water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Private Bag X3055, WORCESTER, 6850, Street Address Corner Mountain Mill Drive & East Lake Way, WORCESTER, 6850, www.dws.gov.za

Enquiries: Ms RM Mphahlele
Telephone: 0219416312
Ref. No: WU35086

Mr. JWA Branford
Pieterkoen Development Company (Pty) Ltd
P.O. Box 2582 George
6530

Dear Mr. JWA Branford,

ACKNOWLEDGEMENT OF YOUR INTENT TO APPLY FOR A WATER USE LICENCE IN TERMS OF SECTION 40 OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998), Portion 21 of Land Parcel 195 of the Major Region GEORGE (Remainder of Portion 21 of Farm Kraai Bosch 195), Development of a residential estate on Portion 21 of Farm 195 Kraaibosch, George

The Department of Water and Sanitation hereby acknowledges receipt of your pre-application information and intent to apply for a water use licence that was received on **08 Feb 2024**. The department has conducted preliminary assessment and has established that a site inspection is not required. In order for the Department to process your application the following additional information is requested;

Technical Documentation
Water Use Licence Application Summary Report
Aquatic assessment report
Wetland delineation and assessment Report
Rehabilitation Plan
Civil designs
Construction method statemement
EIA Report
Environmental Management Plan Report
Development Master layout plan: Overlay the spatial data of aquatic features and their associated regulated zones onto the planned site layout.
Public Participation advert notice and report
Stormwater Management Plan
Confirmation from the municipality that sufficient capacity exists to accommodate the wastewater generated by the proposed development.

Failure to submit the required information within 2 years of receipt of this letter may lead to the closure of your intent for a water use licence.

Should you wish to make any further enquiries in this regard please do not hesitate to contact Ms RM Mphahlele at telephone number 0219416312.

Yours faithfully,

Recommend
Comments:

I, Mrs Prudence Mahlaba (Director: Institutional Establishment) herewith electronically sign this document.
Serial Number : 5528402276417817831
WUL Manager
Date: Aug 21 2024 8:09AM

11. Section 27 (1)

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

The water supply is municipal and only used for domestic purposes. The farm is used as livestock pasture; there is no cultivation or commercial irrigation system. There is no known existing water use authorisation for the property. The small contour dams on the property are rainwater fed, and probably not registered as water uses, and are only used as livestock drinking water.

The development triggers the need for a license application for c and i water uses due to the proximity of infrastructure to a watercourse and will not impact any downstream users. The development does not involve any water abstraction or discharge and so downstream volumes will not be changed. There will not be any reduction in water availability on the catchment. Other water users will not be affected. There are no wastewater uses associated with the project as all services will tie into the municipal infrastructure. Therefore, there will be no water quality changes affecting downstream users.

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

The Applicant is not an enterprise which focuses on social development, but rather a property owner who has decided to develop the land for economic benefit. It is unclear at present how the development will uplift disadvantaged groups, and woman, from an ownership perspective. The properties will not be subsidised in any way. However, the housing is not targeted at any specific race or gender.

The land is owned by the Applicant and so the developer has full ownership. However, the houses/ erven will be sold to any prospective homeowners once developed. How many positions will be filled by woman is unknown.

The Applicant is not a Black Economic Empowerment (BEE) enterprise. The project is unlikely to redress any past economic inequities. There may be management positions for woman to apply for when in operation. But at present it is unclear what the demographic will be. However, there will be equal opportunity in applications to any positions which are created as a result of the development.

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

The water use, which involves developing housing within 100m of a watercourse, will benefit the entire town of George. Refer to the socio-economic specialist report, which outlines the following:

The economic impact assessment demonstrates that the Pieterkoen Residential Development will contribute to the local economy of George Municipality in the following ways:

- *New money injection during the construction phase and an additional monthly injection during the commercialization phase of the proposed development.*

- *The Unemployment rate will decrease, as an additional 410 jobs will be created during the construction phase (4-5 years) and during the commercialization phase, the development will create 36 job opportunities.*

- *The job opportunities during the construction phase will be temporary but the job opportunities, which will be created during the commercialization phase, will be permanent.*

In addition, the above assessment shows that the proposed residential development:
- *Will have a positive impact on the property market in the chosen market segments;*

- *Complies with the planning principles of SPLUMA; and*

- *Will attract new residents to George with economic skills that will contribute to the local economy and job creation.*

Refer to the aquatic impact assessment report for a discussion on risks to water resources. After mitigation, the project should not impact the quality nor quantity of water downstream. Mitigation has been put in place to prevent changes to flood dynamics or pollution.

d) Socio-economic impact –

The proposed development is likely to have positive socio-economic impacts:

• The total value of the development is currently estimated at just approx. R 924 000 000 to be invested in the local economy. This will include bulk infrastructure contribution in the order of R27 million to be paid to the Municipality.

• The development will create significantly more jobs during the construction and operations phases than is currently offered by the property as a agriculture concern.

• It will provide funds for the renovation of the historic homestead and barn at Pieterkoen.

• It will create a range of housing opportunities for middle income groups in George, ranging from flats for first-time buyers to large erven for high value houses.

• It will create access to services and goods in close proximity to residents in the Kraaibosch thus reducing the need for and cost of transport..

Also refer to socio-economic impact report.

i) Of water use or uses if authorised:

The Unemployment rate will decrease, as an additional 410 jobs will be created during the construction phase (4-5 years) and during the commercialization phase, the development will create 36 job opportunities.

The job opportunities during the construction phase will be temporary but the job opportunities, which will be created during the commercialization phase, will be permanent.

Table 5: direct and indirect Job opportunities

Job Opportunities	Number of Job Opportunities	Type of employment	Affected sectors of the economy
Direct	*446*	*36 Permanent*	• *Labour* • *Manufacturing* • *Building* • *Services*
		410 Temporary	
Indirect	*Unknown*	*Permanent*	

TOTAL	**446**

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

Should the licence not be granted, the jobs referred to in d (i) will not be created.

The development will be a permanent project offering permanent accommodation and job opportunities throughout time. There will be a larger portion of employees during construction, however, the number of permanent positions from the service industry during operation is substantial. The no-development option would result in a lost opportunity in terms of the expected temporary employment opportunities associated with the construction phase and potential operational phase employment. High negative socio-economic impact significance in terms of employment and job opportunities would occur if the proposed development is not constructed. Residential developments are a stable long-term employment sector and will provide permanent jobs with good job security and wages. From an ecological perspective, the status quo is not of a pristine area. The aquatic habitats are already subjected to negative urban impacts and alien invasive plants. The development. After mitigation, will not cause any further deterioration. If the license is not granted, it is highly likely that other development proposals on this land will occur in the future, as it is already within the urban edge. Other developments/ land uses may have negative potential impacts upon aquatic health, and they might not include the sensitive design and significant buffer areas.

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

The Breede-Gouritz Catchment Management Strategy (2017) is applicable to the water resources surrounding the development. Strategic Area 1 focuses primarily on management of streamflow, water quality, habitat and riparian zones. Strategic Area 2 focuses primarily on management of water use from surface and groundwater resources through the operation of infrastructure, in order to provide water for productive and social purposes within and outside of the WMA. The measures, objectives and actions proposed will assist in ensuring allocation and use our water resources equitably, efficiently and responsibly to maintain existing desired activities, support new development, ensure social justice and reduce inefficient activities, adaptive to changing climate and development pressures. Strategic Area 3 focuses primarily on co-operation and management of institutional aspects to enable and facilitate the protection and sharing of water, including the more co-operative stakeholders, partnerships, information sharing, disaster risk and adaptation elements of the strategy. The development is unlikely to deteriorate the EIS or PES of the water resources (with mitigation and management) and is therefore in alignment with this strategy by including large ecological buffer areas and other protection measures. The project has resulted in a sustainable final layout and design of infrastructure following specialist studies.

According to the Breede-Gouritz Catchment Management Strategy (2017) the current water requirements in the BGWMA are stressed and the water balances show that there are greater requirements than the available water in the Gouritz sub-catchments. However, with the upgrading of the WTW and WWTW there will be capacity for the development.

The application is in alignment with the CMS vision and objectives. The CMS does encourage economic growth and improving social livelihoods. This proposed project will not decrease the available water resources and it will support economic growth. Additionally, it is a guiding principle of the CMS to "Prevent aquatic ecosystems from deteriorating further by focusing

simultaneously on flow, quality and habitat preservation." The watercourse on site is not specifically identified as a priority, nor mentioned within the Breede-Gouritz catchment management strategy, however, mitigation must avoid any potential significant impacts upon the water resources. The proposed water use will not compromise any aquatic ecosystems (especially ensured by mitigation).

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

The water use should not change the quantity of water currently available to other water users since no water will be removed from the system. With proper mitigation measures put in place, the development should also not have deteriorating impacts on water quality.

According to the Freshwater Specialist Report the potential impacts associated with the development are:

- *Disturbance/loss of aquatic vegetation and habitat*
- *Sedimentation and erosion*
- *Water Pollution*
- *Flow modification*

The impacts of the development without mitigation will be Medium during the Construction and Operational Phase. The most significant impact is the loss and disturbance of aquatic habitat, followed by erosion and sedimentation. The necessary mitigation measures can reduce potential impacts to Low during these two phases.

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

The project is located within the DWS quaternary catchment K30C and falls within the Gouritz Water Management Area. The drainage line on the property is not identified by the Department of Water and Sanitation in the 2020 gazetted "Determination of classes of water resource and resource quality objectives for the Breede -Gouritz Water Management Area", nor is the river listed as a water resource in K30C.

However, the catchment is within the G15 Coastal Integrated Unit of Analysis (IUA) and information from the nearby rivers shows:

- *The Water Resource Class is listed as Class II*
- *The TEC is listed as a 'D' for the Swart River and 'B' the Kaaimans River and other tributaries.*

The drainage line is closest to the 'D' TEC as it is already significantly modified from the natural condition.

The resource quality objectives (RQOs) are also not listed by the Department of Water and Sanitation for the watercourses relevant to this project, but the recommended management objective was determined based on the PES and EIS scores. After mitigation, the project will not compromise the RQOs. It is recommended that no further degradation should be allowed, and the water quality and quantity must be maintained in the same or improved ecological condition. Consideration should be given to long-term rehabilitation actions by the landowners and resource managers to improve the PES.

The development is in alignment with obtaining the resource quality objectives of the Department of Water and Sanitation's 'Proposed Classes Of Water Resource And Resource Quality Objectives For The Breede -Gouritz Water Management Area' (GG No. 42053, volume 641, published on 23 November 2018), as well as the Breede-Gouritz Catchment Management Strategy (2017). The project will not change the EIS or PES of the water resources.

The site is located on a non-perennial tributary to the Swart River (TEC = D) as it merges with the Kat River and flows into the Kaaimans River (TEC = B) downstream. All of the watercourses are within K30C quaternary catchment. The water resources fall within the Water Resource Class II for Integrated Unit of Analysis (IUA) G15 Coastal. IUAs are classified in terms of their extent of permissible utilisation and protection with the strategy for Class II indicating moderate protection and moderate utilisation.

Refer to aquatic biodiversity impact assessment report for EIS and PES assessment results. The project will not change the EIS or PES of the water resources.

The quality objectives for the Kaaimans River in the G15 Coastal IUA include that nutrient levels need to be maintained in the river at an oligotrophic condition, salt concentration needs to be maintained in an ideal category for aquatic ecosystems, that pH, temperature and dissolved oxygen are important for the maintenance of aquatic health, and that waterborne pathogens should be maintained in an ideal category for full contact recreation (Table 2). However, this is a very different river system compared to the degraded Skaapkop River and for the purposes of this project, and specific reach of the river, maintaining the current condition of the watercourses should be sufficient, with consideration given to rehabilitation by the applicant and relevant authorities.

Table 1: K30C catchment rivers listed in the "determination of classes of water resource and resource quality objectives for the Breede -Gouritz Water Management Area" 2020.

Integrated Unit of Analysis (IUA)	Water Resource Class for IUA	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Natural MAR (million m³/a)
		K30C		Swart River	gviii7	D	16.10
		K30C	G15-R31	Kaaimans River	gvii11	B	17.53
		K30C		Silver River	gviii8	B	14.90
		K30C	G15-E23	Kaaimans Estuary	Gxi8	B	35.32
		K30D		Touws River	gvii12	B	16.70
G15 Coastal	II	K30D		Klein River	gx8	D	2.50

After the adoption of the recommended mitigation measures and monitoring of the project, the RQOs will not be compromised.

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

R2 Million

The applicant has spent years on different development proposals for the property. Furthermore, various specialists have been hired to conduct studies on the area to determine whether development should take place and if so, where, how and what type of development it should be. Most of these specialist reports have been compiled and were paid for and engineers and town planners have used this information in designing the development.

Therefore, it is clear that large amounts of money have already been invested in the proposed development.

The total capital expenditure associated with the proposed housing component will be in the region of R 924 000 000. Most of the work associated with the construction phase is likely to be undertaken by local contractors and builders. The proposed development will therefore represent a positive benefit for the local construction and building sector in George and the Garden Route. Most of the building materials associated with the construction phase will be sourced from locally based suppliers in George. This will represent a positive injection of capital into the local economy.

i) Strategic importance of the water use to be authorised

The proposed property to be developed is located entirely with the George Urban Edge and has been specifically set aside and planned for in various Municipal Planning Frameworks, including the SDF and IDP.

The National Water Resource Strategy (DWA 2013) identifies three broad objectives: water supports development and the elimination of poverty and inequality; water contributes to the economy and job creation; and water is protected, used, developed, conserved, managed and controlled in an equitable and sustainable manner (Figure 13). The Strategy states that water requires careful management to enable provision of basic water services and equitable allocation, while meeting the needs of inclusive economic growth without threatening the integrity of aquatic ecosystems. The proposed development is in alignment with the objectives of the NWRS in that it has been designed in a sustainable manner.

The water resources surrounding the site have been identified, assessed, and allocated the protection of open space and aquatic buffer zones, as well as other mitigation measures to minimise any threats to the integrity of the downstream watercourses.

The development meet the needs of inclusive economic growth. The development as a whole will support the economy and job creation. The incorporation of sensitive habitats into the open space, and the consideration of preventing indirect impacts through the compilation of a stormwater management plan, EMPr, etc., makes this project a sustainable development which is most suited to the site while addressing the needs of socio-economic growth of George.

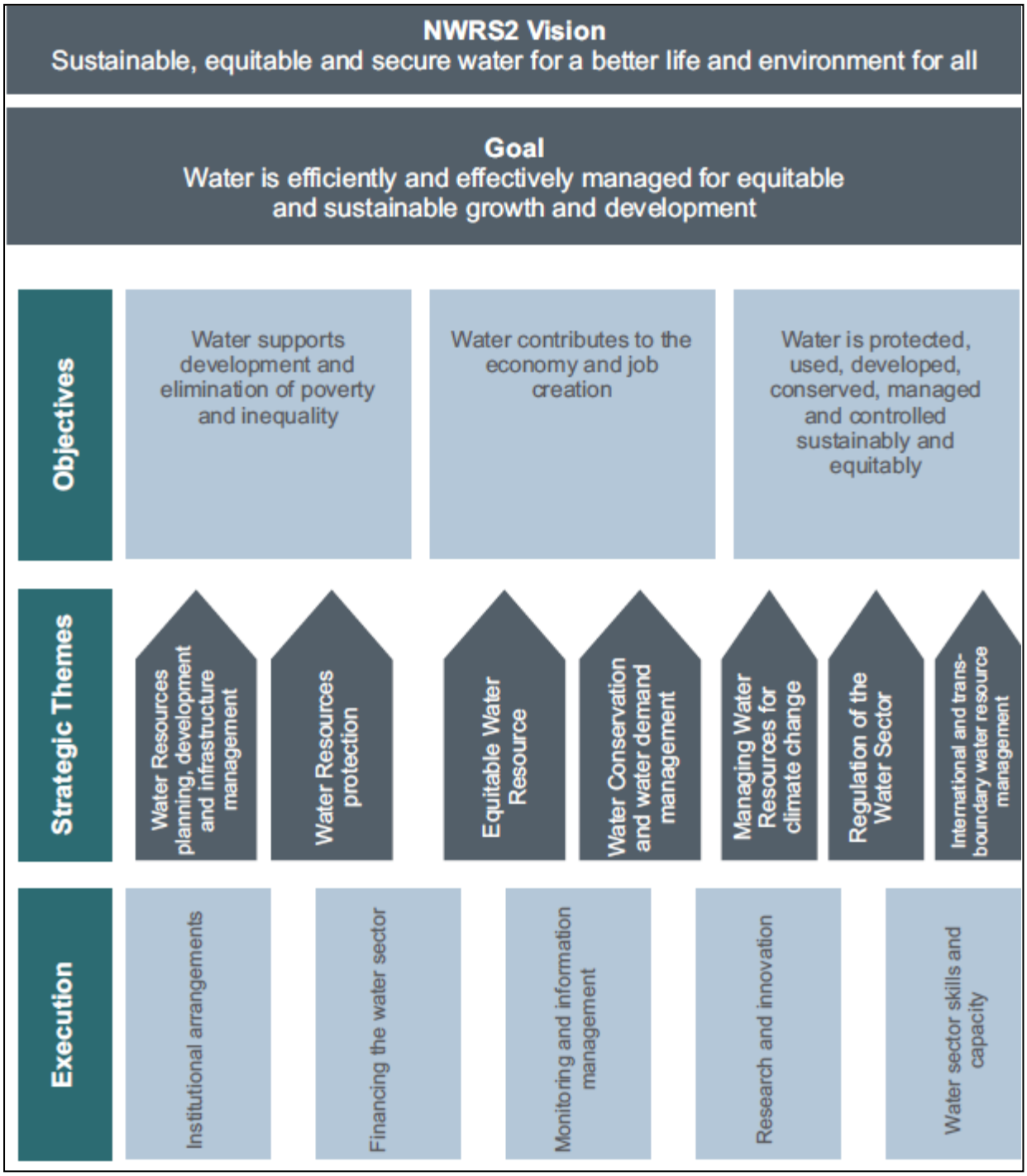


Figure 1: Diagram from the National Water Resource Strategy (DWA 2013)

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

The watercourse is not used as a drinking water source and there are no specific quality objectives set for this system in the 2022 "Reserve determination for water resources of the Breede-Gouritz Water Management Area". The Reserve has not been determined. However, catchment management recommendations required for the Reserve and for meeting

international obligations include: Control invasive alien vegetation, erosion and land-use encroachment.

The water resource is not identified by the national database but the project, after mitigation, will not decrease the water quality of the water resource. The proposed mitigation and management measures will prevent any water quality impacts to the water resources. There are no consumptive or storage water uses associated with this application.

Should the water uses allowing for the upgrades not be authorised, then the likelihood of sewer infrastructure failure, and resultant water quality deterioration, is high. The No-Go scenario will impact water resources. The project is in alignment with Reserve management and international obligations.

The groundwater quantity component was determined using values (recharge and groundwater baseflow) obtained during the determination of water resource classes and associated resource quality objectives in the Breede-Gouritz WMA, (DWS 2017), shown in Table 2.

Table 2: Breede-Gouritz groundwater reserve for K30C water resources

Quaternary Catchment	Recharge (Mm^3/a)	Population	Basic Human Needs (Mm^3/a)	Groundwater Baseflow (Mm^3/a)	Reserve (Mm3/a)	Reserve as % of Recharge
K30C	27.80	146 970	1.34	7.83	9.17	32.99

- *No International Obligations will be affected*
- *After mitigation there is no significant impact on downstream water quality (return flows)*
- *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 development will be permanent.

METHOD STATEMENT

DEVELOPMENT OF A RESIDENTIAL ESTATE ON REMAINDER OF PORTION 21 OF FARM 195 (PIETER KOEN TRUST), GEORGE

INTRODUCTION

This document provides measures that must (where practical and feasible) be implemented to ensure that any environmental degradation that may be associated with the development is avoided, or where such impacts cannot be avoided entirely, are minimised and mitigated appropriately. It is essential that this document be carefully studied, understood, implemented, and adhered to as far as reasonably possible, throughout all phases of the proposed development. The developer and any appointed contractors must make adequate financial provision to implement the measures specified in this document.

LOCATION

A site within the Remainder of Portion 21 of the Farm Kraaibosch 195 forms the Development Footprint. The property is situated just north of the Groenkloof Retirement Village.

PROJECT DESCRIPTION

Pieterkoen Development Company (Pty) Limited proposes to undertake a development of residential units as well as a business and historic precinct accordance with the SDP provided. It is envisaged that the development implementation will be phased over a period of six years commencing in 2024.

Figure 1: Site Development Plan and locality map

This document describes the measures that must be implemented in order to avoid, minimise, manage and monitor the potential environmental impacts of the development, during all phases of the project life cycle, namely:

- Planning and Design Phase
- Pre-construction Phase
- Construction Phase
- Post-Construction Rehabilitation

METHODS STATEMENT

SPECIFIC MEASURES:

- The edges of the pipeline construction servitude, as well as the development area, relative to the aquatic habitat must be clearly staked-out and demarcated prior to construction commencing.
- Removal of vegetation must only be when essential for the continuation of the project. Do not allow any disturbance to the adjoining natural vegetation cover or soils.
- Access to and from the development area should be either via existing roads or within the construction servitude. Any contractor found working within No-Go areas must be fined as per fining schedule/system setup for the project.
- Following construction, it is important to stabilise any steep, bare areas on the slope and river banks via geotextiles and/or revegetation.
- It is the contractor's responsibility to continuously monitor the area for newly established alien species during the contract and establishment period, which if present must be removed. Removal of these species shall be undertaken in a way which prevents any damage to the remaining indigenous species and inhibits the re-infestation of the cleaned areas.
- Sedimentation must be minimised with appropriate measures. Any construction causing bare slopes and surfaces to be exposed to the elements must include measures to protect against erosion using covers, silt fences, sandbags, earthen berms etc.
- All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.
- Construction must have contingency plans for high rainfall events during construction. Even in the operational phase, measures to contain impacts caused during high rainfall events must be planned for and available for use.
- A rehabilitation plan must be compiled with the assistance of a botanist to ensure that the buffer area is revegetated with indigenous plant species in the correct manner. The area must be maintained through alien invasive plant species removal (which is the landowner's responsibility regardless of mitigation associated with this project) and the establishment of indigenous vegetation cover to filter run-off before it enters the aquatic habitat.
- Construction of the pipeline should preferably be done during the drier months when the water quality impacts from the construction activities may impact on the downslope watercourses. Measures to contain impacts caused during high rainfall events (such as substantial sedimentation and/or erosion) must be planned for and available for use.
- Before any work commences, sediment control/silt capture measures (e.g. bidim/silt curtains) must be installed downstream/downslope of the active working areas. Silt fences/curtains must be regularly checked and maintained (de-silted to ensure continued capacity to trap silt) and repaired where necessary. When de-silting takes place the silt must not be returned to the watercourse.

- Avoid multiple watercourse crossings and align pipeline crossings as close to each other as possible.
- Crossings must be constructed perpendicular to the natural direction of flow.
- Pipelines across watercourses should be buried at a sufficient depth below ground level such that the pipelines do not interfere with surface water movement or create obstructions where flows can cause erosion to initiate.
- The stormwater management infrastructure must be designed to ensure the runoff from the development is not highly contaminated or concentrated before entering the surrounding area. Any stormwater retention ponds or berms must be located outside of the buffer area.
- The adoption of the 30m aquatic buffer zone between the development infrastructure and HGM1.
- The volume and velocity of water must be reduced through discharging the surface flow at multiple locations surrounding the development.
- Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil. Contingency plans must be in place for high rainfall events which may occur during construction.

During construction the method statement must be specifically applied to land clearance but also the internal sewer pipeline crossing the head of the HGM 1 watercourse to the development property on the east. For detailed designs of the crossing structure, refer to the civil designs report and Engineering Drawing G5215BA-CE-211 and the excerpts below in Figures 1 and 2. These designs will be implemented to ensure there is no erosion at the pipeline crossing.

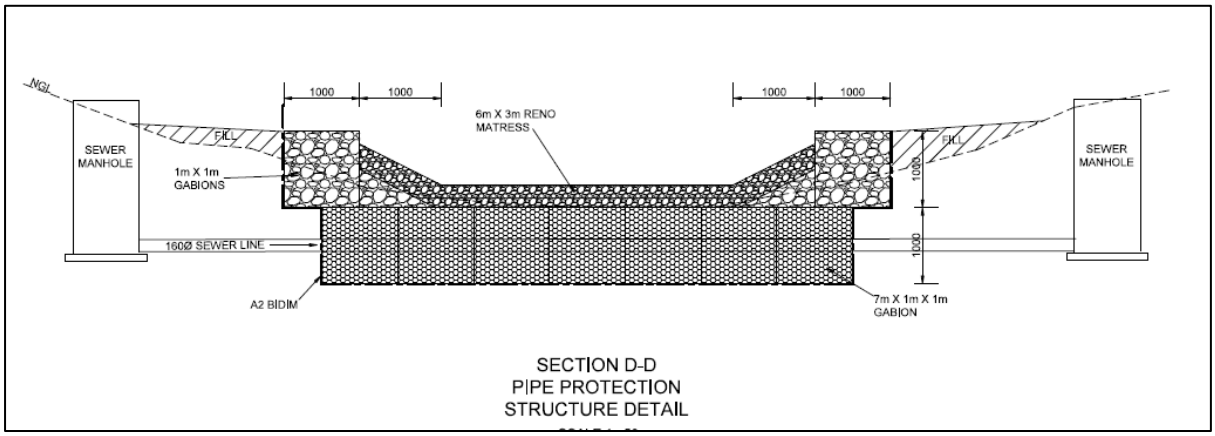


Figure 2: Design of the internal sewer pipeline crossing at the top of HGM 1 non-perennial drainage line (cross-sectional view) showing gabion protection of the pipeline and measures to prevent erosion.

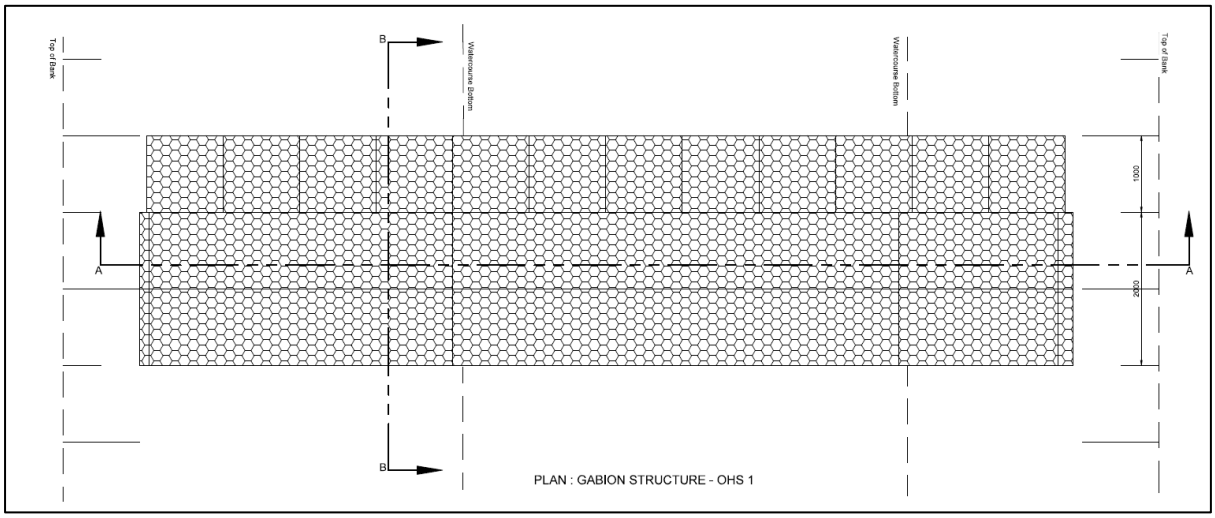


Figure 3: Design of the gabion protection over the pipeline crossing the watercourse, viewed from above, to ensure the pipeline will not be damaged during floods and also prevent any erosion in the watercourse.

GENERAL MEASURES:

Site demarcation

The following areas must be clearly demarcated on site during the pre-construction or construction phases of the development, as appropriate.

Construction working area.

Prior to the commencement of any land-clearing or construction activities, the outer boundary of the development area must be surveyed and pegged. The demarcation boundary must be tight around the site, typically allowing a working area of no more than 2.5 m around the development footprint. This demarcation boundary is to ensure that land clearing, and construction activities are restricted to only that area strictly required for the proposed development, and to prevent unnecessary disturbance of soil surfaces and vegetation outside of the development footprint.

No-go areas

The proposed No-Go Areas are indicated in figure 11 below. The yellow line indicates where the proposed pipeline will cross watercourse HGM1. It is very important that all proposed mitigation measures by the aquatic specialist be implemented to minimise any potential impacts on this area between the proposed no-go areas.

All areas outside of the development footprint are considered no-go areas for construction. The aquatic specialist is currently busy compiling a rehabilitation plan which will include provisions for the establishment of walking paths and benches inside the 30 m buffer of HGM1.

Prior to the commencement of any land-clearing or construction activities, all No-Go and Open Space areas, must be demarcated and must not be disturbed during the construction phase. No-go areas must be off-limits to all construction workers, vehicles and machinery during all phases of the development. No vegetation may be cleared from within the no-go areas, and no dumping of any material (waste, topsoil, subsoil etc.) may occur in these areas. Construction workers must be informed of the no-go areas, and if necessary appropriate signage and/or temporary fencing (e.g., droppers with danger tape) can be used to enforce the no-go areas.

Site access: Access onto the property is gained directly from Glenwood Avenue.

Demarcation of the site camp

The area chosen for the site camp and associated facilities must be the minimum area reasonably required to accommodate the site camp facilities, and which will involve the least disturbance to the environment. It is recommended that easily accessible, transformed areas are used for the site camp. Site selection must be done in consultation with the ECO.

Waste Storage Area:

Sufficient bins for the temporary storage of construction related waste must be provided inside the site camp and/or at the working area.

Hazardous Substances Storage Area:

Fuels, chemicals, lubricants, and other hazardous substances must be stored in a demarcated, secured and clearly sign-posted area within the site camp away from water courses.

Ablution Facilities:

Chemical toilet facilities or other approved toilet facilities (at least 1 toilet for each sex and for every 30 workers) must be provided and located on the site in such a way that the toilets will not cause any form of pollution of the site. Toilets must be placed within the site camp and must be well outside any riparian zone. The toilets must be placed on a level surface and secured to prevent them from blowing over. The toilets must be serviced regularly and kept in an orderly state. The contractor must ensure that no spillage occurs when the toilets are cleaned, serviced, or moved. Performing ablutions outside of the provided toilet facilities is strictly prohibited.

Vehicle & Equipment Maintenance Yard:

Where possible, construction vehicles and equipment that require repair must be removed from site and taken to a workshop for servicing. If emergency repairs and/or basic maintenance of construction vehicles or equipment are necessary on site, such repair work must be undertaken within the designated maintenance yard area away from the riparian. Repairs must be conducted on an impermeable surface, and/or a tarpaulin and/or drip trays must be laid down prior to emergency repairs taking place, to prevent any fuel, oil, lubricant or other spillages from contaminating the environment.

Vegetation clearing

Where vegetation must be cleared the following measures must be implemented where applicable, reasonable, and practical:

- Draw up and implement an invasive plant clearance programme. As part of this plan, a fire break needs to be maintained around the site.
- Where feasible vegetation must simply be trimmed to facilitate access/ construction, rather than being completely cleared or removed.
- Vegetation clearing/trimming must be cleared by hand (i.e., brush cut) and stockpiled for use as mulch/ brush-packing during rehabilitation of the site. Any alien vegetation that is cleared must be disposed of in consultation with the ECO, unless the cleared alien vegetation does not contain seeds in which case it may be retained for use in site rehabilitation.
- No bulldozing must be undertaken for the purpose of vegetation clearing.
- Only the areas required to accommodate the construction activities and access to the construction site must be cleared/trimmed of vegetation.
- Vegetation outside of the construction footprint and beyond any No-Go areas must not be cleared.
- As a duty of care measure, indigenous bulb species (if present) can be searched and rescued to be replanted in the allocated open space area in the north-eastern corner of site.

Topsoil and subsoil management

It is recommended that topsoil be removed from any area where physical disturbance of the surface will occur, including within the footprint of the development site (working area) and possibly within the site camp, ablution area, vehicle maintenance yard, refuelling area and temporary waste storage area. Topsoil removal and stockpiling must be undertaken only after consultation with the ECO.

- Removed topsoil and subsoil must be stockpiled for the duration of the active construction period and utilised for the final landscaping and rehabilitation of disturbed areas on site.
- The removed topsoil must be stockpiled in a berm, in a demarcated area as agreed with the ECO.
- Removed subsoil must be stockpiled separately from topsoil.
- The topsoil & subsoil storage area must be located on a level area outside of any surface drainage channels and at a location where it can be protected from disturbance during construction and where it will not interfere with construction activities.
- Where applicable topsoil and subsoil stockpiles must be adequately protected from being blown away or eroded by storm water. If necessary, shade cloth or other suitable measures must be used to stabilise and protect the stockpile from wind/water erosion. Topsoil stockpiles must not be covered with tarpaulin, as this may smother and decrease the virility of topsoil.
- Handling of topsoil must be minimised as much as possible, and the location of the topsoil berm must be chosen carefully to avoid needing to relocate the topsoil berm at a later date. The ECO must be consulted with regards to the placement of the stockpiles, to ensure that the selected location is in compliance with this EMPr and EA (once granted).
- Ideally, topsoil is to be handled twice only, once to strip and stockpile, and once to replace, level, shape and scarify.
- If soil stockpiles will be stored for an extended period of time, the stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding, (or application of herbicides if agreed with the ECO).
- Spoil material that will not be re-utilised on site may be removed from site and taken to an appropriate site for re-use or disposal.
- Note that the topsoil must be the final layer applied to a rehabilitated/ re-landscaped site, after subsoil/ spoil material has been placed and shaped on the site.

<u>Cement and concrete batching</u>

Cement and concrete batching is permitted on site, but may only take place on designated impermeable, bunded surfaces, as agreed with the ECO.

- Cement/ concrete must not be mixed on bare ground.
- Cement/concrete must not be mixed within any drainage lines.
- The impermeable/ bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment or contaminate the soil.
- Cement run-off and excess cement slurry must be collected in the designated impermeable area, allowed to dry and then disposed of at an appropriate facility. Alternately, the contaminated water can be collected in sealed tanks and transported to an appropriate disposal site for disposal.
- Empty cement bags are currently not recycled within the Garden Route and must be disposed of in the un-recyclables waste bins on site.

<u>Erosion control and stormwater management</u>

- A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. The stormwater management infrastructure must be designed to ensure the runoff from the development is not contaminated before entering the surrounding area. The volume and velocity of water must be reduced

through discharging the surface flow at multiple locations surrounding the development. Effective stormwater management must include effective stabilisation of exposed soil.

- Sedimentation must be minimised with appropriate measures. Any construction causing bare slopes and surfaces to be exposed to the elements must include measures to protect against erosion using covers, silt fences, sandbags, earthen berms etc.
- All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.
- Construction must have contingency plans for high rainfall events during construction. Even in the operational phase, measures to contain impacts caused during high rainfall events must be planned for and available for use.
- A rehabilitation plan must be compiled with the assistance of a botanist to ensure that the buffer area is revegetated with indigenous plant species in the correct manner. The area must be maintained through alien invasive plant species removal (which is the landowner's responsibility regardless of mitigation associated with this project) and the establishment of indigenous vegetation cover to filter run-off before it enters the aquatic habitat.
- Stormwater infrastructure must be inspected at least once every year (before the onset of rains) to ensure that it is working efficiently. Any evidence of erosion from this stormwater system must be rehabilitated and the volume/velocity of the water reduced through further structures and/or energy dissipaters.
- Construction of the pipeline should preferably be done during the drier months when the water quality impacts from the construction activities may impact on the downslope watercourses. Measures to contain impacts caused during high rainfall events (such as substantial sedimentation and/or erosion) must be planned for and available for use.
- Before any work commences, sediment control/silt capture measures (e.g., bidim/silt curtains) must be installed downstream/downslope of the active working areas. Silt fences/curtains must be regularly checked and maintained (de-silted to ensure continued capacity to trap silt) and repaired where necessary. When de-silting takes place, the silt must not be returned to the watercourse.

Excavations and Earthworks

Any major earthworks with heavy machinery must be under constant supervision and operators are to be aware of all the environmental obligations, as there is always the potential to inflict damage to the sensitive areas. Any unnecessary or excessive heavy machinery movement must be kept to a minimum i.e., only what is absolutely necessary. Areas to be excavated must be clearly demarcated.

Site closure and rehabilitation

Upon completion of the construction phase, all disturbed areas, including the working area (disturbance corridor), temporary access roads, and all areas utilised for the site camp and associated site camp facilities will require rehabilitation as per rehabilitation plan and conditions of the WUL and aquatic specialist report.

STORMWATER MANAGEMENT PLAN:

DEVELOPMENT OF A RESIDENTIAL ESTATE ON REMAINDER OF PORTION 21 OF FARM 195 (PIETER KOEN TRUST), GEORGE

Stormwater Disposal and Management Plan

According to the civil report and drawings, the following is relevant: Stormwater infrastructure is envisaged to be provided by the developer – see drawing G5215BA-CE-102-A, G5215BA-CE-110-A and G5215BA-CE-111-A. All necessary precautions will be taken to prevent erosion. Also see figures at the end of this document.

Design Philosophy

Stormwater management will be according to recommendations contained in the Red Book i.e., Guidelines for Human Settlement Planning and Design as compiled by the CSIR. The principals of SuDS will further be considered to minimise the amount and impact of stormwater leaving the site. A dual drainage system will be adopted. Source control of the minor flood with 1:5 year or less recurrence intervals will be provided by the utilisation of roof water collection rainwater tanks to collect runoff from roofs for later use in irrigation of gardens etc. Local control will be facilitated by the use of catchment structures and will, where possible, be constructed per erf pockets as required. This will to some extent facilitate infiltration of water at source. The major flood with 1:50 year recurrence interval will be carried in the streets and the formal system (as per Guidelines) and only where the above minor system's capacity is exceeded, then in overland open or piped channels to the natural watercourses. During the detail design phase, storm runoff from catchment areas will be calculated and catchpit inlets will be positioned and sized to match runoff volumes. The capacity of road kerbs will also be checked against major runoff volumes. Stormwater servitudes will be provided between erven where necessary to accommodate overland open channels with sufficient capacity to carry major storm runoff from the edge of the road to the nearest natural watercourse.

Specific Considerations

Runoff from the land will increase because of the development, but this will be accommodated in the design of the minor and major stormwater system. The increased runoff will not affect any existing or proposed properties, since all properties are well above the 1:100 year flood lines for the major natural watercourse (Swart River).

Increased overland flow velocities

Various measures will be incorporated to mitigate increased flow velocities like:

• Energy dissipaters and stilling basins at stormwater pipe outlets. Reno mattress aprons with stilling basins where appropriate will be provided at all culvert outlets. Large rocks will be effective as energy dissipaters and will contribute to the landscaping.

• Lining of open channels with grass (swales) and or stone pitching where required.

• Utilisation of invader tree logs to act as flow speed calming structures placed across flow paths and anchored properly.
• Utilisation of Gabion type structures to act as flow speed calming elements placed across flow paths and anchored properly.

Quality of water

Long term contamination of stormwater run-off is not a concern as the development consists mostly of commercial and housing development. In line with the SuDS principals pipe culvert outlets will be provided with Gabion and Reno mattress structures to facilitate slowing of minor storm flows and to provide infiltration areas to augment subsurface flow. Possible pollutants will be trapped in these structures and can be cleaned out as part of a regular maintenance schedule. The site is most vulnerable during the construction phase, and it will be necessary to utilize silt screens and onion bags to trap silt before the run-off joins the natural watercourses. Once vegetation in all the disturbed areas of the development is well established and ground surfaces have consolidated, no further measures will be required. These measures will be the subject of the Environmental Management Plan (EMP) which will be issued to the contractor at construction stage. The Environmental Control Officer (ECO) will be responsible for enforcing the EMP.

Protection of slopes that occur on the property

Natural slopes that have been disturbed and where sheet flow occurs will be landscaped and revegetated. Where flow is concentrated, measures will be incorporated as proposed above. Where stormwater is channelled towards the river and tributary streams, outlets have been spaced at intervals along the stream edge to avoid concentration of large flows. Stormwater will thus be fed into the streams and river system along a wide front allowing dissipated flow and seepage to all areas.

Preliminary High level Flow Estimation

The figures provided below should be considered as estimated quantities only. Flow estimation has been done according to the Rational Method for the 1:5 years return period nl. stormwater accommodated in the underground piped system and stormwater accommodated as overland sheet flow per the existing topography. Flow is indicated for the east side contributing to the existing stream as follows.
Pre-development flows: - 202,63 l/s
Post-development flows: - 399,18 l/s
As can be seen the expected increase in flow is 196,55 l/s.

Structure Designs

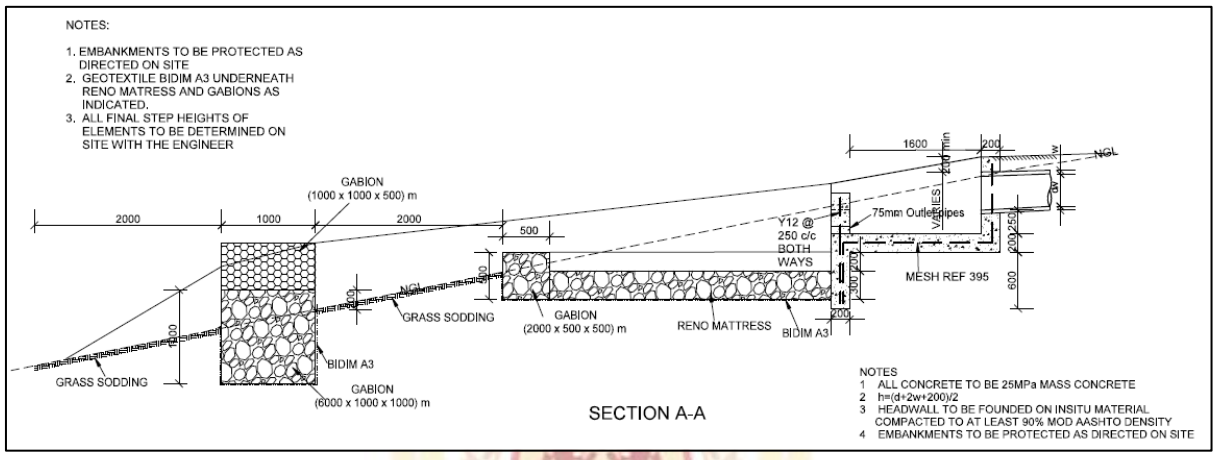
Of specific relevance to the WULA application, it is important to note that various stormwater management measures and structures are proposed to prevent any concentrated flow from entering the watercourse. These are in alignment with the principles of SUDs and the recommendations of the aquatic specialist.

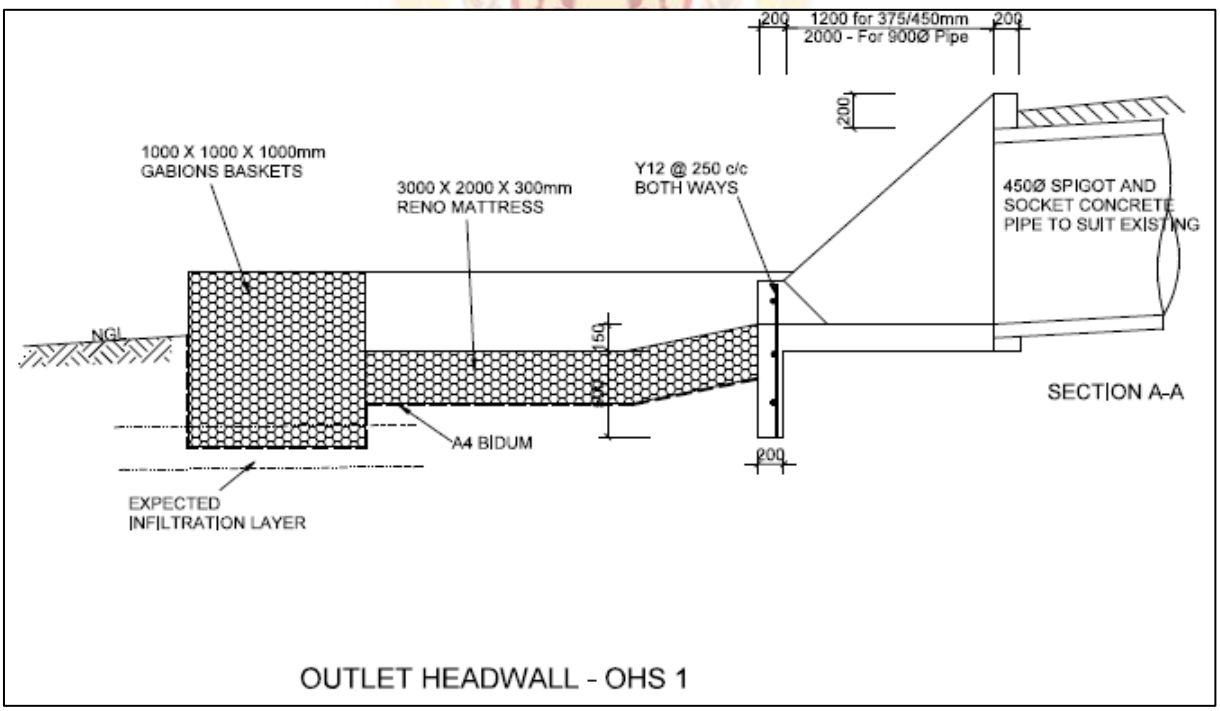
Apart from the aquatic buffer zone, the following structures are included:

- Gabion and reno-mattress erosion protection at outlets
- Stormwater retention
- Stilling basins
- Swales (600mm deep) at the gabion stormwater outlets with multiple exits over reno-mattress
- Retention ponds and infiltration swales
- Concrete baffles at outlet to slow and distribute flow

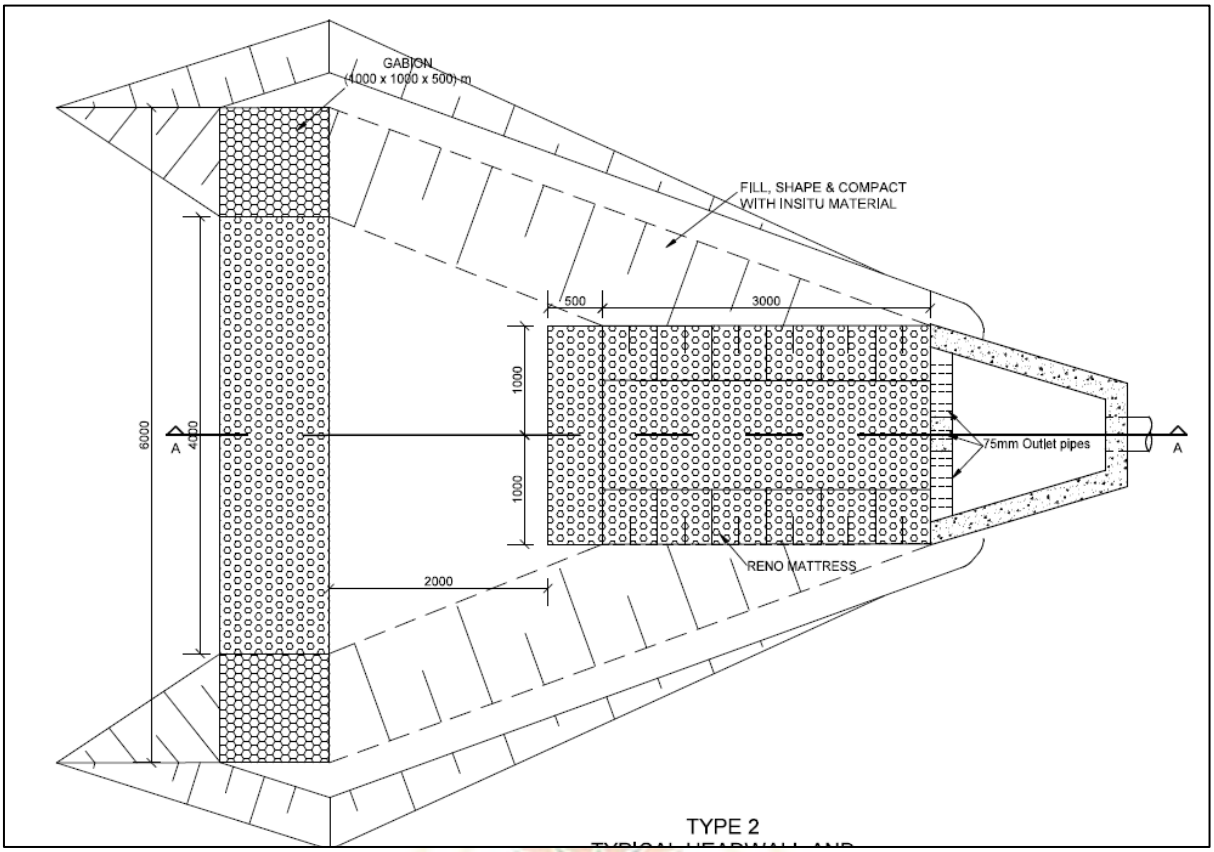
Refer to designs below taken from the civils design report:

Gabion and reno-mattress erosion protection at outlets:

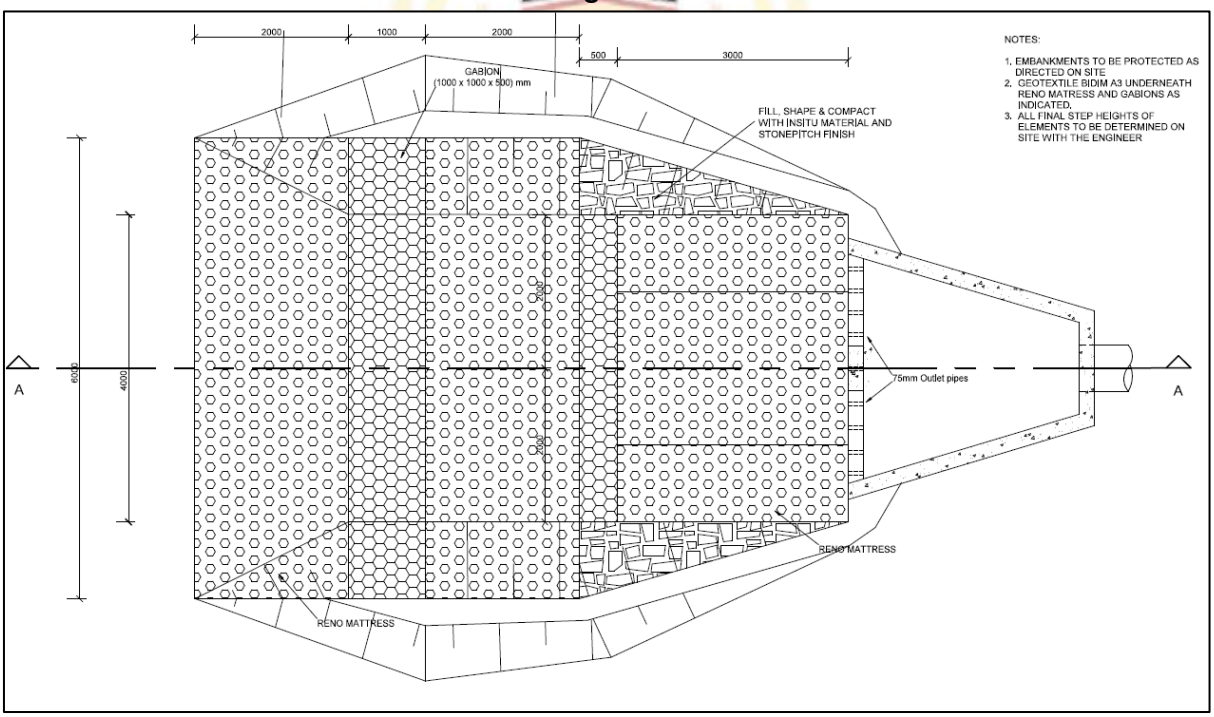




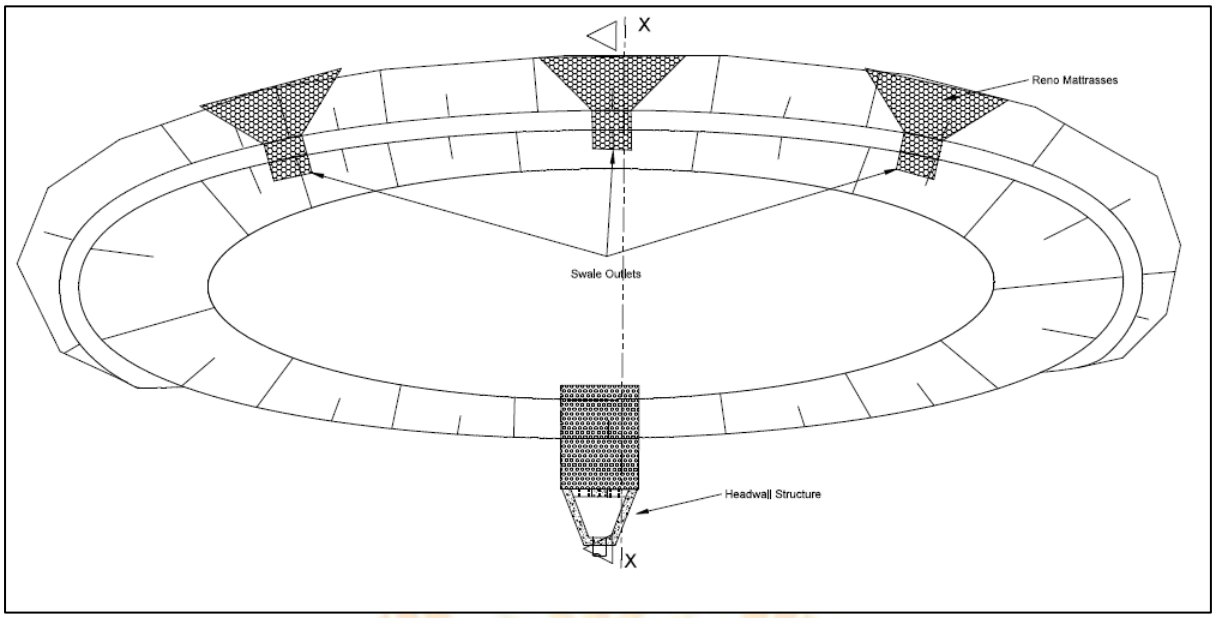
Stormwater retention gabion catch pits at outlets:



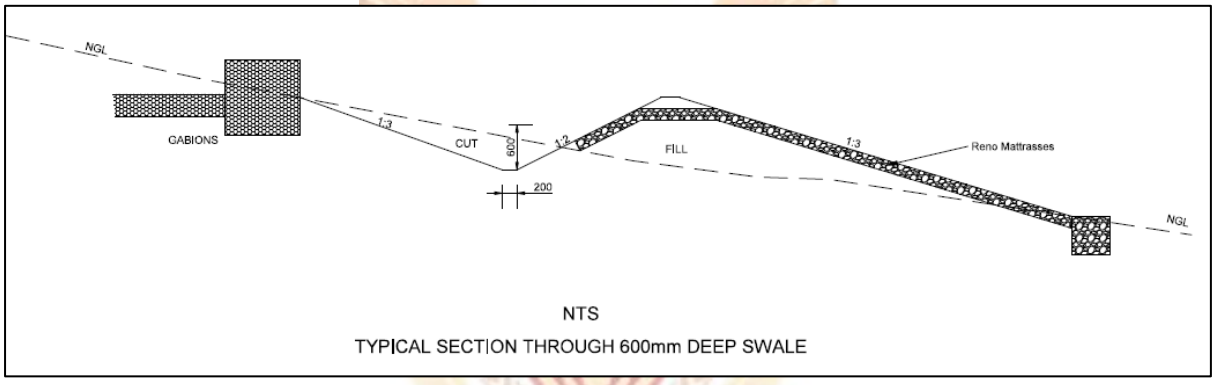
Stilling basins:



Swales (600mm deep) at the gabion stormwater outlets with multiple exits over reno-mattress:



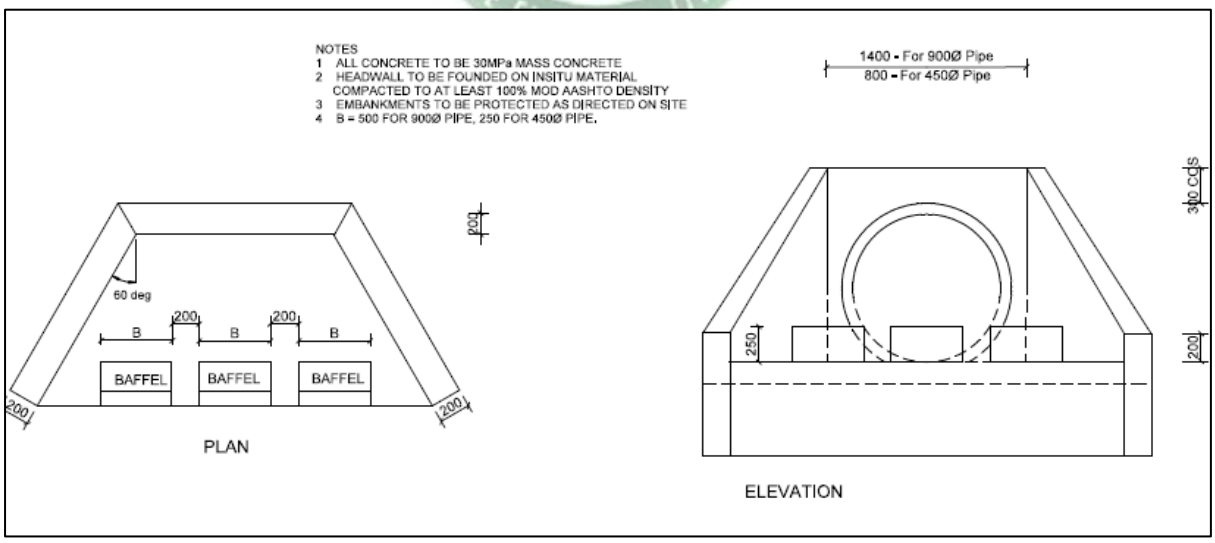
Retention and infiltration swales:



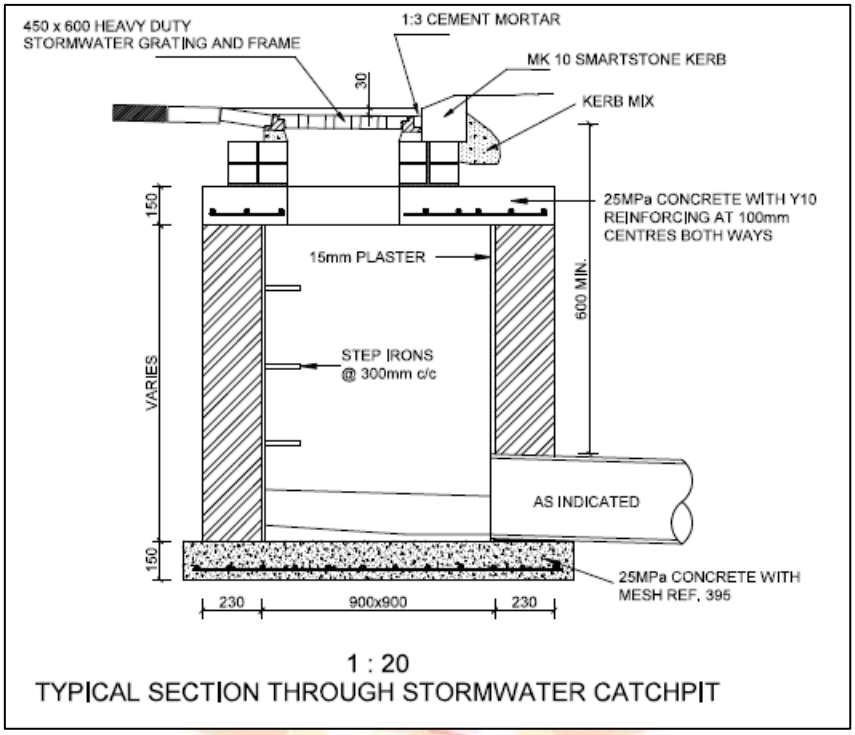
NTS

TYPICAL SECTION THROUGH 600mm DEEP SWALE

Concrete baffles at outlet to slow and distribute flow:



Stormwater catchpits:



1 : 20

TYPICAL SECTION THROUGH STORMWATER CATCHPIT

water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Private Bag X313, Pretoria, 0001, Sedibeng Building, 185 Francis Baard Street, Pretoria,
Tel: (012) 336-7500 Fax: (012) 323-4472 / (012) 326-2715

WATER USE LICENCE APPLICATION SUMMARY

DEVELOPMENT OF A RESIDENTIAL ESTATE ON REMAINDER OF PORTION 21 OF FARM 195 (PIETER KOEN TRUST), GEORGE

WU35086

NAME OF APPLICANT:

Pieterkoen Development Company (Pty) Ltd

Compiled by:

Debbie Fordham
Upstream Consulting
25 Blommekloof St, George, 6529
debbie@upstreamconsulting.co.za

Signature:

Date : **18/11/2024**

1. Applicant details

Name of applicant:	Pieterkoen Development Company (Pty) Ltd (2022/749109/07) Mr Justin Branford
Postal address:	PO Box 2582, George, 6530
Cell phone number:	+27832840728
Office number:	+27448711206
E-mail address:	justin.branford@igen.co.za

2. Person submitting application

Debbie Fordham
SACNASP No. 119102
PWS No. 3683

Debbie is a certified Professional Wetland Scientist (PWS certification number 3683) by the Society for Wetland Scientists (SWS) Professional Certification Program, which is internationally accredited by the Council of Engineering and Scientific Specialty Boards (CESB). She is also a registered SACNASP ecologist (Ecology No. 119102), with over 10 years of working experience, specialising in aquatic ecology. Debbie holds a M.Sc. degree in Environmental Science from Rhodes University, by thesis, entitled: The geomorphic origin and evolution of the Tierkloof Wetland, a peatland dominated by *Prionium serratum* in the Western Cape. She is a member of scientific organisations such as the Society of Wetland Scientists (SWS Committee Member), the South African Wetland Society (SAWS), and the Southern African Association of Geomorphologists (SAAG).

Qualifications:
M.Sc. – Wetland Ecology (Rhodes University)
BA (Hons) - Environmental Science
BA - Environmental Science and Geography

3. Background and purpose

Debbie Fordham of Upstream Consulting has been appointed by Pieterkoen Development Company (Pty) Ltd to undertake a water use license application for the proposed residential development on the remainder of Portion 21 of Farm 195, in George. (33°58'24.22"S; 22°30'42.61"E).

The Remainder of Portion 21 of Farm 195 is situated within the urban edge, on the eastern side of George, and accessed off Glenwood Avenue. The property is bordered by the Swart River, downstream of the Garden Route Dam to the north. (Figure 1). The land use of the surrounding area, historically made up of small holdings and forestry plantations, is increasingly changing to residential developments (such as Kraaibosch Estate and Groenkloof Estate on the opposite side of Glenwood Avenue). During the environmental authorisation application process the aquatic biodiversity assessment identified a non-perennial river on the northeastern portion of the property. The development layout plan was amended to avoid this riparian habitat and allow for a 30m ecological

buffer area between the riparian zone and any housing. However, a sewage pipeline is required to cross the head of the drainage line. Hence the need for four (c) and (i) water uses to be authorized.

Refer to Figure 2 for the site layout plan (SDK Architects, 2024), showing the following estate components:
A. 128 Single Residential II Zoning – 3 Storey Apartments
B. Business Zone III with neighbourhood shop and flats above
C. Historic Precinct (Clubhouse, Restaurant, Gym)
D. 36 High density group housing (cottages)
E. 64 Group housing
F. 79 Single residential erven

Total opportunities = 307

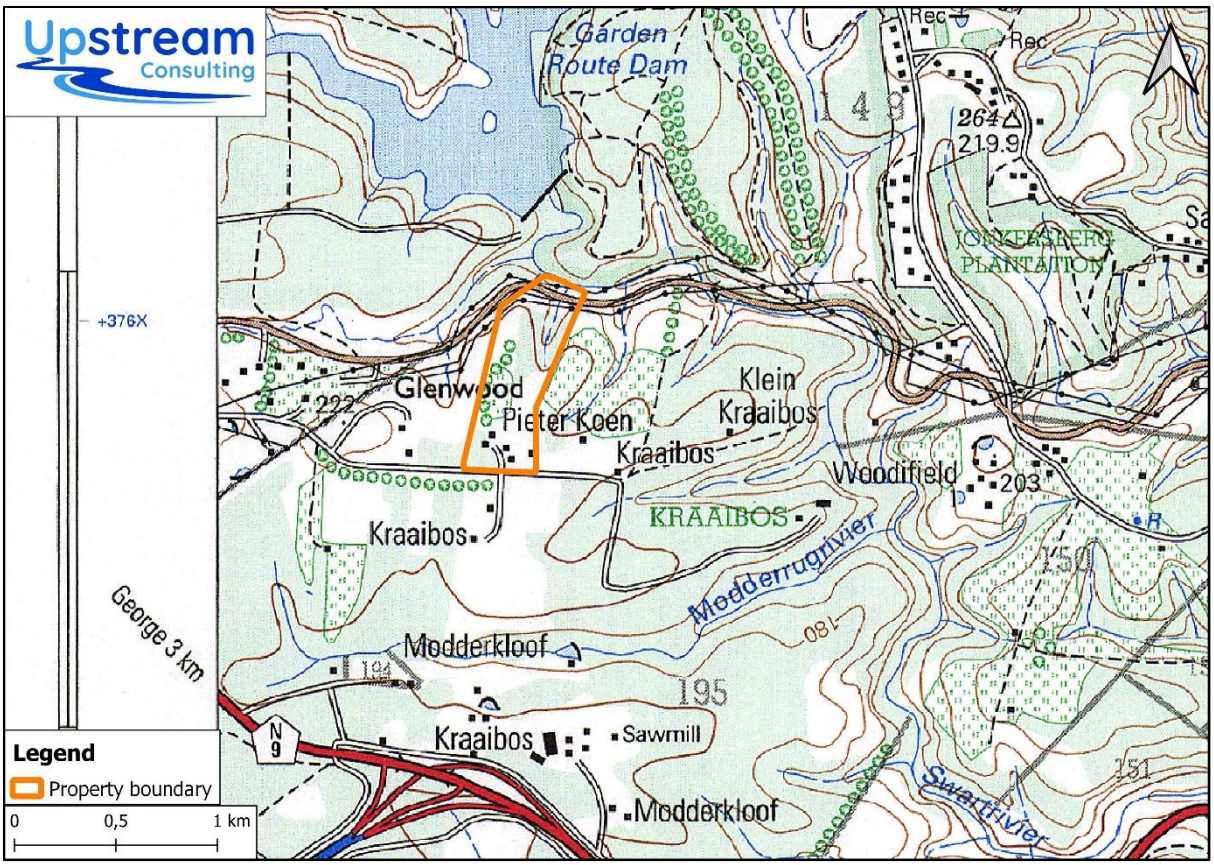


Figure 1: The location of the Remainder of Portion 21 of Farm 195

Figure 2: Development layout plan (SDK Architects, 2024)

The development layout has been designed to avoid any aquatic habitat, however, due to an essential sewage pipeline required to cross a non-perennial watercourse, the project requires water use authorisation in terms of the National Water Act (Act 36 of 1998), for the following water uses:

- **Section 21(c)** -Impeding or diverting the flow of water in a watercourse, and
- **Section 21(i)** - Altering the bed, banks, course or characteristics of a watercourse.

The pre-enquiry application was lodged in on the 8th of February 2024 with the Breede Olifants Catchment Management Agency (BOCMA) via the eWULAAs online platform and a site meeting was completed in June 2024. Figure 3 shows the application status at present and details the process to date.

The Applicant then received the acknowledgement letter from the Department of Water and Sanitation (DWS) stating technical requirements of the application, dated 21 August 2024. Refer to Figure 4. The WUA summary report and technical documents were compiled and distributed for 60 days public participation and notification to the commenting authorities. The 60-day public participation process ended on 13 November 2024. The comments from this process were reviewed and the report included into this final document for submission to the BOCMA.

Application Status

Water User
Pieterkoen Development Company (Pty) Ltd

Application
WU35086 - Development of a residential estate on Portion 21 of Farm 195 Kraaibosch, George

Duration: Day 0 of 90
Current Status: Applicant : Prepare Technical Report

#	Date	Applicant	Department	Duration in Days
1	Aug 21 2024 8:09AM	Applicant : Prepare Technical Report		64 Day(s) (Current)
2	Aug 16 2024 2:01PM		Pre Application Enquiry	4 Day(s)
3	Jul 30 2024 11:01AM		Site Inspection Determinations	13 Day(s)
4	Jul 30 2024 10:00AM		Pre Application Enquiry	1 Day(s)
5	Jul 17 2024 10:08AM		Site Inspection Determinations	10 Day(s)
6	Jul 16 2024 11:22AM		Site Inspection Determinations	2 Day(s)
7	Jun 17 2024 8:05AM	Applicant : Prepares WUL Application for submission		21 Day(s)
8	Feb 8 2024 9:26AM		Pre Application Enquiry	87 Day(s)
9	Feb 8 2024 8:03AM		Pre Application Enquiry	1 Day(s)
10	Feb 7 2024 10:41PM	Applicant : Prepares Pre-application for submission		2 Day(s)

Figure 3: eWULAAs application status as of 12/09/2024

ACKNOWLEDGEMENT OF YOUR INTENT TO APPLY FOR A WATER USE LICENCE IN TERMS OF SECTION 40 OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998), Portion 21 of Land Parcel 195 of the Major Region GEORGE (Remainder of Portion 21 of Farm Kraai Bosch 195), Development of a residential estate on Portion 21 of Farm 195 Kraaibosch, George

The Department of Water and Sanitation hereby acknowledges receipt of your pre-application information and intent to apply for a water use licence that was received on **08 Feb 2024**. The department has conducted preliminary assessment and has established that a site inspection is not required. In order for the Department to process your application the following additional information is requested;

Technical Documentation
Water Use Licence Application Summary Report
Aquatic assessment report
Wetland delineation and assessment Report
Rehabilitation Plan
Civil designs
Construction method statemement
EIA Report
Environmental Management Plan Report
Development Master layout plan: Overlay the spatial data of aquatic features and their associated regulated zones onto the planned site layout.
Public Participation advert notice and report
Stormwater Management Plan
Confirmation from the municipality that sufficient capacity exists to accommodate the wastewater generated by the proposed development.

Figure 4: Excerpt from the DWS Acknowledgement letter detailing the technical requirements

4. 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 the George Local Municipality in George (Figure 1 above). is situated within the urban edge, on the eastern side of George, and accessed off Glenwood Avenue. GPS co-ordinates: 33°58'24.22"S; 22°30'42.61"E.

The development is located on the remainder of Portion 21 of Farm Kraaibosch 195, George (George Registration division) which is owned by the Pieterkoen Development Company (Pty) Ltd (applicant). Refer to Table 1. The site is situated within quaternary catchment K30C of the Gouritz Water Management Area. Refer to Figure 5.

Table 1: Property details

Property description	Title Deed number	Owner
Remainder of Portion 21 of Farm Kraai Bosch 195	- *T022098/22*	- *Pieterkoen Development Company (Pty) Ltd*

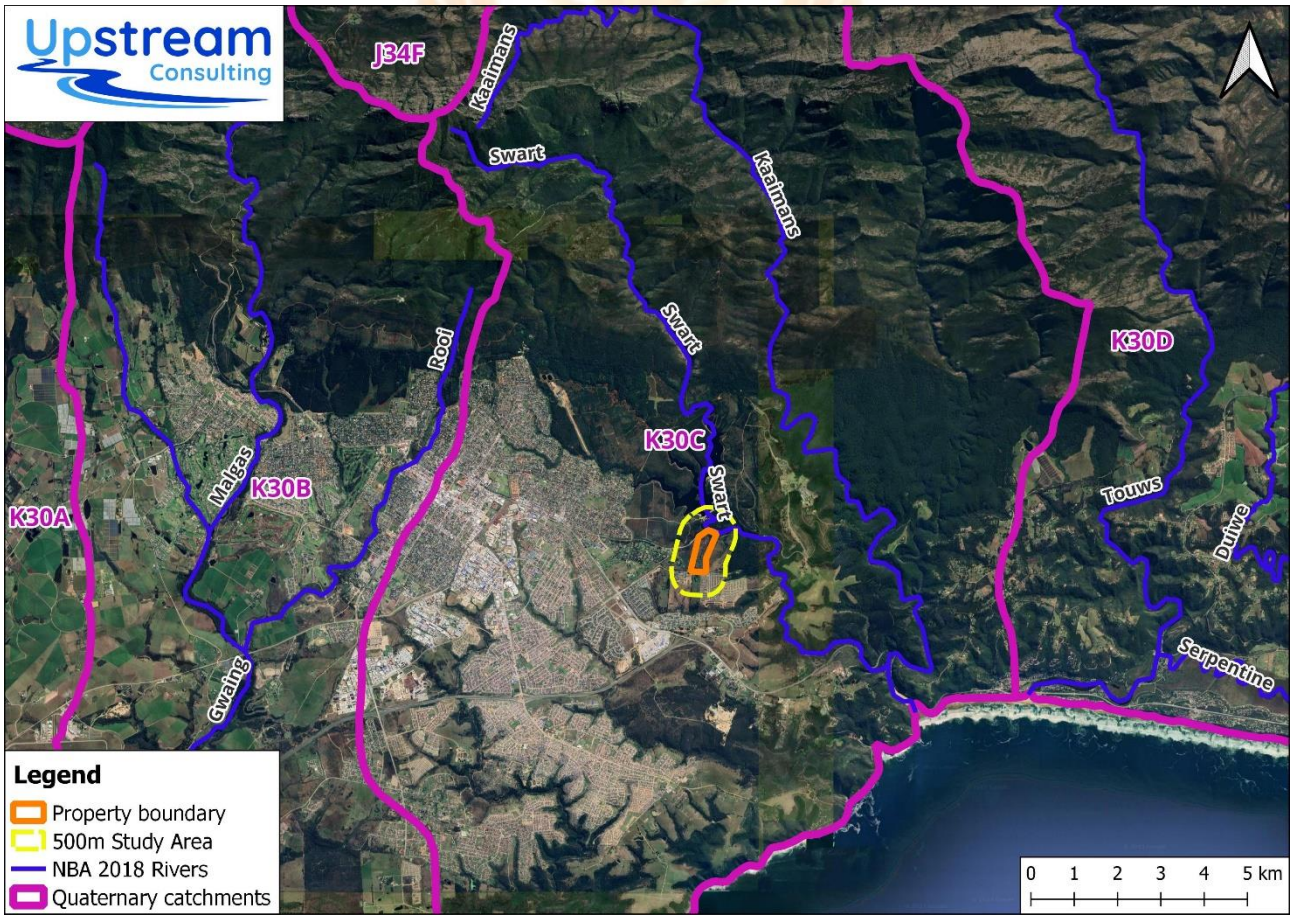


Figure 5: Map of the site in relation to the main rivers and K30C catchment

Refer to Table 2 for the co-ordinates of each water use for each site along the reach of river.

Table 2: Water use co-ordinates

WATER USE(S)	
Water Use	**Province / WMA / Nearest Town / Lat / Lon**
Stormwater outlet 1 - within Regulated Area of a watercourse DW763 - Impeding or diverting the flow of water in a watercourse (c)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.97049147029679 **Longitude:** 22.513873246025508
Stormwater outlet 2 - within Regulated Area of a watercourse DW763 - Impeding or diverting the flow of water in a watercourse (c)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.969570193010924 **Longitude:** 22.513452306848407
Temporary Sewage Pump Station within Regulated Area of a watercourse DW763 - Impeding or diverting the flow of water in a watercourse (c)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.96915997589833 **Longitude:** 22.51479103131235
Temporary Sewage Pump Station within Regulated Area of a watercourse DW768 - Altering The Bed, Banks, Course Or Characteristics Of A Watercourse (i)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.96915680529033 **Longitude:** 22.514786268893545
Buried sewer pipeline crossing a drainage line DW763 - Impeding or diverting the flow of water in a watercourse (c)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.96983823772857 **Longitude:** 22.514042929265468
Buried sewer pipeline crossing a drainage line DW768 - Altering The Bed, Banks, Course Or Characteristics Of A Watercourse (i)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.96983887737097 **Longitude:** 22.514041622007433
Stormwater outlet 2 - within Regulated Area of a watercourse DW768 - Altering The Bed, Banks, Course Or Characteristics Of A Watercourse (i)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.96957017235078 **Longitude:** 22.5134528298429
Stormwater outlet 1 - within Regulated Area of a watercourse DW768 - Altering The Bed, Banks, Course Or Characteristics Of A Watercourse (i)	**Province:** Western Cape **WMA:** Breeede-Olifants **Nearest Town:** George - 22.4597, -33.9644 **Latitude:** -33.97048957904733 **Longitude:** 22.51388089025562

5. Administrative documents and technical reports submitted by applicants

5.1 Administrative documents

5.1.1 List all administrative documents relevant to the application as per WULA regulation

- Consultant Appointment Letter
- DW758 - Registration/Licensing Part 1 - Company, Business, Partnership
- DW901 - Property where water use occurs
- DW902 - Details of Property Owner
- DW763 - Impeding or diverting the flow of water in a watercourse (c) – X4
- DW768 - Altering The Bed, Banks, Course Or Characteristics Of A Watercourse (i) – X4
- Proof of Payment Application Fee
- Certified ID Copy of Water User contact person
- Copy of Title Deed
- Motivational Report to address sec 27 and proof that proposed water use will redress the result of past racial and gender discrimination /BBBEE status

5.2 Reports and other technical documents

5.2.1 List all the technical document relevant to the application as per WULA Regulation or any other information requested formally indicate compiler and date of compilation:

A letter from the Department regarding this application, requesting additional information for Phase 3 submission (signed by Mr Carlo Abrahams) was addressed to the Applicant, and listed the following required additional technical information:

Table 1: Technical documents required by the BGCMA for this application

Technical Documentation
Water Use Licence Application Summary Report
Aquatic assessment report
Wetland delineation and assessment Report
Rehabilitation Plan
Civil designs
Construction method statemement
EIA Report
Environmental Management Plan Report
Development Master layout plan: Overlay the spatial data of aquatic features and their associated regulated zones onto the planned site layout.
Public Participation advert notice and report
Stormwater Management Plan
Confirmation from the municipality that sufficient capacity exists to accommodate the wastewater generated by the proposed development.

Below is a list of technical documents which were compiled by the Kantey and Templer Consulting Engineers, SDK Architects, Sharples Environmental Services, Upstream Consulting (the Aquatic specialist and water use consultant):

List of technical documents currently available to be submitted under the following categories:

- CIVIL SERVICES REPORT by Kantey and Templer Consulting Engineers (dated 31 July 2023) Report No. G5215BA: Revision No. 1.
- CIVIL SERVICES DRAWINGS:
    - G5215BA-CE-101-A
    - G5215BA-CE-102-A
    - G5215BA-CE-110-A
    - G5215BA-CE-111-A
    - G5215BA-CE-112-A
- AQUATIC BIODIVERSITY IMPACT ASSESSMENT REPORT –dated August 2023, and compiled by registered aquatic ecologist, Debbie Fordham, of Upstream Consulting.
- SITE LAYOUT DESIGN (dated May 2023) by SDK Architects.
- METHOD STATEMENT AND STORMWATER MANAGEMENT PLAN - compiled Kantey and Templer Consulting Engineers
- CONCEPT AND VIABILITY REPORT entitled ‘MDRG Project 28(3) – Van Riebeeck Gardens and Camphersdrift’ (dated 20 September 2023) by Lukhozi Consulting Engineers (Pty) Ltd REPORT NO. 1760\02: REVISION NO. 2.

- BASIC ASSESSMENT REPORT (BAR) compiled by Sharples Environmental Services cc for NEMA application
- EMPr compiled by Sharples Environmental Services cc for NEMA application
- A WATER USE LICENCE APPLICATION SUMMARY REPORT –Compiled by Debbie Fordham of Upstream Consulting (appointed to undertake the WUL app).
- REHABILITATION PLAN –Compiled by Debbie Fordham of Upstream Consulting.
- Licence Application Fee Proof of Payment – Uploaded by Upstream Consulting
- STORMWATER MANGAMENT DESIGN AND MASTER LAYOUT
- PUBLIC PARTICIPATION REPORT, including an I&AP Register, proof of PPP, and a comments and response table, with the concerns raised and addressed –compiled by Debbie Fordham.
- SECTION 27 MOTIVATION REPORT– Compiled by Upstream Consulting with input from the Socio-economic specialist report, engineers, EAP and applicant.
- CONFIRMATION LETTER FROM MUNICIPALITY

6. Project Description

A residential development is proposed on the Remainder of Portion 21 of Farm 195, within the urban edge of George. During the environmental authorisation application process the aquatic biodiversity assessment identified a non-perennial river on the northeastern portion of the property. The development layout plan was amended to avoid this riparian habitat and allow for a 30m ecological buffer area between the riparian zone and any housing. However, a sewage pipeline is required to cross the head of the drainage line.

Refer to Figure 2 for the site layout plan (SDK Architects, 2023), showing the following estate components:
A. 128 Single Residential II Zoning – 3 Storey Apartments
B. Business Zone III with neighbourhood shop and flats above
C. Historic Precinct (Clubhouse, Restaurant, Gym)
D. 36 High density group housing (cottages)
E. 64 Group housing
F. 79 Single residential erven

Total opportunities = 307

Civil Design information
The relevant information below is taken from the layouts and design reports provided:

Water
George Municipality have confirmed that they will have sufficient supply of treated potable water to provide this proposed development with an on-site connection. It is my understanding of the information and drawings provided that a water pipeline is proposed to cross the watercourse.

Sewage disposal
The sewage master plan of the Local Authority does allow for this development in terms of bulk disposal and treatment of the sewage outfall. The Local Authority has confirmed the availability of

this service. The estimated sewerage effluent quantity produced for the development and based on the water demand will be 135,57 kl/day. This equates to a peak flow of 4,87 l/s. The developer will be responsible to deliver sewage by gravity or by pumping to an existing outfall sewer which is in close proximity to the proposed development (to the west and east of the site).

The development to the east of the property will receive the sewage via the 4,87 l/s pipeline where it will be connected to the municipal bulk sewer network. However, the development to the east will not be complete in time and thus it is proposed to install a temporary sewer reticulation network until the sewer system can be connected to the next-door development. This will require two temporary sewer pump stations to pump sewage upslope to the bulk sewer line along Glenwood Avenue. Refer to Master Services Layout – Temporary Option in Civil Design Report Appendix A.

Two temporary pumpstations will be required to pump effluent from the east to the west side of the Development. These temporary measures will be constructed and maintained by the developer. Once the developments to the east have been implemented the temporary measures will be substituted by connecting the pump stations to the gravity system to the east.

The internal sewage pipeline has to cross the top of the non-perennial drainage line (HGM1) in order to service the development via gravity reticulation to the pump station. It is my understanding that a sewage pipeline is proposed to be buried through the head of the watercourse, and that the temporary measures include the construction of a pumpstation, located within 100m of the watercourse. The Figures below show that measures have been put in place around the pipeline structure to ensure it is protected and also to prevent any erosion.

During construction the method statement must be specifically applied to land clearance but also the internal sewer pipeline crossing the head of the HGM 1 watercourse to the development property on the east. For detailed designs of the crossing structure, refer to the civil designs report and Engineering Drawing G5215BA-CE-211 and the excerpts below in Figures 1 and 2. These designs will be implemented to ensure there is no erosion at the pipeline crossing.

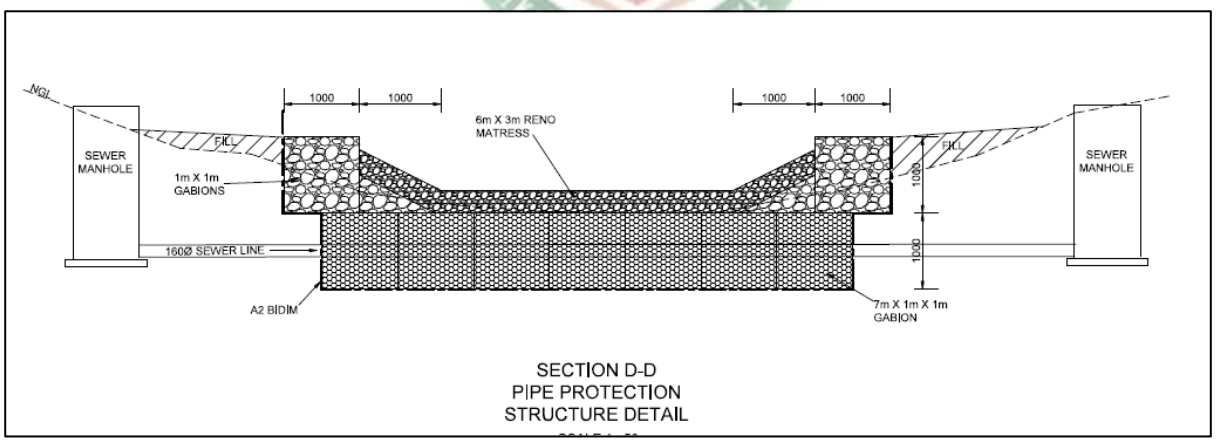


Figure 6: Design of the internal sewer pipeline crossing at the top of HGM 1 non-perennial drainage line (cross-sectional view) showing gabion protection of the pipeline and measures to prevent erosion.

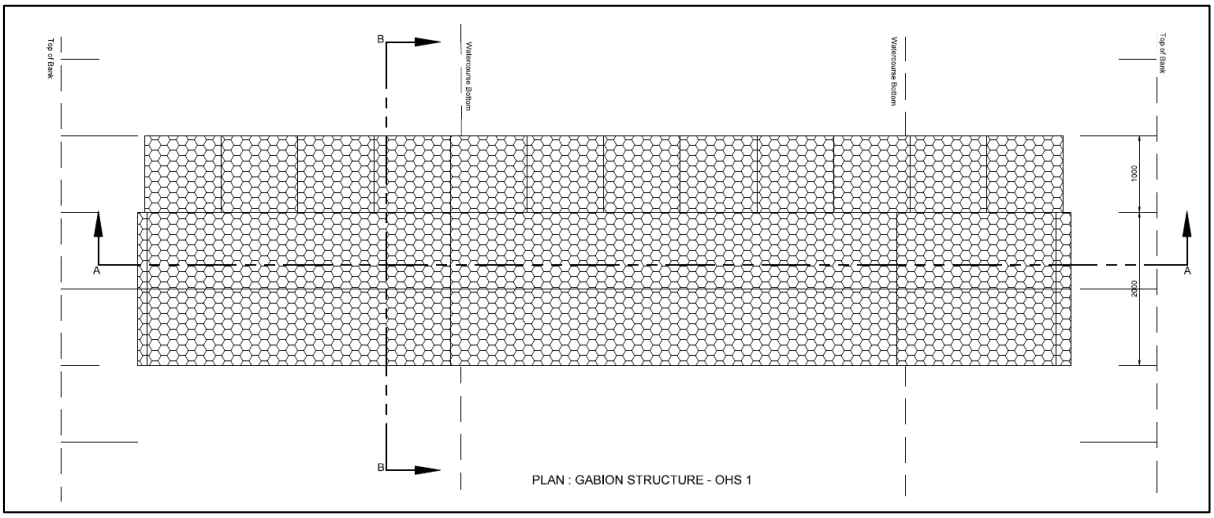


Figure 7: Design of the gabion protection over the pipeline crossing the watercourse, viewed from above, to ensure the pipeline will not be damaged during floods and also prevent any erosion in the watercourse.

Stormwater Disposal and Management Plan

According to the civil report and drawings, the following is relevant: Stormwater infrastructure is envisaged to be provided by the developer – see drawing G5215BA-CE-102-A, G5215BA-CE-110-A and G5215BA-CE-111-A. All necessary precautions will be taken to prevent erosion. Refer to Stormwater Management Plan and figures below.

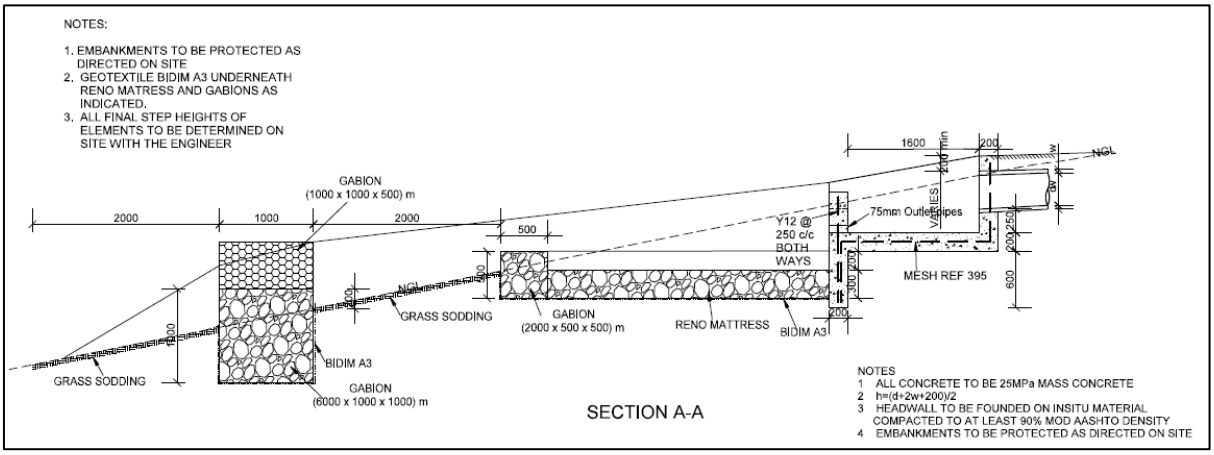
Of specific relevance to the WULA application, it is important to note that various stormwater management measures and structures are proposed to prevent any concentrated flow from entering the watercourse. These are in alignment with the principles of SUDs and the recommendations of the aquatic specialist.

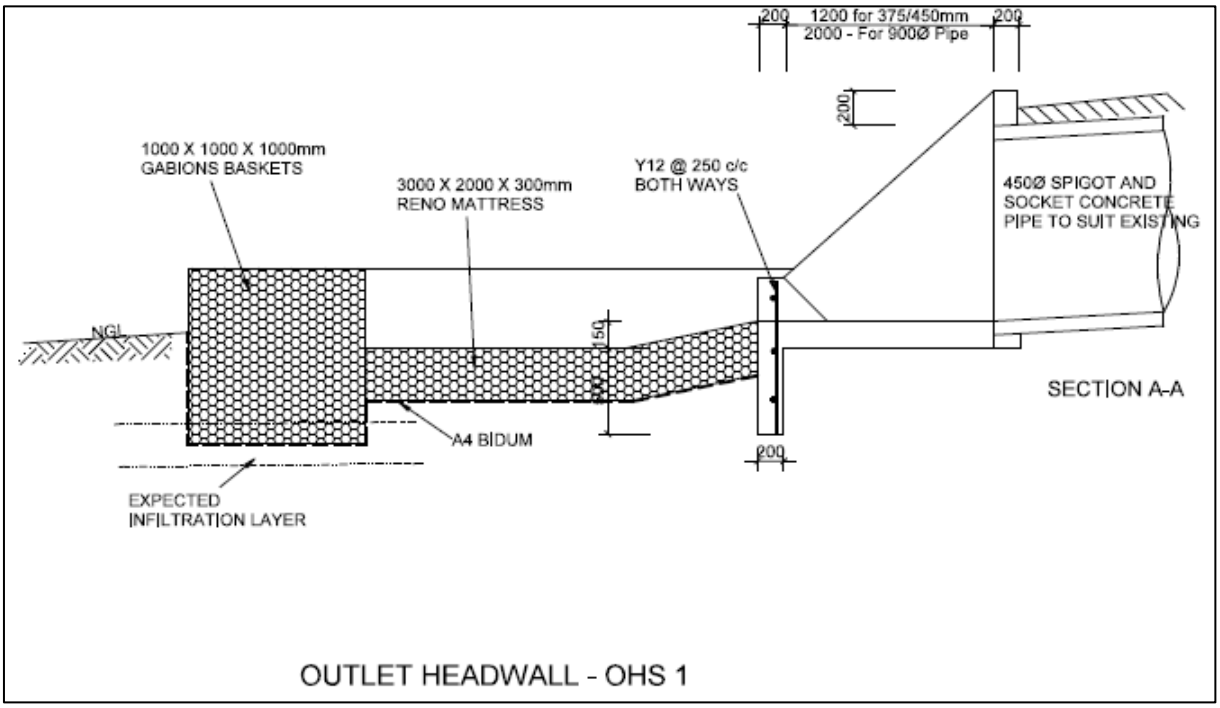
Apart from the aquatic buffer zone, the following structures are included:

- Gabion and reno-mattress erosion protection at outlets
- Stormwater retention
- Stilling basins
- Swales (600mm deep) at the gabion stormwater outlets with multiple exits over reno-mattress
- Retention ponds and infiltration swales
- Concrete baffles at outlet to slow and distribute flow

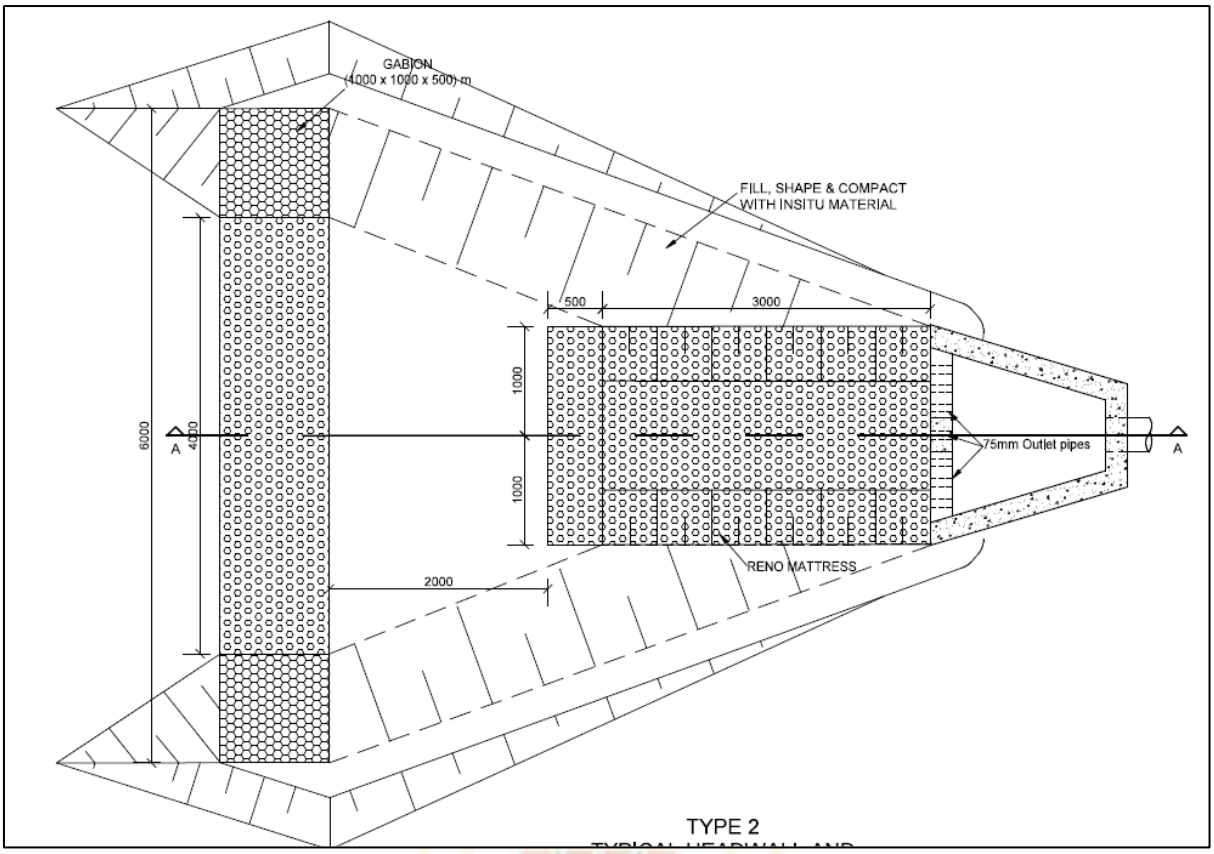
Refer to designs below taken from the civils design report:

Gabion and reno-mattress erosion protection at outlets:

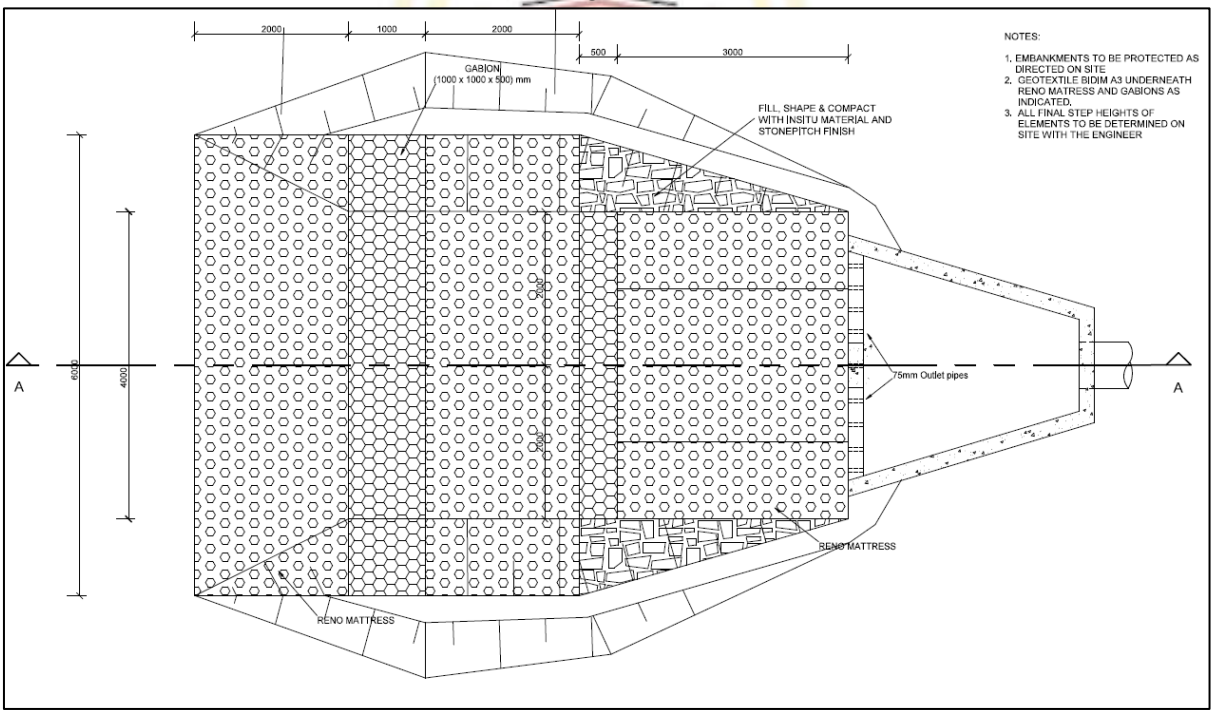




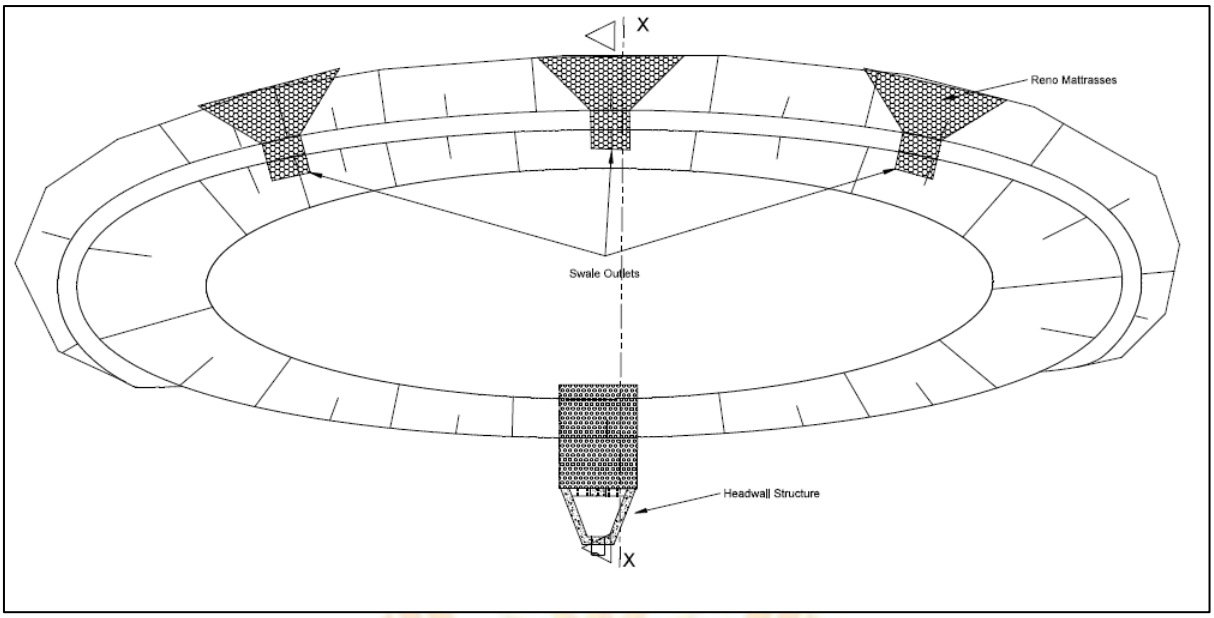
Stormwater retention gabion catch pits at outlets:



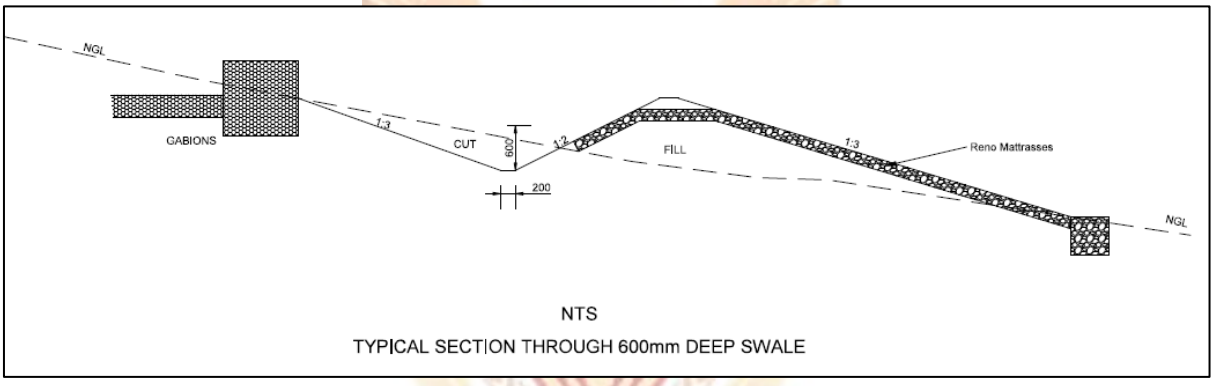
Stilling basins:



Swales (600mm deep) at the gabion stormwater outlets with multiple exits over reno-mattress:



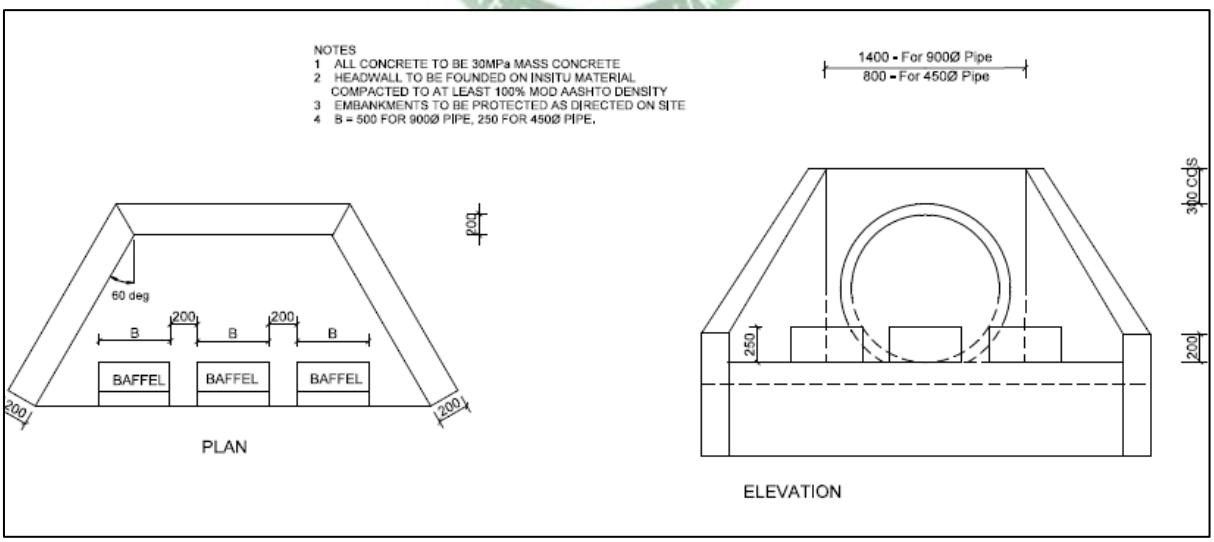
Retention and infiltration swales:



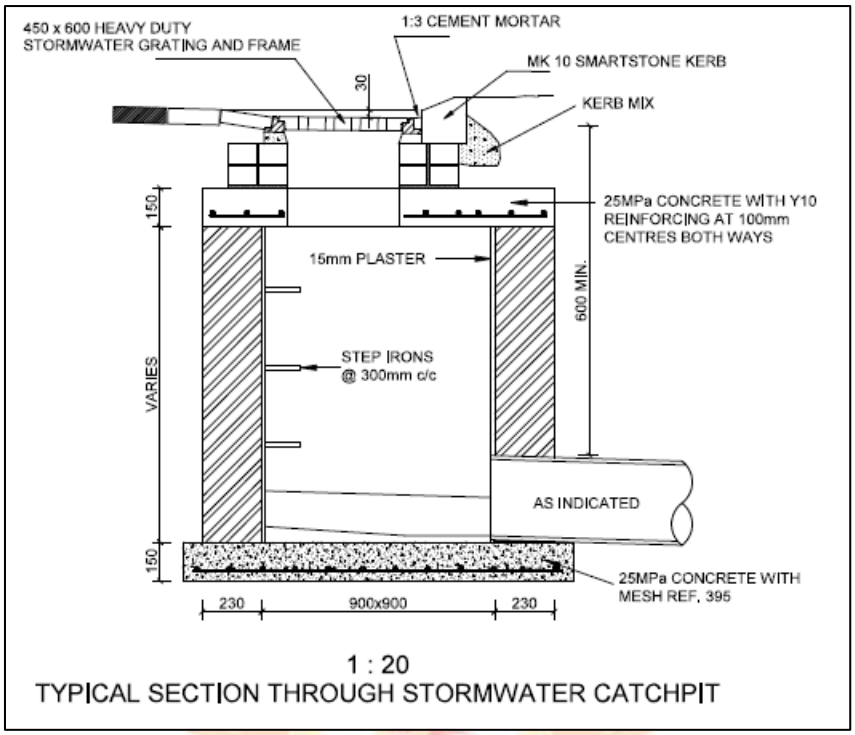
NTS

TYPICAL SECTION THROUGH 600mm DEEP SWALE

Concrete baffles at outlet to slow and distribute flow:



Stormwater catchpits:



Design Philosophy

Stormwater management will be according to recommendations contained in the Red Book i.e., Guidelines for Human Settlement Planning and Design as compiled by the CSIR. The principals of SuDS will further be considered to minimise the amount and impact of stormwater leaving the site. A dual drainage system will be adopted. Source control of the minor flood with 1:5 year or less recurrence intervals will be provided by the utilisation of roof water collection rainwater tanks to collect runoff from roofs for later use in irrigation of gardens etc. Local control will be facilitated by the use of catchment structures and will, where possible, be constructed per erf pockets as required. This will to some extent facilitate infiltration of water at source. The major flood with 1:50 year recurrence interval will be carried in the streets and the formal system (as per Guidelines) and only where the above minor system's capacity is exceeded, then in overland open or piped channels to the natural watercourses. During the detail design phase, storm runoff from catchment areas will be calculated and catchpit inlets will be positioned and sized to match runoff volumes. The capacity of road kerbs will also be checked against major runoff volumes. Stormwater servitudes will be provided between erven where necessary to accommodate overland open channels with sufficient capacity to carry major storm runoff from the edge of the road to the nearest natural watercourse.

Specific Considerations

Runoff from the land will increase because of the development, but this will be accommodated in the design of the minor and major stormwater system. The increased runoff will not affect any existing or proposed properties, since all properties are well above the 1:100 year flood lines for the major natural watercourse (Swart River).

Increased overland flow velocities

Various measures will be incorporated to mitigate increased flow velocities like:

• Energy dissipaters and stilling basins at stormwater pipe outlets. Reno mattress aprons with stilling basins where appropriate will be provided at all culvert outlets. Large rocks will be effective as energy dissipaters and will contribute to the landscaping.

• Lining of open channels with grass (swales) and or stone pitching where required.

• Utilisation of invader tree logs to act as flow speed calming structures placed across flow paths and anchored properly.

• Utilisation of Gabion type structures to act as flow speed calming elements placed across flow paths and anchored properly.

Quality of water

Long term contamination of stormwater run-off is not a concern as the development consists mostly of commercial and housing development. In line with the SuDS principals pipe culvert outlets will be provided with Gabion and Reno mattress structures to facilitate slowing of minor storm flows and to provide infiltration areas to augment subsurface flow. Possible pollutants will be trapped in these structures and can be cleaned out as part of a regular maintenance schedule. The site is most vulnerable during the construction phase, and it will be necessary to utilize silt screens and onion bags to trap silt before the run-off joins the natural watercourses. Once vegetation in all the disturbed areas of the development is well established and ground surfaces have consolidated, no further measures will be required. These measures will be the subject of the Environmental Management Plan (EMP) which will be issued to the contractor at construction stage. The Environmental Control Officer (ECO) will be responsible for enforcing the EMP.

Protection of slopes that occur on the property

Natural slopes that have been disturbed and where sheet flow occurs will be landscaped and revegetated. Where flow is concentrated, measures will be incorporated as proposed above. Where stormwater is channelled towards the river and tributary streams, outlets have been spaced at intervals along the stream edge to avoid concentration of large flows. Stormwater will thus be fed into the streams and river system along a wide front allowing dissipated flow and seepage to all areas.

Preliminary High level Flow Estimation

The figures provided below should be considered as estimated quantities only. Flow estimation has been done according to the Rational Method for the 1:5 years return period nl. stormwater accommodated in the underground piped system and stormwater accommodated as overland sheet flow per the existing topography. Flow is indicated for the east side contributing to the existing stream as follows.

Pre-development flows: - 202,63 l/s

Post-development flows: - 399,18 l/s

As can be seen the expected increase in flow is 196,55 l/s.

7. Methods statement (only for c and i activity)

Refer to Method Statement, which amongst other measures, states the following:

- The edges of the pipeline construction servitude, as well as the development area, relative to the aquatic habitat must be clearly staked-out and demarcated prior to construction commencing.
- Removal of vegetation must only be when essential for the continuation of the project. Do not allow any disturbance to the adjoining natural vegetation cover or soils.
- Access to and from the development area should be either via existing roads or within the construction servitude. Any contractor found working within No-Go areas must be fined as per fining schedule/system setup for the project.
- Following construction, it is important to stabilise any steep, bare areas on the slope and river banks via geotextiles and/or revegetation.
- It is the contractor's responsibility to continuously monitor the area for newly established alien species during the contract and establishment period, which if present must be removed. Removal of these species shall be undertaken in a way which prevents any damage to the remaining indigenous species and inhibits the re-infestation of the cleaned areas.
- Sedimentation must be minimised with appropriate measures. Any construction causing bare slopes and surfaces to be exposed to the elements must include measures to protect against erosion using covers, silt fences, sandbags, earthen berms etc.
    - All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.
- Construction must have contingency plans for high rainfall events during construction. Even in the operational phase, measures to contain impacts caused during high rainfall events must be planned for and available for use.
- A rehabilitation plan must be compiled with the assistance of a botanist to ensure that the buffer area is revegetated with indigenous plant species in the correct manner. The area must be maintained through alien invasive plant species removal (which is the landowner's responsibility regardless of mitigation associated with this project) and the establishment of indigenous vegetation cover to filter run-off before it enters the aquatic habitat.
- Construction of the pipeline should preferably be done during the drier months when the water quality impacts from the construction activities may impact on the downslope watercourses. Measures to contain impacts caused during high rainfall events (such as substantial sedimentation and/or erosion) must be planned for and available for use.
- Before any work commences, sediment control/silt capture measures (e.g. bidim/silt curtains) must be installed downstream/downslope of the active working areas. Silt fences/curtains must be regularly checked and maintained (de-silted to ensure continued capacity to trap silt) and repaired where necessary. When de-silting takes place the silt must not be returned to the watercourse.
- Avoid multiple watercourse crossings and align pipeline crossings as close to each other as possible.
- Crossings must be constructed perpendicular to the natural direction of flow.
- Pipelines across watercourses should be buried at a sufficient depth below ground level such that the pipelines do not interfere with surface water movement or create obstructions where flows can cause erosion to initiate.

- The stormwater management infrastructure must be designed to ensure the runoff from the development is not highly contaminated or concentrated before entering the surrounding area. Any stormwater retention ponds or berms must be located outside of the buffer area.
- The adoption of the 30m aquatic buffer zone between the development infrastructure and HGM1.
- The volume and velocity of water must be reduced through discharging the surface flow at multiple locations surrounding the development.
- Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil. Contingency plans must be in place for high rainfall events which may occur during construction.

Also refer to the EMPr.

8. Rehabilitation Plan

The aquatic specialist report recommended the compilation of a rehabilitation and management plan for the drainage line area. This section has been compiled to guide rehabilitation and advise on the future management of the stream and buffer area.

Background

The riparian habitat and buffer area have been subjected to past land use disturbances, resulting in slight channel incision and the proliferation alien invasive plant species. Alien plant clearing activities are underway, however, this leaves the area sparsely vegetated and prone to soil erosion. Without rehabilitation and management, the soils are likely to erode, and alien invasive plants will re-establish and outcompete the natural vegetation. This will result in the deterioration of the non-perennial stream. Additionally, it will compromise the intended functions of the buffer area, which needs to be well-vegetated with indigenous plants to reduce the velocity of surface run-off and filter contaminants from the development entering the riparian habitat. Therefore, as part of the development of the property it is critical that the buffer area and stream are rehabilitated and managed in perpetuity.

The rehabilitation will require and integrated approach and maintenance to be successful. It is important to prepare an accurate estimate of the financial costs of rehabilitation and ensure that sufficient funds are allocated to achieve a successful outcome.

Refer to Figure 8 for the proposed layout plan indicating the area proposed for ecological rehabilitation.

Figure 8: Site development plan showing the 30m buffer area requiring rehabilitation (SDK Architects, 2024)

Objective

The objective of this rehabilitation plan is to stabilise the soils of the riparian and buffer area, following alien plant clearance, and revegetate the area with appropriate vegetation, to improve the ecological integrity of the stream, create a functional buffer area, and allow for compatible recreational activities.

Rehabilitation Actions

1. Alien Plant Management:
    a. Continue alien plant clearance and remove remaining trees (not only limited to Black Wattle and Gum trees, but all alien species (including removal of *Solanum mauritianum* (Bugweed) and Bamboo (Bambusa sp.) too)
    b. removing the fallen trees and material
    c. do not disturb any indigenous vegetation.
    d. remove the aliens establishing.
2. Rehabilitate riparian habitat:
    a. Allow for any indigenous plant species to naturally establish, whilst planting additional plants
    b. Place large sized rip-rap material in any significantly incised channel reaches, intermittently along stream length.
    c. Control soil erosion on stream banks by stabilising any bare areas (with geofabric, bruskpacked rolls, fibre rolls, etc.)
    d. Re-vegetate the riparian area with plant species recommended for the specific reaches.
3. Rehabilitate the buffer zone
    a. Landscape any unstable slopes with small earthen contour berms.
    b. Cover any steep bare ground with geotextile fabric.
    c. Seed with fast-growing indigenous species, such as grasses, for initial soil recovery
    d. Utilise the cleared alien trees for brushpacking in rows parallel to the contours.

    e. Allow for any indigenous plant species (including grasses) to naturally establish, whilst planting additional cover
    f. Re-vegetate the buffer area with locally indigenous plant species.
4. Create access for management and low impact recreation
    a. Construct walkways, as far as possible parallel to contour, and in already disturbed areas (such as along the pipeline route and any existing tracks), in a manner which contributes to surface runoff management, without creating concentrated flow paths or erosion gullies.
    b. Link formal walkway with smaller dirt trails or narrow wooden pathways. Where possible, any hard walkways should be permeable surfaces via permeable concrete block pavers (such as Amorflex), brick pavers, stone chip, and gravel to contribute to slowing surface flows.
    c. Install a small number of sitting places, such as benches, along the walkway, without encroaching into no-go area
    d. Option to place educational signage along the route detailing the importance of natural habitat and identifying plant species, etc.
5. Follow-up and monitor
    a. Continually hand pull/ spray or cut alien tree saplings that will come up.
    b. Ensure there is no slope nor channel erosion in the area, which if present, must be immediately stabilised.
    c. Montior the success of vegetation re-establishment and add efforts where necessary.
    d. Maintain walkways, remove litter, and ensure there is no unnecessary encroachment or disturbance into buffer or riparian habitat
    e. Appoint aquatic or ecological specialist to assess the success of the rehabilitation.
    f. Adapt management plan based on specialist assessment/ recommendations.

<u>Plant species/ vegetation cover</u>

Different slopes and wetness zones support different plant species. Therefore, when replanting it is important to plant select species in the specific areas to achieve successful rehabilitation.

It is recommended that locally indigenous forest and thicket species be planted in the drainage line valley, while fynbos vegetation should be planted in the more open, gently sloped areas which receive more sun. Indigenous grasses and pioneer plants should be allowed to re-establish naturally, but to achieve a more natural level of diversity, indigenous plants need to be introduced to the site.

The riparian zone must be managed as a No-Go area but the buffer area, once rehabilitated, can be used in the operational phase for walking and birdwatching activities.

Refer to Figure 9 below for a map of the recommended vegetation types to be rehabilitated on the site and a conceptual layout for acceptable locations of recreational activities.

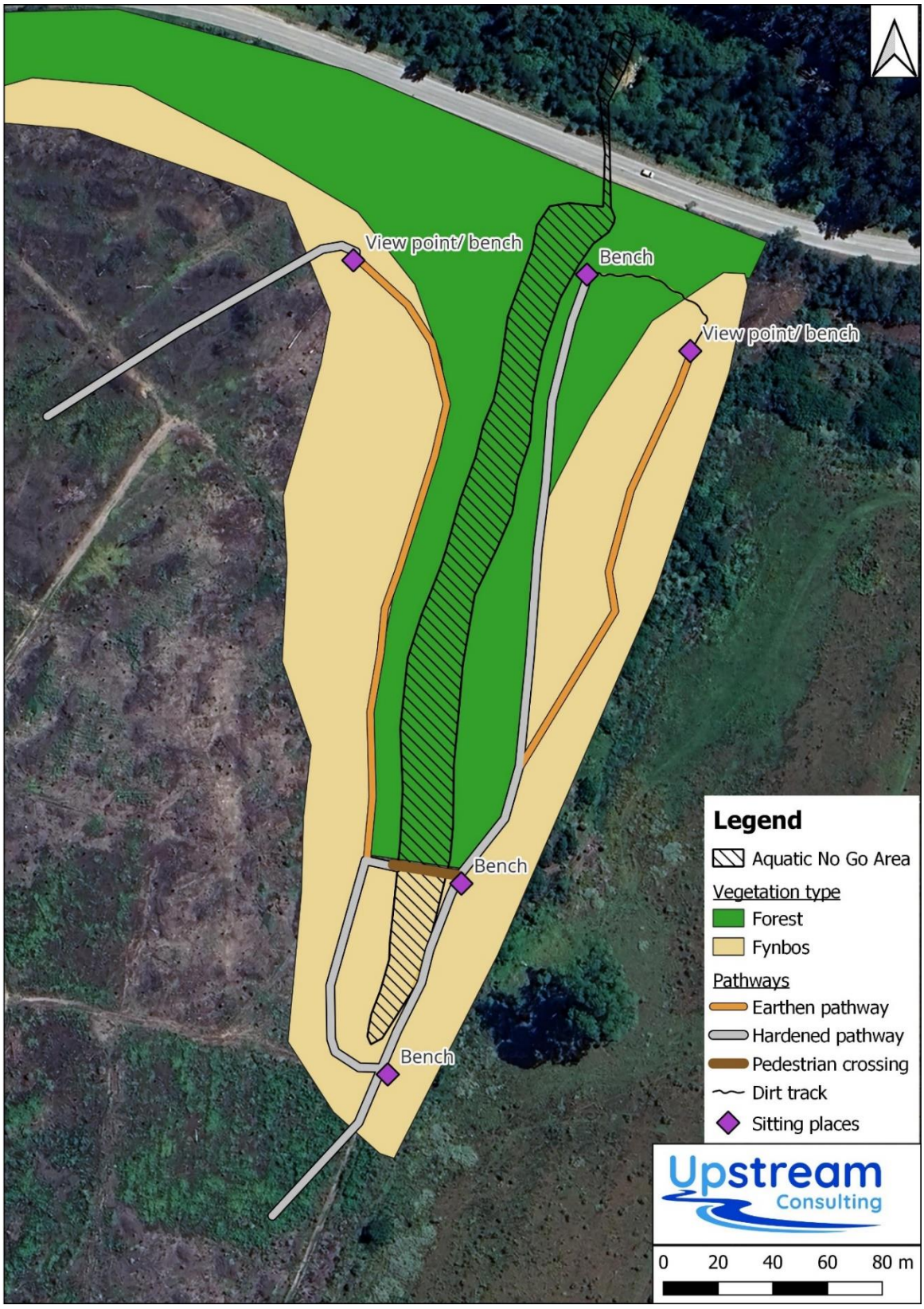


Figure 9: Map showing the aquatic no-go area, the recommended areas for fynbos versus forest vegetation establishment, and a conceptual layout for walkways to prevent impacts but allow for access by residents

Drainage line vegetation

Forest and thicket species are suited to the drainage line and valley. It is important to remember that the drainage area is a No-Go area for activities or infrastructure and should not be landscaped in any way, only soil stabilisation and the replacement of vegetation in bare areas should be undertaken. There should be no roads or crossings in this area (unless following a pipeline route) and vegetation must ultimately be left undisturbed, after the initial planting of additional trees and shrubs, to grow in a natural, unmanaged manner.

Unlike the buffer area, the drainage line still contains indigenous shrubs such as *Halleria Lucinda* and *Sersia crenata*. Refer to Figure 9. The channel contains wetland plant species such *as Isolepis digitata*. Therefore, if these species are left undisturbed and the alien plants are removed (such as Black Wattle, Gum, Blackwood, Bugweed, and Bamboo), much of the vegetation will naturally re-establish. Less intervention/ planting is required in the drainage line area than in the buffer. However, there are bare areas in the valley which would benefit from planting forest/ thicket plant species to help combat the re-emergence of alien trees, stabilise soils, and add diversity. This should be done in a manner that does not disturb the stream banks or channel, nor the remaining indigenous species.

Alien plant removal and any planting of indigenous vegetation in the No-Go/ stream area should be undertaken manually, without the encroachment of vehicles or machinery. No permanent pathways or crossings must be allowed to form during alien clearing or planting activities. Plants should be planted randomly or staggered with gaps; they should not be planted in straight lines. They must not be planted in a way that changes the shape of the stream bank or channel. All the existing indigenous vegetation should be retained and must not be disturbed during the planting of additional plant species to improve the habitat.

Refer to the list below of some of the recommended plant species suited to the drainage line and valley habitat.

Plant species for forested valley area:
Halleria Lucinda
Sersia crenata
Rapanea melanophloeos
Brabejum stellatifolium
Brachylaena nerifolia
Cryptocarya angustifolia
Cunonia capensis
Cyanthea dregei
Buddleja saligna
Grewia occidentalis
Chrysanthemoides monilifera
Gymnosporia buxifolia,
Paltylophus trifoliatus,
Searsia chirindensis,
Virgilia oroboides
Ilex mitis
Podocarpus latifolius

Plant species for wet areas (if required)
Isolepis digitata, I. costata
Cyperus latifolius
Cliffortia odorata
Zantedeschia aethiopica
Pteridium aquilinum
Carpha glomerate
Wachendorphia thyrsiflora
Psoralea pinnata
Elegia species
Juncus effuses
Paspalum vaginatum
Pennisetum macrourum
Imperata cylindrica

Buffer area vegetation

The buffer area is currently vegetated with grass and weed species, with areas of bare ground where alien trees have been cleared, and with some alien saplings emerging. There is very little natural fynbos remaining. Therefore, this area may require significant planting of fynbos species and some landscaping.

Complete restoration of this area to the natural Garden Route Shale Fynbos vegetation is unlikely to be successful. Rather, it is recommended that locally indigenous fynbos plants be planted and managed as an area of densely vegetated open-space. It can be used for low impact, ecologically sensitive recreational activities (like walking and birdwatching) and include pathways into the design. For example, a 'botanical walk' or 'nature trail' is compatible with the re-vegetation of the buffer area. Ericas, heathers, pincushions and restios are water-wise, low-maintenance indigenous fynbos plants which can be used, such as in a typical fynbos botanical garden.

Any walkways should be designed in a manner that contributes to dispersing and slowing surface runoff from the development through the buffer zone. No artificial flow paths should be created and the design of the area should encourage the infiltration of surface runoff rather than conveyance.

As a general rule, plants should be planted into a hole which is double its size. There are products available which act as water retention substances as well as fertilisers, or in some cases just water retainers. Maintenance of the plants will be required, such as watering, weeding, disease and insect pest control, and replacement of dead material in all planted areas. Alien invasive plant species often establish in disturbed areas and outcompete the natural vegetation. It will be necessary to manage the rehabilitated area constantly and indefinitely for alien invasive plants. Under CARA legislation (Conservation of Agricultural Resources Act No. 43 of 1983) the landowner is required to remove the alien invasive trees on the entire property.

Plants for buffer area and fynbos areas:
Ericas
Chrysanthemoides monilifera

Helicrysum sp. (like petiolare)
Cynodon dactylon
Pelargoniums
Eragrostis capensis
Agapanthus africanus
Polygala sp.
Kniphofia sp.
Leucodendrons
Proteas
Restios
Tecoma capensis
Strelitzia reginae
Dietes grandiflora, Watsonia bulbs, and Helichrysum species

Monitoring

Monitoring is required to guide the work planned, evaluate progress, and gauge success in achieving the objectives. Any areas that are not progressing satisfactorily must be identified and action must be taken. Monitoring of rehabilitation activities is essential, not only because of uncertainty in terms of understanding the cause-effect relationships in river ecosystems, in underlying dynamic conditions of rivers themselves, and in the ability of selected rehabilitation options to successfully achieve the stated outcomes, but also from an adaptive management perspective, that relies on "learning by doing" development and refinement of rehabilitation practices (Day *et al.* 2016).

Monitoring should be undertaken before and during rehabilitation and afterwards for a sufficient timescale to detect both rapid and longer term changes.

It is the responsibility of the landowner to continually monitor the alien plant clearing activities and indigenous vegetation rehabilitation efforts to ensure that the recommendations of this report are implemented and prevent any further environmental degradation. In order to assist the monitoring evaluation of the rehabilitation it is recommended that a suitably qualified and experience independent environmental control officer (ECO) is appointed and that an ecological specialist be consulted when necessary.

The landowner or ECO must educate all staff undertaking the work on the best practice methods and environmentally sensitive areas (general do’s and don’ts).

Below are some best practice actions:

- Ensure that the use of machinery is minimal and manual labour (e.g. using spades) is used whenever possible to limit disturbance.
- A fixed-point photographic record and/or the use of drone photography, should be collected, showing the affected reaches during and at regular time periods after rehabilitation works.
- Relevant information about factors that may influence features in the photograph (e.g. a recent fire, flood) should be recorded, especially those relating to the appearance of the site. It is important that the information captured for monitoring purposes is recorded in a standardised format.

- Minimizing the disturbance footprint to as *small* and *short* (longitudinal distance downstream) an area as possible. Avoid No-Go area.

Management

When managing the open space area, it is important to separate actions between the No-Go area (riparian habitat) and multifunctional areas (buffer zone). These two areas require significantly different management approaches. Refer again to Figure 6 for a conceptual layout indicating the No-Go area, buffer area and conceptual layout of recreational infrastructure.

The riparian habitat must be rehabilitated and then left largely unmanaged (excepting alien plant control), with no activities allowed within the area. Humans, dogs and cats should be prevented from entering the riparian area. It is recommended that signage demarcating this area as a no-go zone be erected. Whereas the buffer zone can be considered as a transitional area for interaction with the environment outside of the sensitive habitat.

The buffer zone should be rehabilitated to provide ecological functions whilst also allowing for low-impact recreational activities so that the community are afforded the benefits of ecosystem services and take ownership of the natural area. The buffer area can be multifunctional, collectively fulfilling an ecological, socio-economic and place-making function, but will always be dominated by one particular function, in this case ecological.

Low-impact recreational activities include walking, birdwatching, botanical walk, and relaxation. Therefore, a limited amount of appropriately designed walkways and sitting areas within the buffer area, is deemed as acceptable. However, pathways, sitting places, and general landscaping must be kept to a minimum footprint and use soft infrastructure where possible. The walkways and planted areas should be designed to contribute to the infiltration of surface runoff in the buffer area and not result in any erosion. It is recommended that the crossing utilise the disturbed path of the pipeline route and not result in changes to the morphology of the channel.

Conclusion of rehab plan

The rehabilitation of the natural areas should commence immediately and be well-established prior to housing construction in order for the buffer to mitigate impacts to the stream. The different habitats require different rehabilitation approaches and recommendations are provided accordingly. The riparian habitat should then be treated as a No-Go area and, apart from alien control, be left undisturbed and unmanaged. However, the buffer zone can incorporate low-impact recreational activities into its design, once stabilised and re-vegetated appropriately. The ultimate function of the natural buffer area, to reduce surface flow volume and velocity, must however never be compromised.

Monitoring should be undertaken by an ECO during, and post-construction and it is recommended that an ecological specialist assess the success and progress of rehabilitation prior to the operational phase.

9. Water Uses applied for

The application includes the following water uses.

Table 3: Water Use Applied for

Water use(s) activities	Purpose	Dimension	Property	Co-ordinates
Section 21 c & i				
c	Stormwater outlet 1 - within Regulated Area of a watercourse	5m²	Remainder of Portion 21 of Farm Kraai Bosch 195	**Latitude:** -33.97049147029679 **Longitude:** 22.513873246025508
i	Stormwater outlet 1 - within Regulated Area of a watercourse			
c	Stormwater outlet 2 - within Regulated Area of a watercourse	5m²		**Latitude:** --33.969570193010924 **Longitude:** 22.513452306848407
i	Stormwater outlet 2 - within Regulated Area of a watercourse			
c	Temporary Sewage Pump Station within Regulated Area of a watercourse	30m²		**Latitude:** -33.96915997589833 **Longitude:** 22.51479103131235
i	Temporary Sewage Pump Station within Regulated Area of a watercourse			
c	Buried sewer pipeline crossing a drainage line	10m²		**Latitude:** -33.96983823772857 **Longitude:** 22.514042929265468
i	Buried sewer pipeline crossing a drainage line			

10. Impacts and mitigation measures

The potential impacts and mitigation measures that are expected from the proposed activities are presented in Tables below.

A DWS Risk Assessment Matrix (V2 Feb 2024) was completed by the aquatic specialist and the summary sheet is shown below. It was determined that AFTER MITIGATION and REHABILITATION the risk significance is LOW. There are also positive impacts associated with successful rehabilitation.

PROJECT:	**DEVELOPMENT OF A RESIDENTIAL ESTATE ON REMAINDER OF POR**
Name of assessor:	Debbie Fordham
Date of assessment:	10/02/2024

RISK ASSESSMENT MATRIX for Section 21 (c) and (i) Water Use activities (version 2.0): SUMMARY

[ASSUMING THAT ALL PROPOSED IMPACT CONTROL MEASURES (AS STIPULATED IN PROJECT SPECS) ARE EFFECT

Phase	Activity	Impact	Risk Ratings
PRE-CONSTRUCTION	Site preparation - earthworks and vegetation clearing within	Minor vegetation loss and sedimentation	L
	Alien plant clearing in the whole catchment and the riparian area	Minor vegetation loss and sedimentation	L
CONSTRUCTION	Earthworks in the catchment and along the pipeline route	Sedimentation	L
		Disturbance of vegetation	L
		Changes to surface flow patterns	L
	Pollutants such as hydrocarbons and raw cement	Changes to water quality when and if flowing	L
OPERATIONAL	Buried pipeline with gabion protection across channel	Loss of habitat	L
		Change to river morphology	L
		Potential erosion below structure	L
	Development of hardened surfaces and housing in the catchment	Erosion from increased surface flow velocity and concentrated flow paths	L
		Changes to hydrological regime from increased surface flow inputs	L
		Pollution from contaminated stormwater inputs	L
	Temporary sewage pump stations	Potential pollution from spills	L
	Rehabilitated buffer area and riparian habitat	[POSITIVE Impact] Restoration of riparian habitat due to erosion control, alien plant removal, and re-vegetation as per rehabilitation plan	L

The aquatic biodiversity impact assessment report is also provided as a supporting document for the application. The results of impact assessment show that after mitigation, the project was determined to have Low impact significance. Also refer to Aquatic Habitat Impact Assessment Report, Basic Assessment report and EMPr. The impact tables from the aquatic impact assessment report are listed below.

Impact 1 – Disturbance of aquatic habitat biota

Impact Phase: Construction phase
Nature of the impact: The disturbance or loss of aquatic vegetation and habitat refers to the direct physical destruction or disturbance which can result in further deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services.
Description of Impact: Construction of pipeline through watercourse, **c**learance of vegetation, earthworks on the riverbanks, and further invasive alien plant infestation.
Impact Status: Negative

	E	D	R	M	P
Without Mitigation	Site	Medium term	Recoverable	Moderate	Highly probable
Score	1	3	3	3	4
With Mitigation	Site	Immediate	Reversible	Low	Low probability
Score	1	1	1	2	2
Significance Calculation	**Without Mitigation**			**With Mitigation**	
S=(E+D+R+M)*P	Medium Impact (40)			Low Impact (10)	

Impact 2 – Changes to the hydrological regime

Impact Phase: Construction and Operation					
Nature of the impact: Possible increase in surface water runoff/ patterns on form and function during the construction and into the operational phase, i.e. changes to the hydrological regime					
Description of Impact: Any increase in hard surface areas and changes to the microtopography of the site, as a result of the development, will increase concentrated surface water runoff toward the streams and Swart River. Poor stormwater management could result in localised changes to flows (volume) that would result in form and function changes within aquatic habitat. The impact can result in further deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Mitigation	Local	Permanent	Recoverable	Moderate	Probable
Score	2	5	3	3	3
With Mitigation	Site	Permanent	Recoverable	Low	Low Probability
Score	1	5	3	2	2
Significance Calculation	**Without Mitigation**			**With Mitigation**	
S=(E+D+R+M)*P	Medium Impact (39)			Low Impact (22)	

Impact 3 – Sedimentation and erosion

Impact Phase: Construction and Operation					
Nature of the impact: Changes to hydrological regimes that could also lead to sedimentation and erosion, that could also occur in the operational phase					
Description of Impact: Construction of pipeline through watercourse and concentrated stormwater flow paths and altered flow patterns causing increased erosion within the stream and sedimentation in the Swart River as the disturbed soils are carried by unmanaged surface runoff down slope. These impacts can result in the deterioration of aquatic ecosystem integrity and a reduction/loss of habitat for flora & fauna.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Mitigation	Regional	Permanent	Recoverable	Moderate	Highly probable
Score	3	5	3	3	4
With Mitigation	Site	Long term	Reversible	Low	Probable
Score	1	4	1	2	3
Significance Calculation	**Without Mitigation**			**With Mitigation**	
S=(E+D+R+M)*P	Medium Impact (56)			Low Impact (24)	

Impact 4 –Changes to surface water quality

Impact Phase: Construction and Operation					
Nature of the impact: Potential impact on localised surface water quality (indirect)					
Description of Impact: During all phases of the project there is potential for surface runoff to be contaminated and enter the watercourses, especially during flood events. During construction, earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. In the operational phase, hydrocarbons and chemicals could potentially enter the watercourses. If not prevented, litter, and contaminants, including sand, silt, and dirt particles, will enter storm water runoff and pollute the watercourse. Micro-litter such as cigarette butts may travel through certain stormwater grids and grids may not be regularly cleared. This can result in possible deterioration in aquatic ecosystem integrity and species diversity.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Mitigation	Regional	Long Term	Recoverable	Moderate	Probable
Score	3	3	3	3	3
With Mitigation	Site	Medium Term	Reversible	Low	Improbable
Score	1	2	1	2	1
Significance Calculation	**Without Mitigation**		**With Mitigation**		
S=(E+D+R+M)*P	Medium Impact (36)		Low Impact (6)		

Cumulative impact assessment for aquatic biodiversity

Cumulative Impact: Cumulative impacts on the aquatic resources of the area					
Description of Cumulative Impact: Increased urban development is changing the hydrology of the catchment. However, this development in the context of the surrounding developments, is unlikely to change the overall outcome. Rehabilitation of the drainage areas as part of the development open space system could improve riparian habitats that are currently unmanaged and degraded. The mitigation proposed will ensure that the form and or function of downstream areas remain intact.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Enhancement	Regional	Permanent	Recoverable	Moderate	Probable
Score	3	5	3	3	3
With Enhancement	Local	Long Term	Reversible	Low	Improbable
Score	2	4	1	2	1
Significance Calculation	**Without Enhancement**		**With Enhancement**		
S=(E+D+R+M)*P	Medium Impact (42)		Low Impact (9)		

11. 9. Water demand and water supply

Water demand

Refer to Civil design report. The water will be Municipal supply and there is a letter of acknowledgement from the George Municipality regarding this.

Water supply

Not applicable, will be Municipal supply and there is a letter of acknowledgement from the George Municipality regarding this.

12. Public participation

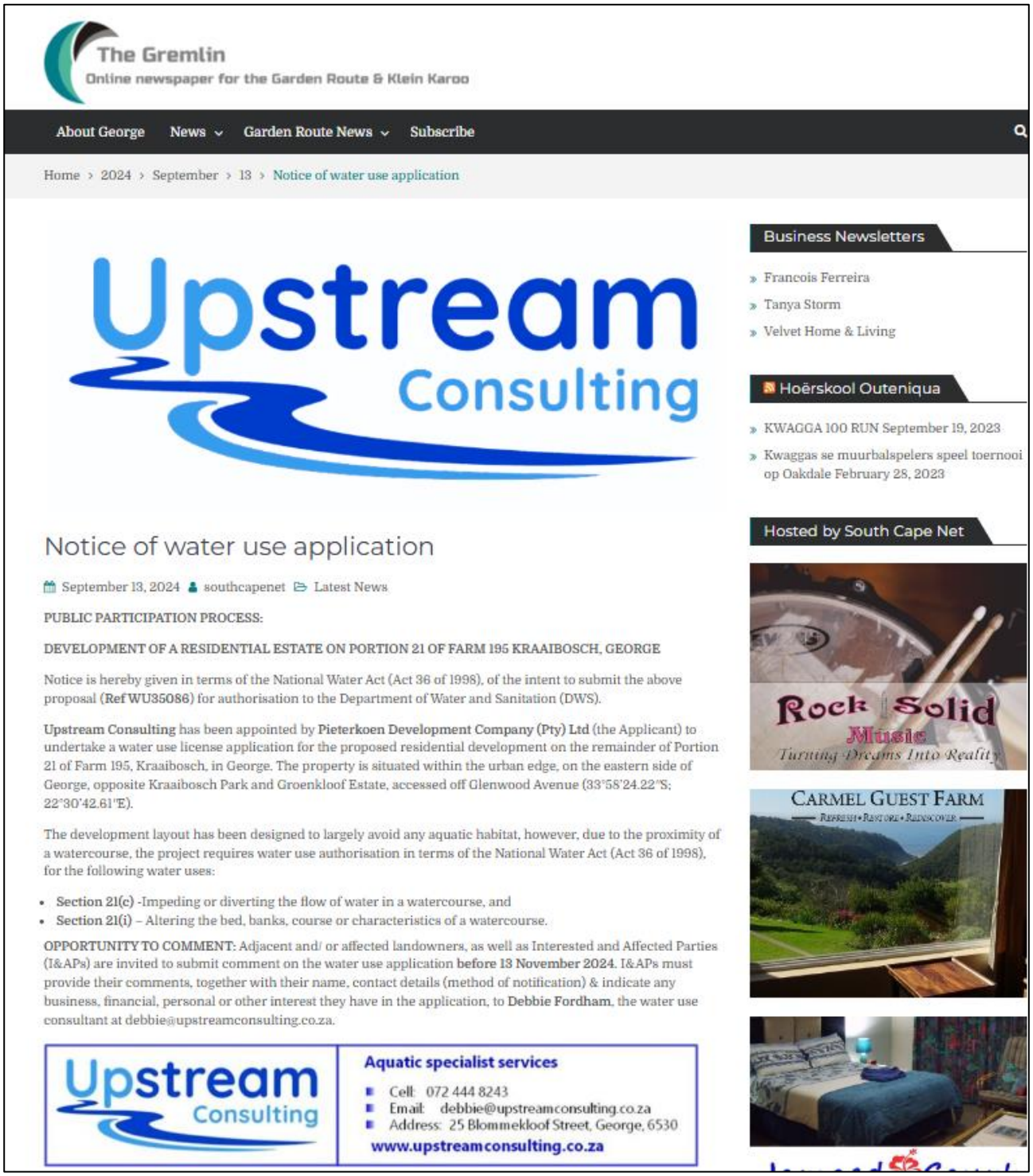
The public participation process was conducted in terms of Section 41 (4) of the National Water Act, Act no 36 of 1998. The details and outcome of the process are shown in this section and comment and response report.

The PP Process:

- ✓ An I&AP database was compiled, which identified affected adjacent properties, landowners, authorities, organs of state and other affected parties. These I&APs and the general public were then notified. The following 60 day public participation has been conducted:
- ✓ Notifications via email notification, site notice, social media such as Facebook, and newspaper advertisement.
- ✓ An advertisement was placed in The Gremlin Garden Route Newspaper on the 13th of September 2024 inviting public comment on the application and providing contact details for comment and more information. See Figure 10 for proof of newspaper advert below.
- ✓ A notification of the public participation was also posted on social media, Facebook, on the 13th of September 2024 inviting public comment.
- ✓ A Site Notice board was fixed at the entrance gate to the property next to the main road, for clear view for the public, indicating the details of the project and contact details for commenting. The relevant information such as: location, project description, water uses, applicable legislation, invitation to register and comment, 60 day commenting period, as well as contact details for the consultant, were all displayed on the Notice Board. See photograph of site notice in Figure 10. Refer to Figure 12 showing a map of the location where the notice board was placed, at the entrance gate along Glenwood Avenue.
- ✓ Written notice via emailed letters to the relevant Authorities, affected adjacent landowners, and other affected parties (See Figure 13). The relevant authorities responded to the email notifications and confirmed receipt (See Figure 14).
- ✓ The BOCMA officials conducted a site meeting.
- ✓ A public participation commenting period of more than 60 days was provided for the WULA.
- ✓ Reports were made available on the Upstream Consulting website and provided on request through bulk sharing sites such as WeTransfer.
- ✓ The comments received by SES (the environmental consultants) during the NEMA public participation processes for the Pre-Application BAR and Draft BAR were also reviewed and collated.

A register was compiled to record the details and comments of I&APs. Adjacent landowners, the Municipal Ward Councillor, non-governmental organisations, and Government Departments with jurisdiction in the area have been automatically identified as Interested and/or affected parties. These

include DEA&DP, CapeNature, and the Planning Department. Comments were received by the environmental consultants, Sharples Environmental Services cc, and responded to in the Comments and Response report (submitted as a technical document on eWULAAs) and summarised at the end of this section of the report.



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Online newspaper for the Garden Route & Klein Karoo

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Home › 2024 › September › 13 › Notice of water use application

Upstream Consulting

Notice of water use application

September 13, 2024 southcapenet Latest News

PUBLIC PARTICIPATION PROCESS:

DEVELOPMENT OF A RESIDENTIAL ESTATE ON PORTION 21 OF FARM 195 KRAAIBOSCH, GEORGE

Notice is hereby given in terms of the National Water Act (Act 36 of 1998), of the intent to submit the above proposal (**Ref WU35086**) for authorisation to the Department of Water and Sanitation (DWS).

Upstream Consulting has been appointed by **Pieterkoen Development Company (Pty) Ltd** (the Applicant) to undertake a water use license application for the proposed residential development on the remainder of Portion 21 of Farm 195, Kraaibosch, in George. The property is situated within the urban edge, on the eastern side of George, opposite Kraaibosch Park and Groenkloof Estate, accessed off Glenwood Avenue (33°58'24.22"S; 22°30'42.61"E).

The development layout has been designed to largely avoid any aquatic habitat, however, due to the proximity of a watercourse, the project requires water use authorisation in terms of the National Water Act (Act 36 of 1998), for the following water uses:

- **Section 21(c)** -Impeding or diverting the flow of water in a watercourse, and
- **Section 21(i)** – Altering the bed, banks, course or characteristics of a watercourse.

OPPORTUNITY TO COMMENT: Adjacent and/ or affected landowners, as well as Interested and Affected Parties (I&APs) are invited to submit comment on the water use application **before 13 November 2024**. I&APs must provide their comments, together with their name, contact details (method of notification) & indicate any business, financial, personal or other interest they have in the application, to **Debbie Fordham**, the water use consultant at debbie@upstreamconsulting.co.za.

Upstream Consulting

Aquatic specialist services

- Cell: 072 444 8243
- Email: debbie@upstreamconsulting.co.za
- Address: 25 Blommekloof Street, George, 6530

www.upstreamconsulting.co.za

Business Newsletters

- Francois Ferreira
- Tanya Storm
- Velvet Home & Living

Hoërskool Outeniqua

- KWAGGA 100 RUN September 19, 2023
- Kwaggas se muurbalspelers speel toernooi op Oakdale February 28, 2023

Hosted by South Cape Net

Figure 10: Proof of newspaper advert placement

Figure 11: Proof of the site notice placed at the site

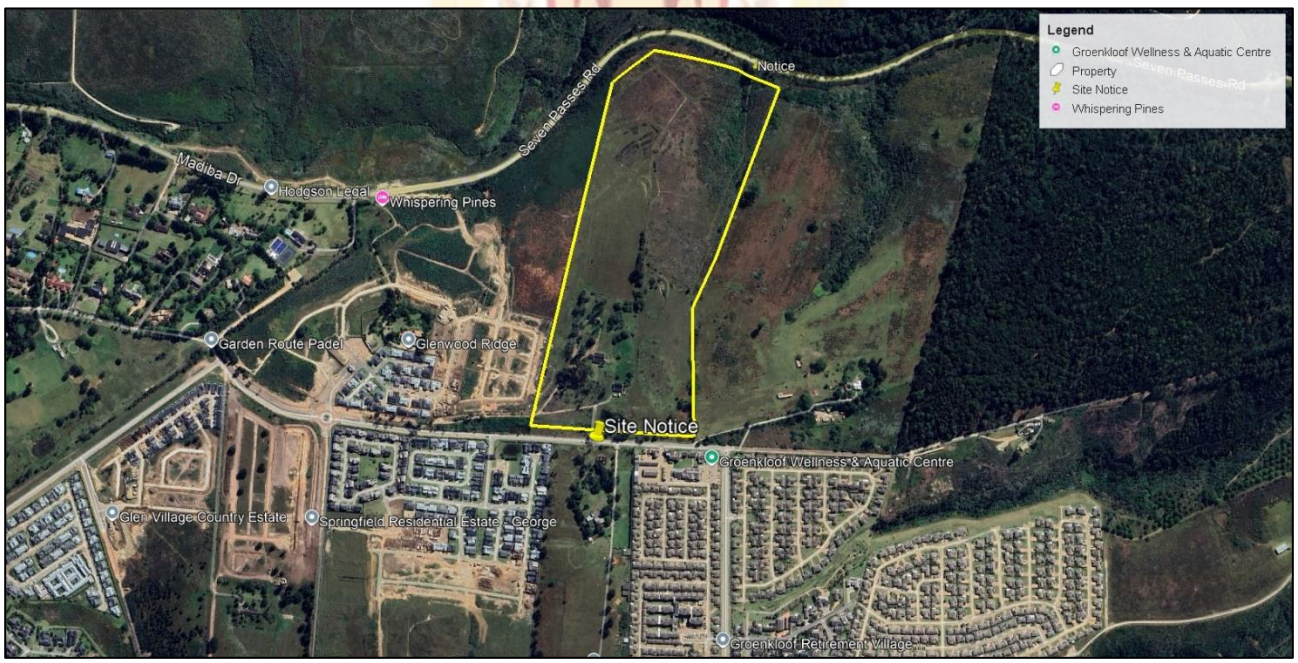

Figure 12: Map showing location of Site Notice(s)

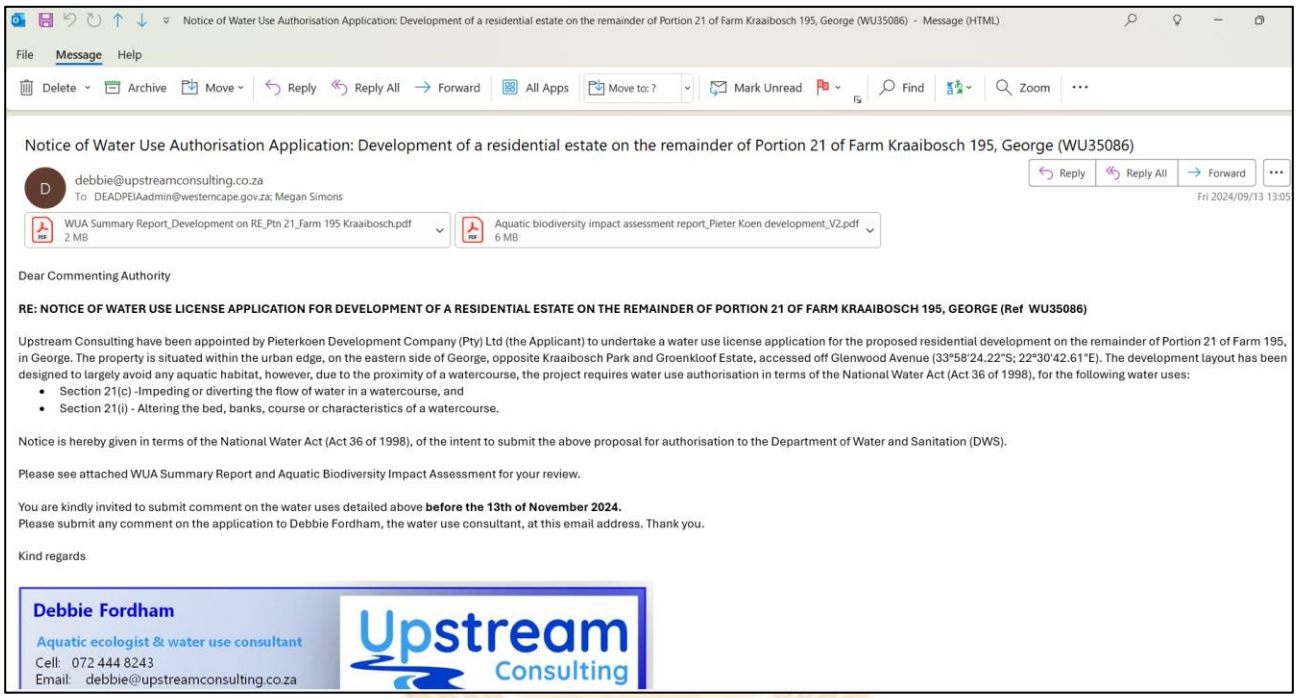

Figure 13: Proof of email notification with attached WULA reports sent to the relevant authorities

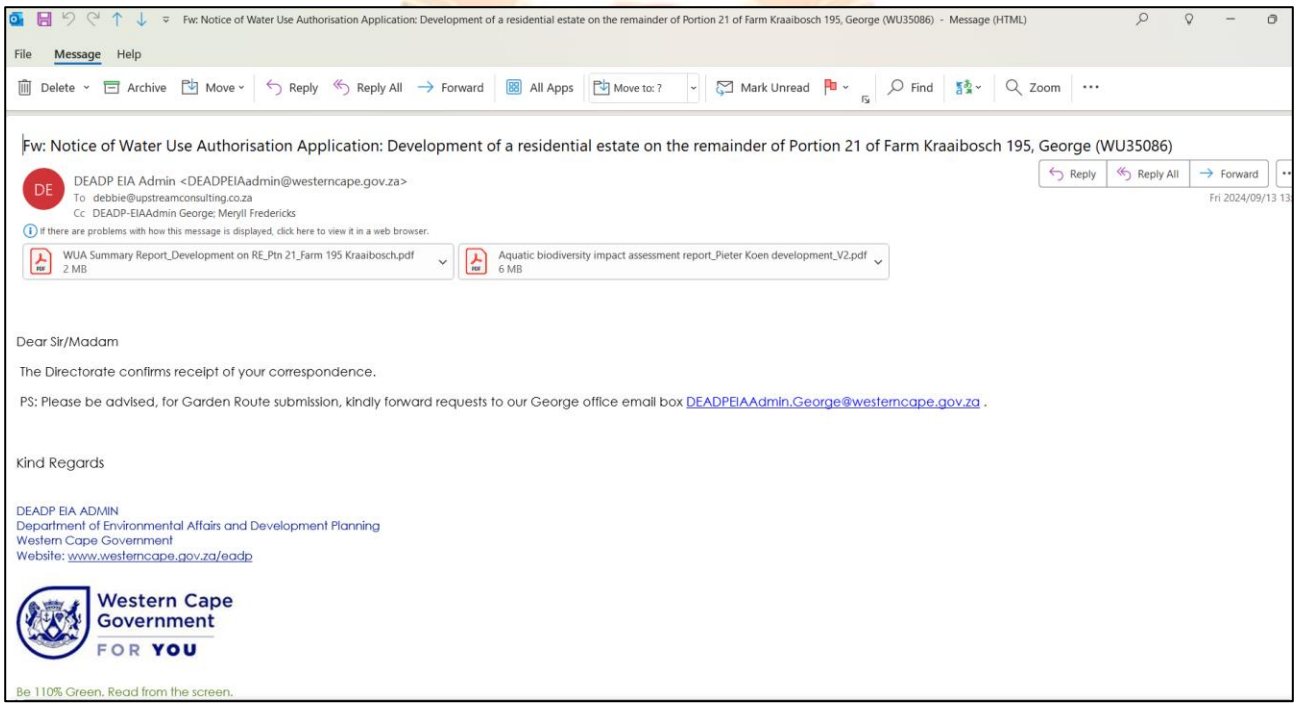

Figure 14: Confirmation of receipt of email notice from the DEA&DP

No comments or objections to the water use license application or water uses were received during the 60 day PPP. The NEMA process has been running concurrently with the WULA process and so the comments received by SES on the Pre-Application BAR and Draft Basic Assessment report were reviewed. However, no comment related to the aquatic biodiversity, watercourse or comments relevant to the water use application were received in the NEMA public participation.

There is no comments and response table because no comment was received during the 60 day PPP.

10. Other authorisations applicable to the activity

There is also a Basic Assessment process being undertaken in terms of NEMA for environmental authorisation by Sharples Environmental Services. Refer to Draft BAR.

11. Section 27 (1)

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

The water supply is municipal and only used for domestic purposes. The farm is used as livestock pasture; there is no cultivation or commercial irrigation system. There is no known existing water use authorisation for the property. The small contour dams on the property are rainwater fed, and probably not registered as water uses, and are only used as livestock drinking water.

The development triggers the need for a license application for c and i water uses due to the proximity of infrastructure to a watercourse and will not impact any downstream users. The development does not involve any water abstraction or discharge and so downstream volumes will not be changed. There will not be any reduction in water availability on the catchment. Other water users will not be affected. There are no wastewater uses associated with the project as all services will tie into the municipal infrastructure. Therefore, there will be no water quality changes affecting downstream users.

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

The Applicant is not an enterprise which focuses on social development, but rather a property owner who has decided to develop the land for economic benefit. It is unclear at present how the development will uplift disadvantaged groups, and woman, from an ownership perspective. The properties will not be subsidised in any way. However, the housing is not targeted at any specific race or gender.

The land is owned by the Applicant and so the developer has full ownership. However, the houses/ erven will be sold to any prospective homeowners once developed. How many positions will be filled by woman is unknown.

The Applicant is not a Black Economic Empowerment (BEE) enterprise. The project is unlikely to redress any past economic inequities. There may be management positions for woman to apply for when in operation. But at present it is unclear what the demographic will be. However, there will be equal opportunity in applications to any positions which are created as a result of the development.

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

The water use, which involves developing housing within 100m of a watercourse, will benefit the entire town of George. Refer to the socio-economic specialist report, which outlines the following:

The economic impact assessment demonstrates that the Pieterkoen Residential Development will contribute to the local economy of George Municipality in the following ways:

- New money injection during the construction phase and an additional monthly injection during the commercialization phase of the proposed development.

- The Unemployment rate will decrease, as an additional 410 jobs will be created during the construction phase (4-5 years) and during the commercialization phase, the development will create 36 job opportunities.

- The job opportunities during the construction phase will be temporary but the job opportunities, which will be created during the commercialization phase, will be permanent.

In addition, the above assessment shows that the proposed residential development:

- Will have a positive impact on the property market in the chosen market segments;

- Complies with the planning principles of SPLUMA; and

- Will attract new residents to George with economic skills that will contribute to the local economy and job creation.

Refer to the aquatic impact assessment report for a discussion on risks to water resources. After mitigation, the project should not impact the quality nor quantity of water downstream. Mitigation has been put in place to prevent changes to flood dynamics or pollution.

d) Socio-economic impact –

The proposed development is likely to have positive socio-economic impacts:

• The total value of the development is currently estimated at just approx. R 924 000 000 to be invested in the local economy. This will include bulk infrastructure contribution in the order of R27 million to be paid to the Municipality.

• The development will create significantly more jobs during the construction and operations phases than is currently offered by the property as a agriculture concern.

• It will provide funds for the renovation of the historic homestead and barn at Pieterkoen.

• It will create a range of housing opportunities for middle income groups in George, ranging from flats for first-time buyers to large erven for high value houses.

• It will create access to services and goods in close proximity to residents in the Kraaibosch thus reducing the need for and cost of transport..

Also refer to socio-economic impact report.

i) Of water use or uses if authorised:

The Unemployment rate will decrease, as an additional 410 jobs will be created during the construction phase (4-5 years) and during the commercialization phase, the development will create 36 job opportunities.

The job opportunities during the construction phase will be temporary but the job opportunities, which will be created during the commercialization phase, will be permanent.

Table 5: direct and indirect Job opportunities

Job Opportunities	Number of Job Opportunities	Type of employment	Affected sectors of the economy
Direct	446	36 Permanent	• Labour • Manufacturing • Building • Services
		410 Temporary	
Indirect	Unknown	Permanent	
TOTAL	**446**		

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

Should the licence not be granted, the jobs referred to in d (i) will not be created.

The development will be a permanent project offering permanent accommodation and job opportunities throughout time. There will be a larger portion of employees during construction, however, the number of permanent positions from the service industry during operation is substantial. The no-development option would result in a lost opportunity in terms of the expected temporary employment opportunities associated with the construction phase and potential operational phase employment. High negative socio-economic impact significance in terms of employment and job opportunities would occur if the proposed development is not constructed. Residential developments are a stable long-term employment sector and will provide permanent jobs with good job security and wages. From an ecological perspective, the status quo is not of a pristine area. The aquatic habitats are already subjected to negative urban impacts and alien invasive plants. The development. After mitigation, will not cause any further deterioration. If the license is not granted, it is highly likely that other development proposals on this land will occur in the future, as it is already within the urban edge. Other developments/ land uses may have negative potential impacts upon aquatic health, and they might not include the sensitive design and significant buffer areas.

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

The Breede-Gouritz Catchment Management Strategy (2017) is applicable to the water resources surrounding the development. Strategic Area 1 focuses primarily on management of streamflow, water quality, habitat and riparian zones. Strategic Area 2 focuses primarily on management of water use from surface and groundwater resources through the operation of infrastructure, in order to provide water for productive and social purposes within and outside of the WMA. The measures, objectives and actions proposed will assist in ensuring allocation and use our water resources equitably, efficiently and responsibly to maintain existing desired activities, support new

development, ensure social justice and reduce inefficient activities, adaptive to changing climate and development pressures. Strategic Area 3 focuses primarily on co-operation and management of institutional aspects to enable and facilitate the protection and sharing of water, including the more co-operative stakeholders, partnerships, information sharing, disaster risk and adaptation elements of the strategy. The development is unlikely to deteriorate the EIS or PES of the water resources (with mitigation and management) and is therefore in alignment with this strategy by including large ecological buffer areas and other protection measures. The project has resulted in a sustainable final layout and design of infrastructure following specialist studies.

According to the Breede-Gouritz Catchment Management Strategy (2017) the current water requirements in the BGWMA are stressed and the water balances show that there are greater requirements than the available water in the Gouritz sub-catchments. However, with the upgrading of the WTW and WWTW there will be capacity for the development.

The application is in alignment with the CMS vision and objectives. The CMS does encourage economic growth and improving social livelihoods. This proposed project will not decrease the available water resources and it will support economic growth. Additionally, it is a guiding principle of the CMS to “Prevent aquatic ecosystems from deteriorating further by focusing simultaneously on flow, quality and habitat preservation.” The watercourse on site is not specifically identified as a priority, nor mentioned within the Breede-Gouritz catchment management strategy, however, mitigation must avoid any potential significant impacts upon the water resources. The proposed water use will not compromise any aquatic ecosystems (especially ensured by mitigation).

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

The water use should not change the quantity of water currently available to other water users since no water will be removed from the system. With proper mitigation measures put in place, the development should also not have deteriorating impacts on water quality.

According to the Freshwater Specialist Report the potential impacts associated with the development are:

- Disturbance/loss of aquatic vegetation and habitat
- Sedimentation and erosion
- Water Pollution
- Flow modification

The impacts of the development without mitigation will be Medium during the Construction and Operational Phase. The most significant impact is the loss and disturbance of aquatic habitat, followed by erosion and sedimentation. The necessary mitigation measures can reduce potential impacts to Low during these two phases.

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

The project is located within the DWS quaternary catchment K30C and falls within the Gouritz Water Management Area. The drainage line on the property is not identified by the Department of Water and Sanitation in the 2020 gazetted “Determination of classes of water resource and resource quality

objectives for the Breede -Gouritz Water Management Area", nor is the river listed as a water resource in K30C.

However, the catchment is within the G15 Coastal Integrated Unit of Analysis (IUA) and information from the nearby rivers shows:
• The Water Resource Class is listed as Class II
• The TEC is listed as a 'D' for the Swart River and 'B' the Kaaimans River and other tributaries.

The drainage line is closest to the 'D' TEC as it is already significantly modified from the natural condition.

The resource quality objectives (RQOs) are also not listed by the Department of Water and Sanitation for the watercourses relevant to this project, but the recommended management objective was determined based on the PES and EIS scores. After mitigation, the project will not compromise the RQOs. It is recommended that no further degradation should be allowed, and the water quality and quantity must be maintained in the same or improved ecological condition. Consideration should be given to long-term rehabilitation actions by the landowners and resource managers to improve the PES.

The development is in alignment with obtaining the resource quality objectives of the Department of Water and Sanitation's 'Proposed Classes Of Water Resource And Resource Quality Objectives For The Breede -Gouritz Water Management Area' (GG No. 42053, volume 641, published on 23 November 2018), as well as the Breede-Gouritz Catchment Management Strategy (2017). The project will not change the EIS or PES of the water resources.

The site is located on a non-perennial tributary to the Swart River (TEC = D) as it merges with the Kat River and flows into the Kaaimans River (TEC = B) downstream. All of the watercourses are within K30C quaternary catchment. The water resources fall within the Water Resource Class II for Integrated Unit of Analysis (IUA) G15 Coastal. IUAs are classified in terms of their extent of permissible utilisation and protection with the strategy for Class II indicating moderate protection and moderate utilisation.

Refer to aquatic biodiversity impact assessment report for EIS and PES assessment results. The project will not change the EIS or PES of the water resources.

The quality objectives for the Kaaimans River in the G15 Coastal IUA include that nutrient levels need to be maintained in the river at an oligotrophic condition, salt concentration needs to be maintained in an ideal category for aquatic ecosystems, that pH, temperature and dissolved oxygen are important for the maintenance of aquatic health, and that waterborne pathogens should be maintained in an ideal category for full contact recreation (Table 2). However, this is a very different river system compared to the degraded Skaapkop River and for the purposes of this project, and specific reach of the river, maintaining the current condition of the watercourses should be sufficient, with consideration given to rehabilitation by the applicant and relevant authorities.

Table 6: K30C catchment rivers listed in the "determination of classes of water resource and resource quality objectives for the Breede -Gouritz Water Management Area" 2020.

Integrated Unit of Analysis (IUA)	Water Resource Class for IUA	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Natural MAR (million m³/a)
		K30C		Swart River	gvii7	D	16.10
		K30C	G15-R31	Kaaimans River	gvii11	B	17.53
		K30C		Silver River	gvii8	B	14.90
		K30C	G15-E23	Kaaimans Estuary	Gxi8	B	35.32
		K30D		Touws River	gvii12	B	16.70
G15 Coastal	II	K30D		Klein River	gx8	D	2.50

After the adoption of the recommended mitigation measures and monitoring of the project, the RQOs will not be compromised.

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

R2 Million

The applicant has spent years on different development proposals for the property. Furthermore, various specialists have been hired to conduct studies on the area to determine whether development should take place and if so, where, how and what type of development it should be. Most of these specialist reports have been compiled and were paid for and engineers and town planners have used this information in designing the development. Therefore, it is clear that large amounts of money have already been invested in the proposed development.

The total capital expenditure associated with the proposed housing component will be in the region of R 924 000 000. Most of the work associated with the construction phase is likely to be undertaken by local contractors and builders. The proposed development will therefore represent a positive benefit for the local construction and building sector in George and the Garden Route. Most of the building materials associated with the construction phase will be sourced from locally based suppliers in George. This will represent a positive injection of capital into the local economy.

i) Strategic importance of the water use to be authorised

The proposed property to be developed is located entirely with the George Urban Edge and has been specifically set aside and planned for in various Municipal Planning Frameworks, including the SDF and IDP.

The National Water Resource Strategy (DWA 2013) identifies three broad objectives: water supports development and the elimination of poverty and inequality; water contributes to the economy and job creation; and water is protected, used, developed, conserved, managed and controlled in an equitable and sustainable manner (Figure 13). The Strategy states that water requires careful management to enable provision of basic water services and equitable allocation, while meeting the needs of inclusive economic growth without threatening the integrity of aquatic ecosystems. The proposed development is in alignment with the objectives of the NWRS in that it has been designed in a sustainable manner.

The water resources surrounding the site have been identified, assessed, and allocated the protection of open space and aquatic buffer zones, as well as other mitigation measures to minimise any threats to the integrity of the downstream watercourses.

The development meet the needs of inclusive economic growth. The development as a whole will support the economy and job creation. The incorporation of sensitive habitats into the open space, and the consideration of preventing indirect impacts through the compilation of a stormwater management plan, EMPr, etc., makes this project a sustainable development which is most suited to the site while addressing the needs of socio-economic growth of George.

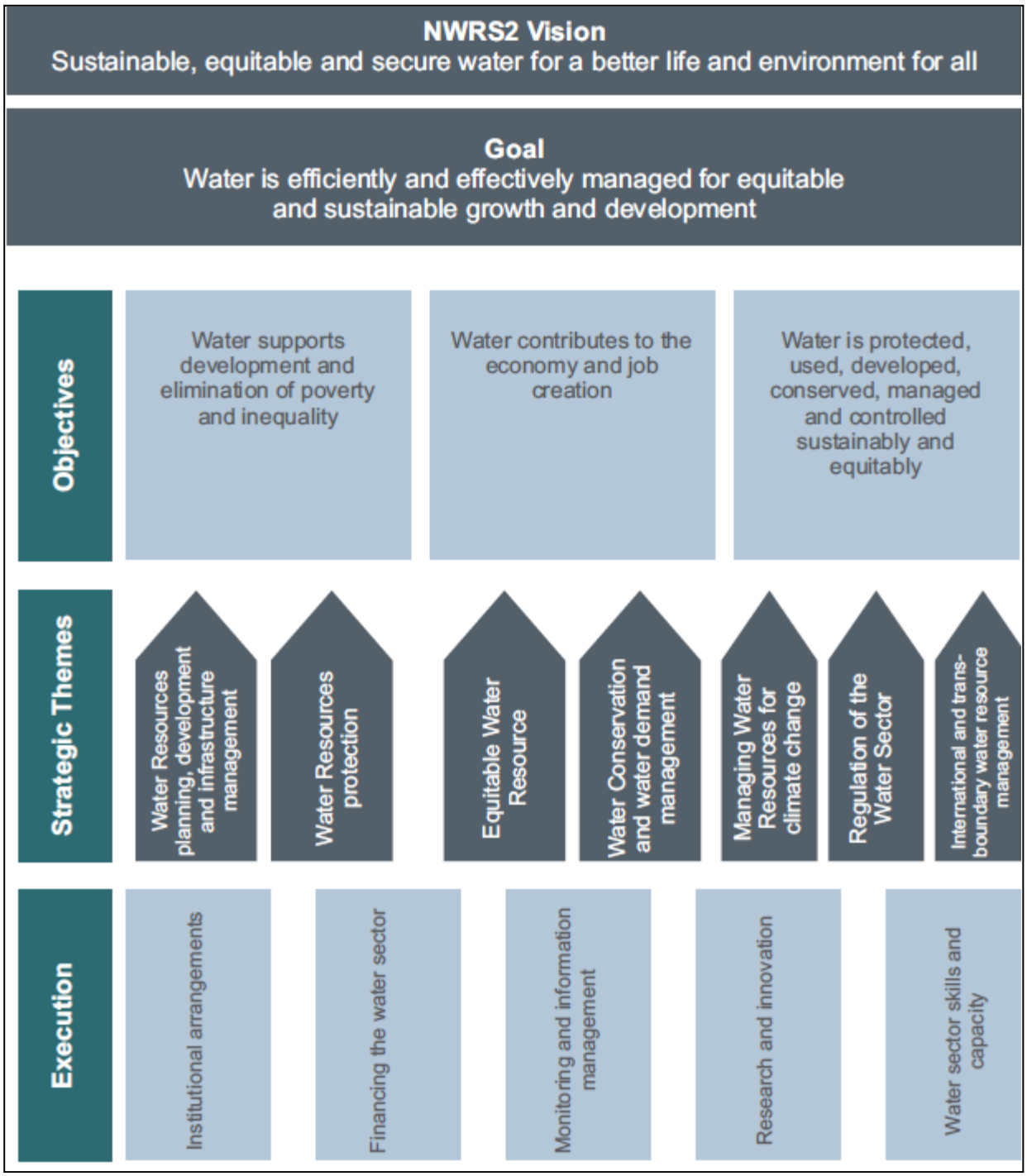

Figure 8: Diagram from the National Water Resource Strategy (DWA 2013)

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

The watercourse is not used as a drinking water source and there are no specific quality objectives set for this system in the 2022 “Reserve determination for water resources of the Breede-Gouritz Water Management Area”. The Reserve has not been determined. However, catchment

management recommendations required for the Reserve and for meeting international obligations include: Control invasive alien vegetation, erosion and land-use encroachment.

The water resource is not identified by the national database but the project, after mitigation, will not decrease the water quality of the water resource. The proposed mitigation and management measures will prevent any water quality impacts to the water resources. There are no consumptive or storage water uses associated with this application.

Should the water uses allowing for the upgrades not be authorised, then the likelihood of sewer infrastructure failure, and resultant water quality deterioration, is high. The No-Go scenario will impact water resources. The project is in alignment with Reserve management and international obligations.

The groundwater quantity component was determined using values (recharge and groundwater baseflow) obtained during the determination of water resource classes and associated resource quality objectives in the Breede-Gouritz WMA, (DWS 2017), shown in Table 2.

Table 7: Breede-Gouritz groundwater reserve for K30C water resources

Quaternary Catchment	Recharge (Mm^3/a)	Population	Basic Human Needs (Mm^3/a)	Groundwater Baseflow (Mm^3/a)	Reserve (Mm3/a)	Reserve as % of Recharge
K30C	27.80	146 970	1.34	7.83	9.17	32.99

- No International Obligations will be affected
- After mitigation there is no significant impact on downstream water quality (return flows)
- 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 development will be permanent.

13. Declaration by the applicant with signature confirming that the information submitted is correct

[END OF WATER USE LICENCE APPLICATION SUMMARY]