water & sanitation
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Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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WATER USE LICENCE APPLICATION SUMMARY

ABSTRACTION OF GROUND WATER ON ERF 3865, KUILSRIVIER, WESTERN CAPE. WU35201

NAME OF APPLICANT:

Pepkor Trading (Pty) Ltd.

COMPILED BY:

PHS Consulting
September 2024

PHS CONSULTING

1. Applicant details

Name of applicant: **Pepkor Trading (Pty) Ltd.**
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2. Person submitting application

Consultant on behalf of Applicant: Amanda Fritz-Whyte
Qualifications: BSc; BSc (Hons) Geology; MSc Water Resource Management
Professional registrations: Fellow Member WISA (21064); Member IAIAsa (5421); Registered Environmental Assessment Practitioner: Number 2019/367 (EAPASA); Pri.Sci.Nat (118385).
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3. Background and purpose

The proposal entails the operation of a new Ackermans Retail Clothing Brand Distribution Centre. Ackermans is a division of Pepkor Trading (Pty) Ltd. The applicant is therefore Pepkor Trading (Pty) Ltd, a subsidiary of Pepkor Holdings Ltd, which is 20.52% black-owned (6.73% black woman owned) and a total B-BBEE recognition of 50% (Level 7).

The basis for the proposed development of a new Ackermans DC was due to a site relocation from another premises, therefore, all the existing staff will remain employed and will relocate to the new site. It is important to note that construction on site is complete which includes the new DC warehouse, associated facilities & stormwater infrastructure.

The proposed WULA entails the physical use of water, i.e. the abstraction of ground water for irrigation purposes on site (a) as well as the storage of stormwater on site in an attenuation pond (b). Additionally, (c) and (i) water uses associated with the development's stormwater infrastructure within the regulated area of the Kuils River and the delineated wetland areas are also applicable. Please refer to the detailed description below:

Pepkor (Pty) Ltd propose to abstract 2 560m^3 of groundwater per annum from an existing borehole on the property for irrigation of a 0.2815ha landscaping area. It should be noted that up to 400m^3 of water can be abstracted from groundwater per hectare of a property within quaternary catchment G22E, under the current GA-limits for Section 21 (a) (GN 538 of 2016). Erf 3865 has an area of 6.86 hectares. Therefore, up to 2 774m^3 could be registered under the GA for groundwater abstraction on the property. However, the borehole is within 500m of a wetland, and therefore, registration under a General Authorisation is excluded. The Section 21 (c) & (i) water uses also resort within the General Authorisation due to the low risk rating (GN4167 of 2023). The abstraction is unlikely to impede or divert flow within the wetland, or change bed, banks, course, or characteristics of the wetland. The abstraction volumes are well below the sustainable yield of the borehole and likely to not significantly draw down the water table in the area.

Furthermore, the wetlands adjacent to the site are fed by lateral flows from their catchment and are most likely wetter in the present state than in their natural state. This is as a result of hardening of most of the wetland's catchment through urban development. The abstraction from the borehole is therefore unlikely to dry the wetland out through local drawdown.

Water abstracted from the borehole will be stored in storage tanks where it will be diluted with supplementary municipal water (70% borehole water and 30% municipal water) in order to manage the concentration of certain elements in the water considered as detrimental to the irrigation plan. No water treatment will be done on site. The area irrigated will cover around 2 815m² (0.28ha) by means of optimally spaced sprinklers to consider water saving in addition to seasonal adjustment of irrigation schedules. It should be noted that the applicant does not plan on reducing their dependency on municipal water, they will use both municipal water and groundwater on the site. Currently, there are two storage tanks (JoJo tanks) on-site with a total storage capacity of 40 000L (40m^3). These are covered storage devices which have no risk of evaporation and generally no safety risk, moreover the volume stored is less than the GA, DWS does not typically have to authorise storage within JoJo tanks falling inside the GA limits.

As part of the development of the site, an attenuation dam of 1 300m^3 has been created along the site's western boundary to effectively contain stormwater run-off (Section 21 (b)). The attenuation dam receives flow from the site, either overland off the surface of roads and paved areas or via several pipe inlets conveying flow from the wider site. The pond contains one piped outlet, feeding into the Kuils River corridor. This outlet is likely to have an impact upon the wetlands into which it feeds and requires authorisation. Whilst the construction has taken place, the operational aspects will trigger a Section 21 (c) and (i) water use.

Although the S21 (a), (c), (i), and (b) water uses all fall within the ambit of a GA, the exclusion in GN 538 of 2016 in terms of the borehole within 500m of the wetland requires the authorisation of an integrated WULA.

4. Location of water uses

The project in respect of which this Water Use Licence Application is submitted is located in the Western Cape Province, within the City of Cape Town Magisterial district near Kuilsrivier. The primary water uses (borehole [a] & SW pond [b]) will take place on Erf 3865, Hagley, Cape Town, which forms part of the G22E Quaternary Catchment, within the Berg Water Management Area. Stormwater Infrastructure (c & i) will be located within an existing pipeline servitude on the Remaining Extent of Portion 3 of Farm 939, Hagley, Cape Town. The geographic location of the property where the water uses will take place are 33°57'25.70"S, 18°40'17.96"E. Please refer to **Figure 1 & 2** below.

Table 1: Property details

Property description	Title Deed number	Owner	SG Code	Geographic Location
Erf 3865, Hagley, Cape Town.	T2376/2019	Hagley 3865 Pty Ltd	C06700110000386500000	33°57'25.70"S 18°40'17.96" E

FIGURE 1: LOCALITY MAP OF ERF 3865

FIGURE 2: WATER USE LOCATION MAP

5. Administrative documents and technical reports submitted by applicants

5.1 Administrative documents

The following administrative documents will be/were submitted as part of the application:

- Proof of Payment of Water Use Licence Application Processing Fee.
- Copy of Identity Document of applicant / **delegated person.**
- Copy of *Pepkor Trading (Pty) Ltd* company registration certificate.
- Power of Attorney for *PHS Consulting* to lodge the WULA application on behalf of the applicant.
- Title Deed for Erf 3865, Hagley, Western Cape.
- Lease agreement between applicant & landowner.
- Director Resolution Pepkor Trading (Pty) Ltd
- Proof of servitude (RE/9/939)

5.2 Reports and other technical documents

Table 2: List of reports and other technical documents submitted

Number	Report Title	Compiled by	Date of report
1	Aquatic risk assessment report for the proposed abstraction of groundwater at the Ackerman's Distribution Centre on Erf 3865, Hagley.	Stuart Barrow (Freshwater Consulting)	September 2024
2	Geohydrological Assessment: Erf 3865, Hagley, near Kuils River, Western Cape.	GEOSS	August 2024
3	Borehole Yield and Quality Testing at Ackermans, Blackheath.	GEOSS	December 2023
4	S27 Motivation Report (included in this report)	PHS Consulting	August 2024
5	Stormwater Management Plan	KLS Consulting Engineers	October 2022
6	Landscaping Plan	IXIA Landscape Architects CC	November 2023
7	Comments and Response Report	*to be completed post PPP	tbc
8	Proof of public participation conducted	**to be completed post PPP	tbc

Other technical douments included diagrams/drawings of stormwater infrastructure related to Section 21 (c & i) activities, and pertained the following:

1. Stormwater Outlet Structure (Stilling Basin) Drawing
2. Stormwater Pond Drawing
3. Stormwater Outflow/Outlet Structure Drawing

6. Project Description

The basis for the proposed development of a new Ackermans DC was due to a site relocation from another premises, therefore, all the existing staff will remain employed and will relocate to the new site. It is important to note that construction on site is complete which includes the new DC warehouse, associated facilities & stormwater infrastructure.

The proposed WULA entails the physical use of water, i.e. the abstraction of ground water for irrigation purposes on site (a) as well as the storage of stormwater on site in an attenuation pond (b). Additionally, (c) and (i) water uses associated with the development's stormwater infrastructure

within the regulated area of the Kuils River and the delineated wetland areas are also applicable. Please refer to the detailed description below:

Pepkor (Pty) Ltd propose to abstract 2 560m^3 of groundwater per annum from an existing borehole on the property for irrigation of a 0.2815ha landscaping area. It should be noted that up to 400m^3 of water can be abstracted from groundwater per hectare of a property within quaternary catchment G22E, under the current GA-limits for Section 21 (a) (Government Notice 538 of 2016). Erf 3865 has an area of 6.86 hectares. Therefore, up to 2 774m^3 could be registered under the GA for groundwater abstraction on the property. However, the borehole is within 500m of a wetland; therefore, registration under a General Auhtorisation is excluded. The same applies for Section 21 (c) & (i), however, the Freshwater Ecologist recommended that the borehole abstraction not require a Section 21 (c) and (i) water use authorisation. The abstraction is unlikely to impede or divert flow within the wetland, or change bed, banks, course, or characteristics of the wetland. The abstraction volumes are well below the sustainable yield of the borehole and likely to not significantly draw down the water table in the area.

Furthermore, the wetlands adjacent to the site are fed by lateral flows from their catchment and are most likely wetter in the present state than in their natural state. This is as a result of hardening of most of the wetland's catchment through urban development. The abstraction from the borehole is therefore unlikely to dry the wetland out through local drawdown.

Water abstracted from the borehole will be stored in storage tanks where it will be diluted with supplementary municipal water (70% borehole water and 30% municipal water) in order to manage the concentration of certain elements in the water considered as detrimental to the irrigation plan. No water treatment will be done on site. The area irrigated will cover around 2 815m² (0.28ha) by means of optimally spaced sprinklers to consider water saving in addition to seasonal adjustment of irrigation schedules. It should be noted that the applicant does not plan on reducing their dependency on municipal water, they will use both municipal water and groundwater on the site.Currently, there are two storage tanks (JoJo tanks) on-site with a total storage capacity of 40 000L (40m^3). These are covered storage devices which have no risk of evaporation and generally no safety risk, moreover the volume stored is less than the GA, DWS does not typically have to authorise storage within JoJo tanks falling inside the GA limits.

As part of the development of the site, an attenuation dam of 1 300m^3 has been created along the site's western boundary to effectively contain stormwater run-off (Section 21 (b)). The attenuation dam receives flow from the site, either overland off the surface of roads and paved areas or via several pipe inlets conveying flow from the wider site. The pond contains one piped outlet, feeding into the Kuils River corridor. This outlet is likely to have an impact upon the wetlands into which it feeds and requires authorisation. Whilst the construction has taken place, the operational aspects will trigger a Section 21 (c) and (i) water use.

The Section 21 (c) and (i) water use for the stormwater outlet should be included in the water use authorisation process of the Section 21 (a) and (b) water uses.

Table 3: Project Details Summary

Activity	Water use to be applied for (S21 of NWA)	Description
Abstraction of water from Borehole (AB_BH1).	(a), (c) & (i)	Abstraction of a total of 2560m^3/annum for irrigation use from Borehole (AB_BH1). The production borehole on site have been drilled in 2023 and was subsequently correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). The application volume, 2 560m^3/a is within the sustainable yield (0.003% of the sustainable yield of 91 517.04m^3/a) of the aquifer. The borehole is drilled into the fractured Malmesbury Group aquifer (shales of the Tygerberg Formation). The groundwater is of marginal quality (EC > 70mS/m) and will be blended with municipal water before being used on the property. In this area, the geology intersected in drillholes usually have a clay layer on top of shales, as logged in the drill log of AB_BH1. This clay layer is likely to provide sufficient protection against point and non-point sources of contamination and the vulnerability rating of the underlying fractured aquifer would likely be low. Additionally, the borehole has been cased off by means of steel casing until the end of borehole depth with the steel casing perforated around water bearing zones between 48 – 78 mbgl. It is recommended that the general Groundwater Management guideline outlined in **Section 13 (Geohydrology Report)** be included in the licence conditions of the WULA. The Aquifer Firm Yield Model indicates that there is proficient available groundwater left in the catchment, i.e. the quaternary catchment G22E may still allocate additional groundwater abstraction when taking into account the application volume together with the registered, active, verified, and lawful groundwater users.
Establishment of Stormwater Attenuation Pond	(b)	As part of the development of the site, an attenuation dam of 1 300m^3 has been created along the site's western boundary. The attenuation dam receives flow from the site, either overland off the surface of roads and paved areas or via several pipe inlets conveying flow from the wider site. The newly constructed stormwater outlet is impacting and will continue to impact upon the Nooiensfonteinvlei Wetland. The outlet of the

		newly constructed attenuation pond is located at the lowest level of the pond. Therefore, it will effectively drain the pond of all water. Discharge volume and velocities would be reduced by increasing the surface roughness of the attenuation area itself. This can be achieved by vegetating the pond's bed and banks. Even with this intervention, the new pond outlet is designed to channel flows to one single outlet point within the Kuils River corridor. During high flows, the flow through this outlet should reach up to 350l/s (KLS Consulting Engineers, 2022). This intense, focused flow has the potential to cause erosion within the wetland. It is recommended that the attenuation pond be densely vegetated with appropriate indigenous species, such as Cyperus textilis, Juncus capensis, Cyperus congestus and Ficinia nodosa which occur in the adjacent wetlands. This vegetation should across the banks and bed of the attenuation pond. The vegetation will increase surface roughness of the pond area, reducing flow speed through the pond to the outlet. By slowing the flow, the plants will assist in capturing sediment being transported from the site. The roots of the plants will also assist in binding the soils of the attenuation pond itself, so that it is not washed out into the wetland areas.
Stormwater Infrastructure	(c) & (i)	The pond contains one piped outlet, feeding into the Kuils River corridor. This outlet is constructed wholly within a registered servitude. This outlet is likely to have an impact upon the wetlands into which it feeds. Whilst the construction has taken place, the operational aspects will trigger a Section 21 (c) and (i) water use. Cognisance has been taken of the increase in the run-off co-efficient of the property as a result of the development by creating an attenuation pond of 1 300m^3. However, the pond has an outlet at its lowest level and this focuses all flow off the site to one outlet point. These risks do need to be addressed. Firstly, the attenuation pond itself should be vegetated to stabilise soils in the pond and slow flows through the pond. Secondly, a riprap outlet basin is recommended with additional vegetation planted downstream of it at the outlet into the Kuils River corridor. If this is adequately implemented, the risk that the outlet poses to the adjacent wetland is low.

GEOSS Yield Test Report Discussion & Conclusion:

GEOSS South Africa (Pty) Ltd was appointed to conduct yield and water quality testing of one borehole at Ackermans, Blackheath. The borehole was tested by GEOSS SA from 6 to 9 November 2023. The geological setting of the area indicates that the borehole is drilled through the sandy loam of the Springfontyn formation into the underlying greywacke and phyllites of the Tygerberg formation.

Based on the information obtained from the yield test, the abstraction recommendation for the borehole is presented in **Table 4**. The yield testing was conducted with a Step Test, Constant Discharge Test and Recovery Test and while this data can be analysed to estimate sustainable yields, additional drilling in the area may result in long term cumulative impacts. Optimisation of the resource is also likely through making small changes to the abstraction rate, should the dynamic water level's drawdown be less or more than expected as per **Table 4**. Both of these points are best managed through long term monitoring data.

Table 4: GEOSS Borehole Info & Reccomendations

Borehole Details				
Borehole Name	**Latitude (DD)**	**Longitude (DD)**	**Borehole Depth (m)**	**Inner Diameter (mm)**
AB_BH1	-33.95713°	18.67164°	84	135
Abstraction Recommendations				
Borehole Name	**Abstraction rate (L/s)**	**Abstraction Duration (hrs)**	**Recovery Duration (hrs)**	**Possible Volume Abstracted (L/d)**
AB_BH1	2.9	24	0	250 560
Pump Installation Details				
Borehole Name	**Pump Installation Depth (mbgl)**	**Critical Water Level (mbgl)**	**Dynamic Water Level (mbgl)***	**Rest Water Level (mbgl)**
AB_BH1	52	50	30	3.08

Through long term water level monitoring data, the abstraction volumes can be optimised by adjusting the abstraction rate if required. It is recommended that the borehole is equipped with a variable frequency drive. This enables adjustments to the flow rate to be made if required, as determined by the hydrogeological analysis of water level and flow rate monitoring data.

From the laboratory results, groundwater from AB_BH1 is of poor quality for potable supply. The primary cause of the poor groundwater quality is the elevated turbidity (22.5 NTU). According to the SANS 241-1:2015 standards the elevated turbidity will have aesthetic effects on the water such as poor colour. Similarly, the iron (1.935mg/L), manganese (0.114mg/L) and chloride (328.15 mg/L) will have aesthetic effects on the water such as poor taste and colour. Due to the elevated iron concentration, iron biofouling is likely to occur in the borehole if the borehole is not managed optimally. This will result in the clogging of the borehole as well as abstraction infrastructure. The groundwater from AB_BH1 is currently not suitable for human consumption without treatment. Should the water be used for irrigation, crop selection should take into account the elevated chloride concentration.

To address the potential for iron to clog the borehole and abstraction infrastructure, it is recommended to maintain a constant and continuous pumping schedule as much as possible. Thus, should a daily volume of less than 250 56 L/d be required, it is recommended to decrease the

pumping rate and not the pumping duration. By pumping continuously instead of on a stop-start schedule, iron oxidation in the borehole is minimized, decreasing the amount of iron precipitation inside the boreholes and pumps.

To facilitate monitoring and informed management of the borehole, it is recommended to equip the borehole with the following monitoring infrastructure and equipment:

• Installation of a 32mm (inner diameter, class 10) observation pipe from the pump depth to the surface, closed at the bottom and slotted for the bottom 5 – 10m. This was done during the testing activities in November 2023.

• Installation of an electronic water level logger (for automated water level monitoring)

• Installation of a sampling tap (to monitor water quality)

• Installation of a flow volume meter (to monitor abstraction rates and volumes)

The borehole yield & quality testing info contained in this report was incorporated in to the Geohydrological Assessment report to be discussed below.

GEOSS Geohydrological Assessment Discussion & Conclusion:

GEOSS South Africa (Pty) Ltd was appointed and compiled a geohydrological assessment report for Erf 3865 in Hagley, near Kuils River, Western Cape applying for a Water Use Licence Application (WULA) with Breede Olifants Catchment Management Area (BOCMA).

Drainage

The area drains towards the south to feed the Kuils River with the conditions on the site likely draining in a westerly direction. This area is known to be extremely flat lying with civil construction affecting the topography significantly in addition to the granite of the Stellenbosch Pluton forming hills locally. As the sea is approached towards the West, the topography flattens out and the gradient becomes virtually zero. This, however, coincides with thick sandy overburden associated to the Sandveld Formation and drainage is likely facilitated within this sandy overburden along a hydrostatic gradient.

Climate

The area experiences a Mediterranean climate with cold, wet winters and hot, dry summers. The average annual temperature for the study area is 16.5°C, with the average minimum temperature and average maximum temperature being 11.2°C and 21.8°C, respectively. The long-term (1950 – 2000) mean annual evaporation value of 1152.0 mm/a for the study area exceeds the long-term (1950 – 2000) mean annual precipitation value of 457.0 mm/a for the same area. This suggests that, on an annual basis, more water is lost through evaporation than gained through precipitation. The rainfall is greater than evaporation in the winter months (May to August). Peak groundwater recharge will occur during the cooler, wet winter months.

Geology

The property falls in an area mainly associated with Quaternary calcareous dune sand. The area is underlain by the Tygerberg Formation of the Malmesbury Group, signified by greywacke and mud rock. In the area, there are also intrusions of the Kuils River Batholith granites of the Cape Granite Suite towards the North and East of the property. Towards the east of the property, a small granodiorite intrusion has been mapped as outcropping at the surface, this likely associated to a possible southwest – northeast trending fault structure. The Tygerberg Formation has been

intersected at depths ~48m in the borehole on site with intersected fractures hosting the groundwater exploited on the site.

Hydrogeology

The aquifer yield and quality classifications are based on regional datasets, and therefore, only indicate conditions to be expected. The presence and characteristics of groundwater in the study area are mainly influenced by the rate and volume of groundwater recharge, as well as the geological formations that act as storage and flow pathways for groundwater.

Aquifer Yield

The regional aquifer directly underlying the property is classified by the Department of Water Affairs and Forestry (DWAF, 1999) as an intergranular aquifer with an average yield potential of 0.1 – 0.5 L/s. An intergranular aquifer is where groundwater flows in openings and void spaces between sand grains or weathered rock. A fractured or secondary aquifer describes an aquifer in which groundwater flows through fractures or fault structures. The production borehole is drilled into the fractured aquifer, the Malmesbury Group shale bedrock and has a sustainable yield of 2.9 L/s, higher than that of the regional classification.

Aquifer Quality

Electrical conductivity (EC) measures the groundwater's ability to conduct electricity which is directly related to the concentration of ions in the water. This parameter is used as an indication of the quality of the groundwater. Groundwater quality beneath the site is classified as "marginal" with an associated electrical conductivity (EC) of 70 – 300 mS/m. There is an area to the north of the site that has been indicated as having "poor" water quality, based on EC values within the range of 300 – 1 000 mS/m, while a good water quality area is identified towards the southwest of the site (DWAF, 2005). The groundwater quality from the production borehole on site was classified as having poor quality for potable use.

Aquifer Vulnerability Classification

The national scale groundwater vulnerability map for South Africa (Conrad and Munch, 2007) which was developed according to the DRASTIC methodology (Aller et al, 1987), shows that groundwater under the property has a high vulnerability to surface-based contaminants. The DRASTIC method takes into account the following factors:

D = depth to groundwater (5)

R = recharge (4)

A = aquifer media (3)

S = soil type (2)

T = topography (1)

I = impact of the vadose zone (5)

C = conductivity (hydraulic) (3)

The number indicated in parenthesis at the end of each factor description is the weighting or relative importance of that factor. The "high" rating is likely associated with the alluvium intergranular

(unconsolidated) conditions associated to the sandy overburden. The borehole AB_BH1 has been reported as drilled into the underlying fractured shale bedrock (~48 mbgl) and has a steel casing until 84 mbgl, the steel casing acts as a barrier, preventing interaction between surface water and groundwater resources. The borehole is perforated around water-bearing zones between 48 – 78 mbgl. . In this area, the geological map as well as local knowledge of the area indicate that the shale bedrock is usually overlain by a clay layer. The driller report (**Appendix I in Geohydro Report**) indicates a weathered clay-rich layer overlying the shale bedrock.

This clay layer is likely to provide sufficient protection against point and non-point sources of contamination, and the vulnerability rating of the underlying fractured aquifer would likely be low. The alluvial aquifers are susceptible to contamination. This application is for industrial use and safety measures should be set to ensure that contaminants such as fuel do not contaminate the water found in the shallow primary aquifer. Dip trays under vehicles would assist, as would not parking on open, uncovered ground.

Care should be taken to ensure that the borehole is correctly sealed so that no contaminant can enter the lower aquifer through the borehole. A solid and secure cover must also cover the production borehole to prevent contaminants from reaching the groundwater.

Volume, Purpose, Treatment and Storage of Water Uses

Erf 3865 in Hagley, near Blackheath, Western Cape is located within quaternary catchment G22E, and thus the General Authorisation (GA) regarding groundwater abstraction is 400m^3/ha/annum and is capped at 40 000m^3/a per property. The total area of the property is 6.65ha and a total of 2 660m^3/a can be abstracted under the GA. The proposed volume to be abstracted is 2 560m^3/a which is within the GA limit amount.

The abstracted groundwater will be used for irrigation on the property. A landscaping plan has been included in **Appendix II** indicating areas where irrigation will be focused. Water abstracted from the borehole will be stored in storage tanks where it will be diluted with supplementary municipal water (70% borehole water and 30% municipal water) in order to manage the concentration of certain elements in the water considered as detrimental to the irrigation plan. No water treatment will be done on site. The area irrigated will cover around 2 815m^2 (0.28ha) by means of optimally spaced sprinklers to consider water saving in addition to seasonal adjustment of irrigation schedules. It should be noted that the applicant does not plan on reducing their dependency on municipal water, they will use both municipal water and groundwater on the site.

Currently, there are two storage tanks (JoJo tanks) on-site with a total storage capacity of 40 000L (40m^3). These are covered storage devices which have no risk of evaporation and generally no safety risk, moreover the volume stored is less than the GA, DWS does not typically have to authorise storage within JoJo tanks falling inside the GA limits.

Desktop Assessment (Existing Groundwater Information)

To determine whether any groundwater users in the area may be affected by activities on site, a database search was conducted using a 1.5-km radius around the property boundary. This portion of the study was completed by studying and inquiring about existing databases that contain groundwater nformation. A search was conducted on several databases, namely the National Groundwater Archive (NGA), Water Use Authorisation and Registration Management System (WARMS), City of Cape Town (COCT) registered groundwater users as well as the internal GEOSS database. These resources provide data on borehole positions, groundwater chemistry, and yield,

when available. Based on the desktop assessment of the various databases, it is evident that there is a low reliance on groundwater in the area surrounding the proposed site.

Hydrocensus

A hydrocensus was conducted on the 7th of July 2024 within a 1.5km radius of the property boundary. This involved identifying boreholes and landowners/groundwater users in the area. During the hydrocensus, any information about groundwater abstraction, yield, and quality was requested. After a complete hydrocensus, it was established that minimal groundwater abstraction is taking place in the immediate area. One (1) borehole was identified during the hydrocensus, in addition to the existing borehole on site and the boreholes listed in the desktop section. This borehole has been reported to be around 6 metres deep and has been analysed for field chemistry parameters. The EC was measured at 84.8mS/m, indicating 'ideal' water quality in the area. This EC value is in line with the NGA database boreholes.

The area surrounding the site is either dependent on municipal water or surface water. It was noted during the hydrocensus that multiple sites listed on the regional datasets such as the NGA, WARMS and COCT do not actually exist. There is a low reliance of groundwater in the area.

The borehole log of the existing borehole on site (AB_BH1) indicated that the area is underlain by approximately 22m of Springfontein Formation sandy loam followed by weathered clay-rich Tygerberg Formation between depths 22 – 46m. This, in turn, is underlain by phyllites of the Tygerberg Formation intersected to the final depth of drilling (84m).

Piezometer Installation

During the site visit conducted on the 7th of July, the installation of one (1) piezometer via the augering of a hole was conducted. The piezometer was installed to determine the shallow groundwater depth, likely associated to the floodplain wetland along the Kuils River. The water intersected was then sampled in order to compare the signature to that sampled from the borehole. Augering also provided an indication of soil types. The position of the piezometer was chosen to provide information as close as possible to the floodplain wetland, situated towards the West of the property boundary. Typically, the holes are hand dug using an auger kit to a maximum depth of 5m or until water is reached, whichever comes first. The site visit, occurred during a particularly wet winter with multiple rain events, providing surface runoff to the area augered during the site visit. Water was intersected around 1.06mbgl and auguring was not possible past 1.3mbgl due to the hole collapsing under the hydrated state.

Piezometer installation involves installing a 50mm PVC pipe as deep as possible below the groundwater level. The PVC pipe is slotted (i.e., screened) to allow groundwater to flow into the pipe. Following the augering, piezometer installation and site walkover, the following generalised soil profile typifies this site and is summarised below:

The site is dominated in the shallow subsurface (<1.3mbgl) by a beige silty fine sand with a loose consistency with minor clay inclusions at depths 0.49 – 0.62mbgl. Auguring could not reach deeper depths due to the hole collapsing in the hydrated shallow subsurface conditions. Although this profile does not provide sufficient information regarding a clay layer that may impact on transmissivity, infiltration and the spread of potential contaminants the geology intersected during the drilling of borehole AB_BH1 may provide a better indication. Between depths of 23 – 47m the borehole was indicated to intersect clay and weathered shale material. This layer overlies the bedrock and will have a significant impact in the time it takes to infiltrate the bedrock surrounding the site.

The site is mainly covered by paving and screeded surfaces with small gardens mostly located where services and cabling also gets channelled through. Therefore no further site observations or further auguring could be performed to define the profile across the site.

Geohydrological Risk Assessment

The risk assessment includes identifying and rating the potential risks associated with the groundwater abstraction on Erf nr 3865, Hagley, near Kuilsriver, Western Cape, and any proposed mitigation measures where possible. The groundwater will be used for agricultural use. Each risk is qualitatively assessed based on the current information. The risk assessment relates only to groundwater abstraction as proposed on site. There are three potential impacts associated with groundwater abstraction:

1) The risk of depletion of the groundwater due to over-abstraction
2) The risk of groundwater quality deterioration as a result of over-abstraction
3) The risk of groundwater abstraction impacting the surface water system

These will be discussed separately below.

1) Depletion of the Groundwater Resource as a Result of Over-Abstraction

Over-abstraction of groundwater from a borehole is likely to lead to depletion of the water levels in the area over time. This can cause damage to the aquifer and so also damage groundwater dependant ecosystems and impact neighbouring groundwater users. It is essential that the borehole are well managed and are not over-abstracted to ensure an impact on the neighbouring properties does not occur. The production borehole AB_BH1 was correctly yield tested according to SANS 10299_4-2003, and the maximum sustainable yield was determined to be 91 517.04m^3/a. The yield calculated is conservative and the proposed volume of groundwater abstracted is within the sustainable yield (0.003% of sustainable yield proposed for abstraction); therefore, if abstraction is kept to the recommended rate, over-abstraction is unlikely to occur.

Groundwater water level monitoring is recommended to ensure that groundwater abstraction is sustainable. The monitoring will also indicate if the groundwater resource is impacted and if mitigation measures can be instituted before long-term impacts occur. Mitigation for over-abstraction would be a reduction in abstraction.

2) Groundwater Quality Deterioration as a Result of Over-Abstraction:

Over-abstraction of groundwater from a borehole can potentially draw poorer water quality from the nearby environment into the borehole. This is likely to affect the groundwater quality in the area in general and might affect the supply in other boreholes within the same aquifer. As indicated by the regional datasets the groundwater quality directly underlying the site is in the range of 70 -300m S/m. The production borehole on site recorded EC values around 136.0mS/m during two sampling events in 2023 and 2024, falling within the regional classification, values signifying a marginal groundwater quality.

Few known datapoints associated to the aquifer intersected are available to define any reasonable spatial trends relating to the regional groundwater quality. The possibility of having poor quality water nearby does exist. Thus, this risk is valid and care should be taken to ensure that the proposed production boreholes do not draw poor quality to the site. It could be inferred that the poorer surrounding groundwater quality is being drawn to the site due to increased groundwater use in the

area. Hence the abstraction must be kept to the recommended rate, the risk would be low, but quality monitoring should be done to ensure that deterioration in quality does not occur.

Groundwater quality monitoring is recommended to ensure that groundwater abstraction is sustainable. The monitoring will also indicate if the groundwater resource is impacted and if mitigation measures can be instituted before long-term impacts occur. Mitigation for over-abstraction would be a reduction in abstraction.

3) Groundwater Abstraction Impacting the Surface Water System

The borehole AB_BH1 is drilled into the underlying fractured shale bedrock (~48mbgl) and has a steel casing until 84mbgl, the steel casing is perforated around water bearing zones between 48 – 78mbgl. Therefore, the likelihood of this borehole impacting on the surface water environment is low due to the casing seated into bedrock. Additionally, during the yield testing, no constant head boundaries were observed which would indicate surface water recharge conditions to the groundwater abstraction site. Moreover isotope and chemical analysis of surface water (PZ1) and the production borehole (AB_BH1) has indicated no definitive signatures correlating the samples to each other. The Kuils River is situated towards the West around 466m from the property western border and around 790m from the production borehole AB_BH1 which is the only surface water body that could likely be impacted on.

It is important that the quality and quantity of the groundwater needs to be monitored to ensure the safety of the water supply to the immediate users and the surrounding groundwater users.

Groundwater Management Plan

To facilitate monitoring and informed management of a borehole, it is highly recommended that boreholes be equipped with the following monitoring infrastructure and equipment:

• Installation of a 32mm (inner diameter, class 10) observation pipe from the pump depth to the surface, closed at the bottom and slotted for the bottom 5 – 10m.

• Installation of an electronic water level logger (for automated water level monitoring).

• Installation of a sampling tap (to monitor water quality).

• Installation of a flow volume meter (to monitor abstraction rates and volumes).

A qualified hydrogeologist should analyse this monitoring data to ensure long-term sustainable use of the borehole. Legal compliance about the use of groundwater also needs to be addressed with the Department of Water and Sanitation. The management of the groundwater abstraction includes the following recommendations:

1. Continuous monitoring of groundwater levels using a pressure transducer in the borehole is ideal. This is however an expensive endeavour and should the department approve of weekly monitoring by means of a dip meter it may be considered as a cost-effective alternative. The water level in the borehole may not drop below the critical water level. If the water level in the borehole drops below the critical water level, abstraction must be immediately reduced by 10%. Monitoring must continue and after 30 days, if the water level in the borehole does not recover to above the critical water level, abstraction must be reduced by a further 10%. This process must continue until the water level in the borehole is stable.

2. Water quality monitoring, which includes sampling and analysing groundwater at an accredited laboratory, is important. A sampling interval of bi-annual is recommended for the first year of monitoring; after that, the water quality monitoring should be reviewed and can potentially be reduced to annually.

3. To address the potential for iron to clog the borehole and abstraction infrastructure, it is recommended to maintain a constant and continuous pumping schedule as much as possible. As a daily volume of less than 250 560L/d is required, it is recommended to decrease the pumping rate and not the pumping duration. By pumping continuously instead of on a stop-start schedule, iron oxidation in the borehole is minimized, decreasing the amount of iron precipitation inside the boreholes and pumps.

4. The monitoring data should be reviewed quarterly at first and can then be scaled down bi-annually.

5. Installation of a sampling tap at the production borehole (to monitor water quality) is essential.

6. Installation of a flow volume meter at the production borehole (to monitor abstraction rates and volumes) is also important. External flow (e.g., mag-flow) meters are recommended.

7. Abstraction volumes must be monitored and recorded by a designated on-site person. Depending on the frequency of use, daily, weekly, or monthly abstraction should be recorded.

8. The appropriate borehole pump must be installed, i.e., not an oversized pump that is choked with a gate valve. If the monitoring shows that more water can be abstracted, then the duration of pumping time can be increased (not the flow rate).

9. The borehole and pump may be cleaned if iron clogging has occurred and the borehole efficiency has dropped.

10. A geohydrologist should review the above information annually to ensure optimal groundwater abstraction and management.

The groundwater abstraction should be reviewed to ensure sustainability based on the monitoring data obtained.

Summary & conclusion

Groundwater use is planned on Erf nr 3865, Hagley, near Kuils Rriver, Western Cape. The borehole registration is underway with the Local Municipality, Kuils River District Municipality, and the company appointed GEOSS South Africa (Pty) Ltd to conduct a geohydrological assessment for the proposed activity, Section 21 (a) – taking water from a water resource. The proposed application volume (2 560m^3/a) is agricultural use on the site in order to irrigate the gardens on site.

From the desktop study and hydrocensus, it is evident that there are groundwater users within the study area. The main purpose for the groundwater abstraction in the area is for agricultural and industrial use.

The production borehole on site have been drilled in 2023 and was subsequently correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes).

The application volume, 2 560m^3/a is within the sustainable yield (0.003% of the sustainable yield of 91 517.04m^3/a) of the aquifer. The borehole is drilled into the fractured Malmesbury Group aquifer

(shales of the Tygerberg Formation). The groundwater is of marginal quality (EC > 70mS/m) and will be blended with municipal water before being used on the property. In this area, the geology intersected in drillholes usually have a clay layer on top of shales, as logged in the drill log of AB_BH1. This clay layer is likely to provide sufficient protection against point and non-point sources of contamination and the vulnerability rating of the underlying fractured aquifer would likely be low. Additionally, the borehole has been cased off by means of steel casing until the end of borehole depth with the steel casing perforated around water bearing zones between 48 – 78mbgl. It is recommended that the general Groundwater Management guideline outlined in **Section 13 (Geohydrology Report)** be included in the licence conditions of the WULA.

The Aquifer Firm Yield Model indicates that there is proficient available groundwater left in the catchment, i.e. the quaternary catchment G22E may still allocate additional groundwater abstraction when taking into account the application volume together with the registered, active, verified, and lawful groundwater users.

Recommendations

The following recommendations can be made:

• The proposed production borehole may be used for the applied application stipulated in this document.

• The general Groundwater Management guideline outlined in **Section 13** of the geohydro report should be integrated into the license conditions of the Water Use License Application (WULA).

Freshwater Impact Assessment:

Stuart Barrow (Freshwater Consulting) conducted a Freshwater Assessment in order to assess the proposed activities in terms of the National Water Act (Act. No 36 of 1998) and highlight the potential water uses that will be triggered, as well as give guidance towards the appropriate authorisation thereof, via a Risk Assessment Matrix (RAM) in terms of Government Notice GN 4167 of 2023, as well as providing recommendations regarding the proposed activity and mitigation measures for undertaking the activity, in order to reduce the impacts on freshwater features on and adjacent to the site.

Catchment characteristics

The study area lies within the Kuils River catchment (quaternary catchment G22E). The Kuils River is a major tributary of the Eerste River. The Kuils River lacks a mountain catchment area and arises on the south- eastern, lower slopes of the Durbanville and Bellville hills, within an urban residential setting. The river has a gentle gradient and flows through residential, informal residential and industrial areas of the City of Cape Town before it joins the Eerste River only ~ 5km upstream of Eerste River's estuary. Due to the development along its entire length, the Kuils River is a significantly modified watercourse.

Abiotic factors (Geology, topography, soil)

The abiotic factors occurring on the site are the drivers of the habitats and biotic communities which occur there. The site occurs in an area known as the Cape Flats. This is a coastal plain, with very moderate gradients and deep grey loamy sand of the Springfontyn formation. The topography across the site slopes gently towards the Kuils River's primary channel. There are two terraces across the

corridor, running parallel to the channel, which facilitate the formation of wetland habitat. The lower terrace lies within the floodplain and is seasonally to permanently saturated. A low ridge or levee occurs along the corridor, separating the two terraces and facilitating the formation of seasonal wetland habitats within the upper terrace from lateral inputs. The levee appears to be natural, but dumped refuse and rubble have raised it in places.

The area has a winter rainfall regime. Summers extend from December till February and are dry and hot. During this time the mean evaporation exceeds the mean rainfall. Winters are colder and wetter.

From June to August the evaporation is exceeded by the mean rainfall. This results in saturated soil conditions on the wider terrace of the Kuils River corridor. Standing, shallow pools of water form in lower lying basins across the terrace in places

Biotic factors (Fauna and Flora)

The natural vegetation which historically occurred in the area would have been Cape Flats Sand Fynbos. This vegetation type is dense and moderately tall, with a dominance of ericoid shrubs (Mucina and Rutherford, 2004). During the site visit in July 2024, there was evidence that the site had recently been cleared of woody vegetation (piles of chips and stumps). It is most likely that the cleared species was Acacia saligna (Port Jackson). Shrubs are largely absent from the vegetation community of the corridor, probably because of exclusion by A. saligna, as well as the seasonal wetness regime. Low groundcover species are dominant. The permanently saturated zones of the Kuils River corridor are densely vegetated with Cyperus textilis, Phragmites australis and Typha capensis. The wider corridor is dominated by vygies, Carpobrotus acinaciformis. This plant forms dense mats, often circular in shape, that can be seen from aerial or satellite imagery. Within seasonally and temporarily saturated zones of the corridor, grasses such as Cynodon dactylon (kweek) and Stenotaphrum secundatum (buffalo grass) are abundant. Rushes and sedges such as Juncus capensis, Cyperus congestus and Ficinia nodosa were also observed within the seasonal habitats.

Current extent of aquatic features on site

The aquatic features occurring adjacent to Erf 3865, across the Kuils River corridor are the Kuils River, the Nooiensfonteinvlei floodplain wetlands fed by the Kuils River as well as by lateral inputs as they drain towards the Kuils River.

Habitat Assessment

Ecoregions

An understanding of how a watercourse may have appeared and functioned in its natural state is important to be able to assess its current condition. Rivers across South Africa have been grouped into ecoregions. These are groupings of rivers with similar hydrology, natural vegetation, geology and soils, climate and physiography. This grouping can be further refined according to the geomorphological zone in which they are located. These eco-regional and geomorphological zone groupings can be used to understand how the watercourses on the site may have appeared in their reference condition.

The study site lies within the South Western Coastal Belt ecoregion. This ecoregion is dominated by moderately undulating plains at an altitude of 0 – 100 mamsl. It has winter rainfall seasonality and typically has a MAP of 100 –400 mm and a MAR of 5 - 60mm. Vegetation types across this ecoregion

are dominated by sand fynbos vegetation types. The river is within the coastal plain geomorphological zone.

Kuils River

Habitat integrity of the Kuils River

The Index of Habitat Integrity (DWAF, 1999) assesses the degree to which a watercourse has been altered from its natural state. It assesses eight anthropogenic factors that may impact upon the watercourse's riparian habitat and nine anthropogenic factors that may impact upon the watercourse's instream habitat.The severity with which these impacts negatively affect the integrity of the watercourse's habitat is ranked. Based on the final score, the Kuils River was assigned a habitat integrity class.

More than 60% of the Kuils River's channel has been canalised, significantly modifying natural flow patterns and sediment transport regimes. Furthermore, the river receives run-off from informal settlements, industrial discharges, waste water treatment works discharges and raw effluent discharges from leaking sewers. The Kuils River would naturally have been a seasonal stream but is now permanently flowing. As a result, the Kuils River is in an extensively to critically modified state.

Table 5: The habitat integrity scoring for the Kuils River.

Kuils River			
Riparian		Instream	
Riparian Metrices (impact score 1 -25)	**RIPARIAN IMPACT SCORE**	**INSTREAM IMPACT SCORE**	**Instream Metrices (score 1 - 25)**
WATER ABSTRACTION	6	5	WATER ABSTRACTION
FLOW MODIFICATION	15	16	FLOW MODIFICATION
BANK EROSION	0	13	BED MODIFICATION
CHANNEL MODIFICATION	16	18	CHANNEL MODIFICATION
PHYS-CHEM	17	22	PHYS-CHEM MOD
INUNDATION	2	7	INUNDATION
EXOTIC VEGETATION	14	9	ALIEN MACROPHYTES
VEGETATION REMOVAL	14	5	INTRODUCED AQUATIC FAUNA
		10	RUBBISH DUMPING
Riparian Class	E/F	E	**Instream Class**
Habitat integrity score	20	32	Habitat integrity score
Average confidence	3.88	3.67	Average confidence

Wetlands

The WET-Health tool assesses the Present Ecological State (PES) of a wetland in terms of the current extent of deviation from an observed or assumed reference state. The assessment considers the health of the wetland under four modules, namely Geomorphology, Hydrology, Vegetation and Water Quality. The tool can be used to assess the current PES as well as anticipated changes to the PES as a result of changes both within the wetland and / or within its catchment The overall ecological category of the Nooiensfonteinvlei wetland is assessed and shown in **Table 6**. The wetland is considered to be largely modified. These wetlands are primarily fed by the large upstream catchment of the Kuils River. The catchment area has been significantly developed and this has impacted the hydrological and geomorphological processes of the river and its floodplains. The wider

temporary and seasonal elements of the wetland are also fed by lateral inputs and all of this is stormwater from developed areas. This has altered the hydrology of the wetland - it receives higher volumes at higher intensity than it would have under natural conditions. The water quality of the wetland's primary input, namely the Kuils River, is very poor. The vegetation of the wetland has also been altered by a long history of agricultural use followed by invasion by woody alien species. The natural diversity of the vegetation community within the permanently saturated areas, has been reduced to a few dominant species as a result of permanent flows within the Kuils River and the poor quality of the water. The long history of agricultural land-use across the wider wetland area, followed by invasion by alien vegetation, has resulted in the loss of certain elements of the natural vegetation community, such as extensive sedge and rush beds.

Table 6:The final PES result and hectare equivalent of the Wet-Health Assessment of the current state of the Nooiensfonteinvlei

Final (adjusted) Scores				
PES Assessment	Hydrology	Geomorphology	Water Quality	Vegetation
Impact Score	4.7	2.1	6.7	6.0
PES Score (%)	53%	79%	33%	40%
Ecological Category	D	C	E	D
Trajectory of change	→	↓	↓	→
Confidence (revised results)	Medium	Medium	Medium	Medium
Combined Impact Score	4.9			
Combined PES Score (%)	51%			
Combined Ecological Category	D			
Hectare Equivalents	7.0 Ha			

Ecosystem services, importance and sensitivity assessment

The ecological importance and sensitivity of aquatic features were assessed according to DWAF (1999). This assessment ranks functional importance as well as the sensitivity of habitats and species of the aquatic features using a four-point scale.

The Kuils River is of moderate ecological importance and sensitivity. The river habitat has lost sensitive elements, but remains an important corridor within the urban area. The Nooiensfonteinvlei is considered to be of high ecological importance and sensitivity. It is an important refuge and corridor within the developed landscape and one of the last remaining remnants of moderately intact floodplain wetland along the Kuils River. The natural vegetation type that historically occurred along the Kuils River, Cape Flats Sand Fynbos, is considered to be critically endangered and there are a number of species endemic to it.

The wider seasonal elements are also sensitive to increases in water input, which will see it transition to a permanently saturated wetland dominated by a few hardy and common species, such as Phragmites australis.

Despite the degraded state of the aquatic features adjacent to erf 3865, they are important for the supply of ecosystem services and represent one of the few remaining refuges for fauna and flora within an increasingly developed landscape.

Groundwater abstraction

Pepkor (Pty) Ltd developed the Ackerman's distribution centre on Erf 3865 over the course of 2023 and 2024. They propose to utilise a borehole on the site to supplement their water supply for irrigation of the landscaped areas on the property. It is estimated that 3 644m^3 per year of water is required for irrigation. Due to the high concentration of iron, chlorine and manganese in the groundwater, it has been recommended that they dilute the ground water with municipal water at a ratio of 70% groundwater to 30% municipal water. Therefore, they would only need to abstract 2 552m^3 of water from the borehole per year.

Stormwater outlet

PHS Consulting initiated a water use authorisation application process for the above-mentioned groundwater abstraction. During the pre-application meeting the DWS queried whether the stormwater outlet of the new distribution centre would have an impact of aquatic features within the Kuils River corridor.

The distribution centre was developed on Erf 3865, which appears to have a long history of industrial use. The redevelopment was not subject to a water use authorisation process. During the site visit, no significant, construction related disturbance outside of the site boundary was observed. However, the operation of the site may have an impact on aquatic features adjacent to the site. The stormwater management plan for the site states that "the development will create relatively large impervious areas that will substantially increase the stormwater run-off from the site." (KLS Consulting Engineers, 2022).

The plan calculates that the run-off co-efficient would increase from 0.47 to 0.89. As a result, the plan recommended that an attenuation dam of 1 300m^3 be created along the site's western boundary The attenuation dam receives flow from the site, either overland off the surface of roads and paved areas or via several pipe inlets conveying flow from the wider site. The pond contains one piped outlet, feeding directly into the Kuils River corridor

Summary & Conclusion

It is recommended that the abstraction of groundwater from the borehole on Erf 3865 does not qualify as a Section 21 (c) or (i) water use. Whilst the activity is taking place within 500m of Nooiensfonteinvlei, it is not likely to impede or divert flows away from or within the wetlands, nor is it likely to alter the wetland's bed, banks or characteristics. This is because the wetland is primarily fed by flow from the Kuils River and lateral flows from the catchment surrounding it. Due to extensive development of its catchment, the wetland is most likely wetter than it would be under natural conditions. The proposed abstraction of 2560m3 per annum is also considerably lower than the sustainable yield of the borehole of 250.6m3 per day, as suggested by GEOSS (2023). Finally, no additional infrastructure is proposed in order to carry out the abstraction, which would impact upon the wetlands. The groundwater abstraction should be authorised as a Section 21 (a) water use. The conditions of this authorisation should take cognisance of the recommendations of GEOSS (2023) and be sufficient to ensure sustainable management of the borehole with no risk to other ecosystems.

The newly constructed stormwater outlet is impacting and will continue to impact upon the Nooiensfonteinvlei. The outlet of the newly constructed attenuation pond is located at the lowest level of the pond (**Figure 13A in Geohydrology Report**). Therefore, it will effectively drain the pond of all water. Discharge volume and velocities would be reduced by increasing the surface roughness of the attenuation area itself. This can be achieved by vegetating the pond's bed and banks. Even

with this intervention, the new pond outlet is designed to channel flows to one single outlet point within the Kuils River corridor. During high flows, theflow through this outlet should reach up to 350l/s (KLS Consulting Engineers, 2022). This intense, focused flow has the potential to cause erosion within the wetland. During the site visit, it was observed that sediment had been transported from the developed site into the Kuils River corridor via the stormwater outlet. The stormwater outlet therefore could alter the characteristics of the wetland, and triggers a Section 21 (c) and (i) water use.

A Risk Assessment Matrix (RAM) was carried out according to Government Notice GN 4167 of 2023 (**Table 7**) for the stormwater outlet. The findings of the risk assessment guide the potential water use authorisation process that will be required by the DWS. A risk assessment normally assesses the risk posed to freshwater resources by a proposed activity in three phases: the planning or design phase, the construction phase and the operational phase. As the outlet is already constructed, with little notable construction-related disturbance noted within the adjacent wetlands, the risks are all assessed under the operational phase. The risk assessment process also assumes that mitigation measures are in place (see Section below).

Table 7: A summary of the Risk Assessment Matrix findings for the stormwater outlet of the Ackerman's DC in Hagley, with and without mitigation

Impact	Potentially affected watercourses	Without mitigation			With mitigation		
	Names	Significance (max = 100)	Risk Rating	Confidence level	Significance (max = 100)	Risk Rating	Confidence level
Altered flow within the unchannelled valley bottom wetlands	Nooiensfonteinvlei (floodplain wetland of the Kuils River)	44.8	M	High	28.8	L	High
Erosion of the unchannelled valley bottom wetlands		33.6	M	High	22.4	L	High
Sediment deposition across the unchannelled valley bottom wetlands		36	M	High	22.4	L	High

If the outlet and pond are left as is, the risk of ecological degradation to the Nooiensfonteinvlei are moderate. However, if the mitigation measures mentioned below are adequately implemented, the proposed activity poses a low risk to water resources in terms of Section 21 (c) and (i) water uses. The risks are discussed below.

Altered flow pattern across the floodplain wetland

The concentrated outlet flow has already caused erosion and sedimentation downstream of the outlet. This could facilitate the formation of a channel or several channels within the wetland. This would mean that flows would be more effectively drained to lower portions of the wetland or to the primary channel of the Kuils River, and the areas closer to the outlet would potentially be drier. This risk has a high probability if not mitigated.

Erosion of the floodplain wetland

In an extreme instance of the formation of a channel, as described above, the concentrated flows might create erosion dongas within the wetland area. The donga would effectively function as a drain and result in significant changes to the surrounding wetlands. This risk is deemed to have a low probability.

Sediment deposition

Due to the lack of channels and the gentle gradient across the Nooiensfonteinvlei, the flows exiting the outlet immediately lose their energy. As a result, deposition of any transported sediment, or other material, occurs. During the site visit, deposited sediment was observed downstream of the outlet

(**Figure 3 below**). The high rainfall events that led to the sediment being transported through the attenuation pond occurred during and immediately after the construction phase. There were still high sediment inputs on the site from incomplete construction areas and from the attenuation pond itself, which had not yet been adequately vegetated. During the long-term operation of the site, it is likely that this risk will reduce and channelised flow or erosion will become more likely.

FIGURE 3: SEDIMENT DEPOSITION OCCURRING WITHIN THE KUILS RIVER CORRIDOR AT THE STORMWATER OUTLET.

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

The following generalised guidelines apply to all works undertaken within the regulated area of a watercourse:

- Repairs and maintenance should be undertaken within the dry season, except for emergency maintenance works.
- Where at all possible, existing access routes should be used. In cases where none exist, a route should be created through the most degraded area avoiding sensitive/indigenous vegetation areas.
- Responsible management of pollutants by ensuring the handling and storage of any pollutants is away from the watercourse.
- When machinery is involved, ensure effective operation with no leaking parts and at a safe distance from the watercourse (minimum of 100m) to manage any accidental spillages and pose no threat of pollution.
- At no time should the flow of the watercourse be blocked, nor should the movement of aquatic and riparian biota (noting breeding periods) be prevented during maintenance actions.
- No new berms can be created.
- In circumstances which require the removal of any topsoil, this must be sufficiently restored through sustainable measures and practices.
- Concerted effort must be made to actively rehabilitate repaired or reshaped banks with indigenous local vegetation.
- The build-up of debris/sediment removed from the site may:
    - be utilised for the purpose of in-filling or other related maintenance actions;
    - not be used to enlarge the height, width or any extent of existing dams;
    - not be deposited anywhere within the watercourse.

- Material that cannot be used for maintenance purposes must be removed to a suitable stockpile location or disposal site, at least 32m from a watercourse.

Proposed Freshwater Mitigation:

It is recommended that the attenuation pond be densely vegetated with appropriate indigenous species, such as *Cyperus textilis*, *Juncus capensis*, *Cyperus congestus* and *Ficinia nodosa* which occur in the adjacent wetlands. This vegetation should be established across the banks and bed of the attenuation pond. The vegetation will increase surface roughness of the pond area, reducing flow speed through the pond to the outlet. By slowing the flow, the plants will assist in capturing sediment being transported from the site. The roots of the plants will also assist in binding the soils of the attenuation pond itself, so that it is not washed out into the wetland areas.

It is also recommended that improved energy dissipation be installed at the outlet into the Kuils River corridor. A riprap or loose rock basin would immediately spread flow across a wider area. The downstream end of the basin should be planted with a relatively tall indigenous sedge, such as *Cyperus textilis*. The vegetation would function as a final energy dissipater and assist in preventing erosion downstream of the outlet. (Note: a plunge pool style outlet is not being recommended)

Table 8: Method Statement for Section 21 (c) & (i) water uses associated with the operation of the SW infrastructure

Description of activity	**SW Infrastructure (SW line, SW outlet & Stilling Basin) located in the regulated area of the Kuils River**
Actions	Operation & Maintenance of SW infrastructure
Impacts of actions	- Ecological Degradation to the Nooiensfonteinvlei Wetland - Altered flow pattern across the floodplain wetland - Erosion of the floodplain wetland - Sediment deposition
Severity of impacts	If all mitigation measures are implemented the severity of the impact will be Low
Measures to mitigate the severity of the impacts	○ It is recommended that the attenuation pond be densely vegetated with appropriate indigenous species, such as *Cyperus textilis*, *Juncus capensis*, *Cyperus congestus* and *Ficinia nodosa* which occur in the adjacent wetlands. This vegetation should be established across the banks and bed of the attenuation pond. The vegetation will increase surface roughness of the pond area, reducing flow speed through the pond to the outlet. By slowing the flow, the plants will assist in capturing sediment being transported from the site. The roots of the plants will also assist in binding the soils of the attenuation pond itself, so that it is not washed out into the wetland areas. ○ It is also recommended that improved energy dissipation be installed at the outlet into the Kuils River corridor. A riprap or loose rock basin would immediately spread flow across a wider area. The downstream end of the basin should be planted with a relatively tall indigenous sedge, such as *Cyperus textilis*. The vegetation would function as a final energy dissipater and assist in preventing erosion downstream of the outlet. (Note: a plunge pool style outlet is not being recommended)

8. Stormwater Management Plan

Design philosophy

The stormwater design made allowance for the creation of low and high points to the roads, parking areas and marshalling yards, to make provision for adequate cross falls and longitudinal slopes to meet the minimum standards for effective stormwater drainage.

The following minimum specifications were implemented in the stormwater infrastructure design:

- Box Culverts
- Minimum velocity - 0.7m/s
- Maximum spacing between manholes/inlets/catch pits – 90m

Subsoil Drainage

The geotechnical investigation stated that no groundwater was encountered in any of the trial pits excavated. The possible subsoil network at the permeable paved parking area will consist of 110mm diameter perforated pipes connecting to the stormwater system. The discharge volume and flow-rate of the subsurface water into the subsoil drains will not be significant and will not have an impact on the sizing of the stormwater pipelines nor the attenuation volumes.

Minor Flows (1:10 year and smaller rainfall events)

The development will create relatively large impervious areas that will substantially increase the stormwater run-off from the site. Stormwater run-off, however, will be concentrated in certain areas, for example at low points in the parking areas and marshalling yards.

Stormwater run-off from the impervious areas will be routed to low points with inlets towards the underground stormwater network into the attenuation facilities, located on the western boundary of the site.

The internal stormwater system consists mainly of an underground gravity culvert network, permeable paving in the parking area and inlet structures which drains the roads and marshalling yards. This system was designed to have sufficient capacity to convey a 1:10-year rainfall event *(this is defined as a rainstorm which has a 10% chance to occur)*.

Major Flows (Larger than 1:10-year rainfall events)

During rainfall events with a return period larger than 1:10-years, the proposed roads, marshalling yards, parking areas will act as overland flow routes which will channel, attenuate and ultimately discharge the surface run-off via predetermined escape routes into the attenuation facilities. The design of these dams will make allowance to adequately manage the 1:50-year rainfall event.

Attenuation

A stormwater attenuation facility/dam will be constructed on the western boundary of the site and will operate as dry extended detention facility. The main purpose of these facilities will be to retain the difference between a 1:10-year pre-development and 1: 50-year post-development flood. The attenuation dam is classified as a dry dam, with extended storage available to effectively attenuate large floods (up to a 1: 50-year flood).

This facility will effectively manage stormwater run-off up to 1: 100-year rainfall events and attenuate up to 1: 50-year rainfall events. The outlet structure of the attenuation facility will govern the outflow to not exceed the 1: 10-year pre- development flow for the overall development. After conducting dam sizing calculations with reference to the South African Drainage Manual, a minimum storage volume of 486m3 is required.

Attenuation Dam **A** (Theoretical)
o Catchment Area: 68 000m²
o Pre-development run-off (1:10 year): 0.534m³/s
o Post-development run-off (1:50 year): 1.405m³/s

o Storage volume required: *486m³*
o **Storage volume Provided: 1300m³**

The attenuation dam has an emergency overflow which has the capacity to discharge the run-off generated from rainfall events larger than 1:50 years, up to a maximum of a 1:100-year rainfall event. The emergency outflow will release excess run-off as surface discharge onto the surrounding area which discharges into the existing open stormwater canal to the south-east of the site. **The total attenuation volume provided on site will be 1 300m³.** This satisfies the minimum requirement as calculated by making use of the Rational Method. (South African Drainage Manual) (486m³).

Outlet Structures – Inlets into the Attenuation Facility
The stormwater from the underground culvert network will discharge through 4 separate outlet structures directly into the attenuation dams.

Outlets into the Municipal Stormwater Network
The attenuation dam outlets will be discharging to the westerly direction of the site. The outlet capacity of the attenuation dam will be capped at 350l/s by limiting the outlet sizing to 41.5m Invert level to reduce run-off.

Freshwater input on Stormwater Management:

The stormwater management plan for the site states that "*the development will create relatively large impervious areas that will substantially increase the stormwater run-off from the site.*" (KLS Consulting Engineers, 2022). The plan calculates that the run-off co-efficient would increase from 0.47 to 0.89. As a result, the plan recommended that an attenuation dam of 1 300m³ be created along the site's western boundary (**Figure 4 & 5**). The attenuation dam receives flow from the site, either overland off the surface of roads and paved areas or via several pipe inlets conveying flow from the wider site.

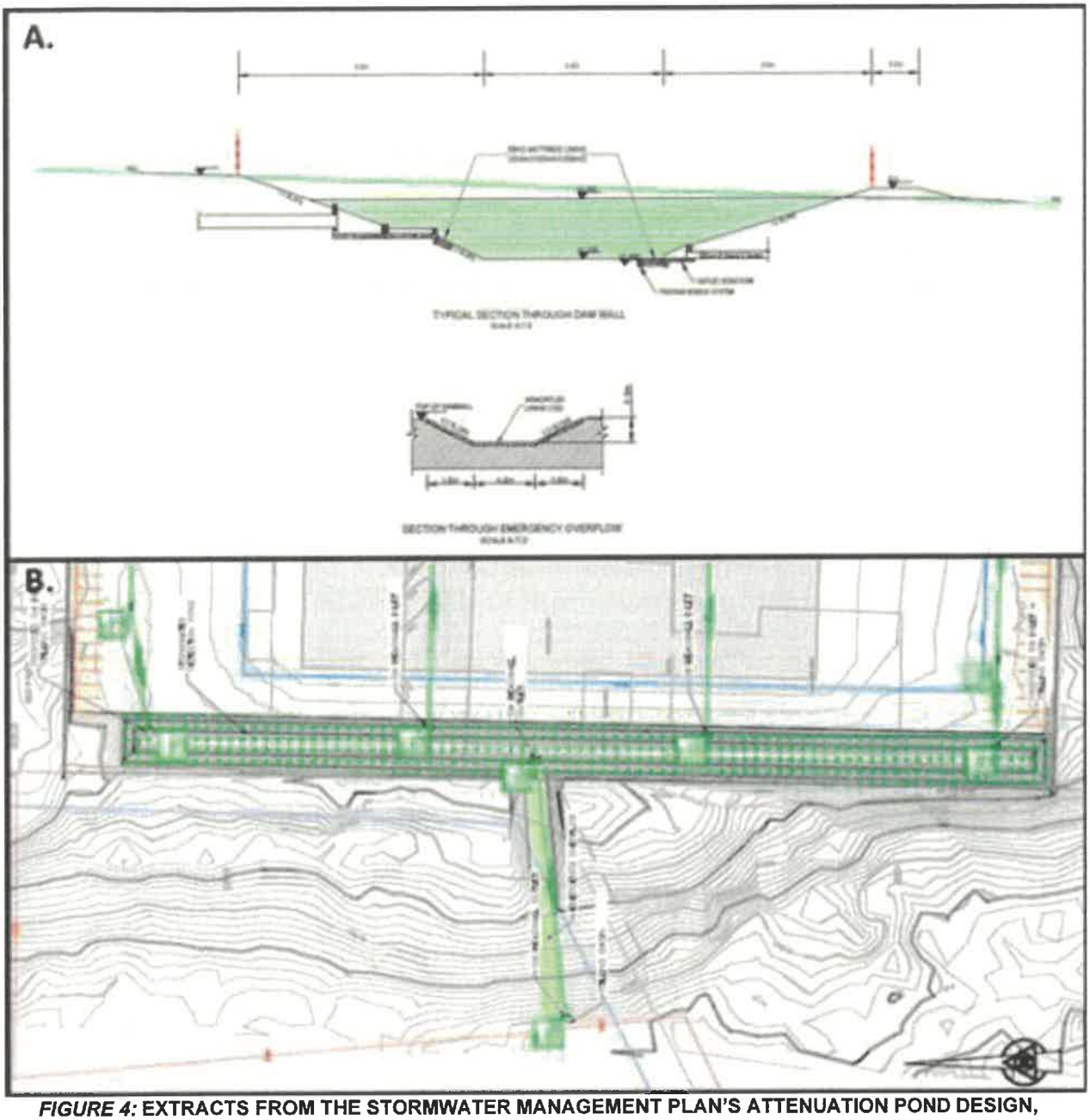
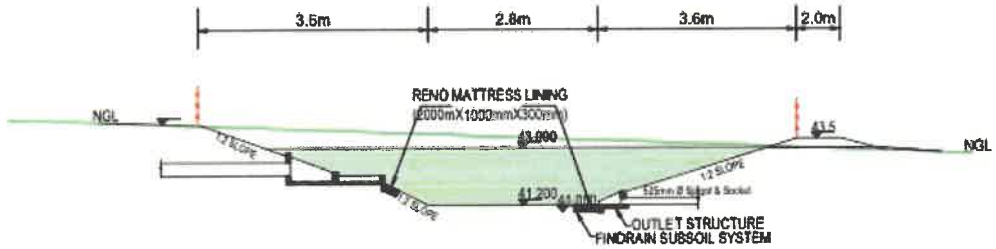
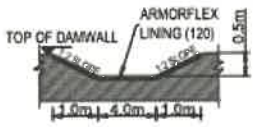


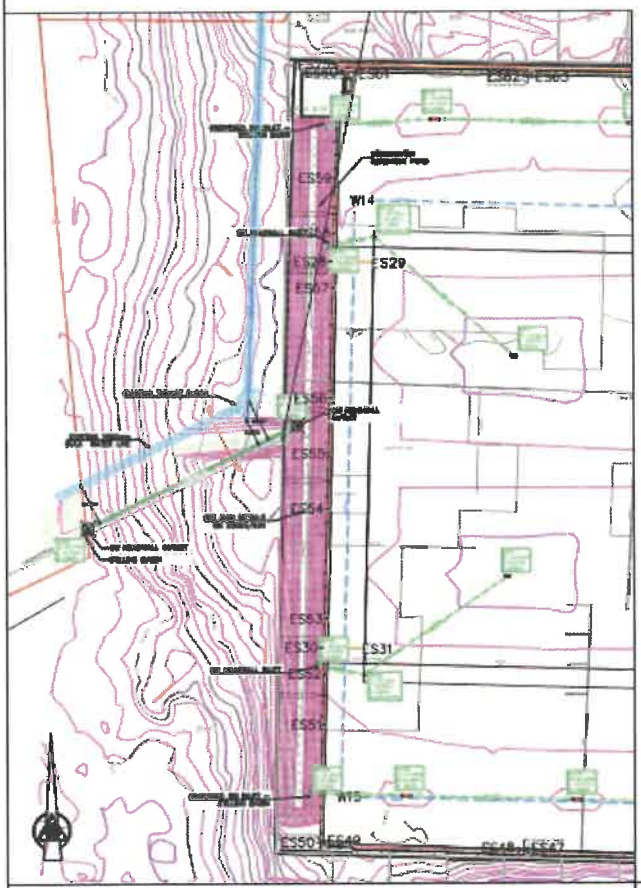
FIGURE 4: **EXTRACTS FROM THE STORMWATER MANAGEMENT PLAN'S ATTENUATION POND DESIGN, SHOWING, A) A CROSS SECTION OF THE POND AND B) A MAP OF ITS LOCATION AGAINST THE SITE'S WESTERN BOUNDARY (KLS CONSULTING ENGINEERS (2022)).**



TYPICAL SECTION THROUGH DAM WALL
SCALE: N.T.S



SECTION THROUGH EMERGENCY OVERFLOW
SCALE N.T.S



Dam volumes per depth increment

Surface: Dam

Level	Area (m2)	Interv. Vol. (m3)	Cumul. Vol. (m3)
43.000	1331.587	252.787	1311.066
42.800	1106.282	225.854	1058.279
42.600	1082.261	199.178	832.425
42.400	929.523	172.759	633.246
42.200	798.868	146.597	460.487
42.000	667.897	120.691	313.891
41.800	539.010	95.042	193.200
41.600	411.457	69.648	98.158
41.400	285.057	28.509	28.509
41.200	0.000	0.000	0.000
			1311.066

FOR CONSTRUCTION

ACKERMANS DISTRIBUTION CENTRE,
ERF 3865, HAGLEY

STORMWATER ATTENUATION DAM

0	FOR CONSTRUCTION	08/03/2024	JS
C	FOR APPROVAL	18/01/2024	JS
B	UPDATED CAPACITY	25/10/2022	JS
A	FOR INFORMATION	22/09/2022	JS
	REVISION / WYSIGING	DATE / DATUM	AUTHO / OUTEU

APPROVED BY | SIGNATURE | PROF. NUMBER | DATE

DRAWN / GETEKEN: JS | CHECKED / NAGESIEN: JR | DATE / DATUM: SEPT 2022

SCALE / SKAAL: NTS

DRG. No. / TEK. Nr. 22063/530

REVISION No. / WYSIGING Nr: 0

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FIGURE 5: STORMWATER ATTENUATION POND (KLS CONSULTING ENGINEERS (2022))

The pond contains one piped outlet, feeding directly into the Kuils River corridor (**Figure 6 & 7**). This outlet is clearly already having an impact upon the wetlands into which it feeds (**Figure 3 & 6**). Whilst the construction has already been completed, the operational aspects will trigger a Section 21 (c) and (i) water use.

FIGURE 6: A GOOGLE EARTH SATELLITE IMAGE OF THE WESTERN BOUNDARY OF THE SITE SHOWING THE LOCATION OF THE STORMWATER OUTLET FROM THE ATTENUATION POND, A) THE INLET TO THE STORMWATER OUTLET PIPE WITHIN THE ATTENUATION POND AND B) THE OUTLET FROM OF THE STORMWATER OUTLET INTO THE KUILS RIVER CORRIDOR, SHOWING EROSION DOWNSTREAM OF THE OUTLET (AQUATIC RISK ASSESSMENT REPORT FOR THE PROPOSED ABSTRACTION OF GROUNDWATER AT THE ACKERMAN'S DISTRIBUTION CENTRE ON ERF 3865, HAGLEY, STUART BARROW (SEPTEMBER 2024))

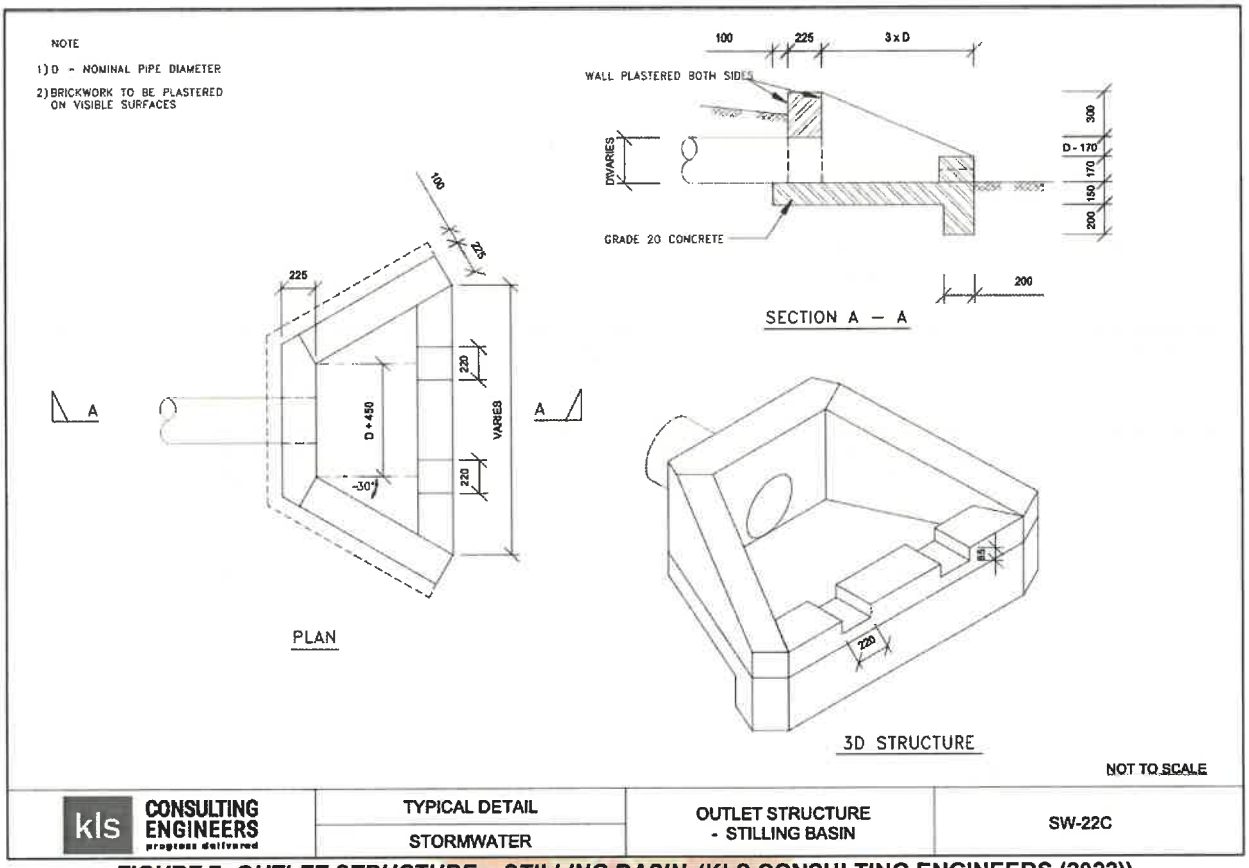

FIGURE 7: OUTLET STRUCTURE – STILLING BASIN **(KLS CONSULTING ENGINEERS (2022))**

If the outlet and pond are left as is, the risk of ecological degradation to the Nooiensfonteinvlei are moderate. However, if the mitigation measures mentioned below are adequately implemented, the proposed activity poses a low risk to water resources in terms of Section 21 (c) and (i) water uses.

Mitigation measures to effectively management stormwater on site:

- It is recommended that the attenuation pond be densely vegetated with appropriate indigenous species, such as *Cyperus textilis*, *Juncus capensis*, *Cyperus congestus* and *Ficinia nodosa* which occur in the adjacent wetlands. This vegetation should be planted across the banks and bed of the attenuation pond. The vegetation will increase surface roughness of the pond area, reducing flow speed through the pond to the outlet. By slowing the flow, the plants will assist in capturing sediment being transported from the site. The roots of the plants will also assist in binding the soils of the attenuation pond itself, so that it is not washed out into the wetland areas.
- It is also recommended that improved energy dissipation be installed at the outlet into the Kuils River corridor. A riprap or loose rock basin would immediately spread flow across a wider area. The downstream end of the basin should be planted with a relatively tall indigenous sedge, such as *Cyperus textilis*. The vegetation would function as a final energy dissipater and assist in preventing erosion downstream of the outlet.

9. Rehabilitation Plan

Rehab measures would pertain to the activities within the regulated wetland area. Please note that construction is complete, all building materials has been removed and SW infrastructure is established. However, the recommended freshwater mitigation measures would serve as additional rehabilitation i.e. improved energy dissipation should be installed at the outlet into the Kuils River corridor. A riprap or loose rock basin would immediately spread flow across a wider area. The

downstream end of the basin should be planted with a relatively tall indigenous sedge, such as *Cyperus textilis*. The vegetation would function as a final energy dissipater and assist in preventing erosion downstream of the outlet.

10. Water Uses applied for

The application includes the following water uses.

Table 9: Water Use Applied for

Water use(s) activities	Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/ dimension	Property Description	Co-ordinates
Section 21(a)				
Abstraction of groundwater from Borehole (AB_BH1)	Irrigation	2 560m^3/a for 0.2815ha landscaped area	Erf 3865, Hagley	33°57'25.68"S, 18°40'17.93"E
Section 21(b)				
Stormwater Attenuation Pond	Storage	1 300m^3	Erf 3865, Hagley	33°57'27.99"S, 18°40'6.22"E
Section 21 c & i				
Stormwater infrastructure	SW management	Outflow and stilling basin as per engineering drawings	Existing Pipeline Servitude Area over RE of Portion 3 of Farm 939, Hagley	33°57'28.75"S, 18°40'4.27"E
Borehole (AB_BH1)	Irrigation	2 560m^3/a for 0.2815ha landscaped area	Erf 3865, Hagley	33°57'25.68"S, 18°40'17.93"E

11. Impacts and mitigation measures

The potential impacts and mitigation measures that are expected from the proposed activities are presented in **Table 10.**

Table 10: Summary of impacts and mitigation measures

Water Use activity	Possible causes of the impacts of the activities Impacts to the water resources	Possible Impacts to the water resource and other water users	Mitigation Measures
Section 21(a)	Overabstraction or inadequate groundwater management & monitoring	o Potential impact due to the depletion of groundwater resources as a result of over-abstraction. o Groundwater Quality Deterioration as a Result of Over-Abstraction o Groundwater Abstraction Impacting the Surface Water System	**Proposed Groundwater Mitigation as recommended by GEOSS in Geohydrological Assessment** To facilitate monitoring and informed management of a borehole, it is highly recommended that boreholes be equipped with the following monitoring infrastructure and equipment: • Installation of a 32mm (inner diameter, class 10) observation pipe from the pump depth to the surface, closed at the bottom and slotted for the bottom 5 – 10m. • Installation of an electronic water level logger (for automated water level monitoring). • Installation of a sampling tap (to monitor water quality). • Installation of a flow volume meter (to monitor abstraction rates and volumes). A qualified hydrogeologist should analyse this monitoring data to ensure long-term sustainable use of the borehole. Legal compliance about the use of groundwater also needs to be addressed with the Department of Water and Sanitation. The management of the groundwater abstraction includes the following recommendations: 1. Continuous monitoring of groundwater levels using a pressure transducer in the borehole is ideal. This is however an expensive endeavour and should the department approve of weekly monitoring by means of a dip meter it may be considered as a cost-effective alternative. The water level in the borehole may not drop below the critical water level. If the water level in the borehole drops below the critical water level, abstraction must be immediately reduced by 10 %. Monitoring must continue and after 30 days, if the water level in the borehole does not recover to above the critical water level, abstraction must be reduced by a further 10 %. This process must continue until the water level in the borehole is stable. 2. Water quality monitoring, which includes sampling and analysing groundwater at an accredited laboratory, is important. A sampling interval of bi-annual is

			recommended for the first year of monitoring; after that, the water quality monitoring should be reviewed and can potentially be reduced to annually.. 3. To address the potential for iron to clog the borehole and abstraction infrastructure, it is recommended to maintain a constant and continuous pumping schedule as much as possible. As a daily volume of less than 250 560L/d is required, it is recommended to decrease the pumping rate and not the pumping duration. By pumping continuously instead of on a stop-start schedule, iron oxidation in the borehole is minimized, decreasing the amount of iron precipitation inside the boreholes and pumps. 4. The monitoring data should be reviewed quarterly at first and can then be scaled down bi- annually. 5. Installation of a sampling tap at the production borehole (to monitor water quality) is essential. 6. Installation of a flow volume meter at the production borehole (to monitor abstraction rates and volumes) is also important. External flow (e.g., mag-flow) meters are recommended. 7. Abstraction volumes must be monitored and recorded by a designated on-site person. Depending on the frequency of use, daily, weekly, or monthly abstraction should be recorded. 8. The appropriate borehole pump must be installed, i.e., not an oversized pump that is choked with a gate valve. If the monitoring shows that more water can be abstracted, then the duration of pumping time can be increased (not the flow rate). 9. The borehole and pump may be cleaned if iron clogging has occurred and the borehole efficiency has dropped 10. A geohydrologist should review the above information annually to ensure optimal groundwater abstraction and management. The groundwater abstraction should be reviewed to ensure sustainability based on the monitoring data obtained.
Section 21(b)	Concentrated flows due to inadequate SW infrastructure management measures	o Altered flow patterns across the floodplain wetland caused by concentrated flows. o Erosion of floodplain wetland o Sediment Deposition	It is recommended that the attenuation pond be densely vegetated with appropriate indigenous species, such as *Cyperus textilis*, *Juncus capensis*, *Cyperus congestus* and *Ficinia nodosa* which occur in the adjacent wetlands. This vegetation should across the banks and bed of the attenuation pond. The vegetation will increase surface roughness of the pond area, reducing flow speed through the pond to the outlet. By slowing the flow, the plants will assist in capturing sediment being transported from the site. The roots of the plants will also assist in binding the soils of the attenuation pond itself, so that it is not washed out into the wetland areas.

Section 21 c & i	Concentrated flows due to inadequate SW infrastructure management measures	o Altered flow patterns across the floodplain wetland caused by concentrated flows. o Erosion of floodplain wetland o Sediment Deposition	It is also recommended that improved energy dissipation be installed at the outlet into the Kuils River corridor. A riprap or loose rock basin would immediately spread flow across a wider area. The downstream end of the basin should be planted with a relatively tall indigenous sedge, such as *Cyperus textilis*. The vegetation would function as a final energy dissipater and assist in preventing erosion downstream of the outlet.

12. Water demand and water supply

12.1 Water demand

To sustainably meet the irrigation requirement, the estimated irrigation demand is ± 2 560m³ per annum.

12.2 Water supply

The production borehole on site have been drilled in 2023 and was subsequently correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). The application volume, 2 560m³/a is within the sustainable yield (0.003% of the sustainable yield of 91 517.04m³/a) of the aquifer. The borehole is drilled into the fractured Malmesbury Group aquifer (shales of the Tygerberg Formation). The groundwater is of marginal quality (EC > 70mS/m) and will be blended with municipal water before being used on the property. In this area, the geology intersected in drillholes usually have a clay layer on top of shales, as logged in the drill log of AB_BH1. This clay layer is likely to provide sufficient protection against point and non-point sources of contamination and the vulnerability rating of the underlying fractured aquifer would likely be low. Additionally, the borehole has been cased off by means of steel casing until the end of borehole depth with the steel casing perforated around water bearing zones between 48 – 78mbgl.

The Aquifer Firm Yield Model indicates that there is proficient available groundwater left in the catchment, i.e. the quaternary catchment G22E may still allocate additional groundwater abstraction when taking into account the application volume together with the registered, active, verified, and lawful uses.

A groundwater requirement and supply analysis for the site is provided below:

Groundwater Requirement
The current groundwater requirement for the Applicant is 2 560m³/a.

Groundwater Supply
From the yield test, if the borehole is pumped at the recommended rate and schedule, a yield of 91 517.04m³/a can be obtained. Because the proposed application volume is within the sustainable yield of the borehole and can be supported by the Firm Yield calculated for the Groundwater Resource Unit (GRU) and the Groundwater Reserve for catchment G22E, the abstraction of the total volume of 2 560m³/a can be considered within the local aquifer`s capacity. Continued monitoring is required to ensure its sustainable use. Please refer to **Table 11**.

Table 11: Water Balance

Month	*Landscape Architect Irrigation Requirements (m^3)	Municipal Water for 30% dilution (m^3)	Borehole 70% (m^3)
January	573	172	401
February	464	139	325
March	403	121	282
April	224	67	157
May	170	51	119
June	106	32	74
July	110	33	77
August	110	33	77
September	165	50	116
October	298	89	209
November	448	134	314
December	573	172	401
Total (m^3/Annum)	±3 644m^3	1 093m^3	±2 552m^3
Total (m^3/Day)	±10m^3	±3m^3	±7m^3
	13m^3 p/d (combined total)		

12. Public participation

The public participation process is still to be conducted in terms of Section 41 (4) of the National Water Act, Act no 36 of 1998. The outcome of the process will be summarised in **Table 12**.

Table 12: Outcome of the public participation

Person who commented	Comments (support or object)	Reasons for objection	Applicant's response to the objection
To be finalised once 60 day PPP is completed			

13. Other authorisations applicable to the activity

The borehole has been registered with CoCT as required by the CoCT bylaw.

14. Section 27 (1)

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

a) Existing lawful water uses

An existing lawful water use (ELU) is a water use that lawfully took place in the period two years before the commencement of the National Water Act (Act 36 of 1998). This allows any water use that lawfully took place to continue until such time as it can be converted into a Licence. No existing lawful water uses have been registered for this site.

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

The proposal entails the development and operation of a new Ackermans Retail Clothing Brand Distribution Centre. Ackermans is a division of Pepkor Trading (Pty) Ltd. The applicant is therefore Pepkor Trading (Pty) Ltd, a subsidiary of Pepkor Holdings Ltd, which is 20.52% black-owned (6.73% black woman owned) and a total B-BBEE recognition of 50% (Level 7).

The basis for the proposed development of a new Ackermans DC was due to a site relocation from another premises, therefore, all the existing staff will remain employed and will relocate to the new site. These include approximately 150 direct employment opportunities, whereof a 100 is permanent and 50 is temporary. These employment opportunities are mostly within the commercial clothing retail sector. New employment opportunities are mostly limited to facility services at the Distribution Centre and includes 28 new indirect job opportunities (Security -16, Cleaning – 8, Canteen – 4).

A component of the potential benefit of this proposed development is the local economic stimulation. The COCT IDP (2022-2027) identifies the importance of economic development; local investment and job creation to stimulate the national economy. It should be noted that the project has already represented a significant opportunity for the local employment sector and members of the local community in terms of job opportunities during the initial construction phase for both skilled and unskilled labourers. The majority of the employment opportunities were likely to have benefited local Historically Disadvantaged (HDI) members of the community.

Furthermore, additional short-and-long term employment opportunities for both skilled and unskilled labourers can become available during the operational phase at the distribution centre. These opportunities could arise at the warehouse as direct employment or subsequent logistical distribution opportunities through indirect sub-contractual agreements. The establishment of an additional distribution centre will furthermore increase commercial service delivery capacity which will in turn stimulate and facilitate economic growth from a national economy perspective.

In addition to the construction & commercial component of the proposed development (Distribution Centre), a landscaping component will also be included which entails 0.2815ha. The landscaping component will also create employment and wage opportunities over and above the annual jobs associated with the commercial component associated with the Ackermans Distribution Centre.

The proposed development will not only contribute to the local economic development of the area, but also secure a dedicated commercial area for business opportunities that will entice relocation and development of small and medium enterprises to the area. The knock-on employment opportunities will have a positive impact on the local & national economy during the operational phases.

Additionally, Pepkor recognises the national and business imperatives of Employment Equity and supports the goals and objectives thereof. Employment Equity is therefore viewed as an integral element of the overall transformation requirements encompassed in South Africa's Broad Based Black Economic Empowerment efforts. Pepkor therefore implements Employment Equity Policies to address the results of past racial & gender discrimination.

The policy acknowledges and takes into account the constitutional and legislative policy framework, within which the Group functions, which includes but is not limited to, the Constitution of the Republic of South Africa, the Employment Equity Act (55 of 1998), the Skills Development Act (97 of 1998), the Basic Conditions of Employment Act (3 of 1997) and the Labour Relations Act (66 of 1995), as amended from time to time.

The principles, values and objectives, must guide all interpretations, applications, and extensions of this policy. The Group therefore, through its Employment Equity policy, commits itself to:

- *Be an equitable employer that offers a non-discriminatory workplace and employment climate, respectful of human diversity and the human dignity of all, irrespective of race, gender, pregnancy, marital status, family responsibility, ethnic or social origin, colour, sexual orientation, age, disability, religion, HIV/AIDS status, conscience, belief, political opinion, culture, language and birth, or on any other arbitrary ground.*
- *Eliminate all forms of unfair discrimination and to take corrective action, in the form of constructive actions to remedy under-representation of designated groups and diversity imbalances in the composition of its workforce, to remedy the legacy of past discriminatory practices and policies.*
- *Strive to promote and maintain an environment that empowers all its employees to achieve their highest potential without fear of prejudice or bias.*
- *Strive to recognize, appreciate, manage and harmonize diversity in a balanced way.*

To give effect to Employment Equity legislation, operating businesses within Pepkor, will have appropriate Employment Equity plans and reporting documents. In line with legislation and pragmatic requirements, the policy will set out the principles for managing Employment Equity and serve as a guide for decision making.

The purpose of this Policy is to provide the guiding principles, the institutional framework and basic strategies for the development and implementation of the Group's Employment Equity initiatives and by doing so, achieve equity in the workplace. This includes:

1. *Promoting equal opportunity and fair treatment in employment through the elimination of unfair discrimination.*
2. *Implementing affirmative action measures to redress the disadvantages in employment experience by black people, women and people with disabilities, with the objective of equitable representation in all occupational categories and levels in the workforce.*
3. *Actively recruiting, training, developing and advancing suitable qualified people from designated groups.*
4. *Creating a work environment that encourages diversity and allows all people to develop and contribute to their full potential to achieve organisational success.*
5. *Promote Employment Equity as a business imperative that addresses the equitable appointments, development and promotion of designated people. Providing for the Company's present and future needs for skilled, managerial and leadership roles.*
6. *Ensuring that the Company becomes known as an equal opportunity employer and employer of choice, committed to the transformation of South Africa.*
7. *Ensure that the Company creates a workplace conducive and supportive of people with disabilities e.g. reasonable accommodation of disabled people in terms of access to the buildings/premises, restrooms etc.*

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

The proposed developments WULA primary entails the physical use of water, i.e. the abstraction of ground water for irrigation purposes on site (a) as well as the storage of stormwater on site in an attenuation pond (b). The use of groundwater on site, minimises the need to irrigate using municipal water, which results in lower costs and less pressure on the CoCT municipal distribution system. This allows potable supply to be available for other users within the CoCT metro area.

Additionally, (c) and (i) water uses associated with the development's stormwater infrastructure and the borehole within the regulated area of the Kuils River and the delineated wetland areas are also applicable.

As mentioned in section (b), a component of the potential benefit of this proposed development is the potential local economic stimulation. It should be noted that the project has already represented a significant opportunity for the local employment sector and members of the local community in terms of job opportunities during the initial construction phase for both skilled and unskilled labourers. The majority of the employment opportunities were likely to have benefited local Historically Disadvantaged (HDI) members of the community.

Furthermore, additional short-and-long term employment opportunities for both skilled and unskilled labourers could become available during the operational phase at the distribution centre. These opportunities could arise at the warehouse as direct employment or subsequent logistical distribution opportunities through indirect sub-contractual agreements. The establishment of an additional distribution centre will furthermore increase commercial service delivery capacity which will in turn stimulate and facilitate economic growth from a national economy perspective.

In addition to the commercial component of the proposed development (Distribution Centre), a landscaping component will also be included which entails 0.2815ha. The landscaping component will also create employment and wage opportunities over and above the annual jobs associated with the commercial component associated with the Ackermans Distribution Centre.

The proposed development will not only contribute to the local economic development of the area, but also secure a dedicated commercial area for business opportunities that will entice relocation and development of small and medium enterprises to the area. The knock-on employment opportunities will have a positive impact on the local & national economy during the operational phases.

A Freshwater Study & Geohydrology Assessment was conducted to verify the risk rating and mitigate any potential detrimental impacts associated with the proposed water use activities. Refer to **Section 6** of this report.

d) Socio-economic impact –

i) Of water use or uses if authorised:

As mentioned in Section (a), the basis for the proposed development of a new Ackermans DC was due to a site relocation from another premises, therefore, all the existing staff will remain employed and will relocate to the new site. These include approximately 150 direct employment opportunities, whereof a 100 is permanent and 50 is temporary. These employment opportunities are mostly within the commercial clothing retail sector. New employment opportunities are mostly limited to facility services at the Distribution Centre and includes 28 new indirect job opportunities (Security -16, Cleaning – 8, Canteen – 4).

A component of the potential benefit of this proposed development is the local economic stimulation. The COCT IDP (2022-2027) identifies the importance of economic development; local investment and job creation to stimulate the national economy. It should be noted that the project has already represented a significant opportunity for the local employment sector and members of the local community in terms of job opportunities during the initial construction phase for both skilled and unskilled labourers. The majority of the employment opportunities were likely to have benefited local Historically Disadvantaged (HDI) members of the community.

Furthermore, additional short-and-long term employment opportunities for both skilled and unskilled labourers can become available during the operational phase at the distribution centre. These opportunities could arise at the warehouse as direct employment or subsequent logistical distribution opportunities through indirect sub-contractual agreements. The establishment of an additional distribution centre will furthermore increase commercial service delivery capacity which will in turn stimulate and facilitate economic growth from a national economy perspective.

In addition to the construction & commercial component of the proposed development (Distribution Centre), a landscaping component will also be included which entails 0.2815ha. The landscaping component will also create employment and wage opportunities over and above the annual jobs associated with the commercial component associated with the Ackermans Distribution Centre.

The proposed water uses linked to the proposed development will ensure the optimal development & operation of the site within the management and mitigation measures identified by the Freshwater Ecologist & Geo-Hydrologist.

The use of groundwater on site, minimises the need to irrigate using municipal water, which results in lower costs and less pressure on the CoCT municipal distribution system. This allows potable supply to be available for other users within the CoCT metro area.

It is well documented that the COCT Municipal Service Supply Capacity has been under increasing pressure due to old infrastructure, urban development/expansion and associated increase in service demand. Please refer to the below published article:

According to an article in *The Mail & Guardian* (published 11 July 2024 by Lyse Comins), "*The City of Cape Town needs to spend R2 billion on building and refurbishing water infrastructure, as well as spend on developing new water sources, to achieve water security for the next 10 years. Any delays in implementing the water plan will increase the probability of water restrictions as it closely monitors demand for the scarce resource over the next 12 months.*

This is according to the city's water and sanitation directorate's March 2024 Water Outlook Report released this week, which also highlights the need to swiftly implement its New Water Programme (NWP) that aims to diversify water sources to ensure sustainability of future supply.

The proposed diversified water sources include plans to develop a desalination plant in the vicinity of the Port of Cape Town, the recycling of wastewater, the drilling of new boreholes, and the sourcing of groundwater from aquifers.

According to the report, initial scoping has indicated that the city's infrastructure stability programme, which involves refurbishing infrastructure and building new capacity, will require funding of R2 billion over the next 10 years, a sum that has already been incorporated into its budget".

Table 13: direct and indirect Job opportunities

Job Opportunities	Number of Job Opportunities	Type of employment	Affected sectors of the economy
Direct (existing)	150	100 Permanent 50 Temporary	• Clothing/ retail • Sales • Marketing • Admin • Transportation & Logistics • Security • Domestic services • Food catering
Indirect	28	28 Permanent	
TOTAL	**178**		

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

- Failure to authorise the Section 21 (a) water use would mean that the irrigation water demand will not be met, and the water will have to be sourced from municipal supply. If the proposed water uses are not authorised the site will then need to use potable municipal water placing added pressure on already scarce water resources in the Berg WMA & COCT supply network.

  Landscaping of a site being developed with particular plants and in a particular way is a requirement by CoCT in order to get the proposed building plans authorised, which in turns requires the Applicant to source the irrigation water in order to comply. The landscaping plan is the most water efficient planting plan after due consideration and sign-off by CoCT, which minimises the water required for planting. The Applicant chooses not to contain stormwater on site and use that for irrigation, but rather allow stormwater to be released to the Kuilsriver.

- Failure to authorise the S21(b) water use will result in uncontrolled stormwater release form the site which could result in detrimental impacts on the receiving environment.

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

None at this time.

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

The Freshwater Ecological & Geohydrological studies were conducted inform potential impacts on the water resource and on other water users.

Freshwater Study

A Freshwater Risk Assessment Matrix (RAM) was carried out by Stuart Barrow of Freshwater Consulting according to Government Notice GN 4167 of 2023 (**Table 5**) for the stormwater outlet.

The findings of the risk assessment guide the potential water use authorisation process that will be required by the DWS. A risk assessment normally assesses the risk posed to freshwater resources by a proposed activity in three phases: the planning or design phase, the construction phase and the operational phase. As the outlet is already constructed, with little notable construction-related disturbance noted within the adjacent wetlands, the risks are all assessed under the operational phase. The risk assessment process also assumes that mitigation measures are in place.

If the outlet and pond are left as is, the risk of ecological degradation to the Nooiensfonteinvlei are moderate. However, if the mitigation measures mentioned below are adequately implemented, the proposed activity poses a low risk to water resources in terms of Section 21 (c) and (i) water uses. The risks are discussed below.

Altered flow pattern across the floodplain wetland

The concentrated outlet flow has already caused erosion and sedimentation downstream of the outlet. This could facilitate the formation of a channel or several channels within the wetland. This would mean that flows would be more effectively drained to lower portions of the wetland or to the primary channel of the Kuils River, and the areas closer to the outlet would potentially be drier. This risk has a high probability if not mitigated.

Erosion of the floodplain wetland

In an extreme instance of the formation of a channel, as described above, the concentrated flows might create erosion dongas within the wetland area. The donga would effectively function as a drain and result in significant changes to the surrounding wetlands. This risk is deemed to have a low probability.

Sediment deposition

Due to the lack of channels and the gentle gradient across the Nooiensfonteinvlei, the flows exiting the outlet immediately lose their energy. As a result, deposition of any transported sediment, or other material, occurs. During the site visit, deposited sediment was observed downstream of the outlet (**Figure 3**). The high rainfall events that led to the sediment being transported through the attenuation pond occurred during and immediately after the construction phase. There were still high sediment inputs on the site from incomplete construction areas and from the attenuation pond itself, which had not yet been adequately vegetated. During the long-term operation of the site, it is likely that this risk will reduce and channelised flow or erosion will become more likely.

These risks do need to be addressed. Firstly, the attenuation pond itself should be vegetated to stabilise soils in the pond and slow flows through the pond. Secondly, a riprap outlet basin is recommended with additional vegetation planted downstream of it at the outlet into the Kuils River corridor. If this is adequately implemented, risk that the outlet poses to degradation of the adjacent wetland is low.

Geohydrology Assessment

GEOSS South Africa (Pty) Ltd was appointed to conduct a geohydrological assessment for the proposed activity, Section 21 (a) – taking water from a water resource. The proposed application volume (2 560m^3/a) is agricultural use on the site in order to irrigate the gardens on site.

From the desktop study and hydrocensus, it is evident that there are groundwater users within the study area. The main purpose for the groundwater abstraction in the area is for agricultural and industrial use.

The production borehole on site have been drilled in 2023 and was subsequently correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes).

The application volume, 2 560m^3/a is within the sustainable yield (0.003% of the sustainable yield of 91 517.04m^3/a) of the aquifer. The borehole is drilled into the fractured Malmesbury Group aquifer(shales of the Tygerberg Formation). The groundwater is of marginal quality (EC > 70mS/m) and will be blended with municipal water before being used on the property. In this area, the geology intersected in drillholes usually have a clay layer on top of shales, as logged in the drill log of AB_BH1. This clay layer is likely to provide sufficient protection against point and non-point sources of contamination and the vulnerability rating of the underlying fractured aquifer would likely be low. Additionally, the borehole has been cased off by means of steel casing until the end of borehole depth with the steel casing perforated around water bearing zones between 48 – 78mbgl. It is recommended that the general Groundwater Management guideline outlined in **Section 13** (Geohydrology Report) be included in the licence conditions of the WULA.

The Aquifer Firm Yield Model indicates that there is proficient available groundwater left in the catchment, i.e. the quaternary catchment G22E may still allocate additional groundwater abstraction when taking into account the application volume together with the registered, active, verified, and lawful groundwater users.

The risk assessment includes identifying and rating the potential risks associated with the groundwater abstraction on Erf nr 3865, Hagley, near Kuilsriver, Western Cape, and any proposed mitigation measures where possible. The groundwater will be used for agricultural use. Each risk is qualitatively assessed based on the current information. The risk assessment relates only to groundwater abstraction as proposed on site. There are three potential impacts associated with groundwater abstraction:

- The risk of depletion of the groundwater due to over-abstraction
- The risk of groundwater quality deterioration as a result of over-abstraction
- The risk of groundwater abstraction impacting the surface water system

Proposed Groundwater Mitigation as recommended by GEOSS in Geohydrological Assessment

To facilitate monitoring and informed management of a borehole, it is highly recommended that boreholes be equipped with the following monitoring infrastructure and equipment:

- Installation of a 32mm (inner diameter, class 10) observation pipe from the pump depth to the surface, closed at the bottom and slotted for the bottom 5 – 10m.
- Installation of an electronic water level logger (for automated water level monitoring).
- Installation of a sampling tap (to monitor water quality).
- Installation of a flow volume meter (to monitor abstraction rates and volumes).

A qualified hydrogeologist should analyse this monitoring data to ensure long-term sustainable use of the borehole. Legal compliance about the use of groundwater also needs to be addressed with the Department of Water and Sanitation.

The management of the groundwater abstraction includes the following recommendations:

1. Continuous monitoring of groundwater levels using a pressure transducer in the borehole is ideal. This is however an expensive endeavour and should the department approve of weekly monitoring by means of a dip meter it may be considered as a cost-effective alternative. The water level in the borehole may not drop below the critical water level. If the water level in the borehole drops below the critical water level, abstraction must be immediately reduced by 10%. Monitoring must continue and after 30 days, if the water level in the borehole does not recover to above the critical water level, abstraction must be reduced by a further 10%. This process must continue until the water level in the borehole is stable.
2. Water quality monitoring, which includes sampling and analysing groundwater at an accredited laboratory, is important. A sampling interval of bi-annual is recommended for the first year of monitoring; after that, the water quality monitoring should be reviewed and can potentially be reduced to annually..
3. To address the potential for iron to clog the borehole and abstraction infrastructure, it is recommended to maintain a constant and continuous pumping schedule as much as possible. As a daily volume of less than 250 560L/d is required, it is recommended to decrease the pumping rate and not the pumping duration. By pumping continuously instead of on a stop-start schedule, iron oxidation in the borehole is minimized, decreasing the amount of iron precipitation inside the boreholes and pumps.
4. The monitoring data should be reviewed quarterly at first and can then be scaled down bi-annually.
5. Installation of a sampling tap at the production borehole (to monitor water quality) is essential.
6. Installation of a flow volume meter at the production borehole (to monitor abstraction rates and volumes) is also important. External flow (e.g., mag-flow) meters are recommended.
7. Abstraction volumes must be monitored and recorded by a designated on-site person. Depending on the frequency of use, daily, weekly, or monthly abstraction should be recorded.
8. The appropriate borehole pump must be installed, i.e., not an oversized pump that is choked with a gate valve. If the monitoring shows that more water can be abstracted, then the duration of pumping time can be increased (not the flow rate).
9. The borehole and pump may be cleaned if iron clogging has occurred and the borehole efficiency has dropped
10. A geohydrologist should review the above information annually to ensure optimal groundwater abstraction and management. The groundwater abstraction should be reviewed to ensure sustainability based on the monitoring data obtained.

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

The site lies within quaternary catchment G22E within the Berg River Catchment Management Area. No class & resource quality objectives for the underlying Malmesbury Aquifer. Please refer to the below breakdown of the class & resource quality objectives pertaining to the water resources (Kuils River & Nooiensfonteinvlei wetland.

Kuils River

As mentioned in **Section 6** of this report, more than 60% of the Kuils River's channel has been canalised, significantly modifying natural flow patterns and sediment transport regimes. Furthermore, the river receives run-off from informal settlements, industrial discharges, waste water treatment works discharges and raw effluent discharges from leaking sewers. The Kuils River would naturally have been a seasonal stream but is now permanently flowing. As a result, the Kuils River is in an extensively to critically modified state.

Table 14: The habitat integrity scoring for the Kuils River.

Kuils River			
Riparian		Instream	
Riparian Metrices (impact score 1 -25)	RIPARIAN IMPACT SCORE	INSTREAM IMPACT SCORE	Instream Metrices (score 1 - 25)
WATER ABSTRACTION	6	5	WATER ABSTRACTION
FLOW MODIFICATION	15	16	FLOW MODIFICATION
BANK EROSION	0	13	BED MODIFICATION
CHANNEL MODIFICATION	16	18	CHANNEL MODIFICATION
PHYS-CHEM	17	22	PHYS-CHEM MOD
INUNDATION	2	7	INUNDATION
EXOTIC VEGETATION	14	9	ALIEN MACROPHYTES
VEGETATION REMOVAL	14	5	INTRODUCED AQUATIC FAUNA
		10	RUBBISH DUMPING
Riparian Class	E/F	E	Instream Class
Habitat integrity score	20	32	Habitat integrity score
Average confidence	3.88	3.67	Average confidence

Wetland (Nooiensfonteinvlei wetland)

The wetland is considered to be largely modified. These wetlands are primarily fed by the large upstream catchment of the Kuils River. The catchment area has been significantly developed and this has impacted the hydrological and geomorphological processes of the river and its floodplains. The wider temporary and seasonal elements of the wetland are also fed by lateral inputs and all of this is stormwater from developed areas. This has altered the hydrology of the wetland - it receives higher volumes at higher intensity than it would have under natural conditions. The water quality of the wetland's primary input, namely the Kuils River, is very poor. The vegetation of the wetland has also been altered by a long history of agricultural use followed by invasion by woody alien species. The natural diversity of the vegetation community within the permanently saturated areas, has been reduced to a few dominant species as a result of permanent flows within the Kuils River and the poor quality of the water. The long history of agricultural land-use across the wider wetland area, followed by invasion by alien vegetation, has resulted in the loss of certain elements of the natural vegetation community, such as extensive sedge and rush beds.

Table 15: The final PES result and hectare equivalent of the Wet-Health Assessment of the current state of the Nooiensfonteinvlei

Final (adjusted) Scores				
PES Assessment	Hydrology	Geomorphology	Water Quality	Vegetation
Impact Score	4.7	2.1	6.7	6.0
PES Score (%)	53%	79%	33%	40%
Ecological Category	D	C	E	D
Trajectory of change	→	↓	↓	→
Confidence (revised results)	Medium	Medium	Medium	Medium
Combined Impact Score	4.9			
Combined PES Score (%)	51%			
Combined Ecological Category	D			
Hectare Equivalents	7.0 Ha			

Ecosystem services, importance and sensitivity assessment

The Kuils River is of **moderate** ecological importance and sensitivity. The river habitat has lost sensitive elements, but remains an important corridor within the urban area. The Nooiensfonteinvlei is considered to be of high ecological importance and sensitivity. It is an important refuge and corridor within the developed landscape and one of the last remaining remnants of moderately intact floodplain wetland along the Kuils River. The natural vegetation type that historically occurred along the Kuils River, Cape Flats Sand Fynbos, is considered to be critically endangered and there are a number of species endemic to it.

The wider seasonal elements are also sensitive to increases in water input, which will see it transition to a permanently saturated wetland dominated by a few hardy and common species, such as Phragmites australis.

Table 16: The ecological importance and sensitivity of the Kuils River and the Nooiensfonteinvlei adjacent to Erf 3865

	Kuils River	Nooiensfonteinvlei
Rare and endangered biota	1	3
Unique biota	1	2
Intolerant biota	1	1.5
Species/taxon richness	1.5	2
Diversity of aquatic habitat types or features	1.5	3
Refuge value of habitat type	3	4
Sensitivity of habitat to flow changes	1	2
Sensitivity of flow related water quality changes	1	2
Migration route/corridor for instream and riparian biota	3	3
National parks, wilderness areas, Nature Reserves, Natural Heritage sites, Natural areas, PNEs	2	3
RATINGS	1.25	2.50
EIS CATEGORY	**Moderate**	**High**

Despite the degraded state of the aquatic features adjacent to erf 3865, they are important for the supply of ecosystem services and represent one of the few remaining refuges for fauna and flora within an increasingly developed landscape.

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

Construction cost for building infrastructure = R219M

Building interior fitout = R149M

i) Strategic importance of the water use to be authorised

The proposed water uses for licencing pertain to the development and operation of a distribution centre, that will not only contribute to the local social and economic development of the area, but also secure a dedicated commercial area for business opportunities that will entice relocation and development of small and medium enterprise to the area (e.g. Logistical Services, Security Services).

The knock-on employment opportunities will have a positive impact on the local & national economy during the operational phase. In addition to the commercial component of the proposed development (Distribution Centre), a landscaping component will also be included which entails 0.2815ha. The landscaping component will also create employment and wage opportunities over and above the annual jobs associated with the commercial component associated with the Ackermans Distribution Centre.

Furthermore, the abstracted groundwater from the borehole will enable irrigation, which in turn enables the development of the site in terms of its landscaping component, which will subsequently improve the overall aesthetic value of the site and surrounding area. The presence of trees & plants from landscaping component will also serve as carbon sinks as trees take in carbon from the air and store it in wood, plant matter, roots and in the soil. Plants constantly exchange carbon with the atmosphere, absorbs carbon dioxide during photosynthesis and much of this carbon dioxide is then stored in the roots. In this way, trees & plants forming part of the landscaping component play an important role in the local & global carbon cycle, by soaking up lots of carbon dioxide (CO_2) that would otherwise live in the atmosphere.

In conclusion, the controlled discharge of stormwater through the attenuation pond and stilling basin will prevent uncontrolled run-off and subsequent erosion of the floodplain adjacent to the Kuils River. This ensures that impacts on the receiving water resources & water quality are prevented and complies with COCT bylaws in terms of stormwater management.

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

There are no international obligations to be met.

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

The Applicant has made significant financial investment on this site and aims to manage the site and the resource responsibly and according to the WULA and other legislation/ bylaws, therefore a minimum authorisation period of 20 years is requested.

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

We the applicant, ***Pepkor Trading (Pty) Ltd (1958/003362/07)***, hereby confirm that the information contained in this report to be submitted as part of the WULA: ***Abstraction of Ground Water on Erf 3865, Kuilsrivier, Western Cape. (WU35201)***, is true and correct.

Signed by: SHAUN BOKNARD NICOLE THOPPAY

Siganture: _____

Date: 2 October 2024