

# WATER USE LICENCE APPLICATION

**The Proposed Waterfall Fields Residential Development to be known as  
Jukskei View Extension 128**

**On a Part of the Remainder of Portion 1 of the Farm Waterval 51R, in Midrand,  
Gauteng Province**

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**Prepared by:**

Bokamoso Environmental Consultants &  
Landscape Architects  
PO Box 11375  
Maroelana  
0161  
Tel: 012 346 3810  
Fax: 086 570 5659  
Email: lizelle@bokamoso.net

**Prepared for:**

Balwin Properties Ltd  
Private Bag X4  
Gardenview, Johannesburg  
2047  
Tel: 011 450 2818  
Fax: 086 578 4662



## TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PROPERTY DESCRIPTION	2
2.1	Location	2
2.2	Extent and Ownership	3
3	EXISTING DEVELOPMENT AND PROPOSED WATER USES	4
3.1	Existing Development	4
3.2	Surrounding development	4
3.3	Proposed development and water use activities to be authorised	5
4.	EXISTING WATER USE RIGHTS	6
5.	ENVIRONMENTAL ATTRIBUTES	6
5.1	Geology and gehydrology	6
5.2	Topography	7
5.3	Hydrology	8
5.4	Water quality	10
5.5	Flora and fauna	10
5.6	Socio-economic	12
5.7	Infrastructure	12
5.8	Archeology and/ Cultural History	18
5.9	Landscaping Within the Extent of a Watercourse	18
6.	WETLAND DELINEATION AND MANAGEMENT	19
7.	APPLICATION FOR WATER USE LICENCES	21
8.	WATER USES	23
8.1	<b>Section 21 (c) 'Impeding or diverting the flow of water in a watercourse</b>	23
8.2	<b>Section 21 (i) 'Altering the bed, banks, course or characteristic of a watercourse'</b>	30
9.	IMPACT ASSESSMENT AND MANAGEMENT	31
10.	ASSESSMENT FACTORS	44
11.	PUBLIC PARTICIPATION	52
12.	CONCLUSION	54

## LIST OF TABLES

<b>Table 1:</b>	Summary of Water Uses
<b>Table 2:</b>	Property Descriptions, Ownership and Title Deeds
<b>Table 3:</b>	Impacts and mitigation/control measures
<b>Table 4:</b>	Assessment Factor for the Evaluation of a Water Use Application

## LIST OF FIGURES

<b>Figure 1:</b>	Locality Map
<b>Figure 2:</b>	Aerial Map
<b>Figure 3:</b>	Quaternary Catchment Map
<b>Figure 4:</b>	Layout Plan
<b>Figure 5:</b>	Soil Map
<b>Figure 6:</b>	Floodline Map
<b>Figure 7:</b>	Rivers and Wetlands Map
<b>Figure 8:</b>	Hydrology Map
<b>Figure 9:</b>	Access Road and Culvert Layout Plan
<b>Figure 10:</b>	Storm Water Layout Plan
<b>Figure 11:</b>	Sewer Pipeline Layout Plan
<b>Figure 12:</b>	Water Pipeline Layout Plan
<b>Figure 13:</b>	Access Road Crossing Map
<b>Figure 14:</b>	Culvert Crossing Map
<b>Figure 15:</b>	Attenuation Dam Map
<b>Figure 16:</b>	Storm Water Discharge Points Map
<b>Figure 17:</b>	Sewer Pipeline Map
<b>Figure 18:</b>	Water Pipeline Map
<b>Figure 19:</b>	Electrical Cable Line Map

## ANNEXURES

<b>Annexure A</b>	Application
<b>Annexure A1</b>	Licence Application Forms and coordinates
<b>Annexure A2</b>	Section 21 (c) and (i) Water Uses Supplementary Information Questionnaire and Motivation for Services
<b>Annexure A3</b>	Proof of payment of License fee
<b>Annexure A4</b>	Power of attorney and ID
<b>Annexure A5</b>	Company Registration
<b>Annexure A6</b>	Proof of Pre-Consultation Meeting
<b>Annexure B</b>	Final Basic Assessment Report and Environmental Management Plan
<b>Annexure C</b>	Specialist Reports
<b>Annexure D</b>	Maps
<b>Annexure E</b>	Design drawings, Method Statement and Master Layout Plan
<b>Annexure F</b>	Wetland Rehabilitation and Integrated Water Quality and Quantity Monitoring and Management Programme
<b>Annexure G</b>	Property Information
<b>Annexure G1</b>	Title Deeds
<b>Annexure G2</b>	Property Zoning Certificate
<b>Annexure H</b>	Public Participation
<b>Annexure H1</b>	Site Notice
<b>Annexure H2</b>	Public Notice
<b>Annexure H3</b>	Newspaper Advertisements
<b>Annexure H4</b>	Photographs As Proof
<b>Annexure H5</b>	Communication with Interested and Affected Parties

**Annexure H6** List of Interested and Affected Parties

**Annexure H7** Comments and Issues Register

**Annexure I** Environmental Authorisation

# 1. INTRODUCTION

**Bokamoso Landscape Architects and Environmental Consultants CC** was appointed in 2016 by **Balwin Properties Ltd** to compile and submit a Water Use License Application (WULA) on their behalf, for water use activities that need to be authorized in terms of Section 21 of the National Water Act (NWA), 1998 (Act 36 of 1998). The WULA process regulates water use activities which may impact on the country's water resources.

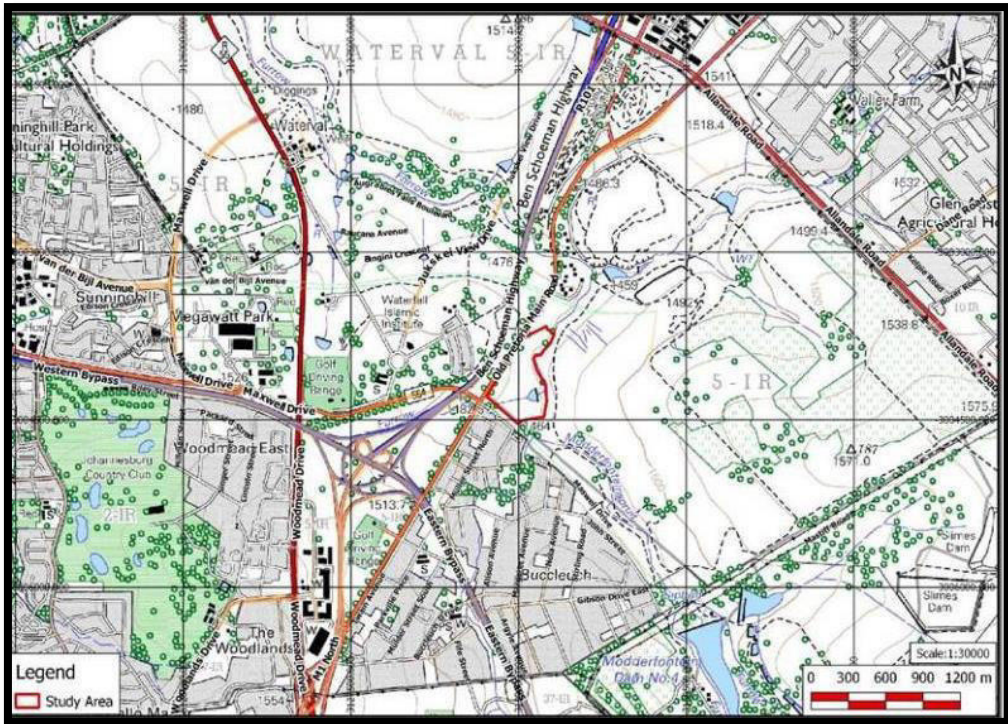
The applicant, **Balwin Properties Ltd**, is applying for a Water Use License for the proposed Residential Development to be known as Waterfall Fields consisting of Jukskei View Extension 128 on a part of the Remainder of Portion 1 of the Farm Waterval 51R.

## 2. PROPERTY DESCRIPTION

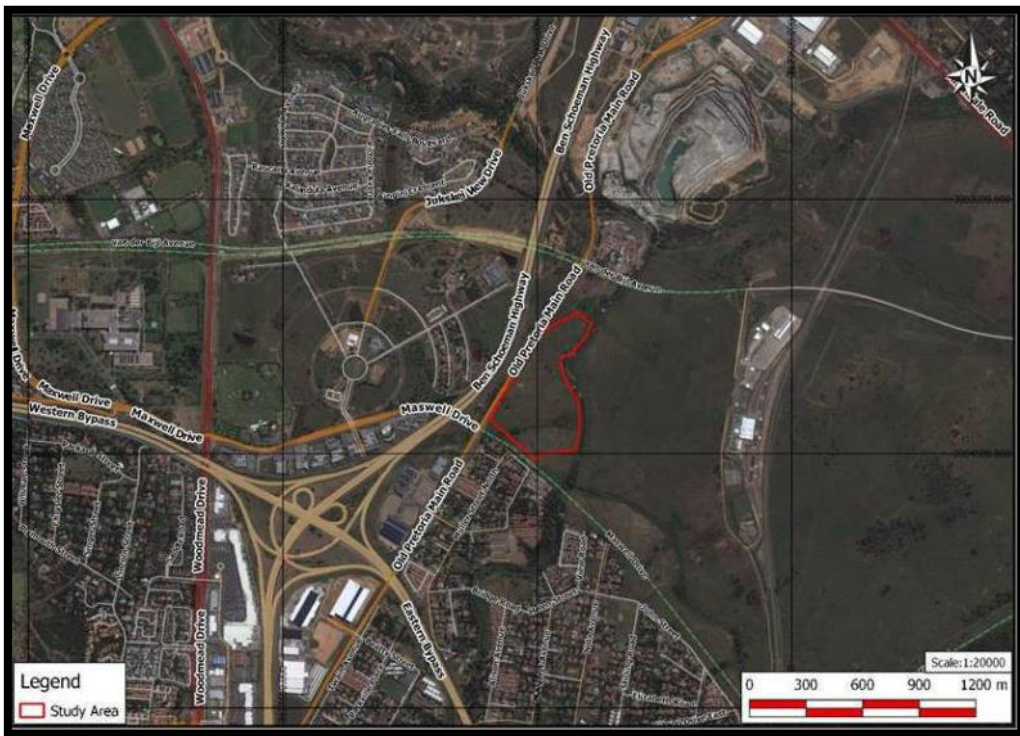
### 2.1 Location

The site lies to the east of the N1 Freeway and the K101, of which both run from a north to a south direction. The site is abounded by the proposed K60 to the north and the K101 to the west. To the south the site is bound by Maxwell Drive which will be extended to the east in the future. The co-ordinates for the site lies at **26° 06' 28.79" S and 26° 06' 29.96" E**. The study area is approximately 14.05671 ha in extent and is situated in the area of jurisdiction of the City of Johannesburg Metropolitan Municipality, Gauteng Province **(Refer to Figure 1 & 2 below and Annexure D for the Locality Map and Aerial Map)**.

The property falls within the Quaternary Drainage Region A21C in the Crocodile (West) and Marico Water Management Area. **Refer to Figure 3: Quaternary Catchment**.

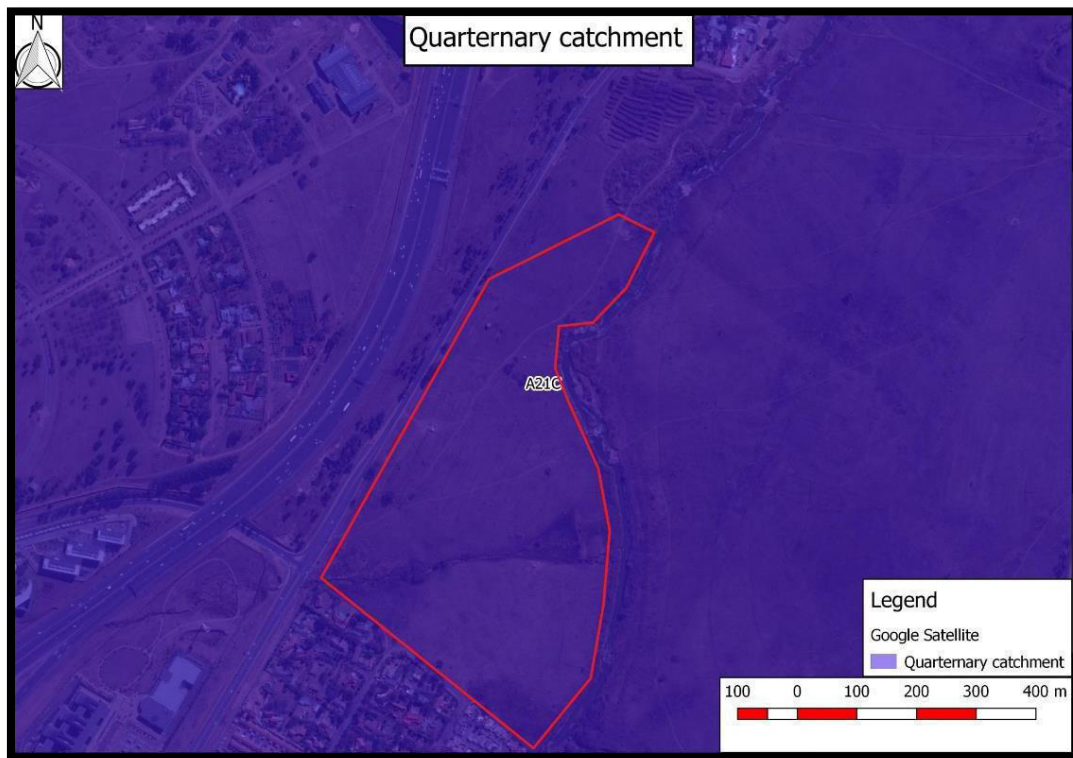


**Figure 1: Locality Map**



**Figure 2: Aerial Map**





**Figure 3: Quaternary Catchment Map**

***Please Note: Enlargements Of The Figures Inserted In This Report Are Included In Annexure D.***

## 2.2 Extent and Ownership

The total study area is 14. 05671 hectares in extent (**refer to Table 1 below for Property Descriptions and Ownership Details**).

The legal entity: The Jukskei View Extension 128 development is represented by Mr Rodney Gray of Balwin Properties Ltd.

**Table 1: Property Descriptions, Ownership and Title Deeds**

PROPERTY	AREA (ha)	PROPERTY OWNER	TITLE DEED
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A Part of the Remaining Extent of Portion 1 of the Farm Waterval 5 IR	14.05671	Witwatersrand Estates Ltd	T6167/1934
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**Please take note that although the land owner for this project is Witwatersrand Estate Limited; which is the Mia family, and Willie Vos is the representative for Witwatersrand Estate Limited, Balwin Properties Limited will be responsible for the operational phase as well as for maintenance of the development. There is an agreement between Witwatersrand Estate Limited which has given Power of Attorney to Balwin Properties Limited to authorize the WULA activities on their land.**

**The responsibility of the roads will be transferred to the Local Authority once the WUL is approved for issuance.**

### 3. EXISTING DEVELOPMENT AND PROPOSED WATER USES

#### 3.1 Existing Development

The property is registered in the name of Witwatersrand Estate Limited in terms of Title Deed T6167/1934. The property is currently zoned as "Agricultural" in terms of the Halfway House and Clayville Town Planning Scheme, 1976. The site is currently utilized for grazing purposes however is otherwise vacant. To the north of the site is the Afrisam mining quarry and the proposed Jukskei View Extension 118 to the east of the site which is a mixed use development comprising of residential, business and educational land uses.

#### 3.2 Surrounding Development

The existing surrounding properties are currently zoned as "Agriculture", "Undetermined", "Residential 1", "Residential 2", Residential 3", "Private Open Space", "Public Open Space", "Special" and "Commercial".

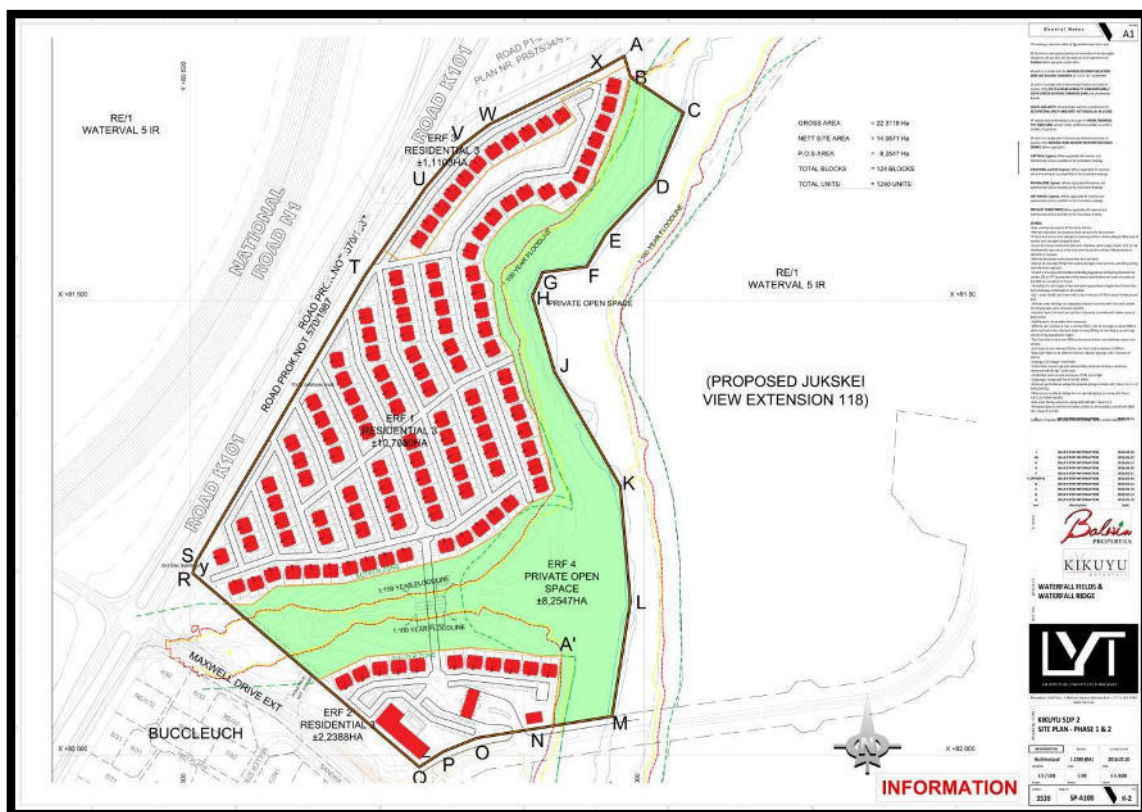
Further east of the proposed Jukskei View Extension 118 is the Gautrain Maintenance Yard. The township of Buccleuch, which is mainly residential in nature, is located to the south and

Buccleuch Extension 10, which has been developed as a commercial office park, to the south west. The Woodmead Office Park and the Waterfall Islamic Institute is located to the west of the site.

The site is bound by the proposed K60 to the north and the K101 to the west. To the south the site is bound by Maxwell Drive which will be extended to the east in the future.

### 3.3 Proposed development and water use activities to be authorised

The proposed residential development will cover an area of 14.05671 ha in extent. The proposed development will consist of the following land uses in the township: Erven 1 and 2 are to be zoned Residential 3, and Erf 3 is to be named Private Open Space. **(Refer to Annexure D for the layout plan)**. The development proposal is for a secure, medium cost affordable housing and “special” erven for various purposes. The proposed development can be regarded as a private township with roads and private open spaces.



**Figure 4: Layout Plan**

The applicant intends to construct the development which also aim to include the following main components:

- ✚ Three Erven are proposed in the Township. Erven 1 to 3 are to be zoned 'Residential 3'', and Erf 3 is to be zoned private open space;
- ✚ Access to the development will be through the use of a proposed road off Maxwell Drive. The proposed access road with an associated storm water culvert to form a part of the crossing, will traverse the stream and associated wetland that is located on the southern portion of the site. This watercourse crossing will require the construction of a bridge over the watercourse;
- ✚ A 160mm uPVC sewer pipeline will traverse the watercourse area. The 200mm sewer mains that will be connected to the Bruma Outfall sewer will be located outside of the 1: 100 year floodline.
- ✚ A new 200m water pipeline will be connected adjacent to the existing council water main water pipeline. This will constitute a river crossing; and
- ✚ Storm water attenuation ponds with associated discharge points are proposed to be implemented between the site boundary and the 1: 100 year floodline in order to control the storm water within the development.

## 4. EXISTING WATER USE RIGHTS

There are currently no existing water use rights that are registered for this property.

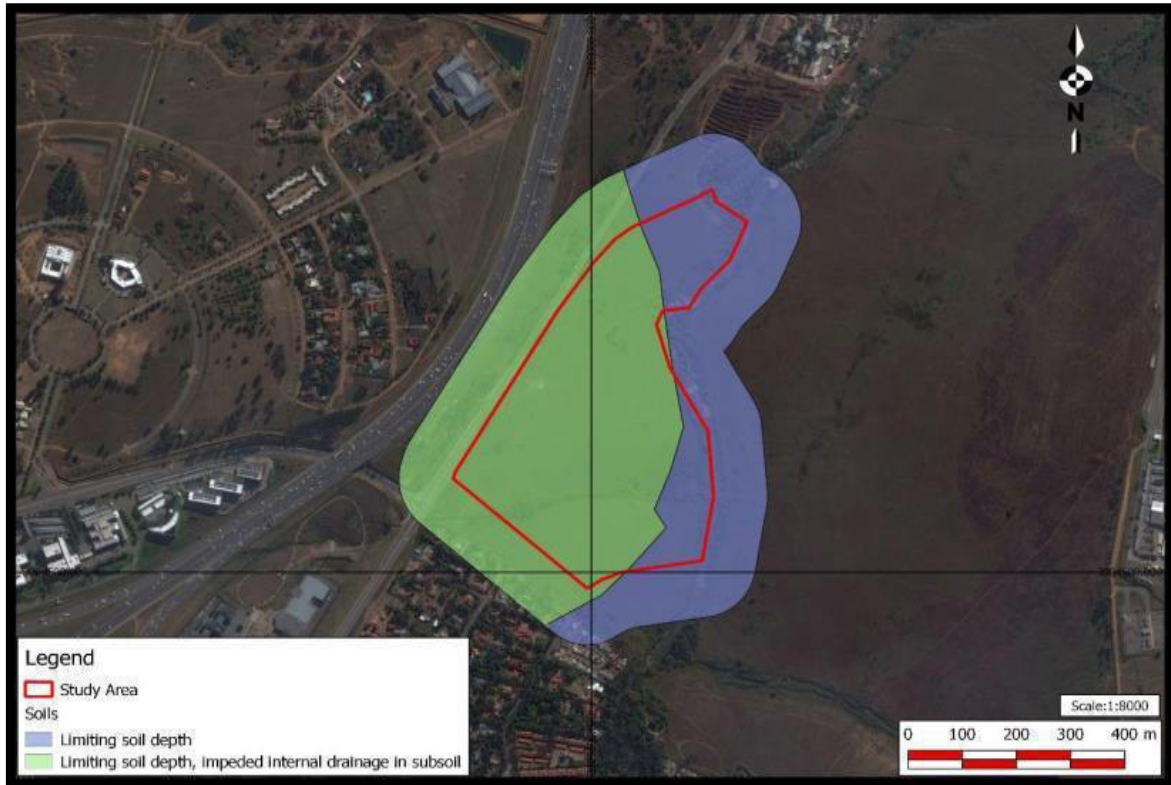
## 5. ENVIRONMENTAL ATTRIBUTES

Below is a discussion regarding the current status of environmental attributes and the importance of each attribute associated with the proposed construction footprint. Sensitive environments associated with each attribute are also discussed.

### 5.1 Geology and Geohydrology

The site is underlain by gneiss migmatite or porphyritic granodiorite of the Halfway House Granite. A north-west-southeast striking syenite dyke and north-south striking diabase dyke are indicated within the south boundaries. Prominent quartz veins also strike through the portion north of the Jukskei in a north-westerly direction. It is worthy to note that a large aggregate

quarry is operating to the north of the study area. The quarry is known as the Afrisam Aggregate Jukskei Quarry. The quarry is a source of dust generation, henceforth, it is important that measures be implemented to ensure that the development and the private open space is protected against dust accumulation. **Refer to Figure 6 below.**



**Figure 5: Soil Map**

## 5.2 Topography

The average gradient of the site is estimated around 7.2%, with the site sloping from west to east. The elevation is between 1482m and 1459m above mean sea level with an elevation difference of approximately 23m between the higher western portion and the lower northern portion.



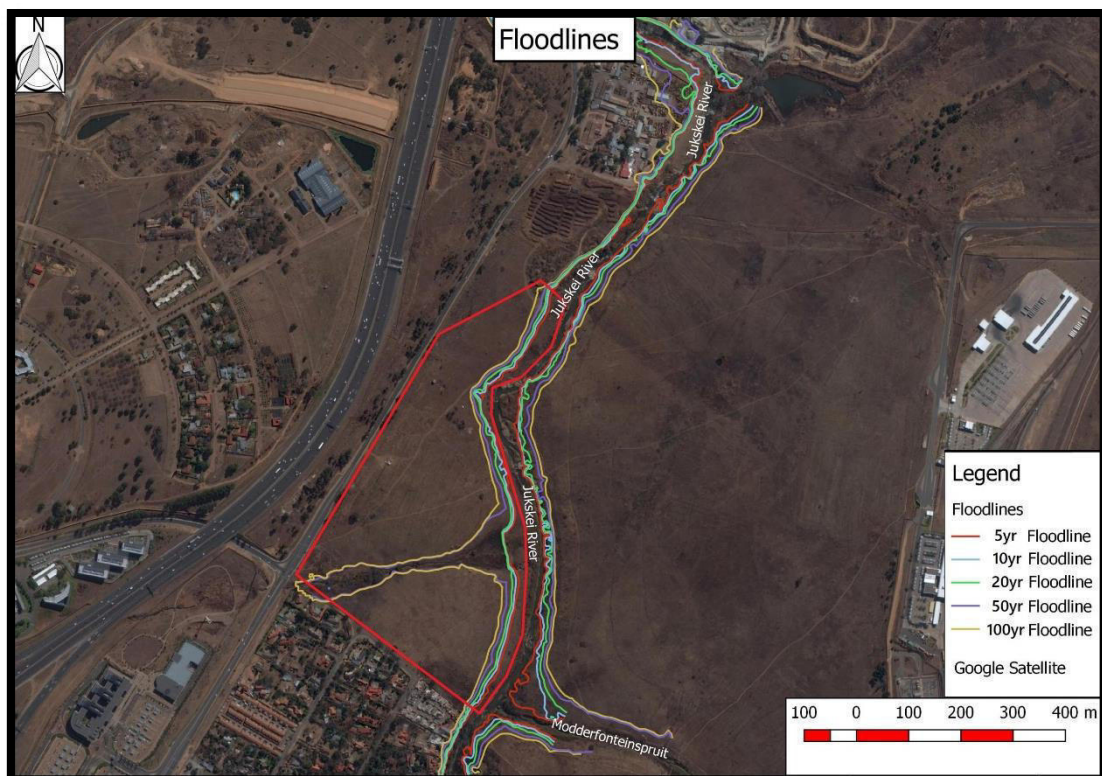
## 5.3 Hydrology

### 5.3.1 Surface Hydrology

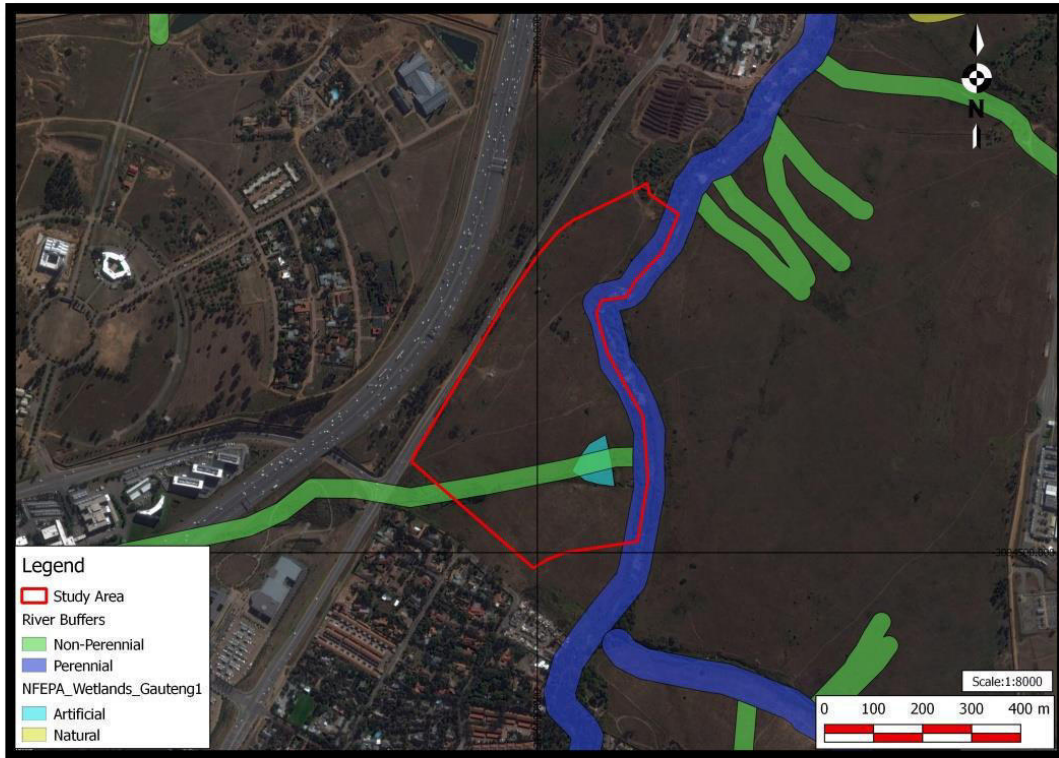
The study site overall is affected by the DWS regulated area, i.e. the 1: 100 year floodline, or riparian habitat, whichever is the greatest, and or is within a 500m radius from the boundary of a wetland.

The Jukskei River flows along the eastern boundary and a minor tributary of the Jukskei River. The Jukskei River flows from south to north, with a drainage channel also draining from the north east corner of the adjacent piece of land, Portion 74 of the Farm Waterval 51R, in an east-north easterly direction towards the Jukskei River.

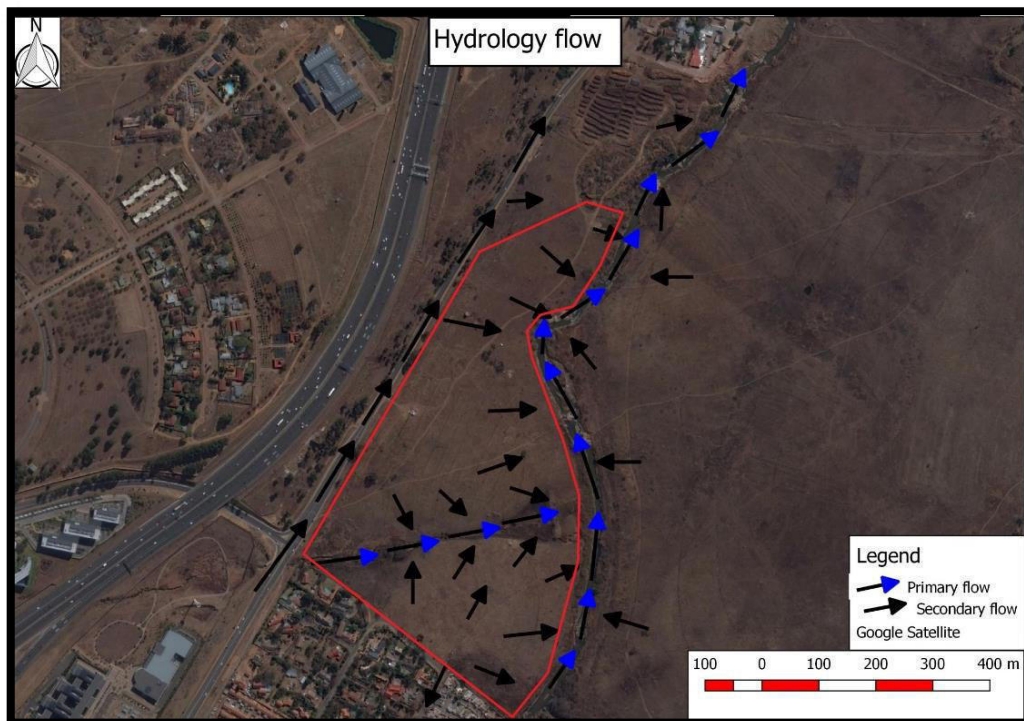
The slope of the site is towards the Jukskei River. Drainage of the site will be in the form of un-concentrated surface flow towards the existing drainage channels towards the Jukskei River.



**Figure 6: Floodline Map**



**Figure 7: Rivers and Wetlands Map**



**Figure 8: Hydrology Map**



### **5.3.2 Sub-Surface Hydrology - Groundwater**

Due to the gradient of the site towards the Jukskei River and locally towards the smaller drainage features, percolating groundwater will flow downwards through the upper permeable horizons and follow the gradient to the drainage channels. Wet surface conditions are therefore expected along most of the lower slopes along the edge of the river floodplain and locally in the gulleys.

Local perched groundwater tables will also occur on the lower slopes, especially towards the Jukskei River and along the larger drainage channels. These perched water tables will probably occur within the loose colluvial material and on the transported soil or residual granite or hardpan ferricrete interface on the lower slopes and will typically appear during and towards the end of the rainy season.

The area is drained by a well-developed drainage network around the Jukskei River which is the main drainage channel. A number of earth and concrete dams also occur within the drainage lines and these features already altered the local ground water conditions.

### **5.4 Water quality**

The water quality downstream of the Jukskei River is in a severely modified state due to downstream chemical and solid waste pollution which enters the system. The water quality is allocated a Present Ecological Status (PES) of C which implies that the channeled stream that enters the Jukskei River is critically modified with respect to its water quality.

### **5.5. Fauna and Flora**

#### **Fauna**

The majority of the terrestrial habitats present on the study area remain in its natural state, although alien plant species tend to invade some of the habitats. The current terrestrial habitats do however provide good habitat for a number of small mammals deduced to be present. The Grassland habitat is expected to support several small mammal species on account of the availability of their food source and maintained connectivity with homogenous habitats.

The riverine habitat is deemed to be **highly sensitive** from a faunal perspective as it produces suitable habitats for Otter and Vlei Rat species. The probability of Red List Otter or Vlei Rat species selecting this particular stretch of the Jukskei River suitable for their nesting area is unlikely, on account of some pollution and degradation of the habitat. Otter and Vlei Rat species are however expected to use this part of the Jukskei River as a corridor or passage way to areas suitable for nesting purposes.

The drainage Line is deemed to be **moderately sensitive** from a faunal perspective as it acts as a tributary to the Jukskei River. No Red Data faunal nesting areas were identified in the Drainage Line; however this habitat is expected to be utilized as a forage resource by these species

### **Flora**

The study area falls within the area designated as Egoli Granite Grassland situated in the Grassland Biome. Two study units were identified on the study site which includes Grassland and a Drainage Line cutting through it. Approximately 23% of the remainder of Portion 1 of the Farm Waterval 51R has a high sensitivity in terms of flora with 77% of the surface area having a low sensitivity. The proposed 22 ha development layout caters for 8 ha of private open space with the purpose of protecting sensitive environments occurring on site.

The development site has been identified as 'Irreplaceable' according to the GDARD C-Plan 3.3 due to the occurrence of the Orange List species *Hypoxis hemerocallidea* which were recorded in abundance in the study site and identified as having a moderate sensitivity according to the Flora Assessment.

Although the development site is covered by Egoli Granite Grassland, a vegetation unit which is considered endangered, its isolation from natural grassland on neighbouring sites is not favorable to its continued pristine status and is deemed to have a **low sensitivity**. The Drainage Line on the other hand remains connected with the Jukskei River system.

**It is recommended that the relocation of the Orange List species *Hypoxis hemerocallidea* be implemented prior to construction.**

## **5.6 Socio-economic**

The site overall forms a part of the greater Waterval which has grown and developed over the years offering a variety land uses. The site is also centrally located permitting easy access to Johannesburg and Pretoria as well as areas in the east of Johannesburg such as Kempton Park. With rapid growth and development in the Midrand area from residential developments to commercial, industrial and related developments, it is leading to progressive growth in the area as there is a higher level of accessibility, in closer proximity to work opportunities and residential areas which creates a desirable and attractive location.

The site furthermore offers visibility from the main highways. It is also suited to a higher density residential development as it is also in close proximity to existing social facilities such as shopping malls.

The proposed development will furthermore create a variety of employment opportunities during the construction and the operational phases of the development. This will also promote the transfer of skills.

Rates and taxes will be payable to the Local Municipality which in turn will be used to upgrade services and infrastructure in the area. Overall, the local economy will be boosted.

## **5.7 Infrastructure**

***Refer to the Outline Scheme Report attached as Annexure C.***

### **5.7.1 Roads**

At the moment, the R101 (K101) Pretoria Main Road is on the western boundary of the site, Maxwell Drive and the K101 intersection is on the south west corner of the site, and the future K60 and K101 intersection is on the North West and northern boundary of the site.

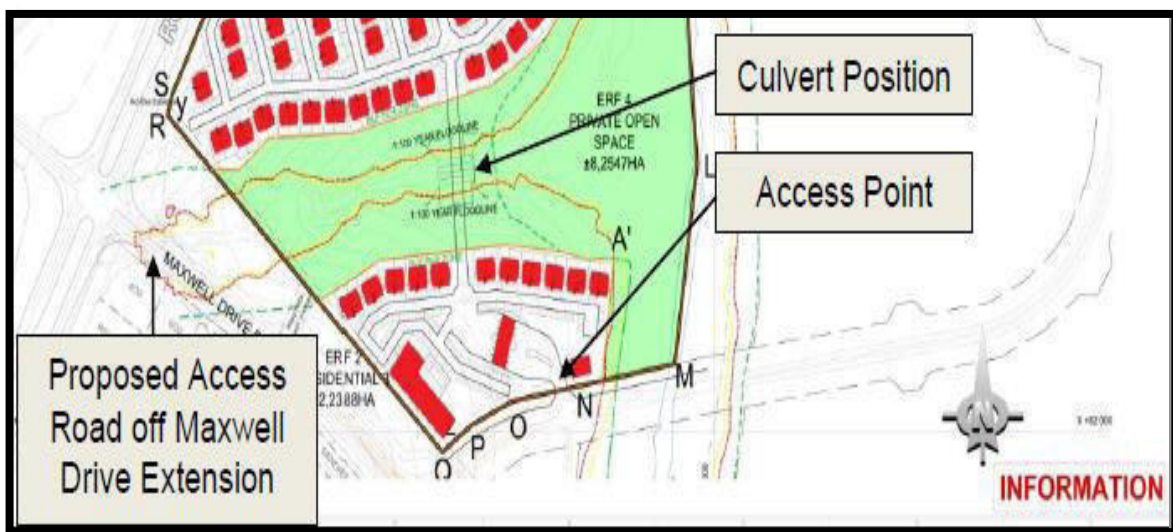
Access to the development will be via a proposed road off Maxwell drive which in future will be extended to the east.

It is worthy to note that the City of Johannesburg (CoJ) have highlighted in their comments for this project that the proposed access road bridge that will traverse the watercourse and the

watercourse buffer in order to counteract a reduced damage to the watercourse, overall. After numerous discussions with all of the relevant parties, it was concluded that this will be quite expensive and would also be out of scale for this residential development. Furthermore, that the bridge crossing with a large span will pose an impact on the vertical alignment of the roads that will lead to the bridge, and it will also require a significant amount of filling.

However, the intention of the current design of the bridge would be to limit the impacts on both the ecological systems. The most current type of bridge crossings such as the battery of pipes or the culvert concept can be implemented. These types of bridge designs permit for the undisturbed flow of sub-surface water through the tyoes of designs mentioned above to be implemented below the surface of the road or the bridge structure.

It is also important to note that erosion and siltation issues are quite rife on the Halfway House Granite. Therefore, the specific structures such as silt traps, erosion prevention features and storm water attenuation structures are all designed in usch a manner so as not to compromise the long term sustainability of the ecosystem, howveer to enhance its ecological potential and hydrological functioning.



**Figure 9:**  
**Bridge Access Road and culvert crossings**

### 5.7.2 Storm Water

Currently, Jukskei View Extension 128 has no formal storm water system in place. However, the site is affected by the 1: 100 year floodline.

The storm water for the development overall is to be managed and maintained by a Section 21 company and the underground storm water system is designed for a 5-year recurrence interval, and the roads will perform as an overflow channel that will manage and control all storms that exceed the 1: 5 year recurrence.

The attenuation feature will be located on the footprint of the historical dam with the embankments and the footprint still visible in the riparian zone. The idea is for storm water management for this development is to entail smaller pipes that are evenly distributed throughout the study area and the aim is achieve maximum energy dissipation and reduce erosion. This will be achieved by a man-made biological filtering system consisting of a combination of smaller rocks or stones and certain wetland vegetation.

This storm water management plan illustrates the flood analysis that was done to ascertain the required pre and post development runoff conditions and the required volumes for the proposed refurbished dam. This will enable the offset flows generated from the proposed Jukskei View X 128 into the dam thus balancing the flow downstream of the proposed dam.

From the desktop study that was undertaken, both the post 1: 5 and the 1: 25 development runoff generated from the total Jukskei View Extension 128 runoff draining into the spillway dam.

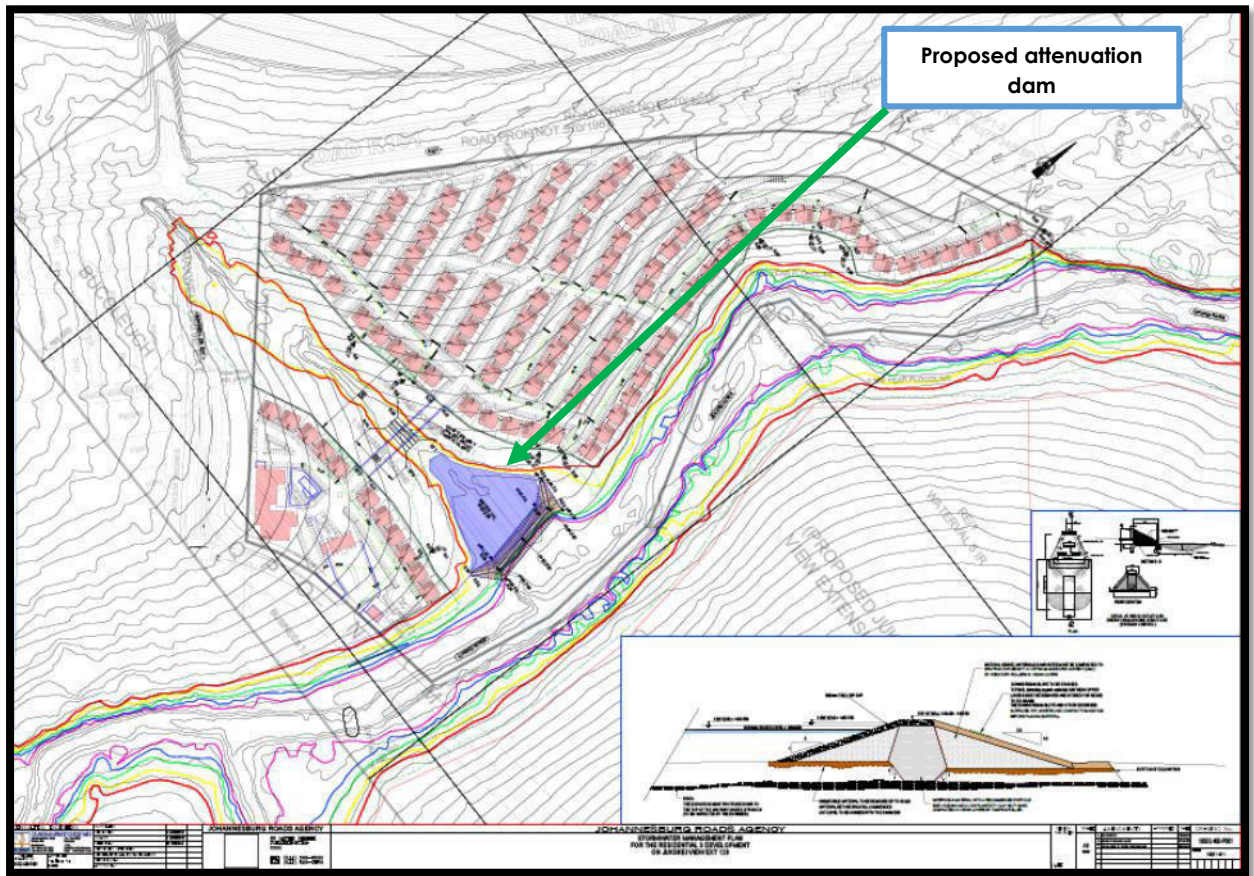
Refer to the **Figures 14 and 15** in the **Storm Water Management Design Report attached as Annexure C**. As per the information in the report, the spillway dam area has sufficient capacity to accommodate the minor and major flows.

It is important to take note that the spillway dam is not aimed at attenuating the upstream flows as the developed areas have provided adequate attenuation to facilitate the pre-development runoffs.

**As Environmental Consultants, we propose that vegetation be planted around the spillway dam to maximize on the energy dissipation of the water prior it entering the watercourse. It is**



proposed that vegetation such as “*Typha Capensis*” be planted as it offers a type of filtering function.



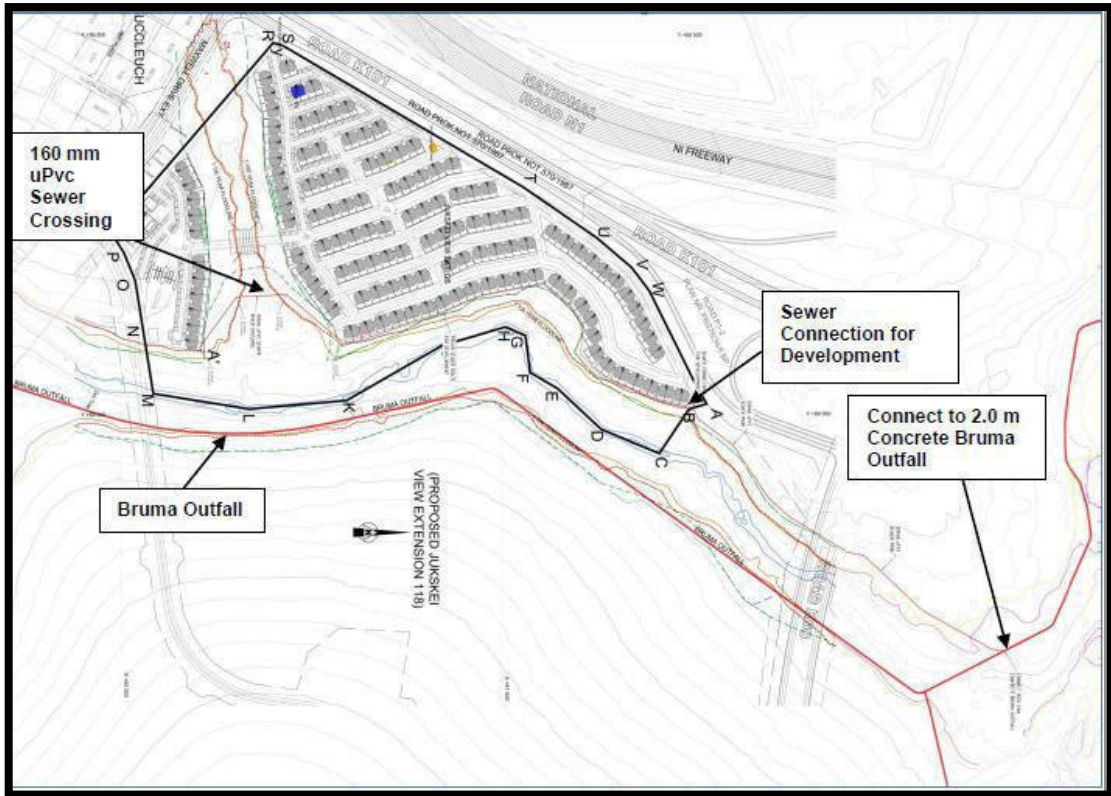
**Figure 10: Storm Water Plan**

### 5.7.3 Sewer

The Bruma Outfall Sewer which is a 2000mm concrete pipeline currently traverse the site roughly following the Juksekei River on the east.

The proposed new council sewer mains will be constructed outside the 1: 100 year floodline. All sewer mains within the proposed development will remain private and will gravitate to the lowest point on the site where the pipe will connect into the proposed new council sewer main. The council main will connect into the existing Bruma Outfall Pipeline which is 2000mm. The 160mm uPvc sewer pipeline will traverse the extent of a watercourse.



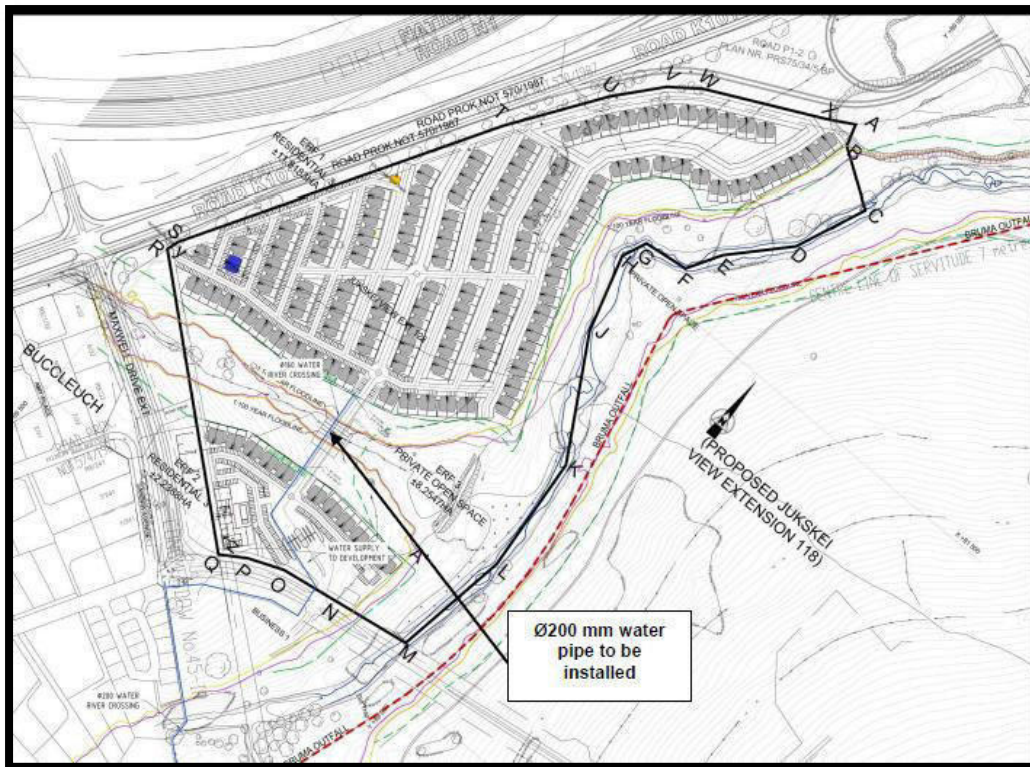


**Figure 11:**  
**Sewer pipeline layout**

#### 5.7.4 Water

Currently, there are no existing council water main connections within the boundary of Jukskei View Extension 128. However, there is an existing water reticulation main within Buccleuch, and an existing 400mm diameter water main to the south of Buccleuch and north of Frankenswald. This 400mm pipeline feeds off an 800mm water pipeline which is supplied by the Linbro Park Reservoir. The two PRV's within the water reticulation regulate the flow. Furthermore, the difference in elevation from the Linbro Park reservoir to the lowest point in Buccleuch is approximately 150m allowing sufficient static pressure in the supply main.

A proposed new Ø200 mm water pipe will be laid next to the existing council water main from the intersection of Argyle Ave (Buccleuch) and the northern boundary of Frankenswald Ext 27. This new Ø200 mm water main will connect into the existing Ø400 mm water main.



**Figure 12:**  
**Water pipeline crossing layout**

### 5.7.5 Waste Management

Solid waste that is generated during both the construction and operational phases of the development will be catered for via the on-site waste receptacles which will be carted off to a registered landfill site.

It is integral to take note that waste receptacles should be placed at least 100m away from any drainages lines.

Solid, industrial, and hazardous wastes as well as the recycling of material will be transported via the City of Johannesburg Local Municipality in accordance with the Municipal by-laws.

Domestic waste will be removed by the City of Johannesburg (CoJ) and disposed of at a registered landfill site.

### **5.7.6 Electricity**

Electrical cable lines will be installed within the sleeves of the bridge for purposes of supplying electricity to the development and for telecommunication services. The cable crossings within the bridges are proposed to be installed in the pipe ducts.

Please refer to Annexure E of the WULA for the method statement and layout plans for the electrical cable lines.

**Please take note, as Environmental Consultants, we have applied for the electrical cable lines as we consider it important to rather include this information, and the DWS are requested to advise further.**

In addition regarding the development overall, north orientation was specifically considered in the design and layout of the residential units in order to maximize natural light and heat and accordingly curb the use of electricity and this is a more environmentally friendly green initiative.

### **5.7.7 Fire**

Fire management will be dealt with accordingly as per the procedures that are set out in the FBAR and the FEMP. It is integral that fire extinguishers are placed at easily accessible areas in the filling station.

## **5.8 Archaeology and/ or Cultural History**

No artefacts of cultural heritage were identified on the proposed development's site. Although, no significant cultural or historical artefacts were identified, should the event occur where a cultural or heritage artefact has been identified, all construction works are to cease and a heritage specialist must be contacted to investigate the site.

## **5.9 Landscaping within the extent of a watercourse**

As a part of the construction of the proposed development, landscaping effects will be implemented to compliment the aesthetic appeal of the residential development. The activities will be within the extent of a watercourse.

LYT Architects have been appointed by Balwin Properties Limited to assist with the development layout from a functional perspective. This layout plan has been scrutinized and the inputs from all of the role players and specialists involved have been incorporated into the final plan.

Note: The final layout plan has included the off-set agreement and excludes the grassland areas however conserves the watercourse and associated buffer areas.

Storm water management concepts are also included in the layout, and the layout now includes in stream attenuation and the discharge of storm water by means of smaller storm water pipes just above the watercourse buffer and into smaller stilling basins. From here, the water in the stilling basins will be filtered by the proposed rocks and wetland vegetation that will be implemented in the buffer zone area.

There will be no significant earthworks required for the implementation of the landscaping (water filter features), in the buffer zone.

Overall, the upgrading of the old existing dam will assist in alleviating erosion and siltation and will furthermore not only improve the ecological system, however, it will also contribute to the beautification of the development and the surrounding area.

***Please take note that the GPS coordinates for landscaping features for this development have not been confirmed as yet as the landscaping is still in the design phase. This will be provided at a later stage. However, it is requested that the DWS continue to process and evaluate this WULA.***

## 6. WETLAND DELINEATION AND MANAGEMENT

Bokamoso's Specialist's Division conducted the wetland delineation for Jukskei View Extension 128 and its associated impacts of current and future land uses.

The proposed development's activities will occur within the extent of a watercourse, i.e. the 1: 100 year floodline, or riparian habitat, whichever is the greatest, and/ or within a 500m radius from the boundary of a wetland. Thus, the proposed activities will require a Section 21 (c) and (i) Water Use application. We therefore regarded it as very important to investigate the study area and to confirm whether the possible wetlands identified by the specialist will be affected by the

proposed development's activities, in such a way that the wetlands' ecological status and integrity will be diminished. The wetlands' may also be interconnected and interrelated to other water resources in the surrounding landscape, and may be interdependent on each other.

### **Soil characteristics of the study area**

The different soil types that were encountered for on the site are longlands' within the seasonal and the temporary zone, wasbank within the terrestrial zone and approaching the temporary zone, glenrosa within the terrestrial zone, and the permanent zone consists of a flowing stream.

### **Floral species on the site**

Within the permanent zone of the wetland, floral species such as the *Schoenoplectus sp*, *Typha capensis* of which is medicinal in nature, the *Arundo donax* and the *Phragmites australis* were identified. Within the seasonal and/ or temporary zone species such as the *Verbena bonariensis* and the *Berkheya radula*, to name a few were identified.

### **Wetland delineation**

The site contains a channelled valley bottom wetland that has been categorized with a Present Ecological Status of C which indicates that the wetland is moderately modified, however, with some loss of natural habitat. This PES score of C is due to the stream that enters the Jukskei River which is currently in a critically modified state due to its reduced water quality.

### **Recommendations made by the specialist:**

- That the delineated wetland be excluded from the development;
- Due to the hydrology of the area, a buffer zone will be considered insignificant as it will contribute very limited protection of the wetland, and should be removed.
- The main focus should be placed on rehabilitation and upgrading of the watercourse.
- The development should focus on the rehabilitation of the wetland and maintenance and sustenance of its functionality.
- It is integral to further note that development should always be designed outside of the floodlines in order to reduce the risk of flooding. This is due to the fact that wetlands on the Halfway House granite dome cannot attenuate flooding

## 7. APPLICATION FOR WATER USE LICENCES

As mentioned the study area falls within the Department of Water and Sanitation's **A21C Quaternary Catchment Area**, which covers a total area of 816,5km<sup>2</sup> and falls within the **Crocodile (west) and Marico Management Area**.

Water Use License Applications (WULAs) to be applied for in terms of Section 21 of the National Water Act (NWA), 1998 (Act 36 of 1998) include:

- Section 21 (a) 'Taking water from a water resource'
- Section 21 (b) 'Storing of water'
- Section 21 (c) 'Impeding or diverting the flow of water in a watercourse'
- Section 21 (d) 'Engaging in a stream flow reduction activity'
- Section 21 (e) 'Engaging in a controlled activity'
- Section 21 (f) 'Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit'
- Section 21 (g) 'Disposing of waste in a manner which may detrimentally impact on a water resource'
- Section 21 (h) 'Disposing in any manner of water which contains waste from, or which has been heated in any industrial or power generation process'
- Section 21 (i) 'Altering the bed, banks, course or characteristics of a watercourse'
- Section 21 (j) 'Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people'
- Section 21 (k) 'Using water for recreational purposes'

A pre-consultation meeting was held with an official of the Department of Water and Sanitation on 31 August 2016 in order to confirm which water uses were triggered by the proposed Waterfall Fields to be known as Jukskei View Extension 128 residential development. **Refer to Annexure A6.**



## Section 21 Applications for Balwin Properties Ltd

This Application is for the following applications:

### i) Section 21 Water-Use Licenses

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

## 7.1 Development

### 7.1.1 Description of the Proposed Development

The proposed residential development will cover an area of 14.05671 ha in extent. The proposed development will consist of the following land uses in the township: Erven 1 and 2 are to be zoned Residential 3, and Erf 3 is to be named Private Open Space. The development proposal is for a secure, medium cost affordable housing and "special" erven for various purposes. The proposed development can be regarded as a private township with roads and private open spaces.

### 7.2 Importance of the Proposed Development

The proposed land use for the development is regarded as in line with the surrounding land uses. If planned and managed correctly, the proposed development will enhance the "Sense of Place" and the security of the study area and its surroundings.

The site forms part of the bigger Farm Waterval which over the years has been developed with a combination of land uses to provide for the need identified in this area. It is also a well-defined pocket of land which is centrally located within the greater Johannesburg area, with Midrand in general to the north, Johannesburg suburbs to the south and west and Kempton Park to the east.

The site is situated within a rapidly growing area strategically located in close proximity to Maxwell Drive, the N1 Freeway, the proposed K60 and K101 Provincial Roads and Allandale Road.

The Farm Waterval and the broader surrounding area have been rapidly expanding as a part of the greater Johannesburg area. Included in these developments are a number of non-

residential townships and other towns that are in the process of being established. The site overall offers easy and convenient access to the highway, employment opportunities and to social amenities.

The proposed development will cater for all types of housing and for different income groups of the population.

The establishment of the proposed site will also offer the opportunity for the watercourse area to be rehabilitated and maintained as a private open space.

The proposed development will have a positive impact on the social, ecological, and economical environments.

## 8. WATER USES

When looking at the proposed development, the following civil services will impede on the sensitive areas:

### **8.1. Section 21 (c) water use: Impeding or diverting the flow of water in a watercourse**

There are specific activities that will lead to the impedance or diversion of the flow of water in the associated watercourse and wetland areas.

**Please also refer to Annexure A1 for the list of coordinates and reference numbers provided by the engineer that is to be read in conjunction with the figures provided.**

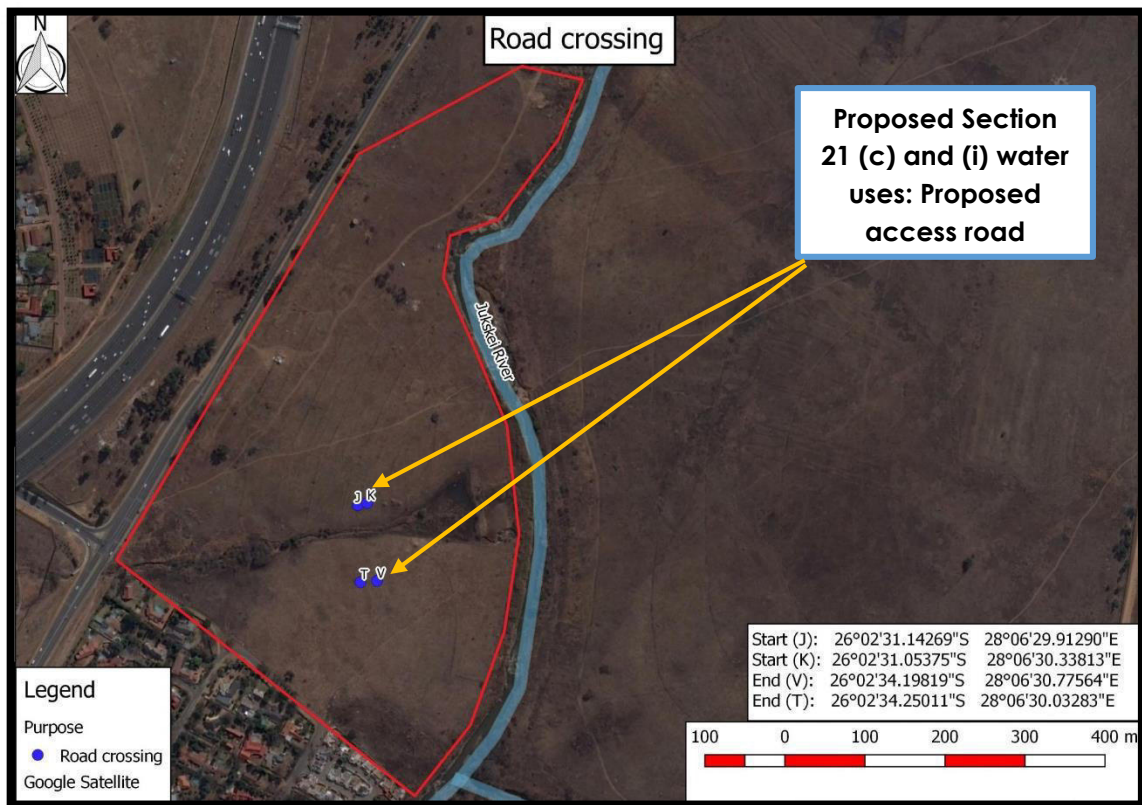
#### **Access road**

Access to the development will be via a proposed road off Maxwell drive which in future will be extended to the east.

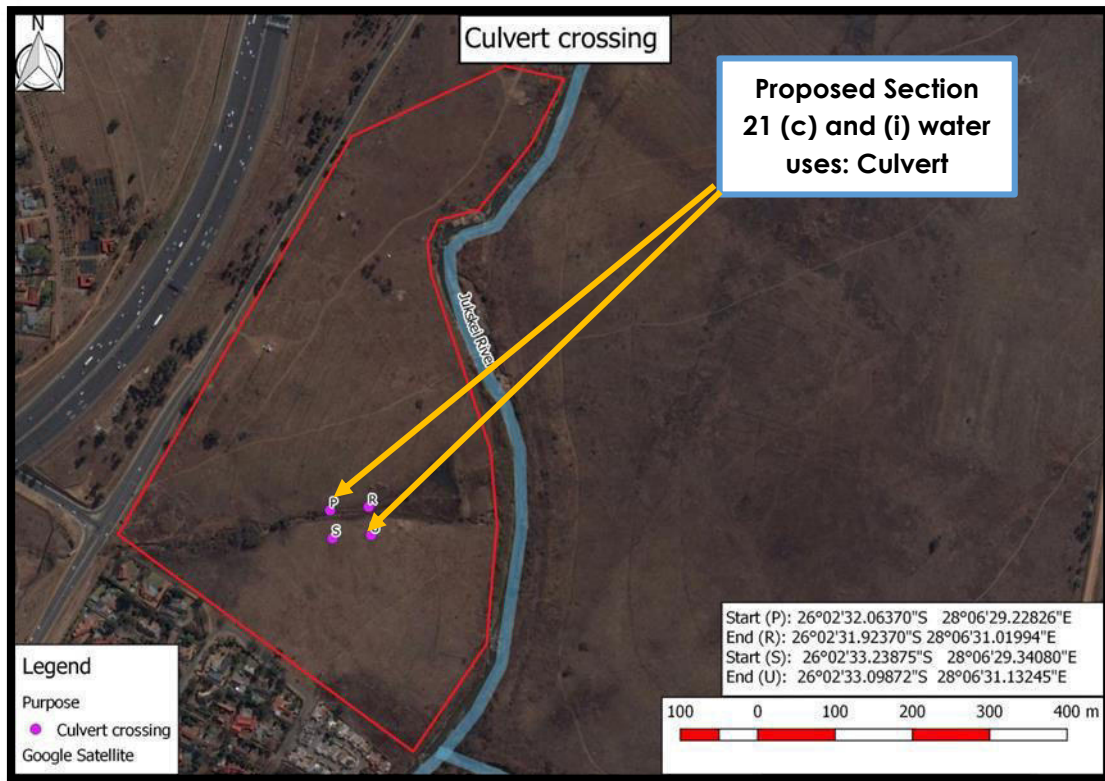
The proposed access road will cross the stream and associated wetland located on the southern portion of the site.

The stream located on the southern portion of the site flows west to east into the Jukskei River which is located to the east of the site. The proposed development will require the construction of a bridge over the watercourse.

Refer to **Figure 14** below which illustrates the proposed access road and **Figure 15** which illustrates the proposed culvert traversing the wetland.



**Figure 13:**  
**Proposed access road crossing**



**Figure 14:**  
**Proposed culvert crossing**

### Storm water

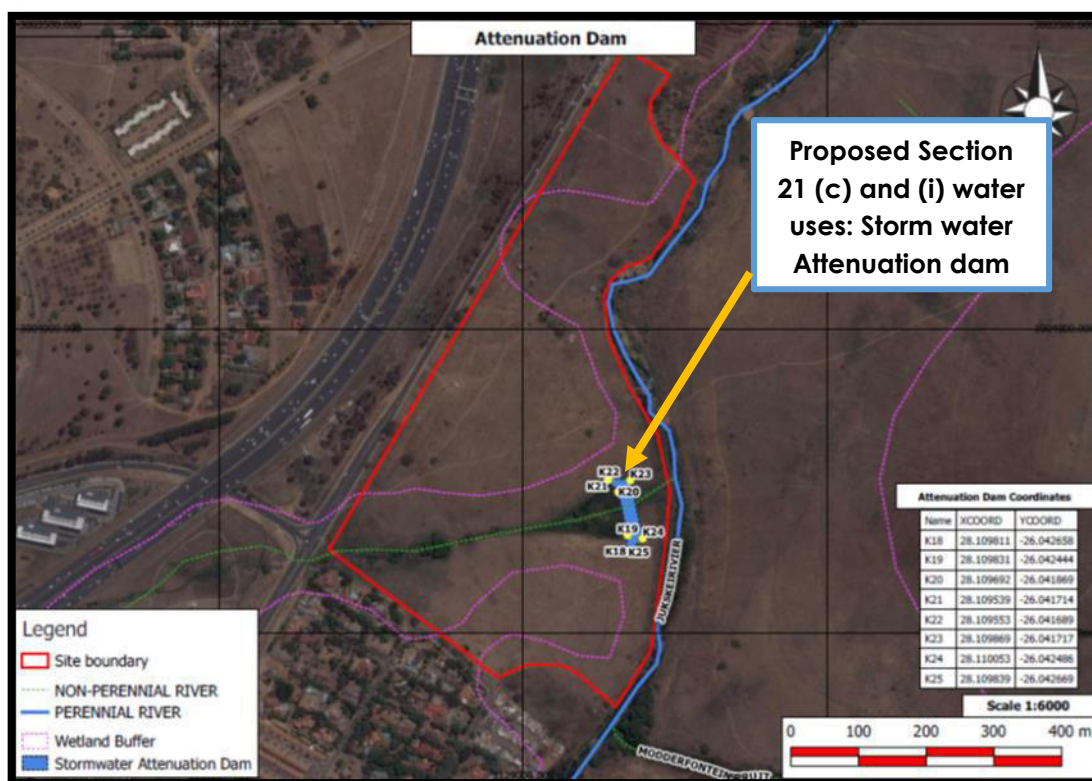
#### Refer to item 5.7.2 above

The storm water for the development overall is to be managed and maintained by a Section 21 company and the underground storm water system is designed for a 5-year recurrence interval, and the roads will perform as an overflow channel that will manage and control all storms that exceed the 1: 5 year recurrence.

The attenuation feature will be located on the footprint of the historical dam with the embankments and the footprint still visible in the riparian zone. The idea is for storm water management for this development is to entail smaller pipes that are evenly distributed throughout the study area and the aim is achieve maximum energy dissipation and reduce erosion. This will be achieved by a man-made biological filtering system consisting of a combination of smaller rocks or stones and certain wetland vegetation.

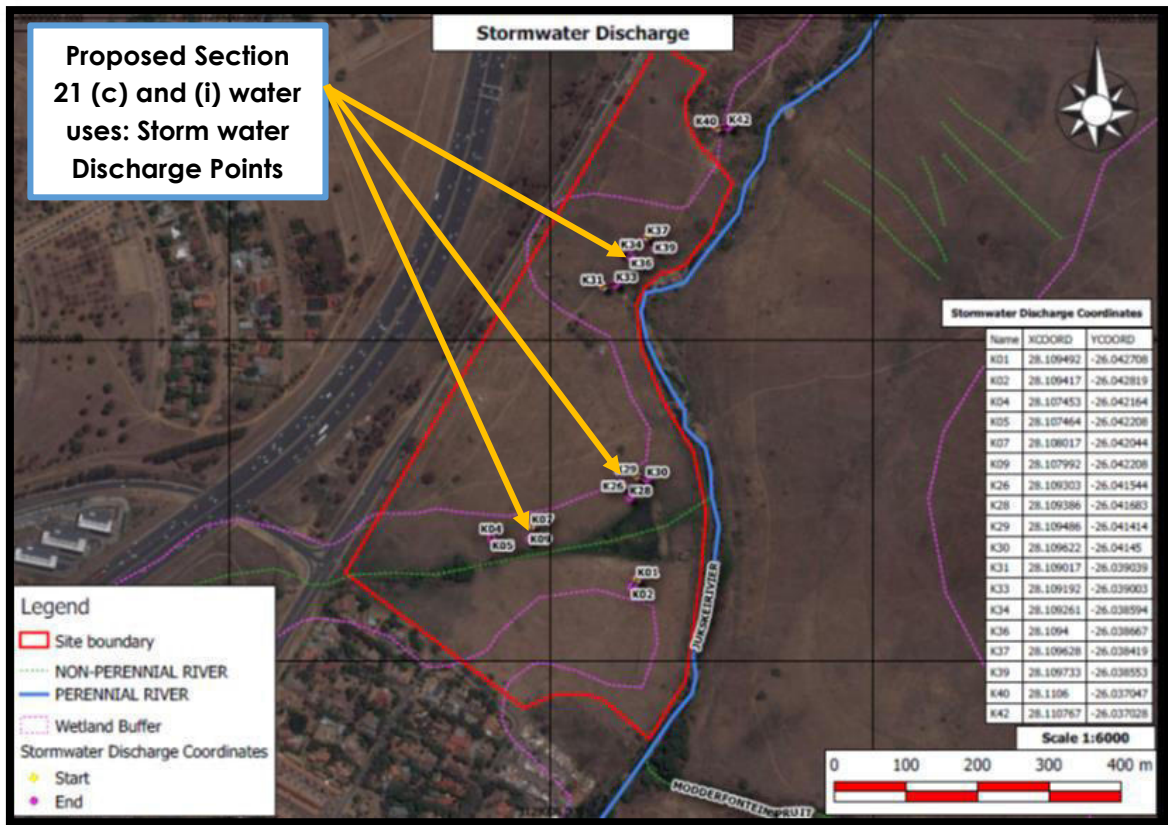
It is integral to note that storm water from the attenuation dam will discharge into the Jukseki River, and will pass through energy dissipating structures to reduce the velocity to less than 1.0m/s in order to counteract any erosion.

**Please refer to Figure 16 below which illustrates the proposed attenuation pond and Figure 17 which illustrates the storm water discharge points.**



**Figure 15:**  
**Proposed attenuation dam**

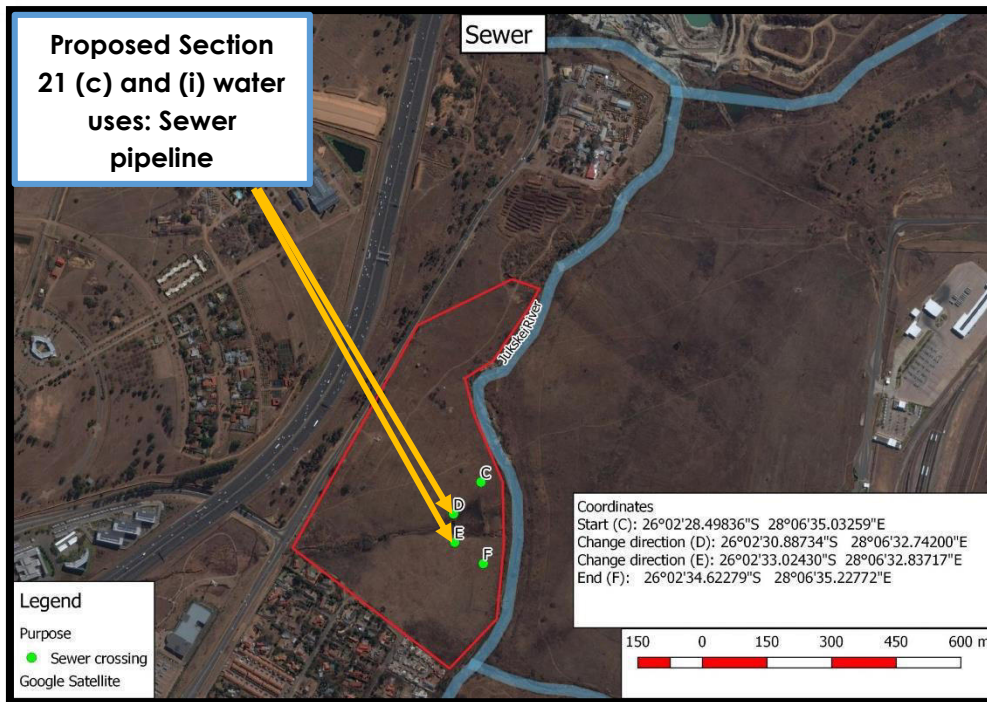




**Figure 16:**  
Proposed storm water discharge points

**Sewer pipeline**

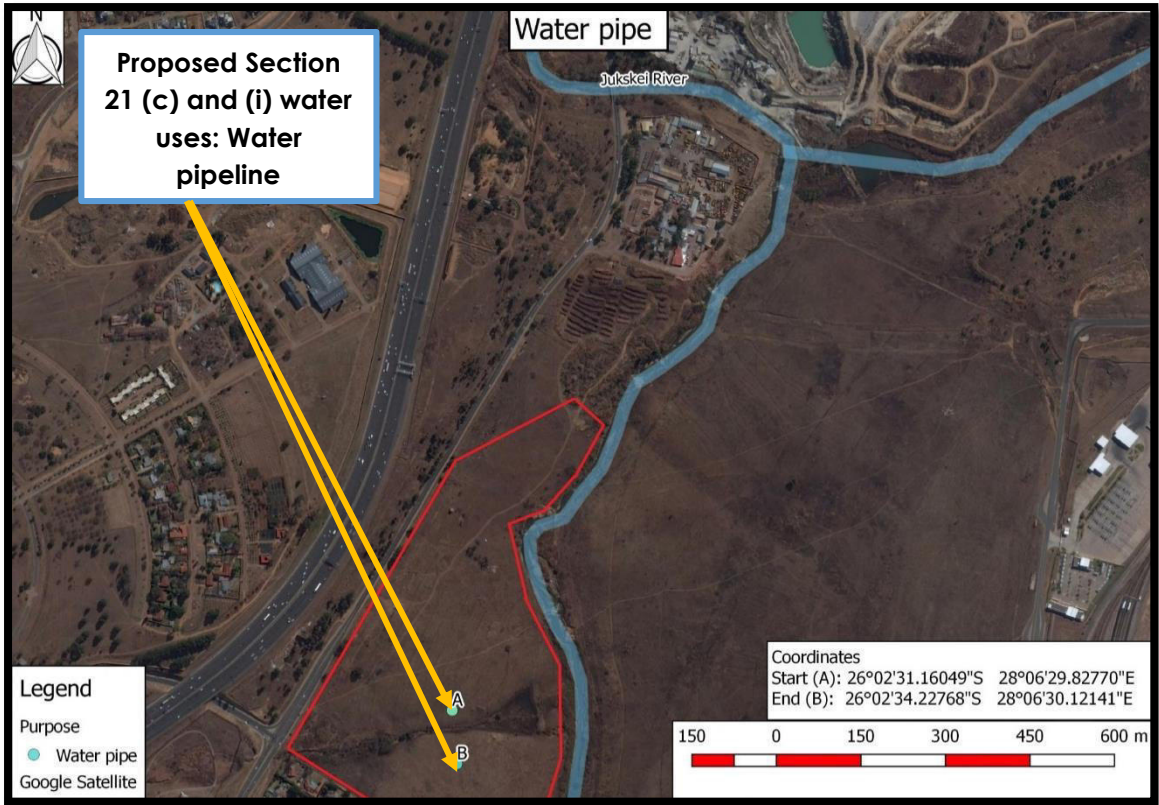
The 160mm sewer pipeline will traverse the watercourse as illustrated in Figure 18 below.



**Figure 17:**  
**Proposed sewer pipeline**

### Water pipeline

A new Ø200 mm water pipe will be laid next to the existing council water main from the intersection of Argyle Ave (Buccleuch) and the northern boundary of Frankenwald Ext 27. This new Ø200 mm water main will connect into the existing Ø400 mm water main.



**Figure 18:**  
**Proposed water pipeline**

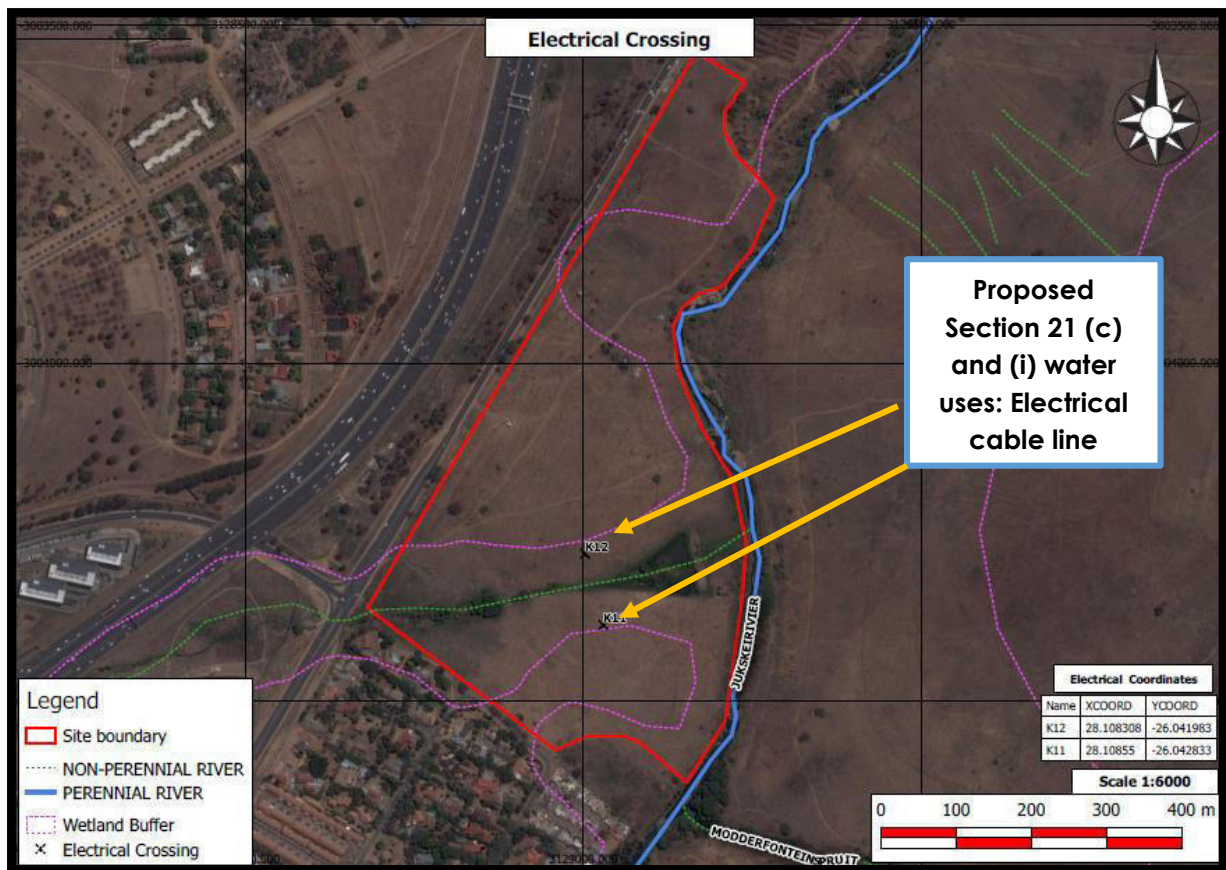
### Electrical cable lines

The electrical cables will be installed within the sleeves of the bridge. The proposed sleeves of the bridges is 4 X 100 diameter sleeves and will contain the 2 x red 7 Way 14/10mm microduct - nominal outside diameter 42mm cable line.

The other proposed sleeves of the bridge is 4 X 160 diameter sleeves and will contain the 2 x 300mm<sup>2</sup> Al 3 core XLPE insulated PVC bedded, SWA, PVC sheathed 11kV cables - nominal outside diameter 86mm cables.

Please refer to Figure 20 below for an illustration of the positioning of the electrical cable lines.





**Figure 19:**  
**Proposed electrical cable lines**

**8.2 Section 21 (i) water use: Altering the bed, banks, course or characteristics of a watercourse**

Stockpiling of topsoil in the incorrect areas such as the flood line areas and the wetland and the wetland buffer zone areas can lead the soil to be eroded and wash away into the watercourse.

Surface runoff during the construction phase may lead to soil erosion, and possible erosion, siltation and water pollution at storm water discharge points during the operational phase.

During the construction phase, construction works for the proposed services (adjacent to the drainage lines, flood lines, wetland area, or where river crossings are required, could lead to the damage of the abovementioned wet areas when very wet conditions occur.

The removal of vegetation coverage, increased hard surfaces and increased erosion, surface water pollution and siltation problems, the development will add a large amount of hard surfaces such as paving and structures with rooves to the study area. The proposed development will also lead to the compaction of soils. The soil layers will thus become less permeable, storm water will be canalized rather than evenly spread. The quantity and speed of the storm water will increase significantly and the quality of the surface water will deteriorate, due to the lack of vegetative cover. Erosion, sedimentation and siltation may also become an issue.

The area of concern is the drainage lines and wetland zones that are on the study area. The riparian area is particularly susceptible to erosive conditions and poor storm water management may lead to a rapid reduction in vegetation cover.

Should contaminated storm water run-off from roads not be managed, it could lead to surface and ground water pollution. Bio-swale and bio-filters could be installed to minimize the risk of pollutants entering the natural drainage system of the area.

Regarding the road to cross the Jukskei River, construction works in the drainage line could cause siltation and water pollution. It could also lead to the destruction of the vegetation along the embankments.

The dumping of builders' rubble and other waste in the areas earmarked for exclusion such as the open space could cause damage to the sensitive areas or total destruction of these areas.

## 9. IMPACT ASSESSMENT AND MANAGEMENT

The table below serves as an assessment of impacts per phase, associated with each environmental attribute listed under point **5. Environmental concerns** were assessed based on their potential impacts in terms of status, extent, duration, magnitude, and probability. Mitigation measures were identified for each potential impact in order to reduce its significance. Responsibility for implementation of each mitigation measure was assigned to a responsible person.



Monitoring of the mitigation measures to be implemented in accordance with this management plan will resort with the Environmental Control Officer (ECO) appointed in accordance with the Environmental Authorisation (EA). Any reporting required in terms of the EA will be done by the appointed ECO.

**Table 2: Impacts and mitigation and/ or control measures**

<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Geohydrology &amp; water quality</b>	<b>Pollution of groundwater and the river by contaminated run-off</b>	Potential spills from chemical toilets might contaminate the river.	<b>Sufficient number of portable ablution facilities</b> to be catered for in the <b>budget</b> at each construction site. Camp site layout including ablution may not be within 100m from the river or within 500m from a wetland.	Civil contractor
		Potential spills from temporary hazardous substance storage areas contaminating the river.	<b>Sufficient bunded area(s) for hazardous substances storage</b> is to be catered for as part of the <b>camp site layout</b> .	Civil contractor
<b>Soil</b>	<b>Loss of topsoil</b>	Fertile topsoil can potentially be lost due to poor conservation thereof during construction activities	<b>Removal and stockpiling of topsoil</b> to be planned for in the design phase in order conserve fertile topsoil for rehabilitation purposes. A detailed <b>Rehabilitation Plan</b> to be compiled to cater for rehabilitation using stockpiled topsoil.	Civil contractor EAP
		Red data species might be encountered within the development footprint  A qualified flora specialist must assist with the relocation of the Orange Listed species the <i>Hypoxis</i> sp that was identified on the site.	<b>An ecological assessment</b> was conducted of the study area which confirmed that the potential for species of conservation concern occurring within the development footprint, exists.  It is recommended that an Intensive <b>Floral survey be conducted</b> during the <b>flowering season</b> . Developer to <b>budget for Floral survey</b> prior to construction commencing.	Developer/ EAP
		Alien species along the riparian zone	<b>Removal of alien vegetation</b> within the development footprint is to be included in the <b>Rehabilitation Plan</b> .	EAP
<b>Wetlands</b>	<b>Negative impact on sensitive habitat and watercourse</b>	Poor installation and protection could result in scouring and siltation of wetlands.	The developer (water user) should <b>appoint a wetland specialist as the ECO</b> to ensure impacts to wetlands are minimal and suitably and effectively rehabilitated.	Developer

Design & Planning phase				
Environmental attribute	Environmental concern	Potential impact & significance	Mitigation measure and mechanisms for implementation	Responsibility
Environmental legal compliance	Environmental damage	Environmental damage due to legal non-compliance in terms of rehabilitation and monitoring.	Developer to ensure sufficient budgetary provision is made for all aspects related to environmental legal compliance e.g. appointment of specialists, implementation of environmental management plan and IWQQMP, Rehabilitation programme, alien plant eradication programme, storm water management plan, ECO, waste management etc.	Developer
Hydrology & water quantity	Ecological reserve and downstream users	Impeding the flow of the Jukskei River could potentially impact on downstream water users or the ecological reserve.	The developer (water user) must ensure <b>acceptable construction practices are included in the bulk sewer design</b> to ensure consistent, effective, and sustainable impedance or diversion flow.	Developer
			<p>The following <b>measures are to be included into the construction contract.</b></p> <p>Contractor to take measures to ensure:</p> <ul style="list-style-type: none"> <li>the <b>stability</b> of the watercourse is not detrimentally affected by impeding or diverting the flow;</li> <li><b>scouring, erosion or sedimentation</b> of the watercourse is <b>prevented</b>; and</li> <li><b>Rehabilitation</b> of the watercourse, including riparian and in stream habitat, is undertaken after any impedance or diversion of flow.</li> </ul> <ul style="list-style-type: none"> <li>The proposed bridge structure must be designed to allow for the minimum disturbance to surface water flows. The effective management of surface drainage and the prevention of erosion and siltation during the bridge construction phase must also be addressed. Temporary measures to prevent such impacts must be prescribed and implemented prior to disturbing the area. The construction phase measures must be discussed with DWS and CoJ prior to the implementation of such measures. The compilation of a specific bridge</li> </ul>	Developer

			construction rehabilitation plan after the finalisation of the type of bridge structure to be implemented, must be a requirement.	
<b>Water quality</b>	<b>Pollution of the river by waste</b>	Potential for polluting the river by domestic waste or hazardous waste ending up in the river if not properly managed.	<b>Waste storage areas</b> (domestic and hazardous) are to be demarcated within the <b>camp site</b> . To be catered for in the camp site layout. The camp may not be located within the aquatic buffer zone.	Civil contractor
	<b>Ecological reserve and downstream users</b>	The impedance caused by construction activities could potentially result in downstream scouring and erosion.	The following <b>measures are to be included into construction contract</b> .  Contractor to install reno mattresses directly downstream of the development to prevent scouring and erosion.	Civil contractor

<b>Design &amp; Planning phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Human and Ecological Health</b>	<b>Damage to infrastructure and resultant health impact</b>	Considering the development will be installed through watercourses leaks in certain of the infrastructure could impact on human health and ecology.	The developer (water user) must ensure that a suitably qualified engineer is appointed and <b>acceptable construction practices are included in the design, storm water management, and rehabilitation</b> , to ensure stability of structures constructed.	Developer

<b>Areas of conservation importance</b>	<b>Conservation of areas of conservation importance</b>	<i>Destruction of areas of conservation importance e.g. wetlands.</i>	<b>Infrastructure that could pose an adverse impact should be designed to be located outside the 1:100 year flood line of the Jukskei River in order to minimise impact on sensitive areas.</b>	Civil contractor/ ECO
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<b>Pre-construction phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Areas of conservation importance</b>	<b>Conservation of areas of conservation importance</b>	Destruction of areas of conservation importance	<b>All areas identified as areas of conservation importance to be demarcated as No-Go areas and managed accordingly.</b>	Civil contractor/ ECO
<b>Protected Fauna and Flora</b>	<b>Conservation of species of conservation importance</b>	Destruction of species of conservation importance	All construction personnel are to be made aware by means of <b>training</b> of the potential <b>species of conservation importance</b> that might be encountered within the development footprint, and that the ECO should be informed if any protected species are encountered.	Civil contractor/ ECO
<b>Protected Flora</b>	<b>Conservation of Flora species of conservation importance</b>	Destruction of flora species of conservation concern	<b>Development footprint</b> running along and across watercourses to be <b>pegged</b> at 50m intervals to denote development footprint.	Civil contractor
			An <b>Ecologist to Search &amp; Rescue</b> flora identified during <b>Floral survey</b> (Planning phase) occurring within the development footprint, within 10m on both sides from the centre line of the development. Rescued flora to be relocated to a similar habitat in the surrounding area.	Developer/ ECO

<b>Construction phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Hydrology &amp; water quantity</b>	<b>Altering flow pattern or volume of water</b>	Construction activities within the watercourse could potentially alter the flow and volume of water in the river and wetland	Construction to be planned for winter season as to minimise impact on watercourses.	Developer/ Civil contractor
<b>Geohydrology &amp; surface water quality</b>	<b>Possibility of polluting groundwater and the river by contaminated run-off</b>	Potential spills from chemical toilets might contaminate the river.	Temporary <b>ablution facilities must be cleaned out regularly.</b> Sewage waste is to be disposed of at a registered sewage works. Record of proof of safe disposal to be kept at the site camp.	Civil contractor
		Potential spills from temporary hazardous substance storage areas might contaminate the river	<b>Hazardous substances storage</b> is to be inspected daily for any leaks and spills. Spills to be cleaned up and stored in <b>designated temporary hazardous waste storage area.</b>	Civil contractor
		Potential spills from mobile plant.	<b>Mobile plant</b> is to be provided with <b>drip trays</b> when parked.  <b>Mobile plant</b> to utilise <b>emergency spill kits</b> for cleaning up hazardous spills.	Civil contractor
<b>Soil</b>	<b>Loss of topsoil</b>	Fertile topsoil can potentially be lost due to poor conservation thereof during construction activities.	Recommendations related to construction phase activities as documented in the <b>Rehabilitation Plan</b> to be implemented.	Civil contractor/ ECO

<b>Flora</b>	<b>Alien species within the development footprint</b>	Alien species along the riparian zone	During construction any <b>invasive species</b> encountered should be <b>removed</b> .	Civil contractor/ ECO
<b>Construction phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Water quality</b>	<b>Pollution of river by domestic waste</b>	Potential for polluting the river by domestic waste or hazardous waste ending up in river if not properly managed	<b>Temporary designated domestic waste and hazardous waste storage areas</b> are to be cleaned out regularly by a certified waste removal company. Domestic waste is to be disposed of at a registered landfill site. Hazardous waste is to be disposed of at an appropriate class h: landfill site.	Civil contractor
	<b>Ecological reserve and downstream users</b>	The temporary impedance caused by the construction of the development could potentially result in downstream scouring and erosion and siltation of the wetlands.	Contractor to <b>install Reno mattresses directly downstream</b> of the development where it crosses a watercourse to prevent scouring and erosion and possible damage to infrastructure.	Civil contractor
<b>Aesthetic</b>	<b>Dust generation</b>	Potential air pollution – nuisance dust – due to travelling on cleared surfaces	<b>Water carts</b> are to be used for <b>dust suppression</b> on all gravel roads used to cart aggregate as well as on the roads being constructed during the construction phase with the purpose of preventing dust from becoming airborne.	Civil contractor
<b>Geology and soils</b>	<b>Damage to topsoil and seed banks</b>	Potential of damaging topsoil and seed bank contained in it, if heavy mobile plant were to drive over water logged soils following heavy or prolonged precipitation.	<b>Construction vehicles may not drive over topsoil</b> stockpiled or over soil outside the development footprint following heavy precipitation or pro-longed precipitation. Development footprint must be clearly demarcated in order to prevent 'off-roading'.	Civil contractor

<b>Construction phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Archaeology</b>	<b>Destruction of cultural heritage artefacts</b>	Possible unearthing of finds or structures of cultural historical importance during construction activities.	If any <b>cultural historical finds are unearthed</b> during construction activities, <b>construction should cease</b> and a suitably qualified archaeologist called in to assess and document the find. Construction may only commence once ECO gives go-ahead.	Civil contractor/ ECO
<b>Areas of conservation importance</b>	<b>Conservation of areas of conservation importance</b>	<i>Destruction of areas of conservation importance e.g. wetlands.</i>	<b>All No-Go areas are to be managed accordingly and continuously monitored to ensure conformance.</b>	Civil contractor/ ECO
<b>Protected Fauna and Flora</b>	<b>Conservation of species of conservation importance</b>	Destruction of species of conservation importance	If any <b>species of conservation importance</b> are encountered within the development footprint an <b>ecologist</b> should be called in to <b>relocate</b> the species to a similar habitat in the surrounding area which will not be impacted by the development.	Civil contractor/ ECO
<b>Water quality</b>	<b>Protection of water resources</b>	Pollution of water resource if sewerage system fails	<b>Sewer pipeline should be encased</b> to prevent pollution of water resources in case of damage to the pipeline.	Civil contractor
<b>Wetlands</b>	<b>Erosion and siltation</b>	Poor storm water management could lead to erosion of and siltation within wetlands.	<b>Appropriate storm water mitigation</b> should be implemented throughout the construction site from the start to the completion in order to counteract storm water surges.  <b>Traps to contain sediment</b> to be implemented throughout the site to counteract sediment runoff and sediment accumulation getting washed into the wetland.	Civil contractor/ ECO

<b>Site de-establishment phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Soil</b>	<b>Loss of topsoil</b>	Fertile topsoil can potentially be lost due to poor conservation thereof during construction activities.	<b>Reinstate topsoil</b> at site camp and disturbed areas once de-established, and seed with local seed mix specific to flora occurring within the development footprint, <b>only if natural re-generation does not occur.</b> This is recommended due to the ecological sensitivity of parts of the development footprint.	Civil contractor/ ECO
<b>Geohydrology &amp; water quality</b>	<b>Pollution of groundwater and the river by contaminated run-off</b>	Potential spills from chemical toilets might contaminate the river.	Temporary <b>ablution facilities must be cleaned out and removed from the site camp.</b> Sewage waste is to be disposed of at a registered sewage works. Record of proof of safe disposal to be kept at the site camp.	Civil contractor
		Potential spills from temporary hazardous substance storage areas might contaminate the river.	<b>Hazardous substances storage</b> area(s) is to be demolished.	Civil contractor
		Potential spills from mobile plant.	<b>Mobile plant</b> and construction equipment is to be removed from site.	Civil contractor
<b>Water quality</b>	<b>Pollution of river by domestic waste</b>	Potential for polluting the river by domestic waste or hazardous waste ending up in the river if not properly managed	<b>Temporary designated domestic waste and hazardous waste storage areas</b> are to be demolished and waste to be removed by a certified waste removal company. Domestic waste is to be disposed of at a registered landfill site. Hazardous waste is to be disposed of at a class h: landfill site.	Civil contractor
<b>Aesthetics</b>	<b>Construction work signs and structures</b>	Visual impact of temporary road signs and structures	<b>All temporary road signs and structures are to be removed from site.</b>	Civil contractor



<b>Rehabilitation phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Hydrology &amp; morphology</b>	<b>Change in the river morphology, scouring and siltation</b>	Erosion, siltation, and surface water pollution. Damage to the river morphology.	Contractor to take measures to ensure:  <b>Rehabilitation</b> of the watercourse, including riparian and in-stream habitat, is sufficiently and effectively undertaken after any impedance or diversion of flow.	Civil contractor/ ECO
<b>Soil</b>	<b>Loss of topsoil/erosion and siltation</b>	Fertile topsoil can potentially be lost due to poor conservation thereof during construction activities.	Stockpiled topsoil to be utilised for rehabilitation purposes in accordance with the <b>Rehabilitation Plan</b> .	Civil contractor
<b>Flora</b>	<b>Alien species within the development footprint</b>	Alien species occurring along the riparian zone and where disturbances (construction) have taken place	Any <b>alien or invasive vegetation</b> remaining within the development footprint during the rehabilitation phase, especially in areas disturbed and along watercourses shall be <b>removed</b> .	Civil contractor
<b>Wetlands</b>	<b>Damage to sensitive habitat and watercourse</b>	Poor rehabilitation could result in scouring and siltation of wetlands.	<b>The ECO</b> to ensure rehabilitation of watercourses affected in accordance with <b>Rehabilitation Plan</b> .	ECO/ Civil contractor

<b>Operational Phase</b>				
<b>Environmental attribute</b>	<b>Environmental concern</b>	<b>Potential impact &amp; significance</b>	<b>Mitigation measure and mechanisms for implementation</b>	<b>Responsibility</b>
<b>Groundwater quality</b>	<b>Pollution of groundwater resource</b>	Sewerage leaks, inefficiently managed storm water and chemical leaks could pollute groundwater	Storm water management plan to be implemented.	Developer
<b>Human and Ecological Health</b>	<b>Damage to infrastructure and resultant health impact</b>	Leaking sewerage line, and inappropriately maintained infrastructure could impact health of humans and the ecology.	The <b>City of Johannesburg Metropolitan Municipality to conduct frequent inspections</b> of the sewerage line to ensure integrity and prevent pollution of water resources.	City of Tshwane
<b>Rehabilitation</b>	<b>Habitat destruction</b>	Insufficient recovery of rehabilitated areas	<b>Undertake Annual Habitat Assessment Study for three years</b> to confirm rehabilitation is stable in accordance with GN 1199.	Developer
<b>Rehabilitation</b>	<b>Habitat destruction</b>	Instability and erosion of rehabilitated structures	<b>Rehabilitated structures must be inspected regularly</b> for blockages, instabilities, and erosion.	Developer

## 10. ASSESSMENT FACTORS

Section 27 motivation for the issuance of a Water Use License as determined by the National Water Act (NWA), 1998 (Act 36 of 1998) in terms of Section 21 of the Act.

**Table 3: Assessment Factor for the evaluation of a Water Use Application**

SEC. 27	ASSESSMENT FACTOR	RESPONSE
(a)	'Existing lawful water uses'	- Refer to Section 4 above for a discussion regarding the ELU.
	The need to redress the results of past racial and gender discrimination'	- Balwin Ltd has previously and currently exercised fair racial and gender practices at their company.
(c)	The efficient and beneficial use of water in the public interest	<p>- As public trustee of the water resources, the Department of Water and Sanitation must ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all users.</p> <p>-The Minister, through the Department, has to ensure that the water is allocated equitably and used</p>

		<p>beneficially in the public interest, while promoting environmental values.</p> <p>-For the environment, only the water use which is beneficial and in the public interest will be recognized. This "beneficial use in the public interest" is the optimum balance of social, economic and environmental needs.</p> <p>Refer to item 7.2 above for the importance of this development.</p>
(d)	The socio-economic impact	
	<p>(i) of the water use or uses if authorised</p>	<p>- The approval of this license application will ensure that:</p> <ul style="list-style-type: none"> <li>• Affordability of the residential units to the lower income brackets;</li> <li>• Rates and taxes payable to the authorities;</li> <li>• Job creation;</li> <li>• Positive impacts on the values of the surrounding properties;</li> <li>• Compatibility of the proposed land use with the surrounding land uses;</li> <li>• Need and desirability of the proposed land use;</li> <li>• Economic viability of the proposed land use;</li> <li>• The proposed development will be in line with the international, national, provincial and local legislation,</li> </ul>

		<p>planning frameworks, guidelines, policies etc.;</p> <ul style="list-style-type: none"> <li>• Upgrading of provincial and local roads;</li> <li>• Economical injection to local businesses as more people will settle in the area.</li> </ul>
	(ii) of the failure to authorise the water use or uses	<p>The refusal of this license application would imply that:</p> <ul style="list-style-type: none"> <li>• No creation of temporary and permanent jobs through the proposed development;</li> <li>• No increase in adjacent land-values;</li> <li>• No rates and taxes payable to the local authority.</li> </ul>
(e)	<b>Any Catchment Management Strategy applicable to the water resource</b>	<p>- The Department of Water and Sanitation is responsible for setting the National Water Resource Strategy for South Africa. According to the available information, a Catchment Management Strategy (CMS) has not been developed yet.</p> <p>According to the available information, a Catchment Management Strategy (CMS) has not been developed yet.</p>
(f)	<b>The likely effect of the water use to be authorised on</b>	<p>1. The aquatic resources are situated in a highly urbanised area and it is likely that flows have already been severely affected due to channel and bed</p>



	<p><b>the water resource and other water users'</b></p>	<p>modifications, and large amounts of urban runoff. The runoff from the proposed development will be well attenuated to prevent additional impacts from erosion, resulting from urban runoff in the catchment. This is necessary to ensure the ongoing viability of the aquatic communities within and downstream of the proposed development.</p> <ol style="list-style-type: none"> <li>2. Discharge of runoff into the river system will make use of energy dissipating structures to prevent erosion.</li> <li>3. Adequate storm water management will be incorporated into the design of the proposed development in order to prevent erosion and associated sedimentation of the riparian zones.</li> <li>4. As much vegetation growth as possible will be promoted within the proposed development area in order to protect soils and to reduce the percentage of the surface area which is paved. Indigenous vegetation species will be the first choice during landscaping. Bank vegetation cover will be monitored to ensure that sufficient vegetation is present to bind the bank side soils and prevent further bank side erosion.</li> </ol>
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		<ol style="list-style-type: none"> <li>5. The crossings of drainage lines will ensure that the creation of turbulent flow in the system is minimised, in order to prevent downstream erosion.</li> <li>6. Any areas where bank failure is observed, due to the effects of any crossings, will immediately be repaired.</li> <li>7. Alien vegetation will be controlled along the wetland and riparian features.</li> <li>8. The connectivity of the riparian areas will be maintained between the areas upstream and downstream of the proposed development. As well as to ensure that permanent, seasonal and temporary wetland zones functionality is maintained through the provision of measures ensuring that soil wetting conditions are maintained.</li> <li>9. To ensure the ongoing functioning of the river areas in the vicinity of the proposed development.</li> <li>10. No incision and canalisation of the river system will take place.</li> <li>11. Rehabilitation of the wetland areas will be implemented to ensure continued functionality.</li> </ol>
(g)	<p><b>The class and resource quality objectives of</b></p>	<p>- Under Part 2 of the NWA, the Minister is required to use the classification system established in Part 1 of the Act to determine the class and resource</p>

	<p><b>the water resource</b></p>	<p>quality objectives of all or part of water resources considered to be significant.</p> <p>-The purpose of the resource quality objectives is to establish clear goals relating to the quality of the relevant water resources.</p> <p>-In determining resource quality objectives a balance must be sought between the need to protect and sustain water resources on the one hand and the need to develop and use them on the other.</p> <p>-Provision is made for preliminary determinations of the class and resource quality objectives of water resources before the formal classification system is established.</p> <p>-Once the class of a water resource and the resource quality objectives have been determined they are binding on all authorities and institutions when exercising any power or performing any duty under this Act.</p> <p>To our knowledge the class and resource quality objectives for the Jukskei River has not been developed yet. The DWS is to confirm the status.</p> <p>It is recommended that the current ecological state of the resource</p>
--	----------------------------------	--

		should be maintained and where possible, improved.
(h)	<b>Investments already made and to be made by the water user in respect of the water use in question'</b>	The Balwin Properties Ltd has so far made large investments in terms of professional fees (consultants, engineers, specialist, town planners, etc.).
(i)	<b>The strategic importance of the water use to be authorised'</b>	<p>The aim of this development is to provide an affordable, medium cost-housing estate with associated services and facilities for the immediate and surrounding community.</p> <p>The surrounding vicinity plays a significant role in terms of the N1 Highway, and increased employment opportunities. Development opportunities have been illustrated between the areas of Midrand and Sandton which optimizes the growth potential of both the City of Tshwane and the City of Johannesburg.</p> <p>Due to the fact that the current ecosystem with its associated river and wetland systems are severely degraded due to historical anthropogenic activities, the proposed development</p>

		will provide the opportunity for the affected watercourses to be rehabilitated and conserved as a private open space.
(j)	<b>The quality of water in the water resource which may be required for the Reserve and for meeting international obligations'</b>	<p>5.10.1 <u>Surface Water Quality</u></p> <p>Refer to item 5.4 above.</p> <p>5.10.2 <u>Groundwater quality</u></p> <p>As above.</p>
(k)	<b>The probable duration of any undertaking for which the water use is to be authorised</b>	As the investment is significant and the development will continue through to the operational phase, it is proposed that the licence be issued for the upper limit period of <b>40 years</b> .

## 11. PUBLIC PARTICIPATION

Public participation is one of the most important aspects of environmental authorization processes. People have the right to be informed about potential decisions that may affect them and that they must be afforded an opportunity to influence those decisions. Effective public participation also improves the ability of the competent authority to make informed decisions and result in improved decision making as the views of all parties are considered.

The public participation process provides the following:

- An opportunity for Interested and Affected Parties (I&APs) to obtain clear accurate and comprehensible information about the proposed activity, its alternatives or the decision and the environmental impacts thereof
- The opportunity for I&APs to indicate their viewpoints, issues and concerns regarding the activity, alternatives and/or decision
- The opportunity for I&APs for suggesting ways of avoiding, reducing or mitigation negative impacts of an activity and for enhancing positive impacts
- Enabling an applicant to incorporate the needs, preferences and values of affected parties into the activity
- Opportunities to avoid and resolve disputes and reconcile conflicting interests
- Enhancing transparency and accountability in decision making.

### 12.1 Public Participation for the Jukskei View Extension 128

For the Public Participation, **Refer to Annexure H**



Stakeholders (I&AP's) were notified of the **Water Use License Application Process** through:

- **A Site notice** that was erected at a prominent point on the study area. **Refer to Annexure H (i)**
- **Notices** were distributed to the surrounding land-owners and interested and affected parties by means of faxes, hand delivery and e-mail. **Refer to Annexure H (ii)**
- An **advertisement** was placed in a **local newspaper** on **20 October 2016**. **Refer to Annexure H (iii)**

During the Public Participation Process 3 **parties** registered as **Interested and Affected Parties (Refer to Annexure H (IV))**.

The following main issues and/ or concerns were raised:

**Please take note that no major issues were raised by any of the I&Aps. Please refer to the Comments and Issues Register for further information.**

## 12. CONCLUSION

Based on the above report, it is requested that the WULA be recommended for approval, however taking into cognizance the following recommendations:

- The bridge access road that will traverse the Jukskei River must be designed in such a manner that it will cause the least amount of impacts that is associated with the riverine and the ecological system;
- All proposed infrastructure that is to be implemented within the buffer area and the watercourse needs to be designed in such a manner so as to counteract erosion and siltation;
- The DWS needs to approve the attenuation concept that is proposed at the locality of the old dam and should also aim to reduce soil erosion;
- It is integral that the rehabilitation plan for the wetland and river is approved prior to construction of all infrastructure within the watercourse buffer and watercourse areas; and
- Prior to plant species being used as a part of rehabilitation of the area, it is crucial that the selected species are endemic and indigenous to the area.

# ANNEXURE B:

## FINAL BASIC ASSESSMENT REPORT





**FINAL BASIC ASSESSMENT  
REPORT**

**PROPOSED JUKSKEI VIEW  
EXTENSION 128**

**PART OF THE REMAINDER OF  
PORTION 1 OF THE FARM  
WATERVAL 5 IR, GAUTENG**

**OCTOBER 2016**

LEBOMBO GARDEN BUILDING  
36 LEBOMBO ROAD  
ASHLEA GARDENS  
0081  
P.O. BOX 11375  
MAROELANA  
0161  
Tel: (012) 346 3810  
Fax: 086 570 5659  
E-mail: [reception@bokamoso.net](mailto:reception@bokamoso.net)  
Website: [www.bokamoso.net](http://www.bokamoso.net)



**FINAL BASIC ASSESSMENT REPORT**

**PROPOSED JUJSKEI VIEW EXTENSION 128**

**PART OF THE REMAINDER OF  
PORTION 1 OF THE FARM  
WATERVAL 5 IR, GAUTENG**

**OCTOBER 2016**

**Prepared for:**

The Gauteng Department of Agriculture and Rural Development

**Prepared by:**

**Bokamoso Landscape Architects and  
Environmental Consultants CC**

Contact Person: Lizelle Gregory

36 Lebombo Road, Ashlea Gardens, 0081.

Tel: 012 346 3810

Fax: 086 570 5659

e-mail: [reception@bokamoso.net](mailto:reception@bokamoso.net)

[lizelle@bokamoso.net](mailto:lizelle@bokamoso.net)

**Applicant:**

**Balwin Properties Limited**

Contact Person: Rodney Gray

Tel: 011 450 2818

Fax: 086 461 8848

e-mail: [rodney@balwin.co.za](mailto:rodney@balwin.co.za)



## TABLE OF CONTENTS

<b>SECTION A: ACTIVITY INFORMATION</b> .....	<b>9</b>
1. PROPOSAL OR DEVELOPMENT DESCRIPTION.....	9
2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES.....	18
3. ALTERNATIVES.....	37
6. LAYOUT OR ROUTE PLAN.....	43
7. SITE PHOTOGRAPHS .....	43
8. FACILITY ILLUSTRATION .....	43
<b>SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT</b> .....	<b>44</b>
1. PROPERTY DESCRIPTION .....	44
2. ACTIVITY POSITION.....	44
3. GRADIENT OF THE SITE .....	45
4. LOCATION IN LANDSCAPE.....	46
5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE.....	46
6. AGRICULTURE .....	47
7. GROUNDCOVER.....	48
8. LAND USE CHARACTER OF SURROUNDING AREA .....	50
9. SOCIO-ECONOMIC CONTEXT.....	51
10. CULTURAL/HISTORICAL FEATURES.....	51
<b>SECTION C: PUBLIC PARTICIPATION (SECTION 41)</b> .....	<b>53</b>
1. LOCAL AUTHORITY PARTICIPATION .....	53
2. CONSULTATION WITH OTHER STAKEHOLDERS.....	53
3. GENERAL PUBLIC PARTICIPATION REQUIREMENTS.....	54
4. APPENDICES FOR PUBLIC PARTICIPATION .....	54
<b>SECTION D: RESOURCE USE AND PROCESS DETAILS</b> .....	<b>56</b>
1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT .....	56
3. POWER SUPPLY .....	61
4. ENERGY EFFICIENCY .....	62
5. STORM WATER MANAGEMENT .....	62
<b>SECTION E: IMPACT ASSESSMENT</b> .....	<b>64</b>
1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES.....	64
2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE.....	64
3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE .....	75

<b>4. CUMULATIVE IMPACTS.....</b>	<b>75</b>
<b>5. ENVIRONMENTAL IMPACT STATEMENT .....</b>	<b>76</b>
<b>6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE..</b>	<b>77</b>
<b>7. SPATIAL DEVELOPMENT TOOLS .....</b>	<b>78</b>
<b>8. RECOMMENDATION OF THE PRACTITIONER .....</b>	<b>78</b>
<b>9. THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.....</b>	<b>79</b>
<b>10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED .....</b>	<b>80</b>
<b>11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) .....</b>	<b>81</b>
<b>SECTION F: APPENDIXES.....</b>	<b>81</b>

#### **LIST OF FIGURES:**

Figure 1: Locality Map .....	10
Figure 2: Aerial Map.....	11
Figure 3: Layout Plan .....	12
Figure 4: Proposed Access and Culvert Position.....	12
Figure 5: Hydrology Map.....	21
Figure 6: Ridges .....	23
Figure 7: C-Plan 3.3 – Biodiversity Map .....	25
Figure 8: C-Plan 3.3 Irreplaceable Site. ....	25
Figure 9: Flora Sensitivity Map.....	26
Figure 10: Fauna Sensitivity Map .....	27
Figure 11: Avifauna Sensitivity Map .....	29
Figure 12: Wetland Delineation.....	29
Figure 13: Property Donated to GDARD for Conservation.....	31
Figure 14: Agricultural Potential.....	32
Figure 15: Urban Edge .....	33
Figure 16: Slope Map .....	45
Figure 17: Soil Map.....	47
Figure 18: Sewer Reticulation .....	59
Figure 19a: Water Connection (Option 1) .....	60
Figure 19b: Water Connection (Option 2) .....	61
Figure 20: Storm Water Layout Plan.....	63

#### **LIST OF ANNEXURES**

Appendix A: Site plans and Enlarged Figures
Appendix B: Photographs
Appendix C: Facility illustration(s)
Appendix D: Route position information
Appendix E: Public participation information
Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports  
Appendix H: EMPr  
Appendix I: Land Exchange Agreement with GDARD

## LIST OF ABBREVIATIONS

**BAR:** Basic Assessment Report  
**CBD:** Central Business District  
**C-Plan:** Conservation Plan  
**EAP:** Environmental Assessment Practitioner  
**IEMA:** Institute of Environmental Management and Assessment  
**DWS:** Department of Water and Sanitation  
**EMP:** Environmental Management Programme  
**GAPA:** Gauteng Agricultural Potential Atlas  
**GDARD:** Gauteng Department of Agriculture, Conservation and Environment  
**GDRT:** Gauteng Department of Roads and Transport  
**GPMEF:** Gauteng Provincial Environmental Management Framework  
**GSDF:** Gauteng Spatial Development Framework  
**GDS:** Growth and Development Strategy  
**GTIA:** Gauteng Transport Infrastructure Act  
**I&AP:** Interested and affected party  
**IDP:** Integrated Development Plan  
**JMOSS:** Johannesburg Metropolitan Open Space System  
**MOU:** Memorandum of Understanding  
**NSBA:** National Spatial Biodiversity Assessment  
**NEMA :** National Environmental Management Act  
**RSDF:** Regional Spatial Development Framework  
**SACLAP:** The South African Council of the Landscape Architects Profession  
**SAHRA:** South African Heritage Resources Agency  
**SDF:** Spatial Development framework  
**TIA:** Traffic Impact Assessment  
**UNCED :** United Nations Conference on Environment and Development

## GLOSSARY OF TERMS

**Agricultural Hub:** An area identified for agricultural use by GDARD according to the Draft Policy on the Protection of Agricultural Land (2006).

**Alien species:** A plant or animal species introduced from elsewhere: neither endemic nor indigenous.

**Applicant:** Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014.

**Biodiversity:** The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are apart.

**Conservation of Agricultural Resources Act (Act No. 43 of 1983):** This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

**C-Plan 3.3:** The GDARD C-Plan focuses on the mapping and management of biodiversity priority areas within Gauteng and identifies those sites that are critical for maintaining biodiversity.

**Critical Biodiversity Areas (CBAs):** CBAs include natural or near-natural terrestrial and aquatic features that were selected based on an area's biodiversity characteristics, spatial configuration and requirement for meeting both biodiversity pattern and ecological process targets. CBAs include irreplaceable sites where no other options exist for meeting targets for biodiversity features, as well as best-design sites which represent an efficient configuration of sites to meet targets in an ecologically sustainable way that is least conflicting with other land uses and activities. These areas need be maintained in the appropriate condition for their category. Some CBAs are degraded or irreversibly modified but are still required for achieving specific targets, such as cultivated lands for threatened species.

**Ecology:** The study of the inter relationships between organisms and their environments.

**Ecological Support Areas (ESAs):** Natural, near-natural, degraded or heavily modified areas required to be maintained in an ecologically functional state to support Critical Biodiversity Areas and/or Protected Areas. ESAs maintain the ecological processes on which Critical Biodiversity Areas and Protected Areas depend. Some ESAs are irreversibly modified, but are still required as they still play an important role in supporting ecological processes.

**Environment:** All physical, chemical and biological factors and conditions that influence an object and/or organism. Also defined as the surroundings within which humans exist and are

made up of the land, water, atmosphere, plant and animal life (micro and macro), interrelationship between the factors and the physical or chemical conditions that influence human health and well-being.

**Environmental Impact Assessment:** Assessment of the effects of a development on the environment.

**Environmental Management Programme:** A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

**GDARD Draft Ridges Policy, 2001:** According to the GDARD Draft Ridges Policy no development should take place on slopes steeper than 8.8%.

**GDARD Draft Red Data Species Policy, 2001:** A draft policy to assist with the evaluation of development applications that affected Red Data plant species.

**GDARD Requirements for Biodiversity Assessments Version 3 (June 2014):** GDARD requirements for biodiversity assessments.

**Gauteng Provincial Environmental Management Framework, 2014 (GPEMF):**

The objective of the GPEMF is to guide sustainable land use management within the Gauteng Province. The GPEMF, inter alia, serve the following purposes: To provide a strategic and overall framework for environmental management in Gauteng; Align sustainable development initiatives with the environmental resources, developmental pressures, as well as the growth imperatives of Gauteng; Determine geographical areas where certain activities can be excluded from an EIA process; and identify appropriate, inappropriate and conditionally compatible activities in various Environmental Management Zones in a manner that promotes pro-active decision-making.

**National Environmental Management Act (NEMA), 1998 (Act No 107 of 1998):** NEMA provides for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

**National Environmental Management: Air Quality Act (Act No. 39 of 2004):** The purpose of the Act is "To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incident thereto".

**National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004):** The purpose of the Biodiversity Act is to provide for the management and conservation of South

Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

**National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003):**

The purpose of this Act is to provide the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

**National Heritage Resource Act, 1999 (Act No 25 of 1999):** The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

**National Veld and Forest Fire Act, 1998 (Act No. 101, 1998):** The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

**National Road Traffic Act, 1996 (Act No. 93 of 1996):** This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

**National Water Act, 1998 (Act No 36 of 1998):** The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled.

**Open Space:** Areas free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area.

**Protected Areas:** Protected Areas are areas which have legal protection under relevant legislation or which are managed with a primary conservation objective

**Study Area:** Refers to the entire study area encompassing the total area of the land parcels as indicated on the study area map.

**Sustainable Development:** Development that has integrated social, economic and environmental factors into planning, implementation and decision making, so as to ensure that it serves present and future generations.

**Water Services Act, 1997 (Act No 108 of 1997):** The purpose of this Act is to ensure the regulation of national standards and measures to conserve water.



## **Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)**

---

### **Kindly note that:**

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

---

### **DEPARTMENTAL DETAILS**

Gauteng Department of Agriculture and Rural Development  
Attention: Administrative Unit of the of the Environmental Affairs Branch  
P.O. Box 8769  
Johannesburg  
2000

Administrative Unit of the of the Environmental Affairs Branch  
Ground floor Diamond Building  
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377  
Department central telephone number: (011) 240 2500

---

(For official use only)

<b>NEAS Reference Number:</b>						
<b>File Reference Number:</b>						
<b>Application Number:</b>						
<b>Date Received:</b>						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

Not Applicable.

Is a closure plan applicable for this application and has it been included in this report?

No

if not, state reasons for not including the closure plan.

Not applicable to this Project.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity?

Yes

A Draft Report was made available to GDARD as well as all Stakeholders and Interested and Affected Parties for comment from 14 July to 15 August 2016 (**Refer to Appendix E: Public Participation Information**).

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person?

Yes

**Refer to Appendix E9 – Copy of the register of I&APs**

If no, state reasons for not attaching the list.

Not Applicable.

Have State Departments including the competent authority commented?

No

If no, why?

Please take note that the Draft Basic Assessment Report (DBAR) was made available to all relevant State Departments, Stakeholders and I&APs for comment. Bokamoso received some comments from organs of state and such comments have been addressed in the BAR and issues and response report attached to the FBAR.

The Registered I&APs will also have access to the Final Basic Assessment Report (FBAR) to be submitted to GDARD for consideration. The 2014 NEMA EIA Regulations however do not make provision for another I&AP commenting period for a FBAR. Any comments regarding the FBAR must be forwarded to Bokamoso and it must also be submitted to the assessing official at GDARD.

## SECTION A: ACTIVITY INFORMATION

### 1. PROPOSAL OR DEVELOPMENT DESCRIPTION

**Project title (must be the same name as per application form):**

#### 1.1 Locality

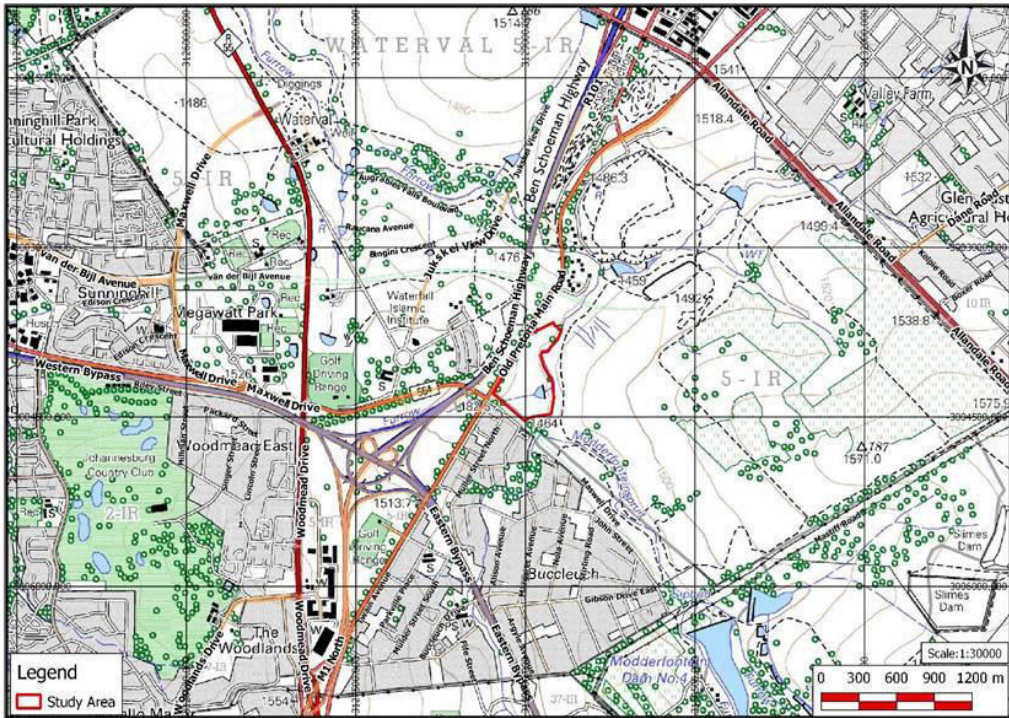
##### **Jukskei View Extension 128 – Residential Development**

The study area is situated on Portion 1 of the Farm Waterval, Gauteng Province and it falls within the area of jurisdiction of the City of Johannesburg Metropolitan Municipality.

The development site will consist of a residential township located to the east of the N1 freeway and the K101, which both run in a northern to southern direction. The site is bounded by the proposed K60 to the north and the K101 to the west. To the south the site is bounded by Maxwell Drive which in future will extend further to the east.

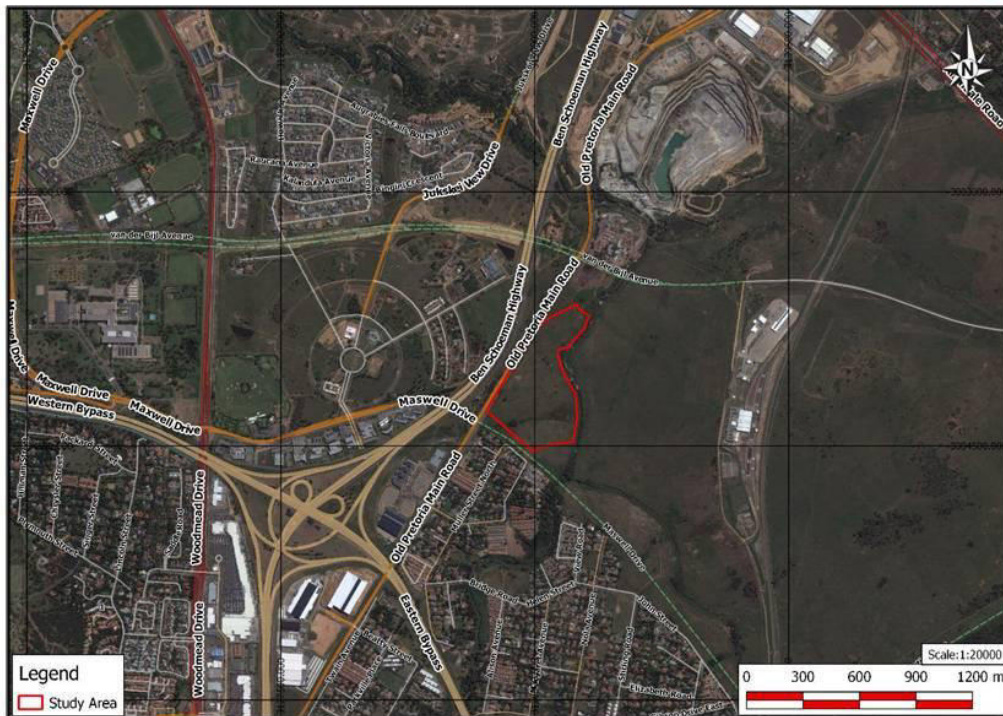
The site is currently vacant with the Afrisam mining quarry located to the north and the proposed Jukskei View Extension 118 to the east of the site which is earmarked for residential, business and educational purposes. Further east of the proposed Jukskei View Extension 118 is the Gautrain Shunting Yard. The site boundary of the proposed Jukskei View Extension 128 is located  $\pm 750$  m from the Gautrain Shunting Yard. The township of Buccleuch, which is mainly residential in nature, is located to the south and Buccleuch Extension 10, which has been developed as a commercial office park, to the south west. The Woodmead Office Park and the Waterfall Islamic Institute is located to the west of the site (**Refer to Figure 1: Locality Map and Figure 2: Aerial Map**). A samoosa factory, which belongs to the land-owner is situated to the immediate north of the study area.

### Jukskei View Extension 128 Locality Map



Projection - Transverse Mercator  
Datum - Hartbeespoort 1994  
Reference Ellipsoid - WGS 1984  
Central Meridian 29

Figure 1: Locality Map



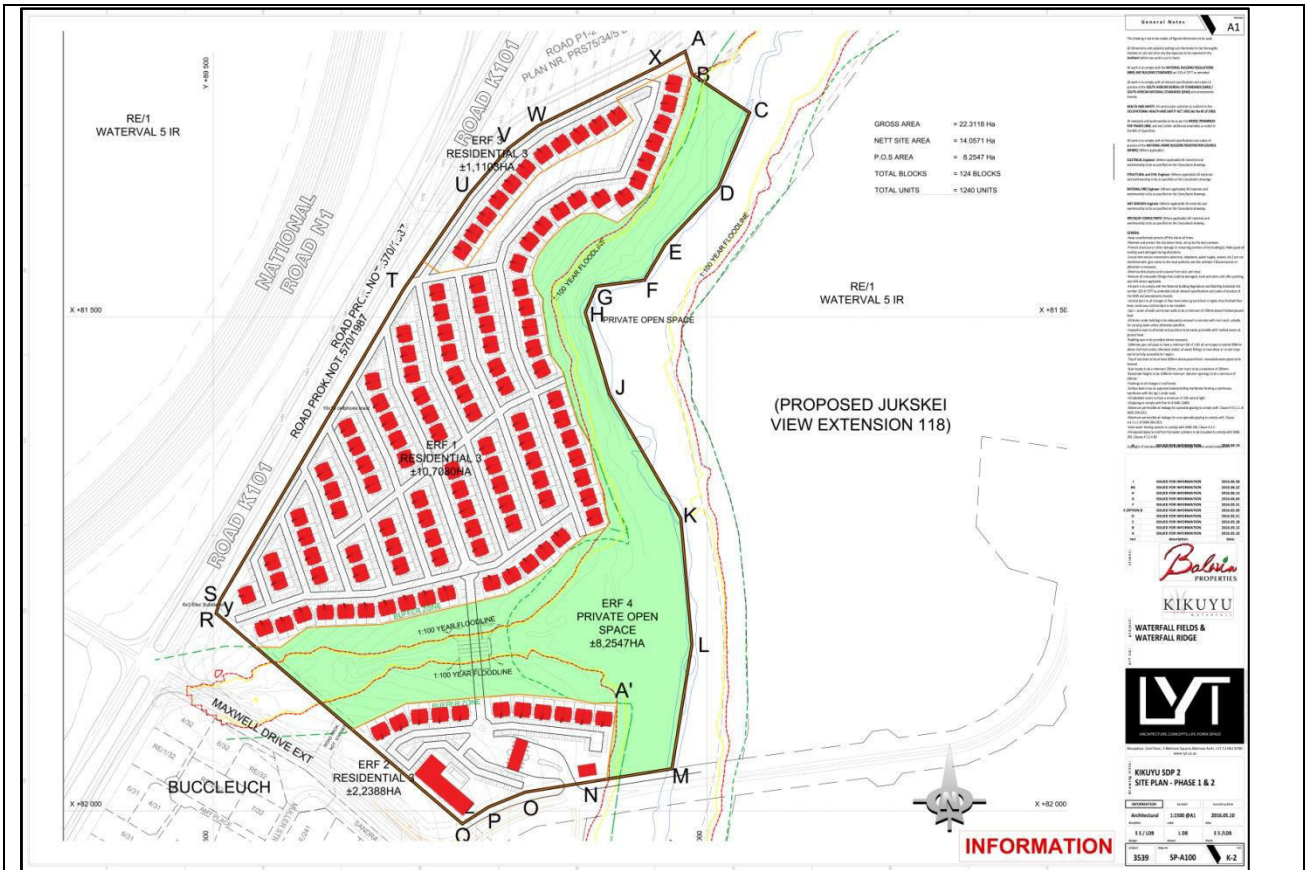
**Figure 2: Aerial Map**

The site is currently partly zoned “Agricultural” in terms of the Halfway House and Clayville Town Planning Scheme, 1976 and partly “Undetermined” in terms of the Peri-Urban Areas Town Planning Scheme, 1975.

The surrounding properties are zoned “Agricultural”, “Undetermined”, “Residential 1”, “Residential 2”, “Residential 3”, “Private Open Space”, “Public Open Space”, “Special” and “Commercial”.

It is proposed that there will be 3 erven in the Township. Erven 1 and 2 are to be zoned “Residential 3” and Erf 3 to be zoned “Private Open Space” (**Refer to Figure 3: Layout Plan**).

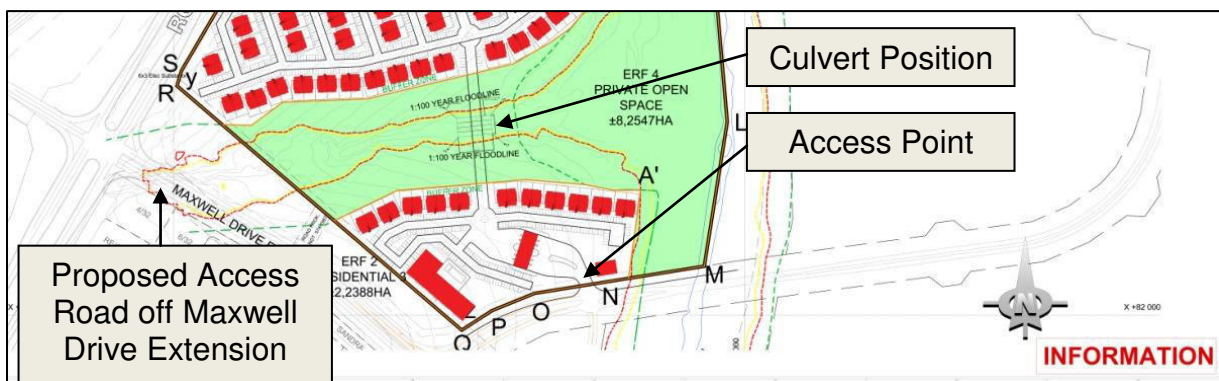




**Figure 3: Layout Plan**

The development will take access of Maxwell Drive Extension which is to be constructed by the developer. All the roads within the boundaries of Jukskei View Extension 128 will remain private and be maintained by a section 21 company (Refer to Figure 4: Proposed Access and Culvert Position). All road upgrading will be as per the Traffic Impact Study carried out by Arup (Refer to Appendix G6: Traffic Impact Assessment).

**Take note: The construction of the Maxwell Drive Extension is not included in this Basic Assessment as it forms part of the Environmental Impact Assessment for the adjacent proposed Waterfall Fields Development (GAUT Reference: 002/14-15/0248).**



**Figure 4: Proposed Access and Culvert Position**

The proposed access road will cross the stream and associated wetland located on the southern portion of the site (Refer to Figure 4: Proposed Access and Culvert Position).



Take note that the CoJ (in their comments regarding the DBAR) required that the access road bridge across the watercourse be constructed to stretch across the watercourse and the watercourse buffer in order to prevent damage to the watercourse. This requirement was discussed with the appointed civil and traffic engineers during an integrated planning session and the engineers indicated that this will be extremely expensive and it will require the implementation of a major bridge system, which will be out of scale for this residential development. The proposed bridge crossing with a very large span will also have an impact on the vertical alignment of the roads that will lead to the bridge and it will require a significant amount of filling.

Obviously the intention with the design of the bridge structure will be to limit the impacts on the flow regime and the current ecological systems, but most new bridge crossings are designed to prevent/ restrict damage (i.e. the battery of pipes/ culverts concept can be applied). Such concept allows for the undisturbed flow of sub-surface water through the “battery of pipes/ culverts” to be implemented below the surface of the road/ bridge structure.

The proposed bridge structure must also comply with the requirements and specifications of DWS and the details as approved by DWS will also be forwarded to GDARD and the CoJ.

Erosion and siltation are regarded as a major problem on the Halfway House Granites and especially along the Jukskei River and its tributaries. The effective usage of infrastructural features such as bridge crossings are in many cases recommended, because such structures can be designed to act as silt traps, erosion prevention features and as water attenuation structures, without compromising the long term ecological potential and integrity of the riverine system. If well planned and managed such structures can enhance the ecological potential and hydrological characteristics.

**The following activities will be applied for in terms of the NEMA Regulations, GN. R 983 and R 985 of 2014:**

R983 December 2014	Listing Notice 1, Activity 9	<p><i>The development of infrastructure exceeding 1000 meters in length for the bulk transportation of water or storm water –</i></p> <p>(i) <i>With an internal diameter of 0,36 metres or more; or</i></p> <p>(ii) <i>With a peak throughput of 120 litres per second or more;</i></p> <p><i>Excluding where –</i></p> <p>(a) <i>Such infrastructure is for bulk transportation of water or storm water drainage inside a road reserve; or</i></p> <p><b>(b) Where such development will occur within an urban area.</b></p> <p><b>Relevance to the Application:</b> Although the site is located within an Urban Area, it is currently undeveloped and identified as an ‘Irreplaceable Site’ in terms of the GDARD C-Plan 3.3 and thus this activity will be applied for.</p>
R983 December 2014	Listing Notice 1, Activity 10	<p><i>The development and related operation of infrastructure exceeding 1000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes –</i></p> <p>(iii) <i>With an internal diameter of 0,36 metres or more; or</i></p> <p>(iv) <i>With a peak throughput of 120 litres per second or more;</i></p> <p><i>Excluding where –</i></p> <p>(c) <i>Such infrastructure is for bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve; or</i></p>

		<p align="center"><b>(d) Where such development will occur within an urban area.</b></p> <p><b>Relevance to the Application:</b> Although the site is located within an Urban Area, it is currently undeveloped and identified as an 'Irreplaceable Site' in terms of the GDARD C-Plan 3.3 and thus this activity will be applied for.</p>
<p>R983 December 2014</p>	<p>Listing Notice 1 , Activity 12</p>	<p><i>The development of-</i></p> <ul style="list-style-type: none"> <li><i>(i) canals exceeding 100 square metres in size;</i></li> <li><i>(ii) channels exceeding 100 square metres in size;</i></li> <li><b><i>(iii) bridges exceeding 100 square metres in size;</i></b></li> <li><i>(iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size;</i></li> <li><i>(v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size;</i></li> <li><i>(vi) bulk storm water outlet structures exceeding 100 square metres in size;</i></li> <li><i>(vii) marinas exceeding 100 square metres in size;</i></li> <li><i>(viii) jetties exceeding 100 square metres in size;</i></li> <li><i>(ix) slipways exceeding 100 square metres in size;</i></li> <li><i>(x) buildings exceeding 100 square metres in size;</i></li> <li><i>(xi) boardwalks exceeding 100 square metres in size; or</i></li> <li><b><i>(xii) infrastructure or structures with a physical footprint of 100 square metres or more;</i></b></li> </ul> <p><i>where such development occurs-</i></p> <ul style="list-style-type: none"> <li><b><i>(a) within a watercourse;</i></b></li> <li><i>(b) in front of a development setback; or</i></li> <li><i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</i></li> </ul> <p><i>excluding-</i></p> <ul style="list-style-type: none"> <li><i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i></li> <li><i>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i></li> <li><i>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</i></li> <li><b><i>(dd) where such development occurs within an urban area; or</i></b></li> <li><i>(ee) where such development occurs within existing roads or road reserves.</i></li> </ul> <p><b>Relevance to the Application:</b> The stream located on the southern portion of the site flows west to east into the Jukskei River which is located to the east of the site. The proposed development will require the construction of a bridge over the watercourse.</p> <p>Although the site is located within an Urban Area, a Water Use License Application (WULA) will be applied for in terms of Section 21 (i) and (c) of the National Water Act, 1998 (Act 36 of 1998) and thus</p>

		this activity will form part of the Application.	
R,983 December 2014	Listing Notice 1, Activity 19	<p><b><u>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-</u></b></p> <p>(i) <b><u>a watercourse;</u></b>  (ii) <i>the seashore; or</i>  (iii) <i>the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater but excluding where such infilling, depositing, dredging, excavation, removal or moving-</i></p> <p>(a) <i>will occur behind a development setback;</i>  (b) <i>is for maintenance purposes undertaken in accordance with a maintenance management plan; or</i>  (c) <i>falls within the ambit of activity 21 in this Notice, in which case that activity applies.</i></p> <p><b>Relevance to the Application:</b>  The stream located on the southern portion of the site flows west to east into the Jukskei River which is located to the east of the site. The proposed development will require the construction of a bridge over the watercourse.</p>	
R 983, 4 December 2014	Listing Notice 1, Activity 27	<p><i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-</i></p> <p>(i) <i>the undertaking of a linear activity; or</i>  (ii) <i>maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p><b>Relevance to the Application:</b>  The proposed development will require the clearance of approximately 14 ha of indigenous vegetation.</p>	
R,985 December 2014	Listing Notice 3, Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres.	<p><b>c) In Gauteng:</b></p> <p>i. <i>A protected area identified in terms of NEMPAA, excluding conservancies;</i>  ii. <i>National Protected Area Expansion Strategy Focus Areas;</i>  iii. <i>Gauteng Protected Area Expansion Priority Areas;</i>  iv. <b><u>Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;</u></b>  v. <i>Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</i>  vi. <i>Sensitive areas identified in an environmental management framework adopted by relevant environmental authority;</i>  vii. <i>Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential</i></p>

			<p><i>Atlas;</i></p> <p><i>viii. Important Bird and Biodiversity Area (IBA);</i></p> <p><i>ix. Sites or areas identified in terms of an International Convention;</i></p> <p><i>x. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the National Environmental Management: Protected Areas Act (Act No. 57 of 2003);</i></p> <p><i>xi. Sites designated as nature reserves within municipal SDFs; or</i></p> <p><i>xii. Sites zoned for a conservation or public open space or equivalent zoning.</i></p> <p><b>Relevance to the Application:</b> An access road will be constructed off Maxwell Drive and located within an area identified as 'Irreplaceable' (Critical Biodiversity Area) in terms of the GDARD C-Plan 3.3.</p>
R,985 December 2014	Listing Notice 3, Activity 12	The clearance of an areas of 300 square meters or more of Indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.	<p><b>(d) In Gauteng:</b></p> <p><i>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p> <p><i>ii. <u>Within critical biodiversity areas identified in bioregional plans;</u></i></p> <p><i>iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; or</i></p> <p><i>iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</i></p> <p><b>Relevance to the Application:</b> The entire site has been identified as 'Irreplaceable' (Critical Biodiversity Area) in terms of the GDARD C-Plan 3.3. The development will require the clearance of 14 ha of indigenous vegetation within a Critical Biodiversity Area (CBA).</p>
R,985 December 2014	Listing Notice 3, Activity 14	The development of- (ii) channels exceeding 10 square metres in size; (xii) bridges	<p><b>(b) In Gauteng:</b></p> <p><i>i. A protected area identified in terms of NEMPAA, excluding conservancies;</i></p> <p><i>ii. National Protected Area Expansion Strategy Focus Areas;</i></p> <p><i>iii. Gauteng Protected Area Expansion Priority Areas;</i></p> <p><i>iv. <u>Sites identified as Critical Biodiversity Areas</u></i></p>

		exceeding 10 square metres in size; (ix) slipways exceeding 10 square metres in size; (xii) infrastructure or structures with a physical footprint of 10 square metres or more	<p><b><u>(CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; -</u></b></p> <p>v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</p> <p>vi. Sensitive areas identified in an environmental management framework adopted by relevant environmental authority;</p> <p>vii. Sites or areas identified in terms of an International Convention</p> <p>viii. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the National Environmental Management: Protected Areas Act (Act No. 57 of 2003);</p> <p>ix. Sites designated as nature reserves within municipal SDFs; or</p> <p>x. Sites zoned for conservation or public open space or equivalent zoning.</p> <p><b>Relevance to the Application:</b></p> <p>The stream located on the southern portion of the site flows west to east into the Jukskei River which is located to the east of the site. The proposed development will require the construction of a bridge over the watercourse.</p> <p>This area has been identified as 'Irreplaceable' (Critical Biodiversity Area) in terms of the GDARD C-Plan 3.3.</p>
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Select the appropriate box

The application is for an upgrade of an existing development – an additional phase of an existing development

The application is for a new development

Other, specify

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES <b>x</b>	No
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If yes, describe the legislation and the Competent Authority administering such legislation

The stream located on the southern portion of the site flows west to east into the Jukskei River which is located to the east of the site. The proposed development will require the construction of a bridge over the watercourse. A Water Use License

Application (WULA) will be applied for in terms of Section 21 (c) and (i) of the National Water Act, 1998 (Act 36 of 1998) which is administered by the Department of Water and Sanitation. There is also a possibility that some of the activities will only trigger a General Authorisation (GA) in terms of the NWA. The type of applications required will be confirmed after the necessary risk assessments were conducted and after follow-up consultations were held with DWS regarding the activities that trigger a Section 21 WULA.

If yes, have you applied for the authorisation(s)?

***A Water Use License Application will be submitted to the Department of Water and Sanitation as soon as the storm water details as required by DWS have been completed.***

YES	<b>NO</b> The S21WULA is already prepared and will be submitted to DWS within the next month. At present more detailed storm water management drawings are being prepared for inclusion as part of the S21WULA. It is requested that I&APs contact Bokamoso if they want to be registered as I&APs in the S21WULA process.
YES	NO

If yes, have you received approval(s)? (attach in appropriate appendix)

***Not Applicable***

## 2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:

Administering authority:

Promulgation Date:

<b>National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).</b>	<b>National &amp; Provincial</b>	<b>27 November 1998</b>
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The NEMA is primarily an enabling Act in that it provides for the development of environmental implementation plans and environmental management plans. The principles listed in the act



serve as a general framework within which environmental management and implementation plans must be formulated.

The Act also promotes sustainable development.

***Implications to the development:***

**Not Significant:** The proposed development will be in line with the principles contained in NEMA and it will promote sustainable development.

<b>Environmental Impact Assessment Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No 107 of 1998)</b>	<b>National</b>	<b>2014</b>
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The Minister of Environmental Affairs passed (in December 2014) the Amended Environmental Impact Assessment Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA). The Amended Regulations came into effect on 8 December 2014, and therefore all new applications must be made in terms of the Amended NEMA regulations and not in terms of the 2006 NEMA Regulations or the New Regulations of the ECA. The purpose of this process is to determine the possible negative and positive impacts of the proposed development on the surrounding environment and to provide measures for the mitigation of negative impacts and to maximize positive impacts.

Notice **No. R 983, R 984 and R985** of the Amended Regulations lists the activities that indicate the process to be followed. The activities listed in Notice No. R 983 require that a Basic Assessment process be followed and the Activities listed in terms of Notice No. R 984 requires that the Scoping and EIA process be followed. Notice No. R 985 has been introduced to make provision for Activities in certain geographical and sensitive areas.

Subsequently, Listing 1 (R. 983) requires that a Basic Assessment Process be followed. It should however be noted that the Draft Guideline Document of DEA [Department of Environmental Affairs, (previously known as the Department of Environmental Affairs and Tourism)] states that if an activity being applied for is made up of more than one listed activity, and the Scoping and EIA process is required for one or more of these activities, the Scoping and EIA process must be followed for the whole application.

***Implications for development:***

**Significant–** The application for the proposed development consist of activities listed under Notice R. 983 (Listing No. 1) and R. 985 (Listing No. 3) and therefore a Basic Assessment Report will be submitted to GDARD for consideration.

<b>National Water Act, 1998 (Act No. 36 of 1998)</b>	<b>National &amp; Provincial</b>	<b>20 August 1998</b>
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The purpose of this Act is to ensure that the nation’s water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- ❑ Meeting the basic human needs of present and future generations;
- ❑ Promoting equitable access to water;
- ❑ Promoting the efficient, sustainable and beneficial use of water in the public interest;
- ❑ Reducing and preventing pollution and degradation of water resources;
- ❑ Facilitating social and economic development; and
- ❑ Providing for the growing demand for water use.

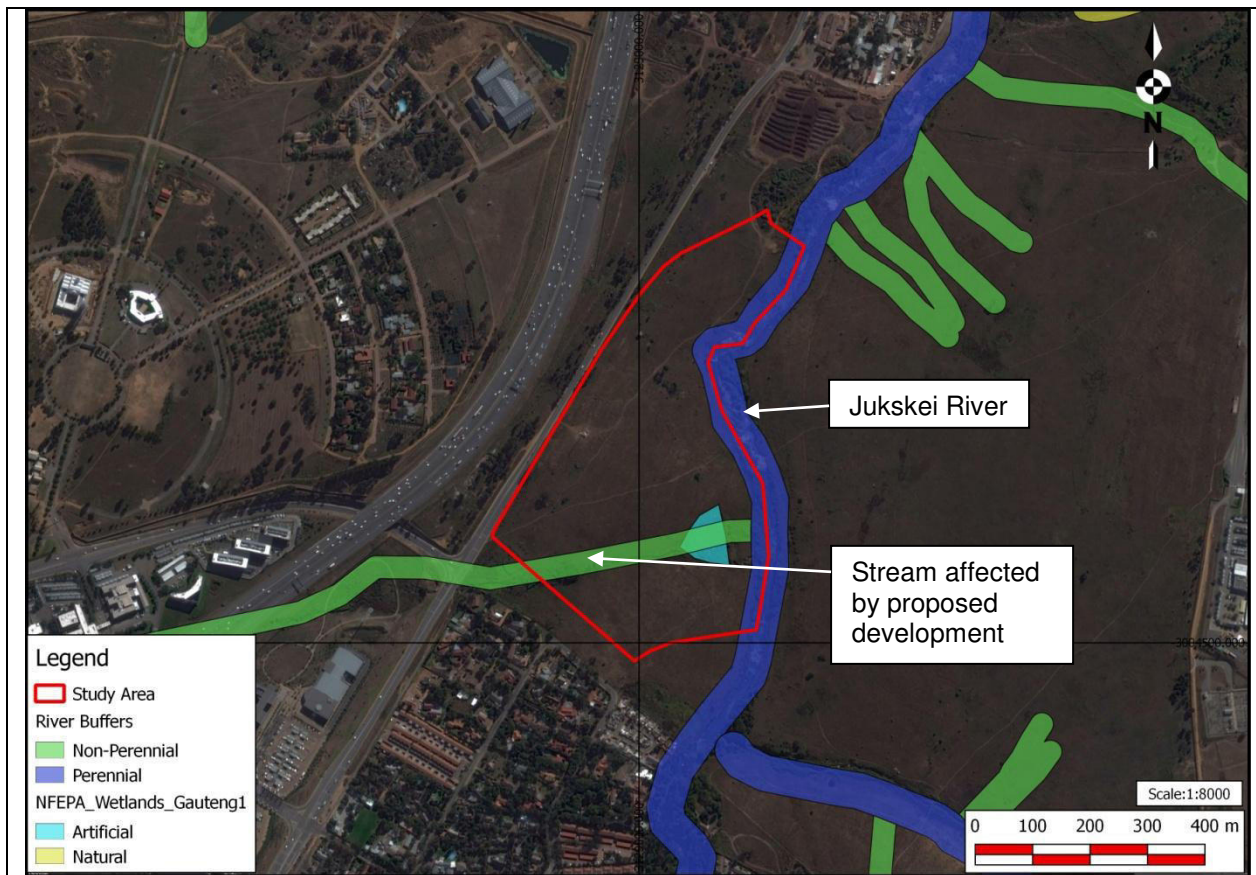
In terms of the section 21 of the National Water Act, the developer must obtain water use licences if the following activities are taking place:

- a) Taking water from a water resource;
- b) Storing water;
- c) Impeding or diverting the flow of water in a water course;
- d) Engaging in a stream flow reduction activity contemplated in section 36;
- e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- f) Discharging waste or water containing waste into a water resource through a pipeline, canal, sewer, sea outfall or other conduit;
- g) Disposing of waste in a manner which may detrimentally impact on a water resource;
- h) Disposing in any manner which contains waste from or which has been heated in any industrial or power generation process;
- i) Altering the bed, banks, course or disposing of water found underground if it is necessary for the safety of people;
- j) Removing, discharging, or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- k) Using water for recreational purposes.

The National Water Act also requires that (where applicable) the 1:50 and 1:100 year flood line be indicated on all the development drawings (even the drawings for the external services) that are submitted for approval.

***Implications for the Development:***

**Significant** - The proposed development is subjected to flood lines of a natural stream / water course within an expected frequency of 1:50 and 1:100 years. The stream located on the southern portion of the site flows west to east into the Jukskei River which is located to the east of the site. The proposed development will require the construction of a bridge over the watercourse. A Water Use License Application (WULA) will be applied for in terms of Section 21 (i) and (c) of the National Water Act, 1998 (Act 36 of 1998) which is administered by the Department of Water and Sanitation (**Refer to Figure 5 – Hydrology Map**).



**Figure 5: Hydrology Map**

**National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)**

**National & Provincial**

**2004**

The NEMA: AQA serves to repeal the Atmospheric Pollution Prevention Act (45 of 1965) and various other laws dealing with air pollution and it provides a more comprehensive framework within which the critical question of air quality can be addressed.

The purpose of the Act is to set norms and standards that relate to:

- Institutional frameworks, roles and responsibilities
- Air quality management planning
- Air quality monitoring and information management
- Air quality management measures
- General compliance and enforcement.

Amongst other things, it is intended that the setting of norms and standards will achieve the following:

- The protection, restoration and enhancement of air quality in South Africa.
- Increased public participation in the protection of air quality and improved public access to relevant and meaningful information about air quality.
- The reduction of risks to human health and the prevention of the degradation of air

quality.

The Act describes various regulatory tools that should be developed to ensure the implementation and enforcement of air quality management plans. These include:

- Priority Areas, which are air pollution ‘hot spots’.
- Listed Activities, which are ‘problem’ processes that require an Atmospheric Emission Licence.
- Controlled Emitters, which includes the setting of emission standards for ‘classes’ of emitters, such as motor vehicles, incinerators, etc.
- Control of Noise.
- Control of Odours.

***Implications for the development***

**Not Significant** - During the construction phase, dust and the generation of noise can become a significant factor, especially to the surrounding landowners. However if the development is well planned and if the mitigating measures are successfully implemented the proposed development’s contribution to air pollution and the generation of air pollution can become less significant.

<p><b>National Heritage Resources Act, 1999 (Act No. 45 of 1965 (NHRA)</b></p>	<p><b>National &amp; Provincial</b></p>	<p><b>April 1965</b></p>
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The National Heritage Resources Act legislates the necessity and Heritage Impact Assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist’s recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

***Implications for the development***

**Not Significant** - No heritage sites were identified on/near the site earmarked for development.

If during construction any evidence of archaeological sites or artefacts, paleontological fossils, graves or other heritage resources are found, the operations must be stopped and a qualified archaeologist or SAHRA must be contacted immediately for an assessment of the find. **(Refer to Appendix G1: Heritage Impact Assessment and Appendix H - EMPr)**

<p><b>National Environmental Management Protected Areas Act, 2003 (Act No. 57 of 2003)</b></p>	<p><b>National</b></p>	<p><b>2003</b></p>
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The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological biodiversity and its natural landscapes and seascapes, for the management of those areas in accordance with national norms and standards, as well as for intergovernmental co-operation and public consultation in matters concerning protected areas. Protected areas are to be conserved for their biodiversity and ecological integrity.

**Implications for the development**

**Not Significant-** The subject property is not located within a protected area (Refer to Figure 6 – Ridges).



**Figure 6: Ridges**

<p><b>National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)</b></p>	<p><b>National</b></p>	<p><b>2004</b></p>
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The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, equity and bioprospecting, and the establishment of a regulatory body on biodiversity- **South African Biodiversity Institute.**

**Objectives of the Act:**

(a) **Within the framework of the National Environmental Management Act, to provide for:**