on a seven-point scale (refer to Table 4); and the significance is auto-generated using a spreadsheet through

application of the calculations. The assessment methodology is adopted by all specialists working on the project to ensure a standardised method of assessment across all disciplines. Where specialist require finer scale ratings or disagree with the auto-calculated impact significance rating, they can comment.

Calculations

For each predicted impact, certain criteria are applied to establish the likely significance of the impact, firstly in the case of no mitigation being applied and then with the most effective mitigation measure(s) in place.

These criteria include the intensity (size or degree scale), which also includes the nature of impact, being either a positive or negative impact; the duration (temporal scale); and the extent (spatial scale). These numerical ratings are used in an equation whereby the consequence of the impact can be calculated. Consequence is calculated as follows:

Consequence = type x (intensity + duration + extent)

To calculate the significance of an impact, the probability (or likelihood) of that impact occurring is applied to the consequence.

Significance = consequence x probability

Depending on the numerical result, the impact would fall into a significance category as negligible, minor, moderate or major, and the type would be either positive or negative.

Table 4 Assessment criteria for the evaluation of impacts.

Criteria	Numeric Rating	Category	Description
Duration	1	Immediate	Impact will self-remedy immediately
	2	Brief	Impact will not last longer than 1 year
	3	Short term	Impact will last between 1 and 5 years
	4	Medium term	Impact will last between 5 and 10 years
	5	Long term	Impact will last between 10 and 15 years
	6	On-going	Impact will last between 15 and 20 years
	7	Permanent	Impact may be permanent, or in excess of 20 years
Extent	1	Very limited	Limited to specific isolated parts of the site
	2	Limited	Limited to the site and its immediate surroundings
	3	Local	Extending across the site and to nearby settlements
	4	Municipal area	Impacts felt at a municipal level
	5	Regional	Impacts felt at a regional level
	6	National	Impacts felt at a national level
	7	International	Impacts felt at an international level
Intensity	1	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
	2	Very low	Natural and/ or social functions and/ or processes are slightly altered
	3	Low	Natural and/ or social functions and/ or processes are somewhat altered
	4	Moderate	Natural and/ or social functions and/ or processes are moderately altered
	5	High	Natural and/ or social functions and/ or processes are notably altered
	6	Very high	Natural and/ or social functions and/ or processes are majorly altered
	7	Extremely high	Natural and/ or social functions and/ or processes are severely altered
Probability	1	Highly unlikely / None	Expected never to happen

	2	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
	3	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
	4	Probable	Has occurred here or elsewhere and could therefore occur
	5	Likely	The impact may occur
	6	Almost certain / Highly probable	It is most likely that the impact will occur
	7	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur

When assessing impacts, broader considerations are also considered. These include the level of confidence in the assessment rating; the reversibility of the impact; and the irreplaceability of the resource as set out in Tables 5-7, respectively.

Table 5 Definition of confidence ratings.

Category	Description
Low	Judgement is based on intuition
Medium	Determination is based on common sense and general knowledge
High	Substantive supportive data exists to verify the assessment

Table 6 Definition of reversibility ratings.

Category	Description
Low	The affected environment will not be able to recover from the impact - permanently modified
Medium	The affected environment will only recover from the impact with significant intervention
High	The affected environmental will be able to recover from the impact

Table 7 Definition of irreplaceability ratings.

Category	Description
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere
High	The resource is irreparably damaged and is not represented elsewhere

4. Assessment of each impact and risk identified for the amendments

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 Amendment Report.

Impact Assessments for the proposed Amendment

Please not the following:

- Biodiversity and Freshwater Impact Studies were completed for this development
- The impact tables below summarise the impacts
- A NID was compiled for the Heritage impact, but no further studies were required
- An Animal and Plant statement was obtained from specialist as per the requirements of the Screening Tool (Refer Appendix G)

PLANNING, DESIGN and CONSTRUCTION PHASE

1. Freshwater Impact Assessment

The mitigation measures provided below should be incorporated into Method Statements, which can then be added to the existing authorised Construction Environmental Management Programme (CEMPr) and audited throughout the construction process. An adequately qualified independent environmental control officer (ECO) must be appointed before construction begins.

Table 8: Construction: Road and pipeline crossings over wetlands and watercourses

Project phase	Construction			
Impact	Road and pipeline crossings over wetlands and watercourses			
Description of impact	Crossings may lead to loss of wetland, riverine and / or riparian habitat.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• Where the pipe comes close to (< 30m) a wetland or watercourse, the specifications for the pipe trenches should aim to minimise the footprint of construction (e.g. the shallower the pipe, the narrower the disturbed area). • Sensitive ecosystems must be demarcated prior to any construction activities, so that these can be avoided, unless construction is taking place within the boundaries of a wetland or watercourse. • Removal of indigenous vegetation should be kept to a minimum, and refilled trenches must be rehabilitated after construction. Refer to Section 8.9 for rehabilitation plan and guidelines (Note: Areas under cultivation where the Wynland pipeline is removed can be returned to cultivation). • Where the access road will be re-aligned through the valley-bottom wetland in lower Aquatic Ecosystem 3, the old road footprint (current access road to County Fair) must be rehabilitated, to the guidelines provided. A total of 1636m2 of wetland and 700m2 of riparian habitat will be lost, and 1119m2 gained. Additional rehabilitation of the wetland (such as shaping of the erosion gullies in the wetland) and watercourse (such as stabilising erosion and re-planting with indigenous plant species) will achieve the balance required, such that there will be no residual loss.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Low	The affected environment will not be able to recover from the impact - permanently modified
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce

Significance	Moderate - negative	Negligible - negative

Table 9: Bulldozing and blasting of watercourses and wetlands

Project phase	Construction			
Impact	Bulldozing and blasting of watercourses and wetlands			
Description of impact	This will be necessary for the preparation of sites within the wetlands and watercourses for construction of the road and the relocation of the Wynland pipeline. This may lead to erosion and sedimentation and loss or deterioration of wetland and riverine habitat.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• The specifications for the relocated pipe trenches should aim to minimise the footprint of construction (e.g. the shallower the pipe, the narrower the disturbed area) where the pipe comes close to (< 30m) a wetland or watercourse, and sensitive ecosystems should be demarcated prior to any construction activities, so that these can be avoided, wherever possible. • Special care should be taken around storm and heavy rain events. The construction sites should be inspected for erosion damage at these times. • Consideration should be given at the design phase to remedial shaping of banks to their near-natural slope, geomorphological and bed characteristics and re-vegetated after clean-up. • Banks and slopes should be re-vegetated after construction is completed. A detailed planting plan should be developed, in consultation with a landscaper and ecologist. • If construction areas are to be pumped of water (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural aquatic ecosystem.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Minor - negative	

Table 10: Construction activities within the watercourse and wetlands

Project phase	Construction
Impact	Construction activities within the watercourse and wetlands

Description of impact	This may lead to loss of connectivity and deterioration of habitat through disruption of flow regime leading to nutrient / sediment build-up and eutrophication.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• Disruption of flow should be kept to a minimum, but where necessary, temporary diversion measures should allow flushing of the system to prevent build-up of material. • Diversion techniques should take measures to limit erosion from temporary channels into watercourses or wetlands. • No obstructions to flow shall remain in the watercourses or wetlands after construction is completed. • Temporary diversion channels must be rehabilitated.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Immediate	Impact will self-remedy immediately
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	

Table 11: Storage of building materials (sand, soil, bricks etc) in sensitive areas

Project phase	Construction	
Impact	Storage of building materials (sand, soil, bricks etc) in sensitive areas	
Description of impact	This could damage the soil structure, and would destroy or shade out plants growing in and around these ecosystems. Dump areas frequently lead to the compaction of soils, which can influence re-growth of plants. Invasive alien plants frequently take advantage of disturbed areas such as these.	
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	• All building materials must be stored away (at least 15m) from all aquatic ecosystems and the areas bunded appropriately such that there will be no runoff from these areas towards aquatic systems. All building materials should be removed after construction. • Materials should be stored in piles that do not exceed 1.5m in height and should be protected from the wind, to prevent spread of fine materials across the site. • Sensitive areas that are impacted by the dumping or storage of materials must be ripped and re-planted after construction is complete. • The pipeline contractor should work the relocated Wynland pipeline route in sections, backfilling as they go, which will reduce the width of disturbed area – i.e. it is not as necessary to spread the spoil wide, if it can spread along a greater length.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to specific isolated parts of the site	Very limited	Limited to specific isolated parts of the site
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	

Table 12: Spillage of building materials and oil / fuel, and seepage of pollutants from stockpiles

Project phase	Construction	
Impact	Spillage of building materials and oil / fuel, and seepage of pollutants from stockpiles	
Description of impact	This may lead to deterioration in wetland and riverine habitat and water quality. Due to the fact that the wetlands and watercourses are all seasonal to ephemeral, with little or no inundation in summer and flushing only in winter, it is likely that pollutants could accumulate and persist for some time.	
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	• Washing of vehicles and machinery should take place well away (50m) from aquatic ecosystems. • Machinery prone to oil or fuel leakage must be located at least 50m away from any aquatic ecosystem, and the area adequately bunded in order to contain leakages. • Water pumps and cement mixers shall have drip trays to contain oil and fuel leaks – these must be cleaned regularly. • Concrete batching must be done well away from (50m minimum) from all sensitive environments. • All machinery should be regularly checked for leaks. • Suitable toilet and wash facilities must be provided to avoid the use of sensitive areas for these activities. These service areas must be maintained, and toilets emptied on at least a weekly basis. • If construction areas are to be pumped of water (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural ecosystem.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are notably altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	

Table 13: Foot and vehicular traffic across and onto construction sites.

Project phase	Construction	
Impact	Foot and vehicular traffic across and onto construction sites.	
Description of impact	This can lead to the destruction or deterioration of freshwater habitat as a result of damage to soils and vegetation. Regular use of a particular area will lead to the compaction of soils.	
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	• Pathways and temporary access roads must be routed around the wetlands and should cross drainage channels as seldom as possible. • Sensitive areas must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. These are no-go areas during the construction process. • Affected areas must be ripped and re-planted after construction, according to the specifications set out in the CEMPr, and to the satisfaction of the ECO.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Immediate	Impact will self-remedy immediately
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	

Table 14: Presence of construction teams and their machinery close to wetlands and watercourses**.**

Project phase	Construction			
Impact	Presence of construction teams and their machinery close to wetlands and watercourses.			
Description of impact	The noise and light pollution associated with construction activities may disturb freshwater fauna and flora.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• The construction sites and pathways must avoid sensitive areas. If lights are used, these must be directed away from all sensitive areas. • The sensitive areas (i.e. the edges of the buffers around the wetlands, watercourses) not affected by construction must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. These are no-go areas during the construction process, except where work is occurring.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years

Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	

Table 15: Soils brought onto the sites for filling and landscaping

Project phase	Construction			
Impact	Soils brought onto the sites for filling and landscaping			
Description of impact	Where in situ top soils (i.e. top 20 cm of soil) are insufficient, soils brought onto the sites for filling and landscaping can contain alien or invasive seedbanks.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• In situ soils must preferably be used for rehabilitation of construction sites. • Where in situ soils are insufficient, top soils used after construction must be bought from reliable sources, and must be free of alien seeds or grass runners. • Constant monitoring of the construction sites by the Site Engineer and ECO must occur, and all alien plant species removed from or destroyed on the site.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Medium term	Impact will last between 5 and 10 years	Brief	Impact will not last longer than 1 year
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are notably altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention

Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	

Table 16 Summary table for construction phase impact associated with the loss of vegetation in the three main project areas.

Development Component	Extent of impact	Duration of impact	Intensity	Probability of occurrence	Degree of confidence	Significance before mitigation	Significance after mitigation
New road access	Local, site	Permanent	High	Definite	High	[4]High -ve	Medium -ve
Removal of existing pipelines	Local, site	Permanent	High	Definite	High	Low -ve	Low -ve
New pipeline	Local, site	Permanent	High	Definite	High	Medium -ve	Medium -ve

Table 17. Summary table for construction phase impact associated with the loss of faunal habitat and species in the three main project areas.

Development Component	Extent of impact	Duration of impact	Intensity	Probability of occurrence	Degree of confidence	Significance before mitigation	Significance after mitigation
New road access	Local, site	Permanent	High	Definite	High	Low to Medium -ve	Low to Medium -ve
Removal of existing pipelines	Local, site	Permanent	High	Definite	High	Low -ve	Low -ve
New pipeline	Local, site	Permanent	High	Definite	High	Low to Medium -ve	Low to Medium -ve

OPERATIONAL PHASE

[4] During the construction phase the impacts with mitigation will be of medium negative significance but positive impacts could come about at the operational phase, through implementation of the required mitigation, which includes ongoing ecological management of the 4.5ha of currently natural vegetation expropriated by the City in this area (north of proposed road), as well as about 1ha of currently cultivated or fallow land that will be rehabilitated (also north of proposed road). These positive ecological impacts would go some way to balancing out the negative ecological impacts of the construction phase, so that the overall, mitigated impact of the proposed development is reduced to an acceptable Low negative level.

Table 18: Crossings of road and pipeline over wetlands and watercourses

Project phase	Operation			
Impact	Crossings of road and pipeline over wetlands and watercourses			
Description of impact	Crossings can lead to the loss of surface flow connectivity at pipeline and road crossings or erosion within impacted ecosystems.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• The potential interception and transfer of subsurface water by the drainage- and bedding material under and around inclined pipes should be inhibited with cut-off barriers perpendicular to the longitudinal profile of the trench (for example, 0.3m thick bentonite). The barriers should be spaced at 24m intervals and extend a minimum of 0.5m past the sides of the trench profile, and up to rock level or a minimum of 0.5m deeper than the trench bottom (whichever comes first). • At all road crossings over aquatic ecosystem 3, the natural surface flow of water should be accommodated in several pipes or wide culverts, in order ensure that flow is not concentrated downstream of the crossings. • The impacted footprint of the pipeline and road should be kept to a minimum in close (< 30m) proximity to all wetlands and watercourses, e.g. by reducing the depth to which the pipes are laid, where possible. • Mowing or clearing of the pipeline or road servitudes of vegetation must be kept to a minimum.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	On-going	Impact will last between 15 and 20 years	On-going	Impact will last between 15 and 20 years
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are notably altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	

Table 19: Increased discharge of stormwater off the access road

Project phase	Operation	
Impact	Increased discharge of stormwater off the access road	
Description of impact	This may lead to the loss or deterioration of aquatic habitat through ongoing erosion and sedimentation.	
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts

Potential mitigation	• The geomorphological characteristics (shape, gradient, slopes) of the impacted ecosystems must be re-instated after construction – this will reduce the likelihood of increased erosion or sedimentation. • If it is necessary to stabilise the watercourse or wetland bed or banks with gabions or rip rap, these should be kept to a minimum, and should be done in an ecologically sensitive manner. For example, gabions could be top-soiled to allow for the establishment of vegetation, which would also serve the purpose of reducing erosion.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	On-going	Impact will last between 15 and 20 years	On-going	Impact will last between 15 and 20 years
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Low	Judgement is based on intuition
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Low	The affected environment will not be able to recover from the impact - permanently modified
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Moderate - negative		Negligible - negative	

Table 20: Regular removal or mowing of indigenous vegetation along pipeline and road servitudes

Project phase	Operation			
Impact	Regular removal or mowing of indigenous vegetation along pipeline and road servitudes			
Description of impact	This may lead to deterioration in wetland and riverine habitat through loss of indigenous vegetation.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• Mowing should not be more frequently than annually. • Vegetation within the pipeline servitudes should be allowed to recover (in some cases, re-planted), within the constraints of ongoing maintenance of the pipeline. • Ongoing monitoring of the pipeline and WTP site and associated infrastructure should be implemented (part of the ongoing EMP) in order to ensure that exotic plant species are not introduced or become established due to the disturbance.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	On-going	Impact will last between 15 and 20 years	On-going	Impact will last between 15 and 20 years

Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Likely	The impact may occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	

Biodiversity

Operational phase botanical impacts are likely to be no more than Low negative and are primarily fairly minor additional invasive alien plant invasion caused by the associated soil disturbance.

The road will have a minor negative impact on the current levels of ecological linkage through to the surrounding areas, but as the road will still be ecologically permeable (faunal and botanical), and operational phase traffic (impact on fauna, via possible roadkill) should be minimal these impacts are likely to be of Low negative significance at a regional scale.

Table 21: Biodiversity impact during operational phase

Development Component	Extent of impact	Duration of impact	Intensity	Probability of occurrence	Degree of confidence	Significance before mitigation	Significance after mitigation
New road access	Local, site	Permanent	Low	Likely	High	Low -ve	Low -ve
Removal of existing pipelines	Local, site	Temporary	Low	Low	Medium	Very Low -ve	Very Low -ve
New pipeline	Local, site	Long term	Low	Likely	High	Low -ve	Low -ve

CUMULATIVE IMPACT ASSESSMENT CONSTRUCTION PHASE

Freshwater Impact Assessment

Cumulative impacts were considered and took into account the Phase 1 and Phase 2 development of the Muldersvlei Reservoir and WTP.

Table 22: Road and pipeline crossings over wetlands and watercourses

Project phase	Construction			
Impact	Road and pipeline crossings over wetlands and watercourses			
Description of impact	Crossings may lead to loss of wetland, riverine and / or riparian habitat.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• Where the pipe comes close to (< 30m) a wetland or watercourse, the specifications for the pipe trenches should aim to minimise the footprint of construction (e.g. the shallower the pipe, the narrower the disturbed area). • Sensitive ecosystems must be demarcated prior to any construction activities, so that these can be avoided, unless construction is taking place within the boundaries of a wetland or watercourse. • Removal of indigenous vegetation should be kept to a minimum, and, where possible, impacted areas rehabilitated after construction.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Low	The affected environment will not be able to recover from the impact - permanently modified
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Low	The resource is not damaged irreparably or is not scarce
Significance	Moderate - negative		Negligible - negative	

Table 23: Construction work close to wetlands or watercourses

Project phase	Construction	
Impact	Construction work close to wetlands or watercourses	
Description of impact	This may lead to erosion and sedimentation, pollution of wetlands and watercourses, disturbance of aquatic and semi-aquatic fauna and flora.	
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	• Sensitive ecosystems should be demarcated prior to any construction activities, so that these can be avoided, wherever possible. • Special care should be taken around storm and heavy rain events. Construction sites should be inspected for erosion damage at these times. • All building materials must be stored away (at least 15m) from all aquatic ecosystems and the areas bunded appropriately such that there will be no runoff from these areas towards aquatic systems. All building materials should be removed after construction. • Consideration should be given at the design phase to remedial shaping of banks and slopes to their near-natural slope, geomorphological and bed characteristics and re-vegetated after clean-up. • Banks and slopes should be re-vegetated after construction is completed. • If construction areas are to be pumped of water (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural aquatic ecosystems.• Care should be taken to not disturb flora and fauna, and construction lights (if needed) must be directed away from sensitive areas. • Fencing must allow free movement of fauna. • Disruption of flow should be kept to a minimum, but where necessary, temporary diversion measures should allow flushing of the system to prevent build-up of material. • Diversion techniques should take measures to limit erosion from temporary channels into watercourses or wetlands. • No obstructions to flow shall remain in the watercourses or wetlands after construction is completed. • Temporary diversion channels must be rehabilitated. Washing of vehicles and machinery should take place well away (50m) from aquatic ecosystems. • Machinery prone to oil or fuel leakage must be located at least 50m away from any aquatic ecosystem, and the area adequately bunded in order to contain leakages. • Water pumps and cement mixers shall have drip trays to contain oil and fuel leaks – these must be cleaned regularly. • Concrete batching must be done well away from (50m minimum) from all sensitive environments. • All machinery should be regularly checked for leaks. • Suitable toilet and wash facilities must be provided to avoid the use of sensitive areas for these activities. These service areas must be maintained, and toilets emptied on at least a weekly basis.

Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Minor - negative	

Table 24: Soils brought onto the sites for filling and landscaping

Project phase	Construction			
Impact	Soils brought onto the sites for filling and landscaping			
Description of impact	Where in situ top soils (i.e. top 20 cm of soil) are insufficient, soils brought onto the sites for filling and landscaping can contain alien or invasive seedbanks.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• In situ soils must preferably be used for rehabilitation of construction sites. • Where in situ soils are insufficient, top soils used after construction must be bought from reliable sources, and must be free of alien seeds or grass runners. • Constant monitoring of the construction sites by the Site Engineer and ECO must occur, and all alien plant species removed from or destroyed on the site.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Medium term	Impact will last between 5 and 10 years	Brief	Impact will not last longer than 1 year
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are notably altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	

CUMULATIVE IMPACT ASSESSMENT
OPERATION PHASE

Table 25: Crossings of road and pipeline over wetlands and watercourses

Project phase	Operation	
Impact	Crossings of road and pipeline over wetlands and watercourses	
Description of impact	Crossings can lead to the loss of surface flow connectivity at pipeline and road crossings or erosion within impacted ecosystems.	
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts

Potential mitigation	• The potential interception and transfer of subsurface water by the drainage- and bedding material under and around inclined pipes should be inhibited with cut-off barriers perpendicular to the longitudinal profile of the trench (for example, 0.3m thick bentonite). The barriers should be spaced at 24m intervals and extend a minimum of 0.5m past the sides of the trench profile, and up to rock level or a minimum of 0.5m deeper than the trench bottom (whichever comes first). • At all road crossings over aquatic ecosystem 3, the natural surface flow of water should be accommodated in several pipes or wide culverts, in order ensure that flow is not concentrated downstream of the crossings. • The impacted footprint of the pipeline and road should be kept to a minimum in close (< 30m) proximity to all wetlands and watercourses, e.g. by reducing the depth to which the pipes are laid, where possible. • Mowing or clearing of the pipeline or road servitudes of vegetation must be kept to a minimum.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	On-going	Impact will last between 15 and 20 years	On-going	Impact will last between 15 and 20 years
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are notably altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	

Table 26: Increased discharge of stormwater off roads and hardened areas

Ref:	16			
Project phase	Operation			
Impact	Increased discharge of stormwater off roads and hardened areas			
Description of impact	This may lead to the loss or deterioration of aquatic habitat through ongoing erosion and sedimentation.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• The geomorphological characteristics (shape, gradient, slopes) of the impacted ecosystems must be re-instated after construction – this will reduce the likelihood of increased erosion or sedimentation. • If it is necessary to stabilise the watercourse or wetland bed or banks with gabions or rip rap, these should be kept to a minimum, and should be done in an ecologically sensitive manner. For example, gabions could be top-soiled to allow for the establishment of vegetation, which would also serve the purpose of reducing erosion.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	

Duration	Permanent	Impact may be permanent, or in excess of 20 years	On-going	Impact will last between 15 and 20 years
Extent	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Low	Judgement is based on intuition
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Low	The affected environment will not be able to recover from the impact - permanently modified
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Moderate - negative		Negligible - negative	

Table 27: Regular removal or mowing of indigenous vegetation along pipelines and road servitudes

Project phase	Operation			
Impact	Regular removal or mowing of indigenous vegetation along pipelines and road servitudes			
Description of impact	This may lead to deterioration in wetland and riverine habitat through loss of indigenous vegetation.			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• Mowing should not be more frequently than annually. • Vegetation within the pipeline servitudes should be allowed to recover (in some cases, re-planted), within the constraints of ongoing maintenance of the pipeline.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	On-going	Impact will last between 15 and 20 years	On-going	Impact will last between 15 and 20 years
Extent	Local	Extending across the site and to nearby settlements	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Likely	The impact may occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention

Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Minor - negative		Negligible - negative	
NO-GO OPTION				
Freshwater Impact Assessment				
In the case of the “No Go” alternative where there would be no change to the *status quo* which entails the current EA.				
Biodiversity Impact Assessment				
In the case of the “No Go” alternative where there would be no change to the *status quo* which entails the current EA.				

10 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.

Freshwater:

Table 28: Freshwater Impact Table

Ref #	Project phase	Impact	Without mitigation						With mitigation					
			Nature	Duration	Extent	Intensity	Probability	Significance	Nature	Duration	Extent	Intensity	Probability	Significance
1	Construction	Road and pipeline crossings over wetlands and watercourses	Negative	Permanent	Limited	Moderate	Certain / definite	Moderate - negative	Negative	Permanent	Limited	Very low	Rare / improbable	Negligible - negative
2	Construction	Bulldozing and blasting of watercourses and wetlands	Negative	Short term	Limited	Moderate	Almost certain / Highly probable	Minor - negative	Negative	Brief	Limited	Low	Almost certain / Highly probable	Minor - negative
3	Construction	Construction activities within the watercourse and wetlands	Negative	Brief	Limited	Moderate	Probable	Negligible - negative	Negative	Immediate	Very limited	Low	Probable	Negligible - negative
4	Construction	Storage of building materials (sand, soil,	Negative	Brief	Very limited	Moderate	Unlikely	Negligible - negative	Negative	Brief	Very limited	Very low	Rare / improbable	Negligible - negative

		bricks etc) in sensitive areas												
5	Construction	Spillage of building materials and oil / fuel, and seepage of pollutants from stockpiles	Negative	Short term	Local	High	Probable	Minor - negative	Negative	Brief	Limited	Very low	Rare / improbable	Negligible - negative
6	Construction	Foot and vehicular traffic across and onto construction sites.	Negative	Brief	Limited	Low	Unlikely	Negligible - negative	Negative	Immediate	Very limited	Negligible	Rare / improbable	Negligible - negative
7	Construction	Presence of construction teams and their machinery close to wetlands and watercourses.	Negative	Short term	Local	Low	Probable	Minor - negative	Negative	Short term	Limited	Very low	Unlikely	Negligible - negative
8	Construction	Soils brought onto the sites for filling and landscaping	Negative	Medium term	Local	High	Likely	Minor - negative	Negative	Brief	Limited	Low	Rare / improbable	Negligible - negative
9	Operation	Crossings of road and pipeline over wetlands and watercourses	Negative	On-going	Local	High	Probable	Minor - negative	Negative	On-going	Limited	Low	Unlikely	Negligible - negative
10	Operation	Increased discharge of stormwater off the access road	Negative	On-going	Local	Moderate	Almost certain / Highly probable	Moderate - negative	Negative	On-going	Limited	Low	Unlikely	Negligible - negative
11	Operation	Regular removal or mowing of indigenous vegetation along pipeline	Negative	On-going	Limited	Low	Likely	Minor - negative	Negative	On-going	Very limited	Very low	Unlikely	Negligible - negative

		and road servitudes												
Cumulative Impacts														
12	Construction	Road and pipeline crossings over wetlands and watercourses	Negative	Permanent	Local	Moderate	Certain / definite	Moderate - negative	Negative	Permanent	Limited	Very low	Rare / improbable	Negligible - negative
13	Construction	Construction work close to wetlands or watercourses	Negative	Short term	Limited	Moderate	Almost certain / Highly probable	Minor - negative	Negative	Brief	Limited	Low	Almost certain / Highly probable	Minor - negative
14	Construction	Soils brought onto the sites for filling and landscaping	Negative	Medium term	Local	High	Likely	Minor - negative	Negative	Brief	Limited	Low	Rare / improbable	Negligible - negative
15	Operation	Crossings of road and pipeline over wetlands and watercourses	Negative	On-going	Local	High	Probable	Minor - negative	Negative	On-going	Limited	Low	Unlikely	Negligible - negative
16	Operation	Increased discharge of	Negative	Permanent	Local	Moderate	Almost certain /	Moderate - negative	Negative	On-going	Limited	Low	Unlikely	Negligible - negative

		stormwater off roads and hardened areas					Highly probable							
17	Operation	Regular removal or mowing of indigenous vegetation along pipelines and road servitudes	Negative	On-going	Local	Low	Likely	Minor - negative	Negative	On-going	Very limited	Very low	Unlikely	Negligible - negative

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr

Freshwater:

The mitigation measures provided below should be incorporated into Method Statements, which can then be added to the existing authorised Construction Environmental Management Programme (CEMPr) and audited throughout the construction process. An adequately qualified independent environmental control officer (ECO) must be appointed before construction begins.

For the construction phase the following measures have been identified:

Impact #	Activities and Impacts	Desired outcome	Recommended Mitigation Measures
1	Road and pipeline crossings over wetlands and watercourses leading to *loss of wetland, riverine and / or riparian habitat*, where infrastructure is located within the boundaries of wetlands and / or watercourses. This will occur where the access road will cross over the valley-bottom wetland	• No net loss of wetland area. • No net loss of riparian habitat.	• Where the pipe comes close to (< 30m) a wetland or watercourse, the specifications for the pipe trenches should aim to minimise the footprint of construction (e.g. the shallower the pipe, the narrower the disturbed area). • Sensitive ecosystems must be demarcated prior to any construction activities, so that these can be avoided, unless construction is taking place within the boundaries of a wetland or watercourse. • Removal of indigenous vegetation should be kept to a minimum, and refilled trenches must be rehabilitated after construction. (Note: Areas under cultivation where the Wynland pipeline is removed can be returned to cultivation). • Where the access road will be re-aligned through the valley-bottom wetland in lower Aquatic Ecosystem 3, the old road footprint (current access road to County Fair) must be rehabilitated, to the guidelines provided. A total of 1636m² of wetland and 700m² of riparian habitat will be lost, and 1119m² gained. Additional rehabilitation of the wetland (such as shaping of the

	and watercourse at the lower end of Aquatic Ecosystem 3. An approximate area of 1636m² of wetland will be lost, and 1119m² gained where the old road is rehabilitated, leading to a residual loss of 517m² of wetland area and a loss of 700m² of riparian area. The relocated Wynland pipeline will cross over the seep wetland and watercourse at the upper end of Aquatic Ecosystem 3. The maximum construction footprint for the trenches will be 27m wide, impacting on approximately 3770m² of wetland area within the seep wetland and 2890m² of riparian habitat, but not necessarily leading to permanent loss. The removal of existing sections of the Wynland pipeline is outside the seep wetland, but will cross through the ecological buffer of the seep. No wetland will be gained. Ideally, alignment of the pipelines and access road		erosion gullies in the wetland) and watercourse (such as stabilising erosion and re-planting with indigenous plant species) will achieve the balance required, such that there will be no residual loss.	

	should attempt to avoid wetlands and watercourses and their ecological buffers. This mitigation measure is not considered a reality, as the layout provided for this assessment is assumed to be final.		
2	Bulldozing and blasting of watercourses and wetlands, leading to *erosion and sedimentation and loss or deterioration of wetland and riverine habitat*. This will be necessary for the preparation of sites within the wetlands and watercourses for construction of the road and the relocation of the Wynland pipeline. Ideally, alignment of the pipelines and access road should attempt to avoid wetlands and watercourses and their ecological buffers. Where river crossings are necessary, attempts should be made to make use of existing crossings (such as existing tracks, culverts and road bridges).	• No permanent loss of wetland area. • No permanent loss of riparian habitat. • No new erosion gullies on site.	• The specifications for the relocated pipe trenches should aim to minimise the footprint of construction (e.g. the shallower the pipe, the narrower the disturbed area) where the pipe comes close to (< 30m) a wetland or watercourse, and sensitive ecosystems should be demarcated prior to any construction activities, so that these can be avoided, wherever possible. • Special care should be taken around storm and heavy rain events. The construction sites should be inspected for erosion damage at these times. • Consideration should be given at the design phase to remedial shaping of banks to their near-natural slope, geomorphological and bed characteristics and re-vegetated after clean-up. • Banks and slopes should be re-vegetated after construction is completed. A detailed planting plan should be developed, in consultation with a landscaper and ecologist. • If construction areas are to be pumped of water (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural aquatic ecosystem.
3	Construction activities within the watercourse and wetlands leading to *loss of connectivity and*	• No disruptions to surface flow in the two watercourses.	• Disruption of flow should be kept to a minimum, but where necessary, temporary diversion measures should allow flushing of the system to prevent build-up of material. • Diversion techniques should take measures to limit erosion from temporary channels into watercourses or wetlands.

	deterioration of habitat through disruption of flow regime leading to nutrient / sediment build-up and eutrophication.	• No build-up of sediment downstream of construction activities.	• No obstructions to flow shall remain in the watercourses or wetlands after construction is completed. • Temporary diversion channels must be rehabilitated.	
4	Storage of building materials (sand, soil, bricks etc) in sensitive areas – this would *damage the soil structure, and would destroy or shade out plants growing in and around these ecosystems.* Dump areas frequently lead to the *compaction of soils, which can influence re-growth of plants. Invasive alien plants frequently take advantage of disturbed areas such as these.*	• No encroachment of building materials into wetlands, watercourses or their recommended buffers	• All building materials must be stored away (at least 15m) from all aquatic ecosystems and the areas bunded appropriately such that there will be no runoff from these areas towards aquatic systems. All building materials should be removed after construction. • Materials should be stored in piles that do not exceed 1.5m in height and should be protected from the wind, to prevent spread of fine materials across the site. • Sensitive areas that are impacted by the dumping or storage of materials must be ripped and re-planted after construction is complete. • The pipeline contractor should work the relocated Wynland pipeline route in sections, backfilling as they go, which will reduce the width of disturbed area – i.e. it is not as necessary to spread the spoil wide, if it can spread along a greater length.	
5	*Deterioration in wetland and riverine habitat and water quality* through spillage of building materials and oil / fuel, and seepage of pollutants from stockpiles. Due to the fact that the wetlands and watercourses are all seasonal to ephemeral, with little or no inundation in summer and flushing only in winter, it is likely that pollutants could accumulate and persist for some time.	• No spills or seepage of pollutants into wetlands, watercourses or their recommended buffers.	• Washing of vehicles and machinery should take place well away (50m) from aquatic ecosystems. • Machinery prone to oil or fuel leakage must be located at least 50m away from any aquatic ecosystem, and the area adequately bunded in order to contain leakages. • Water pumps and cement mixers shall have drip trays to contain oil and fuel leaks – these must be cleaned regularly. • Concrete batching must be done well away from (50m minimum) from all sensitive environments. • All machinery should be regularly checked for leaks. • Suitable toilet and wash facilities must be provided to avoid the use of sensitive areas for these activities. These service areas must be maintained, and toilets emptied on at least a weekly basis. • If construction areas are to be pumped of water (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural ecosystem.	

6	*Destruction or deterioration of freshwater habitat* as a result of foot and vehicular traffic – access across and around the wetlands and watercourses onto and across the building sites, and for road construction and pipe laying, is likely to lead to damage of soils and vegetation. Regular use of a particular area will lead to the compaction of soils.	• No access to wetlands, watercourses or their buffers when construction activities do not impact directly on these areas. • Rehabilitation of affected areas where construction occurs within wetlands, watercourses or their buffers.	• Pathways and temporary access roads must be routed around the wetlands and should cross drainage channels as seldom as possible. • Sensitive areas must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. These are no-go areas during the construction process. • Affected areas must be ripped and re-planted after construction, according to the specifications set out in the CEMPr, and to the satisfaction of the ECO.	
7	Disturbance of freshwater fauna and flora – the presence of construction teams and their machinery will lead to *noise and light pollution* in the area.	• No loss of animal life as a result of construction activities. • Successful relocation of animals directly affected by construction activities. • No loss of wetland or riparian areas.	• The construction sites and pathways must avoid sensitive areas. If lights are used, these must be directed away from all sensitive areas. • The sensitive areas (i.e. the edges of the buffers around the wetlands, watercourses) not affected by construction must clearly be demarcated and fenced off (using temporary fencing and danger tape) before any construction work or site preparation begins. These are no-go areas during the construction process, except where work is occurring.	
8	*Introduction and spread of invasive alien plants* – where *in situ* top soils (i.e. top 20 cm	• No new infestations of	• *In situ* soils must preferably be used for rehabilitation of construction sites. • Where *in situ* soils are insufficient, top soils used after construction must be bought from reliable sources, and must be free of alien seeds or grass runners.	

	of soil) are insufficient, soils brought onto the sites for filling and landscaping can contain alien or invasive seedbanks.	invasive alien plants. • Reduction in current infestations of invasive alien plants.	• Constant monitoring of the construction sites by the Site Engineer and ECO must occur, and all alien plant species removed from or destroyed on the site.

The impacts associated with the operational phase of the project relate primarily to the long-term loss or deterioration of aquatic habitat, and the long-term or permanent loss of connectivity within the impacted aquatic ecosystems. There is likely to be some long-term disturbance within the maximum 16.45m-wide pipe servitudes along the relocated pipeline route. Further operational impacts relate to the management of stormwater runoff from the access road, especially at the lower end close to the wetland and watercourse.

For the operational phase the following measures have been identified:

Impact #	Activities and Impacts	Desired outcome	Recommended Mitigation Measures
1	Crossings of road and pipeline over wetlands and watercourses, can lead to the *loss of surface flow connectivity at pipeline and road crossings or erosion within impacted ecosystems.* This may occur where the Wynland pipeline is laid at an incline across the seep wetland and watercourse (aquatic ecosystem 3). The stone drainage layer at the bottom of trenches during construction, as well as the granular bedding often used as bedding material around the pipe can potentially act as subsurface transfer conduits of	• No permanent loss of wetland area. • No permanent loss of riparian habitat. • No gully formation or new erosion (such as head-cuts) in the watercourse or wetlands.	• The potential interception and transfer of subsurface water by the drainage- and bedding material under and around inclined pipes should be inhibited with cut-off barriers perpendicular to the longitudinal profile of the trench (for example, 0.3m thick bentonite). The barriers should be spaced at 24m intervals and extend a minimum of 0.5m past the sides of the trench profile, and up to rock level or a minimum of 0.5m deeper than the trench bottom (whichever comes first). • At all road crossings over aquatic ecosystem 3, the natural surface flow of water should be accommodated in several pipes or wide culverts, in order ensure that flow is not concentrated downstream of the crossings. • The impacted footprint of the pipeline and road should be kept to a minimum in close (< 30m) proximity to all wetlands and watercourses, e.g. by reducing the depth to which the pipes are laid, where possible. • Mowing or clearing of the pipeline or road servitudes of vegetation must be kept to a minimum.

	groundwater; potentially intercepting groundwater seepage in the wetland groundwater catchment, and transferring it to a lower lying section of the pipeline. This could disrupt the connectivity within watercourses and wetlands. The culverts under the new access road will replace existing pipes, so the impacts are similar. Surface flow through pipes or narrow culverts can lead to the concentration of flow and subsequent erosion downstream of crossings.			
2	Increased discharge of stormwater off the access road may lead to the *loss or deterioration of aquatic habitat through ongoing erosion and sedimentation.*	• No gully formation or new erosion (such as head-cuts) in the watercourse or wetlands.	• The geomorphological characteristics (shape, gradient, slopes) of the impacted ecosystems must be re-instated after construction – this will reduce the likelihood of increased erosion or sedimentation. • If it is necessary to stabilise the watercourse or wetland bed or banks with gabions or rip rap, these should be kept to a minimum, and should be done in an ecologically sensitive manner. For example, gabions could be top-soiled to allow for the establishment of vegetation, which would also serve the purpose of reducing erosion.	
3	The regular removal or mowing of indigenous vegetation along pipeline and road servitudes may lead to	• No permanent loss of wetland area.	• Mowing should not be more frequently than annually. • Vegetation within the pipeline servitudes should be allowed to recover (in some cases, re-planted), within the constraints of ongoing maintenance of the pipeline.	

	deterioration in wetland and riverine habitat through loss of indigenous vegetation.	• No permanent loss of riparian habitat.	• Ongoing monitoring of the pipeline and WTP site and associated infrastructure should be implemented (part of the ongoing EMP) in order to ensure that exotic plant species are not introduced or become established due to the disturbance.	

Biodiversity

The mitigation measures provided below should be incorporated into Method Statements, which can then be added to the existing authorised Construction Environmental Management Programme (CEMPr) and audited throughout the construction process. An adequately qualified independent environmental control officer (ECO) must be appointed before construction begins.

- All assessed impacts are within acceptable levels, apart from the High negative impact associated with loss of about 0.03ha of Very High sensitivity habitat in the northern section of the proposed road route. This impact is driven by the definite loss of a viable population (at least 20 plants out of a subpopulation of about 40) of an Endangered plant species - *Athanasia capitata*. It is possible that this small area also supports a number of other only seasonally evident plant SoCC, as 8 such species have been recorded nearby.
- The mitigation hierarchy would suggest that as a first step an attempt is made to avoid the key impact, but unfortunately in this case this is not easily possible due to prior landowner negotiations and preferred route alternatives arising from the work in 2010.
- Relocation of the Endangered plant species recorded in the Very High sensitivity is not the first choice, as the adult plants are very unlikely to survive, but an attempt should be made to take seed (in April/May) and cuttings (April/May), and an effort must be to translocate all the live plants (April/May) of *Athanasia capitata* from within the approved development footprint to nearby similar but secure habitat. As the Medium and Very High sensitivity habitat may support various other plant SoCC the CoCT Environmental Management Branch staff should undertake Search and Rescue in the approved development footprints on at least two occasions in the appropriate seasons (July – late September) prior to any earthmoving on site.
- The applicant (CoCT Bulk Water) must provide all necessary funding for all the required mitigation (including ongoing site management), and must transfer management responsibility and al necessary funding for the 5.5ha conservation area to the CoCT Environmental Management Branch, within three months of any project approval.
- The 1ha of currently cultivated or fallow area north of the road that has been expropriated must be rehabilitated to local indigenous Renosterveld vegetation as soon as possible, and should form part of the main drainage line conservation area.
- During construction an ECO must ensure that no animals are trapped in the construction and pipeline trenches, and remove any that are. These should be checked every morning before work starts. Trenches should be infilled as soon as possible.
- No specific additional mitigation is required, as cumulative botanical and faunal impacts are at an acceptable level (Medium negative) if this mitigation and management can be implemented.

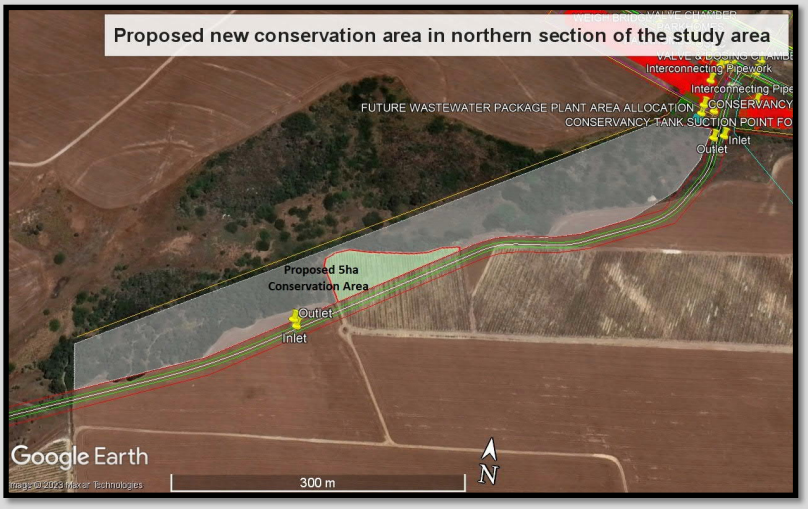

Figure 17 Map showing the proposed 5ha conservation area (grey and green shading) north of the proposed road that should be transferred to the CoCT Environmental Management Department (has already been expropriated by CoCT Bulk Water).

-

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.
Not applicable	
4.	Explain how the proposed development will impact 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 development of access to clean water allows the applicant to be more sustainable. Climate change impacts on municipal services will increase, as will demand and as such the development and access to water is a positive contribution.	
6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.
No, the specialists in their various disciplines, have not provided any conflicting recommendations.	

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 mitigation measures and recommendations of the various specialists complement each other in the management of the potential impacts. The clearance of vegetation in a controlled manner with the appropriate rehabilitation and ongoing management of alien invasive vegetation are key components of the predominant mitigations proposed. All the recommendations and mitigations will be implemented.	
8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.
The Amendment is proposed due to the various positive impacts and the optimised engineering solution, adding value to the water delivery network. The mitigation hierarchy from highest priority to lowest priority is as follows: - Avoid: Avoid the potential impact - Minimise: decrease the spatial/temporal scale of the impact as far as possible during the various project phases - Rectify: Apply rehabilitation techniques after the impacts has occurred. - Off-set: off-set residual impact through measures over and above rehabilitation to compensate for the residual effects on biodiversity.	

11 SECTION J: GENERAL

1. Environmental Impact Statement

1.1.	Provide a summary of the key findings of the Amendment Assessment.

Freshwater Statement

- The amendments to the Muldersvlei Reservoir access road and relocation of the Wynland pipeline at the Reservoir site will affect Aquatic Ecosystem 3 as identified and described in the Water Use Licence Application Report for the Reservoir and infrastructure and identified as “Stream k” in Appendix 1 of the Specialist Report (Appendix G). The ecosystem comprises a seep wetland at its source, a watercourse, and a valley-bottom wetland at its lower end.
- Ecological buffers of 15m for both construction and operational phases are recommended for the protection of these ecosystems.
- The amendments will result in construction and operational phase impacts that range from negligible to medium negative significance without mitigation. With effective mitigation, as recommended in this Appendix, these impacts can be reduced to negligible to minor negative significance. The amendments do not raise any issues that are in addition to those already identified in the original EIA and the WULA report, and the amendments do not raise the significance level of the overall project.
- The amendments will lead to additional pipeline trenches being excavated through the seep wetland, and additional road footprint within the valley-bottom wetland. However, the mitigation measures recommended here, the rehabilitation of impacted wetland areas, will ensure that the impacts remain of minor negative significance.

Biodiversity Statement (Inclusive of Fauna and Flora)

- All assessed impacts are within acceptable levels, apart from the High negative impact associated with loss of about 0.03ha of Very High sensitivity habitat in the northern section of the proposed road route. This impact is driven by the definite loss of a viable population (at least 20 plants out of a subpopulation of about 40) of an Endangered plant species - Athanasia capitata. It is possible that this small area also supports a number of other only seasonally evident plant SoCC, as 8 such species have been recorded nearby.
- The mitigation hierarchy would suggest that as a first step an attempt is made to avoid the key impact, but unfortunately in this case this is not easily possible due to prior landowner negotiations and preferred route alternatives arising from the work in 2010.
- Relocation of the Endangered plant species recorded in the Very High sensitivity is not the first choice, as the adult plants are very unlikely to survive, but an attempt should be made to take seed (in April/May) and cuttings (April/May), and an effort must be to translocate all the live plants (April/May) of Athanasia capitata from within the approved development footprint to nearby similar but secure habitat. As the Medium and Very High sensitivity habitat may support various other plant SoCC the CoCT Environmental Management Branch staff should undertake Search and Rescue in the approved development footprints on at least two occasions in the appropriate seasons (July – late September) prior to any earthmoving on site.
- The applicant (CoCT Bulk Water) must provide all necessary funding for all the required mitigation (including ongoing site management), and must transfer management responsibility and al necessary funding for the 5.5ha conservation area to the CoCT Environmental Management Branch, within three months of any project approval.
- The 1ha of currently cultivated or fallow area north of the road that has been expropriated must be rehabilitated to local indigenous Renosterveld vegetation as soon as possible, and should form part of the main drainage line conservation area.
- During construction an ECO must ensure that no animals are trapped in the construction and pipeline trenches, and remove any that are. These should be checked every morning before work starts. Trenches should be infilled as soon as possible.
- No specific additional mitigation is required, as cumulative botanical and faunal impacts are at an acceptable level (Medium negative) if this mitigation and management can be implemented.

- (Specialist Report ,Appendix G).

Heritage Statement

- The design changes and proposed amendments are considered minor, and no mitigations are proposed (Letter from HWC, Appendix E.1).

1.2.	Provide a map that 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 Amendment Report as Appendix B2)
	Please refer to Annexure B2
1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and amendments will have on the environment and community.

The efficient and beneficial use of water in public interest is motivated by the need of the proposed reservoir in one of South Africa's most intensive winter rainfall farming districts where wine, fruit, wheat and livestock are produced. The region also supports mountain conservation/water catchment areas and has significant urban development with major road and rail transport routes traversing the area. More than 95% of the area that would be traversed by the infrastructure is designated as agricultural.

The application for water supply is required by CCT to augment its bulk water supply system in order to meet future demands. The proposed infrastructure will also improve flexibility of the bulk water distribution system as well as the security of supply.

Positive impacts:

- Create jobs and livelihoods;
- Expand infrastructure;
- Transition to a low-carbon economy;
- Transform urban and rural spaces;
- Improve education and training;
- Provide quality health care;
- Build a capable state;
- Fight corruption and enhance accountability; and
- Transform and unite society

Negative Impacts:
Negative impacts relate to the environmental impacts assessed by the specialists and with mitigation measures the impacts were found to be within acceptable limits.

A Summary of the specialist impact assessment is listed in the table below.

Table 29: Summary of specialist impact assessment

Aspect	Impact	Pre-mitigation	Post-mitigation
Pre-construction			
No impacts have been identified for the pre-construction phase.			
Construction		Significance	
Freshwater	Road and pipeline crossings over wetlands and watercourses	Moderate (-)/ Medium (-)	Negligible (-)/ Very low (-)
	Bulldozing and blasting of watercourses and wetlands	Minor (-)/Low (-)	Minor (-)/Low (-)
	Construction activities within the watercourse and wetlands	Negligible (-)/ Very low (-)	Negligible (-)/ Very low (-)
	Storage of building materials (sand, soil, bricks etc) in sensitive areas	Negligible (-)/ Very low (-)	Negligible (-)/ Very low (-)
	Spillage of building materials and oil / fuel, and seepage of pollutants from stockpiles	Minor (-)/Low (-)	Negligible (-)/ Very low (-)
	Foot and vehicular traffic across and onto construction sites.	Negligible (-)/ Very low (-)	Negligible (-)/ Very low (-)
	Presence of construction teams and their machinery close to wetlands and watercourses.	Minor (-)/Low (-)	Negligible (-)/ Very low (-)
	Soils brought onto the sites for filling and landscaping	Minor (-)/Low (-)	Negligible (-)/ Very low (-)

Biodiversity	New road access (vegetation)	High (-)	Moderate (-)/ Medium (-)
	Removal of existing pipelines (vegetation)	Minor (-)/Low (-)	Minor (-)/Low (-)
	New pipeline (vegetation)	Moderate (-)/ Medium (-)	Moderate (-)/ Medium (-)
	New road access (fauna)	Moderate (-)/ Medium (-)	Moderate (-)/ Medium (-)
	Removal of existing pipelines (fauna)	Minor (-)/Low (-)	Minor (-)/Low (-)
	New pipeline (fauna)	Moderate (-)/ Medium (-)	Moderate (-)/ Medium (-)
Operation		Significance	
Freshwater	Crossings of road and pipeline over wetlands and watercourses	Minor (-)/Low (-)	Negligible (-)/ Very low (-)
	Increased discharge of stormwater off the access road	Moderate (-)/ Medium (-)	Negligible (-)/ Very low (-)
	Regular removal or mowing of indigenous vegetation along pipeline and road servitudes	Minor (-)/Low (-)	Negligible (-)/ Very low (-)

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

All the mitigation measures and recommendations provided by the specialists will be included in the EMPr. They have been broadly summarised below as outcomes.

Freshwater impact management measures

A) Construction Phase Refer to Appendix G

- Ideally, alignment of the pipeline should attempt to avoid wetlands and rivers - especially for sites listed to be of moderate to high conservation importance.
- The design of the pipe should aim to minimise the footprint of construction (e.g. the shallower the pipe, the narrower the disturbed area), and sensitive ecosystems should be demarcated prior to any construction activities, so that these can be avoided.
- Where construction occurs:
    - Identification and removal of rare / endangered plant species where appropriate – a botanist should visit the site in late winter / spring to identify sites and plants.
    - Removal and bagging of plants useful for rehabilitation of banks
- Removal of alien species (e.g. acacias, kikuyu grass) can be considered as a positive impact of construction.
- Removal of vegetation should be kept to a minimum and cleared areas must be re-vegetated after clean-up. A detailed planting plan should be developed, in consultation with a landscaper and ecologist.
- Ideally, alignment of the pipeline should attempt to avoid wetlands and rivers - especially for sites listed as of moderate ecological or conservation importance.
- Construction should take place during the dry season, in order to minimise the impacts of bulldozing and blasting.
- Where river crossings are necessary, attempts should be made to make use of existing crossings (such as road bridges)
- Consideration should be given at the design phase to remedial shaping of banks to their near-natural slope, geomorphological and bed characteristics and re-vegetated after clean-up.
- Banks should be re-vegetated after clean-up.
- Disruption of flow should be kept to a minimum, but where necessary, temporary diversion measures should allow flushing of the system to prevent build-up of material. For perennial rivers, construction should take place in late summer, so that winter rains will flush the system after construction. For seasonal rivers, construction should take place when the system is dry.
- Diversion techniques should take measures to limit erosion from temporary channels into streams or rivers.

- The final design of temporary diversion measures should be ratified by a freshwater ecologist.
- No obstructions to flow shall remain in the river or wetland after construction is completed.
- All building materials should be stored away (at least 50m) from aquatic ecosystems and the areas bunded appropriately such that there will be no runoff from these areas towards aquatic systems. All building materials should be removed after construction.
- If construction areas are to be pumped of water (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural ecosystem.
- The pipeline contractor should work the pipeline in sections, backfilling as they go, which will reduce the width of disturbed area – i.e. it is not as necessary to spread the spoil wide, if it can spread along a greater length.
- Washing of vehicles and machinery should take place well away (50m) from aquatic ecosystems. All machinery should be regularly checked for leaks.
- No runoff shall enter the wetlands, streams or rivers.

B) Operational Phase

- This should be minimised through sensitive alignment of the pipe and location of the WTP and reservoir to reduce the impact on the aquatic environment.
- The pipes should not be laid in coarse gravel "sleeves", these act as subsurface drains, which would be a problem in a wetland area, and would also disrupt the connectivity within the rivers / streams. The pipe should rather be contained in a solid sleeve.
- The impacted footprint of the pipeline and WTP/reservoir site should be kept to a minimum, e.g. reducing the depth to which the pipes are laid, where possible.
- Where a river or wetland must be traversed by either a road or a pipeline, these crossings should be minimised, e.g. laying pipelines under or next to the roads.
- The geomorphological characteristics of the impacted ecosystems must be re-instated after construction – this will reduce the likelihood of increased erosion or sedimentation.
- If it is necessary to stabilise the riverbed or banks with gabions, these should be kept to a minimum, and should be done in an ecologically sensitive manner. For example, gabions could be topsoiled to allow for the establishment of vegetation, which would also serve the purpose of reducing erosion.
- Vegetation within the pipeline servitude should be allowed to recover (in some cases, re-planted), within the constraints of ongoing maintenance of the pipeline.
- Ongoing monitoring of the pipeline and WTP/reservoir site and associated infrastructure should be implemented (part of the ongoing EMP) in order to ensure that exotic plant species are not introduced or become established due to the disturbance.
- Artificial habitat can be re-created fairly effectively elsewhere. Planting of wetland plants in this "new" wetland will improve the ecological value of the ecosystem.

<u>Biodiversity impact management measures:</u>

A) Construction phase

No specific additional mitigation is required, as cumulative botanical and faunal impacts are at an acceptable level if this primary avoidance can be implemented.

B) Operational Phase
No specific additional mitigation is required, as cumulative botanical and faunal impacts are at an acceptable level if this primary avoidance can 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.
None	
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 Amendment will have a Negligible to Low impact on the environment overall. There is no reason that it should not be authorised. 0.03ha of Very High sensitivity habitat in the northern section of the proposed road route will be mitigated with a Biodiversity Offset agreement.	
2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.
	1. It is assumed that the information on which this report is based (project information as well as existing information) is correct, factual and truthful. 2. The proposed development is in line with the statutory planning vision for the area and thus it is assumed that issues such as the cumulative impact of development in terms of character of the area and its resources, have been considered during the strategic planning for the area. 3. It is assumed that all the relevant mitigation measures and agreements specified in this Amendment report will be implemented in order to ensure minimal negative impacts and maximum environmental benefits. 4. It is assumed that Stakeholders and Interested and Affected Parties notified during the public participation process will submit all relevant comments within the designated review and comment period.
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.
As per legislative requirements, the following is applicable: 1. Construction should commence within five years from date of authorisation. 2. Construction should be concluded at least three years from commencement.	

3. Construction Completion Statement on handover of the site back to the applicant.
4. Six months post construction audit.

The commencement of construction should, however, be implemented within the two-year extension as per the Part 1 amendment application. It is also not possible to conclude the construction of the project within three years from commencement as the project is planned in phases with construction of the Water Treatment Plant and pipeline from the Berg River Dam only commencing after the 300Ml reservoir and pipeline connections to the Wemmershoek pipelines are completed.

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.

During the construction phase the contractor will be responsible for sourcing water for construction. Provision will be made in the contract documentation to ensure that the contractor sources the water legally.

4. Waste

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

An existing ND150mm asbestos cement pipeline is crossing the proposed reservoir. The pipeline will be relocated to the edge of the reservoir site to allow construction of the reservoir. The new pipeline will be a ND160mm uPVC pipeline and be approximately 1000m long. The existing asbestos cement pipeline will be removed by an approved service provider and will be disposed of at an approved legal hazardous waste site

5. Energy Efficiency

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

The following energy saving can be implemented where applicable.

- Energy efficient lighting and solar cooling systems for site offices.
- Machinery must only be running when necessary.

12 SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

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

I, Gavin George, ID number: 7802285126084, in 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.

Gavin George

Digitally signed by Gavin George
Date: 2023.01.27 15:06:21 +02'00'

Signature of the Applicant: Date:

CITY OF CAPE TOWN

Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I, Corlie Steyn, EAPASA Registration number: 2019/999, as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this Amendment Report and any other documents/reports submitted in support of this Amendment Report;
- 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;

27/01/2023

Signature of the EAP: Date:

Zutari

Name of company (if applicable):

DECLARATION OF THE SPECIALIST – Refer Appendix M

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 Specialist: Date:

Name of company (if applicable):

Appendix A - Maps

Appendix B – Site Plans

Appendix C – Photographs

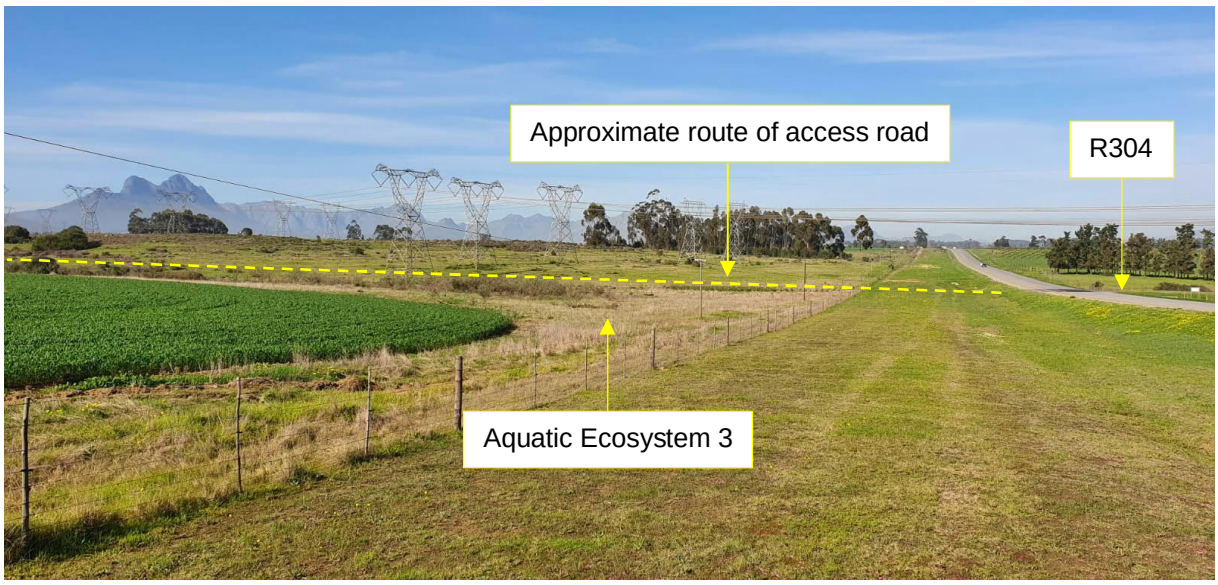

Figure 18 View of the access road alignments (dashed yellow line) onto the R304, looking south east

Figure 19 View of the approved access road alignment (yellow dashed lines) onto the R304, looking north east

Figure 20 View of the proposed access road alignment amendment (yellow dashed lines), looking north

Figure 21 View of the reservoir site where the Wynland pipeline will be relocated, looking south east.

Figure 22 View of the middle of the reservoir site where the Wynland pipeline will need to be relocated, looking south west

Appendix D – Biodiversity Map

Appendix E – Permits, Agreements and State Comments

Appendix F – Public Participation Information

Appendix G – Specialist Reports

Appendix H – Environmental Management Programmes

Appendix I – Screening Tool Report

Appendix J – Impact and Risk Assessments

Appendix K – Need and Desirability

Appendix L – EAP CV

Appendix M – Specialist declarations

Appendix N – Applicant declaration

Appendix O – Revised Part 2 amendment application

In diversity there is beauty and there is strength.

MAYA ANGELOU

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