

SITE SENSITIVITY VERIFICATION REPORT

**FOR THE PROPOSED CONSTRUCTION
AND MAINTENANCE OF NEW SYSTEM 1
AT RAND WATER VEREENIGING TREAT
MENT WORKS, INSTALLATION OF
APPROXIMATELY 7 KM PHASE 2
SLUDGE PIPELINE IN VEREENIGING, 1.5
KM SLUDGE LINE IN PANFONTEIN AND
ASSOCIATED INFRASTRUCTURE
WITHIN THE JURISDICTION OF
SEDIBENG DISTRICT MUNICIPALITY,
GAUTENG PROVINCE**

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WATER VEREENIGING TREATMENT WORKS, INSTALLATION OF APPROXIMATELY 7 KM
PHASE 2 SLUDGE PIPELINE IN VEREENIGING, 1.5 KM SLUDGE LINE IN PANFONTEIN
AND ASSOCIATED INFRASTRUCTURE WITHIN THE JURISDICTION OF SEDIBENG
DISTRICT MUNICIPALITY,
GAUTENG PROVINCE**

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1 INTRODUCTION

This Site Sensitivity Verification (SSV) Report was conducted in terms of the protocols for the Assessment and minimum criteria for reporting on identified Environmental Themes (as referred to in the protocols) as per Government Notice No. 320 (published in Government Gazette No. 43110 on 20 March 2020). These protocols, effective as of 9 May 2020, must be complied with for every new application submitted after the effective date of the protocols. The Site Sensitivity Verification fieldwork was conducted on 11 March 2025, through the on-site inspection.

Selahle Consultancy and Projects (Pty) Ltd (SCP) was appointed by Rand Water to undertake the Environmental Authorisation, Water Use Licence Application and Heritage Permit processes for the proposed Construction and Maintenance of the New System 1 at the Vereeniging Water Treatment Works, the Construction of approximately 7 km Sludge Pipeline (Phase 2) in Vereeniging, and the Construction of 1.5 km Sludge Line in Panfontein within the jurisdiction of Sedibeng District Municipality, Gauteng Province of South Africa.

2 AIM OF THE SITE SENSITIVITY VERIFICATION REPORT

- To verify the land use and theme sensitivity identified by the DFFE Screening tool.
- To agree or dispute on the theme sensitivity ratings.
- To motivate as to why the need for the identified specialist studies is challenged.

3 METHODOLOGY

According to the protocols, the EAP must verify the site's environmental sensitivity in accordance with theme sensitivity and the required specialist studies, as identified by the Department of Forestry, Fisheries and Environment (DFFE) Screening Tool. This site verification report was compiled based on GIS Tools (Gauteng Conservation V 3.3 and V4), and specialist input in combination with a site visit (ground truthing), whose aim was to investigate, identify, and evaluate potential impacts associated with the proposed development of the receiving environment.

4 PROJECT DESCRIPTION AND LOCATION

Rand Water proposes the Construction and Maintenance of the New System 1 at the Vereeniging Water Treatment Works, the Construction of approximately 7 km Sludge Pipeline (Phase 2) in Vereeniging, and the Construction of 1.5 km Sludge Line in Panfontein. The project falls within the jurisdiction of the Sedibeng District Municipality in the Gauteng Province. The proposed developments are driven by the need to address operational inefficiencies, mitigate the impacts of aging infrastructure, and reduce the risks to water quality and supply arising from the progressive deterioration of the existing systems.

The Vereeniging Water Treatment Works was originally constructed with five treatment systems (Systems 1–5), designed for a combined production capacity of 1300 ML/day. System 1 was decommissioned in the early 2000s due to structural degradation, including leaking sedimentation

tanks and outlet flumes, as well as ground instability caused by a high-water table and expansive clay soils. These conditions led to the tanks lifting out of the ground and being backfilled with soil to prevent further structural displacement. The system also included an outdated hopper tank design that made sludge removal and maintenance highly labour-intensive and costly.

Given that repairs would be nearly as expensive as constructing a new system, Rand Water proposes to replace the decommissioned System 1 with a modern, automated, linear horizontal sedimentation tank. This upgraded system will have a capacity of 225 ML/day, which will be an increase from the former 90 ML/day, and it will include an automated de-sludging mechanism to improve operational efficiency. The modernised design will provide adequate standby capacity, enabling the treatment facility to maintain a production capacity of 1400 ML/day even when one tank is taken offline for cleaning and maintenance.

In corresponding with the New System 1, Rand Water also plans to implement two critical sludge management interventions. The first is the completion of Phase 2 of the Vereeniging to Zuikerbosch sludge pipeline, which involves the installation of a new section from the Vereeniging Pumping Station to the Vaal River crossing at Maccauville. This pipeline is vital for transporting sludge, a by-product of sedimentation consisting of suspended organic and inorganic matter to Zuikerbosch for further treatment. The existing pipeline is deteriorating and poses a significant operational risk. A failure could result in the accumulation of sludge within three to four days, potentially compromising water quality and forcing a shutdown of the Vereeniging facility.

The second intervention involves the installation of a new sludge line from Zuikerbosch to Panfontein. Currently, only a single sludge pipeline connects Vereeniging and Zuikerbosch, limiting flexibility and posing risks in case of power failures or leaks. At Zuikerbosch, sludge from both treatment stations is received at the Sludge Pump House and transferred to Panfontein for final processing and disposal. The proposed works will include a sludge cross-connection at Zuikerbosch and an 800 mm extension of the sludge pipeline to Panfontein, thereby improving reliability, operational flexibility, and maintenance scheduling.

4.1 The project is divided into three main segments namely:

New System 1 Vereeniging

The Vereeniging New System 1 at Rand Water Vereeniging Treatment Works will consist of the following infrastructure but not limited to:

- Construction of a new 250 MLD flocculator and 225 MLD sedimentation tank.
- Installation of the de-sludge bridge.
- Construction of access roads.
- Installation of a raw water pipeline.
- Installation of a sludge pipeline.
- Demolition of System 1 tank (90 MLD) to allow for the installation of a new automated system capable of producing 1400 MLD.
- Construction of a Laboratory and
- The installation of a new Carbon Dioxide dosing Carbonisation Bay.

Table 1: Vereeniging New System 1 Location

PROJECT LOCATION	
Province	Gauteng
District	Sedibeng District Municipality
Local Municipalities	Emfuleni Local Municipality
Ward Numbers	15
Nearest Town	Vereeniging
Farm Names and Numbers	LEEUWKUIL 596 IQ
Portion Numbers	Portion 111 of 596
Co-ordinates	26°41'15.46" S 27°55'06.63" E

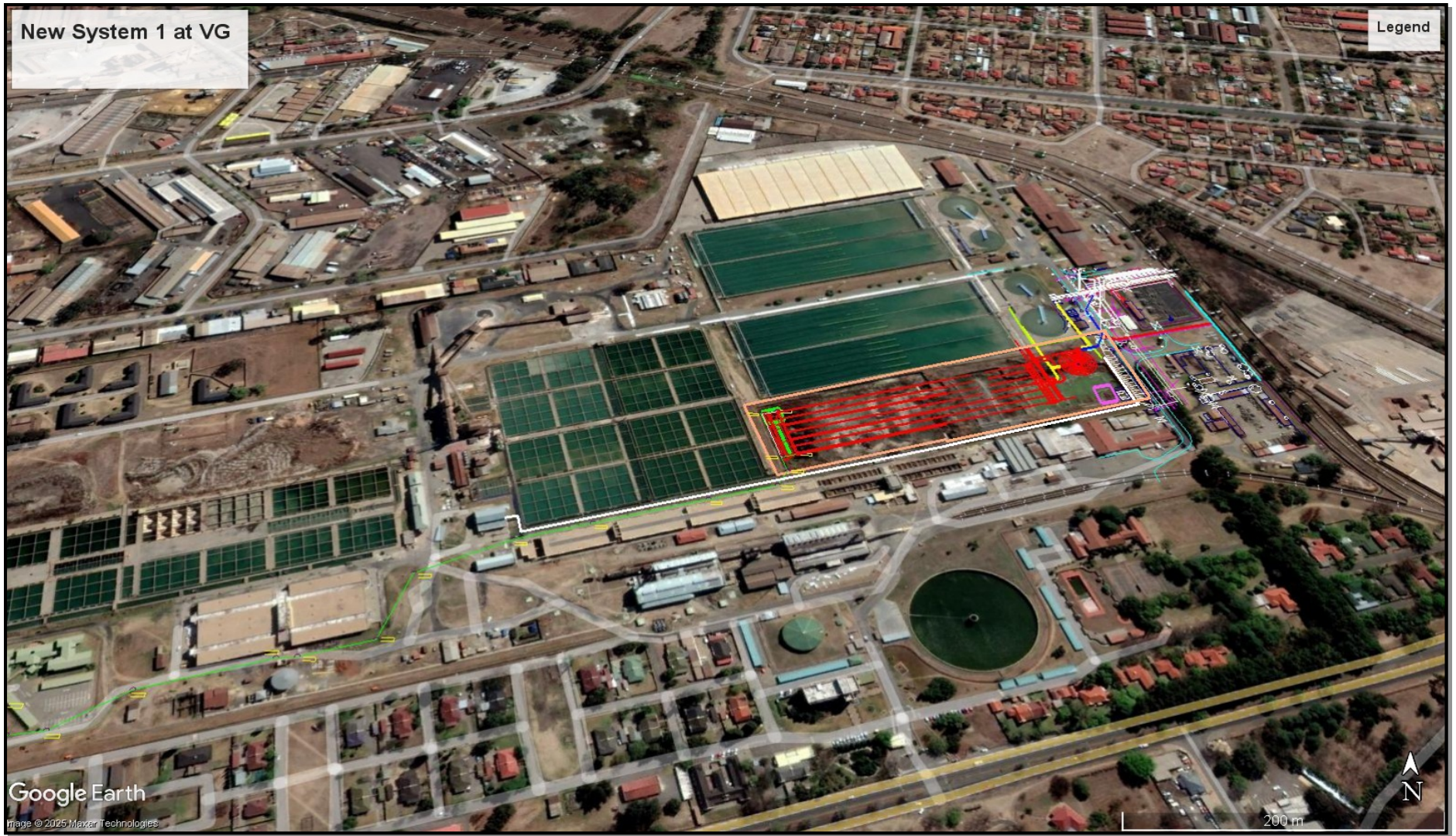


Figure 1: New System 1 (Vereeniging) Locality Map

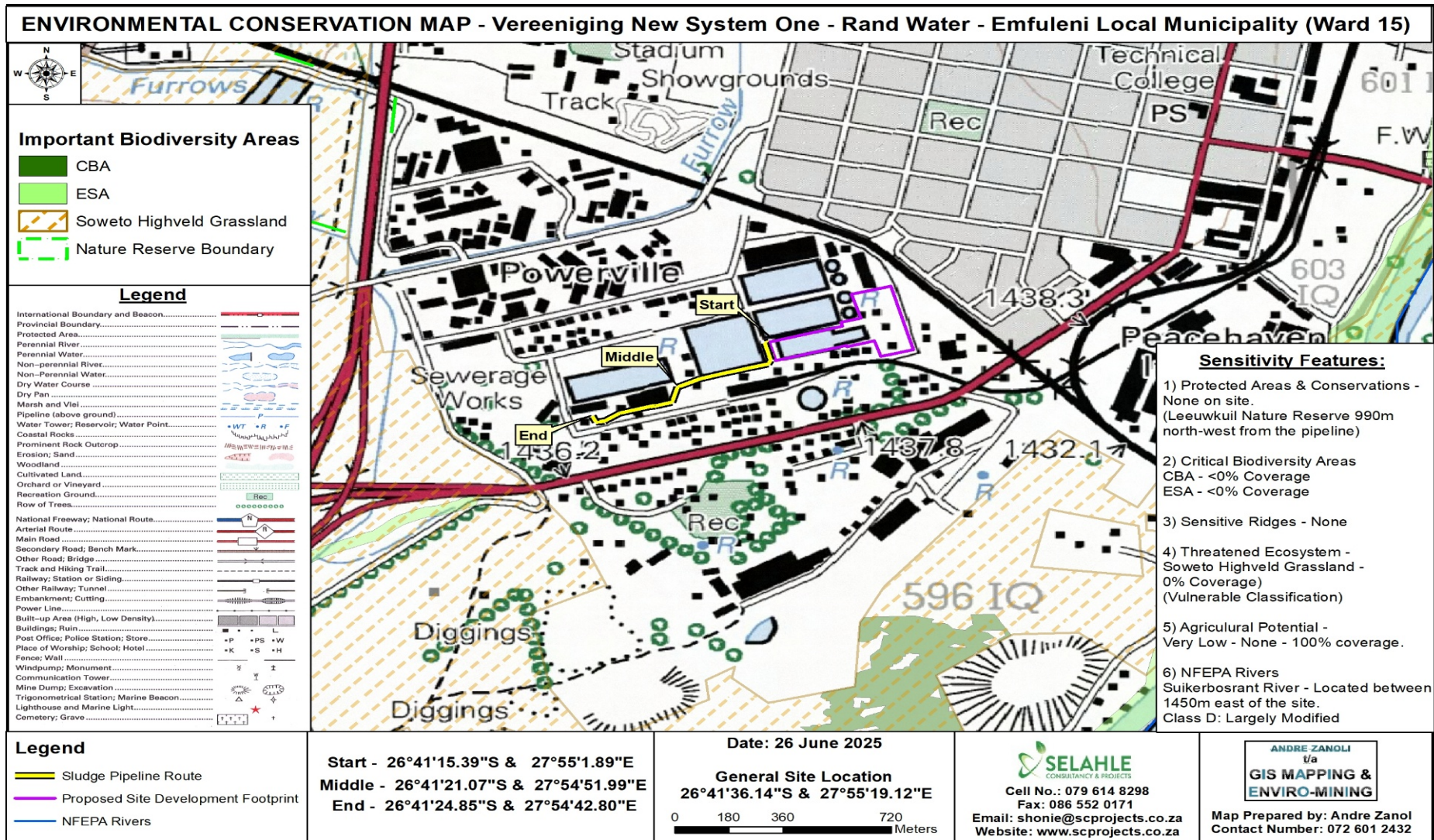


Figure 2: New System 1 (Vereeniging) Environmental Conservation Map

Phase 2 Sludge Pipeline in Vereeniging

- Phase 2 of the sludge pipeline starts from the sludge pumping station inside Vereeniging Treatment Works and runs through mostly an established industrial area in the south of Vereeniging.
- The proposed sludge pipeline runs alongside as well as across some of these services, which also include Rand Water Bulk Water Pipelines to the Vaal River Crossing.
- The installation and Maintenance of approximately 7 km in length of 1000mm nominal internal diameter steel sludge pipe with an 8mm wall thickness to be laid from the Vereeniging Pumping Station to the Vaal River Crossing.

Table 2: Phase 2 Sludge pipeline location

PROJECT LOCATION	
Province	Gauteng
District	Sedibeng District Municipality
Local Municipalities	Emfuleni Local Municipality
Ward Numbers	15
Nearest Town	Vereeniging
Farm Names and Numbers	LEEUWKUIL 596 IQ KLIPPLAATDRIFT 601 IQ USCO 603 IQ UITVLUGT 434 IR
Portion Numbers	Portion 0 of 596 Portion 60 of 596 Portion 81 of 596 Portion 98 of 596 Portion 117 of 596 Portion 122 of 596 Portion 111 of 596 Portion 160 of 596 Portion 251 of 596 Portion 255 of 596 Portion 260 of 596 Portion 0 of 601 Portion 72 of 601 Portion 0 of 603 Portion 77 of 434
Co-ordinates	Start Point: 26° 41'27.50" S 27° 54'41.83" E Middle Point: 26° 41'55.80" S 27°54'51.63" E End Point: 26°40'55.90" S 27°56'13.15" E



Figure 3: Phase 2 Sludge Pipeline

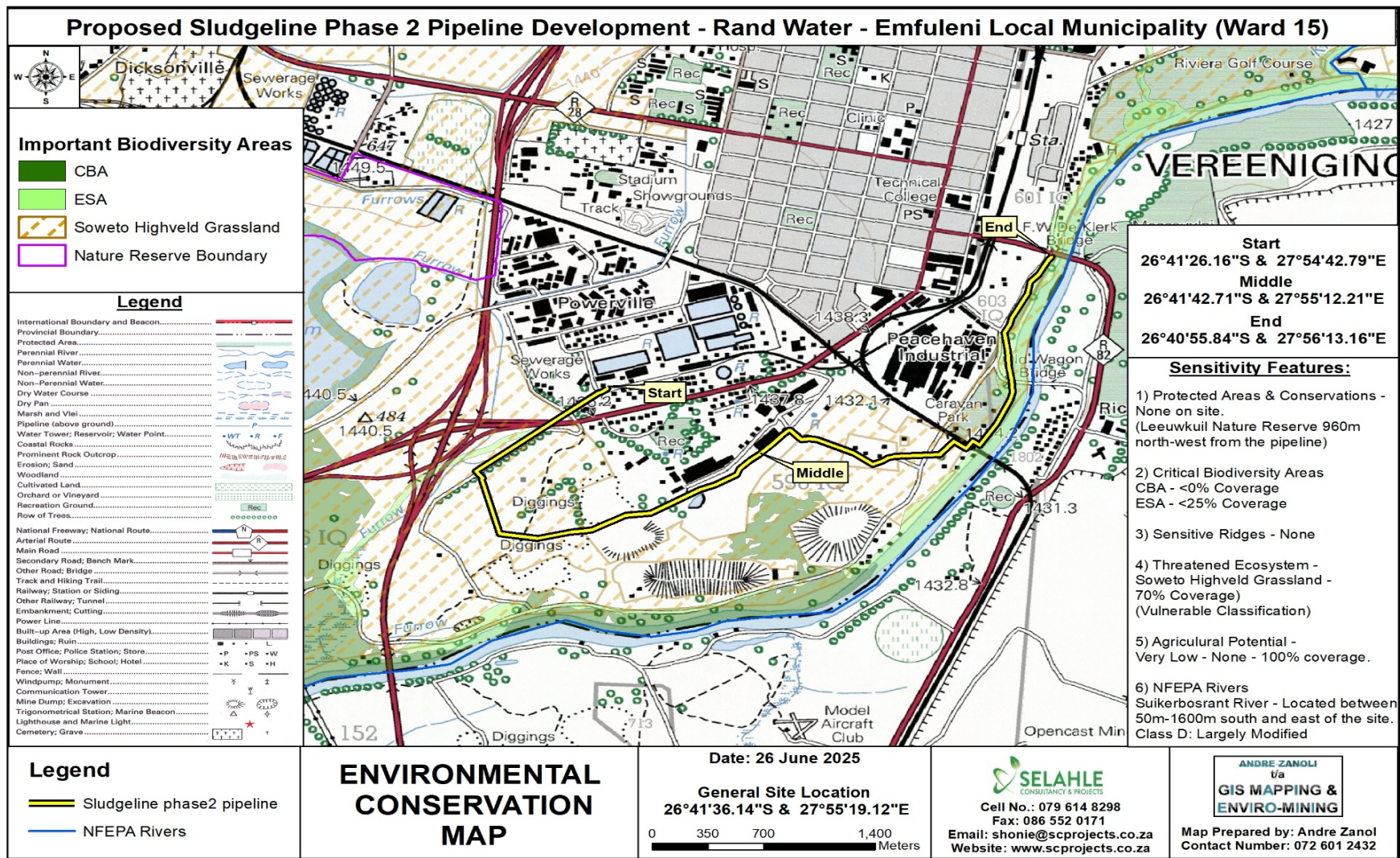


Figure 4: Environmental Conservation Map for Phase 2 Sludge Pipeline

1.5km Panfontein Sludge Pipeline

The Panfontein Sludge Pipeline will consist of the installation and Maintenance of an interconnection new sludge pipeline with approximately 1.5km in length and 800mm in diameter.

Table 3: Panfontein 1.5km Sludge Pipeline

PROJECT LOCATION	
Province	Gauteng
District	Sedibeng District Municipality
Local Municipalities	Midvaal Local Municipality
Ward Numbers	1
Nearest Town	Panfontein
Farm Names and Numbers	PANFONTEIN 437 IR
Portion Numbers	Portion 6 of 437
Co-ordinates	Start Point: 26° 42' 15.72" S 28° 01' 40.08" E Middle Point: 26° 42' 51.76" S 28° 02' 08.18" E End Point: 26° 42' 32.01" S 28° 02' 05.84" E



Figure 5: Panfontein Sludge Pipeline Locality Map

ENVIRONMENTAL CONSERVATION MAP - Panfontein - Pipeline - Rand Water - Midvaal Local Municipality (Ward 1)

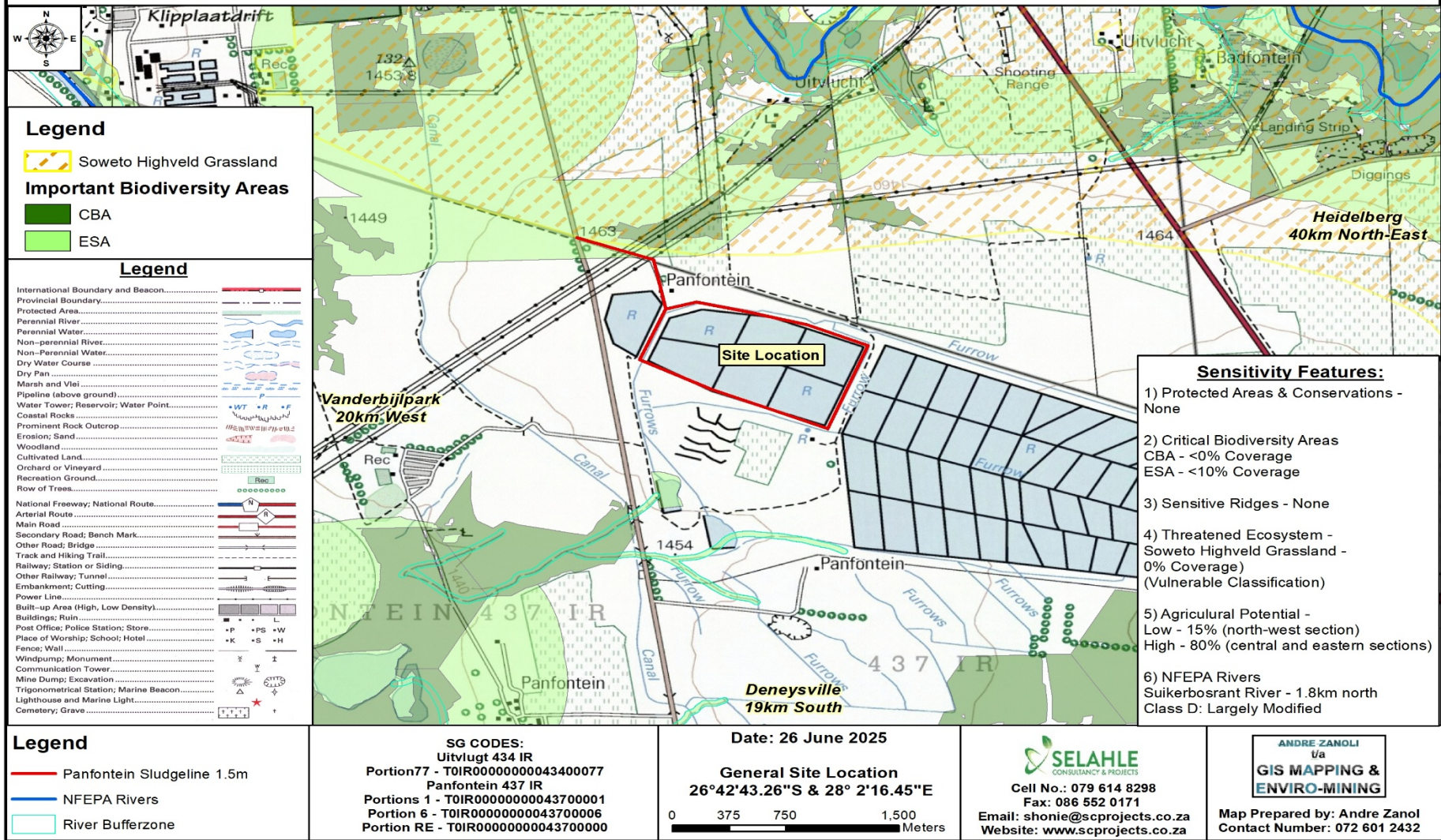


Figure 6: Environmental Conversation Map for the Panfontein Sludge Pipeline

5 THEMES AND ENVIRONMENTAL SENSITIVITY IDENTIFIED BY THE SCREENING TOOL

5.1 The tables below indicate the level of sensitivity of each of the themes identified in the DFFE Screening Tool report for New System 1 - Vereeniging.

Table 4: DFFE Screening Tool Findings – New System 1

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme			X	
Defense Theme				X
Paleontology Theme	X			
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

Table 5: DFFE Sensitivity Themes and Motivation from EAP – New System 1

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
1	Agriculture Theme	High Sensitivity	Dispute	Low sensitivity	<p>An agricultural Compliance Statement was undertaken by KMG Environmental Solutions Services. During the inspection the Specialist confirmed that the proposed developments are situated on land that is either urban and industrial in nature which are classified as low-potential agricultural land, with no current or foreseeable agricultural activities taking place in any of the affected zones.</p> <p>The Agricultural Compliance Statement will be appended in the Draft Basic Assessment.</p>
2	Animal Species Theme	High Sensitivity	Dispute	Low Sensitivity	<p>Terrestrial Impact Assessment was undertaken by Eco-Sentle Pty Ltd to assess and verify the type of protected species that could be found on site.</p> <p>According to the Terrestrial assessment appended to the DBAR, the Rand Water Vereeniging Water Treatment Works (VWTW) – News System 1, the servitude should be considered of medium ecological sensitivity. This is due to the already transformed nature of the area, characterised by existing infrastructure and human activities. In addition, both Gauteng Conservation Plan versions 3.3 and 4.0 were reviewed as part of the assessment and according to C-Plan 3.3, the Vereeniging Water Treatment Works (VWTW), including the locations for the New System 1 fall outside of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), suggesting a lower conservation priority at the provincial scale. However, the</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					<p>updated C-Plan 4.0 indicates that these same areas now fall within a CBA, reflecting a reassessment of their ecological importance. This is contradictory, as these locations are already heavily transformed.</p> <p>Furthermore, no mammal species were recorded in the study area. The web-based screening tool however, identified the study area as having potentially sensitive features. Despite this, Species of Conservation Concern (SCC) mammal species were assessed to have a low probability of occurrence based on habitat suitability assessments. No faunal species of conservation concern were encountered on-site during the field survey.</p>
3	Aquatic Biodiversity Theme	Low Sensitivity	Agree	Low Sensitivity	Aquatic Biodiversity at New System 1 is low, as the development will be occurring on a highly modified area. Based on the Aquatic Study conducted by the Biodiversity Company (TBC), all activities that would be undertaken at the Vereeniging Water Treatment Plant would be low as the site doesn't not fall within any Critical Biodiversity Areas (CBA) or has no features of Ecological Support Area (ESA).
4	Archaeological and Cultural Heritage Theme	Very High Sensitivity	Agree	Very High Sensitivity	Rand Water Vereeniging Water Treatment Work is regarded as a heritage-sensitive site because the development was established more than 60 years ago. Therefore, the New System 1 development is subjected to a Heritage Permit before any construction/ demolition works commence.

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					Furthermore, based on the Heritage assessment report conducted indicated that the structures date back to the 1920s and are over 60 years old, they are not tied to any notable historical events or persons and are considered to have medium local heritage value. No surface artefacts or major heritage constraints were identified, meaning the site poses no significant heritage risk to the proposed development.
5	Civil Aviation Theme	Medium Sensitivity	Dispute	Low Sensitivity	The development will not trigger any civil aviation activities or have any height impacts as no land strips or airports are within proximity of the route, and the development is not height sensitive.
6	Defence Theme	Low Sensitivity	Agree	Low Sensitivity	The development will not have any impact on defence-related activities.
7	Palaeontology Theme	Very High Sensitivity	Agree	Medium Sensitivity	The New System 1 site is already heavily transformed; therefore, the proposed sensitivity is Medium. A Compliance Statement will be conducted.
8	Plant Species	Low Sensitivity	Dispute	Medium Sensitivity	<p>Terrestrial Impact Assessment was undertaken by Eco-Sentle Pty Ltd to assess and verify the type of protected species that could be found on site.</p> <p>According to the Terrestrial assessment appended to the DBAR, The New System 1 site at the Rand Water Vereeniging Treatment Works falls within the Soweto Highveld Grassland ecosystem and is characterised by Habitat Unit 1. This habitat supports wetland-like vegetation at the base and alien-invaded grassland along</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					<p>the periphery. Dominant plant species observed include <i>Searsia lancea</i>, <i>Pinus palustris</i>, <i>Phragmites australis</i>, and grasses like <i>Themeda triandra</i> and <i>Eragrostis curvula</i>.</p> <p>The terrestrial ecological condition is impacted by existing infrastructure from the water treatment works, but ecological sensitivity is elevated due to the site's proximity to the Vaal River.</p> <p>No species of conservation concern were identified during the field survey, but the presence of invasive species such as bug weed and pampas grass was noted. The New System 1 site is assigned a low to moderate ecological sensitivity due to its altered condition.</p>
9	Terrestrial Biodiversity Theme	Very High Sensitivity	Dispute	Medium Sensitivity	<p>According to the Terrestrial Assessment conducted by Ecosentle, the proposed New System 1 site at Rand Water Vereeniging Water Treatment Works falls within the Soweto Highveld Grassland ecosystem and is characterised by wetland-like vegetation and alien-invaded grassland. Dominant species include <i>Searsia lancea</i>, <i>Pinus palustris</i>, <i>Phragmites australis</i>, <i>Themeda triandra</i>, and <i>Eragrostis curvula</i>.</p> <p>No species of conservation concern were recorded, though invasive species such as <i>bug weed</i> and <i>pampas grass</i> were noted.</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					<p>The site is already transformed by existing infrastructure, with low to moderate ecological sensitivity. While C-Plan 3.3 classifies the site outside CBAs and ESAs, the updated C-Plan 4.0 includes it within a CBA, highlighting a shift in its perceived ecological importance. No mammals or faunal SCCs were observed, and habitat suitability suggests a low probability of their occurrence. The servitude is therefore considered of medium ecological sensitivity overall.</p>
10	Geotechnical Assessment	Very High Sensitivity	Dispute	Medium Sensitivity	<p>According to the Geotech Study conducted by Knight Piésold it confirmed that the site is underlain by variable soil profiles associated with the Vryheid Formation of the Ecca Group and the subsurface investigations identified inconsistent stratigraphy, with fill materials, alluvium, residual soils, and highly expansive clays, especially prominent on the western side of the footprint.</p>
11	Socio-Economic Assessment	Very High Sensitivity	Dispute	Medium Sensitivity	<p>The Socio-economic assessment was conducted by KMG Environmental Solutions Services which concluded that the proposed development is aligned with local socio-economic development objectives, including infrastructure renewal, job creation, and service delivery enhancement. The overall sensitivity of the site is considered moderate. This is because the project is expected to contribute positively to local development without causing irreversible impacts.</p>

5.2 The table below indicates the level of sensitivity of each of the themes identified in the DFFE Screening tool report for stream 2.


Phase 2 – Sludge Pipeline

Table 6: DFFE Screening Tool Findings – Phase 2 - Sludge Pipeline

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme			X	
Defense Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Table 7: DFFE Sensitivity Themes and Motivation from EAP – 7 km Phase 2 – Sludge Pipeline

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
1	Agriculture Theme	High Sensitivity	Dispute	Low sensitivity	<p>An agricultural Compliance Statement was undertaken by KMG Environmental Solutions Services. During the inspection, the Specialist confirmed that the proposed development is situated on land that is either urban or industrial in nature, which is classified as low-potential agricultural land, with no current or foreseeable agricultural activities taking place in any of the affected zones.</p> <p>The Agricultural Compliance Statement will be appended to the Draft Basic Assessment.</p>
2	Animal Species Theme	High Sensitivity	Dispute	Medium sensitivity	<p>Terrestrial Impact Assessment was undertaken by Eco-Sentle Pty Ltd to assess and verify the type of protected species that could be found on the site.</p> <p>According to the Terrestrial assessment appended to the DBAR, the 7km Phase 2 Sludge Pipeline servitude should be considered of medium ecological sensitivity. This is due to the already transformed nature of the area, characterised by existing infrastructure and human activities. In addition, both Gauteng Conservation Plan versions 3.3 and 4.0 were reviewed as part of the assessment and according to C-Plan 3.3, the Phase 2 Sludge Pipeline fall outside of Critical Biodiversity Areas (CBAs) and within the Ecological Support Areas (ESAs). However, the updated C-Plan 4.0 indicates that these same areas now fall within a CBA, reflecting a reassessment of their ecological importance.</p> <p>This is contradictory, as these locations are already</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					<p>heavily transformed.</p> <p>Furthermore, no mammal species were recorded in the study area. The web-based screening tool, however, identified the study area as having potentially sensitive features. Despite this, Species of Conservation Concern (SCC) mammal species were assessed to have a low probability of occurrence based on habitat suitability assessments. No faunal species of conservation concern were encountered on-site during the field survey.</p>
3	Aquatic Biodiversity Theme	Very High Sensitivity	Dispute	Medium Sensitivity	<p>The Biodiversity Company (TBC) was appointed to undertake an Aquatic and Wetland Assessment for the proposed development, based on findings from the site inspection and the SANBI mapping (refer to the map below), it was confirmed that the proposed pipeline traverses several seep wetlands and runs parallel to the Vaal River along portions of its alignment.</p>  <p>The map shows the Vaal River flowing through the area, with the Leeskool Dam to the west. Urban areas like Shapeville and Vereeniging are visible, along with various roads and green spaces. A blue dashed line indicates the proposed pipeline alignment, which runs parallel to the river and crosses several wetland areas.</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					According to the Specialist study most of watercourses in this zone were assigned a moderate ecological importance and sensitivity rating, with PES scores ranging from D to F.
4	Archaeological and Cultural Heritage Theme	Very High Sensitivity	Dispute	Low Sensitivity	The Heritage impact assessment study conducted highlighted that the pipeline route crosses a highly disturbed industrial zone and runs parallel to existing infrastructure. While some Edwardian-style buildings were noted nearby, they lie outside the project footprint and are not at risk. No archaeological or cultural heritage resources were found within the proposed development area, and the site was determined to have low heritage significance.
5	Civil Aviation Theme	Medium Sensitivity	Dispute	Low Sensitivity	The development will not trigger any civil aviation activities or have any height impacts as no land strips or airports are within proximity of the route and the development is not height sensitive.
6	Defence Theme	Low Sensitivity	Agree	Low Sensitivity	The development will not have any impact on defence-related activities.
7	Palaeontology Theme	Very High Sensitivity	Agree	Medium Sensitivity	The Proposed development site is already heavily transformed; therefore, the proposed sensitivity is Medium. A Compliance Statement will be conducted.
8	Plant Species	Medium Sensitivity	Agree	Medium Sensitivity	Based on the Specialist study conducted the proposed Phase 2 Sludge Pipeline falls within the Soweto Highveld Grassland ecosystem and the route intersects Habitat Units 2 and 3. Habitat Unit 2 includes grassland disturbed by sludge stockpiling and historic sand mining activities, while Habitat Unit 3 features riparian characteristics due to proximity to the Vaal River. Both habitats show signs of

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					<p>urban impact, including illegal dumping and industrial activity. Despite the transformed nature of the landscape, these units retain moderate ecological importance because of their partial connectivity to the Vaal River ecosystem.</p>
9	Terrestrial Biodiversity Theme	Very High Sensitivity	Dispute	Low Sensitivity	<p>The Terrestrial Impact Assessment conducted by Eco-Sentle (Pty) Ltd found that the proposed 7 km Phase 2 Sludge Pipeline falls within the Soweto Highveld Grassland ecosystem, intersecting Habitat Units 2 and 3. These Habitat are already transformed by past sludge stockpiling, sand mining, and nearby industrial activities, though they retain moderate ecological importance due to their partial connectivity with the Vaal River.</p> <p>The area is considered to have medium ecological sensitivity. While C-Plan 3.3 classifies the route outside Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), the updated C-Plan 4.0 indicates some overlap with a CBA, despite visible disturbance. No mammal species or faunal Species of Conservation Concern were recorded on-site, and habitat suitability for such species is considered low.</p>
10	Geotechnical Assessment	Very High Sensitivity	Dispute	Medium Sensitivity	<p>The study conducted by Lilibara Projects (Pty) Ltd revealed that the area is underlain by Quaternary deposits including alluvium and aeolian sands, along with shales, mudstones, and sandstones of the Ecca Group from the Karoo Supergroup.</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					Groundwater seepage was encountered in several locations, indicating the need for dewatering during construction. Lastly, laboratory analysis confirmed moderate soil corrosivity, implying a need for corrosion protection of buried steel components.
11	Socio-Economic Assessment	Very High Sensitivity	Dispute	Medium Sensitivity	The Socio-economic assessment was conducted by KMG Environmental Solutions Services which concluded that the proposed development is aligned with local socio-economic development objectives, including infrastructure renewal, job creation, and service delivery enhancement. The overall sensitivity of the site is considered moderate. This is because the project is expected to contribute positively to local development without causing irreversible impacts.

Table 8: DFFE Screening Tool Findings – Sludge Pipeline – Panfontein

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme	X			
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defense Theme				X
Paleontology Theme			X	
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Table 9: DFFE Sensitivity Themes and Motivation from EAP – 1,5 km Panfontein Sludge Pipeline

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
1	Agriculture Theme	High Sensitivity	Dispute	Low sensitivity	<p>An agricultural Compliance Statement was undertaken by KMG Environmental Solutions Services. During the inspection the Specialist confirmed that the proposed development is situated on land that is either urban and industrial in nature which is classified as low-potential agricultural land, with no current or foreseeable agricultural activities taking place in any of the affected zones.</p> <p>The Agricultural Compliance Statement will be appended to the Draft Basic Assessment.</p>
2	Animal Species Theme	Medium Sensitivity	Agree	Medium sensitivity	<p>Terrestrial Impact Assessment was undertaken by Eco-Sentle Pty Ltd to assess and verify the type of protected species that could be found on the site.</p> <p>According to the Terrestrial Assessment appended to the DBAR, the 1.5 km Panfontein Sludge Pipeline servitude should be considered of medium ecological sensitivity. This is due to the already transformed nature of the area, characterised by existing infrastructure and human activities. In addition, both Gauteng Conservation Plan versions 3.3 and 4.0 were reviewed as part of the assessment, and according to C-Plan 3.3, the 1.5 km Panfontein Sludge Pipeline falls outside of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), suggesting a lower conservation priority at the provincial scale. However, the updated C-Plan 4.0 indicates that these same areas now fall within a CBA, reflecting a reassessment of their ecological</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					<p>importance. This is contradictory, as these locations are already heavily transformed.</p> <p>Furthermore, no mammal species were recorded in the study area. The web-based screening tool, however, identified the study area as having potentially sensitive features. Despite this, Species of Conservation Concern (SCC) mammal species were assessed to have a low probability of occurrence based on habitat suitability assessments. No faunal species of conservation concern were encountered on-site during the field survey.</p>
3	Aquatic Biodiversity Theme	Very High Sensitivity	Dispute	Medium Sensitivity	<p>The Biodiversity Company (TBC) was appointed to conduct a comprehensive Aquatic and Wetland Assessment for the proposed development, based on the findings from the site inspection, seep wetlands were identified on site, however, they are in a poor ecological condition and exhibit low functionality. These features are heavily degraded due to historical disturbance from water treatment infrastructure and agriculture.</p> <p>From the TBC report, Panfontein have HGM 5-10 seepage wetlands, with poor ecological state (refer to the aquatic study attached with the DBAR).</p>
4	Archaeological and Cultural Heritage Theme	Low Sensitivity	Agree	Low Sensitivity	<p>Based on the Heritage specialist that was conducted, no archaeological objects were observed during the site inspection, however, the client is reminded that the unavailability of archaeological material does not mean they are absent;</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					archaeological material might be hidden underground.
5	Civil Aviation Theme	High Sensitivity	Dispute	Low Sensitivity	The development will not trigger any civil aviation activities or have any height impacts as no land strips or airports are within proximity of the route and the development is not height sensitive.
6	Defence Theme	Low Sensitivity	Agree	Low Sensitivity	The development will not have any impact on defence-related activities.
7	Palaeontology Theme	Medium Sensitivity	Agree	Medium Sensitivity	The Panfontein site falls within a moderate sensitive area in terms of the Palaeontology, therefore a compliance statement is undertaken.
8	Plant Species	Medium Sensitivity	Agree	Medium Sensitivity	The Terrestrial Impact Assessment conducted by Eco-Sentle (Pty) Ltd found that the Panfontein Sludge Pipeline is situated within the Central Free State Grassland ecosystem and traverses Habitat Unit 4, a highly disturbed area dominated by artificial sludge ponds and surrounded by agricultural land. Vegetation here is largely limited to low shrubs and ruderal grasses, with no conservation-important species detected. The site exhibits low ecological sensitivity and importance, with little to no functional biodiversity value. Despite the low rating, it is recommended that good environmental practice be maintained to prevent further degradation and the spread of invasive species. No floral species of conservation concern were encountered during the field survey.

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
9	Terrestrial Biodiversity Theme	Very High Sensitivity	Dispute	Medium Sensitivity	<p>A Terrestrial Impact Assessment by Eco-Sentle (Pty) Ltd found that the 1.5 km Panfontein sludge pipeline falls within a highly disturbed area of the Central Free State Grassland ecosystem, mainly occupied by artificial sludge ponds and farmland. The vegetation is limited, and no species of conservation concern were recorded. While the Gauteng Conservation Plan 3.3 classified the area outside any Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs), the updated C-Plan 4.0 now identifies it as a CBA. Despite this, the site remains heavily transformed with low ecological sensitivity and a low likelihood of supporting sensitive species. Good environmental practices are recommended to prevent further degradation and the spread of invasive species.</p>
10	Geotechnical Assessment	Very High Sensitivity	Dispute	Medium Sensitivity	<p>Based on the study that was conducted revealed that the Panfontein site consists of subsurface profile which is filled with aeolian sands, residual soils, and basalt bedrock belonging to the Kliprievsberg Group.</p> <p>The soils showed moderate to high expansivity and corrosivity, posing significant risks to unprotected concrete, steel, and fibre cement infrastructure. Due to the presence of aggressive soils, corrosion protection measures are essential for all buried infrastructure.</p>

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
11	Socio-Economic Assessment	Very High Sensitivity	Dispute	Medium Sensitivity	<p>The Socio-economic assessment was conducted by KMG Environmental Solutions Services which concluded that the proposed development is aligned with local socio-economic development objectives, including infrastructure renewal, job creation, and service delivery enhancement. The overall sensitivity of the site is considered moderate. This is because the project is expected to contribute positively to local development without causing irreversible impacts.</p>

Photographic evidence of the study area – New System 1



Figure 1: The area where the proposed online lab is to be constructed.



Figure 2: The Demolished Old New System 1 site

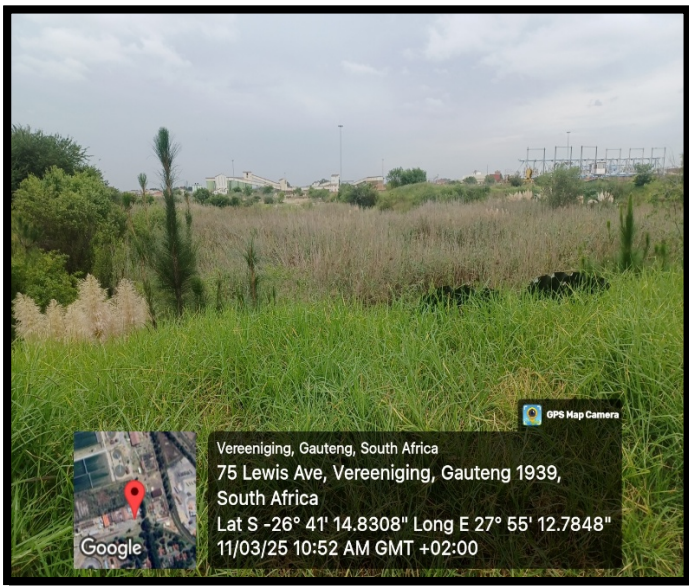


Figure 3: Proposed New System 1 Site

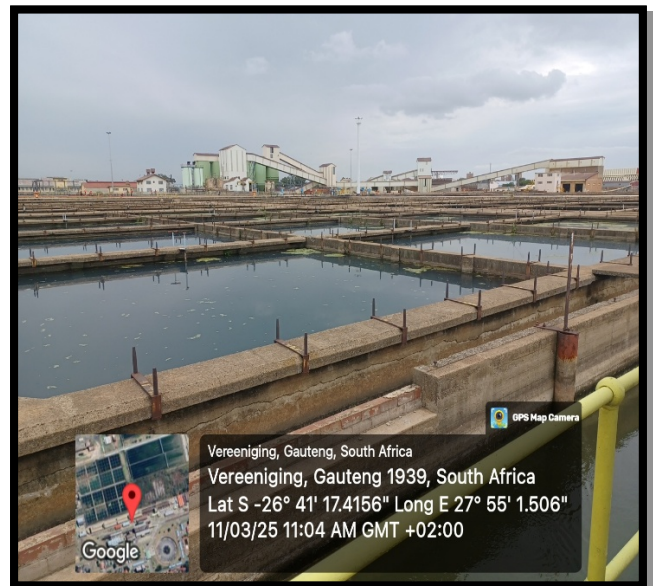


Figure 4: Sedimentation Tanks for existing systems next to the proposed New System 1



Figure 5: Flocculators for existing systems next to the proposed new system 1

Photographic Evidence of the Study Area – 7km Sludge Pipeline

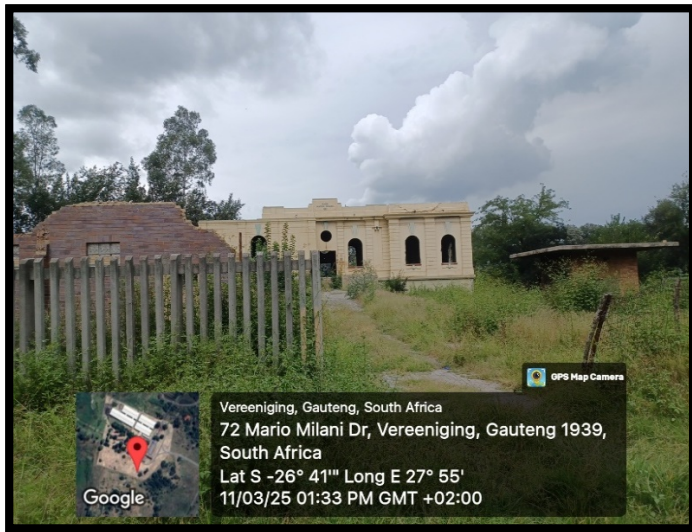


Figure 1: Old Building located behind the Phase 2 Sludge pipeline next to the Vaal River



Figure 2: Phase 2 Pipeline Servitude



Figure 3: Phase 2 Pipeline Route



Figure 4: Phase 2 Pipeline Route

Photographic Evidence of the Study Area – Panfontein Sludge Pipeline



Picture 5: The Panfontein Site



Picture 6: Panfontein Pipeline Servitude



Picture 7: Maize Field near Panfontein

6 ENVIRONMENTAL ASSESSMENT PRACTITIONER STATEMENT

Following the site inspection walkthrough of the proposed development areas, as well as a thorough review of the specialist studies and GIS data, the environmental sensitivities identified by the DFFE Screening Tool were verified. While the Screening Tool flagged several themes as highly sensitive, however, site verification revealed that much of the area is already transformed due to existing infrastructure, urban development, previous mining activities, and industrial activity.

Overall, the site sensitivity verification for the proposed Construction and Maintenance of New System 1 at Rand Water Vereeniging Treatment Works, Installation of approximately 7 km Phase 2 Sludge Pipeline in Vereeniging, 1.5 km Sludge line in Panfontein and Associated Infrastructure is considered medium to low. Higher sensitivity is limited to specific aspects, including heritage impact (at New System 1), Palaeontological Compliance Statement (at New System 1, Phase 2 Sludge Line, and Panfontein), and medium sensitivity is limited to specific aspects, including Aquatic and Wetland Assessment (along the Phase 2 Sludge Line). These concerns are being addressed through appropriate processes and specialist assessments.

Furthermore, additional specialist studies were conducted in terms of the DFFE screening tool protocols are as follows:

- Hydrogeology Assessment Study
- Hydrology Assessment Study
- Flood line Assessment study
- Stormwater Management study

With the implementation of recommended mitigation measures and full compliance with the Environmental Management Programme (EMPr), Rehabilitation and Monitoring Plans, the proposed development does not pose significant environmental risks and can proceed in an environmentally responsible manner.

7 CONCLUSION

The Site Sensitivity Verification confirmed that the proposed development is largely located in disturbed or low-sensitivity areas. The required specialist studies have been conducted, and mitigation measures are in place to manage any potential impacts.

From an environmental perspective, the project is feasible and can be implemented without significant harm to ecological or heritage resources, provided that all environmental requirements are met and maintained throughout the project lifecycle.