WATER USE LICENCE APPLICATION - PORTION 3 OF FARM 781, BOT RIVER

1. WULA Summary Report
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WATER USE LICENCE APPLICATION SUMMARY REPORT

APPLICATION FOR A WATER USE LICENCE IN TERMS OF SECTION 21 (B), AND A WATER USE REGISTRATION IN TERMS OF SECTION 21(C) AND (I) OF THE NATIONAL WATER ACT ON PORTION 3 OF FARM 781, BOT RIVER

DWS REF: WU28950

NAME OF APPLICANT:
ERIN DE VIGNE PTY (LTD)

COMPILED BY:
PHS CONSULTING

DATE: October 2024

PHS
CONSULTING
environmental, land-use, eco-tourism planning and management.

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Terms and Abbreviations

AIPs – Alien and Invasive Plant

BOCMA – Breede-Olifants Catchment Management Agency

CMA – Catchment Management Agency

C&R – Comments and Responses report

CVB Wetland - Channel Valley Bottom Wetland

CEMP- Construction Environmental Management Programme

DEA&DP – Department of Environmental Affairs and Development Planning (Western Cape)

DWS – Department of Water and Sanitation

EAP – Environmental Assessment Practitioner

EDLs – Episodic Drainage Lines

ELU – Existing Lawful Use

GA – General Authorisation

GN – Government Notice

I&AP – Interested and Affected Party

NEMA - National Environmental Management Act, Act 108 of 1998

NWA – National Water Act, Act 36 of 1998

OEMP – Operational Environmental Management Programme

PES – Present Ecological State

REC – Recommended Ecological Category

RMO – Recommended Management Objective

RRMMP – River Rehabilitation and Maintenance Management Plan

SDP – Site Development Plan

SuDs – Sustainable Drainage Systems

SWMP – Stormwater Management Plan

UST- Underground storage tank

WULA – Water Use Licence Application

ZoR – Zone of Regulation

1. Applicant details

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2. Person submitting application

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3. Background and purpose

3.1. Background

In 2010, Erin de Vigne (Pty) Ltd (formerly Aldolite Investments (Pty) Ltd) acquired Portion 3 of Farm 781 from Gratedean Ltd (Barton Wines). The farm benefits from an existing lawful use (ELU) water allocation from the Huiskloof River, enabling irrigated cultivation. Currently, approximately 14 hectares are under cultivation, with 11.5 hectares irrigated. Water availability from the Huiskloof River weir is unreliable during the summer months. As such, the applicant would like to increase the onsite water storage capacity to capture more water during the high-flow winter months, thereby reducing dependence on river water during the drier summer season. The applicant is currently seeking authorisation under NEMA for the expansion of viticulture operations onsite, including the development of an additional 10 hectares of vineyards, the construction of a new dam (Dam 4), and the enlargement of the existing Dam 2 on the property.

When Portion 3 of Farm 781 was established as an independent property in 2003, a total of 130 000m^3 of water from the Huiskloof River was allocated to the property as part of the subdivision to ensure the portion remained a viable agricultural unit. In order to transport this water to the property, a pipeline and offtake weir have been developed within the Huiskloof River (located southwest of the site) which transports water to the property by means of gravity feed. The development of the pipeline

and weir were authorised in 2019 by means of a NEMA S24G process, however, the relevant water use authorisations are yet to be obtained. The farm lies within Quaternary catchment G40G which forms part of the Breede Water Management Area. The Breede-Olifants Catchment Management Agency (BOCMA) is the authorising agent for this area on behalf of the Department of Water and Sanitation (DWS). Upon consultation with BOCMA it was determined that an integrated WUA process is required for the above-mentioned activities.

The location map is presented in Figure 1 and the preferred SDP is shown in Figure 2.

Property Background & Water Allocation

Portion 3 of Farm 781 is a working farm with various infrastructure and agricultural practices etc. in place. Historical aerial photography from the CD: NGI database indicates that the geographical area of Portion 3 of Farm 781 has been cultivated since at least 1989. The proposal involves the expansion of the existing agricultural and associated elements on the farm only. Portion 3 of Farm 781 is located within a rural area and is zoned for agricultural use. About 65% of the study area is deemed to be disturbed. These areas are either currently or previously cultivated, previously quarried, or used for residential purposes, and support mostly negligible natural vegetation. Three out of stream dams are also located on the site.

The 130 000m^3 irrigation was confirmed by BOCMA as ELU in August 2024.

Water Transport & Use

Prior to the sale of Portion 3 of Farm 781 in 2010 the water allocated to the farm was used for irrigation purposes on Portion 1 of Farm 781 by means existing infrastructure. The new owner of Portion 3 of Farm 781 could however not tap into the existing water infrastructure after buying the land and another option for surface water abstraction was written into the title deed. An old existing furrow adjacent to the Huiskloof River diverts water to a servitude dam on Portion 4 of Farm 781, and the understanding was that Portion 3 of Farm 781 would be allowed to abstract their 130 000m^3 / annum from this dam. The new owner of portion 3 of Farm 781 could however also not make use of this entitlement given that the elevation of the servitude dam is lower than the property.

In order to utilize the property's water allocation, the new owner of Portion 3 of Farm 781 elected to develop an offtake weir and pipeline from the existing offtake point within the Huiskloof River to transport water by means of gravity feed to the farm. The weir consists of a wall about 1,7m in height from the base at the downstream side of the weir. The width of the wall is approximately 8m in total with an overflow of about 1,5m wide in the centre of the active channel. Beyond the active channel is a concrete pool that houses the offtake pipe for the diversion of runoff from the channel. At the base of the weir wall is a concrete shelf approximately 2m wide from the wall which acts as scour protection immediately downstream of the structure. The offtake pipeline has a diameter of 200mm and was laid across a distance of approximately 3km, and it transports the water via gravity to the existing Dam 2 and Dam 1 on P3/781.

Proposed Development:

- A new irrigation area of approximately 10ha.
- The construction of a new dam (Dam 4) located directly downstream of existing Dam 1 with a storage capacity of 2000 m^3. The dam will have a 4,9m wall height and a total footprint area of 0,15ha. This will include the excavation of a new open channel spillway on the embankment left flank.
- The expansion of Dam 2 from 25 000m^3 storage capacity to a 67 000m^3 storage capacity with a new core and cut-off trench. The dam will have a 4,2m wall height and a total footprint area of 2,5ha. This will include a 250mm diameter HDPE outlet pipe Class PE100 PN10 and a 315mm diameter HDPE overflow spillway pipe.

The new dam (Dam 4) and the proposed enlarged Dam 2 would both consist of earthfill embankments. The proposed development activities will increase the total onsite water storage capacity to 78 000m^3 which is 60% of the annual allocation. The new irrigation areas would consist of two portions between Dam 1 and Dam 2 and two portions beneath (East of) Dam 1 and be approximately 11,8ha collectively (Figure 2).

Water Use Activities:

There are currently three dams located on Portion 3 of Farm 781 (Figure 2). Historical imagery indicates that Dam 1 and a portion of Dam 2 were present onsite during the NWA qualifying period, and Dam 2 with a storage capacity of 25 000m^3 has been registered as an ELU. Dam 3 was constructed in 2011. The owner of Portion 3 of Farm 781 (Erin de Vigne (Pty) Ltd) is authorised to take 130 000 m^3/annum of water from the Huiskloof River. Currently only a portion of this water is being taken and the total existing storage within the three onsite dams is 34 000 m^3.

The inundation resulting from the development of the weir and the proposed increase in onsite water storage capacity triggers Section 21(b) of the National Water Act (Act 36 of 1998). Furthermore, the weir, the majority of the pipeline, the new proposed dam development activities and the majority of the vineyard development activities will take place within the 500m regulated area of a wetland. A portion of the proposed cultivation area East of Dam 1 will also fall within the 100m regulated area of the Bot River (Figure 3). As such, these development activities require authorisation in terms of the NWA.

This WULA application is in terms of section 21(b), (c) and (i) of the National Water Act (Act 36 of 1998). For the purposes of this Act, water use includes –

(b) storing water
(c) impeding or diverting the flow of water in a watercourse;
(i) altering the bed, banks, course or characteristics of a watercourse.

A Freshwater Ecological report, inclusive of a DWS GN509 Risk Assessment Matrix was completed for the proposed dam development activities (FEN, 2023). The potential impacts pertaining to the proposed Dam 2 expansion activities and cultivation extension areas between Dam 1 and Dam 2

were deemed to pose no quantum of risk on any freshwater ecosystems and therefore were not rated in the risk assessment matrix. Only the activities pertaining to the newly proposed dam directly downgradient of Dam 1 and the cultivation areas East of Dam 1 were assessed within the DWS GN509 Risk Assessment Matrix. These proposed development activities were found to be of 'Low' risk. As such the development activities fall within the ambit of a General Authorisation in terms of Section 21 (c) and (i) of the NWA. The proposed development activities will however increase the total onsite water storage capacity to 78 000m^3, which exceeds the threshold for GA authorization within the quaternary catchment. A WULA will thus be required in terms of Section 21(b) of the NWA.

An aquatic specialist report was also undertaken for the weir and pipeline development activities (FreshwaterConsulting, 2017). Upon consultation with the relevant freshwater consultant, it was determined that the damming caused by the weir is excluded from the GA provision. As such a WULA will also be required for the weir in terms of Section 21 (b) of the NWA.

Given the above information, an integrated WULA will be undertaken for the existing and proposed development activities.

Figure 1: Location of P3/781 (outline in red)

Figure 2: Preferred Spatial Development Plan indicating the location of the proposed water uses. The orange pipeline is existing.

3.2. Location of water uses

The project in respect of which this water use licence application is submitted is located in the Western Cape Province, within Caledon (Magisterial district) near Botriver. The water uses will take place on Portion 3 of Farm 781, and in registered servitudes for RE Portion 1 of Farm 781, RE Farm 474, Portion 59 of Farm 781, RE Portion 4 of Farm 781, and Portion 57 of Farm 781, Bot River, which forms part of the G40G Quaternary Catchment, within the Breede Water Management Area. There is existing access to the farm via the R43 and the Karwyderskraal road.

Table 1: Property Details

Property description	Title Deed number	Owner	Applicant	SG Code
Portion 3 of Farm 781, Bot River	T001989/10	Erin de Vigne (Pty) Ltd	Erin de Vigne (Pty) Ltd	C01300000000078100003
RE Portion 1 of Farm 781, Bot River	Weir and pipeline – registered servitude		Erin de Vigne (Pty) Ltd	C01300000000078100001
RE Farm 474, Bot River	Pipeline – registered servitude		Erin de Vigne (Pty) Ltd	C01300000000047400000
Portion 59 of Farm 781, Bot River	Pipeline – registered servitude		Erin de Vigne (Pty) Ltd	C01300000000078100059
RE Portion 4 of Farm 781, Bot River	Pipeline – registered servitude		Erin de Vigne (Pty) Ltd	C01300000000078100004
Portion 57 of Farm 781	Pipeline – registered servitude		Erin de Vigne (Pty) Ltd	C01300000000078100057

An initial scan on CapeFarmMapper identified a river, the Bot River and a natural floodplain wetland associated with the Bot River on the southeastern perimeter of the site as well as a non-perennial drainage line North of the site (Figure 3). There are also several artificial wetlands located within 500m from the site (Figure 3). The Huiskloof River is located to the southwest of the site and desktop resources indicate that there is a channelled valley bottom wetland associated with this river system. The water uses associated with the dams and vineyard development will take place on Portion 3 of Farm 781, Bot River. The offtake weir is located in a registered servitude on RE Portion 1 of Farm 781, Bot River and the pipeline servitude will cross several properties namely, RE Portion 1 of Farm 781, RE Farm 474, Portion 59 of Farm 781, RE Portion 4 of Farm 781, Portion 57 of Farm 781 and Portion 3 of Farm 781, Bot River.

According to the Aquatic and Freshwater Assessment undertaken by FEN consulting for the proposed dam and vineyard development activities, the non-perennial drainage line system indicated by desktop resources to be located North of the site, is in actual fact an unchanneled valley bottom (UVB) wetland (Figure 4)) (FEN, 2023). This wetland was delineated by the freshwater ecologist along with the Bot River and its associated wetland system (Figure 4).

The freshwater specialist assessment undertaken by Freshwater Consulting in 2017 for the development of the weir and pipeline determined that at the point where the weir was constructed, the river profile of the Huiskloof River flattens considerably and the river changes from a foothill

cobble bed system to a channelled –valley bottom wetland with seep wetlands feeding into the valley bottom (FreshwaterConsulting, 2017). This wetland system is indicated in Figure 5.

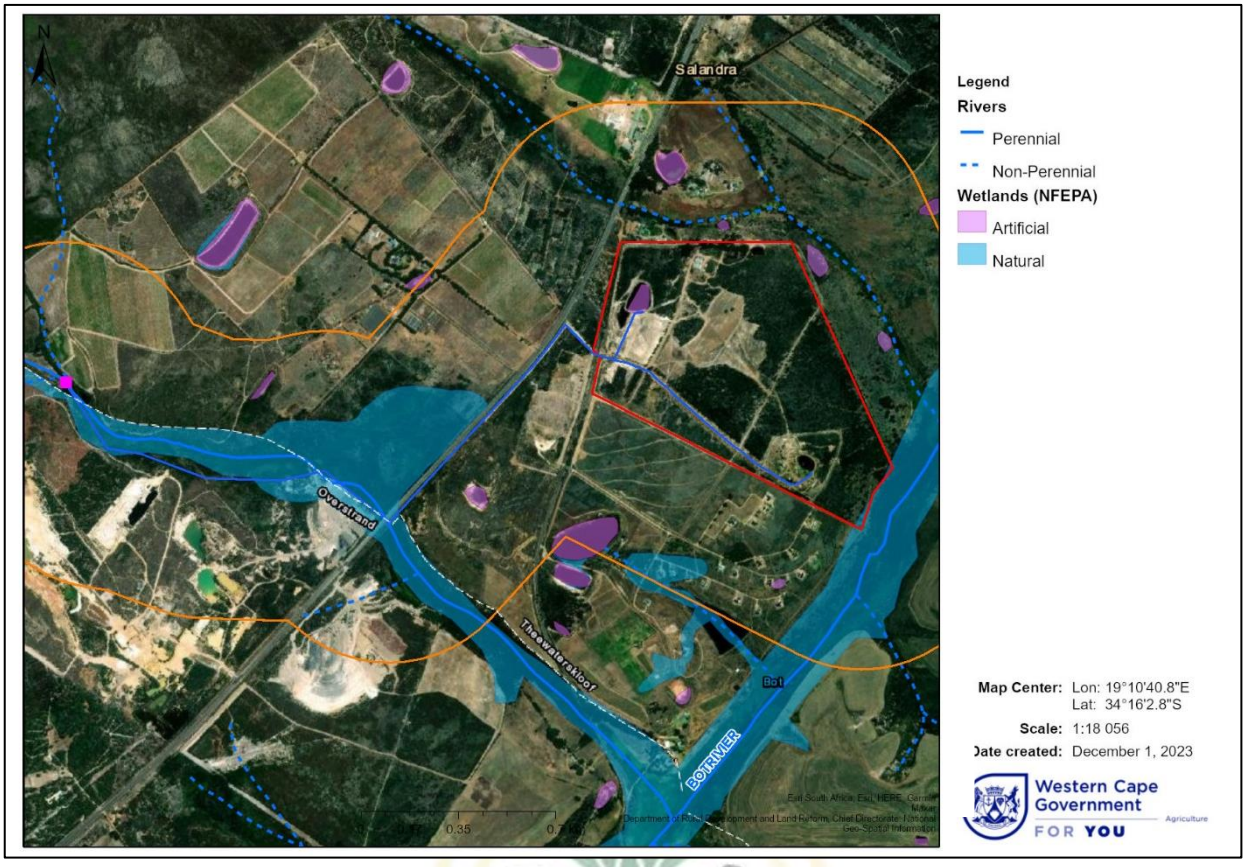

Figure 3: Water resources in relation to P3/781 indicated in red outline. Wetland regulated area indicated by orange outline (CapeFarmMapper)

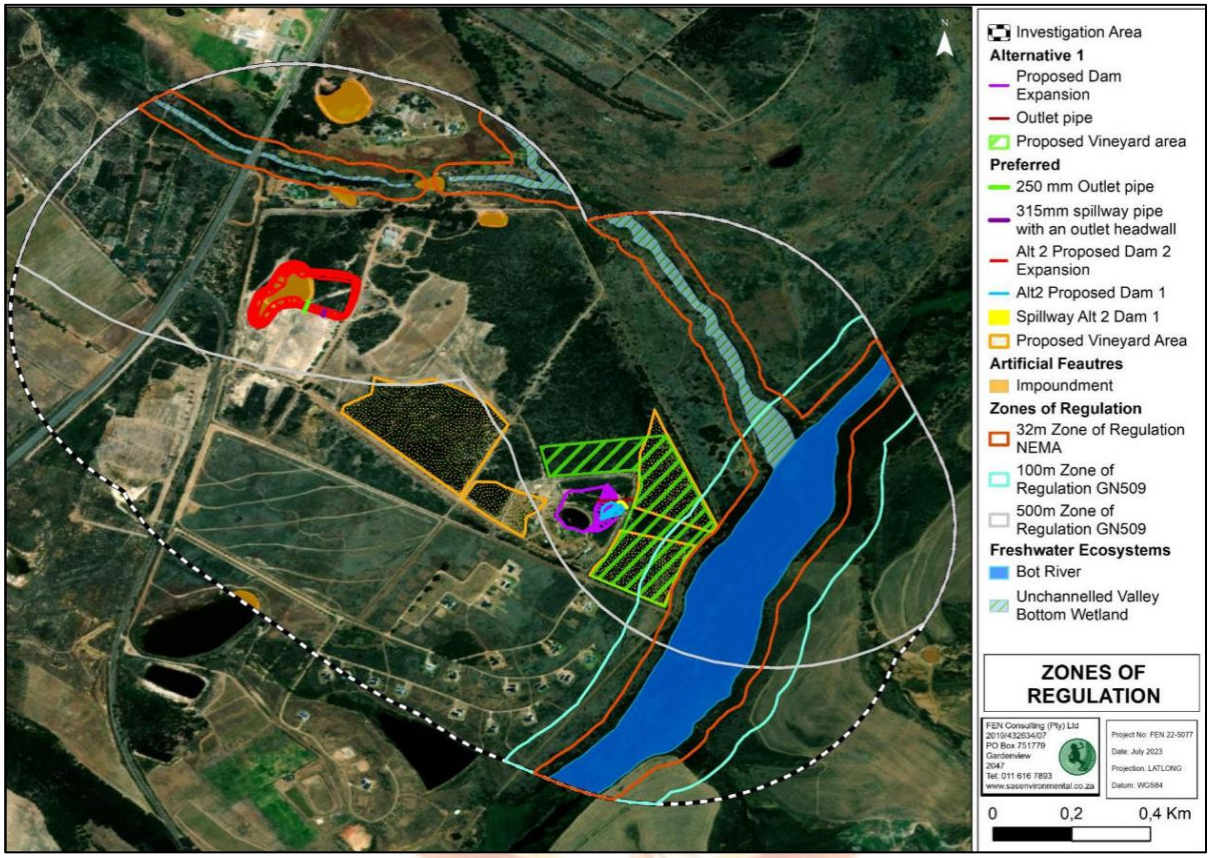

Figure 4: Delineated extent of freshwater ecosystems falling within the investigation area around the proposed development (proposed dam and vineyard development), alternatives including their applicable zones of regulation under the NWA and NEMA. (FEN, 2023).

Figure 5: The Huiskloof River catchment showing the three upper tributaries that rise in the Houwhoek Nature Reserve and merge within Farm 1/781 to form the Huiskloof River which continues as a channelled valley bottom wetland (Blue area) fed by seep wetlands (green area) (FreshwaterConsulting, 2017).

4. Administrative documents and other technical reports submitted to support the WULA

4.1. Administrative documents

The following administrative documents will be submitted to BOCMA as part of the application:

- Proof of Payment of Water Use Licence Application Processing Fee
- Copy of Identity Document of applicant **delegated person**
- Copy of Erin de Vigne Pty (Ltd) company registration certificate
- Power of Attorney for PHS Consulting to lodge the WULA application on behalf of the applicant.
- Title Deed for Portion 3 of Farm 781 Bot River
- SG docs for RE Portion 1 of Farm 781, RE Farm 474, Portion 59 of Farm 781, RE Portion 4 of Farm 781, and Portion 57 of Farm 781, Bot River, showing servitude.

4.2. Reports and other technical documents

The reports and technical documents that will be submitted to BOCMA as part of the application are listed in Table 2 below.

Table 2: List of reports and other technical documents submitted

Number	Report Title	Compiled by	Date of report
1	Aquatic and Freshwater Assessment for the proposed dam expansion and vineyard extension alternatives on Portion 3 of farm 781, Bot River, Overstrand Municipality, Western Cape (Including DWS risk matrix)	Freshwater Ecological Network (FEN)	July 2023
2	Engineering Letter Report for the construction and the enlargement of Erin de Vigne Dams	DJ Hagen & Associates	10 July 2023 Updated August 2024
3	3.1. Environmental Management Programme - The proposed construction of a new dam (Dam 4), expansion of an existing dam and the expansion of the existing cultivation areas, on Portion 3 of Farm 781 (Erin De Vigne), Bot River, Western Cape.	PHS Consulting	October 2024

	3.2. EMPr Appendices		
4	Aquatic Report - NEMA Section 24G Rectification Application for a weir and pipeline on farm 781, Botriver	FreshwaterConsulting	November 2017
5	Survey Diagram Confirming pipeline and weir servitude	Brian Mellon and Associates, Land Surveyors	September 2010
6	Weir Design	ULWAZI Consulting Engineers	18 March 2010
7	Environmental Management Programme – The construction of a pipeline and weir in the Huiskloof Rover, Botrivier.	PHS Consulting	August 2018
8	Environmental Authorisation Farm 781 Caledon_0014_Issued 14 November 2019	DEADP (Directorate: Environmental Governance; Sub-Directorate: Rectification)	14 November 2019
9	Preferred SDP	PHS Consulting	August 2023
10	P3 of 781 Water Use Coords explanatory document	PHS Consulting	September 2024
11	Erin ELU confirmation	PHS Consulting	August 2024
12	S27 Motivation report (included in this report)	PHS Consulting	September 2023

5. Project Description

Water for use in Portion 3 of Farm 781 Bot River is obtained from the Huiskloof river located southwest of the site. Water abstraction takes place from within the Huiskloof river at an existing offtake weir, whereafter water is gravity fed to the property by means of an existing pipeline as indicated in Figure 2. The construction activities associated with the pipeline and offtake weir were authorised by means of the Section 24G process in 2019. The following activities were / will be undertaken as part of the proposed development:

Table 3: Project Details

Activity	Water use to be applied for (S21 of NWA)	Description
Existing Dam 1	(b), (c) & (i)	Dam 1 originally functioned as a quarry, however over time, it began to accumulate water and eventually

		was repurposed and utilized as a dam (Dam 1) with a storage capacity of 6000m^3. The development footprint is located within the 500m regulated area of the Bot River floodplain wetland East of the site and the UVB wetland delineated North of the site.
Expansion of Dam 2	(b), (c) & (i)	The proposed expansion of Dam 2 would be an earth fill embankment with a maximum wall height of 4,2m, a total footprint area of 2,5ha and enlarged from 25 000m^3 to 67 000m^3 storage capacity, with a new core and cut-off trench. A 250mm dia HDPE outlet pipe Class PE100 PN10 and a 315mm dia HDPE overflow spillway pipe is also proposed. The proposed development footprint is located within the 500m regulated area of the UVB wetland delineated North of the site.
Development of Dam 3 in 2011 (completed)	(b), (c) & (i)	An earthen dam with a capacity of 3000m^3 was developed in the northern portion of the site in 2011. The development footprint is located within the 500m regulated area of the UVB wetland that has since been delineated North of the site.
Construction of a new dam (Dam 4) downgradient of Dam 1 and associated spillway on the left embankment.	(b), (c) & (i)	A new earth fill embankment with an open channel spillway on the embankment left bank, maximum wall height of 4,9m, total footprint area of 0,15ha and 2 000m^3 storage capacity is proposed immediately north-east (directly downstream) of Dam 1. The development footprint is located within the 500m regulated area of the Bot River floodplain wetland East of the site and the UVB wetland delineated North of the site.
Development of vineyards.	(c) & (i)	The planned vineyards East of Dam 1 and a portion of the planned vineyards between Dam 1 and Dam 2 (approximately 5,25ha) fall within the 500m regulated proximity of the wetland system associated with the Bot River and the UVB wetland located North of the development site. A portion of the planned vineyards East of Dam 1 also fall within the 100m regulated proximity of the Bot River. Wine grapes will be cultivated within the proposed vineyards and cover

		crops will be planted between the vines. The vineyards will require irrigation, and an irrigation network will therefore also be established within the regulated area. Irrigation will take place between 05:00 and 12:00 to minimize evaporation. Drip irrigation at 600mm centres on the vine trellis will be implemented.
Construction of an offtake weir from an existing offtake point within the Huiskloof River	(b), (c) & (i)	A weir was constructed at an existing offtake point within the Huiskloof River to facilitate water transport to P3/781. This weir has resulted in damming of water within this instream habitat. The aquatic specialist has requested further amendments to ensure the release of baseflow as outlined in Section 11 of this report.
Development of a pipeline from the offtake weir within the Huiskloof River to P3/781 (completed)	(c) & (i)	An approximately 3km long pipeline was developed to facilitate water transport by means of gravity feed from the offtake weir in the Huiskloof River to P3/781. The pipeline runs from the diversion weir along the southern bank of the Huiskloof River channel until it reaches the R43 where it crosses the river channel immediately upstream of the culvert under the road through which the Huiskloof River flows. Immediately downstream of the culvert, the pipeline turns northeast away from the river to a storage dam on P3/781.

6. Methods statement (only for 21 (c) and (i) activities)

The construction of the weir and pipeline have already been completed. As such method statements for the construction phase of these (c) and (i) activities cannot be outlined at this stage. The pipeline route involved the excavation of a trench within and adjacent to watercourses. Excavated material was placed alongside the trench. Thereafter the pipe was laid within the trench and excavated material was backfilled to cover the pipe. Therefore, each 100m section was excavated and backfilled within a period of 2 days. As the pipeline is located underground should any peripheral watercourse vegetation have been disturbed this would have rehabilitated itself in the long term as the topsoil was backfilled.

The following method statements have been developed for activities related to the S21 (c) and (i) water uses:

1. Development of dams and associated infrastructure (irrigation network, spillways and outlet pipes) within the 500m regulated area of a wetland,
2. Development of viticulture within the 500m regulated area of a wetland and within the 100m regulated area of a river,
3. Operation of the diversion/offtake weir instream and within the 500m regulated area of a wetland.
4. Maintenance activities (e.g., repairs and general maintenance for the dam, pipes, and weir, silt removal etc.) within the 500m regulated area of a wetland.
5. Alien vegetation removal within the 500m regulated area of a wetland.

MS1 - Development of dams and associated infrastructure (irrigation network, spillways and outlet pipes) within the 500m regulated area of a wetland.

Description of activity	**A new dam (Dam 4) will be developed directly downgradient of existing Dam 1, and Dam 2 will be expanded. The infrastructure associated with these development activities include the installation of spillways, outlet pipes and irrigation infrastructure. These development activities will take place within the 500m regulated proximity of a wetland.**
Actions	Vegetation removal, groundbreaking, excavation, trenching, infrastructure installation and construction activities related to building activities within the 500 m regulated area (>200 m) from a floodplain and/or CVB wetland.

Impacts of actions	- Excavation and trenching leading to the stockpiling of soil:
	  o Runoff from stockpiled material or sediment laden runoff from the dam construction footprint and could result in sedimentation of downslope watercourses.
	- Movement of construction machinery, equipment and personnel within the regulated area of a wetland:
	  o Soil disturbance and increased risk of sedimentation
	  o Possible contamination of soil and surface water from oils and hydrocarbons originating from construction vehicles
	- Removal of vegetation and associated soil disturbance:
	  o Exposure of soil, leading to increased runoff, and erosion, and thus increased sedimentation of the downslope watercourses.
	  o Proliferation of alien vegetation as a result of disturbances.
	- Potential spillage from construction vehicles
	- Possible contamination of soil and surface water due to concrete works and runoff originating from the construction site
	- Erosion and incision due to new and expanded dam walls and erosion related to the outflow of water from the dams.

Severity of impacts	The severity of the potential impacts associated with the development of the new dam (Dam 4) were determined to be 'Low' with application of mitigation measures. The potential impacts pertaining to the proposed Dam 2 expansion activities were deemed to pose no quantum of risk on any freshwater ecosystems.

Measures to mitigate the severity of the impacts	General: - All construction activities are to be undertaken and completed within the summer dry season. - The riparian area of the Bot River which is 35m downgradient of the lower boundary of the proposed vineyard must be considered a no-go area for vehicles and staff and vehicle movement must be limited to existing dirt roads as far as operationally possible - Contractor laydown areas and material storage facilities must ideally remain outside the watercourse regulated area, alternatively, a suitable site location must be approved by the appointed ECO and vehicle re-fuelling must take place off site. - Dedicated parking area for construction vehicles must be located away from sensitive areas, and drip trays must be located beneath any leaking equipment and lubricant/fuel absorbing media (moss/peat type products) within drip trays must be used to contain spilled material. Leaking equipment must be repaired immediately. - All cleared vegetation must be stockpiled in a designated area, outside of the delineated extent of the Bot River and after clearing, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site. - All exposed soils must be protected for the duration of the construction phase with a suitable geotextile (e.g. Geotextile or hessian sheeting) to prevent dust generation that could potentially result in vegetation smothering and sedimentation of the Bot River riparian zone and the terrestrial fynbos vegetation. - Material quarries for dam wall expansion should be inert and unable to leach toxicants to the receiving environment prior to commencement of works. - The material excavated from the dam basin intended for use in the construction of the dam wall must be stockpiled in the area associated with the dam's proposed new inundated full supply level footprint (west of the dam wall). - All stockpiles should not exceed 2m in height and should be covered with a suitable geotextile such as hessian sheeting to prevent excessive dust generation and/or sedimentation. Stockpiles may not become contaminated. - Topsoil must be stockpiled separately from all other materials, for use to cover the new dam wall for revegetation. - Trenches should be backfilled as soon as the pipes have been installed in any given section in order to reduce potential erosion of exposed soil. - Mixture of the lower and upper layers of the excavated soil should be kept to a minimum.

	- Unused excavated soil/sediment should be utilised as part of the agricultural areas or be removed from site to a registered landfill.
	- Where outflow points are required, outlet structures must be at ground level to prevent erosion and gully formation. Rocks must be placed at any outlet pipes (downgradient of the dam wall) to be installed within the dam wall and indigenous vegetation established to bind the soil of the bed and to prevent erosion.
	- Airborne dust must be reduced at construction sites through:
	  o Damping dust generation areas with freshwater (although not in sufficient quantities to generate runoff);
	  o Use of geotextile or brush barrier fences; and
	  o Covering stockpiles with plastic sheets.
	- Edge effects of activities including erosion and alien/ weed control need to be strictly monitored and controlled.
	- The dam walls should be earth and no hard infrastructure (such as gabion baskets should be used).
	- All dam walls must be revegetated after the construction activities to stabilize soil and prevent erosion of the dam wall. A graminoid seed mixture can be used for this purpose, as it will allow for quick establishment.
	- Any erosion or incision observed as a result of the new or expanded dam wall should be addressed using the following methods to prevent sedimentation of the dams to retain their maximum supply level:
	  o Re-sloping – side walls of the dam should be re-sloped to a 3:1 ratio in order to prevent further gully formation during the operation of the dams.
	  o Brush layering is when branches are placed perpendicular to the slope contour. This method is effective for earth reinforcement and mass stability.
	  o Live gully repair is a technique that is similar to branch packing but is used to repair rills and gullies. Live gully repairs offer immediate reinforcement and reduce the velocity of concentrated flows. They also provide a filter barrier that reduces further rill and gully erosion and must be used where gully erosion is taking place on the project footprint.
	- The dams, spillways, and any outlet pipes should regularly be inspected for erosion, especially after heavy rainfall events when overflow from the dams is expected and the flow velocity is increased. If erosion is noted, this should be rectified, preferably through the reinstatement of vegetation in the eroded areas. If erosion is pronounced, erosion control devices such as reno mattresses should be considered, in consultation with a freshwater specialist;

	<u>Should concrete be required:</u> - Fresh concrete and cement mortar should not be mixed below the modelled 1:100-year flood line of the CVB wetland and at least 32m from the delineated extent of the CVB wetland and seep wetland. Mixing of cement may be done within the construction camp, may not be mixed on bare soil, and must be within a lined, bound or bunded portable mixer. Consideration must be taken to use ready mix concrete. - No mixed concrete shall be deposited directly onto the ground. A batter board or other suitable platform/mixing tray is to be provided onto which any mixed concrete can be deposited whilst it awaits placing. - Cement bags must be disposed of in the demarcated hazardous waste receptacles and the used bags must be suitably disposed of. - Spilled or excess concrete must be disposed of at a suitable landfill site. - A washout area must be designated in area that will not be subjected to runoff downgradient and wash water must be treated on-site or discharged to a suitable sanitation system; wash water is not permitted to be discharge into freshwater ecosystems; - Concrete spillage outside of the demarcated area must be promptly removed and taken to a suitably licensed waste disposal site.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Methods of access	Existing access roads should be used as far as possible.
Period of activity	Planning, Construction and (limited) Operational Phase

MS2 - Development of viticulture within the 500m regulated area of a wetland and within the 100m regulated area of a river

Description of activity	**A total of approximately 5,25ha of new vineyards will be established within the 500m regulated area of a wetland. Approximately 1,32ha thereof will also fall within the 100m regulated area of the Bot river.**
Actions	Vegetation removal, ploughing, trenching and installation of irrigation infrastructure within the 500m regulated area from a floodplain and/or CVB wetland and within the 100m regulated area of the Bot River.

Impacts of actions	- Removal of vegetation and soil disturbance resulting from ploughing activities
	  o Exposure of soil, leading to increased runoff, and erosion, and thus increased sedimentation of the downslope watercourses.
	  o Ploughing activities will increase the amount of loose sediment available for transport by means of runoff
	  o Proliferation of alien vegetation as a result of disturbances.
	- Excavation and trenching leading to the stockpiling of soil:
	  o Runoff from stockpiled material could result in sedimentation of downslope watercourses.
	- Movement of construction machinery, equipment and personnel within the regulated area of a wetland:
	  o Soil disturbance and increased risk of sedimentation
	  o Possible contamination of soil and surface water from oils and hydrocarbons originating from construction vehicles
	- Potential indiscriminate waste disposal and/or spillage from construction vehicles

Severity of impacts	Low with mitigation
Measures to mitigate the severity of the impacts	- All development activities are to be undertaken and completed within the summer dry season. - The riparian area of the Bot River which is 35m downgradient of the lower boundary of the proposed vineyard must be considered a no-go area for vehicles and staff and vehicle movement must be limited to existing dirt roads as far as operationally possible. - Dedicated parking area for construction vehicles must be located away from sensitive areas, and drip trays must be located beneath any leaking equipment and lubricant/fuel absorbing media (moss/peat type products) within drip trays must be used to contain spilled material. Leaking equipment must be repaired (immediately and vehicle re-fuelling must take place off site.

	- All cleared vegetation must be stockpiled in a designated area, outside of the delineated extent of the Bot River and after clearing, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site. - All exposed soils must be protected for the duration of the construction phase with a suitable geotextile (e.g. Geotextile or hessian sheeting) to prevent dust generation that could potentially result in vegetation smothering and sedimentation of the Bot River riparian zone and the terrestrial fynbos vegetation. - Trenches should be backfilled as soon as the pipes have been installed in any given section in order to reduce potential erosion of exposed soil. - All stockpiles should not exceed 2m in height and should be covered with a suitable geotextile such as hessian sheeting to prevent excessive dust generation and/or sedimentation. Stockpiles may not become contaminated. - Sediment traps must be installed downgradient of the proposed vineyard for its full length to prevent any excess sediments arising from the construction works being transported into the Bot River and must be regularly cleared by hand. - Airborne dust must be reduced at construction sites through: o Damping dust generation areas with freshwater (although not in sufficient quantities to generate runoff); o Use of geotextile or brush barrier fences; and o Covering stockpiles with plastic sheets. - Edge effects of activities including erosion and alien/ weed control need to be strictly monitored and controlled. - Once construction activities are done, the surrounding area to the construction footprint must be suitably rehabilitated. Only indigenous vegetation species may be used as part of the landscaping of the development, and invasive plant species should be eradicated. - Any erosion or incision observed as a result of the new or expanded dam wall should be addressed using the following methods to prevent sedimentation of the dams to retain their maximum supply level: o Re-sloping – side walls of the dam should be re-sloped to a 3:1 ratio in order to prevent further gully formation during the operation of the dams. o Brush layering is when branches are placed perpendicular to the slope contour. This method is effective for earth reinforcement and mass stability. o Live gully repair is a technique that is similar to branch packing but is used to repair rills and gullies. Live gully repairs offer immediate reinforcement and reduce the velocity of concentrated flows. They also

	provide a filter barrier that reduces further rill and gully erosion and must be used where gully erosion is taking place on the project footprint. - A small drainage furrow should be constructed downgradient of the vineyard, but at least 32m outside of the delineated extent of the Bot River to capture surface runoff during irrigation. This will prevent potentially sediment laden surface water from smothering the riparian zone of the Bot River.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Methods of access	Existing access roads should be used as far as possible.
Period of activity	Planning, Construction and Operational Phase

MS3 - Operation of the diversion/offtake weir instream and within the 500m regulated area of a wetland.

Description of activity	**An offtake weir has been developed on a rocky outcrop within the Huiskloof River**
Actions	Inundation of the upstream channel
Impacts of actions	- Change in habitat from fast flowing riffles and runs over stones to standing water over fine silt which has promoted the proliferation of instream vegetation (mostly *Juncus sp*.) - Habitat disturbance - Habitat fragmentation - Abstraction of water from the Huiskloof River - Construction related impacts including disturbance of the channel banks and bed, increased turbidity
Severity of impacts	N/A – Low with mitigation for all impacts with the exception of habitat fragmentation which as a Medium impact rating. While habitat fragmentation remains a residual impact of medium significance, the structure is stable, and removal would result in undesirable negative impacts with the risk of long-term erosion of the channel banks. It is therefore recommended that the structure be retained with the implementation of mitigation measures, particularly with regards to the provision of environmental flows.
Measures to mitigate the severity of the impacts	Alterations should be made to the weir structure to ensure that the river receives flows prior to diversion. This will ensure that the downstream environment receives flows when it is most stressed while allowing excess runoff during the wetter winter period to be diverted the existing off-channel dam on Farm 3/781 where it can be stored and used during the dry season. Changes in the structure of the weir to ensure the default release of environmental flows will promote the surety of such releases, unlike manual manipulation of water diversion. This can easily be achieved by raising of the weir wall slightly where flow currently enters the diversion pond along the left bank. Thus, it is strongly recommended that such changes be made to the weir structure to maximise surety of environmental flow requirements of the wetland habitat downstream. Water offtake at the weir must be metered.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Methods of access	Existing access roads should be used as far as possible.
Period of activity	Operational Phase

MS4 - Maintenance activities (e.g., repairs and general maintenance for the dam, pipes, and weir, vegetation removal, silt removal etc.) within the 500m regulated area of a wetland.

Description of activity	**Maintenance activities within the 500m regulated area of a wetland.**
Actions	Repairs and general maintenance will be periodically required for the dam, pipes and weir. In addition, vegetation removal from within the inundated area upstream of the weir, silt removal from the dams and flushing of the transport pipeline will also be required. These activities will be undertaken within the 500m regulated area from a wetland
Impacts of actions	- Soil compaction and disturbance around the dam, weir, pipeline and associated watercourses; - Staff operation of the vineyard; - Potential sedimentation of downstream Bot River, Huiskloof River and associated wetlands; - Vegetation degradation and alien invasive proliferation - Flushing of removed vegetation into downstream habitats.
Severity of impacts	Low with mitigation
Measures to mitigate the severity of the impacts	- Only existing roadways should be utilised during maintenance and monitoring activities to avoid indiscriminate movement of vehicles. - The dam will need to be desilted intermittently to ensure the storage capacity is maintained. During desilting, all silt within the dam basins should immediately be removed from site to prevent sedimentation of the Bot River downgradient during outflow events. - Additionally, during desilting a temporary silt trap should be installed at the spillway. This should be emptied on a regular basis during the desilting process to prevent any excess silt being washed down into the Bot River. - Should repair be required to address seepage, mitigations as per construction activities above are applicable depending upon the location and severity of the seepage/structure failure. - Removal of instream vegetation within the ponded area immediately upstream of the weir should be undertaken at the end of the dry season each year before the onset of winter rains. - Vegetation removal should be undertaken by hand, taking care to minimise disturbance of the remaining in-channel habitat and riparian fringe. - Vegetation removed from standing water should be disposed of outside of the river and its riparian fringe to prevent flushing of material into the valley bottom wetland downstream.

	- Flushing of sediments should take place immediately prior to the onset of winter rains each year such that the volume of accumulated sediments is minimised and those that have accumulated over a year are flushed and distributed through the system.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Methods of access	Existing access roads should be used as far as possible.
Period of activity	Operational and Maintenance Phase

MS5 - Alien vegetation removal within the 500m regulated area of a wetland.

Description of activity	**Alien vegetation removal within the 500m regulated area of a wetland**
Actions	Removal of alien invasive vegetation within the 500m regulated area of a wetland
Impacts of actions	AIP Proliferation
Severity of impacts	Low
Measures to mitigate the severity of the impacts	- An AIP control plan must be developed for the freshwater ecosystems within the proposed development area for at least 3 years post construction, thereafter, refocusing on problem alien re-establishment areas. - Only existing roadways should be utilised for vehicle access and clearing must be undertaken manually as far as possible. - Dedicated parking area for construction vehicles must be located away from sensitive areas, and drip trays must be located beneath any leaking equipment and lubricant/fuel absorbing media (moss/peat type products) within drip trays must be used to contain spilled material. Leaking equipment must be repaired immediately. - All cleared vegetation must be stockpiled in a designated area, outside of the delineated extent of the Bot River and after clearing, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site.
Remedial measures	There are no additional remedial mitigation measures.
Methods of access	Existing access roads should be used as far as possible.
Period of activity	Operational and Maintenance Phase

7. Stormwater Management Plan

The onsite dams are not catchment fed and all surface water runoff onsite will ultimately flow towards either the Bot River or the unchanneled valley bottom wetland North of the site. In order to prevent runoff from resulting in erosion the following measures will be implemented onsite:

- Rocks must be placed at any outlet pipes (downgradient of the dam wall) to be installed within the dam wall and indigenous vegetation established to bind the soil of the bed and to prevent erosion. This will also promote diffuse flow and decrease the velocity of water released downgradient towards the Bot River, assuming that this dam will still occasionally release overflows to the Bot River after the vineyard has been developed;
- A small drainage furrow should be constructed downgradient of the vineyard, but at least 32m outside of the delineated extent of the Bot River to capture surface runoff during irrigation. This will prevent potentially sediment laden surface water from smothering the riparian zone of the Bot River.
- Where outflow points are required, outlet structures must be at ground level to prevent erosion and gully formation. Rocks must be placed at any outlet pipes (downgradient of the dam wall) to be installed within the dam wall and indigenous vegetation established to bind the soil of the bed and to prevent erosion.

Edge effects of activities including erosion and alien/ weed control need to be strictly monitored and controlled:

- Any erosion or incision observed as a result of the new or expanded dam wall should be addressed using the following methods to prevent sedimentation of the dams to retain their maximum supply level:
    - Re-sloping – side walls of the dam should be re-sloped to a 3:1 ratio in order to prevent further gully formation during the operation of the dams.
    - Brush layering is when branches are placed perpendicular to the slope contour. This method is effective for earth reinforcement and mass stability.
    - Live gully repair is a technique that is similar to branch packing but is used to repair rills and gullies. Live gully repairs offer immediate reinforcement and reduce the velocity of concentrated flows. They also provide a filter barrier that reduces further rill and gully erosion and must be used where gully erosion is taking place on the project footprint.
- The dams, spillways, and any outlet pipes should regularly be inspected for erosion, especially after heavy rainfall events when overflow from the dams is expected and the flow velocity is increased. If erosion is noted, this should be rectified, preferably through the reinstatement of vegetation in the eroded areas. If erosion is pronounced, erosion control

devices such as reno mattresses should be considered, in consultation with a freshwater specialist.

8. Rehabilitation Plan

Rehabilitation actions are outlined in several project documents as collated here below:

Weir and pipeline:

The development of the pipeline and weir from the offtake point within the Huiskloof River has already been completed. The following actions were taken to rehabilitate the disturbed watercourses as outlined in the relevant S24G application:

- The pipeline route involved the excavation of a trench within and adjacent to watercourses. Excavated material was placed alongside the trench. Thereafter the pipe was laid within the trench and excavated material was backfilled to cover the pipe. Therefore each 100 m section was excavated and backfilled within a period of 2 days. As the pipeline is located underground should any peripheral watercourse vegetation have been disturbed this would have rehabilitated itself in the long term as the topsoil was backfilled.
- The development of the weir resulted in the disturbance of the Huiskloof River as outlined in Section 11 of this report. Several mitigation and management actions were recommended to address these impacts – refer to Section 11 of this document. With the implementation of these measures, it is likely that the majority of impacts can be mitigated with residual impacts of low ecological significance. While habitat fragmentation is the only residual impact of medium significance, if is recommended that the weir be retained as removal could result in impacts of higher significance.

Development of a new dam (Dam 4) downstream of Dam 1, expansion of the existing Dam 2 and expansion of the existing cultivation:

The EMPr for the proposed construction of a new dam, expansion of an existing dam and the expansion of the existing cultivation areas requires the following in terms of site clean-up:

- The Contractor must ensure that all structures, equipment materials and facilities used on site are removed once the project has been completed. The construction site shall be cleared and cleaned to the satisfaction of the ECO.
- All dam walls must be revegetated after the construction activities to stabilize soil and prevent erosion of the dam wall. A graminoid seed mixture can be used for this purpose, as it will allow for quick establishment.

In addition, the following post construction rehabilitation requirements to maintain ecological condition have been outlined by the freshwater ecologist (FEN, 2023):

- An alien vegetation monitoring programme should be developed to monitor any further growth of potential alien vegetation surrounding the dam and cleared vineyard area (with specific mention of *Eucalyptus spp*, *Acacia mearnsii*, and *Pinus pinaster* to name a few). This will need to be monitored until all natural vegetation has re-established surrounding the dam and vineyard area;
- Any erosion or incision observed because of the newly expanded dam wall should be addressed using the following methods to prevent sedimentation of the dams to retain their maximum supply level:
    - Re-sloping – side walls of the dam should be re-sloped to a 3:1 ratio in order to prevent further gully formation during the operation of the dams.
    - Brush layering is when branches are placed perpendicular to the slope contour. This method is effective for earth reinforcement and mass stability. Brush layers break up the slope length, preventing surface erosion, and reinforce the soil with branch stems and roots, providing resistance to sliding or shear displacement. Brush layers also trap debris, aid infiltration on dry slopes, dry excessively wet sites, and mitigate slope seepage by acting as horizontal drains. Brush layers facilitate vegetation establishment by providing a stable slope and a favourable microclimate for growth of vegetation (USEPA, 2005).
    - Live gully repair is a technique that is similar to branch packing but is used to repair rills and gullies. Live gully repairs offer immediate reinforcement and reduce the velocity of concentrated flows. They also provide a filter barrier that reduces further rill and gully erosion and must be used where gully erosion is taking place on the project footprint (USEPA, 2005).
    - All litter and construction waste must be removed from the site and disposed of at a registered waste facility.
- All dam walls must be revegetated after the construction activities to stabilize soil and prevent erosion of the dam wall. A graminoid seed mixture can be used for this purpose, as it will allow for quick establishment.

Further to this Method Statements have been developed for construction activities related to Section 21 (c) and (i) water use activities (refer to section 6 of this document).

9. Water Uses applied for

The application includes the following water uses as detailed in Table 4.

Table 4: Water Uses Applied for

Water use(s) activities	Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/ dimension (Area (ha) Length/depth, (m))	Property Description	Co-ordinates
Section 21(a)				
N/A				
Section 21(b)				
Storing water in Dam 1	*Irrigation*	6 000m^3	Portion 3 of Farm 781, Bot River	34°16'6.48"S 19°11'26.48"E
Storing water in Dam 2 (Expanded)	*Irrigation in summer when there is low flow*	Additional 42 000m^3 to result in total volume of 67 000m^3.	Portion 3 of Farm 781, Bot River	34°15'47.95"S 19°11'4.54"E
Storing water in Dam 3	*Irrigation*	3 000 m^3	Portion 3 of Farm 781, Bot River	34°15'41.93"S 19°11'19.44"E
Storing water in new dam (Dam 4) downgradient of Dam 1	*Irrigation in summer when there is low flow*	2 000m^3	Portion 3 of Farm 781, Bot River	34°16'5.62"S 19°11'29.13"E
Damming of water due to the nature of in the instream offtake weir within the Huiskloof River	Offtake point for transport to storage dams where water is used for irrigation.	±38m^3	Portion 1 of Farm 781 Bot River	34°15'57.19"S 19° 9'42.57"E
Section 21 (c & i)				
Development of Dam 1	Storage of irrigation water	0,29ha	Portion 3 of Farm 781, Bot River	Refer to Technical Document: Coordinates for proposed S21 water uses being applied for
Expansion of Dam 2	Storage of irrigation water for use during low flow summer	2,5ha	Portion 3 of Farm 781, Bot River	
Development of Dam 3	Storage of irrigation water for use during low flow summer	0,2ha	Portion 3 of Farm 781, Bot River	
Construction of a new dam (Dam 4) downgradient of Dam 1 and associated spillway on the left embankment	Storage of irrigation water for use during low flow summer	0,15ha	Portion 3 of Farm 781, Bot River	
Development of vineyards (inclusive	Agriculture	5,25ha	Portion 3 of Farm 781, Bot River	

Water use(s) activities	Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/ dimension (Area (ha) Length/depth, (m))	Property Description	Co-ordinates
of an irrigation network)				
Construction of a new offtake weir from an existing offtake point within the Huiskloof River	Transport of registered irrigation water to Portion 3 of Farm 781 for irrigation purposes.	±20m^2	RE Portion 1 of Farm 781, Bot River	
Development of a pipeline from an existing offtake weir within the Huiskloof River (on Portion 1 of Farm 781) to Portion 3 of Farm 78.	Transport of registered irrigation water to Portion 3 of Farm 781 for irrigation purposes.	Approximately 3km long, 200mm diameter.	• RE Portion 1 of Farm 781, Bot River • RE Farm 474, Bot River • RE of Portion 4 of Farm 781, Bot River • Portion 57 of Farm 781, Bot River • Portion 3 of Farm 781, Bot River.	
Section 21 (d)				
N/A				
Section 21 (e)				
N/A				
Section 21(g)				
N/A				
Section 21(f)				
N/A				
Section 21(h)				
N/A				
Section 21(j)				
N/A				

10. Description of the Environment

Details taken from the FEN Aquatic and Freshwater Assessment for the proposed dam expansion and vineyard extension alternatives on Portion 3 of Farm 781, Bot River (FEN, 2023):

The site under evaluation is located within the Breede-Olifants Water Management Area, quaternary catchment G40G. The regional setting is within the Southern Folded Mountains. These comprise predominantly low relief plans, slightly undulating plains and high mountains. The site is located within a winter rainfall region with a mean annual precipitation between 200-500mm. The mean annual temperature ranges between 16-18°C. The study area is situated within the East Coast Shale Renosterveld (Critically Endangered) wetland vegetation type. The study area is located within a sub-quaternary catchment that is not associated with any NFEPA sensitivity designation.

According to the NBA (2018) database, no freshwater ecosystems occur within the study area, however there is a floodplain wetland associated with the Bot River within the investigation area, which corresponds with the NFEPA Dataset (2011) which is considered heavily to critically modified (Class DEF) (Figure 6 & Figure 7). The Ecosystem Threat Status (ETS) of the floodplain wetland is critically endangered and the wetland is poorly protected according to the Ecosystem Protection Level (EPL). According to the NBA (2018) database, the Bot River is largely modified (Class D), critically endangered (ETS) and currently not protected (EPL). A channelled valley bottom wetland also occurs within the investigation area (Figure 6 & Figure 7) which according to the NBA (2018) database is in a moderately modified ecological condition (Class C) with an ETS and EPL of critically endangered and poorly protected respectively.

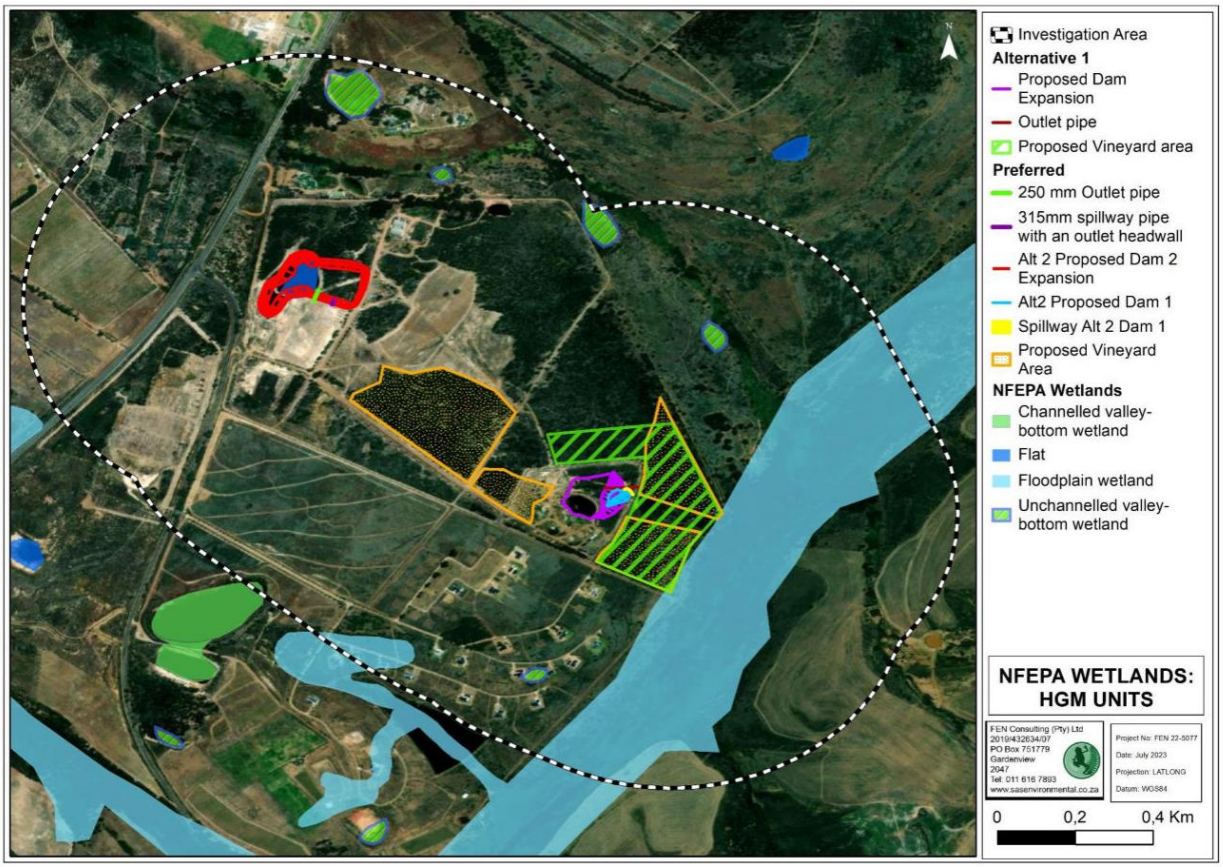

Figure 6: Different hydrogeomorphic (HGM) units associated with the investigation area (proposed dam and vineyard development) according to the NFEPA database (2011)(FEN, 2023).

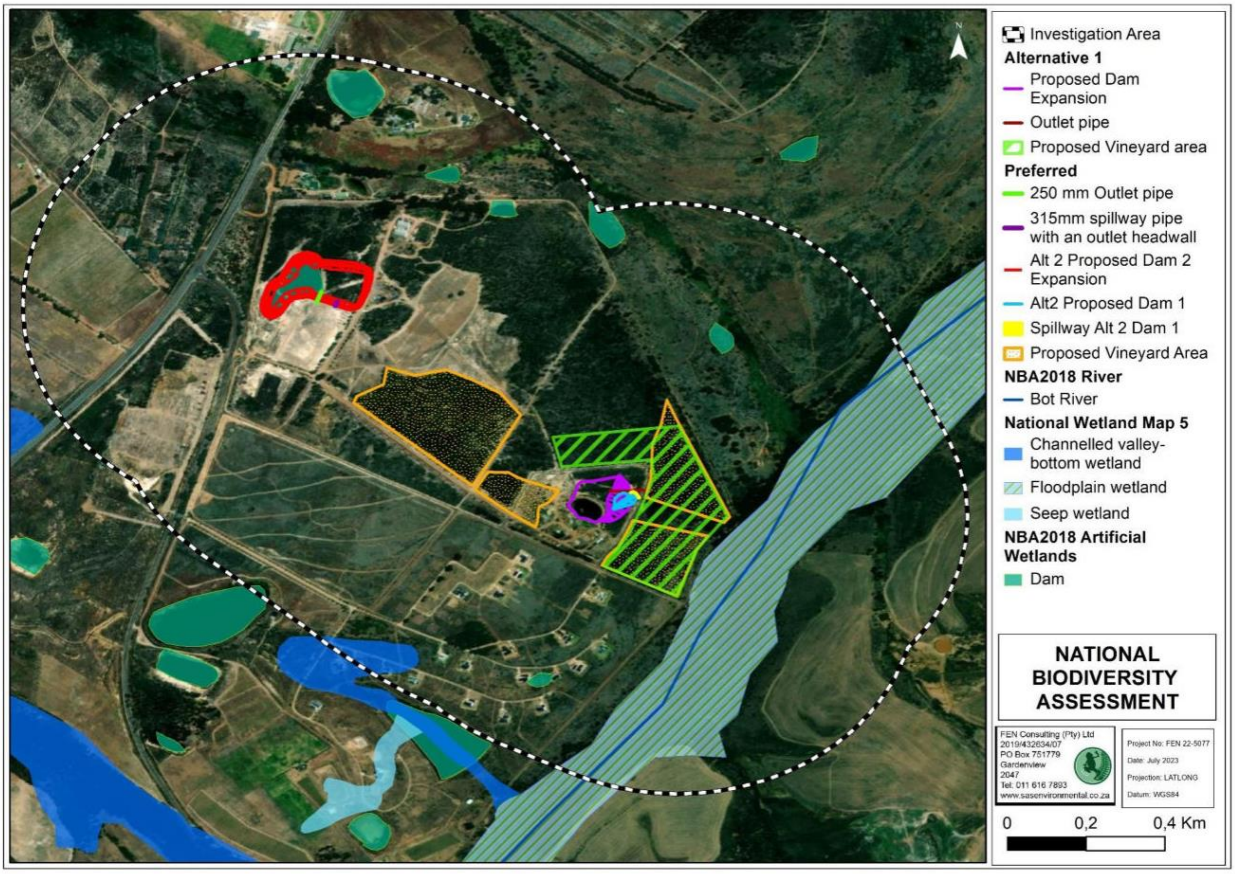

Figure 7: Wetland HGM units and rivers associated with the study and investigation areas (proposed dam and vineyard development) according to the National Biodiversity Assessment database (2018)(FEN, 2023).

Field verification of the study area confirmed that the proposed Dam 1 expansion area was recently deforested sometime after April 2021 and currently presents as cleared, highly disturbed land subjected to erosion, weed infestations (*Athanasia crithmifolia*) and alien trees such as *Eucalyptus sp*. (Blue Gum), *Pinus pinaster* (Pine) and *Acacia saligna* (Black wattle). Similarly, the area proposed for vineyard cultivation is an alien infested terrestrial area and also poses no restriction to the development of the vineyard. Dam 2 consists of dense (mostly impenetrable) stands of alien invasive trees such as *Pinus pinaster*, *Acacia saligna* and E*ucalyptus spp*. and very little natural vegetation remains among these trees.

A persistent linear freshwater feature was observed in the vicinity of the new proposed dam using historic aerial photography since 1979. The field verification and historic aerial photography confirmed that the linear freshwater feature (identified as an artificial drainage line) originates from historic and ongoing upgradient deforestation, providing unattenuated overland surface flow that has collected in a valley east of the new proposed dam. Facultative vegetation observed within the proposed dam area are deemed an artificial wet response confined to drainage lines created by the Dam 1 outflow scheme, which drains into the linear drainage line further downgradient. The proposed dam area indicated no signal of prolonged wetness required for the formation of freshwater ecosystems, despite the valley floor terrain in which freshwater ecosystems typically form. No natural freshwater ecosystems thus exist within the newly proposed dam area, directly downgradient of Dam 1.

The assessed point of the Bot River displayed relatively deep depths (> 0,5m to 1m) in the spring season of November 2022 with the flow presenting as a barely perceptible, opaque, odourless run. Access to the river channel requires wading through a dense non-marginal riparian zone infested primarily by *Eucalyptus spp.* and *Acacia mearnsii* and the riverbank has been built up by sediment and stabilised by obligate vegetation such as *Cyperus textilis, Isolepis prolifera, Persicaria lapathifolia* and *Phragmites australis.*

The Bot River was found to be of ‘High Ecological Importance and Sensitivity’. The Bot River is therefore associated with features that are considered unique on a national scale due to biodiversity (habitat diversity, species diversity, unique species, rare and endangered species).

In accordance with relevant legislation, a 32m Zone of Regulation (ZoR) under which the National Environmental Management Act, 1998 (Act No. 107 of 1998) was applied to all freshwater ecosystems in the investigation area and a 100m and 500m ZoR in accordance with GN509 under the National Water Act, 1998 (Act No. 36 of 1998) was applied to the Bot River and unchanneled valley bottom wetland respectively. The freshwater ecosystem delineation map is illustrated in Figure 4.

Details taken from the Freshwater Consulting NEMA Section 24G Rectification Application for a weir and pipeline on Farm 781, Botriver - Specialist Report: Aquatic Ecosystems (FreshwaterConsulting, 2017):

The offtake weir and pipeline associated with the current application are situation within and adjacent to the channel and wetlands of the Huiskloof River. The weir itself is located immediately downstream of the point where three tributaries of the Huiskloof River merge to form a single channel. At this point, the river profile flattens considerably and the river changes from a foothill cobble bed system to a channelled –valley bottom wetland with seep wetlands feeding into the valley bottom (Figure 5).

The Huiskloof River and associated seep and valley bottom wetlands are rated as priority wetlands for conservation within the NFEPA wetland layer (Figure 8). The NFEPA data incorrectly classified these wetlands as floodplains but ground truthing confirmed that the Huiskloof River is a natural Channelled Valley Bottom wetland fed by seep habitats (Ollis et al. 2013) downstream of the weir.

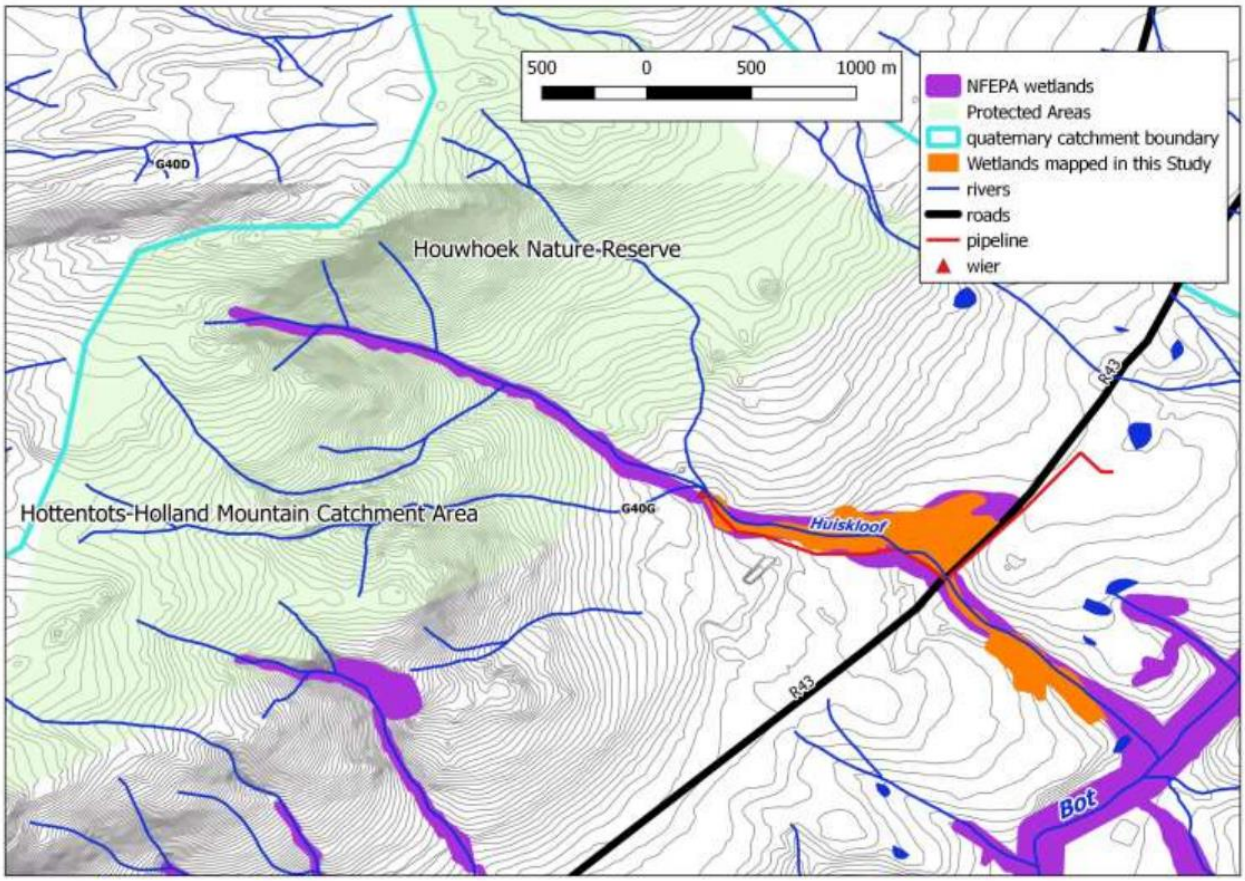

Figure 8: NFEPA Wetlands identified within the study area (existing weir and pipeline) suggesting that the wetlands associated with the Huiskloof River are conservation priorities for meeting biodiversity targets.

11. Impacts and mitigation measures

The potential impacts and associated mitigation measures that are expected from the proposed dam and vineyard development activities, as identified within the FEN Aquatic and Freshwater Assessment (FEN, 2023) are presented in Table 5. The potential impacts pertaining to the proposed Dam 2 expansion activities and cultivation extension areas between Dam 1 and Dam 2 were deemed to pose no quantum of risk on any freshwater ecosystems and therefore were not included in this impact assessment (FEN, 2023). Only the activities pertaining to the New Dam (Dam 4) directly downgradient of Dam 1 and the cultivation areas East of Dam 1 were assessed.

The impacts that have resulted from the weir and pipeline development activities as identified within the Freshwater Consulting Aquatic Specialist Report (Freshwater Consulting, 2017) are presented in

Table 6. Please note that the weir and pipeline have already been developed and as such the impacts associated with the development phase have already taken place.

Table 5: Summary of impacts and mitigation measures associated with the New Dam (Dam 4) directly downgradient of Dam 1 and the new proposed vineyards downgradient of Dam 1 (FEN, 2023).

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
Site preparation: Vehicular movement (transportation of construction materials and access to the sites)	- Transportation of construction materials can result in disturbances to soil, and increased risk of sedimentation to downstream Bot River; - Soil and stormwater contamination from oils and hydrocarbons originating from construction vehicles that may be flushed into the Bot River	Deterioration of downstream water quality	- The riparian area of the Bot River which is 35m downgradient of the lower boundary of the proposed vineyard must be considered a no-go area for vehicles and staff and vehicle movement must be limited to existing dirt roads as far as operationally possible; - Contractor laydown areas and material storage facilities to remain 32m away from the delineated extent of the Bot River and vehicle re-fuelling must take place off site; - Dedicated parking area for construction vehicles must be located away from sensitive areas, and drip trays must be located beneath any leaking equipment and lubricant/fuel absorbing media (moss/peat type products) within drip trays must be used to contain spilled material; - All cleared vegetation must be stockpiled in a designated area, outside of the delineated extent of the Bot River and after clearing, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site; - Topsoil must be stockpiled separately from all other materials, for use to cover the new dam wall for revegetation. Soil stockpiles may not be contaminated, and it must cover as minimal a surface area as possible, however the stockpiles may not exceed 2m in height; - All exposed soils must be protected for the duration of the construction phase with a suitable geotextile (e.g. Geotextile or hessian sheeting) to prevent dust generation that could potentially result in vegetation smothering and sedimentation of the Bot River riparian zone and the terrestrial fynbos vegetation surrounding the vineyard. Airborne dust must be reduced at construction sites through: • Damping dust generation areas with freshwater (although not in sufficient quantities to generate runoff); • Use of geotextile or brush barrier fences; and • Covering stockpiles with plastic sheets. - Edge effects of activities including erosion and alien/ weed control need to be strictly managed in these areas.	**LOW**
Site preparation: Removal of vegetation and disturbance to soil associated with the proposed dam directly downgradient of Dam 1 and proposed vineyard	- Sediment transported as runoff into the downgradient Bot River; - Exposure of soil, leading to increased runoff, and erosion, and thus increased sedimentation of the Bot River; - Proliferation of alien vegetation as a result of disturbances.	Deterioration of downstream water quality		**LOW**
Construction activities: • Excavation of dam basin to	- Runoff from stockpiled material or sediment laden runoff from the dam construction	Deterioration of downstream water quality	- It is imperative that all construction works be undertaken during the dry, summer months when sedimentation and pollutants are unlikely to be mobilised by surface runoff, avoiding impacts to the Bot River downgradient;	**LOW**

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
source fill material; • Stockpiling of material; • Infilling and compaction of the proposed dam wall footprint	footprint and cleared vineyard areas could enter the downstream Bot River and increase its sediment load		- It is assumed that material required for the dam wall expansion will be excavated from the dam basin or the surrounding terrestrial habitat. Material quarries should be inert and unable to leach toxicants to the receiving environment prior to commencement of works; - It is assumed that the dam walls will be earth and no hard infrastructure (such as gabion baskets will be required); - The material excavated from the dam basin intended for use in the construction of the dam wall must be stockpiled in the area associated with the dam's proposed new inundated full supply level footprint (west of the dam wall). This will limit the sedimentation of the downgradient Bot River. These stockpiles may not exceed 2m in height and must be covered with a suitable geotextile if the stockpiles will be on site for longer than 30 days; - All materials used to construct the dam wall should not generate toxic leachates or lead to significant changes in pH or dissolved salt concentrations; especially considering that outflow of the dam drains to the Bot River; - No plastic lining may be used as part of the dam construction as this has various ecological impacts, with special mention of impacts to faunal assemblages; - Rocks must be placed at any outlet pipes (downgradient of the dam wall) to be installed within the dam wall and indigenous vegetation established to bind the soil of the bed and to prevent erosion. This will also promote diffuse flow and decrease the velocity of water released downgradient towards the Bot River, assuming that this dam will still occasionally release overflows to the Bot River after the vineyard has been developed; - It is recommended that any proposed spillways be lined at the base with energy dissipating structures (such as Armorflex) to reduce the velocity of water inflow into the downgradient areas and prevent erosion thereof during high flow events; - The slope between the (if one is proposed- detailed designs were not available at the time this report was compiled) spillway and the bottom of the dam wall must be gradual, to prevent a drop forming at the edge of the spillway which will result in incision and embankment erosion; - The release of water into the dam should be done in such a way that water does not drop from a significant height into the dam as this will cause erosion, gully formation and turbid water within the dam; and	

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
			- The dam walls must be revegetated after the construction activities, to stabilize the soils; - Sediment traps must be installed downgradient of the proposed vineyard for its full length to prevent any excess sediments arising from the construction works being transported into the Bot River and must be regularly cleared by hand. <u>Should concrete be required:</u> No mixed concrete may be deposited outside of the designated construction footprint. The following mitigation measures must be adhered to: - Fresh concrete and cement mortar must preferably be mixed in the laydown area/construction camp associated with the proposed dam 1 expansion area, may not be mixed on bare soil, and must be contained within a lined, bound or bunded portable mixer. Consideration must be given to the use of ready mix concrete; - A batter board or other suitable platform/mixing tray is to be provided onto which any mixed concrete can be deposited whilst it awaits placing; - A washout area must be designated in area that will not be subjected to runoff downgradient and wash water must be treated on-site or discharged to a suitable sanitation system; wash water is not permitted to be discharge into freshwater ecosystems; - Empty cement bags must be disposed of through the hazardous substance waste stream; - Concrete spillage outside of the demarcated area must be promptly removed and taken to a suitably licensed waste disposal site.	
Rehabilitation requirements: Post construction rehabilitation to maintain ecological condition	- AIP proliferation. - New erosion and incision due to the expanded dam walls - Litter and waste removal.	Improved ecological function downstream due to alien vegetation removal	- An alien vegetation monitoring programme should be developed to monitor any further growth of potential alien vegetation surrounding the dam and cleared vineyard area (with specific mention of *Eucalyptus* spp, *Acacia mearnsii*, and *Pinus pinaster* to name a few). This will need to be monitored until all natural vegetation has re-established surrounding the dam and vineyard area; - Any erosion or incision observed because of the newly expanded dam wall should be addressed using the following methods to prevent sedimentation of the dams to retain their maximum supply level: o Re-sloping – side walls of the dam should be re-sloped to a 3:1 ratio in order to prevent further gully formation during the operation of the dams.	**LOW**

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
			○ Brush layering is when branches are placed perpendicular to the slope contour. This method is effective for earth reinforcement and mass stability. Brush layers break up the slope length, preventing surface erosion, and reinforce the soil with branch stems and roots, providing resistance to sliding or shear displacement. Brush layers also trap debris, aid infiltration on dry slopes, dry excessively wet sites, and mitigate slope seepage by acting as horizontal drains. Brush layers facilitate vegetation establishment by providing a stable slope and a favourable microclimate for growth of vegetation (USEPA, 2005). ○ Live gully repair is a technique that is similar to branch packing but is used to repair rills and gullies. Live gully repairs offer immediate reinforcement and reduce the velocity of concentrated flows. They also provide a filter barrier that reduces further rill and gully erosion and must be used where gully erosion is taking place on the project footprint (USEPA, 2005); and - All dam walls must be revegetated after the construction activities to stabilize soil and prevent erosion of the dam wall. A graminoid seed mixture can be used for this purpose, as it will allow for quick establishment.	
Operation: Overflow of the dam once full capacity has been reached.	- Terrestrial vegetation encroachment downstream of the dam; - Potential overtopping of the dam and the flushing of sediment laden runoff into the downgradient Bot River.	Deterioration of downstream water quality	*This impact was considered low as the dams are already existing and repairs to the dam will reduce impacts of excess sediment in the downstream areas. - The dams, spillways, and any outlet pipes should regularly be inspected for erosion, especially after heavy rainfall events when overflow from the dams is expected and the flow velocity is increased. If erosion is noted, this should be rectified, preferably through the reinstatement of vegetation in the eroded areas. If erosion is pronounced, erosion control devices such as reno mattresses should be considered, in consultation with a freshwater specialist; - AIPs must be managed, and annual removal/chemical treatment must be undertaken. An AIP control plan must be developed for the freshwater ecosystems within the proposed development area for at least 3 years post construction, thereafter refocusing on problem alien reestablishment areas; - A small drainage furrow should be constructed downgradient of the vineyard, but at least 32m outside of the delineated extent of the Bot River to capture surface runoff during irrigation. This will prevent potentially	**LOW**

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
			sediment laden surface water from smothering the riparian zone of the Bot River	
Operation: Routine maintenance (including desilting activities) leading to increased vehicle access.	- Soil compaction and disturbance around the dam; - Staff operation of the vineyard; - Potential sedimentation of downstream Bot River; - Vegetation degradation and alien invasive proliferation.	Deterioration of downstream water quality and ecological function from sedimentation and alien vegetation infestation	- Only existing roadways should be utilised during maintenance and monitoring activities to avoid indiscriminate movement of vehicles; - The dam will need to be desilted intermittently to ensure the storage capacity is maintained. During desilting, all silt within the dam basins should immediately be removed from site to prevent sedimentation of the Bot River downgradient during outflow events; - Additionally, during desilting a temporary silt trap should be installed at the spillway. This should be emptied on a regular basis during the desilting process to prevent any excess silt being washed down into the Bot River; and - Should repair be required to address seepage, mitigations as per construction activities above are applicable depending upon the location and severity of the seepage/structure failure.	**LOW**

Table 6: Summary of impacts and mitigation / rectification measures associated with the offtake weir within the Huiskloof River and the transport pipeline to Portion 3 of Farm 781, Bot Rivier (FreshwaterConsulting, 2017).

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
Weir structure within the Huiskloof River	Channel inundation and loss of instream habitat	N/A - habitat loss is limited to the site of the weir but will persist in the long Term.	1) **Removal of instream vegetation within the ponded area immediately upstream of the weir** This should be undertaken at the end of the dry season each year before the onset of winter rains. This will reduce the risk of diversion of flood flows that could lead to structure failure. However, removal should be undertaken by hand, taking care to minimise disturbance of the remaining in-channel habitat and riparian fringe. Also, vegetation removed from standing water should be disposed of outside of the river and its riparian fringe to prevent flushing of material into the valley bottom wetland downstream. 2) **Abstraction of baseflows during the dry summer months** Abstraction of baseflows from the river is an impact of high significance that should be mitigated through the alteration of the weir structure to ensure that the river receives flows prior to diversion. This will ensure that the downstream environment receives flows when it is most stressed while allowing excess runoff during the wetter winter period to be diverted the existing off-channel dam on Farm 3/781 where it can be stored and used during the dry season. Changes in the structure of the weir to ensure the default release of environmental flows will promote the surety of such releases, unlike manual manipulation of water diversion. This can easily be achieved by raising of the weir wall slightly where flow currently enters the diversion pond along the left bank. Thus, it is strongly recommended that such changes be made to the weir structure to maximise surety of environmental flow requirements of the wetland habitat downstream. 3) **Discharge of sediments into the Huiskloof River** Also, inundation of the channel with sediments associated with periodic discharge from the pipeline is associated with impacts of high significance to the Huiskloof River. To offset these impacts, it is recommended that flushing of sediments	**N/A**
	Habitat disturbance	Vegetation removed during maintenance activities could be flushed into downstream habitats.		**LOW**
	Habitat Fragmentation	Prevents or limits the longitudinal movement of biota in river systems.		**MEDIUM**
	Abstraction of water from the Huiskloof River	Alteration to downstream hydrology and in the long term, potential shrinkage of wetland area and invasion by alien shrubs.		**LOW**
	Construction related impacts including disturbance of the channel banks and bed, increased turbidity	Deterioration of downstream water quality		**N/A**
Pipeline for the transfer of diverted flow from the weir to 3/781	Disturbance of wetland habitat	N/A		**N/A**
	Loss of wetland vegetation.	N/A		**N/A**
	Alteration to the channel bed and banks	N/A		**N/A**
	Discharge of sediments into the Huiskloof river	Deterioration of downstream water quality and habitat integrity.		**LOW**

Water Use activity	Impacts of the activity on the water resources	Impacts of the activity to other water users	Mitigation Measures	Impact after mitigation
			take place immediately prior to the onset of winter rains each year such that the volume of accumulated sediments is minimised and those that have accumulated over a year are flushed and distributed through the system. This will minimise the intensity of the impact and prevent accumulation of sediments and associated loss of habitat and geomorphological changes to the system.	

12. Water demand and water supply Analysis

12.1. Water Demand

No potable water is required due to the nature of the development proposal. The proposal refers to dams and cultivation areas only. No buildings of any kind are proposed.

The irrigation water demand on site if for the development of a total of 21.5ha of vineyards (wine grapes) on site. An additional 2.5ha of dryland cultivation forms part of the planned total cultivation on site.

Table 7: Overall water demand

Water use	Volume calc	Volume estimation (m3/annum)
21.5ha wine grapes	6000m^3/ha/annum (as per consultant vigneron)	130 000
2.5ha dryland cultivation	no irrigation	0
Total irrigation water use		130 000

12.2. Water supply analysis

Erin de Vigne (Pty) Ltd is entitled to take 130 000m^3/annum of water for Portion 3 of Farm 781, from the Huiskloof River. In order to utilize the property's water allocation, the new owner of Portion 3 of Farm 781 developed a pipeline from the existing offtake weir in the Huiskloof river to the site. This infrastructure allows water to be gravity fed to the existing farm dams. Currently only 34 000m^3 of the allocated water is being stored onsite within the three existing dams.

13. Water Balance

Table 7: Overall Water Balance

Facility Name	Water In		Water Out		Balance	Comment
	Water Stream	**Quantity**	**Water Stream**	**Quantity**		
Abstraction from river	Huiskloof River	130 000m^3	21.5ha planted vineyard	130 000m^3	0	
			Total	130 000m^3	0	Adequate

14. Water quality

On-site water quality measurements were conducted for both the Bot River and Dam 1, focusing on key parameters such as pH, Electrical Conductivity (EC), dissolved oxygen (DO), and temperature. These parameters provide a critical baseline for assessing the overall health of the water bodies and understanding the influence of various water use activities on these resources (FEN, 2023).

The pH levels recorded fall within the natural range for rivers draining through Fynbos in the Western Cape, indicating stable acidic conditions typical of the region. In undisturbed river systems, EC is usually low, around 30mS/m, as seen in Dam 1. However, the Bot River exhibited significantly elevated EC values of 126mS/m, suggesting considerable salt intrusion into the system.

This is further supported by the high Total Dissolved Solids (TDS) concentration in the Bot River, measured at 892mg/L, compared to the significantly lower TDS in Dam 1 (240mg/L). Similarly, salinity levels in the Bot River (630mg/L) far exceed those in Dam 1 (158mg/L), indicating a decline in water quality. Dissolved oxygen levels in the Bot River were critically low, at 3.80mg/L, well below the recommended 80% saturation, further contributing to the river's degraded condition.

Overall, the water quality of the Bot River was deemed poor, particularly when compared to the relatively better quality observed in Dam 1. Key contributors to the Bot River's deterioration are likely to be agricultural runoff, urban discharge, and other land-use impacts, which elevate salt, TDS, and lower DO levels.

Nevertheless, the implementation of mitigation measures outlined in Section 11 of this report can effectively minimize or avoid further degradation of water quality in the region, ensuring that the proposed development activities have a limited impact on the surrounding water resources.

15. Public participation

In accordance with the One Environmental System, a combined PPP will be undertaken for the BAR and WUA applications. The application for comment in terms of the National Water Act will take place during the formal BAR application process.

Please note: This section will be completed after 60-day PPP has been undertaken.

Planned PPP includes the following:

- Notification letters will be emailed to all identified I&APs informing them of the activity and the opportunity to comment.
- A site notice will be erected at the entrance to the farm.
- An advertisement will be placed in the Hermanus Times.
- A copy of the Statutory Draft Basic Assessment Report (including EMPr) and WULA technical information will be made available on the PHS website www.phsconsulting.co.za.
- A 60-day commenting period will be allowed.

- A Comments and Response Table will also be included and updated.
- Once the final C&R is compiled, it will be provided to BOCMA as part of the application.

Table 8: Outcome of the public participation

Person who commented	Comments (support/ object/ concerns)	Reasons for objections / concerns	Applicant's response to the objection/concerns
To be completed after 60-day PPP has been undertaken.			

16. Inputs/Authorisations from other Departments /Stakeholders

In progress:

- A Basic Assessment Report in terms of NEMA is currently being undertaken for the proposed construction of a new dam (Dam 4), expansion of an existing dam and the expansion of the existing cultivation areas, on Portion 3 of Farm 781 (Erin de Vigne), Bot River, Western Cape. The competent authority for this application is DEADP.

Completed:

- An application of terms of Section 24G of the NEMA for the unlawful construction of a pipeline and weir in the Huiskloof River on Portion 1 and 59 of Farm 781 and remainder of Farm 747, Caledon. The competent authority for this application was DEADP and environmental authorisation has been obtained.

17. Section 27 Motivation

The requirements contained in Section 27(1) of the National Water Act, 1998 (Act 36 of 1998) have been considered and are discussed further below.

a) Existing lawful water uses

An existing lawful water use (ELU) is a water use that lawfully took place in the period two years before the commencement of the NWA. This allows any water use that lawfully took place to continue until such time as it can be converted into a Licence. The Farm has ELU for abstraction of 130 000m^3/annum irrigation water from the Huiskloof River, and for storage in Dam 2 (25 000m^3).

The proposed project is for a new dam (Dam 4) adjacent to Dam 1 with additional 2 000m^3 storage and expansion of Dam 2 (to 67 000m^3) to create additional storage on site for the irrigation water. The existing Dam 1 (6 000m^3) and Dam 3 (3 000m^3) would remain unchanged. The total storage of water on the farm would then be 78 000m^3, which is only 60% of the taking.

b) Need to redress the results of past racial and gender discrimination

The landowner is Erin De Vigne (Pty) Ltd, a South African registered private company with one male white director Edward Robert Adam.

The proposed project and associated water uses is likely to generate social and economic benefits through creation of business and employment opportunities for the local economy. All the employment opportunities are likely to benefit local Historically Disadvantaged (HDI) members of the community. Botriver Town is within 4km of the site and would serve as an important labour source for the farm and the proposed short term (construction phase) and long term (operational phase) employment opportunities.

The proposed project would represent a significant opportunity for the local building sector and members of the local community who are employed in the building sector. The potential creation of employment opportunities for local HDI members of the community is therefore regarded as an important social benefit. Knock on employment and trade opportunities during the operational phase will also have untold benefits for the local community.

c) Efficient and beneficial use of water in the public interest

The proposed project is to create additional storage for irrigation water to enable sustainable farming practices on site. The motivation behind the project was to allow more taking during the winter rainfall season when there is high flow in the Huiskloof River, to store on site in the dams, and to use for irrigation during the drier summer months. This would decrease the need for taking from the Huiskloof River during drier months when the flow is lower to non-existent. The total available water that can be taken from the Huiskloof River is 130 000m^3. Currently only a portion of this water is

being taken and stored in the existing storage (34 000m^3). The proposed project is for a new dam (Dam 4) adjacent to Dam 1 with additional 2 000m^3 storage and expansion of Dam 2 (to 67 000m^3) to create additional storage on site for the irrigation water. The existing Dam 1 and Dam 3 will remain unaltered.

The total storage of water on the farm would be 78 000m^3, which is 60% of the taking.

All the dams on site have little to no catchment area and thus negligible runoff so the creation of additional capacity is purely for storage of irrigation water.

The needs of the community and the upliftment of the area will be achieved through job creation and the stimulation of trade in the local economy, during the construction phase (short term) as well as the operational phase (long term). A R6 million injection into the local economy (suppliers and labour) up front will be required to unlock these opportunities. In terms of job creation during the construction of the dams an estimated 3 unskilled labourers will be required.

The proposed activities would also result in job creation during the operational phase. Within a small community such as Botriver this would have far-reaching benefits for the local labour force and make a contribution to the agri-tourism of the region. Through increased and diversified agricultural production, the long-term sustainability of the farm and job security for its existing (and future) employees can be ensured.

Water Allocation Reform (WAR) (as identified in the BGCMA Catchment Management Strategy 2017) describes a range of processes aimed at equitable, productive, and sustainable allocation of water. The focus is on activities to promote applications that address race and gender reform, as well as those that support the establishment of viable water using enterprises. WAR includes actions to facilitate the authorisation of those water uses that represent the most beneficial **use of water resources in the public interest**. The strategic intent of WAR is ultimately to:

- Redress past imbalances in terms of both race and gender;
- Effect sustainable and efficient water use;
- Support socio-economic initiatives; and
- Support government programmes that are aimed at poverty eradication, job creation, economic development and rural development.

The proposed project enables the **sustainable and efficient use** of water and allows for extensive capital investment to secure sustainable agricultural activity **and socio-economic benefits** such as secure job creation and knock on industrial activities linked to the value chain of the grapes produced on this site. The wider effect of capital investment can often not be quantified but will be seen in work and trade opportunities created in smaller businesses linked to the wine industry after completion of the project.

The BGWMA produces high value agricultural export products for both local and international markets contributing significantly to the country's economy. The fact that the area in which these

products are produced is located in a predominantly winter rainfall area means that water needs to be stored for summer use, making the cost of water very expensive.

There is therefore already high investment in water use efficiency within the area.

The proposed project does not place the water use or access to water of any downstream community at risk, nor does it alter the flow in the Huiskloof River to such an extent that flood dynamics becomes a risk to downstream users.

The proposed project will enable more flow within the Huiskloof River in summer when flow is low to non-existent. This will be an added benefit to the downstream aquatic and associated ecosystems and will benefit its functioning, diversity and long-term existence.

The proposed water uses will therefore not only benefit Erin de Vigne (Pty) Ltd, but also the wider community within which it will operate and trade assisting in **poverty eradication, job creation, economic development and rural development**.

d) Socio-economic impact –

i) Of water use or uses if authorised:

The water use does not entail a new taking but merely storage of an existing taking to improve the landowner's ability to irrigate during drier periods of the year. This will enable a more drought resilient and sustainable farming operation with security of water supply.

All dams on site have no catchment area and thus negligible runoff so capacity is purely for storage of irrigation water.

The proposed expansion development will create direct and indirect job opportunities during the construction and operational phases, in both the construction industry and the agricultural sector. There will also be an added benefit to the local commercial industry and export industry through higher production rate at this site due to the additional irrigation water.

The sustainability of the agricultural sector is linked to the availability of water, and this proposed project enables efficient usage of winter irrigation water in summer. The use of the water enables economic development within an existing agricultural node, and more sustainable job creation in an area where work is often seasonal.

The needs of the community and the upliftment of the area will be achieved through job creation and the stimulation of the local economy, during the construction phase (short term) as well as the operational phase (long term). A R6 million injection into the local economy (suppliers and labour) up front will be required. Furthermore, in terms of job creation during the construction of the dams an estimated 3 unskilled labourers will be required.

The proposed activities would result in job creation, albeit limited during the operational phase: the operation will employ 3 permanent workers in the vineyard, plus 2 permanent workers per ha of vines planted (46 workers), plus seasonal workers for harvest.

Within a small community such as Botriver this will have far reaching benefits for the local labour force and a contribution to the agri-tourism of the region. Through increased and diversified agricultural production the long-term sustainability of the farm and job security for its existing (and future) employees can be ensured.

According to the Basic Assessment report the site falls inside the Theewaterskloof Local Municipality which has a population of 122 680 persons (2021), making it the most populated municipal area in the Overberg District (OBD). An increase in regional gross domestic product (GDPR) per capita, i.e., GDPR per person, is experienced only if the real economic growth rate exceeds the population growth rate. Even though real GDPR per capita reflects changes in the overall well-being of the population, not everyone within an economy will earn the same amount of money as estimated by the real GDPR per capita indicator. At R64 033 in 2020, Theewaterskloof's GDPR per capita is below that of the Overberg District's figure of R69 643 as well as that of the Western Cape average of R84 967.

The National Development Plan (NDP) has set a target of reducing income inequality in South Africa from a Gini coefficient of 0.5 in 2010 to 0.6 by 2030. However, between 2014 and 2020, income inequality has worsened in Theewaterskloof area, with the gini-coefficient increasing from 0.57 in 2014 to 0.61 in 2020. Worsening income inequality could also be seen across the Overberg District (0.58 in 2014 and 0.63 in 2020) as well as the Western Cape Province (0.60 in 2014 and 0.62 in 2020).

With a total of 35 594 households in the Theewaterskloof municipal area, 78.7 per cent had access to formal housing, the second lowest when compared with other municipalities in the Overberg District area; the Overberg District average was 79.9 per cent. Basic service delivery access levels in the Theewaterskloof municipal area were lower than the district averages. Municipalities also provide a package of free basic services to households who are financially vulnerable and struggle to pay for services. The number of households receiving free basic services in the Theewaterskloof municipal area increased between 2019 and 2020. The stressed economic conditions are anticipated to exert pressure on household income levels, which is in turn likely to see the number of indigent households and the demand for free basic services increase.

In 2019, the economy of Theewaterskoof was valued at R8.6 billion (current prices) and employed 62 047 people. Historical trends between 2015 and 2019 indicate that the municipal economy realised an average annual growth rate of 1.3 per cent which can be attributed to the relatively good secondary and tertiary sector growth of 2.7 per cent and 2.1 per cent respectively. In terms of sectoral contribution, the wholesale & retail trade, catering & accommodation, transport and & storage sector (R1.6 billion in 2019 or 18.9 per cent of total GDPR) was the main driver of growth in the tertiary

sector, while the finance, insurance, retail estate & business services (R1.4 billion or 16.5 per cent), manufacturing (R1.2 billion or 14.5 per cent) and agriculture, forestry & fishing (1.0 billion 12.0 per cent), transport, storage & communication (R967.5 million or 11.2 per cent) sectors were the main drivers that contributed to the positive growth in both secondary and primary sector.

The agriculture, forestry and fishing were estimated to have performed relatively very well in 2020, coming in with estimated growth of 10.8 per cent. Employment creation for 2020 was poor overall, with most sectors registering poor employment growth or contraction in the number of jobs per sector. Overall, a balance of 3 234 were lost, mostly through the losses in the agricultural sector (loss of 746 jobs), wholesale & retail trade, catering & accommodation (loss of 720 jobs) and construction (lost 455). Despite the manufacturing sector's important role in the local economy, particularly as one of the main sources of employment, this sector is estimated to have contracted by 7.6 per cent in 2020.

The activity will create an estimated (49) permanent employment positions plus seasonal work during harvest time. The approval of this application will thus result in significant employment creation within the Theewaterskloof Municipal area.

Table 9: Direct and indirect Job opportunities

Job Opportunities	Number of Job Opportunities	Type of employment	Affected sectors of the economy
Direct	*49*	*Permanent*	*Agriculture*
Indirect	*Not estimated at this time*	*Seasonal (harvest)*	
TOTAL	**49**		

ii) Of the failure to authorise water use or uses:

If the proposed water uses are not authorised the landowner will continue to take water from the Huiskloof River via the existing weir during the low flow summer months at the current rate as he cannot store enough irrigation water on site for the drier summer months.

There are 3 landowners that abstract from the Huiskloof River at roughly the same point according to a Water Consent Agreement. At the time that the abstractions from the Huiskloof River was enacted there was no consideration to provide for ecological baseflow. The only way to impose ecological base flow is by managing the available water better i.e., storing it in winter while flows are higher and then using that stored water in summer for irrigation. This will allow the Huiskloof River to continue with some base flow during the drier months. The proposed project supports this action and will allow abstraction and storage in winter and less abstraction in summer to allow base flow from the weir.

The failure to authorise the water use is not advantageous for the terrestrial ecology of the farm as most of it is currently invaded by alien invasive vegetation, is currently subject to various disturbances, and is being degraded by a lack of fire.

The aquatic environment adjacent to which this farm lies will also benefit through improved alien vegetation management within the drainage lines and adjacent to the Bot River.

There is an added risk that there may not be water available for irrigation during certain periods of the summer months if additional storage is not created, and the landowner will not be able to irrigate and possibly lose crop or rootstock.

e) Any catchment management strategy applicable to the relevant water resource

The Huiskloof River joins the Bot River a short distance upstream (about 6km) of the point where it enters the Bot-Klein Estuary System. This system is ranked as the 8th most important estuary in South Africa in terms of its size, habitat, and biodiversity attributes (*Van Niekerk and Turpie 2012*). This system is impacted by several anthropogenic activities of which reduction in freshwater flows due to abstraction for agricultural and domestic use is listed as one of the most significant impacts.

The Catchment Management Strategy (CMS) for the Breede Gouritz was released in July 2017. This strategy highlights the fact that the Breede-Gouritz Water Management Area (BGWMA) falls into the category of being water stressed. It is therefore critical for the CMS to guide the management of water resources in the WMA.

The Breede Gouritz WMA is predominantly a rural region with social, economic and environmental systems which are dependent on the water resources and therefore a balance must be found to ensure **sustainable development** in the WMA. The CMS for the Breede Gouritz WMA promotes **the increase on assurance of water supply** and proposes that private farm dams should be expanded to store more of the annual stream flow available in the system. The CMS also **promotes the raising of existing dams, and the construction of small on-farm off-channel dams**. The CMS also indicates that the construction of dams is expensive and suitable feasible dam sites are limited. The maintenance and enlargement of some of the existing off-stream storage dams on Erin de Vigne falls within the proposal of the CMS, with the pipeline and weir acting as enabling mechanisms.

f) Likely effect of the water use to be authorized on the water resource and on other water users.

The authorisation for the expansion Dam 2 and the construction of the new dam (Dam 4) downgradient of Dam 1, will have no effect on the resource or on other water users as they have no catchment areas according to the Engineering report and will thus purely function as storage of water piped into them. There is no additional taking of water as part of this application.

The 21(c) and (i) water uses for the expansion of cultivated areas, the expansion of Dam 2 and the proximity of the new dam (Dam 4) downgradient of Dam 1 is within the regulated area of the Botriver floodplain and is rated as low with all mitigation measures in place.

According to the Freshwater Ecological report the new weir is located on a rocky outcrop with less risk of bank collapse compared with more erodible riverbanks. The spillway structure also appears wide enough to ensure that spillway discharge capacity is not exceeded during large flood events such that floodwaters do not outflank the weir structure, limiting the risk of gulley formation around the structure. The concrete apron at the base of the weir is wide enough to prevent downcutting and erosion of the channel bed downstream. The weir ponds the water and leads to inundation of the upstream channel where sediments have settled out leading to a change in habitat from fast flowing riffles and runs over stones to standing water over fine silt which has promoted the proliferation of instream vegetation.

This is therefore a negative impact of low significance.

The weir is located on a bedrock outcrop which likely formed a natural barrier to the movement of aquatic biota as the slope of the channel naturally becomes less steep at this point with a sharp drop in gradient. The weir is also situated at a point where habitat characteristics naturally change from a transitional stream to a Channelled Valley Bottom wetland and so upstream migration may not be fundamental to the survival of biota supported by the wetland habitat. The weir wall is approximately 1.7m high which is likely higher than the natural drop, and the impact is rated at a regional scale because resources important at this scale would be affected. The impact would be of low intensity however, considering the natural change in gradient at this point. Fragmentation of the Huiskloof River associate with the weir structure is rated as a long-term negative impact of medium significance that will be difficult to mitigate.

The abstraction of irrigation water in summer results in almost complete diversion of the low flows during the dry months community, and in the long term these hydrological changes may result in shrinkage of the wetted area and further invasion by alien vegetation. In turn this will result in the loss of indigenous vegetation and degradation of and reduction in the extent of available aquatic habitat. The long-term abstraction of irrigation water in summer is considered a long-term impact of medium intensity at a regional scale and is therefore rated as a negative impact of high significance without mitigation. The implementation of effective mitigation through the provision of summer base flows would result in an impact of low significance.

The construction phase impacts of the pipeline were likely of low intensity and endured in the short to medium term resulting in impacts of low significance. The pipeline was placed at least 1.5m below the surface which is below the depth of wetland functional habitat and so there are unlikely to be any long term hydrological or geomorphological impacts associated with the pipeline. The loss of wetland vegetation to accommodate the footprint of the pipeline was therefore a negative impact that persisted in the short term.

The pipe route through the wetland extends for approximately 300m with a width of approximately 1m and a disturbance footprint of approximately 2m and is considered a negative impact of low significance.

The construction of the pipeline across the active channel of the valley bottom system immediately upstream of the culvert below the R43 resulted in an alteration of the channel banks and bed with a local change in channel hydraulics, but as the structure has little effect on upstream inundation and is low enough to minimise any effect on longitudinal connectivity, the impact is rated as a negative impact of low significance.

The flushing of the pipeline every two years releases sediment in the river system that smothers the natural habitat. Discharge of sediments into the river is likely to affect a considerable length of river downstream but with the implementation of mitigation measures would result in a long-term impact of low significance.

g) Class and the resource quality objectives of the water resource

The offtake weir and pipeline were developed within and directly adjacent to the Huiskloof River. The weir itself is located immediately downstream of the point where three tributaries of the Huiskloof River merge to form a single channel. At this point, the river profile flattens considerably and the river changes from a foothill cobble bed system to a channelled –valley bottom wetland with seep wetlands feeding into the valley bottom (Figure 5).

The Huiskloof River and associated seep and valley bottom wetlands are rated as priority wetlands for conservation within the NFEPA wetland layer (Figure 8). The NFEPA data incorrectly classified these wetlands as floodplains but ground truthing confirmed that the Huiskloof River is a natural Channelled Valley Bottom wetland fed by seep habitats (*Ollis et al. 2013*) downstream of the weir. NFEPA wetlands systems should be protected to meet biodiversity targets (*Nel et al. 2011*). The Huiskloof River supports important biota as well as a diversity of aquatic habitat types and is relatively sensitive to alterations in flow and water quality due its small size. Furthermore, the system is rated as a Critical Biodiversity Area for the protection of aquatic ecosystems and as such is rated as high in terms of conservation priorities. Thus, the Huiskloof River is considered as having a very high Ecological Importance and Sensitivity.

The impacts on the Huiskloof River and its associated wetlands resulting from the weir and pipeline development include the following:

- Channel inundation and loss of instream habitat
- Habitat disturbance and fragmentation
- Water abstraction
- Disturbance of the channel banks and bed and increased turbidity
- Disturbance of wetland habitat
- Loss of wetland vegetation

- Alteration of the channel bed and banks
- Discharge of sediments into the Huiskloof River.

While the infrastructural development within the Huiskloof River should have received authorisation prior to construction in accordance with the relevant legislation, most of the associated negative impacts, relative to the local characteristics of the site prior to construction are of low significance post mitigation. While habitat fragmentation remains a residual impact of medium significance, the structure is stable, and removal would result in undesirable negative impacts with the risk of long-term erosion of the channel banks. It is therefore recommended that the structure be retained with the implementation of mitigation measures, particularly with regards to the provision of environmental flows.

Several of the proposed dam and vineyard development activities will take place within the regulated area of the Bot River, its associated floodplain wetland and/or a channel valley bottom wetland identified and delineation north of the proposed development site (Figure 4).

According to the NBA (2018) the floodplain wetland associated with the Bot River corresponds with the NFEPA Dataset (2011). This wetland is considered heavily to critically modified (Class DEF) (Figure 4). The Ecosystem Threat Status (ETS) of the floodplain wetland is critically endangered and the wetland is poorly protected according to the Ecosystem Protection Level (EPL). According to the NBA (2018) database, the Bot River is largely modified (Class D), critically endangered (ETS) and currently not protected (EPL). According to the NBA (2018) database, the channelled valley bottom wetland north of the development site (Figure 6) is in a moderately modified ecological condition (Class C) with an ETS and EPL of critically endangered and poorly protected respectively.

The Bot River was found to be of 'High Ecological Importance and Sensitivity'. The Bot River is therefore associated with features that are considered unique on a national scale due to biodiversity (habitat diversity, species diversity, unique species, rare and endangered species).

The majority of the impacts associated with the proposed dam and vineyard development activities are site specific except activities that result in sediment-laden, poor-quality runoff that enter could enter into the Bot River and influence its downstream reaches.

The impacts on the Bot River and its associated wetlands resulting from the proposed dam and vineyard development include the following:

- Transportation of construction materials can result in disturbances to soil, and increased risk of sedimentation to downstream Bot River
- Soil and stormwater contamination from oils and hydrocarbons originating from construction vehicles that may be flushed into the Bot River
- Sediment transported as runoff into the downgradient Bot River
- Exposure of soil, leading to increased runoff, and erosion, and thus increased sedimentation of the Bot River

- Proliferation of alien vegetation as a result of disturbances.
- Runoff from stockpiled material or sediment laden runoff from the dam construction footprint and cleared vineyard areas could enter the downstream Bot River and increase its sediment load.
- New erosion and incision due to the expanded dam walls
- Litter and waste removal
- Terrestrial vegetation encroachment downstream of the dam
- Potential overtopping of the dam and the flushing of sediment laden runoff into the downgradient Bot River
- Soil compaction and disturbance around the dam
- Staff operation of the vineyard
- Potential sedimentation of downstream Bot River
- Vegetation degradation and alien invasive proliferation.

The overall integrity of the Bot River is already severely compromised in terms of:

- Increased evaporation of water falling on bare or loosely vegetated ground due to catchment hardening from agriculture;
- Increased water retention within in and off channel impoundments and river abstraction;
- Associated shifts in the pattern, flow/flood peaks and timing of water in the Bot River; and
- Numerous river crossings, bank straightening and modification and alien vegetation, the proposed development activities will not add to these existing cumulative impacts.

It is therefore unlikely that the proposed development would pose additional cumulative impacts to the Bot River, over and above the acting upstream impacts, especially if performed in the dry season when sediment-laden surface runoff is manageable, if required at all.

The upper reaches of the Huiskloof River are protected by their location within either the Hottentots Holland Mountain Catchment area or the Houwhoek Nature Reserve (Figure 9). Downstream of these protected areas, the Huiskloof River falls largely within an Aquatic Critical Biodiversity Area (CBA1) with patches rated as Ecological Support Areas (ESA2). The Bot River is identified as a Category 1 CBA river and the associated floodplain wetland is identified as a CBA 1 and ESA 2 (restore from other land use). According to the land use guidelines described in the Western Cape Biodiversity Spatial Plan (WCBSP) handbook (*Pool-Stanvliet et al. 2017*), the desired management objective for CBA1 aquatic and terrestrial habitats is to maintain them “in a natural or near natural state with no further loss of natural habitat. Degraded areas should be rehabilitated”. The guidelines indicate further that “only low-impact, diversity-sensitive land uses are appropriate” (*Pool Standvliet et al. 2017*). With regards to the ESA2 areas, the management objective is to restore and or manage these areas to minimize impact on ecological processes and ecological infrastructure.

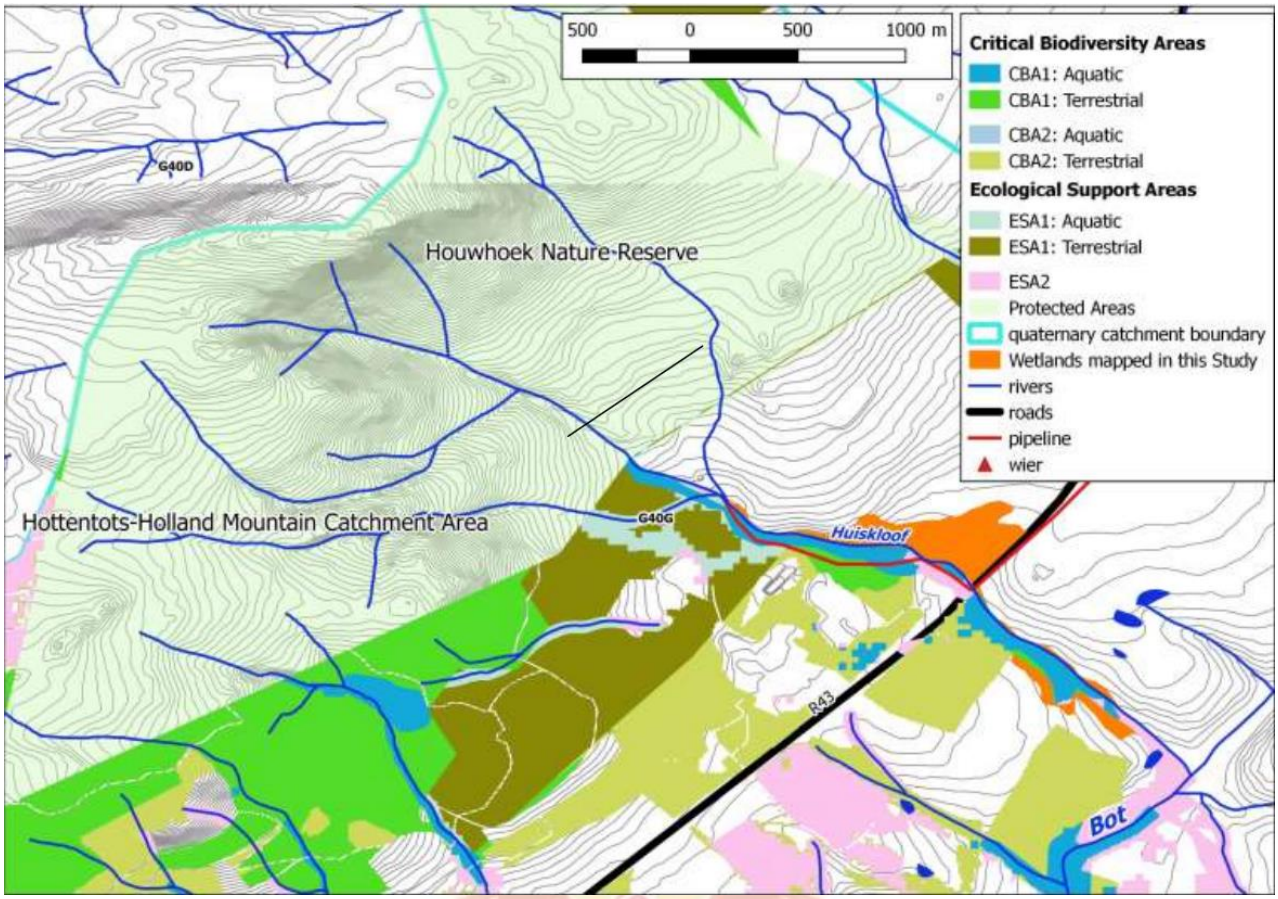

Figure 9: The Huiskloof River within the study area is largely rated as a Critical Biodiversity Area (CBA1) with patches identified as Ecological Support Areas (ESA2) (Freshwater Consulting 2017)

h) Investments already made and to be made by the water user in respect of the water use in question

The landowner has invested extensively in the purchasing of the land in 2010, the planting of the original vineyards and the building of the weir and pipeline. Costs associated with the original capital layout amount to R12.1M (purchase of land R2.9M, pipeline and weir R2.2M, planting of vineyards R7M).

Where required environmental management compliance requirements were met through a S24G process, which indicates commitment and long-term investment in the area.

The collective financial investment in infrastructure for the proposed new water uses is approximately R6 million. Furthermore, the ongoing annual investment in operating costs is estimated at around R1million, which will be injected into the local economy through suppliers of products and employment of labour.

i) Strategic importance of the water use to be authorised

The authorisation of the proposed water use will be strategic from an economic point of view, both enabling the sustainable and most efficient use of already allocated irrigation water through storage.

Taking from the Huiskloof River during low flow conditions is minimised and security of supply enables a lower risk for the landowner.

According to the National Water Resources Strategy the latest Water Sector Priority Focus Areas 2020 to 2030 are:

- Reducing water demand and increasing supply
- Redistributing water for transformation,
- Managing water and sanitation services under a changing climate,
- Regulating the water and sanitation sector,
- Improving raw water quality,
- Protecting and restoring ecological infrastructure for the green economy,
- Creating effective water sector institutions,
- Promoting international cooperation,
- Building capacity for action,
- Ensuring financial sustainability,
- Managing data and information in line with 4IR and global knowledge,
- Enhancing research, development and innovation,
- Addressing legislative and policy gaps.

The proposed water uses are in line with the following priority areas:

1) Reducing water demand – the planned design of the irrigation for the site ensures efficient use of water through water conservation measures - watering is done between 5am and noon in order to minimise evaporation and drip irrigation is installed at 600mm centres on the vine trellis. Cover crops planted in the vineyards improve the infiltration of water into the soil.
2) Managing water under a changing climate – The main risk to the Western Cape agricultural sector by climate change is reduced average rainfall. The storage of water from winter flow allows irrigation during summer months and reduces the risk of crop loss from increased water stress. It also allows increased base flow in the Huiskloof River during summer months when historically flow is low to non-existent. Invasive alien plants can increase transpiration and evaporation losses and thus reduce river flows and mean annual runoff, therefor the management and removal of alien invasive species from the rivers and drainage lines surrounding the site will improve the overall runoff and water security during future droughts.
3) Protecting and restoring ecological infrastructure for the green economy – the increased base flow in the summer months and the removal of alien invasive species from the rivers and drainage lines surrounding the site will improve the overall runoff and water security during future droughts and provide protection to the downstream aquatic environment.

When considering how the development may affect or promote justifiable economic and social development, the relevant spatial plans must be considered, including Municipal Integrated

Development Plans (IDP), Spatial Development Frameworks (SDF) and Environmental Management Frameworks (EMF).

In terms of the IDP - The proposed property is zoned Agriculture, and the proposed activities (new dam, upgrading/expanding existing Dam and expansion of the cultivation area) are in keeping with the existing agricultural activities on the property and permitted in terms of the land use rights of the property. As the property is located within a rural context the activities are in keeping with the surrounding properties and no planning applications or amendments are required in terms of any planning documents.

In terms of the Provincial Spatial Development Framework the proposed property is zoned Agriculture, and the proposed activities (new dam, upgrading/expanding existing Dam and expansion of the cultivation area) are in keeping with the existing agricultural activities on the property and permitted in terms of the land use rights of the property. As the property is located within a rural context the activities are in keeping with the surrounding properties.

According to the Theewaterskloof SDF (2019) the current role of Botrivier within the overall municipal context is that of a rural node and agricultural service centre. The location of Botrivier along the N2 National Road is of strategic significance. The town is located at the convergence of several routes, including the routes to coastal towns (R43), routes serving the surrounding agricultural production areas and the N2, the route providing access to the sub-region and the wider areas of the Southern Cape. The high level of accessibility is strengthened by the railway line, aligned along the N2, which almost encloses the town. There is a high level of immigration, mostly from farm workers.

The proposed property is zoned Agriculture, and the proposed activities (new dam, upgrading/expanding existing Dam and expansion of the cultivation area) are in keeping with the existing agricultural activities on the property and permitted in terms of the land use rights of the property. As the property is located within a rural context the activities are in keeping with the ethos of the surrounding area. No planning applications or amendments are required in terms of any planning documents.

j) The quality of water in the water resource which may be required for the Reserve and for meeting international obligations

The dams on site have no catchment areas so will not impact on the Reserve of the Botriver, and there are no international obligations to be met as far as water distribution is concerned.

There are 3 landowners that abstract from the Huiskloof River at roughly the same point. At the time that the abstractions from the Huiskloof River was enacted (all are considered ELU) there was no consideration for ecological baseflow. The only way to impose ecological base flow is by managing the water better i.e., storing it in winter while flows are higher and then using that stored water in summer to allow the Huiskloof River to continue with some base flow. The proposed project supports

this action and will allow abstraction and storage in winter and less abstraction in summer to allow base flow from the weir.

The proposed water uses will have no significant impact on downstream water quality and there is no significant user group dependant on the source.

k) Probable duration of any undertaking for which a water use is to be authorised

The Water use authorisation will be linked to a long-term investment and operational presence of the landowner in the area and should be issued for 20 years and reviewed every 5 years to assure demand and use appropriateness.

18. Declaration by the application with signature confirming that the information submitted is correct

We the applicant, Erin de Vigne (Pty) Ltd hereby confirm that the information submitted as part of this WULA application is true.

Signed by: Ted Adam

Signature

Date: 30/09/2024

WATER USE COORDINATES IN TERMS OF SECTION 21 (C) & (I) OF THE NATIONAL WATER ACT ON PORTION 3 OF FARM 781, BOT RIVER.

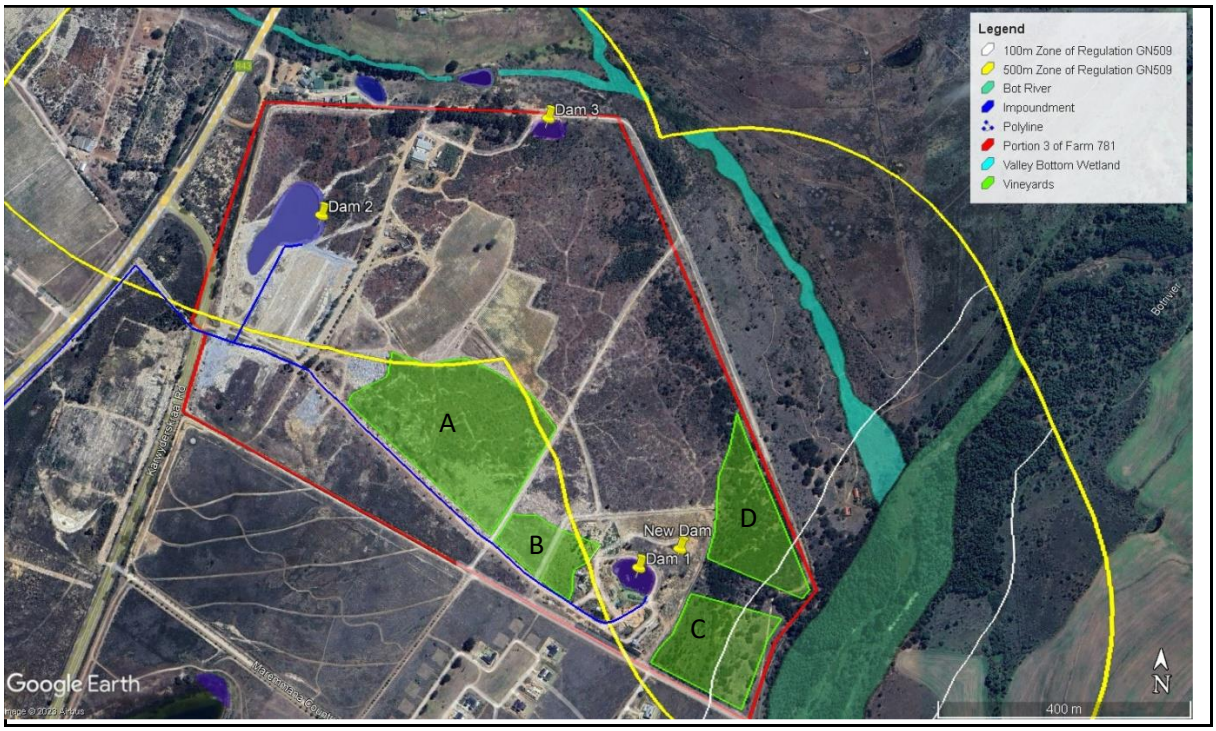

Figure 1: Zone of Regulation around delineated watercourses associated with Portion 3 of Farm 781, Bot River (pipeline indicated as blue line)

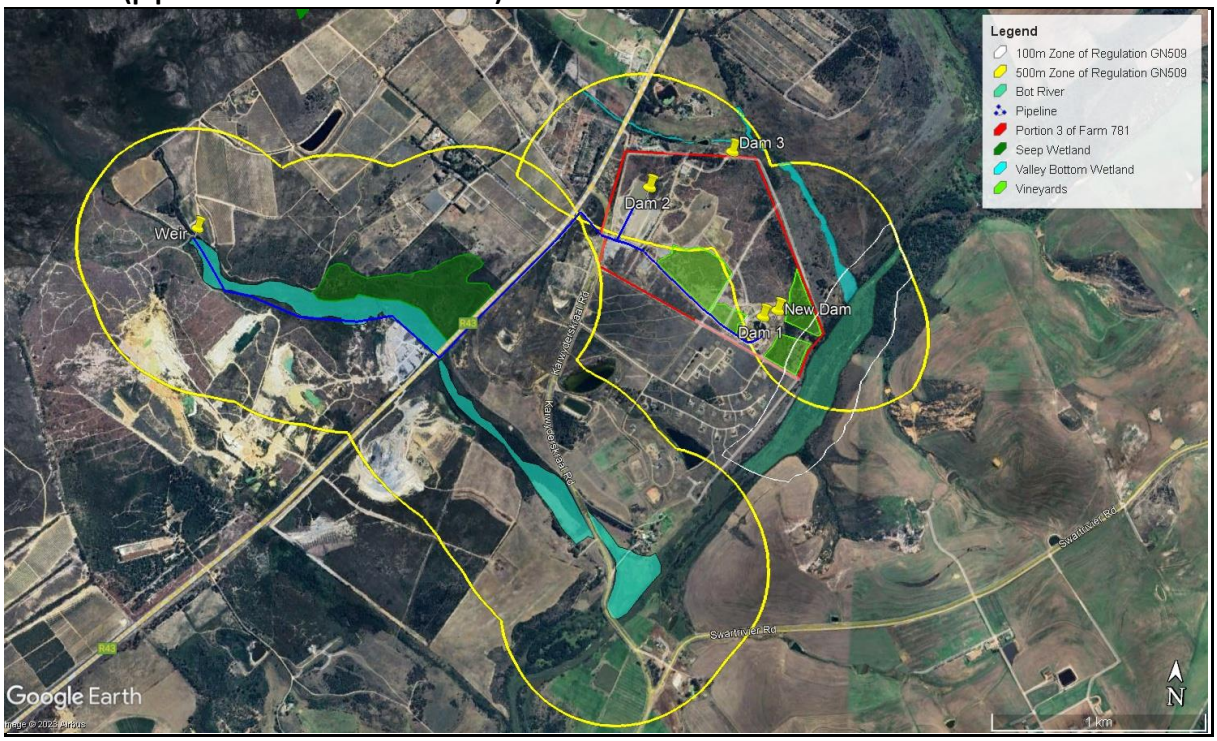

Figure 2: Zone of regulation around delineated watercourses associated with the development of the weir and pipeline (pipeline indicated as blue line).

1) EXISTING DAM 1

Point	Latitude (S)	Longitude (E)
1	34°16'5.85"S	19°11'25.24"E
2	34°16'5.62"S	19°11'26.18"E
3	34°16'6.43"S	19°11'27.73"E
4	34°16'7.17"S	19°11'27.55"E
5	34°16'7.53"S	19°11'27.12"E
6	34°16'7.28"S	19°11'25.73"E
7	34°16'6.43"S	19°11'25.11"E

DISTANCE BETWEEN POINTS –DAM 1

Point	Distance in meters
Point 1 to Point 2	24,6
Point 2 to Point 3	47
Point 3 to Point 4	22,8
Point 4 to Point 5	15,3
Point 5 to Point 6	36,4
Point 6 to Point 7	30,7
Point 7 to Point 1	18

Figure 3: Existing Dam 1

2) EXPANSION OF DAM 2:

Point	Latitude (S)	Longitude (E)
1	34°15'46.67"S	19°11'8.52"E
2	34°15'45.98"S	19°11'4.58"E
3	34°15'45.33"S	19°11'3.33"E
4	34°15'47.45"S	19°11'1.06"E
5	34°15'47.94"S	19°11'0.28"E
6	34°15'50.34"S	19°10'59.72"E
7	34°15'50.73"S	19°11'0.17"E
8	34°15'50.44"S	19°11'1.23"E
9	34°15'49.28"S	19°11'2.24"E
10	34°15'49.07"S	19°11'3.55"E
11	34°15'50.12"S	19°11'6.86"E
12	34°15'49.96"S	19°11'7.62"E
13	34°15'46.84"S	19°11'8.69"E

DISTANCE BETWEEN POINTS – EXPANSION OF DAM 2

Point	Distance in meters
Point 1 to Point 2	103
Point 2 to Point 3	37,8
Point 3 to Point 4	87,2
Point 4 to Point 5	25,0
Point 5 to Point 6	75,5
Point 6 to Point 7	16,9
Point 7 to Point 8	29,0
Point 8 to Point 9	44,3
Point 9 to Point 10	34,7
Point 10 to Point 11	90,2
Point 11 to Point 12	19,6
Point 12 to Point 13	101
Point 13 to Point 1	6,12

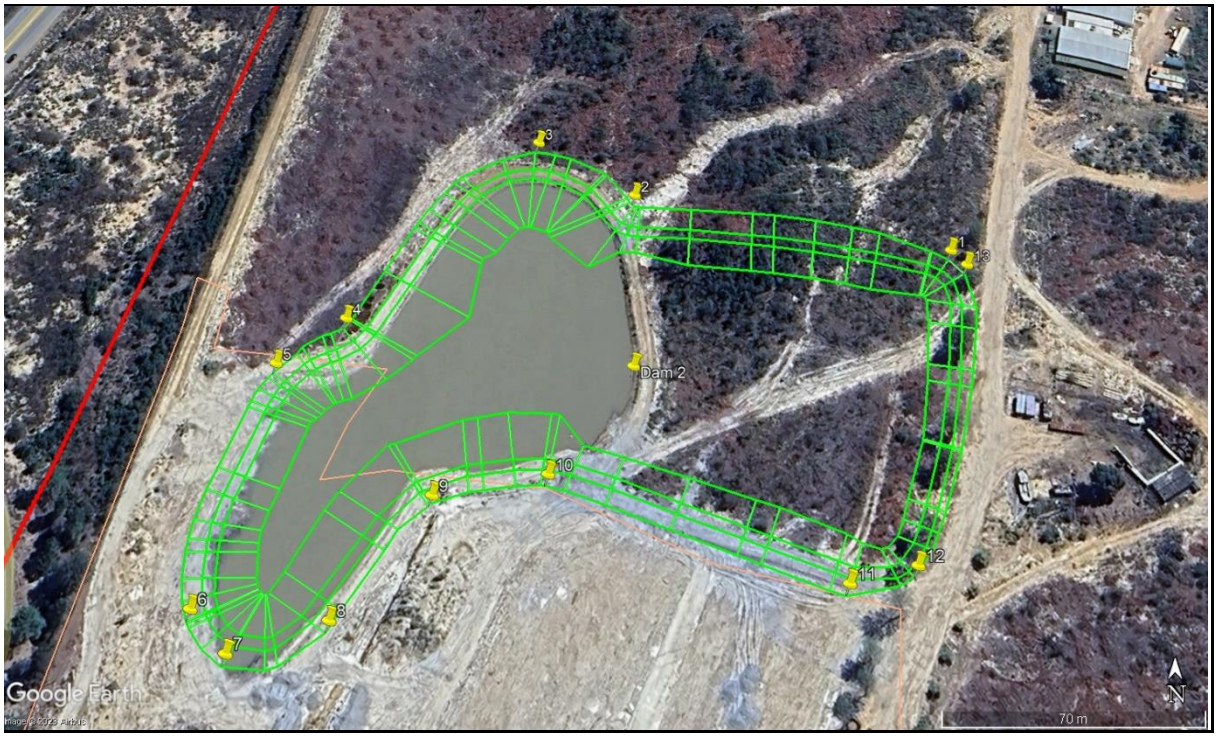

Figure 4: Expansion of Dam 2

3) EXISTING DAM 3:

Point	Latitude (S)	Longitude (E)
1	34°15'41.50"S	19°11'20.22"E
2	34°15'41.52"S	19°11'18.89"E
3	34°15'42.11"S	19°11'18.53"E
4	34°15'42.38"S	19°11'18.70"E
5	34°15'42.56"S	19°11'20.26"E
6	34°15'42.35"S	19°11'20.58"E

DISTANCE BETWEEN POINTS – EXISTING DAM 3

Point	Distance in meters
Point 1 to Point 2	33,8
Point 2 to Point 3	19,7
Point 3 to Point 4	9,47
Point 4 to Point 5	40,3
Point 5 to Point 6	10,9
Point 6 to Point 1	27,5

Figure 5: Existing Dam 3

4) DEVELOPMENT OF NEW DAM (DAM 4) DOWNSTREAM OF DAM 1:

Point	Latitude (S)	Longitude (E)
1	34°16'5.11"S	19°11'30.15"E
2	34°16'5.18"S	19°11'29.96"E
3	34°16'5.22"S	19°11'29.92"E
4	34°16'5.25"S	19°11'29.78"E
5	34°16'5.18"S	19°11'29.48"E
6	34°16'5.15"S	19°11'29.43"E
7	34°16'5.16"S	19°11'29.34"E
8	34°16'5.28"S	19°11'29.13"E
9	34°16'5.34"S	19°11'28.96"E
10	34°16'5.59"S	19°11'28.71"E
11	34°16'5.66"S	19°11'28.66"E
12	34°16'5.86"S	19°11'28.62"E
13	34°16'6.06"S	19°11'28.62"E
14	34°16'6.21"S	19°11'28.63"E
15	34°16'6.26"S	19°11'28.68"E
16	34°16'6.42"S	19°11'28.50"E
17	34°16'6.53"S	19°11'28.59"E
18	34°16'6.31"S	19°11'29.35"E
19	34°16'6.08"S	19°11'30.11"E
20	34°16'5.61"S	19°11'30.48"E
21	34°16'5.14"S	19°11'30.24"E

DISTANCE BETWEEN POINTS – NEW DAM (DAM 4)

Point	Distance in meters
Point 1 to Point 2	5,28
Point 2 to Point 3	1,7
Point 3 to Point 4	3,76
Point 4 to Point 5	7,95
Point 5 to Point 6	1,66
Point 6 to Point 7	2,27
Point 7 to Point 8	6,59
Point 8 to Point 9	4,68
Point 9 to Point 10	10,2
Point 10 to Point 11	2,42
Point 11 to Point 12	6,15
Point 12 to Point 13	6,15
Point 13 to Point 14	4,75
Point 14 to Point 15	1,95
Point 15 to Point 16	6,98
Point 16 to Point 17	4,0
Point 17 to Point 18	20,5
Point 18 to Point 19	21,0
Point 19 to Point 20	17,1
Point 20 to Point 21	15,6
Point 21 to Point 1	2,39

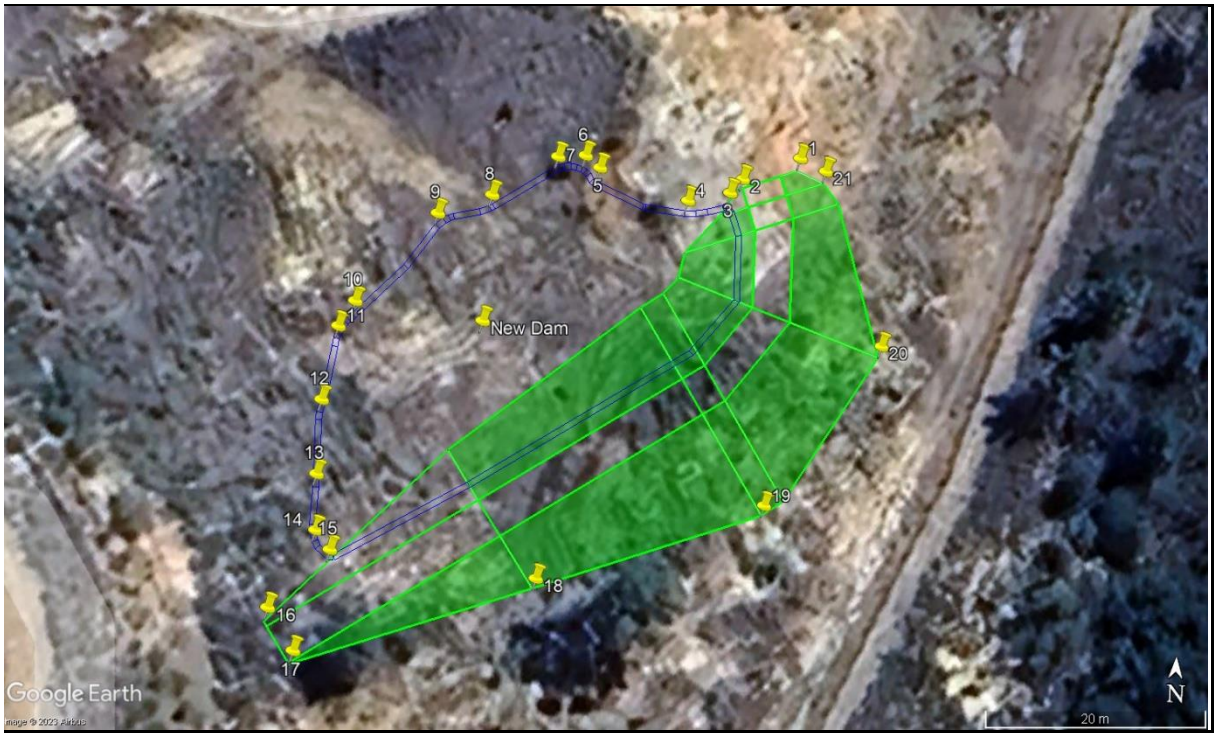

Figure 6: New Dam (Dam 4)

5) DEVELOPMENT OF VINEYARD BLOCK A1:

Point	Latitude (S)	Longitude (E)
1	34°15'54.89"S	19°11'9.95"E
2	34°15'55.39"S	19°11'9.85"E
3	34°15'55.49"S	19°11'12.16"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF VINEYARD BLOCK A1

Point	Distance in meters
Point 1 to Point 2	17,2
Point 2 to Point 3	58,5
Point 3 to Point 1	58,8

Figure 7: Development of vineyard block A1

6) DEVELOPMENT OF VINEYARD BLOCK A2:

Point	Latitude (S)	Longitude (E)
1	34°15'55.46"S	19°11'12.39"E
2	34°15'55.46"S	19°11'13.86"E
3	34°15'55.24"S	19°11'15.39"E
4	34°15'55.02"S	19°11'14.84"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF VINEYARD BLOCK A2

Point	Distance in meters
Point 1 to Point 2	37,9
Point 2 to Point 3	38,6
Point 3 to Point 4	15,0
Point 4 to Point 1	64

Figure 8: Development of vineyard block A2

7) DEVELOPMENT OF VINEYARD BLOCK A3:

Point	Latitude (S)	Longitude (E)
1	34°15'56.70"S	19°11'18.63"E
2	34°15'57.20"S	19°11'19.04"E
3	34°15'58.40"S	19°11'19.63"E
4	34°15'59.52"S	19°11'20.40"E
5	34°15'58.76"S	19°11'20.91"E
6	34°15'56.94"S	19°11'19.22"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF VINEYARD BLOCK A3

Point	Distance in meters
Point 1 to Point 2	18,5
Point 2 to Point 3	40,4
Point 3 to Point 4	38,9
Point 4 to Point 5	27,5
Point 5 to Point 6	69,8
Point 6 to Point 7	17,2

Figure 9: Development of vineyard block A3

8) DEVELOPMENT OF VINEYARD BLOCK B:

Point	Latitude (S)	Longitude (E)
1	34°16'4.98"S	19°11'24.07"E
2	34°16'4.54"S	19°11'22.61"E
3	34°16'5.88"S	19°11'23.30"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF VINEYARD BLOCK B

Point	Distance in meters
Point 1 to Point 2	39,1
Point 2 to Point 3	45,3
Point 3 to Point 1	33,8

Figure 10: Development of vineyard block B

9) DEVELOPMENT OF VINEYARD BLOCK C:

Point	Latitude (S)	Longitude (E)
1	34°16'8.74"S	19°11'36.30"E
2	34°16'7.45"S	19°11'30.16"E
3	34°16'11.13"S	19°11'27.61"E
4	34°16'13.63"S	19°11'33.72"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF VINEYARD BLOCK C

Point	Distance in meters
Point 1 to Point 2	162
Point 2 to Point 3	131
Point 3 to Point 4	174
Point 4 to Point 5	165

Figure 11: Development of vineyard block C

10) DEVELOPMENT OF VINEYARD BLOCK D:

Point	Latitude (S)	Longitude (E)
1	34°15'57.56"S	19°11'32.96"E
2	34°16'5.52"S	19°11'31.19"E
3	34°16'7.60"S	19°11'37.64"E
4	34°16'7.13"S	19°11'38.10"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF VINEYARD BLOCK D

Point	Distance in meters
Point 1 to Point 2	248
Point 2 to Point 3	176
Point 3 to Point 4	19,2
Point 4 to Point 1	323

Figure 12: Development of vineyard block D

11) WEIR IN HUISKLOOF RIVER:

Point	Latitude (S)	Longitude (E)
Weir	34°15'57.19"S	19° 9'42.57"E

Figure 13: Weir in Huiskloof River

12) DEVELOPMENT OF A PIPELINE – SECTION 1:

Point	Latitude (S)	Longitude (E)
1	34°15'57.16"S	19° 9'42.35"E
2	34°16'4.89"S	19° 9'48.41"E
3	34°16'5.49"S	19° 9'53.01"E
4	34°16'8.35"S	19°10'2.23"E
5	34°16'8.63"S	19°10'12.74"E
6	34°16'7.48"S	19°10'18.81"E
7	34°16'13.44"S	19°10'27.93"E
8	34°15'55.15"S	19°10'48.31"E
9	34°15'50.56"S	19°10'52.60"E
10	34°15'52.31"S	19°10'54.72"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF A PIPELINE – SECTION 1

Point	Distance in meters
Point 1 to Point 2	283
Point 2 to Point 3	119
Point 3 to Point 4	251
Point 4 to Point 5	271
Point 5 to Point 6	160
Point 6 to Point 7	298
Point 7 to Point 8	768

Point 8 to Point 9	181
Point 9 to Point 10	76,4

Figure 14: Development of a pipeline - Section 1.

13) DEVELOPMENT OF A PIPELINE SECTION 2:

Point	Latitude (S)	Longitude (E)
11	34°15'53.78"S	19°10'59.93"E
12	34°15'49.25"S	19°11'2.33"E
13	34°15'49.00"S	19°11'3.54"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF A PIPELINE – SECTION 2

Point	Distance in meters
Point 11 to Point 12	153
Point 12 to Point 13	31,7

Figure 15: Development of a pipeline Section 2.

14) DEVELOPMENT OF A PIPELINE - SECTION 3:

Point	Latitude (S)	Longitude (E)
14	34°16'9.04"S	19°11'24.80"E
15	34°16'8.03"S	19°11'26.96"E
16	34°16'7.58"S	19°11'27.19"E

DISTANCE BETWEEN POINTS – DEVELOPMENT OF A PIPELINE - SECTION 3

Point	Distance in meters
Point 14 to Point 15	64,2
Point 15 to Point 16	14,0

Figure 16: Development of a pipeline - Section 3

Application Status

Water User

Erin De Vigne (Pty) Ltd

Application

WU28950 - WULA for P3 of Farm 781, Botriver

Duration: Day 0 of 90

Current Status: Applicant : Prepares WUL Application for submission

#	Date	Applicant	Department	Duration in Days
1	May 17 2023 9:34AM	Applicant : Prepares WUL Application for submission		332 Day(s) (Current)
2	Mar 31 2023 1:57PM		Pre Application Enquiry	30 Day(s)
3	Mar 31 2023 1:55PM		Pre Application Enquiry	1 Day(s)
4	Mar 20 2023 5:17PM	Applicant : Prepares Pre-application for submission		9 Day(s)