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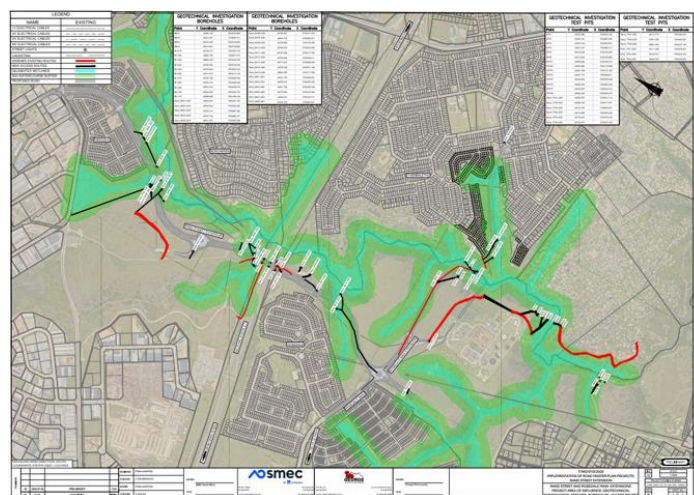
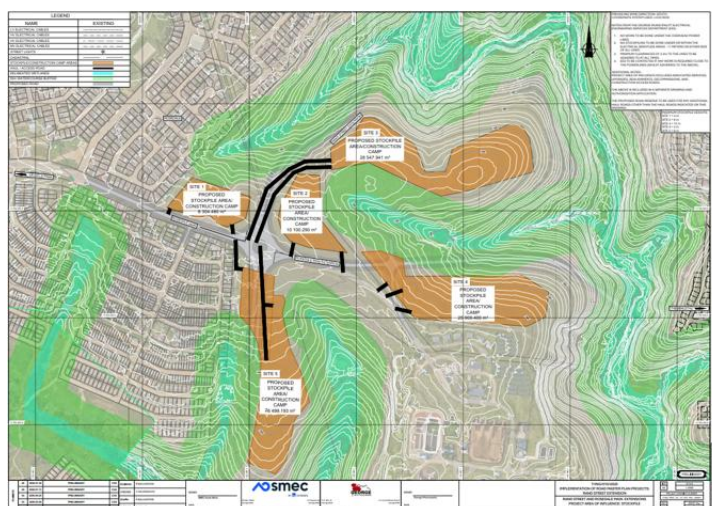
Environmental Assessment Practitioners

DRAFT BASIC ASSESSMENT REPORT (BAR)

FOR

GEORGE MUNICIPAL TEMPORARY STOCKPILES AND CONSTRUCTION CAMP SITES AND GEOTECHNICAL PHASE 2 ASSESSMENT FOR RAND STREETS AND ROSEDALE MAIN EXTENSION

ERF 325, PACALTSDORP, GEORGE



Compiled by	HilLand Environmental
Hilland reference	GEO26/1405/06
Date	18 September 2026
DEADP application reference	16/3/3/1/D2/20/0035/26



**Western Cape
Government**

Department of Environmental Affairs and
Development Planning

BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

APRIL 2024



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APRIL 2024

(For official use only)	
Pre-application Reference Number (if applicable):	
EIA Application Reference Number:	
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must Include an overview of the project including the Farm name/Portion/Erf number)

Executive Summary and General Project Description

For the George municipality to undertake various projects in an around George, stockpile sites are required to store material on a temporary basis for reuse in other municipal infrastructure projects. This is specifically linked to the Rand Street and Rosedale Main Extensions project, which will require substantial fill material to complete.

Excess cut material from municipal infrastructure projects is required for future projects that require fill material.

This is a major socio-economic factor for the municipality as disposal of excess material costs each project significant amounts of money and the import of commercial fill material for other projects costs each project significant amounts of money.

This saving will make the service delivery of the George Municipality more sustainable and cost effective.

Five suitable stockpile sites have been identified that do not encroach on current future housing project areas or on existing services required.

These areas will allow for the stockpiling of approximately 757 472 m³ of material at any time and are all located on erf 325, Pacaltsdorp, George.

These areas will also be made available to the contractor appointed for the Rand Street and Rosedale Main Extensions project to be used as a construction camp(s) as per the COTO Chapter 1, Section A1.3.2 definition and as per COTO Chapter 1, Section A1.3.3 explanation of what a construction camp entails.

This will result in the temporary disturbance of the existing vegetation and topsoil for the duration of the stockpile requirements.

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Initial layout of potential stockpile sites indicated as circulated to the specialists for assessment – this allowed specialists to confirm the areas and suggest possible areas to avoid or amend.

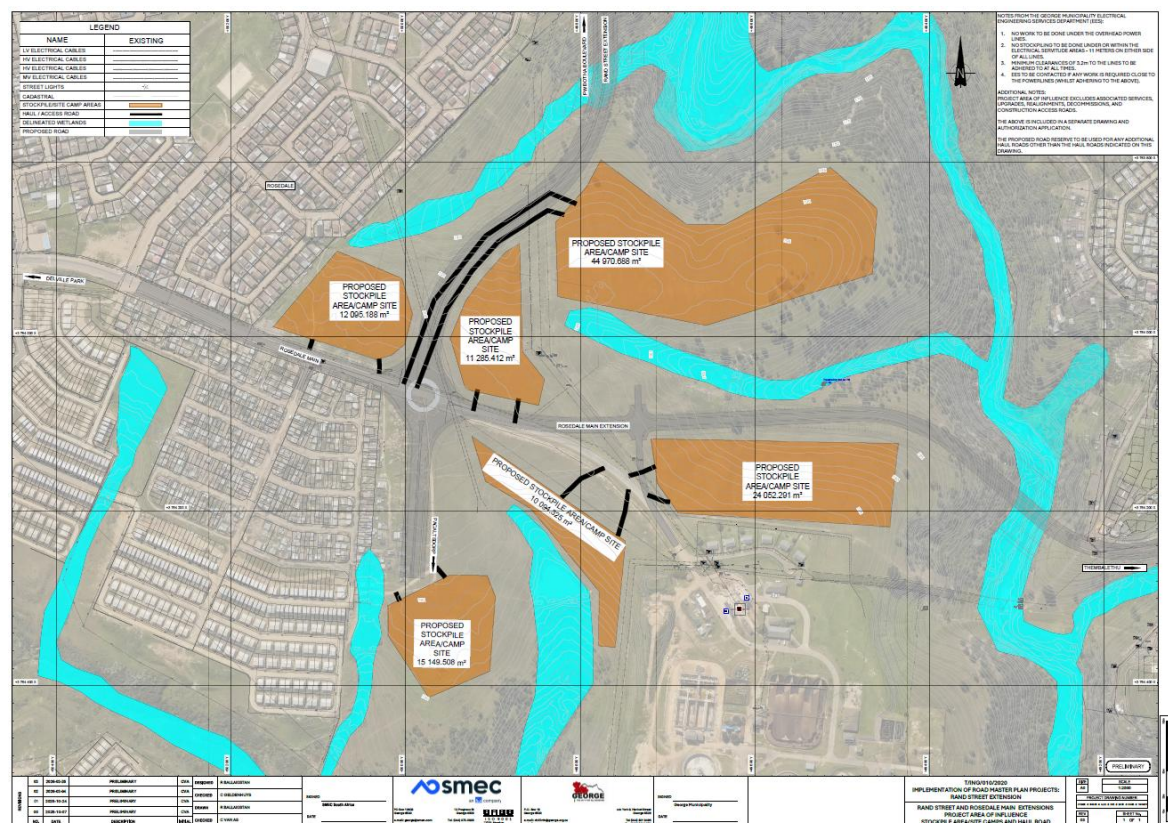


Figure 2 Revised layout based on the inputs received from specialists.

Revised layout of stockpile sites / construction camp(s) and haul roads indicated based on initial input from the specialists.

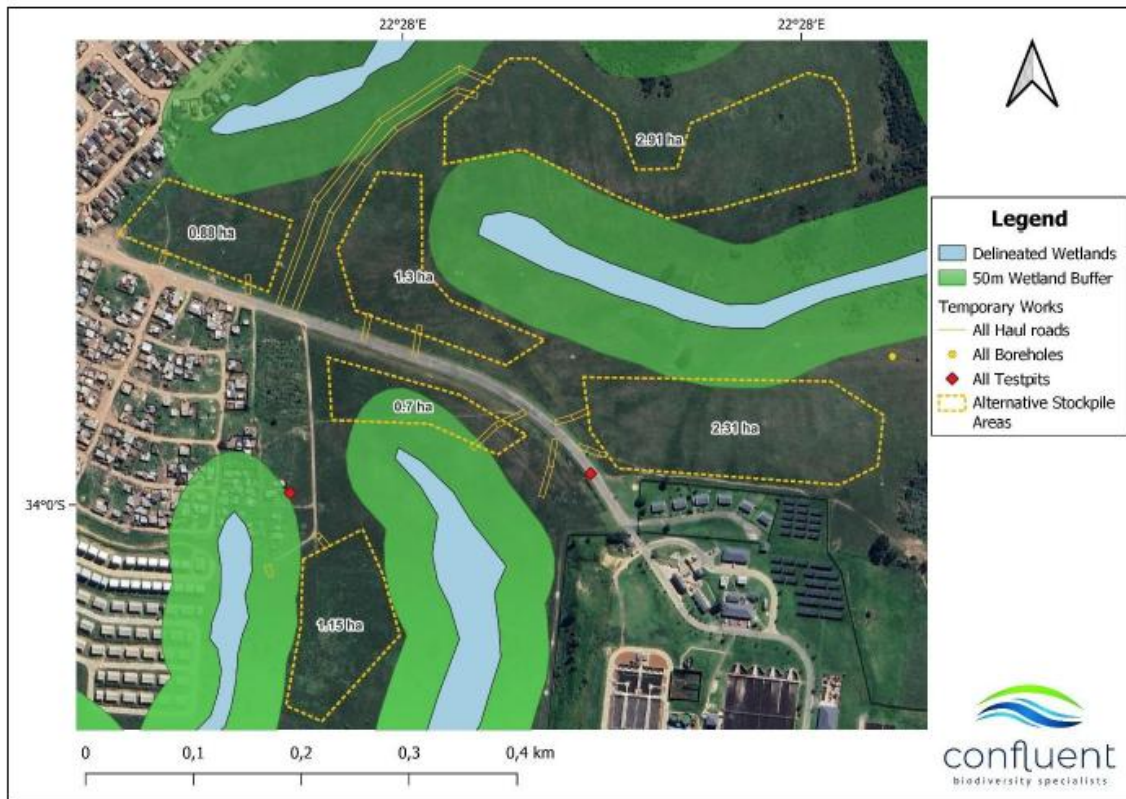


Figure 3 Alternative proposed after including the aquatic buffer areas – note the encroachment into wetland buffer for access which is revised in the final preferred alternative.

SMEC further refined the stockpile sites / construction camp(s) and haul roads based on input from aquatic and visual assessment specialists, and the George Municipality Electrical Engineering Services Department (EES) requirements.

The final layout of the stockpile sites, and temporary vehicle access to these sites is presented below.

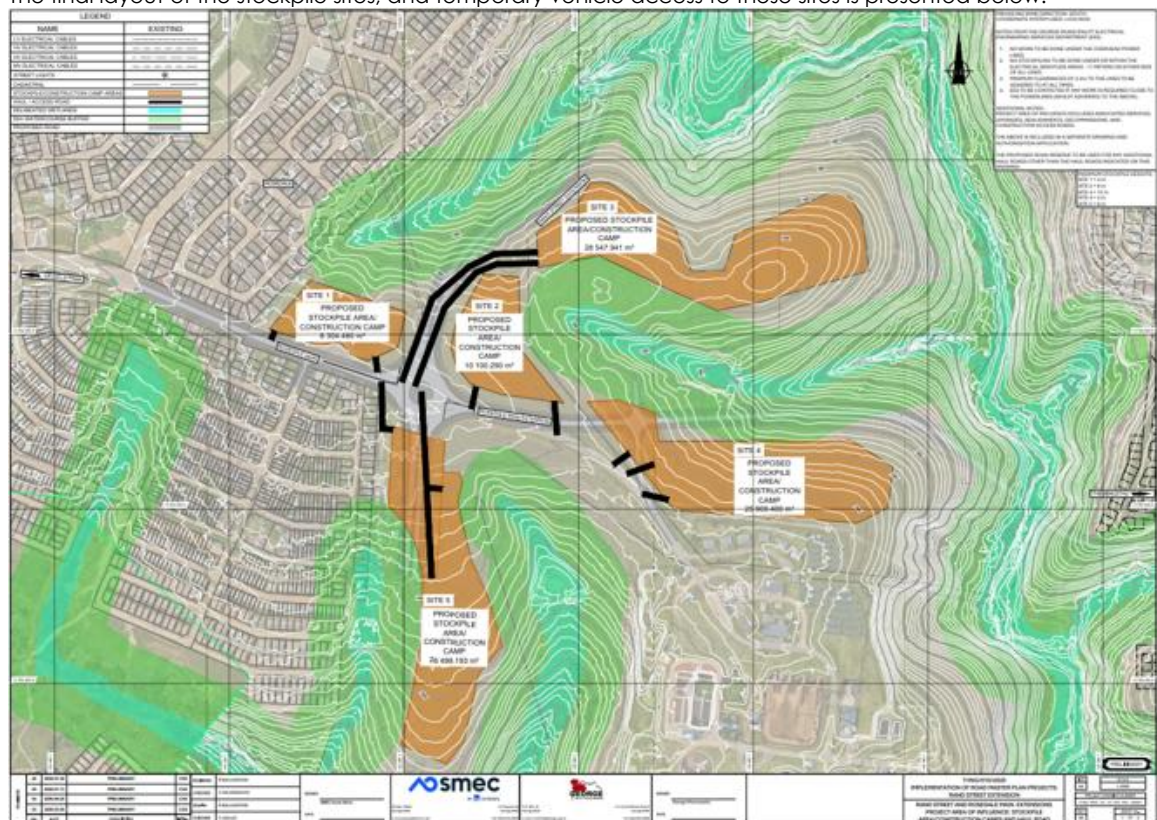


Figure 4 Final Preferred Alternative showing the stockpile sites as informed by all specialists and engineering services.

In addition to the stockpile sites/ construction camp(s) and their required haul roads, the Phase 2 Geotechnical Assessment for Rand Street and Rosedale Main Extensions Project requires the digging of test pits and the installation of monitoring boreholes which will necessitate the temporary clearance of vegetation (more than 300m² of indigenous vegetation in areas mapped as supporting endangered ecosystem and in areas that are "equivalently zoned" as open space).

As such the Geotechnical Phase 2 Assessment, which is a key assessment needed to inform the Rand Street and Rosedale Main Extensions project (for design and EIA process), will require NEMA authorisation before it can be undertaken. The assessment will inform the NEMA Scoping EIA for Rand Street and Rosedale Main Extension Project (separate NEMA process).

The layout included below indicates the test positions for the phase 2 geotechnical assessment and the temporary access routes to these areas.

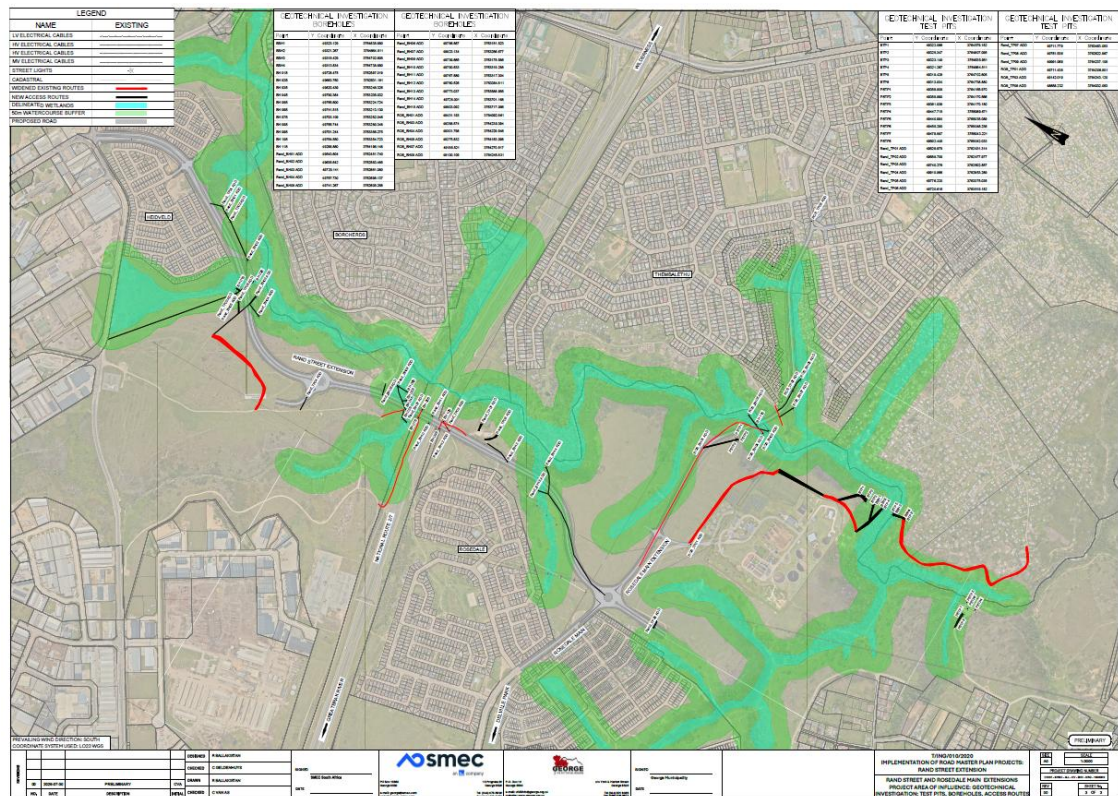


Figure 5 Geotechnical Phase 2 assessment demarcated positions for testing as well as access routes to these positions (KML, SMEC July 2026)

Based on the project as described above, various specialists were appointed to assess the sites and their findings are summarised below.

- Agriculture
- Terrestrial Biodiversity and Plant Species
- Animal Species
- Aquatic Biodiversity
- Landscape and visual character
- Heritage

Agriculture – Gert Malan, 2026

The assessment supports the construction of temporary stockpile sites for the Rand Street Extension Project near George. The sites are not currently used for agriculture, with only occasional grazing observed.

Environmental and Agricultural Compliance

The assessment follows NEMA and the Web-based Environmental Screening Tool requirements. The proposed sites are within high to medium sensitivity zones, but are not used for formal agriculture.

Soil and Land Capability

Soils are shallow duplex, prone to erosion, with low-moderate land capability. The site's agricultural potential is disputed from high to medium due to soil characteristics.

Impact and Mitigation Measures

Development will temporarily exclude land from agriculture, with rehabilitation after project completion. Mitigation includes topsoil stripping, reshaping, reseeding, and restoring land to its current state after use as a temporary stockpile site / construction camp.

To address the environmental and agricultural impacts of the proposed stockpile sites, the following mitigation measures are required, as specified in the compliance statement:

- Topsoil Stripping and Storage: Strip topsoil from the stockpile sites to a depth of 30 cm and store it in low windrows around the periphery of the site before any stockpiling begins. This preserves the most fertile soil layer for later restoration.
- Site Rehabilitation After Use: Once stockpiling activities are complete and all foreign materials have been removed, reshape the area to its natural topography. Loosen any soil compaction that occurred during the stockpiling process to restore soil structure and drainage.
- Topsoil Replacement: Return the previously stripped 30 cm of topsoil from the windrows to the site after reshaping and decompaction. This step is crucial for restoring the site's agricultural potential.
- Reseeding with Native Grasses: Reseed the replaced topsoil with a mix of natural veld (grassland) species to stabilize the soil, prevent erosion, and encourage the return of native vegetation.
- Land Use Retention: Unless an alternative land use is approved, retain the area as an 'Undetermined Zone' to allow for informal livestock grazing, as is currently the case.
- Implementation: Before construction, a contractor would use earthmoving equipment to carefully strip and windrow the top 30 cm of soil around the site. After the project, the contractor would remove all construction debris, use graders to restore the original land contours, and loosen compacted areas with rippers or similar equipment. The stored topsoil would be evenly spread back over the site, and a seed mix of local veld grasses would be sown to promote rapid vegetation cover. These measures are designed to minimize long-term impacts on soil quality and agricultural potential, ensuring the land can be returned to its previous state or used for grazing after the project concludes.

Plant species and Terrestrial Biodiversity – Confluent 2026

This document is a terrestrial plant species and terrestrial biodiversity assessment report for the proposed project.

Project Scope and Preliminary Activities

- The report assesses biodiversity sensitivity related to stockpile areas, haul roads, and geotechnical investigations for the Rand Street extension in George.
- Activities include site assessments, water monitoring boreholes, and soil test pits, with a focus on minimizing environmental impact.

Biodiversity and Ecosystem Sensitivity

- The area has Very High biodiversity sensitivity, with critical biodiversity areas and ecological support zones mapped within the project footprint.
- The proposed sites are mainly in degraded or secondary vegetation, with remnants of endangered Garden Route Granite Fynbos confined to valley edges and slopes.

Vegetation and Conservation Status

- The dominant vegetation type is mapped as critically endangered Garden Route Granite Fynbos which is why site assessment was required.
- The stockpile sites are on flat agricultural land within this vegetation type, which has experienced extensive transformation and erosion.

Land Use and Spatial Planning

- The stockpile areas are located in Critical Biodiversity Area 1 (CBA1), while geotechnical sites are mostly in CBA2 zones.
- These zones are designated to maintain biodiversity targets and ecosystem functionality, supporting water and habitat conservation.

Geotechnical and Water Monitoring Activities

- Geotechnical investigations involve temporary test pits and boreholes, with minimal disturbance footprints of about 5m by 5m.
- Boreholes will monitor groundwater levels over 12 months without water extraction, and test pits will be backfilled after checking the soil conditions.

Historical Land Transformation

- Satellite imagery shows long-term landscape changes from grazing, burning, and invasive species, with no intact fynbos within proposed stockpile areas.
- Development and land use have expanded significantly since 1936, leading to fragmented and degraded vegetation.

Regulatory and Assessment Framework

- The assessment follows national environmental regulations, including protocols for terrestrial biodiversity and plant species impacts.
- The project incorporates desktop and field assessments, with input from aquatic, faunal, and botanical specialists to ensure comprehensive evaluation.

Historical Land Cover and Vegetation Changes

- The 1936 aerial imagery shows a natural landscape with unchanneled wetlands and fynbos, with upland areas appearing largely natural.
- By 1974, significant landscape transformation occurred, leading to urban development by 1998, with no natural fynbos remaining in the proposed stockpile areas.

Plant Species and Conservation Status

- Field assessments found that transformed fields are dominated by non-native and invasive species, with scattered remnants of fynbos and no confirmed presence of listed species of conservation concern within proposed stockpile footprints.

Invasive Species and Threats

- Several invasive species, such as *Cenchrus clandestinus* and *Cortaderia selloana*, are present and categorized under NEMBA and CARA, requiring control or eradication.
- The presence of invasive species in disturbed and transformed areas reflects long-term land use impacts, with some species like *Hakea sericea* and *Solanum mauritanum* being widespread and problematic.

Vegetation and Habitat Sensitivity

- The valley edge fynbos habitat remains largely natural but is highly invaded and fragmented, with some areas supporting SCC like *Leucospermum praecox*.
- The vegetation along valley edges is classified as Very High sensitivity for terrestrial biodiversity, while transformed fields are Low sensitivity due to dominance of degraded, non-fynbos vegetation.

Site Ecological Importance and Impact Assessment

- The site's ecological importance combines conservation value and habitat resilience, with valley edge fynbos rated as high BI but low overall SEI due to fragmentation.
- Impact assessments indicate that geotechnical investigation points in valley edge fynbos pose high sensitivity risks, but impacts are mitigated by small, temporary disturbance footprints.

Proposed Development and Mitigation Measures

- Stockpile areas are located within degraded agricultural fields outside of sensitive habitats, avoiding impacts on wetlands and valley fynbos.
- Geotechnical activities in valley edge fynbos require micro-siting and strict mitigation, including limiting disturbance footprints and restoring disturbed soil to prevent invasive spread.

Biodiversity and Species of Conservation Concern

- The likelihood of SCC occurrence along the proposed alignment is low, with some species like *Drosera cryptica* and *Leucospermum glabrum* potentially present in habitat.
- No SCC were confirmed within investigation footprints, and the disturbance is small, temporary, and reversible, minimizing impact on conservation values.

Site Sensitivity and Management Recommendations

- The terrestrial biodiversity sensitivity is divided into high for valley edge fynbos and low for transformed fields.
- Mitigation strategies emphasize avoidance, minimization, and restoration, with strict controls during construction to prevent invasive spread and habitat degradation.

Overall Impact and Conclusion

- The impact of geotechnical investigations on valley edge fynbos is assessed as negligible with mitigation, while stockpile activities in degraded areas pose minimal risk.
- The report confirms low botanical diversity sensitivity in investigation footprints and emphasizes the importance of adhering to mitigation measures to protect high-value habitats.

Summary of Required Mitigation Measures

1. Design and Layout Phase

Micro-siting of Investigation Points: Mark out access routes and investigation points with the Environmental Control Officer (ECO) prior to access to avoid sensitive plants as far as possible.

Example: If a *Leucadendron* species is present, move the borehole/test pit location by 50 cm to avoid direct disturbance.

Responsibility: ECO and Contractor

2. Construction / Implementation Phase

Access and Disturbance Minimization: Use existing tracks and disturbed surfaces for access wherever possible, avoiding natural fynbos in good condition. Prioritize lower gradient slopes and disturbed vegetation over steep slopes and undisturbed fynbos. Strictly limit disturbance to the 5m x 5m area required for each investigation point.

Responsibility: Contractor, Geotechnical team, ECO

Soil and Topsoil Management: Store topsoil separately from subsoil. Strip and store topsoil as per the method statement and replace it last during backfilling to preserve the indigenous seed bank. Backfill test pits immediately after excavation and logging, with topsoil replaced last. Place all excavated soil on geofabric or tarpaulin to minimize contact with surrounding vegetation and reduce seed dispersal and soil loss.

Responsibility: Contractor, Geotechnical team, checked by ECO

Rehabilitation: After closing test pits and completing site access, seed the disturbed 5m x 5m area with kweek grass to promote rapid ground cover and reduce erosion/invasion risk.

Responsibility: Contractor, checked by ECO

3. Operational Phase:

Geotech phase 2 - Minimal Impact: Only periodic foot access for water sampling and monitoring is allowed. No further vegetation clearance is permitted beyond what was disturbed during construction. Access must follow established routes.

Responsibility: Monitoring personnel

Stockpile sites / Construction site camps - Minimal Impact: working area limited to the defined and agreed working area. No further vegetation clearance is permitted beyond what was disturbed during construction. Access must follow the identified haul road only. Illegal dumping MUST be strictly controlled in the area around the stockpile sites.

Responsibility: Monitoring personnel

4. General and Site-Specific Measures

Avoidance of Sensitive Areas: Stockpile areas have been redesigned to avoid wetland buffers and valley edge fynbos, thus no impact assessment is required for these areas. Geotechnical investigation points in valley edge fynbos require full adherence to mitigation hierarchy: avoidance, minimization, restoration.

Alien species control: the River MMP which includes alien species control has been approved and should be implemented.

Erosion Control: Implement erosion control measures on exposed soils, especially on slopes, to prevent sediment runoff into watercourses.

5. Impact Assessment and Residual Impact

With the above mitigation measures in place, the residual impact of the geotechnical works is assessed as "negligible" for biodiversity and botanical themes. Without mitigation, impacts would be "minor"; thus, strict implementation of these measures is essential.

Terrestrial Animal Species – Confluent 2026

This document is a terrestrial faunal specialist impact assessment for the proposed project focusing on ecological and conservation considerations.

Project Overview and Scope of Work

- The assessment supports the proposed stockpile sites, haul roads, geotechnical test pits, and water monitoring boreholes.
- The work involves environmental sensitivity verification, site characterization, habitat assessment, and impact analysis based on legislative requirements.

Environmental Sensitivity and Species of Concern

- The DFFE screening tool identified high terrestrial animal species sensitivity potential across the project route.
- Several Species of Conservation Concern (SCC), including vulnerable and endangered birds, amphibians, mammals, and invertebrates, are potentially present in the area.

Biodiversity Planning and Conservation Areas

- The Western Cape Biodiversity Spatial Plan classifies the area mainly as Critical Biodiversity Areas (CBA1 and CBA2), emphasizing the importance of maintaining natural habitats.
- The site lacks habitats suitable for certain species like Bontebok but contains areas critical for SCC dependent on aquatic and terrestrial ecosystems.

Historical Land Use and Vegetation Changes

- Satellite imagery shows the landscape has been used for agriculture historically, with recent expansion of bushy vegetation due to infestation with invasive alien species.
- Urban development and land transformation have impacted riparian and native vegetation, influencing local fauna health and distribution.

Potential Species of Conservation Concern and Habitat Requirements

- The list includes amphibians like the endangered Knysna Leaf-Folding Frog, and birds such as the Martial Eagle and Black Harrier, all with specific habitat needs.
- Invertebrates and mammals like the Duthie's Golden Mole and Vulnerable Golden Mole species are also potentially present, requiring dense vegetation, wetlands, or specific soil types.

Water Resources and Aquatic Ecosystems

- Water monitoring activities will be conducted without water extraction, focusing on water chemistry and levels.

Geotechnical Investigations and Site Access

- Geotechnical testing involves test pits and boreholes, some near water bodies, with minimal disturbance areas of 5m x 5m.
- Temporary access routes will follow natural contours, especially on steep slopes, to minimize environmental impact.

Faunal Survey Results and Species Observations

- No SCC encountered; low bird diversity with 8 species, including large groups of Black-winged Lapwing and Western Cattle-Egret.
- Mammal signs included evidence of golden mole tunnels, domestic livestock, and droppings of mongoose, bushpig, and suspected genets; invertebrates observed included butterflies, moths, and termites.

Likelihood of SCC Occurrence

- Several species, such as Duthie's Golden Mole and Knysna Warbler, are likely or possibly present based on habitat and evidence.
- Most SCC, including amphibians, raptors, and waterbirds, are assessed as having low to very low likelihood due to habitat quality and disturbance levels.

Site Sensitivity and Ecological Importance

- The site is rated as high sensitivity for terrestrial fauna, especially where golden mole tunnels were found.
- Habitats are classified with low to very low Site Ecological Importance, allowing medium impact development with mitigation and restoration measures.

Impact and Mitigation Strategies

- Construction activities pose risks like habitat disturbance, species deterring, and harm to cryptic ground-dwelling fauna.
- Mitigation includes micro-siting to avoid active tunnels, strict site management, and monitoring by an Environmental Control Officer to minimize impacts.

Development and Impact Management

- Site layout adjustments aim to reduce habitat loss, especially near watercourses, following specialist recommendations.

- Construction impacts are managed through timing restrictions, nest searches, habitat fencing, waste control, and fauna rescue procedures.

Decommissioning and Post-Construction Restoration

- Post-project, stockpiles and disturbed areas will be rehabilitated to prevent invasive spread and support fauna recolonization.
- Test pits will be filled, and topsoil preserved for vegetation recovery.

Overall Conclusions

- The site's ecological sensitivity is high, mainly due to golden mole tunnels and habitat for species like Knysna Warbler.
- Development is supported with strict adherence to mitigation measures, especially micro-siting and habitat restoration, to protect fauna SCC and their habitats.

List of Required Mitigation Measures

Pre-Construction Phase

- Avifaunal SCC Nest Searches: Conduct active searches for nests and nestlings of avifaunal Species of Conservation Concern (SCC) during their breeding seasons (August–October for Black-crowned Night Heron, August–December for Knysna Warbler) in suitable habitats. If no work is scheduled during these periods, this measure is not required.
- Hand-cutting of Paths: Paths through dense vegetation must be hand-cut with the ECO present. If a nest is encountered, work on that path must cease and an alternative route chosen.
- Micro-siting to Avoid Golden Mole Tunnels: Test pits and boreholes must be micro-sited to avoid areas where active Golden Mole tunnels are found. Move the test pit/borehole at least 50 cm to avoid tunnels.
- Demarcation of Disturbance Footprint: Clearly define and demarcate the disturbance footprint of the stockpile area to prevent unnecessary damage to the surrounding environment.
- No-Go Area Signage: Place clear signs for "no-go" areas for vehicles and personnel, especially outside the direct area of influence of construction.
- Vehicle Turning Area: Demarcate a turning area for construction vehicles within the stockpile or haul road footprint.

Construction / Implementation Phase

- Staff Induction and Awareness: All new staff must be briefed about the site layout, no-go areas, and identification/reporting of fauna SCC. The ECO must be present at induction.
- Waste Management: No littering, waste dumping, or burning is allowed. All waste must be collected in secure bins and transported to a registered disposal facility.
- Topsoil Management: Topsoil removed during construction must be treated with care, stored appropriately for future rehabilitation. Do not mix with subsoils.
- Excavation Safety: Excavations left open overnight must be fenced (e.g., with construction shade netting) to prevent animals from falling in.
- Secure Storage of Materials: Store small items/building materials in containers or locked areas to prevent animal interference.
- Daylight Construction: Construction should occur during daylight hours to facilitate fauna monitoring and minimize artificial lighting impacts. Security lighting should be motion-triggered.
- Search and Rescue for Fauna: If fauna with limited mobility or SCC are found within the demarcated area, a search and rescue operation must be conducted by the ECO or a qualified handler before work continues.
- Immediate Reporting of Fauna Encounters: Any animal encountered on site must be reported to the ECO immediately. Construction must halt if an animal with limited mobility is found until it is safely relocated.
- Best Practice for Fauna Encounters: Take photos/videos of any animal encountered, especially if harmed or compromised. Follow the ECO's guidance for removal or treatment. Contact local SPCA or animal welfare for injured animals; use qualified snake handlers for snake removals.

Conclusion of Construction Phase

- Revegetation: Revegetate bare soil areas with indigenous plants to facilitate recolonization by native fauna and prevent invasive species establishment.

Operational Phase

- Borehole Safety: Replace covers on boreholes after monitoring to prevent animals from falling in.
- Access Protocols: Access sites on foot where no existing vehicle track is available.
- Stockpile sites – prevent illegal dumping outside the stockpile areas.

Decommissioning Phase

- Restoration of Stockpile and Haul Road Areas: Restore areas to their previous transformed vegetation state.
- Test Pit Rehabilitation: Fill test pits on the day of establishment and replace preserved topsoil as per geotechnical protocols.

General and Ongoing Measures

- ECO Monitoring: The ECO must be present at the start of construction and at least twice a week during the establishment/testing phase to monitor compliance with all mitigation measures.

Example Implementation: Staff Induction Briefing

- Induction led by the ECO: the layout of the site, identification of no-go areas, visual guides to fauna SCC, procedures for reporting fauna encounters, and the importance of adhering to waste management and excavation safety protocols.

Aquatic Biodiversity – Confluent 2026

This document is an aquatic assessment report for the proposed project, focusing on stockpile areas, geotechnical test points, watercourses, wetlands, and environmental impacts.

Project Scope and Activities

- The assessment covers stockpile sites, haul roads, geotechnical test pits, and water monitoring boreholes.
- Six stockpile areas were initially proposed, with associated haul roads leading from Rosedale Main, mostly on greenfield sites. These were amended and reduced to avoid sensitive areas and the final layout of 5 sites is included.

Environmental Sensitivity and Regulatory Context

- The area is rated as Very High sensitivity for aquatic biodiversity due to nearby critical habitats, wetlands, and water source areas.
- Activities in watercourses and wetlands require compliance with NEMA and the Water Act, including risk assessments and possible water use licenses.

Watercourses and Wetlands

- Mapped watercourses are mostly incised and channelized, with wetlands delineated using satellite imagery and field observations.
- Many water features have been historically altered, with evidence of channel incision and alien vegetation invasion.

Site Assessments and Impacts

- Site visits in 2024 and 2026 identified water quality issues, especially in Skaapkop River, rated as Largely Modified (PES D).
- Temporary monitoring boreholes and test pits are located near watercourses and wetlands, with some in sensitive areas requiring mitigation.

Impact Assessment and Mitigation Framework

- Mitigation measures aim to reduce impacts to minor or negligible levels, with full implementation rated as low risk.

Watercourse and Wetland Protection Measures

- Stockpiling areas are to be limited to lower-gradient zones at least 50m from wetlands, with haul roads realigned outside buffers.
- Construction impacts on water quality and wildlife movement are rated as minor with mitigation, and impacts are considered reversible and non-irreparable.

Construction / Implementation Phase Impact Management

- Boreholes and test pits access should use existing tracks, with ECO supervision to minimize vegetation disturbance.
- Use of hand excavation in sensitive areas and careful route selection are recommended to prevent soil erosion and vegetation damage.
- Ensure no illegal dumping around the stockpile sites.

Stockpile Area Development and Rehabilitation

- Stockpile sites should be pegged, fenced, and protected to prevent runoff and soil loss.
- Topsoil must be stored separately, stabilized with grass seed, and areas levelled to prevent runoff and erosion during construction and decommissioning.

Operational Phase Environmental Safeguards

- At construction camp site - Hazardous waste storage must be secure, with tanks in bunds, and regular vehicle checks for leaks.
- Waste disposal facilities should be adequate, with no waste discharged beyond fenced areas, and heavy vehicle use during wet weather avoided to prevent soil compaction.
- Ensure no illegal dumping outside the stockpile site boundaries

Decommissioning and Site Rehabilitation

- All waste and temporary stockpiled material must be removed, and soil ripped to reduce compaction before replacing topsoil and reseeding with native grass.
- Post-closure inspections are necessary to manage alien vegetation and ensure soil stability, with impacts rated as negligible if mitigation is followed.

Impact and Risk Assessment Methodology

- Impacts are evaluated quantitatively, considering impact type, duration, extent, and probability, with significance calculated accordingly.
- The risk matrix, assuming full mitigation, rates impacts as low
- Low risk indicating that activities can be Generally Authorized under water use regulations.

Overall Conclusions

- Geotechnical investigations and stockpiling are unlikely to cause significant impacts if mitigation measures are not implemented.
- Proposed stockpiling areas are located mostly on flat land, but all generally slope towards valley-bottom wetlands, creating a risk that water quality, geomorphology, habitat and fauna could be affected if this is not well managed and mitigated.

Summary of Recommended Mitigation Measures

1. Design and Layout Phase:

- **Stockpile Areas:** Stockpiling areas have been restricted to lower-gradient land at least 50m from delineated wetland edges to minimize runoff and pollution risk. Haul roads have been realigned to avoid wetland buffers (>50m).
- **Rationale:** Prevents contaminants from entering watercourses and reduces disturbance to wildlife corridors.

2. Active Phase:

• Boreholes & Test Pits:

- i. Appoint an Environmental Control Officer (ECO) to inspect sensitive areas and agree on site-specific access and disturbance minimization.
- ii. Select access routes using existing tracks and less vegetated/less steep slopes to minimize new disturbance.
- iii. Hand-dig test pits in sensitive wetland areas where practical, to reduce disturbance footprint.
- iv. Use portable drilling rigs where feasible, moving them from the nearest low-impact parking point.
- v. Strictly follow soil replacement protocols ("last out, first in") and place excavated soil on tarpaulins/geofabric to protect vegetation.

Rationale: Minimizes vegetation loss and soil erosion.

• Stockpile Areas:

- i. Survey and peg out stockpile areas and install perimeter fencing.
- ii. Attach shade cloth to fencing as a silt fence where runoff may exit the site, or use topsoil berms seeded with grass for stabilization.
- iii. Grub and store topsoil as a windrow around the stockpile site (max 2m high), to be used for later rehabilitation.
- iv. Create level surfaces to avoid preferential flow paths and ponding.
- v. Ensure adequate internal road space to prevent vehicles from moving outside designated areas.

Rationale: Prevents loss of topsoil, controls sediment runoff, and limits expansion of disturbed areas.

3. Operational Phase:

• Stockpile Areas:

- i. At construction camp site - designate and manage hazardous waste storage (e.g., bunded tanks for diesel, lined containers for bitumen).
- ii. Regularly check vehicles for leaks and repair immediately.
- iii. Maintain materials for spill containment (sandbags, hessian, bidim fabric) on site.
- iv. Cover bare soil with bark to suppress dust and reduce compaction.
- v. Avoid heavy vehicle use during wet weather to prevent rutting and increased runoff.
- vi. Provide adequate waste disposal facilities (chemical toilets, rubbish bins, skips for large waste) and ensure regular servicing.
- vii. Employ full-time security to prevent unauthorized access, prevent illegal dumping and potential environmental incidents.

Rationale: Reduces risk of pollution, soil compaction.

4. Decommissioning Phase:

• Stockpile Areas / Construction Camp Sites:

- i. Remove all foreign material from site; no waste / fill material to be left or disposed of locally.
- ii. Rip compacted subsoil to alleviate compaction, then respread conserved topsoil.
- iii. Seed rehabilitated areas with *Cynodon dactylon* (Kweek) grass and water thoroughly.
- iv. Remove perimeter fencing after grass establishment.
- v. Inspect sites at 3 and 6 months post-closure to remove any alien plants.

Rationale: Restores soil structure, prevents erosion, and controls alien plant invasion.

• Boreholes & Test Pits:

- i. No specific rehabilitation required if topsoil is replaced as specified; future disturbance is expected due to road construction (test pits are all within the proposed Rand Street and Rosedale Main Extensions future road reserve).

5. General Environmental Practice (from Method Statement)

- Limit cleared areas for both test pits and boreholes to 5m x 5m.

- Place all equipment on geofabric or plastic liners to protect vegetation.
- No water abstraction from rivers; use only designated municipal sources.
- Use spill trays and drip pans under all fuel/oil storage and equipment.
- Site-specific environmental method statements to be submitted and enforced through EMP and contractual obligations.

6. Effectiveness and Risk Outcome:

- All risks were rated as Low in the risk matrix, assuming full implementation of these mitigation measures.
- General Authorisation is applicable under the National Water Act for the proposed activities

Visual and Landscape Character – VRM Africa 2026

The report is a Landscape and Visual Statement / Level 2 Visual Impact Assessment.

The assessment considers the visual and landscape implications of temporary stockpile, laydown and construction camp areas associated with the road works. It is based on desktop policy review, GIS-based slope and viewshed analysis, and site visits undertaken in October 2024 and November 2025. The broader receiving environment is predominantly urban and infrastructural, bordered by Rosedale, Borchers, Thembaletu and Pacaltsdorp, with the Skaapkop River corridor providing the main local landscape feature of value.

The report finds that the project has a Medium Positive policy fit with mitigation, mainly because the Rand Street and Rosedale road extensions are identified in municipal spatial planning as priority linkages to improve access and connectivity between southern residential areas and George's industrial/business areas. However, several proposed stockpile and construction camp areas are close to residential receptors, creating a risk of temporary visual intrusion and wind-blown dust during the temporary construction period of approximately three years.

The report concludes that none of the stockpile or construction camp areas represents a visual fatal flaw, although the western section of Site 4 is identified as a No-Go area (area requiring a buffer). Sites 1, 4 and 5 pose the greatest visual risk due to their proximity to communities, while Sites 2 and 3 are comparatively lower risk because they are further from sensitive residential receptors. Site 4 requires specific visual screening because of its proximity to George WWTW worker dwellings.

The main recommended mitigation measures are as follows:

- Maintain a 25 m no-go buffer from residential structures for stockpile areas (formal and informal residential).
- Set construction camps back 50 m from residential property boundaries and screen with shade netting.
- Limit stockpile heights to 4 m at Sites 1, 4 and 5, and 12 m generally elsewhere.
- Manage dust through watering, covering short-term stockpiles near residences, speed control on haul roads, and monitoring.
- Shape and vegetate long-term stockpiles and topsoil windrows.
- Establish a Bitou hedgerow screen at Site 4.
- Rehabilitate disturbed areas after construction, including ripping compacted areas, replacing topsoil, and using locally appropriate vegetation.

Overall, the report supports the proposed stockpile and associated infrastructure activities only if the recommended mitigation measures are implemented as conditions of authorisation and incorporated into the EMP.

Heritage Statement – Dr Peter Nilssen 2026

The Heritage Statement assesses proposed temporary municipal stockpile sites on Erf 325, between Rosedale, Thembaletu and Pacaltsdorp. Desktop research, historic maps and aerial photographs, previous heritage studies, and three archaeological walk-through surveys found **no significant colonial, pre-colonial or palaeontological resources within the proposed footprints**. Nearby Grade II heritage sites in Pacaltsdorp will not be affected, and visual and cumulative heritage impacts are expected to be negligible.

The report recommended approval of the proposal without a further Heritage Impact Assessment, subject to a chance-find procedure requiring work to stop and Heritage Western Cape to be notified if human remains or significant archaeological material are discovered.

Heritage Western Cape confirmed that no further heritage studies are required and that the mitigation measures recommended must be implemented.

Overall impact findings:

Aquatic and Biodiversity impacts:

The summary below covers the main impacts, their context, and the effectiveness of mitigation measures, with examples and explanations drawn directly from the document.

Summary of Impacts Identified

1. Stockpile Areas

Location and Sensitivity: The proposed stockpile areas are entirely within transformed agricultural fields, dominated by exotic and invasive species, and do not represent intact fynbos or high-value biodiversity areas.

Impact: No significant negative impact is expected from stockpile areas, as they avoid sensitive habitats (e.g., valley edge fynbos and wetland buffers). No plant species of conservation concern (SCC) were found or are likely to occur in these areas.

Assessment: No impact assessment was required for the stockpile areas due to their low ecological sensitivity.

2. Geotechnical Investigation Points (Test Pits and Boreholes)

Location and Sensitivity: These are distributed across both transformed fields and valley edge fynbos habitats. The valley edge fynbos is classified as critically endangered (CR) Garden Route Granite Fynbos and is a Biodiversity Priority Area (BPA).

Key Impacts:

Temporary Disturbance: Small-scale (5m x 5m per point), temporary, and reversible disturbance to valley edge fynbos during access and excavation.

Invasive Species Risk: Disturbed soil may facilitate the spread of invasive alien plants into fynbos remnants, which are already under pressure from existing invasives. The recently approved River MMP includes alien clearing which should be implemented.

Erosion Risk: The highly erodible soils increase the risk of erosion, especially on sloping ground near watercourses.

Mitigation Measures: Use existing tracks and disturbed surfaces for access. Strictly limit disturbance to the required footprint. Store and replace topsoil separately to preserve the indigenous seed bank. Immediate backfilling of test pits and seeding with indigenous grass after closure. Mark out access routes to avoid sensitive plants and prioritize less sensitive areas.

Residual Impact: With mitigation, the residual impact is rated as "Negligible", compared to "Minor" without mitigation. This means that, provided all mitigation measures are followed, the impact on biodiversity and ecosystem function is minimal and reversible.

3. Operational and Decommissioning Phases

Operational Phase: No additional impacts are anticipated, as monitoring will be done on foot using established routes. Important to access is restricted to the stockpile sites to ensure illegal dumping is prevented at all times.

Decommissioning Phase: Geotech Phase 2 assessment - Not applicable, as test pits are backfilled immediately and boreholes are closed after monitoring. Stockpile sites will be rehabilitated to their current state on completion of use.

4. Key Conclusions

The only significant impacts identified relate to temporary, small-scale disturbance of valley edge fynbos during geotechnical investigations. With the implementation of recommended mitigation measures, these impacts are reduced to negligible and are reversible. The stockpile areas, as redesigned, avoid sensitive habitats and do not require further assessment. Their operational use will require management to ensure that they are not used as illegal dumping sites.

In summary: The impacts identified are minor and temporary, provided all mitigation measures are implemented. The project design has already incorporated avoidance of the most sensitive habitats, and the remaining impacts are well-managed through best-practice mitigation.

Agricultural impacts:

1. Nature of Impacts:

The main impact is the temporary exclusion of the land from agricultural use during the stockpiling of fill materials for the road project. Geotechnical test pits will have no lasting impact as they are temporary and will be managed according to an approved method statement. There is no impact on formal agricultural production since the land is not actively farmed or zoned for agriculture and there is no change to the long-term use proposed at this stage.

2. Duration and Reversibility:

All impacts are temporary. Once construction is complete, the stockpile sites will be rehabilitated to restore their agricultural potential to the current status. Geotechnical tests are extremely short term and pose no impact.

3. Mitigation Measures:

Strip topsoil to a depth of 30 cm and store it in windrows around the site perimeter before stockpiling. After stockpiling, reshape the area to its natural topography, loosen any compaction, and return the topsoil. Reseed with natural veld grasses to stabilize and restore the area. Unless an alternative land use is approved, the area should remain available for informal livestock grazing.

4. Overall Conclusion:

The proposed development is acceptable from an agricultural impact perspective. No unacceptable negative impacts are expected, and the land's agricultural potential will be restored post-construction. No further agricultural assessments are required, and approval is recommended, provided mitigation measures are implemented.

Visual impacts:

The impact tables show that the proposed George Stockpiles and associated infrastructure will result in a noticeable local short term visual impact, mainly because several stockpile and construction camp areas are close to residential receptors and will be clearly visible during the use period.

1. Impact Significance

The impact assessment table concludes that the visual impact will be:

- High negative without mitigation; and
- Medium with mitigation.

The impact is described as local in extent, temporary to medium-term in duration, and highly probable, given the scale of the stockpiles, open views and close proximity of residential receptors.

2. Cumulative Visual Impact

The cumulative visual impact is assessed as Medium.

The stockpiles will add to the existing urban and infrastructural character of the area, but they are not expected to fundamentally alter the broader landscape character or cause substantial degradation of regional scenic resources.

3. Site-Specific Risk

The site-specific assessment indicates that visual risk is not equal across all sites:

- Sites 1, 4 and 5 have the highest visual risk, generally rated Medium to High, due to very high exposure to nearby residential communities.
- Site 4 requires particular attention because of its proximity to residential units at the George WWTW and the need for dedicated Bitou screening.
- Sites 2 and 3 are comparatively lower risk, generally Medium to Low, because they have greater separation from sensitive residential receptors.

4. Required mitigation

- Maintain a 25 m no-go buffer from residential structures for stockpile areas (formal and informal residential).
- Set construction camps back 50 m from residential property boundaries and screen with shade netting.
- Limit stockpile heights to 4 m at Sites 1, 4 and 5, and 12 m generally elsewhere.
- Manage dust through watering, covering short-term stockpiles near residences, speed control on haul roads, and monitoring.
- Shape and vegetate long-term stockpiles and topsoil windrows.
- Establish a Bitou hedgerow screen at Site 4.
- Rehabilitate disturbed areas after construction, including ripping compacted areas, replacing topsoil, and using locally appropriate vegetation

Heritage impacts:

It is recommended the following be included in the Environmental Authorisation / Environmental Management Program:

- if any human remains or significant archaeological materials are exposed during future earthworks on the property, then the find should be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned and completed before construction continues in the affected area and will be at the expense of the developer.

IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.
2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".
3. *Submission of documentation, reports and other correspondence:*

The Department has adopted a digital format for corresponding with proponents/applicants or the general public. If there is a conflict between this approach and any provision in the legislation, then the provisions in the legislation prevail. If there is any uncertainty about the requirements or arrangements, the relevant Competent Authority must be consulted.

The Directorate: Development Management has created generic e-mail addresses for the respective Regions, to centralise their administration. Please make use of the relevant general administration e-mail address below when submitting documents:

DEADPEIAAdmin@westerncape.gov.za

Directorate: Development Management (Region 1):

City of Cape Town; West Coast District Municipal area;

Cape Winelands District Municipal area and Overberg District Municipal area.

General queries must be submitted via the general administration e-mail for EIA related queries. Where a case-officer of DEA&DP has been assigned, correspondence may be directed to such official and copied to the relevant general administration e-mail for record purposes.

All correspondence, comments, requests and decisions in terms of applications, will be issued to either the applicant/requester in a digital format via email, with digital signatures, and copied to the Environmental Assessment Practitioner ("EAP") (where applicable).

4. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
5. All applicable sections of this BAR must be completed.
6. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.
7. This BAR is current as of **April 2024**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at <http://www.westerncape.gov.za> to check for the latest version of this BAR.
8. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.
9. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
10. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.
11. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.
12. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.
13. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.
14. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link <https://screening.environment.gov.za/screeningtool> to generate the Screening Tool Report. The screening tool report must be attached to this BAR.
15. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ("NEM:AQA"), the submission of the Report must also be made as follows, for-
Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS	
CAPE TOWN OFFICE: DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 1) (City of Cape Town, West Coast District, Cape Winelands District & Overberg District)	GEORGE REGIONAL OFFICE: DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 3) (Central Karoo District & Garden Route District)
The completed Form must be sent via electronic mail to: DEADPEIAAdmin@westerncape.gov.za	The completed Form must be sent via electronic mail to: DEADPEIAAdmin.George@westerncape.gov.za

Queries should be directed to the Directorate: Development Management (Region 1) at: E-mail: DEADPEIAAdmin@westerncape.gov.za Tel: (021) 483-5829 Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000	Queries should be directed to the Directorate: Development Management (Region 3) at: E-mail: DEADPEIAAdmin.George@westerncape.gov.za Tel: (044) 814-2006 Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530
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MAPS

Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.	
Locality Map:	The scale of the locality map must be at least 1:50 000. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following: • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development must be clearly indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): ○ Watercourses / Rivers / Wetlands ○ Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable); ○ Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): ○ Ridges; ○ Cultural and historical features/landscapes; ○ Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow

	A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as Appendix C . The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as Appendix D .
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as Appendix A3 .

ACRONYMS

DFFE:	Department of Forestry, Fisheries and Environment
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ (tick) or a x (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			✓ (Tick) or x (cross)
Appendix A:	Maps		
	Appendix A1:	Locality Map	✓
	Appendix A2:	Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning	N/A
	Appendix A3:	Map with the GPS co-ordinates for linear activities	N/A none of the roads exceed 500m in length
Appendix B:	Appendix B1:	Site development plan(s) (Preferred alternative)	✓
	Appendix B2	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of	✓

		the preferred site, indicating any areas that should be avoided, including buffer areas;	
Appendix C:	Photographs		✓
Appendix D:	Biodiversity overlay map		✓
Appendix E:	Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.		
	Appendix E1:	Final comment/ROD from HWC	✓
	Appendix E2:	Copy of comment from Cape Nature	To come
	Appendix E3:	Final Comment from the DWS	To come
	Appendix E4:	Comment from the DEA: Oceans and Coast	N/A
	Appendix E5:	Comment from the DFFE	To come
	Appendix E6:	Comment from WCG: Transport and Public Works	To come
	Appendix E7:	Comment from WCG: DoA	To come
	Appendix E8:	Comment from WCG: DHS	To come
	Appendix E9:	Comment from WCG: DoH	To come
	Appendix E10:	Comment from DEA&DP: Pollution Management	To come
	Appendix E11:	Comment from DEA&DP: Waste Management	To come
	Appendix E12:	Comment from DEA&DP: Biodiversity	To come
	Appendix E13:	Comment from DEA&DP: Air Quality	N/A
	Appendix E14:	Comment from DEA&DP: Coastal Management	N/A
	Appendix E15:	Comment from the local authority	To come
	Appendix E16:	Confirmation of all services (water, electricity, sewage, solid waste management)	N/A

	Appendix E17:	Comment from the District Municipality	To come																				
	Appendix E18:	Copy of an exemption notice	N/A																				
	Appendix E19	Pre-approval for the reclamation of land	N/A																				
	Appendix E20:	Proof of agreement/TOR of the specialist studies conducted.	Refer to individual report – App G																				
	Appendix E21:	Proof of land use rights	N/A																				
	Appendix E22:	Proof of public participation agreement for linear activities	N/A																				
Appendix F:	Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required. Public participation process report; <table><tr><td>Annexure A</td><td>Proof of notifications</td></tr><tr><td>Annexure B</td><td>Legal Advert</td></tr><tr><td>Annexure C</td><td>Site Notice(s)</td></tr><tr><td>Annexure D</td><td>List of Registered Interested and Affected Parties (I&APs)</td></tr><tr><td>Annexure E</td><td>Pre-application comment – HWC final comment</td></tr></table>		Annexure A	Proof of notifications	Annexure B	Legal Advert	Annexure C	Site Notice(s)	Annexure D	List of Registered Interested and Affected Parties (I&APs)	Annexure E	Pre-application comment – HWC final comment	✓										
Annexure A	Proof of notifications																						
Annexure B	Legal Advert																						
Annexure C	Site Notice(s)																						
Annexure D	List of Registered Interested and Affected Parties (I&APs)																						
Annexure E	Pre-application comment – HWC final comment																						
Appendix G:	Specialist Report(s) - Agricultural report - Heritage report - Aquatic biodiversity report - Animal species report - Terrestrial biodiversity and plant species report - Visual report		✓																				
Appendix H:	EMPr <table><tr><td>Annexure A</td><td>Locality Map</td></tr><tr><td>Annexure B</td><td>Preferred Site Plan</td></tr><tr><td></td><td>Environmental sensitivity map (no-go map)</td></tr><tr><td>Annexure C</td><td>Environmental Induction Sheet and Register</td></tr><tr><td>Annexure D</td><td>Engineering method statements for implementation</td></tr><tr><td></td><td>Method Statement Form</td></tr><tr><td>Annexure E</td><td>Register of Rescued Indigenous Vegetation</td></tr><tr><td>Annexure F</td><td>Protected Plant Species Lists</td></tr><tr><td>Annexure G</td><td>HWC chance find procedures</td></tr><tr><td>Annexure H</td><td>CV of EAPs</td></tr></table>		Annexure A	Locality Map	Annexure B	Preferred Site Plan		Environmental sensitivity map (no-go map)	Annexure C	Environmental Induction Sheet and Register	Annexure D	Engineering method statements for implementation		Method Statement Form	Annexure E	Register of Rescued Indigenous Vegetation	Annexure F	Protected Plant Species Lists	Annexure G	HWC chance find procedures	Annexure H	CV of EAPs	✓
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Annexure G	HWC chance find procedures																						
Annexure H	CV of EAPs																						
Appendix I:	Screening tool report and site sensitivity verification report		✓																				
Appendix J:	The impact and risk assessment for each alternative		In report																				
Appendix K:	Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline		In report																				
Appendix L:	Coordinates of stockpile site haul roads		✓																				

Appendix M:	SMEC Method statements	✓
Appendix N:	Planning input report	✓
Appendix O:	CV of EAPs	✓

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	CAPE TOWN OFFICE: REGION 1		GEORGE OFFICE: REGION 3
	(City of Cape Town, West Coast District)	(Cape Winelands District & Overberg District)	(Central Karoo District & Garden Route District)
Duplicate this section where there is more than one Proponent Name of Applicant/Proponent: Name of contact person for Applicant/Proponent (if other): Company/ Trading name/State Department/Organ of State: Company Registration Number: Postal address: Telephone: E-mail:	George Municipality		
	Johannes Franciscus Koegelenberg / Lindsay Mooiman / Ryno Schraader /		
	George Municipality		
	N/A		
	PO Box 19,		
	George	Postal code: 6530	
	+27(0) 44 801 9268	Cell: +27 66 470 3030	
	RSchraader@george.gov.za	Fax: N/A	
	jkoegelenberg@george.gov.za		
	LCMOOIMAN@george.gov.za		
Company of EAP: EAP name: Postal address: Telephone: E-mail: Qualifications: EAP registration no:	Hilland Environmental		
	Cathy Avierinos		
	PO Box 590		
	George	Postal code: 6530	
	044 889 0229	Cell: 082 558 6589	
	cathy@hilland.co.za	Fax: N/A	
	BSc Hons		
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	George Municipality		
	MM Dr O'Neil		
	PO Box 19,		
	George	Postal code: 6530	
	+27(0) 44 801 9111	Cell:	
	mmreception@george.gov.za	Fax: ()	
	George Municipality		
	MM Dr O'Neil		
	PO Box 19,		
	George	Postal code: 6530	
+27(0) 44 801 9111	Cell:		
mmreception@george.gov.za	Fax: ()		
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall: Contact person: Postal address: Telephone: E-mail:	Same as proponent – George Municipality		
		Postal code:	
	()	Cell:	
		Fax: ()	

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INCLUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New	✓	Expansion	✓
2.	Is the proposed site(s) a brownfield or greenfield site? Please explain.				
The sites are best described as a brownfield site, as it is located within an area that has already been disturbed and is associated with existing and planned municipal infrastructure development. The site is intended for the temporary storage of surplus road-building materials for the Rand Street and Rosedale Main Extension projects and other municipal infrastructure projects, and is situated within a landscape that has already been influenced by historical and ongoing human activities. Although portions of the site contain remnant vegetation and ecological features that require protection and management, the site is not an undeveloped, pristine greenfield area. Specialist studies confirmed that the site has been subject to previous disturbance, contains existing access routes, and is earmarked for infrastructure-related activities associated with the surrounding urban expansion area. Test sites required for the Phase 2 Geotechnical Assessment are located with the future proposed Rand Street and Rosedale Main Extensions project and are required to inform the design and assessment of that project.					
3.	For Linear activities or developments				
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:				
All routes associated with access to the stockpile area/construction camp and to geotechnical sites fall within the George Municipal Erf 325					
3.2.	Development footprint of the proposed development for all alternatives.		Temporary haul road access to the stockpile areas/construction camp sites: 5 700m² Total of 950m in length by max 6m wide Temp access tracks to the geotechnical sites: 13 500m² Total of 2700 m in length by approx 5m wide Temporary use of existing tracks to the geotechnical sites: 13 900m² Total of 2780m in length by approx 5m wide		
3.3.	Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.				
Existing tracks to the sites will be used wherever they are available, however, new routes and widening of existing roads is required to gain access to both the stockpile areas/construction camp site and test pit areas for the phase 2 Geotechnical investigation. The roads associated with the preferred alternative is described below: Access to the stockpile areas/ construction camp sites From existing roads/paths, new access haul roads will be created as indicated on the below plan. The roads will be approximately 5-6m in width to allow for large vehicle/machinery to deliver and remove materials from the stockpile sites. The total length of all of these proposed roads calculates to approximately 950m. There is no road reserves associated with these roads as they will be removed and rehabilitated after use. It is anticipated that the haul roads will run into and through the stockpile sites/ construction camp(s) as required for the stockpiling of the material. Road creation would require windrow topsoil to the side of the road (to pull back after use for rehabilitation), G5 or suitable material will be placed on the roads as a driving surface to prevent rutting and erosion issues. Temporary stormwater controls will be installed to direct stormwater off the temporary roads into the surrounding vegetated areas. These tracks will be temporary – to be in operation as long as the stockpile site is active. Once the stockpile is rehabilitated, the temporary access roads will be rehabilitated as specified in the EMP.					

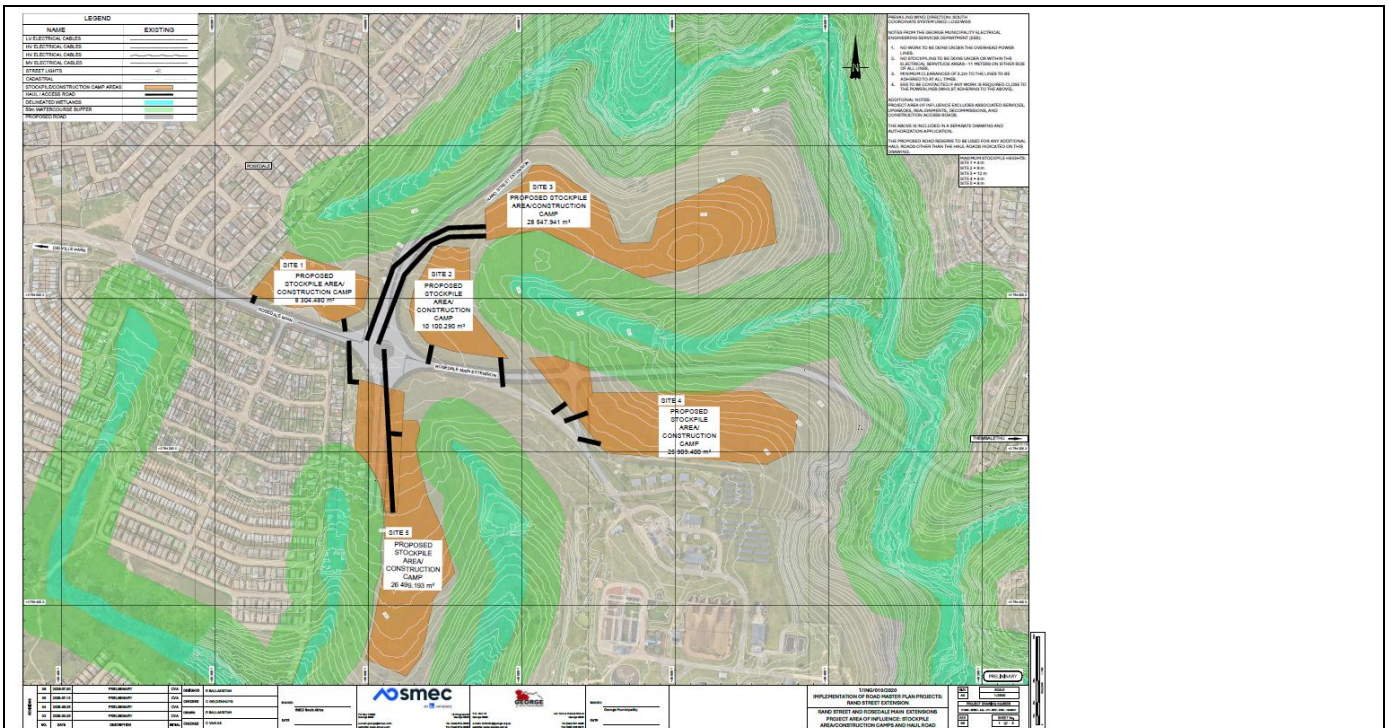


Figure 6: Preferred plan showing the access roads (black lines) to the respective stockpile areas (orange) (SMEC, 2026)

- Access to the test pits for the phase 2 Geotechnical Investigation

Vehicles that need to dig the various test pits or perform rotary core drilling will gain access from existing roads/paths. Where there is no access, new roads/paths need to be created and where existing roads/paths are too narrow, they will be widened. These will be temporary, only used to gain access to and from the site for the purpose of digging the test pit and then closing it up or perform rotary core drilling to recover core samples and to install the monitoring borehole.

Only the vehicle that needs to perform the tests will need to access the site. Depending on the site this will be either a bakkie, TLB, small excavator or a small drill rig.

Where possible the vehicle will simply drive over the vegetation to reach the test pit site and then dig the hole following the strict method statement and EMPr requirements.

Where access is more restricted due to the steepness of the slope, a temporary track may need to be created which will need to be rehabilitated after use. Strict method statement and EMPr requirements to be followed.

On average the temporary tracks will not need to be wider than 5m (temporary tracks will be kept as narrow as possible taking safety of operator into account).

Once the investigation at the specific site has been completed / boreholes installed, the tracks will be fully rehabilitated.

Where the vehicle cannot simply drive over the grass, track creation or widening will entail removal of topsoil and placement of it in a berm next to the road. G5 or suitable material may need to be placed to prevent rutting. On completion the area is to be fully rehabilitated.

Where the aquatic features dictate, a portable drill rig will be required – see specialist mitigation measures indicated.

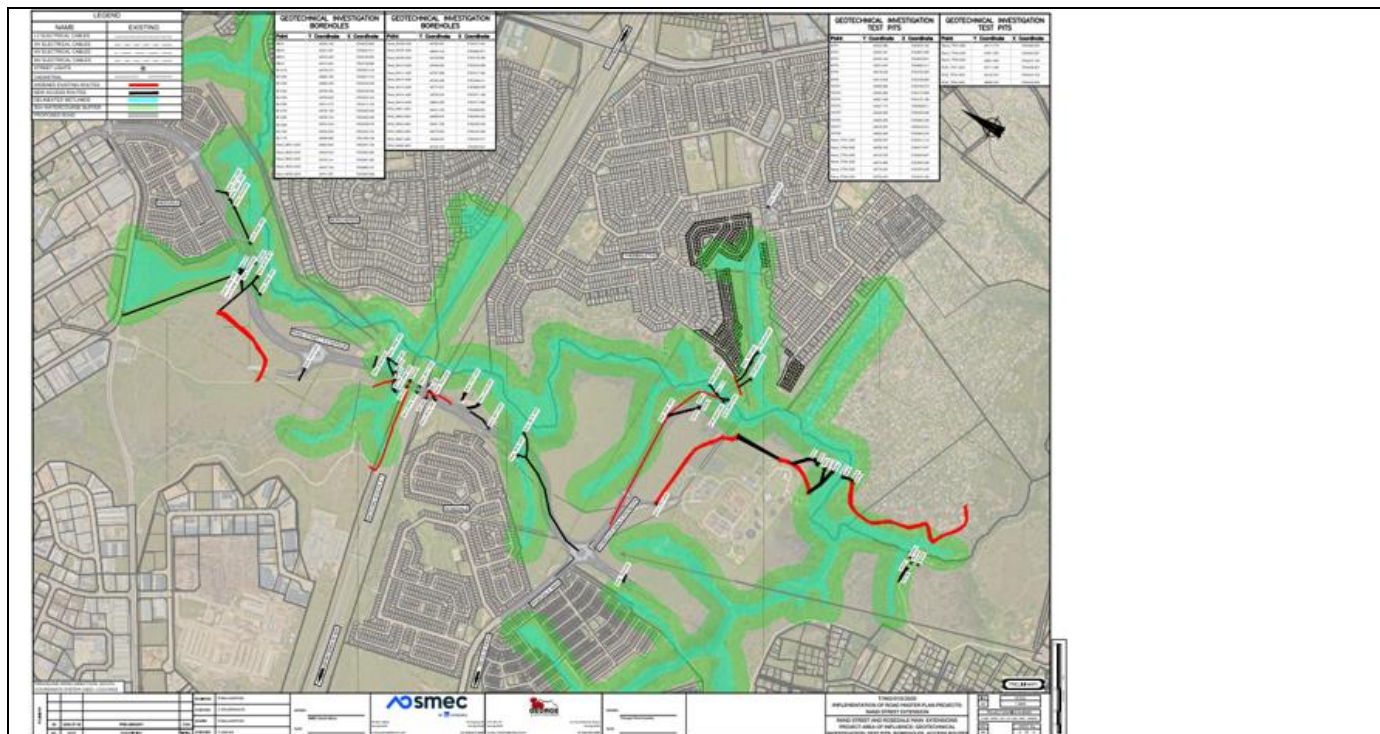


Figure 7 Geotechnical Phase 2 assessment demarcated positions for testing as well as temporary access routes to these positions. The red lines are existing roads/paths to be used. The black lines are where new tracks will be needed (KLM, SMEC 2026)

3.4.	Indicate how access to the proposed routes will be obtained for all alternatives.		
Access to new roads will be gained from existing road			
3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives Only preferred property Erf 325	C02700070000032500000	
3.6.	Starting point co-ordinates for all alternatives Please see Appendix L attached. These includes coordinates of the stockpile areas access roads The geotechnical access tracks are short term, single use and are not co-ordinated but are indicated on the attached KML file (see appendix B1 spatial data electronic appendix).		
	Latitude (S)	°	11
	Longitude (E)	°	11
	Middle point co-ordinates for all alternatives		
	Latitude (S)	°	11
	Longitude (E)	°	11
	End point co-ordinates for all alternatives		
	Latitude (S)	°	11
	Longitude (E)	°	11
	Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.		
4.	Other developments		
4.1.	Property size(s) of all proposed site(s): Erf 325	6 088 042 m²	
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):		0

4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives: Approximately 9.9 ha for approximately 757 472 m³ material	Approx 99361m²
4.4.	Provide a detailed description of the proposed development and its associated infrastructure (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).	

For the George municipality to undertake various projects in an around George, stockpile sites are required to store material on a temporary basis for reuse in other municipal infrastructure projects. This is specifically linked to the Rand Street and Rosedale Main Extension project, which will require substantial fill material to construct.



Locality Map - George Municipality Stockpile Sites and Geotechnical Phase 2 Assessment for Rand Street, Rosedale Main Extension Project

Date: 5 August 2026
Project No: 1405
Drawn By: S. Delport

Hiland Environmental
Environmental Assessment Practitioners

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Aerial Image - Surveyor General 2020
Cadastral Image - Surveyor General 2019
SDP data - SMEC 2026

Projected Coordinate System: **GS_1984_UTM_Zone_34S**

Figure 8: Locality map for the project

Excess cut material from municipal infrastructure projects is required to be stockpiled for use on future projects that require fill material.

This is a major socio-economic factor for the municipality as disposal of excess material costs each project significant amounts of money and the import of commercial fill material for other projects costs each project significant amounts of money.

This saving will make the service delivery of the George Municipality more sustainable and cost effective.

Five suitable stockpile sites have been identified that do not encroach on current future housing project areas or on existing services required. Any future land uses will need to take the stockpile sites into account and rehabilitation back to the existing state is the end use of all the sites.

These areas will allow for the stockpiling of approximately 757 472 m³ of material at any time and are all located on erf 325, Pacaltsdorp, George.

These areas will be made available to the future contractor appointed for the Rand Street and Rosedale Main Extensions project to be used as a construction camp (s) as per the COTO Chapter 1, Section A1.3.2 definition and as per COTO Chapter 1, Section A1.3.3 explanation of what a construction camp entails.

This will result in the disturbance of the existing vegetation and topsoil for the duration of the stockpile / construction camp(s) and haul roads requirements.

Various alternatives have been considered and are indicated in the layouts below-

Figure 8: Locality map for the project

Excess cut material from municipal infrastructure projects is required to be stockpiled for use on future projects that require fill material.

This is a major socio-economic factor for the municipality as disposal of excess material costs each project significant amounts of money and the import of commercial fill material for other projects costs each project significant amounts of money.

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These areas will allow for the stockpiling of approximately 757 472 m³ of material at any time and are all located on erf 325, Pacaltsdorp, George.

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This will result in the disturbance of the existing vegetation and topsoil for the duration of the stockpile / construction camp(s) and haul roads requirements.

Various alternatives have been considered and are indicated in the layouts below-

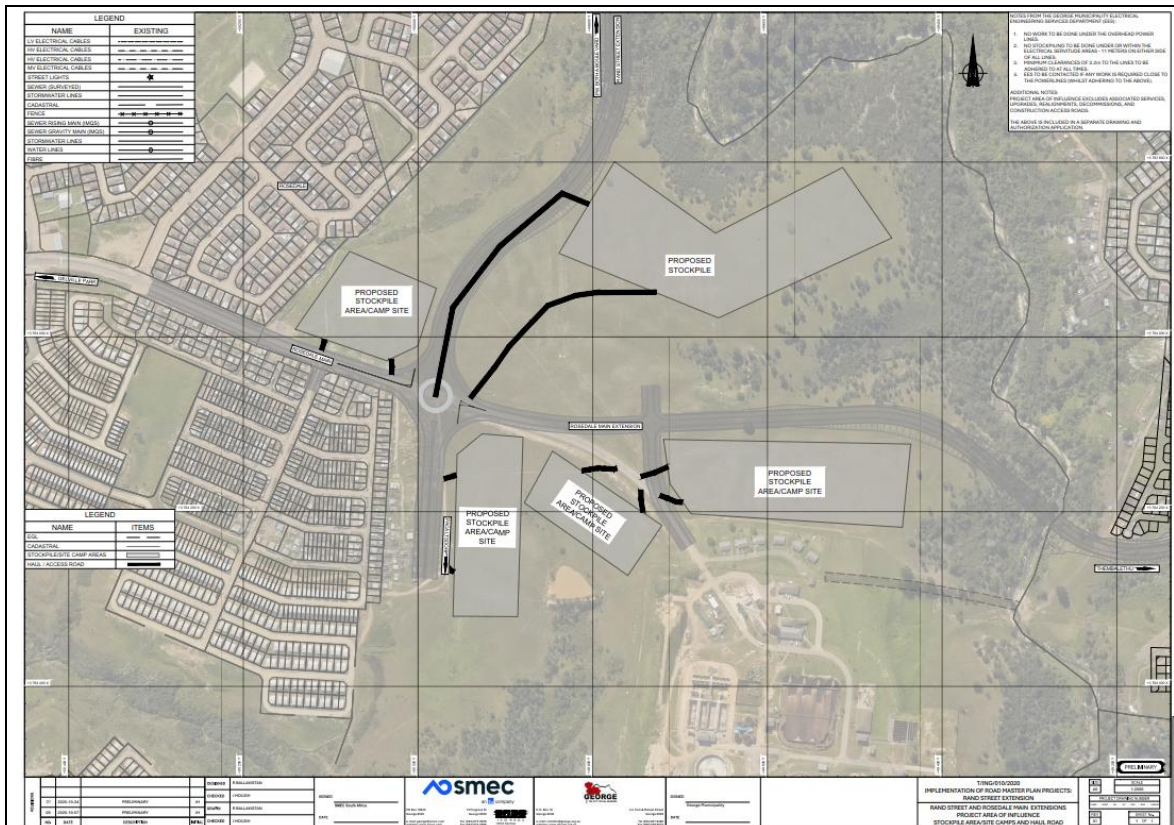


Figure 9 Initial stockpile areas / construction camp(s) and haul roads proposed for consideration – as circulated to specialists.

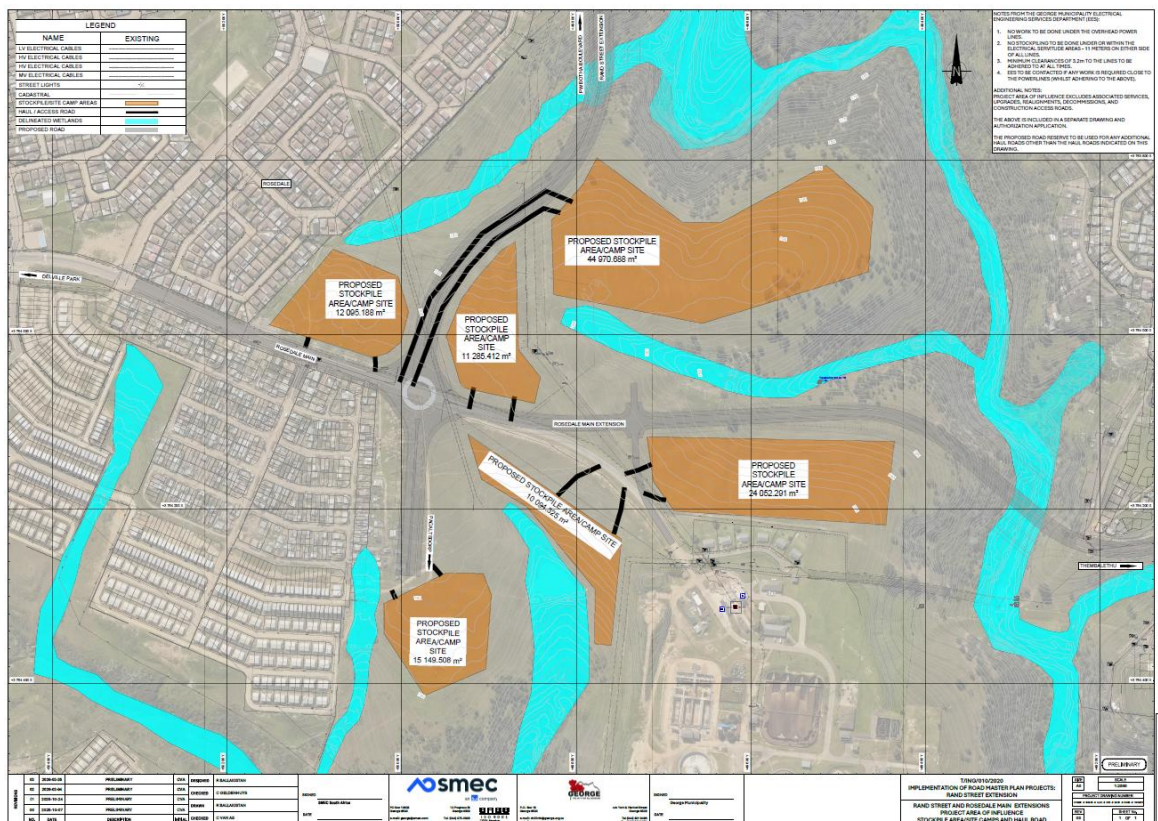


Figure 10 Revised layout of stockpile sites / construction camp(s) and haul roads based on initial specialist inputs.

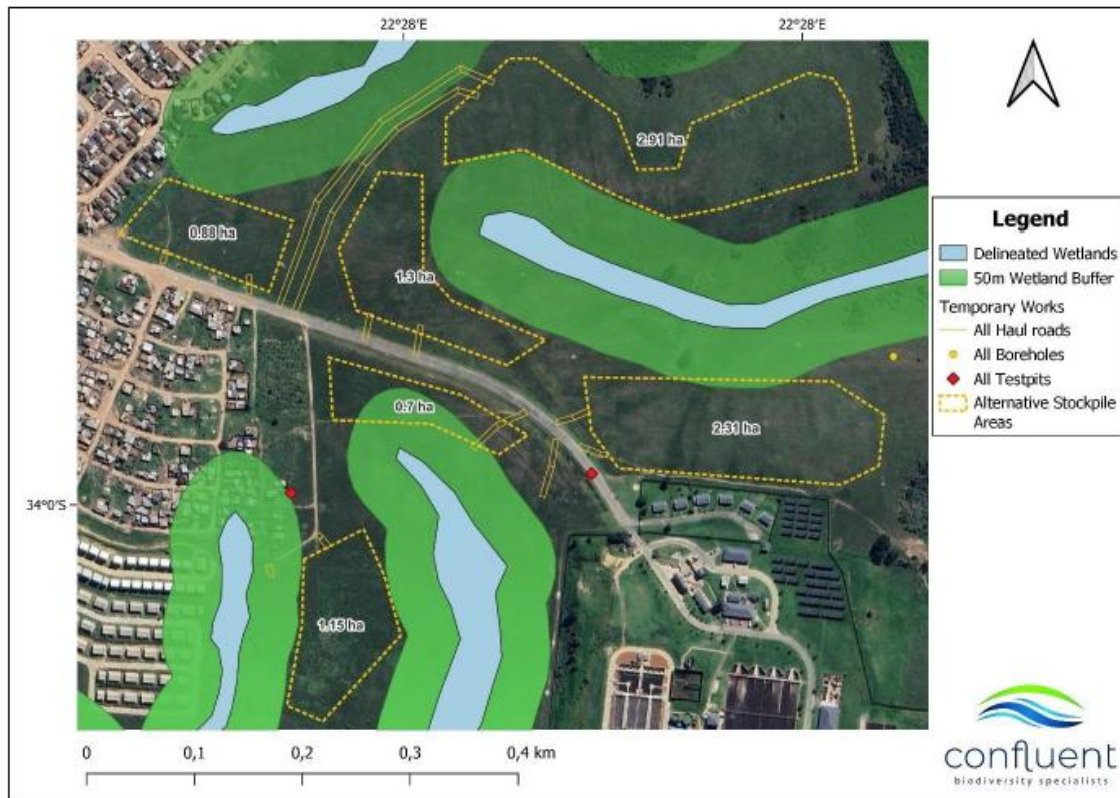


Figure 11 Wetland buffers added and stockpile sites and access haul roads adjusted further.

SMEC further refined the stockpile sites/ construction camp(s) and haul roads based on comments from specialists and the George Municipality Electrical Engineering Services Department (EES) requirements.

The final layout is presented below.

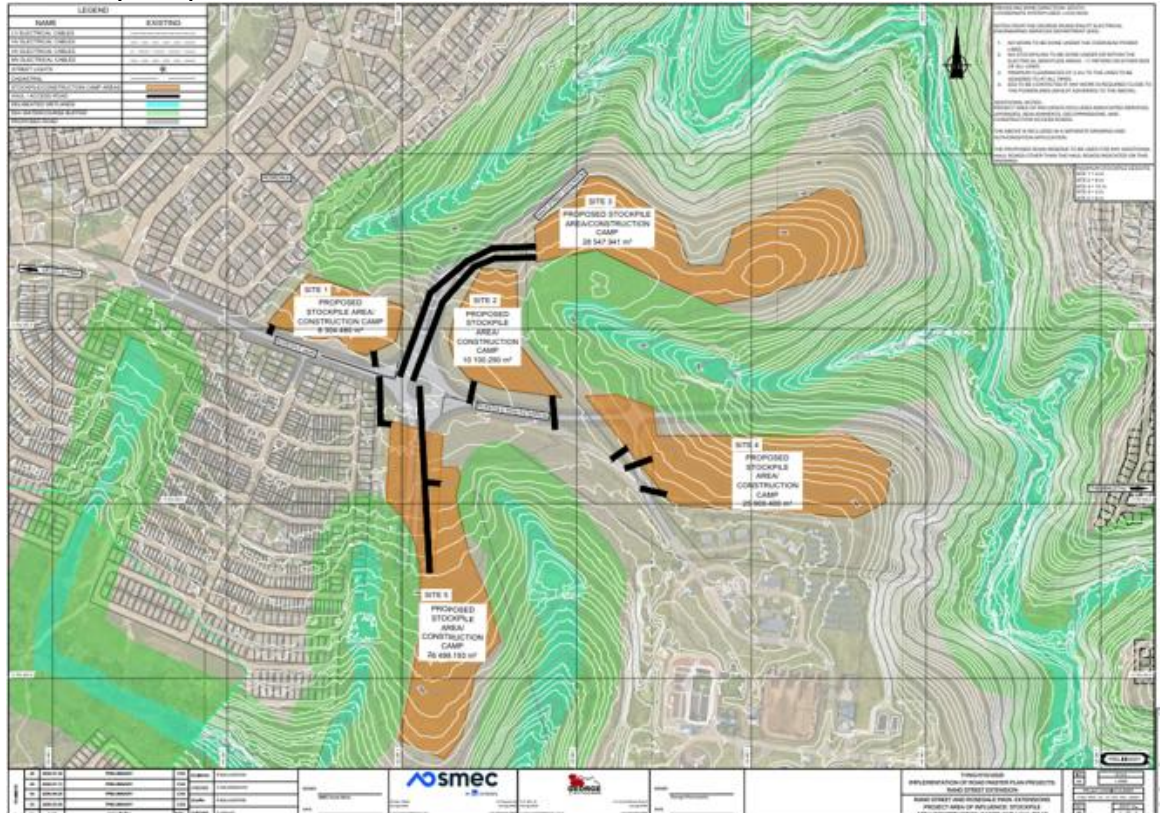


Figure 12 Final stockpile sites / construction camp(s) and temporary haul roads layout taking specialist recommendations and electrotechnical comments into account.

Note – stockpile site areas may be used as temporary construction camp(s) site(s) where necessary for future construction phases of municipal projects in the area – not limited to the Rand street or Rosedale Main Extension project – end use rehabilitation will remain the same.

In addition to the stockpile sites/ construction camp(s) and their required haul roads, the Phase 2 Geotechnical Assessment for Rand Street and Rosedale Main Extensions Project requires the digging of test pits and the installation of monitoring boreholes which will necessitate the temporary clearance of vegetation (more than 300m² of indigenous vegetation in areas mapped as supporting endangered ecosystem and in areas that are “equivalently zoned” as open space).

As such the Geotechnical Phase 2 Assessment, which is a key assessment needed to inform the Rand Street and Rosedale Main Extensions project (for design and EIA process), will require NEMA authorisation before it can be undertaken. The assessment will inform the NEMA Scoping EIA for Rand Street and Rosedale Main Extension Project (separate NEMA process).

The layout included below indicates the test positions for the phase 2 geotechnical assessment and the temporary access routes to these areas. The points indicated below (BH = borehole; TP = test pit)

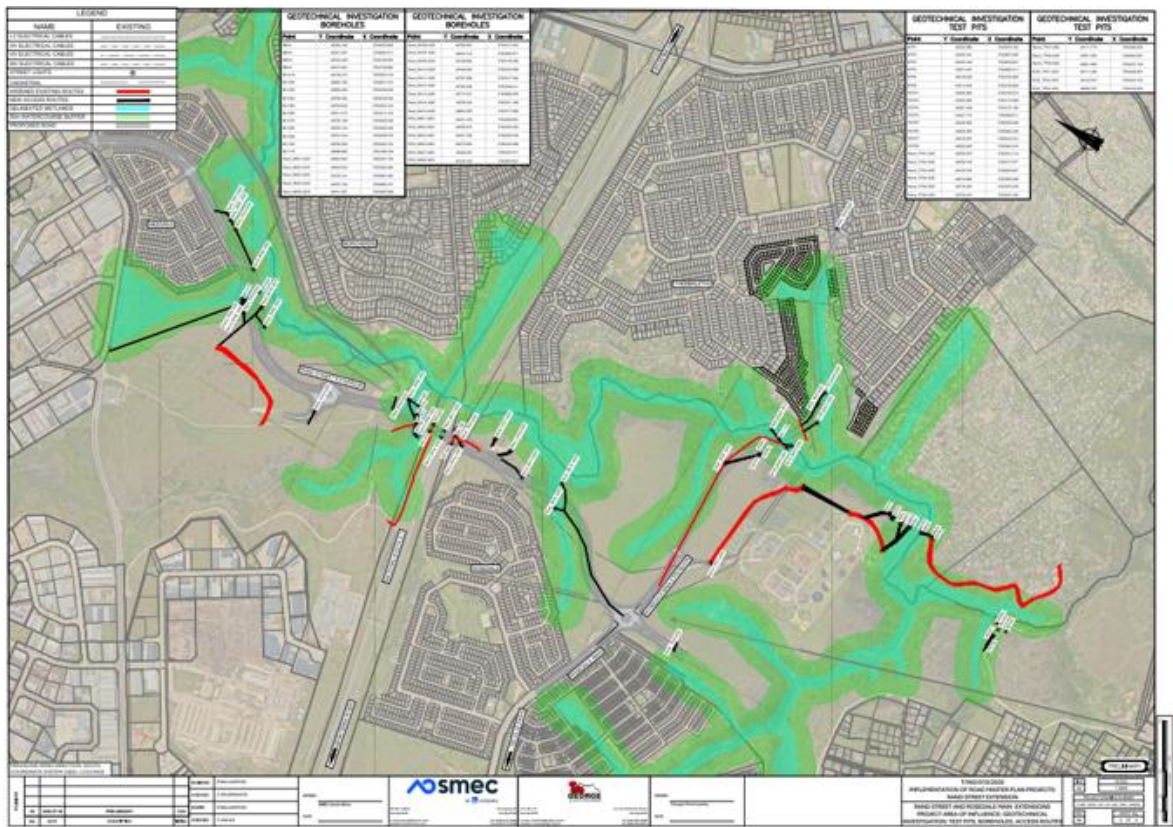


Figure 13 Geotechnical Phase 2 assessment demarcated positions for testing as well as access routes to these positions (KML, SMEC July 2026) see high-definition plan in appendix B1

4.5. Indicate how access to the proposed site(s) will be obtained for all alternatives.

Access will be from the adjacent municipal road networks and will follow existing informal tracks where possible, or as required on temporary haul roads and access tracks as indicated on the stockpile site(s) / construction camp(s) layout and the Geotechnical investigation plan by SMEC.



BASIC ASSESSMENT REPORT: APRIL 2024
155

Erf 325

Coordinates of the proposed site(s) for all alternatives:



Map showing the sites 1 – 5, coordinates provided below is the approximate middle point of these sites

4.7.

Site 1			
Latitude (S)	34°	0'	6.16"
Longitude (E)	22°	27'	28.67"
Site 2			
Latitude (S)	34°	0'	7.00"
Longitude (E)	22°	27'	35.52"
Site 3			
Latitude (S)	34°	0'	5.09"
Longitude (E)	22°	27'	45.29"
Site 4			
Latitude (S)	34°	0'	12.40"
Longitude (E)	22°	27'	47.72"
Site 5			
Latitude (S)	34°	0'	16.56"
Longitude (E)	22°	27'	33.80"

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. Exemption applied for in terms of the NEMA and the NEMA EIA Regulations

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	YES	NO
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2. Is the following legislation applicable to the proposed activity or development.

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	YES	NO
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1. The proposal triggers activities in terms of the NHRA that required the submission of an NID to HWC. HWC provided their final comment 19 Aug 2026 confirming that no further action under Section 38 of the Act is required.	YES	NO
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3. As per the specialist conclusion: Based on the Low-Risk outcome of the Risk Matrix, the proposed geotechnical investigations and stockpiling areas could be Generally Authorised in terms of the NWA. GA application is in process.	YES	NO
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	YES	NO
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	NO
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	YES	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	NO
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	YES	NO

3. Other legislation

List any other legislation that is applicable to the proposed activity or development.
None

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.
• Western Cape Spatial Biodiversity Plan (CapeNature, 2023) - the proposed development takes the WCBSP into account • George Spatial Development Framework (SDF) - the proposal is consistent with the SDF • George Municipality Integrated Development Plan (IDP) - the proposal is consistent with the IDP • George Environmental Framework (EMF) - the proposal is consistent with the EMF • Western Cape Provincial SDF (2014) - the proposal is consistent with the Provincial SDF Western Cape Biodiversity Spatial Plan (WCBSP) The Western Cape Biodiversity Spatial Plan was considered through the biodiversity and aquatic specialist assessments, which confirmed that portions of the project area are mapped as Critical Biodiversity Areas and Ecological Support Areas. The proposed stockpile sites and access routes were refined in response to this sensitivity mapping and specialist input. The preferred layout avoids the most sensitive habitats as far as practicable, including wetland buffers and valley-edge fynbos areas, and places the stockpile areas mainly within transformed or degraded areas. The proposed activities therefore respond to the WCBSP by applying the mitigation hierarchy, limiting disturbance, retaining ecological functioning, and requiring rehabilitation and alien invasive plant control. George Spatial Development Framework (George SDF) The George SDF was considered in relation to the broader municipal planning context, particularly the need for improved municipal infrastructure, road connectivity and service delivery within the George urban area. The Rand Street and Rosedale Main Extension projects form part of planned municipal infrastructure improvements, and the temporary stockpile sites are required to support these projects by enabling the reuse of suitable fill material. The proposal therefore aligns with the SDF's infrastructure and connectivity objectives, while responding to environmental constraints through layout refinement, temporary use of land, avoidance of sensitive areas and rehabilitation after use. George Integrated Development Plan (George IDP) The George IDP was considered in terms of its emphasis on sustainable service delivery, infrastructure provision, cost-effective municipal operations and improved access within developing urban areas. The proposal supports these

objectives by allowing surplus material from municipal infrastructure projects to be stored and reused, reducing unnecessary disposal costs and the need to import commercial fill material. The activities comply with the intent of the IDP because they support municipal infrastructure implementation in a more efficient and sustainable manner, subject to the implementation of the EMPr and specialist mitigation measures.

George Environmental Management Framework (George EMF)

The George EMF was considered by identifying environmental sensitivities within and surrounding the project footprint, including wetlands, watercourses, biodiversity features, visual receptors and areas of transformed land. The project responds to the EMF by locating the preferred stockpile sites mainly outside the most sensitive environmental features, incorporating buffer areas, managing stormwater and erosion risks, and requiring rehabilitation after the temporary use ceases. The EMF's environmental management objectives are further addressed through ECO oversight, demarcation of no-go areas, controlled access, topsoil management, dust control, and the incorporation of specialist recommendations into the EMPr.

Western Cape Provincial Spatial Development Framework (Western Cape SDF / PSDF)

The Western Cape SDF was considered in relation to its principles of sustainable development, efficient infrastructure investment, protection of ecological infrastructure, responsible land use and climate-resilient planning. The proposal supports the PSDF by enabling the efficient reuse of municipal construction material for planned infrastructure, thereby reducing transport, disposal and material import requirements. At the same time, the preferred alternative responds to the PSDF's environmental principles by avoiding sensitive biodiversity and freshwater features where possible, restricting disturbance to temporary footprints, and requiring rehabilitation and long-term environmental management measures.

Collectively, these policies were considered through the planning, assessment and layout refinement process. The preferred alternative responds to the applicable policy framework by supporting identified municipal infrastructure needs while incorporating environmental constraints into the project design. Compliance is achieved through the temporary nature of the stockpile, construction camp site, access and geotechnical activities; avoidance of sensitive areas where practicable; implementation of specialist mitigation measures; rehabilitation of disturbed areas; and ongoing compliance monitoring through the EMPr and ECO.

5. Guidelines

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.

Guideline	How the proposed development complies with and responds
DEA&DP (2013) Guideline on Public Participation (EIA Guideline and Information Document Series): Western Cape DEA&DP, March 2013	The public participation process for the project will follow the requirements of the guideline and the guideline was used to compile the Public Participation Report (Appendix F).
DEA&DP (2013) Guideline on Alternatives (EIA Guideline and Information Document Series): Western Cape DEA&DP, March 2013	This guideline was used to assess and determine alternatives for the project. Due to specialist input, and need and desirability, no alternatives have been proposed other than the Preferred and No-Go Alternative. The alternatives assessed in this report fall within the requirements of the guidelines.
DEA&DP (2013) Guideline on Need and Desirability (EIA Guideline and Information Document Series): Western Cape DEA&DP, March 2013	This guideline was considered when considering the need and desirability of the proposed project. The guideline was used to complete the section on need and desirability and the need and desirability assessed within this report fall within the requirements of the guideline.
DEA&DP (2005) Guideline on Environmental Management Plans	This guideline was considered for the compilation of the EMPr (Appendix H to form part of the BAR) and the EMPr fall within the requirements of the guideline.
Guideline for determining the scope of specialist involvement in EIA processes, guideline for the review of specialist input in the EIA process and guideline for involving biodiversity specialist in the EIA process (June 2005)	The report falls within the requirements of these guidelines and was used to determine the need for specialist involvement and within the review process of the subsequent reports and inputs.
Guideline for review of specialist input in the EIA process (June 2005)	This guideline was used for the review of specialist input and the verification of sensitivities.
Integrated Environmental Management Information Series 5: Impact Significance (2002)	The impact significant used within this report fall within the requirements of the guideline and the guideline was used to identify and evaluate the potential impact associated with the proposal.
Integrated Environmental Management Information Series 7: Cumulative Effects (2004)	The cumulative effect assessed within this report fall within the requirements of the guideline and the guideline was used to assess the cumulative effects of the identified impacts.

Department of Environmental Affairs Screening Tool and protocols	The screening tool was used to inform the need for specialist studies. Please refer to the screening tool report and applicability considerations.
National Environmental Management Act, 1998 (Act No 107 of 1998): Procedures to be followed for the assessment and minimum criteria for reporting of identified environmental themes in terms of Section 24(5)(a) and (h) of the National Environmental Management Act, 1998, when applying for environmental authorisation.	The procedures were followed to determine the need for specialist studies based on the outcome of the screening tool report and site sensitivity verification.
Guideline on generic terms of Reference for EAPs and Project Schedules (March 2013)	The generic terms of reference and schedules outlined in this guideline was applied during the BA process.
Western Cape Land Use Planning Guideline: Rural Areas (2019)	The objectives of the guideline were assessed to determine if the proposal is in line with the guideline.
Guideline for determining the scope of specialist involvement in EIA processes (June 2005)	This guideline was used to determine the scope of the specialists involved in the project.
Guideline for involving visual and aesthetic specialists in EIA processes	This guideline was used by the visual specialist for compiling the specialist report.
Guidelines for involving biodiversity specialists in the EIA process, June 2005	This guideline was used by the EAP to determine the involvement of the terrestrial biodiversity specialist
Guidelines for involving heritage specialists in the EIA process, June 2005	This guideline was considered to determine the need to involve this specialist, however, HWC confirmed that no additional studies were required.
Guidelines for involving social assessment specialist in the EIA process, Dec 2007	This guideline was considered, however, the need for an additional assessment was disputed as the Municipality provided input.
Guidelines for involving economists in the EIA process, June 2005	This guideline was considered, however, the need for an additional assessment was disputed as the Municipality provided input.
Western Cape Land Use Planning Guidelines – Rural Areas, March 2019	This guideline was considered through the assessment. The proposal areas are mapped as CBA and therefore is Core 1 in accordance with the guidelines. The proposal was deemed appropriate as it is in line with the guideline, the proposal was assessed by specialists that supported the proposal, the mitigation hierarchy was applied, environmental sensitive areas were avoided, and all potential impacts will be mitigated through the implementation of the EMPr.

6. Protocols

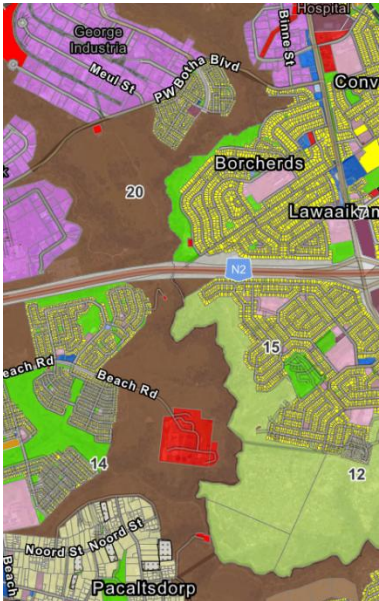
Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form		
Protocol triggered in terms of screening tool report and sensitivity rating	Specialist appointed or not	Specialist confirmation of sensitivity and report compiled
General protocol for: - landscape/visual impact assessment	- landscape/visual impact compliance statement – yes, VRM Africa	- landscape/visual impact assessment – specialist confirmed medium significance rating
-archaeological and cultural heritage impact assessment – very high - palaeontology impact assessment – no rating provided	-archaeological and cultural heritage and palaeontology impact assessment – HWC confirmed that no assessments required	-archaeological and cultural heritage and palaeontology impact assessment - HWC confirmed no studies necessary
-socio-economic impact assessment	-socio-economic impact assessment – the need and desirability and socio-economic impact is considered by the applicant, the Municipality	-socio-economic impact assessment – input is provided by the Municipality and engineers to address the need and desirability. No assessment deemed necessary
Terrestrial biodiversity protocol – very high sensitivity	Yes, Confluent Environmental	Sensitivity confirmed and disputed by specialist:
Plant species protocol, medium sensitivity		

Animal species protocol, medium sensitivity		Terrestrial biodiversity VERY HIGH for fynbos areas and LOW for transformed fields Plant species Medium disputed – should be LOW Animal species Mediums disputed and should be HIGH Aquatic biodiversity VERY HIGH confirmed by specialist Assessments undertaken
Aquatic biodiversity protocol, very high sensitivity		
General protocol - Agriculture theme, high sensitivity	Yes, Gert Malan	Sensitivity disputed by specialist and it was confirmed to be medium. The property has already been taken out of agriculture, and no further assessment was required. A compliance statement was done
Civil aviation theme – very high sensitivity	The proposal will have no impact on the listed aerodrome. The stockpile heights will be restricted. No specialist assessment	No assessment required
Defence theme – low sensitivity	Low sensitivity confirmed and based on no impact; there is no need for a specialist assessment	No assessment required

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1	Describe the portion of the proposed development to which the applicable listed activity relates.
12	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; — excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.	The temporary stockpile sites / temporary construction camp(s) site(s) and temporary haul roads are not proposed within 32m of any watercourse. The Geotechnical test pits, where they are within 32m of a watercourse, are not structures or infrastructure and they will not exceed 100m². The test pits are simply temporary disturbance areas to test ground conditions. While the boreholes are to monitor ground water conditions. Access to these points is temporary and will be immediately rehabilitated. As indigenous vegetation will be temporarily affected and as the cumulative disturbance area may temporarily exceed 100m², this activity has been included for the temporary access infrastructure that will be required, albeit for only a couple of days with immediate rehabilitation.
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or	Temporary stockpile sites / temporary construction camp(s) site(s) and haul roads will require the clearance of indigenous vegetation which is

	(ii) maintenance purposes undertaken in accordance with a maintenance management plan.	currently mostly transformed agricultural lands which will exceed 1ha in extent. Geotechnical phase 2 assessment – will be short term clearance under 1ha in size and will be rehabilitated immediately on completion of the test pit and installation of the borehole. The roads (temporary haul roads, temporary access routes to test pit locations for access) are excluded from this activity as they are linear activities (however, where possible, existing tracks and roads are being proposed for access).
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3	Describe the portion of the proposed development to which the applicable listed activity relates.
4	The development of a road wider than 4 metres with a reserve less than 13,5 metres i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. Areas outside urban areas; (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	The temporary access haul roads to the the stockpile sites will be in areas supporting transformed indigenous vegetation and will be wider than 4m. There will be no road reserves as these are not permanent roads and they will be rehabilitated on completion. Temporary access tracks for the Geotechnical phase 2 assessment will be through areas of indigenous vegetation. Any areas that are deemed to be “inside urban areas” are not zoned for conservation use.
12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan i. Western Cape i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	The whole area is mapped as critically endangered ecosystem and there will be more than 300m² clearance of indigenous vegetation required. Area is zoned as undetermined which could be regarded as “equivalent zoning” to open space by DEADP. 
18	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. All areas outside urban areas: (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone	Existing roads may need to be widened by more than 4m in areas. This applies to all haul roads and temporary access roads to the stockpile sites / construction camp(s) and to the temporary access to Geotechnical test pit sites. In areas “equivalent zoning” to public open space.

	where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	In areas containing indigenous vegetation which may be deemed to be outside an urban area by DEADP.
Note: - The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted. - Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority.		

List the applicable waste management listed activities in terms of the NEM:WA

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Category A	Describe the portion of the proposed development to which the applicable listed activity relates.
N/A		

List the applicable listed activities in terms of the NEM:AQA

Activity No(s):	Provide the relevant Listed Activity(ies)	Describe the portion of the proposed development to which the applicable listed activity relates.
N/A		

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.
The preferred alternative comprises the temporary establishment and use of five stockpile sites, associated construction camp areas, temporary haul roads and access tracks, together with the Phase 2 geotechnical investigation activities required to inform the Rand Street and Rosedale Main Extension project. All proposed activities are located on George Municipal Erf 325 and are intended to support planned municipal infrastructure development by allowing surplus cut material from municipal projects to be temporarily stored and reused as fill material for future road construction and related infrastructure works. The preferred stockpile layout is the final revised layout prepared following input from the aquatic biodiversity, terrestrial biodiversity, faunal, agricultural, visual and engineering specialists, as well as the George Municipality Electrical Engineering Services Department. Earlier layouts were amended to reduce environmental and visual impacts, avoid wetland buffer encroachment as far as possible, avoid valley-edge fynbos and other sensitive features where practicable, and ensure that the sites do not conflict with planned housing areas or existing municipal services. The preferred alternative therefore represents the layout that best balances the municipal need for temporary material storage with the environmental constraints identified through the assessment process. The preferred alternative includes the temporary use of approximately five stockpile areas/construction camp areas for the stockpiling of approximately 757 472 m³ of material at any one time. These areas are situated mainly within transformed or disturbed areas and will be used for the temporary storage, management and removal of fill material. The stockpile areas may also be used by the appointed contractor as construction camp areas for the Rand Street and Rosedale Main Extension project. Use of the sites will require temporary disturbance of vegetation and topsoil, but the areas will be rehabilitated once the stockpiling and construction camp activities are complete. Access to the stockpile and construction camp site areas will be obtained from existing roads and tracks where available. Where existing access is unavailable or inadequate, temporary haul roads will be created or widened. The haul roads to the stockpile/ construction camp site areas will be approximately 5–6 m wide and approximately 950 m in total length, with an estimated temporary disturbance footprint of approximately 5 700 m². These roads will be used by construction vehicles and machinery to deliver, manage and remove stockpiled material. They will not create permanent road reserves and will be rehabilitated after the stockpile sites are decommissioned. The preferred alternative also includes access to the Phase 2 geotechnical investigation positions for the Rand Street and Rosedale Main Extension project. The geotechnical work will include the excavation of test pits and the installation of monitoring boreholes to inform engineering design and the separate Scoping and EIA process for the road extensions. Access to these points will use existing roads and tracks wherever possible. Where necessary, temporary tracks may be created or widened to allow access for a TLB, small excavator or small drill rig. These temporary geotechnical access tracks	

will generally be approximately 5 m wide, with an estimated new temporary access footprint of approximately 13 500 m² and approximately 13 900 m² associated with the temporary use of existing tracks. The test pit and borehole disturbance footprint will be kept to the minimum required, generally limited to approximately 5 m x 5 m per investigation point. The geotechnical activities will be short-term and temporary. Test pits will be backfilled after excavation and recording, and monitoring boreholes will be used for groundwater level and water quality monitoring purposes, with no water abstraction proposed. In sensitive areas, access and test positions will be micro-sited under ECO supervision, and portable drilling equipment or hand excavation will be used where required by specialist mitigation measures. The preferred alternative is therefore a temporary, infrastructure-support activity that enables George Municipality to manage and reuse suitable material in a cost-effective and sustainable manner, while incorporating specialist recommendations to avoid sensitive areas, minimise disturbance, control erosion and dust, protect watercourses and wetlands, manage visual impacts, preserve topsoil, and rehabilitate all temporarily disturbed areas after use. Compliance with the EMPr, specialist mitigation measures, method statements and ECO monitoring will be essential to ensure that the preferred alternative remains acceptable from an environmental impact perspective.	
2.	Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21. There are no existing land use rights associated with the location of the proposal. The Planning Report (Appendix N) has reference. Planning have indicated that they will need to apply for temporary departure for the temporary stockpile sites and no application is required for the short-term testing required for the Geotechnical Phase 2 assessment.
3.	Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved. There are no conflicts anticipated – the temporary departure will allow for the temporary change required for the stockpile sites / construction camp sites. See planning report – Appendix N.
4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework. The Western Cape SDF was considered in relation to its principles of sustainable development, efficient infrastructure investment, protection of ecological infrastructure, responsible land use and climate-resilient planning. The proposal supports the PSDF by enabling the efficient reuse of municipal construction material for planned infrastructure, thereby reducing transport, disposal and material import requirements. At the same time, the preferred alternative responds to the PSDF's environmental principles by avoiding sensitive biodiversity and freshwater features where possible, restricting disturbance to temporary footprints, and requiring rehabilitation and long-term environmental management measures. The proposal gives effect to the Western Cape SDF objectives of efficient land use, infrastructure support, resource conservation and sustainable development by making use of a previously disturbed site to facilitate the reuse of construction materials while incorporating measures to avoid, minimise and rehabilitate environmental impacts: - The stockpile facility will support existing and planned Municipal infrastructure by providing a dedicated location for the storage and reuse of surplus construction materials. It therefore promotes efficient use of resources and reduces the need for new extraction areas and disposal sites. - The facility facilitates the recovery, storage and reuse of excavated soils, gravel and road-building materials that would otherwise be disposed of as waste. This supports sustainable resource management and reduces pressure on natural resources. - The proposed activity makes use of a site that has been subject to previous disturbance and is associated with municipal infrastructure development, thereby limiting the need to transform additional undeveloped land. - Specialist studies informed the layout and operational requirements of the facility, and mitigation measures have been incorporated to manage impacts on biodiversity, water resources and surrounding environmental features. These include vegetation management, rehabilitation, stormwater controls, erosion prevention measures and ecological monitoring where required. - The stockpile facility is directly linked to the implementation of public infrastructure projects within the George area and contributes to more efficient delivery of municipal services and transport infrastructure.
4.2	The Integrated Development Plan of the local municipality. The George IDP was considered in terms of its emphasis on sustainable service delivery, infrastructure provision, cost-effective municipal operations and improved access within developing urban areas. The proposal supports these objectives by allowing surplus material from municipal infrastructure projects to be stored and reused, reducing unnecessary disposal costs and the need to import commercial fill material. The activities comply with the intent of the IDP because they support

municipal infrastructure implementation in a more efficient and sustainable manner, subject to the implementation of the EMPr and specialist mitigation measure	
4.3.	The Spatial Development Framework of the local municipality. The George SDF was considered in relation to the broader municipal planning context, particularly the need for improved municipal infrastructure, road connectivity and service delivery within the George urban area. The Rand Street and Rosedale Main Extension projects form part of planned municipal infrastructure improvements, and the temporary stockpile sites are required to support these projects by enabling the reuse of suitable fill material. The proposal therefore aligns with the SDF's infrastructure and connectivity objectives, while responding to environmental constraints through layout refinement, temporary use of land, avoidance of sensitive areas and rehabilitation after use.
4.4.	The Environmental Management Framework applicable to the area. The George EMF was considered by identifying environmental sensitivities within and surrounding the project footprint, including wetlands, watercourses, biodiversity features, visual receptors and areas of transformed land. The project responds to the EMF by locating the preferred stockpile sites mainly outside the most sensitive environmental features, incorporating buffer areas, managing stormwater and erosion risks, and requiring rehabilitation after the temporary use ceases. The EMF's environmental management objectives are further addressed through ECO oversight, demarcation of no-go areas, controlled access, topsoil management, dust control, and the incorporation of specialist recommendations into the EMPr.
5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development. The various specialist assessments relating to biodiversity have played a significant role in informing the design, layout, operation and management of the proposed stockpile facility. The biodiversity assessment identified areas of ecological sensitivity within and surrounding the site, including habitat that supports species of conservation concern, and provided recommendations to minimise impacts on biodiversity. The biodiversity specialist findings influenced the proposed development in the following ways: • The footprint of the stockpile areas was selected and refined to avoid and minimise impacts on sensitive biodiversity features and to make use of already disturbed portions of the site as far as possible. • The development incorporates a search-and-rescue programme for species of conservation concern prior to site clearing, with suitably qualified specialists to identify, relocate or rescue species where required. • Indigenous vegetation clearing has been limited to the minimum area required for stockpiling activities, and unnecessary disturbance outside the approved footprint will be prohibited. • Topsoil will be stripped and stockpiled separately for later use during rehabilitation, thereby retaining seed banks and soil biological function. • Alien invasive vegetation will be removed and managed as part of site preparation and rehabilitation activities to improve ecological functioning of the site. • The terrestrial fauna assessment recorded evidence of the Endangered George Golden Mole and highlighted the importance of retaining suitable habitat where possible. As a result, specific mitigation measures, including ecological monitoring, search-and-rescue requirements and rehabilitation of disturbed areas, have been incorporated into the EMPr. • Stormwater management measures, including temporary berms, drainage controls and silt traps, have been incorporated into the stockpile design to reduce erosion, sedimentation and downstream ecological impacts. • Rehabilitation requirements have been included to ensure that disturbed areas are restored following the removal of stockpiled material through reinstatement of topsoil, contour shaping and revegetation with appropriate indigenous vegetation. • Operational controls have been incorporated to minimise dust, noise, litter and unnecessary vehicle movement that could negatively affect surrounding habitats and fauna. Through the implementation of these specialist recommendations, the proposed development has been designed in accordance with the mitigation hierarchy by first seeking to avoid impacts, then minimise and manage unavoidable impacts, and finally rehabilitate disturbed areas. The biodiversity specialist input has therefore directly influenced the location, management measures, rehabilitation requirements and operational controls associated with the proposed stockpile facility.
6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development. The proposed development has been directly influenced by the Western Cape Biodiversity Spatial Plan (WCBSP) because the WCBSP identifies the site and surrounding landscape as falling within biodiversity priority areas, including Critical Biodiversity Areas (CBA1 and CBA2) and areas associated with sensitive terrestrial and aquatic ecological features. These designations informed the need for specialist biodiversity, plant species, animal species and aquatic assessments, and were used to guide the refinement of the project layout.

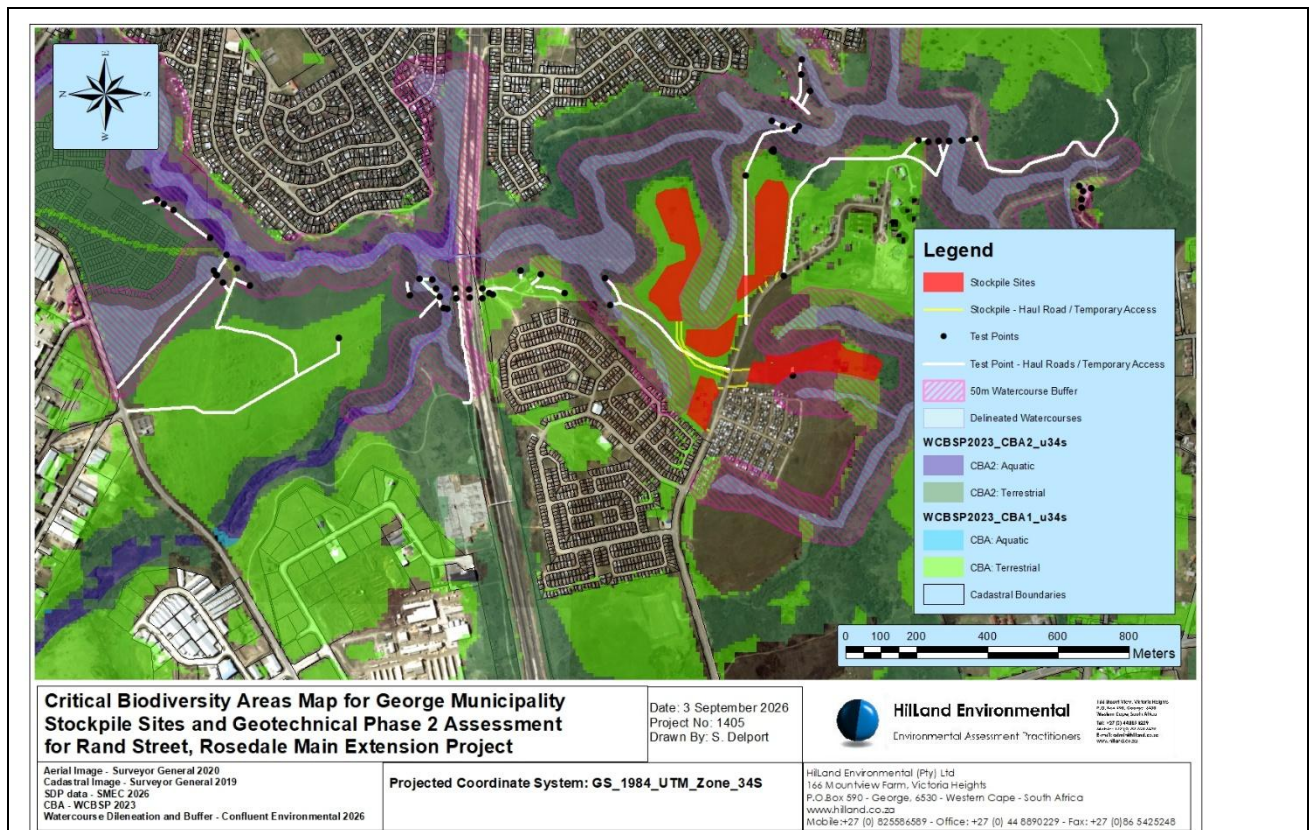


Figure 16: CBA map

In response to the WCBSP, the initial stockpile and access layouts were revised to reduce impacts on mapped biodiversity features. The preferred alternative avoids the most sensitive areas as far as practicable, particularly the valley-edge fynbos, wetland areas and wetland buffers, and locates the main stockpile areas within transformed or degraded agricultural fields where ecological sensitivity is lower. This demonstrates that the WCBSP did not simply identify constraints, but actively influenced the placement, design and extent of the proposed stockpile sites, construction camp areas and temporary access routes.

The WCBSP also influenced the management approach for the Phase 2 geotechnical investigation activities. Some geotechnical test pits, boreholes and temporary access routes occur near or within areas of higher biodiversity sensitivity; therefore, these activities have been designed to be temporary, small scale and reversible, with disturbance footprints limited to the minimum required. The mitigation measures require micro-siting of investigation points and access routes, use of existing disturbed tracks where possible, ECO supervision, avoidance of sensitive plants and habitats where practicable, protection of topsoil, erosion control, alien invasive plant control and rehabilitation of disturbed areas.

The proposed development therefore responds to the WCBSP by applying the mitigation hierarchy: avoiding sensitive biodiversity areas where possible, minimising unavoidable disturbance, rehabilitating temporary disturbance areas, and managing residual impacts through the EMPr. With these measures implemented, the preferred alternative is considered to be aligned with the intent of the WCBSP, as it supports necessary municipal infrastructure while seeking to maintain biodiversity pattern and ecological functioning within the broader landscape.

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.
N/A	
8.	Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.
No changes	
9.	Explain how the proposed development will optimise vacant land available within an urban area.
The proposal is a temporary departure and not a permanent change, meaning that vacant land remains available for future use subject to the required planning and environmental authorisation processes.	
10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.
The proposal optimises the use of existing resources and infrastructure by using surplus material generated from municipal infrastructure projects as a resource for future municipal works, rather than treating it as waste requiring disposal. Excess cut material from projects around George can be temporarily stockpiled and later reused as suitable fill material for road construction or other infrastructure projects, specifically for the Rand Street and Rosedale Main Extension project which will require excessive amounts of suitable fill material. This reduces the need to import commercial fill material from external sources and avoids the repeated cost, transport impacts and capacity demands associated with disposing of material off-site.	

The preferred stockpile sites are located on George Municipal Erf 325, which is land already owned and controlled by the Municipality. This avoids the need to acquire or disturb additional private land and allows the Municipality to manage the material within its own infrastructure planning area. The sites have also been selected to avoid conflict with planned future housing areas and existing municipal services, thereby making efficient use of land that can temporarily accommodate stockpiling without sterilising land required for other priority uses.

The proposal further optimises existing infrastructure by using existing roads, tracks and disturbed access routes wherever possible. Where new temporary access or widening is required, it is limited to the minimum practical width and will be rehabilitated after use. Temporary haul roads will connect to the existing road network and provide controlled access to the stockpile and construction camp areas, while temporary access tracks for the geotechnical investigations will use existing routes where available and will only be created where necessary.

The construction camp function is also integrated with the proposed stockpile areas, which avoids the need to establish separate construction camp sites elsewhere. This consolidates construction-related disturbance into identified and assessed footprints and enables the appointed contractor to operate within a managed area that supports the Rand Street and Rosedale Main Extension works.

Overall, the proposal supports efficient municipal service delivery by retaining and reusing material within the municipal system, reducing disposal and import costs, limiting unnecessary transport, using municipal land, relying on existing access where possible, and rehabilitating temporary disturbance areas after use. In this way, the development makes better use of existing resources and infrastructure while reducing the environmental and financial burden associated with conventional disposal and material procurement.

11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).
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Not required for the proposal.

12.	In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.
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Need: The George Municipal area has experienced significant population growth in recent years, resulting in increased travel demand and pressure on the existing road network. The need for the proposed road links was identified during the update of the George Comprehensive Integrated Transport Plan (CITP) in 2023, which highlighted the requirement for improved connectivity between George Industria and the commercial areas north of the N2, and the residential areas located south of the N2 along the Skaapkop River. The proposed road network will improve accessibility between these areas and support the Municipality's long-term transportation planning objectives.

The Rand Street Extension will provide an additional link between the northern and southern portions of George, while also creating a secondary access route to Pacaltsdorp. Similarly, the Rosedale Main Extension will provide an additional connection between Rosedale Main Road and Tabata Street, thereby enhancing access to Thembaletu. These additional access routes are required to improve network resilience and public safety by ensuring alternative access during emergencies or when one of the existing routes becomes inaccessible due to accidents, maintenance activities, flooding or other unforeseen events.

Furthermore, both proposed routes form part of the planned Go George public transport network and are required to support the expansion and efficient operation of the Municipality's integrated public transport system. The proposed development is therefore considered necessary to address current and future transportation needs, improve mobility, enhance public safety and support sustainable urban growth within the George Municipal area.

The demonstrated need for the proposed road infrastructure, implementation of the project remains dependent on the availability of funding. The George Municipality does not currently have sufficient funding available to construct the Rand Street and Rosedale Main Extension routes and is therefore pursuing external funding opportunities through a Budget Facility for Infrastructure (BFI) application to National Treasury. The BFI application forms part of a broader infrastructure funding initiative that combines several municipal projects into a single funding application. The timing of the implementation of the proposed roads, and consequently the anticipated completion date, will therefore be informed by the outcome of the funding application process, the availability of grant funding and competing municipal infrastructure priorities. While a clear need for the project has been established through the Municipality's transportation planning processes, implementation will ultimately depend on the successful allocation of funding.

The temporary stockpile and construction camp areas are directly linked to the planning, design and future implementation of the Rand Street and Rosedale Main Extension projects. The stockpile areas will provide a practical and efficient means of storing and reusing suitable material generated during municipal infrastructure projects for use in future road construction activities. This will improve the efficiency of municipal infrastructure delivery, reduce disposal requirements and limit the need to import fill material from external sources. The temporary use of the site is therefore functionally required to support the long-term implementation of the associated road infrastructure projects.

The proposed activity is required to support George Municipality's planned infrastructure development, particularly the Rand Street and Rosedale Main Extension projects. These projects require substantial quantities of suitable fill material, while other municipal projects generate surplus cut material that would otherwise need to be transported off-site and disposed of at significant cost. The temporary stockpile sites will allow the Municipality to store this surplus material and reuse it for future infrastructure works, thereby reducing disposal costs, limiting the need to import commercial fill, and improving the cost-effectiveness of municipal service delivery.

The Phase 2 Geotechnical Assessment is also necessary to inform the engineering design and environmental assessment process for the Rand Street and Rosedale Main Extension project. Without the geotechnical test pits and monitoring boreholes, the Municipality would not have the required subsurface, groundwater and founding-condition information needed to design the future road infrastructure responsibly and safely. This study is also required to inform the Scoping EIA process in terms of NEMA for the project.

Desirability: The proposed development is desirable as it supports the implementation of the George Municipality's strategic transport and infrastructure planning objectives and promotes the efficient functioning of the broader transportation network. The project will utilise existing municipal land, including Erf 325, thereby making efficient use of available public resources and limiting the need for additional land acquisition.

The location of the proposed routes is appropriate as they provide direct connections between established residential, commercial and industrial areas, improving accessibility and reducing travel distances for local residents and businesses. The development will also facilitate the implementation of the Go George public transport system by providing critical route connections required for future bus operations.

From a socio-economic perspective, the proposed Rand Street and Rosedale Main Extension routes are desirable as they will improve access to employment opportunities, educational facilities, commercial centres and public services for surrounding communities. The improved connectivity and public transport accessibility will contribute to social inclusion, support economic development and improve the overall quality of life for residents within Pacaltsdorp and Thembaletu. The proposed activity is therefore considered a desirable and sustainable component of the Municipality's planned urban and transport development framework.

From a land use planning perspective, the temporary use of portions of Erf 325 as stockpile and construction camp areas is desirable as it will not compromise the long-term urban structure of the area. No specific urban development rights have been allocated to these portions of land and the current Undetermined zoning allows the Municipality, as landowner, to defer permanent land use decisions until the Rand Street and Rosedale Main Extension design process, road reserve determination and associated planning processes have been finalised. In the interim, the use of the land for municipal infrastructure purposes is considered appropriate and compatible with the current planning status of the property.

The proposal is further supported from a strategic planning perspective. The George Municipal Spatial Development Framework (MSDF), 2023 identifies the strategic road links associated with the Rand Street and Rosedale Main Extension projects within this area of Erf 325. The temporary stockpile and construction camp areas are viewed as supporting infrastructure required for the implementation of these planned road upgrades and are therefore not considered to be inconsistent with the long-term spatial vision for the area. The affected area does not form part of an identified restructuring zone, housing pipeline project, intensification corridor or heritage precinct, and the broader open space system will remain intact, with the proposed activities avoiding wetland areas and prescribed buffer zones.

Although stockpile facilities are generally not preferred within the urban edge and open space systems, the proposed temporary use is considered desirable due to its proximity to the future road construction works and the Outeniqua Wastewater Treatment Works. The site provides an opportunity for the efficient storage and reuse of material while limiting transport costs and associated environmental impacts. Furthermore, the temporary and managed use of the land will discourage illegal occupation and unmanaged encroachment onto municipal land. The inclusion of environmental management measures, rehabilitation requirements and environmental monitoring ensures that the temporary activity can be accommodated without compromising the long-term land use vision for the area. Future land use planning, including potential community facilities such as educational uses, can still be evaluated through the appropriate planning and rezoning processes once the road reserve design has been finalised.

Although funding for construction has not yet been secured, it remains desirable to advance the environmental authorisation process and associated planning requirements to ensure that the project is implementation-ready when funding opportunities become available. Securing the necessary environmental approvals in advance reduces project risk, improves the Municipality's readiness for funding applications and strengthens its ability to compete for future infrastructure funding. The proposal therefore remains desirable from both a planning and socio-economic perspective, as it supports the Municipality's long-term transport objectives and enables the proactive progression of infrastructure projects that are required to accommodate future growth and development within the George municipal area.

The temporary stockpile and construction camp areas are directly linked to the planning, design and future implementation of the Rand Street and Rosedale Main Extension projects. It is therefore desirable that the environmental authorisation is obtained to advance the Street and Rosedale Main Extension projects project.

The preferred alternative has been refined through specialist input to avoid the most sensitive environmental features as far as practicable, including wetland buffers, valley-edge fynbos and visually sensitive areas near residences. The activity is temporary in nature and will not permanently sterilise the land for future municipal planning purposes.

The proposal also responds positively to sustainable development principles by reusing material within the municipal system rather than generating additional waste, reducing haulage distances, reducing the demand for imported fill material, and consolidating construction-related disturbance into assessed and managed areas. This supports more efficient resource use and reduces the broader environmental and financial burden associated with disposal and commercial material procurement.

Consistency with planning and environmental policy: The proposal is consistent with the need and desirability guidelines because it links a clearly identified municipal infrastructure need with an assessed and managed development footprint. It supports municipal service delivery, road connectivity and infrastructure planning objectives reflected in the George IDP

and George SDF, while also responding to environmental constraints identified through the WCBSP, George EMF and specialist assessments. The preferred layout demonstrates that environmental informants influenced the project design, rather than being considered only after the activity was fixed.

Socio-economic considerations: The proposal has a positive socio-economic rationale because it will allow George Municipality to reduce unnecessary expenditure on the disposal of reusable material and the purchase of imported fill. These savings can contribute to more sustainable and cost-effective delivery of municipal infrastructure. The activity also supports the implementation of future road infrastructure that is expected to improve access and connectivity between surrounding residential areas and the broader George urban and industrial network.

Environmental acceptability: The activity has been designed to reduce environmental impacts through avoidance, minimisation, rehabilitation and management. The stockpile sites are mainly located within transformed or disturbed areas, and temporary access routes will use existing roads and tracks where possible. Where new temporary disturbance is unavoidable, it will be limited to the minimum practical footprint and rehabilitated after use. The EMPr and specialist mitigation measures require ECO oversight, demarcation of no-go areas, topsoil stripping and replacement, erosion and stormwater controls, dust management, alien invasive plant control, fauna protection, and post-use rehabilitation.

In terms of the need and desirability guidelines, the proposed activity is both needed and desirable. It addresses a practical municipal infrastructure requirement, promotes the efficient reuse of resources, reduces unnecessary costs and transport impacts, supports planned road infrastructure, and has been refined to respond to environmental and planning constraints. The activity is considered acceptable provided that the preferred alternative is implemented, all specialist mitigation measures are included in the EMPr, and compliance is monitored throughout establishment, operation and rehabilitation of the temporary stockpile, construction camp, access and geotechnical investigation areas.

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

PPP agreed with the competent authority covers the project as a whole and not limited to the linear activities.

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

This Draft BAR will be subject to the required PPP as agreed with the competent authority in terms of NEMA.

- Legal advert in George Herald: 17 September 2026
- Site notices placed up: 18 September 2026
- Notification of I&APs: 18 September 2026
- 30-day commenting period on Draft BAR: 21 September – 22 October 2026

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

- DEADP - DEADPEIAAdmin.George@westerncape.gov.za
- Department of Health Nathan.Jacobs@westerncape.gov.za
- Department of Agriculture - luahelpdesk@nda.gov.za; luahelpdesk@Dalrdd.gov.za
- SACAA- environment@caa.co.za
- Cape Nature "Marianne De Villiers" mdevilliers@capenature.co.za
- SANRAL - AbrahamsN@nra.co.za
- BOCMA - asam@bocma.co.za
- HWC- HWC.HWC@westerncape.gov.za
- George municipality - ljosias@george.gov.za, dpower@george.gov.za, smbekushe@george.gov.za
- Garden Route District Municipality Nina@gardenroute.gov.za

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

PPP in process

5. if any of the State Departments and Organs of State did not respond, indicate which.

PPP in process

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

PPP in process

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that *"Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority."*

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

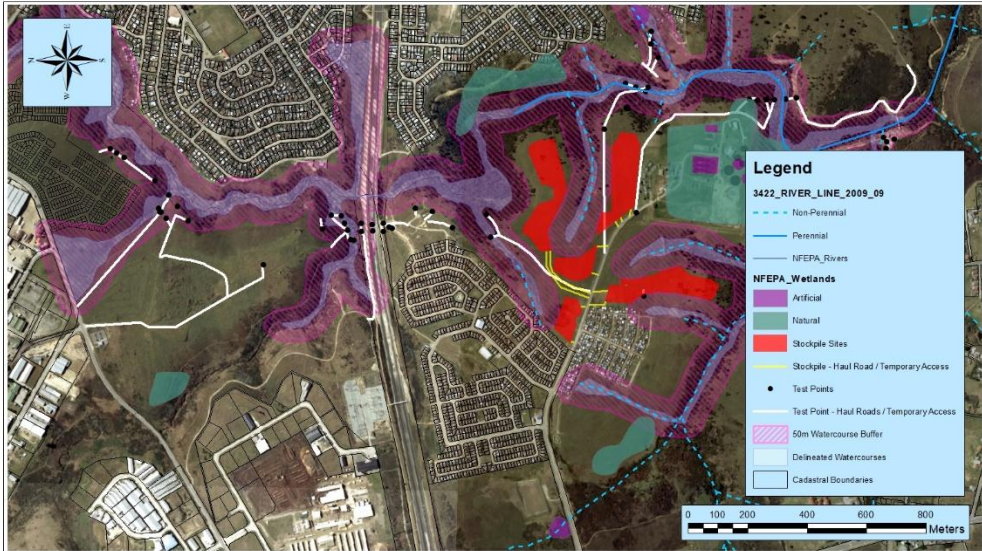
- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
 - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
 - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
 - if a facsimile was sent, a copy of the facsimile Report;
 - if an electronic mail was sent, a copy of the electronic mail sent; and
 - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. Groundwater

1.1.	Was a specialist study conducted?	YES	NO
1.2.	Provide the name and or company who conducted the specialist study.		
Covered as necessary in the Aquatic Biodiversity Report.			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		



National Freshwater Ecosystems Priority Areas Map for George Municipality Stockpile Sites and Geotechnical Phase 2 Assessment for Rand Street, Rosedale Main Extension Project		Date: 3 September 2026 Project No: 1405 Drawn By: S. Delpoit	 Hilland Environmental Environmental Assessment Practitioners	INDUSTRIAL, COMMERCIAL, RESIDENTIAL, AGRICULTURAL, MARINE, AND OTHER SPECIALIST SERVICES 1st Mountain View Farm, Victoria Heights P.O. Box 590 - George, 6530 - Western Cape - South Africa www.hilland.co.za Mobile: +27 (0) 823586559 - Office: +27 (0) 44 5890229 - Fax: +27 (0) 44 5425248
Aerial Image - Surveyor General 2020 Cadastral Image - Surveyor General 2019 SDP data - SMEC 2026 NFEPA - SANBI 2019 Watercourse Delineation and Buffer - Confluent Environmental 2026	Projected Coordinate System: GS_1984_UTM_Zone_34S			

Figure 17: NFEPA map

The proposal is located above the George / Kaaimans fractured aquifer system, which forms part of the local groundwater resource associated with the broader Garden Route coastal catchments. The aquifer is not proposed to be used as a water supply source for the activity; the boreholes included in the proposal are for monitoring purposes only, specifically to inform the Phase 2 geotechnical assessment and to monitor groundwater levels and water quality. No groundwater abstraction is proposed.

The aquifer context also influenced the mitigation measures included in the EMPr and specialist recommendations. These include strict control of hydrocarbons and hazardous substances, use of drip trays and bunded storage areas, regular checks of vehicles and machinery for leaks, immediate clean-up of spills, no disposal of waste or contaminated material on site, and rehabilitation of disturbed areas to prevent erosion and sediment movement into drainage lines and wetland systems that may interact with shallow groundwater

Overall, the proposal responds to the aquifer setting by ensuring that the activity remains temporary, that no groundwater use is required, and that groundwater protection measures are built into the design, construction, operational and rehabilitation phases. The monitoring boreholes are therefore a positive feature of the proposal, as they will provide site-specific information on groundwater conditions to inform the future Rand Street and Rosedale Main Extension design and assessment process.

1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.		
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The proposal is located within an area underlain by a fractured aquifer system associated with the George / Kaaimans groundwater region. The available information indicates that groundwater is expected to occur mainly within fractures, weathered bedrock zones and locally within shallower perched or seepage-related conditions associated with the valley-bottom wetland and drainage systems. As a result, the depth to groundwater is likely to be spatially variable across the site and may differ between the flatter transformed stockpile areas, the valley edges and the lower-lying wetland-influenced areas.

The exact depth to groundwater across the site has not yet been confirmed, which is one of the reasons why the Phase 2 Geotechnical Assessment includes the installation of monitoring boreholes. These boreholes are intended to determine site-specific groundwater levels and monitor groundwater quality over time. The boreholes are for monitoring purposes only and

no groundwater abstraction is proposed. These are needed to inform the Rand Street, Rosedale Main Extension projects to inform road and bridge design. This is not applicable to the current application.

The variable and currently unconfirmed groundwater depth has influenced the proposal by requiring a precautionary approach to groundwater protection. The proposed activities therefore include measures to avoid contamination of soil, surface water and groundwater, including banded storage of fuels and hazardous substances, use of drip trays, regular inspection of vehicles and machinery for leaks, spill response measures, prohibition of waste disposal on site, and controls to prevent sediment-laden runoff from entering wetlands and drainage lines.

The proposal also avoids direct reliance on the aquifer as a construction water source. Water required for construction-related activities must be obtained from designated municipal sources, and no abstraction from groundwater, wetlands or rivers is proposed. The monitoring boreholes will provide the necessary site-specific groundwater information to inform the design and assessment of the future Rand Street and Rosedale Main Extension project.

2. Surface water

2.1.	Was a specialist study conducted?	YES	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
Confluent Environmental – Dr Jackie Dabrowski			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
The presence of watercourses and wetlands significantly influenced both the layout and the management approach for the proposal. Influence on the layout and preferred alternative The aquatic assessment confirmed that the site contains or is located close to watercourses, valley-bottom wetland systems and wetland buffer areas, with the broader area rated as having Very High aquatic biodiversity sensitivity. This meant that the original layout could not simply proceed as initially proposed. The stockpile sites, construction camp areas and haul roads were refined following aquatic specialist input to reduce encroachment into aquatic features and associated buffers. The preferred alternative therefore places the stockpile areas mainly on lower-sensitivity, transformed agricultural fields and requires stockpiling to be located on lower-gradient areas at least 50 m from delineated wetland edges as far as practicable. Haul roads were also realigned to avoid wetland buffers where possible. The final layout specifically responds to the aquatic constraints by avoiding direct disturbance of wetlands and watercourses as far as possible and by reducing the risk of runoff, erosion and sedimentation entering these systems. Influence on access and geotechnical works The presence of watercourses and wetlands also influenced how access to the geotechnical test pits and monitoring boreholes will be obtained. Existing tracks and disturbed routes must be used wherever possible, and new temporary access routes are to be limited to the minimum required width and extent. In more sensitive areas, the proposal allows for hand excavation or the use of portable drilling equipment where practical, rather than creating unnecessary vehicle tracks or causing avoidable vegetation and soil disturbance near aquatic features. The test pits and boreholes are temporary and small-scale, with disturbance generally limited to the minimum footprint required. Test pits will be backfilled after excavation, and monitoring boreholes will be used to collect groundwater level and water quality information only, with no water abstraction proposed. Influence on mitigation and management Because the stockpile areas generally slope towards valley-bottom wetland systems, the proposal includes specific mitigation to prevent impacts on water quality, aquatic habitat and wetland functioning. These measures include: • demarcating and fencing stockpile footprints; • keeping vehicles and machinery within approved areas; • installing temporary stormwater and erosion-control measures; • using silt fencing, seeded topsoil berms or stabilised windrows where runoff may leave the site; • storing topsoil separately and stabilising exposed soils; • avoiding heavy vehicle use during wet weather to prevent rutting, compaction and increased runoff; • prohibiting abstraction from rivers, wetlands or groundwater; • using only designated municipal water sources; • preventing hydrocarbon and hazardous substance pollution through bunding, drip trays, spill kits and regular vehicle checks; • ensuring that no waste, fill material or contaminated material is disposed of in or near watercourses or wetlands; and • rehabilitating disturbed areas after use, including ripping compacted areas, replacing topsoil, reseeding and controlling alien invasive plants. Regulatory influence The presence of watercourses and wetlands also triggered the need to consider the requirements of the National Water Act, including the aquatic risk assessment and whether the proposed activities can proceed under a General Authorisation. The			

aquatic specialist assessment indicates that, with full implementation of the recommended mitigation measures, the risks are low.

Overall conclusion

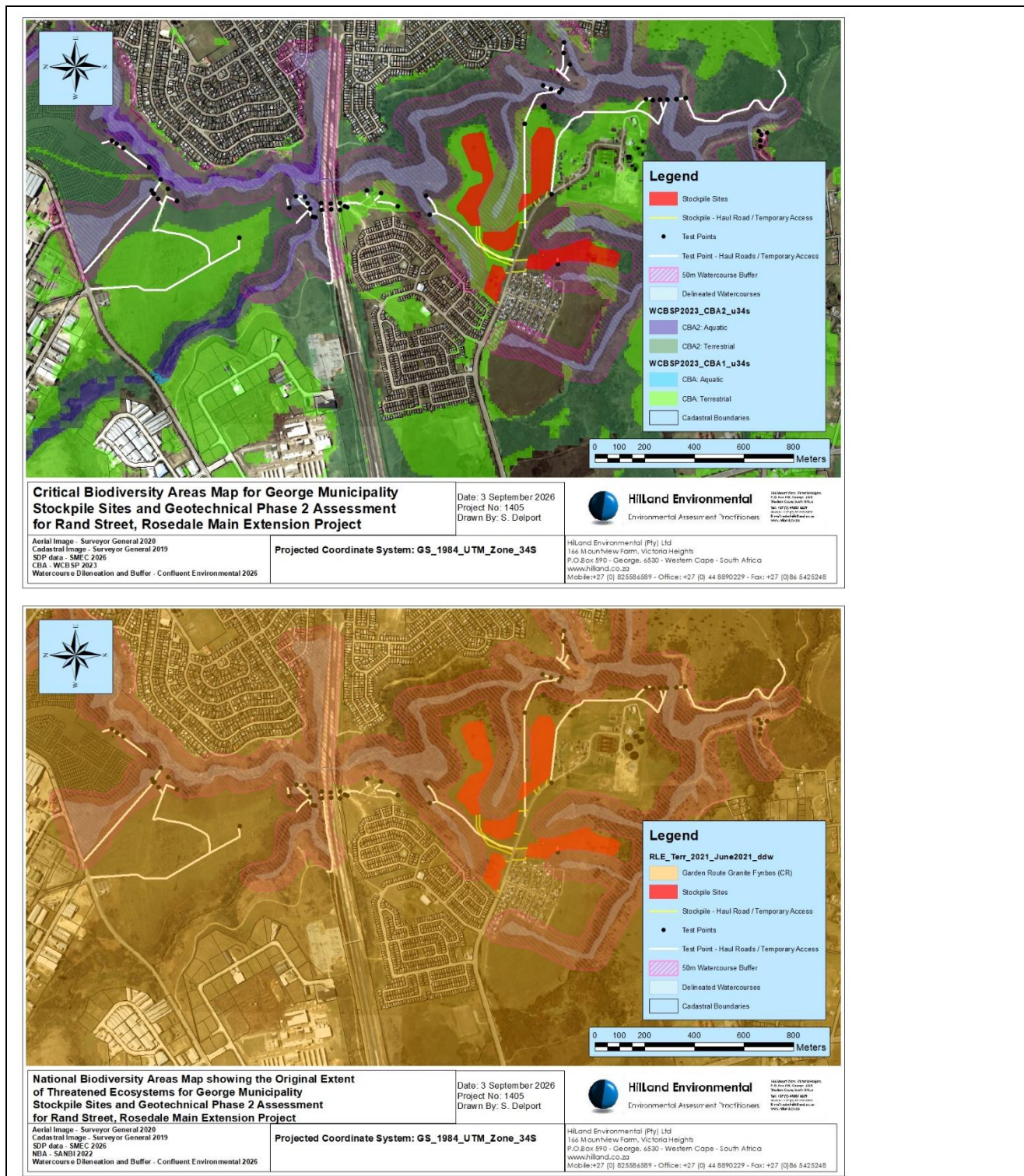
In summary, the watercourses and wetlands were key environmental informants in the proposal. They influenced the reduction and refinement of the stockpile layout, the realignment of haul roads, the use of existing access wherever possible, the adoption of low-impact methods for geotechnical investigations, and the inclusion of strict runoff, erosion, pollution-prevention and rehabilitation measures. The proposal is therefore designed to avoid direct impacts on wetlands and watercourses where possible and to minimise and manage any unavoidable indirect risks through the EMP and specialist mitigation requirements.

3. Coastal Environment

3.1.	Was a specialist study conducted?	YES	NO
3.2.	Provide the name and/or company who conducted the specialist study.		
	N/A		
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		
	Not coastal		
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
	N/A		
3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.		
	N/A		

4. Biodiversity

4.1.	Were specialist studies conducted?	YES	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
	Plant Species and Terrestrial Biodiversity – Confluent, 2026 Bianke Fouché (MSc) Terrestrial Animal Species – Confluent, 2026 Kim Daniels (MSc) Aquatic Biodiversity – Confluent, 2026 Dr Jackie Dabrowski		
4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.		
	Systematic conservation planning and biodiversity informants used The biodiversity assessment considered a combination of national, provincial and site-specific biodiversity informants to determine the sensitivity of the receiving environment and to guide the preferred layout. These included the Western Cape Biodiversity Spatial Plan (WCBSP) , the National Freshwater Ecosystem Priority Areas assessment (NFEPA) , the National Spatial Biodiversity Assessment (NSBA) , the national vegetation type and ecosystem threat status information, the DFFE Screening Tool , aquatic biodiversity datasets, wetland and watercourse mapping, and the specialist field verification undertaken by the terrestrial biodiversity, plant species, animal species and aquatic specialists.		



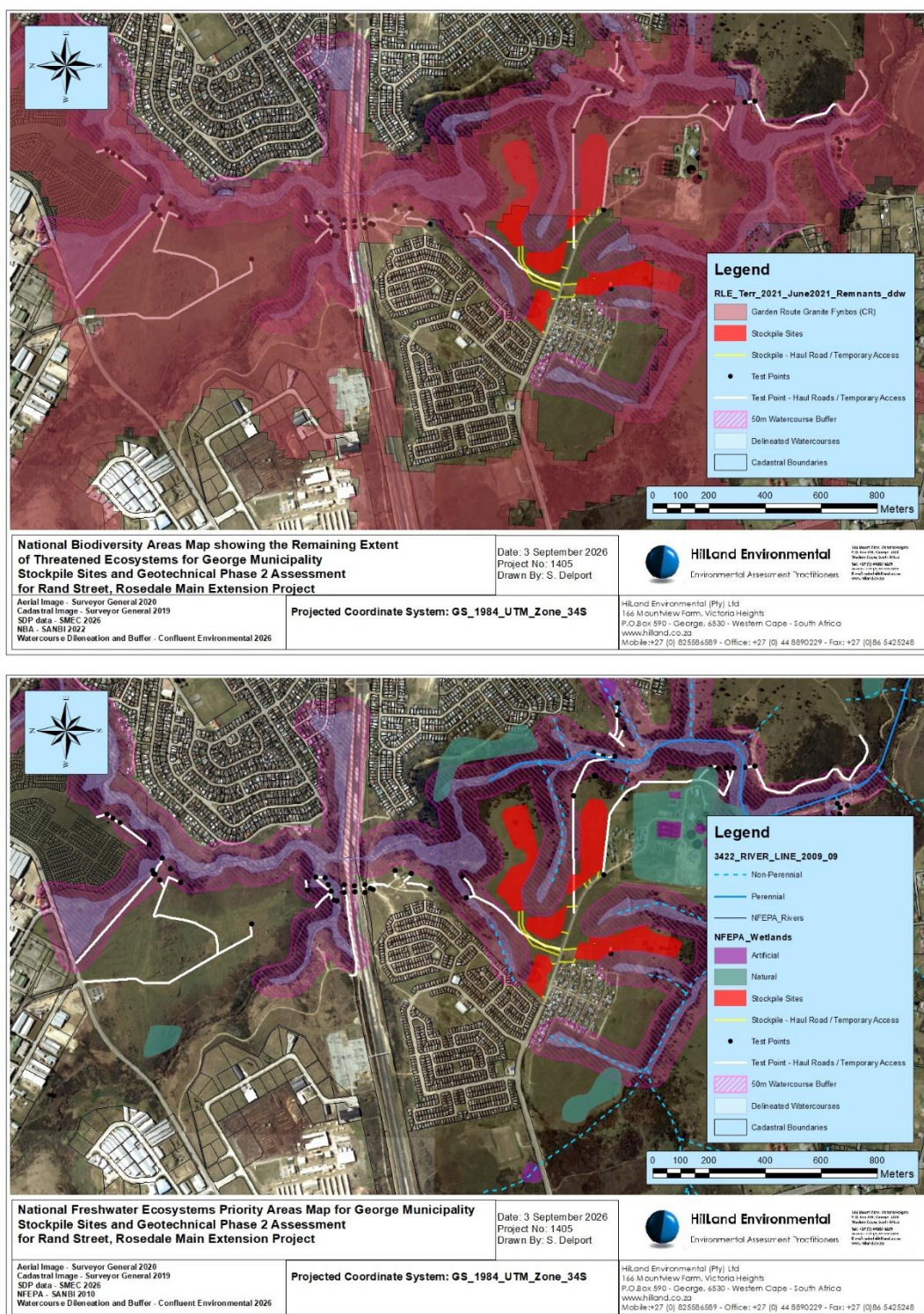


Figure 18: CBA, NBA and NFEPA maps

Western Cape Biodiversity Spatial Plan (WCBSP)

The WCBSP was one of the primary biodiversity planning informants. It identifies the property and surrounding landscape as including **Critical Biodiversity Areas (CBA1 and CBA2)** and ecological support areas. These areas are important for meeting biodiversity targets, maintaining ecological processes and supporting ecosystem functioning. The WCBSP therefore influenced the proposal by highlighting that the site could not be treated as unconstrained land. It triggered the need for specialist biodiversity input and influenced the refinement of the stockpile, access and geotechnical layouts. In response, the preferred alternative avoids the most sensitive valley-edge fynbos, wetland and buffer areas as far as practicable, and places the stockpile sites mainly within transformed agricultural fields.

NFEPA: National Freshwater Ecosystem Priority Areas

NFEPA was relevant to the aquatic biodiversity assessment because it identifies nationally important freshwater ecosystems, rivers, wetlands and related ecological processes. The NFEPA information, together with site-specific

wetland and watercourse delineation, informed the assessment of aquatic sensitivity and the need to protect the valley-bottom wetlands, drainage lines and associated buffers. This influenced the proposal by requiring stockpile areas to be set back from delineated wetlands as far as practicable, haul roads to be realigned outside wetland buffers where possible, and runoff, erosion and pollution controls to be included in the EMPr.

NSBA: National Spatial Biodiversity Assessment

The NSBA was considered as a national-level biodiversity planning framework that identifies ecosystem threat status, protection levels and broad biodiversity priority patterns. In this case, the NSBA context supported the recognition that the broader George area contains threatened vegetation types and biodiversity priority areas. It therefore informed the need to assess whether the proposed activities would result in loss or degradation of threatened ecosystems or important biodiversity pattern. The proposal responds by confining the larger stockpile footprints to already transformed or degraded areas and by treating any disturbance in remnant valley-edge fynbos as temporary, limited and subject to strict mitigation.

Vegetation type and ecosystem threat status information

The national vegetation and ecosystem threat status layers identified the area as associated with **Garden Route Granite Fynbos**, which is a highly threatened ecosystem type. This was an important informant because it required the specialists to distinguish between mapped vegetation sensitivity and actual site condition. Field verification confirmed that the proposed stockpile sites are located mainly in transformed agricultural fields dominated by exotic and invasive species, while the more intact fynbos remnants are largely associated with valley edges and slopes. This influenced the proposal by shifting emphasis toward avoidance of the valley-edge fynbos and limiting new disturbance in these areas.

DFFE Screening Tool

The DFFE Screening Tool identified high to very high sensitivities for relevant environmental themes, including terrestrial biodiversity, plant species, animal species and aquatic biodiversity. These screening outputs informed the appointment of the relevant specialists and the scope of the assessments. The tool therefore influenced the proposal by ensuring that the apparent desktop sensitivities were verified on site and that the preferred alternative was informed by specialist findings rather than by engineering requirements alone.

Wetland, watercourse and aquatic biodiversity informants

Aquatic mapping, field delineation and the aquatic specialist assessment confirmed the presence of watercourses, valley-bottom wetlands and wetland buffer areas, with the broader area rated as having very high aquatic biodiversity sensitivity. These informants influenced the proposal by requiring avoidance of aquatic features where possible, reducing encroachment into wetland buffers, locating stockpile areas on lower-gradient areas, and requiring stormwater, erosion, sediment and pollution prevention measures. They also influenced the method for geotechnical investigations by requiring the use of existing tracks where possible, ECO supervision, hand excavation or portable drilling equipment in sensitive areas where required, and no abstraction from rivers, wetlands or groundwater.

Species of Conservation Concern and habitat informants

The plant and animal species assessments considered the likelihood of Species of Conservation Concern occurring within the project footprint. Although no plant Species of Conservation Concern were confirmed within the proposed stockpile footprints, the valley-edge fynbos and denser riparian or wetland-associated habitats may provide habitat for sensitive plant and faunal species. Evidence of golden mole activity and potential habitat for other fauna SCC informed the need for micro-siting of test pits and boreholes, nest searches during relevant breeding periods where applicable, fauna search-and-rescue procedures, and strict demarcation of no-go areas.

Collectively, the biodiversity informants influenced the proposal by requiring an iterative design process. The initial layout was assessed by specialists and then revised to avoid or reduce impacts on mapped and field-verified biodiversity features. The preferred alternative therefore reflects the mitigation hierarchy: avoid sensitive areas where possible, minimise unavoidable disturbance, rehabilitate temporary disturbance, and manage residual risks through the EMPr. The stockpile areas have been located mainly within transformed fields; haul roads and access tracks have been refined to avoid wetland buffers and sensitive vegetation as far as practicable; geotechnical sites are to be micro-sited under ECO supervision; and strict controls for topsoil management, erosion, stormwater, alien invasive plants, fauna protection and rehabilitation have been incorporated.

The systematic conservation planning tools and biodiversity informants did not prevent the proposed activity, but they strongly shaped the preferred alternative and the mitigation requirements. They confirmed that the site occurs within a sensitive biodiversity landscape, while the field assessments demonstrated that the larger stockpile footprints can be accommodated in transformed areas with lower ecological sensitivity. The proposal is therefore considered to respond appropriately to the biodiversity planning informants, provided that the preferred layout is implemented and all specialist mitigation measures are included in and enforced through the EMPr.

4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.
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The **Western Cape Biodiversity Spatial Plan (WCBSP)** objectives and management guidelines have been used as a key biodiversity planning informant in the assessment and refinement of the proposal. The WCBSP identifies biodiversity priority areas, including **Critical Biodiversity Areas (CBAs)** and **Ecological Support Areas (ESAs)**, which are intended to maintain biodiversity pattern, ecological processes, ecosystem functioning, water resource protection and habitat connectivity. Because the site is mapped within biodiversity priority areas, the proposal was required to demonstrate that the activity would avoid unnecessary loss of biodiversity value and would not compromise the ecological functioning of the broader landscape.

In applying the WCBSP objectives, the assessment did not rely only on the desktop biodiversity mapping. The WCBSP mapping was used to trigger and guide the specialist terrestrial biodiversity, plant species, animal species and aquatic biodiversity assessments. These assessments then verified the actual site conditions and distinguished between areas that remain ecologically sensitive, such as **valley-edge fynbos, wetland areas, watercourses and wetland buffers**, and areas that have already been substantially transformed or degraded, such as the disturbed agricultural fields proposed for the main stockpile areas.

The WCBSP management guidelines influenced the proposal by requiring the application of the mitigation hierarchy. Sensitive biodiversity features were avoided where possible, unavoidable disturbance was reduced to the smallest practical footprint, temporary disturbance areas are required to be rehabilitated, and residual risks must be managed through the EMP. This directly influenced the final preferred layout: the stockpile sites were amended and reduced from earlier layouts, haul roads were realigned where possible, wetland buffer encroachment was avoided or reduced, and the larger stockpile footprints were placed mainly within transformed fields rather than within intact or higher-value habitat.

The WCBSP also influenced the way the **Phase 2 Geotechnical Assessment** is proposed to be undertaken. Although some geotechnical test pits, boreholes and temporary access routes may occur in or near mapped biodiversity priority areas, these activities are short-term, small-scale and directly linked to the future Rand Street and Rosedale Main Extension planning process. In response to the WCBSP management objectives, these activities must be micro-sited under ECO supervision, use existing tracks and disturbed areas wherever possible, avoid sensitive plants and active faunal habitat features where practicable, and limit disturbance to the minimum required footprint.

The proposal further responds to the WCBSP by including biodiversity management measures aimed at maintaining ecological functioning after the temporary activities are complete. These include demarcation of no-go areas, protection of wetland and watercourse buffers, topsoil stripping and replacement, erosion and stormwater controls, alien invasive plant control, fauna search-and-rescue procedures where required, rehabilitation of disturbed areas, and post-closure monitoring. These measures are intended to prevent the temporary stockpile and geotechnical activities from causing long-term degradation of the biodiversity priority area.

Overall, the WCBSP objectives and management guidelines have influenced the proposal by ensuring that biodiversity constraints were considered at the layout design stage, rather than only after the preferred layout had been selected. The proposal responds to the WCBSP by avoiding the most sensitive areas as far as practicable, confining the main disturbance to already transformed areas, limiting temporary access and testing footprints, and requiring rehabilitation and ecological management through the EMP. On this basis, the preferred alternative is considered to be aligned with the intent of the WCBSP, provided that all specialist mitigation measures are implemented and monitored.

4.5.	Explain what impact the proposed development will have on the site specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.
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The site is mapped in the **Western Cape Biodiversity Spatial Plan (WCBSP)** as falling within biodiversity priority areas, including **Critical Biodiversity Area 1 (CBA1)** and **Critical Biodiversity Area 2 (CBA2)**. These categories are intended to maintain biodiversity pattern, ecological processes, habitat connectivity, threatened ecosystem remnants, freshwater functioning and the broader ecological infrastructure of the landscape. The WCBSP mapping therefore indicates that the site has conservation-planning importance at a landscape scale and that development must avoid compromising the biodiversity features and ecological functions for which the area has been mapped.

The site-specific specialist assessments confirmed that the WCBSP mapping is relevant, but that the site is not uniformly sensitive. The larger proposed stockpile and construction camp areas are located mainly within **transformed agricultural fields** that are dominated by exotic and invasive vegetation and do not contain intact Garden Route Granite Fynbos or confirmed plant Species of Conservation Concern. These areas are therefore of lower site-specific ecological sensitivity, notwithstanding their inclusion within the broader mapped CBA landscape. The proposed stockpiling in these transformed areas is expected to have a limited impact on the biodiversity features and functions of the BSP category, provided that the activities remain temporary and that rehabilitation is implemented.

The more sensitive site-specific features are associated with the **valley-edge fynbos**, wetland areas, watercourses, wetland buffers and fauna habitat features such as possible golden mole activity. These areas contribute more directly to the ecological functioning of the BSP categories by supporting remnant indigenous habitat, maintaining habitat connectivity along valley and wetland systems, protecting aquatic ecological processes, and providing potential habitat for Species of Conservation Concern. The proposal has therefore been influenced by the need to avoid and protect these features as far as practicable.

As a result, the preferred alternative was amended from earlier layouts to reduce impacts on the site-specific features that support the WCBSP objectives. The stockpile sites were shifted or refined to avoid wetland buffers and valley-edge fynbos where possible, haul roads were realigned to reduce encroachment into sensitive areas, and the main disturbance footprint was confined to transformed fields. The proposal also requires micro-siting of geotechnical test pits, boreholes and access routes under ECO supervision to avoid sensitive plants, active faunal features and unnecessary disturbance of remnant fynbos and wetland-associated habitat.

The remaining impacts on the WCBSP category are expected to be mostly **temporary, localised and reversible**. The main potential impacts relate to short-term disturbance of vegetation and soil, increased erosion risk on slopes, possible spread of alien invasive plants, sediment movement towards wetlands and watercourses, and temporary disturbance to faunal habitat during access and excavation. With the implementation of the specialist mitigation measures, including footprint demarcation, use of existing tracks, avoidance of sensitive features, topsoil protection, erosion and stormwater controls, alien plant management, fauna search-and-rescue procedures and rehabilitation, the residual impact on biodiversity pattern and ecological functioning is expected to be low to negligible.

Overall, the WCBSP category influenced the proposal by ensuring that the development was not treated as unconstrained land. It directly informed the appointment of specialists, the refinement of the preferred layout, the avoidance of the most sensitive biodiversity and aquatic features, and the inclusion of strict mitigation and rehabilitation requirements in the EMP. The proposed development is therefore not expected to result in the permanent loss of the primary site-specific features or ecological functions that support the BSP category, provided that the preferred layout is implemented and all mitigation measures are strictly complied with.

4.6.	If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.
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N/A

4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.
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The presence and potential presence of fauna on and adjacent to the proposal has influenced the proposal by requiring a more cautious and site-specific approach to layout, access, construction methods and mitigation.

The terrestrial animal species assessment confirmed that no faunal Species of Conservation Concern were directly encountered during the survey, but that the site and adjacent habitats provide potential habitat for certain sensitive species. In particular, evidence of **golden mole tunnels** was recorded, and suitable habitat may occur for species such as **Knysna Warbler** in denser vegetation associated with wetland, riparian and valley-edge habitats. Other faunal groups, including birds, small mammals, invertebrates and amphibians, may also use the surrounding transformed fields, fynbos edges, drainage lines and wetland habitats.

This influenced the proposal by ensuring that the stockpile areas and construction camp areas were located mainly within transformed agricultural fields, rather than in the more sensitive valley-edge fynbos, wetland-associated vegetation or denser habitat areas. The layout and access routes were also refined to reduce unnecessary disturbance to habitats that may support fauna, particularly areas close to watercourses, wetlands and remnant natural vegetation.

The presence of fauna and potential faunal habitat also influenced the method for the geotechnical investigations. Test pits, boreholes and temporary access routes must be **micro-sited** to avoid active golden mole tunnels and other sensitive faunal features where practicable. Where dense vegetation must be crossed, paths should be hand-cut where required and under ECO supervision. Existing tracks and disturbed routes must be used wherever possible, and access should be limited to the minimum width and duration required. Where no existing access is available, new temporary tracks must be rehabilitated after use.

Faunal considerations have also been incorporated into the required mitigation measures. These include pre-construction checks for nests of avifaunal Species of Conservation Concern during relevant breeding seasons, demarcation of no-go areas, staff induction on fauna identification and reporting procedures, ECO monitoring, immediate reporting of fauna encounters, halting work where animals with limited mobility are found, and search-and-rescue by the ECO or an appropriately qualified handler where required. Excavations left open must be fenced or otherwise made safe to prevent animals from falling in, and borehole covers must be replaced after monitoring.

The proposal also includes general site management measures that reduce indirect impacts on fauna, such as restricting work to approved footprints, managing waste to avoid attracting animals, limiting artificial lighting, preventing pollution of wetland and watercourse habitats, controlling alien invasive plants, and rehabilitating disturbed areas to allow vegetation recovery and potential recolonisation by fauna.

Overall, the presence and potential presence of fauna did not prevent the proposed activity, but it directly influenced the preferred layout, access arrangements, construction methods and EMP requirements. With micro-siting, ECO supervision, fauna search-and-rescue procedures, nest checks where relevant, safe excavation practices and rehabilitation implemented, the residual impact on fauna and faunal habitat is expected to be temporary, localised and manageable.

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.	
The geographical aspects of the site have influenced the proposal mainly through the selection of lower-risk stockpile areas , the alignment and design of temporary access routes , and the mitigation measures required in the EMPr .	
Dust	The proposed stockpile and construction camp areas may generate dust during material handling, vehicle movement and periods of dry or windy weather. This is especially relevant where stockpile sites are close to residential receptors, including Sites 1, 4 and 5, which were identified as having higher visual and amenity sensitivity. The potential for dust nuisance influenced the proposal by requiring buffers from residential structures, limits on stockpile heights near sensitive receptors, speed control on haul roads, watering or stabilisation of exposed surfaces, covering or managing short-term stockpiles near residences, and monitoring during dry and windy conditions. Long-term stockpiles and topsoil windrows must also be shaped and vegetated where appropriate to reduce wind erosion and dust generation.
Steep slopes	Although the main stockpile areas are generally located on flatter, transformed agricultural land, parts of the site include steeper valley edges and slopes associated with remnant fynbos, watercourses and wetland systems. These steeper areas are more sensitive because disturbance can increase erosion, sediment movement and vegetation loss. The presence of steep slopes influenced the proposal by directing the main stockpile footprints away from steep valley-edge areas as far as practicable and by requiring access routes to follow existing tracks, disturbed surfaces, lower-gradient routes and natural contours wherever possible. Where access to geotechnical test pits or boreholes is constrained by slope, temporary tracks may only be created where necessary, must be limited to the minimum width required, and must be rehabilitated immediately after use.
Erosion and sediment movement	The soils are described as shallow duplex soils that are prone to erosion, and several areas generally drain towards valley-bottom wetlands and watercourses. This means that exposed or compacted soils, stockpile areas, haul roads and temporary geotechnical tracks could increase runoff, erosion and sediment movement if not properly controlled. This influenced the proposal by requiring stockpile areas to be located on lower-gradient land and set back from delineated wetland edges as far as practicable, with haul roads realigned outside wetland buffers where possible. It also requires topsoil stripping and separate storage, use of G5 or suitable temporary road surfacing where needed to prevent rutting, temporary stormwater controls, silt fencing or seeded topsoil berms where runoff may leave the site, avoidance of heavy vehicle use during wet weather, and rehabilitation of disturbed areas through ripping, regrading, topsoil replacement and reseedling.
Overall, the geographical constraints did not prevent the proposed activity, but they significantly influenced the preferred layout and management approach. The proposal has been designed to place the main temporary stockpile and construction camp site activities on lower-gradient, transformed areas, avoid sensitive slopes and drainage features as far as possible, reduce dust impacts on nearby receptors, and prevent erosion and sedimentation of wetlands and watercourses through strict EMPr controls, ECO monitoring and post-use rehabilitation.	

6. Heritage Resources

6.1.	Was a specialist study conducted?	YES	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
Dr Peter Nilssen			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
The heritage statement confirms that the proposed stockpile sites are located on Erf RE/325 within an already transformed and degraded urban-edge landscape between Rosedale, Thembaletu, Pacaltsdorp, the N2 and the Skaapkop River. The proposed activity is for the temporary storage of cut and excavated material for reuse in municipal infrastructure projects, with no excavation or construction planned at the stockpile sites. The SAHRIS Palaeo Map indicates insignificant or zero palaeontological sensitivity, and no palaeontological studies are required.			
The heritage screening and archaeological walk-through found no colonial or pre-colonial heritage resources within the proposed stockpile footprints, and the Grade II Provincial Heritage Sites in Pacaltsdorp are located outside the affected area and will not be impacted.			
The affected area does not meaningfully contribute to the already altered natural, rural or cultural landscape, and cumulative heritage impacts are expected to be negligible to none. Visual and aesthetic heritage impacts are also assessed as negligible to zero, as the sites are not readily visible from the N2 scenic route and the surrounding landscape has already been substantially modified. The specialist therefore recommends approval of the proposed stockpile sites and indicates that a Heritage Impact Assessment is not warranted, subject to the inclusion of chance-find procedures in the Environmental Authorisation and/or EMPr.			
The Phase 2 Geotechnical assessment is temporary and not anticipated to result in any heritage impacts.			

7. Historical and Cultural Aspects

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.
HWC have issued a decision confirming that no additional studies are required and no impact on heritage resources are expected.

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.
The proposed site is located within the broader George municipal area, in a peri-urban and urban-edge context influenced by existing and planned municipal infrastructure, residential development, open space systems and service-related land uses. The surrounding area includes established and developing communities such as Rosedale, Borchersds, Thembaletu and Pacaltsdorp, as well as municipal infrastructure and service areas, including the George Wastewater Treatment Works. The receiving environment is therefore not an isolated rural landscape, but forms part of a developing urban and infrastructure corridor where municipal service delivery, road connectivity and future urban expansion are important planning considerations. The communities in the vicinity include both formal and informal residential areas, with some residential receptors located relatively close to the proposed stockpile and construction camp areas. These communities rely on existing municipal road networks, public infrastructure, access routes and services, and are likely to benefit indirectly from improved municipal infrastructure planning and implementation. The Rand Street and Rosedale Main Extension projects are intended to improve access and connectivity between the southern residential areas and the broader George urban, industrial and business areas, which is consistent with the municipality's service delivery and spatial planning objectives. From an economic perspective, the proposal is linked to municipal infrastructure delivery and cost-effective resource management. The temporary stockpile areas will allow surplus cut material from municipal projects to be stored and reused as fill material for future road and infrastructure works. This reduces the cost of disposing of usable material off-site and reduces the need to purchase and transport commercial fill from elsewhere. These savings support more sustainable municipal infrastructure delivery and can assist the Municipality in using public resources more efficiently. The site itself is municipal land and is not currently used for formal agriculture or productive commercial land use. Occasional grazing may occur, but the land has limited agricultural potential and has been substantially influenced by historical disturbance, transformed fields, invasive vegetation and existing or planned infrastructure. The temporary use of the land for stockpiling and construction camp purposes is therefore compatible with its current low-intensity use, provided that rehabilitation is undertaken after the temporary activity ceases. The main potential social impacts relate to temporary nuisance effects for nearby residents, particularly visual intrusion, dust, noise, construction traffic, safety risks and possible disturbance associated with the stockpiles, haul roads and construction camp activities. These concerns influenced the proposal by requiring buffers from residences, visual screening, stockpile height limits near sensitive receptors, dust suppression, speed control, controlled access, security, restriction of activities to approved footprints, and rehabilitation of disturbed areas. Sites 1, 4 and 5 are considered more sensitive because of their proximity to residential receptors, while Sites 2 and 3 are comparatively less sensitive. Overall, the socio-economic context supports the need for the proposal because it enables improved municipal infrastructure delivery and more efficient use of municipal resources. At the same time, the proximity of surrounding communities has influenced the design and mitigation requirements to ensure that temporary amenity impacts are reduced and managed through the EMPr, ECO monitoring, visual and dust control measures, controlled access and post-use rehabilitation.	
8.2.	Explain the socio-economic value/contribution of the proposed development.
The socio-economic value of the proposed development is primarily linked to cost-effective municipal infrastructure delivery, resource efficiency, and improved future access and connectivity in the George municipal area. The proposed stockpile sites and associated temporary access routes will allow George Municipality to temporarily store surplus cut material generated from municipal infrastructure projects and reuse it as fill material for future road and infrastructure works, particularly the Rand Street and Rosedale Main Extension projects. This has a direct socio-economic benefit because material that would otherwise need to be transported off site and disposed of at significant cost can instead be retained as a useful municipal resource. This allows for saving in cost in relation to the purchase of future fill material from commercial source. The proposal will reduce the need to import commercial fill material from external sources. This will lower project costs, reduce haulage requirements, reduce pressure on disposal facilities, and improve the overall efficiency of municipal infrastructure implementation. These savings are important because they allow public funds to be used more effectively and support more sustainable service delivery by the Municipality. The development also contributes to broader municipal planning and service delivery objectives. The Rand Street and Rosedale Main Extension projects are intended to support improved road connectivity and access between residential areas and the wider George urban, business, industrial network and it will support the future expansion of the public transport network. By providing temporary stockpile and construction camp site areas required to support these works, the proposal indirectly contributes to improved movement, accessibility, infrastructure, and public transport capacity in the area.	

The use of George Municipal Erf 325 also has socio-economic value because it makes use of municipal land already associated with existing and planned infrastructure activities, rather than requiring the acquisition or disturbance of additional private land. The temporary nature of the activity means that the land is not permanently sterilised for future municipal planning purposes, and rehabilitation will allow the areas to be returned to a managed condition after use.

There may also be short-term local economic benefits during implementation, including contractor activity, plant and equipment operation, transport services, site security, environmental monitoring and rehabilitation work. These benefits are temporary but support the implementation of planned public infrastructure.

The main potential negative socio-economic effects relate to temporary nuisance impacts on nearby communities, including dust, noise, traffic movement, visual intrusion, safety concerns and possible illegal dumping or unauthorised access if the areas are not properly controlled. These issues have influenced the proposal through the inclusion of buffers from residential structures, dust suppression, speed control, stockpile height limits near sensitive receptors, site security, controlled access, screening, waste management and rehabilitation requirements.

Overall, the proposed development makes a positive socio-economic contribution by enabling the Municipality to reuse material efficiently, reduce infrastructure delivery costs, support future road connectivity, and make practical use of municipal land. These benefits are considered to outweigh the temporary nuisance impacts, provided that all mitigation measures are implemented through the EMPr and monitored during establishment, operation and rehabilitation.

8.3.	Explain what social initiatives will be implemented by the applicant to address the needs of the community and to uplift the area.
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The applicant, George Municipality, is a public-sector proponent and the proposed activity is itself linked to municipal service delivery and community infrastructure upliftment. The primary social contribution of the proposal is that it supports the implementation of the Rand Street and Rosedale Main Extension projects, which are intended to improve access, movement and connectivity between surrounding residential areas and the broader George urban, business and industrial network. Improved connectivity has the potential to support safer and more efficient movement, better access to services and facilities, and improved integration of developing residential areas with economic and employment nodes.

The temporary stockpile sites will also allow the Municipality to manage surplus construction material more efficiently by reusing suitable cut material as fill for future road and infrastructure projects. This reduces municipal expenditure on off-site disposal and imported commercial fill material. The cost savings generated through this approach support more sustainable and cost-effective service delivery, which indirectly benefits the broader community by allowing public resources to be used more efficiently for infrastructure implementation and maintenance.

During implementation, the applicant should require the appointed contractor to give reasonable preference, where practical and lawful, to local labour, local plant hire, security services, transport services and rehabilitation-related work. This would provide short-term local economic opportunities associated with the establishment, operation and decommissioning of the stockpile sites, construction camp areas and temporary access routes.

The applicant will also address community needs through the implementation of mitigation measures that protect nearby residents from nuisance and safety impacts. These include buffers from residential structures, dust suppression, speed control on haul roads, controlled access, safety signage, site security, waste management, screening of construction camp areas where required, stockpile height limits near sensitive receptors, and rehabilitation of disturbed areas after use. These measures are important because the stockpile sites are located near existing and developing communities, and the temporary activity must be managed so that it does not reduce local amenity or create avoidable risks.

Public participation is also a key social initiative in the environmental assessment process. Interested and affected parties will be given an opportunity to review the proposal, raise concerns, and have those concerns responded to in the Basic Assessment process. This allows community issues such as dust, traffic, access, visual impacts, safety, illegal dumping and rehabilitation to be considered and incorporated into the EMPr and conditions of approval where appropriate.

Overall, the upliftment contribution of the proposal is therefore not based on a standalone social investment programme, but on the municipal service delivery purpose of the project, the efficient reuse of public resources, support for future road infrastructure, short-term local economic opportunities during implementation, and the management of temporary impacts on nearby communities through enforceable EMPr measures.

8.4.	Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.
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The proposed development could have **localised and temporary effects on people's health and well-being**, mainly through **noise, dust, construction traffic, visual intrusion and changes to the local sense of place** during the period that the stockpile sites, construction camp areas, haul roads and geotechnical investigations are active.

These impacts are not expected to be permanent, but they are relevant because several of the proposed stockpile/construction camp site areas are located close to residential receptors and municipal worker dwellings.

Noise and construction disturbance

Noise impacts may arise from trucks, earthmoving machinery, stockpile handling, temporary road creation, the use of a TLB, small excavator or drill rig for geotechnical investigations, and general construction camp activity.

These impacts will be temporary and linked to the establishment, use and rehabilitation phases.

The potential for nuisance to nearby residents has influenced the proposal by requiring that activities remain within approved footprints, that access routes and turning areas are clearly demarcated, and that construction activities are managed through the EMPr. Where possible, work should be limited to normal working hours and unnecessary idling, hooting, revving and night-time disturbance should be avoided.

Dust and air quality

Dust is one of the more important potential health and amenity impacts because the proposal involves exposed soil, stockpiled material, haul roads and vehicle movement. Dust may affect nearby residents, pedestrians and road users, particularly during dry or windy conditions and at sites located close to residential areas.

This has influenced the proposal by requiring dust suppression, speed control on haul roads, covering or stabilisation of short-term stockpiles near residences, shaping and vegetating of longer-term stockpiles and topsoil windrows, and monitoring during windy periods.

These measures are intended to reduce nuisance dust and prevent avoidable impacts on surrounding communities.

Visual character and sense of place

The visual assessment indicates that the stockpiles and construction camp areas will create a noticeable local visual impact, especially at Sites 1, 4 and 5 due to their proximity to residential receptors.

Without mitigation, the visual impact could be high negative, but with mitigation it is reduced to medium.

The stockpiles will temporarily introduce a more industrial/construction-related character into parts of the local landscape, which may affect the sense of place for nearby residents.

However, the broader receiving environment is already influenced by urban development, municipal infrastructure and the George Wastewater Treatment Works, and the activity is temporary rather than permanent.

This has influenced the proposal by requiring a 25 m no-go buffer from residential structures for stockpile areas, a 50 m setback for construction camps from residential property boundaries, screening of construction camps with shade netting, height limits for stockpiles near sensitive receptors, a Bitou hedgerow screen at Site 4, and rehabilitation of disturbed areas after use.

The western portion of Site 4 has also been identified as an area requiring a buffer/no-go response because of its proximity to residential receptors.

Traffic, access and safety

Temporary haul roads and access tracks will be used by construction vehicles and machinery. This may create temporary safety risks, traffic nuisance and disturbance if not properly managed. The proposal has therefore been influenced by the need to use existing roads and tracks where possible, demarcate access routes and turning areas, restrict vehicle movement to approved areas, control vehicle speeds, provide site security, manage unauthorised access, and prevent illegal dumping.

These measures are necessary to protect nearby communities and reduce conflict between construction activities and surrounding land uses.

Overall effect on health and well-being

The proposal is not expected to result in unacceptable long-term impacts on people's health or well-being, provided that the EMPr and specialist mitigation measures are fully implemented.

The main effects will be temporary nuisance impacts associated with dust, noise, visual intrusion, construction traffic and changes to local amenity.

These issues have directly influenced the preferred layout and management requirements by requiring buffers from residences, screening, stockpile height restrictions, dust suppression, controlled access, security, rehabilitation and ECO monitoring.

With these measures in place, the residual impacts on health, well-being, visual character and sense of place are expected to be localised, temporary and manageable.

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. Details of the alternatives identified and considered

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred property and site alternative.	
The preferred property alternative is George Municipal Erf 325, as all proposed stockpile sites, construction camp areas, temporary haul roads, geotechnical access tracks, test pits and monitoring boreholes are located within this municipal property. The use of Erf 325 is preferred because it is already owned and controlled by George Municipality, is situated within the broader municipal infrastructure planning area, and can accommodate the temporary stockpiling and contractor camp requirements without requiring the acquisition or disturbance of additional private land. The preferred site alternative comprises the final revised layout of five temporary stockpile / construction camp areas, together with the associated temporary access haul roads. The Phase 2 Geotechnical Assessment access routes and investigation points are restricted to the proposed road extension and associated services geotechnical survey needs. The final preferred layout was informed by an iterative assessment process. Earlier layouts were circulated to the specialists and were then amended in response to the terrestrial biodiversity, plant species, animal species, aquatic biodiversity, agricultural, visual and engineering service inputs. This process resulted in the reduction and refinement of the original stockpile layout and the selection of a preferred alternative that better avoids sensitive areas and reduces potential impacts. The preferred sites are located mainly within transformed agricultural fields and historically disturbed areas dominated by exotic and invasive vegetation. These areas are of lower site-specific ecological sensitivity than the surrounding valley-edge fynbos, wetland areas, watercourses and wetland buffers. The location of the stockpile areas within already disturbed land assists in avoiding unnecessary disturbance of intact or higher-value biodiversity features and supports the mitigation hierarchy by placing the main temporary activity footprint in areas that can be rehabilitated after use. The preferred layout also avoids conflict with known future housing project areas and existing municipal services, including the requirements of George Municipality's Electrical Engineering Services Department. This makes the preferred site alternative more desirable from a municipal planning and infrastructure integration perspective, as it allows the land to be used temporarily for stockpiling and construction camp site purposes without sterilising areas needed for other planned municipal functions. The preferred alternative has been specifically designed to avoid negative impacts by excluding the most sensitive areas as far as practicable, including wetland buffers, watercourses, valley-edge fynbos, sensitive faunal habitat features and areas close to residential receptors. Access routes have been aligned to use existing roads, paths and disturbed tracks wherever possible, and new temporary routes are limited to the minimum required width and extent. For the geotechnical investigations, the use of existing access, micro-siting under ECO supervision, portable drilling equipment and hand excavation in sensitive areas where required further reduces the risk of avoidable disturbance. Where negative impacts cannot be fully avoided, the preferred alternative incorporates mitigation to reduce these impacts to acceptable levels. This includes demarcation and fencing of approved footprints, no-go areas around sensitive features, topsoil stripping and separate storage, erosion and stormwater controls, use of suitable temporary road surfacing to prevent rutting, dust suppression, spill prevention, waste management, fauna search-and-rescue measures, screening and buffers from residences, stockpile height limits, and rehabilitation of all temporarily disturbed areas after use. Test pits will be backfilled after investigation, boreholes will be used for monitoring only, and no groundwater abstraction is proposed. The preferred alternative also maximises positive impacts by enabling George Municipality to reuse surplus cut material from municipal infrastructure projects as fill material for future road and infrastructure works. This reduces the need for off-site disposal, reduces the need to import commercial fill, lowers haulage and material costs, reduces pressure on disposal facilities, and supports more cost-effective municipal service delivery. The construction camp function is consolidated within the assessed stockpile footprints, which avoids creating additional disturbance elsewhere. Overall, the preferred property and site alternatives represent the most balanced option identified through the assessment process. They make practical use of municipal land, support planned road infrastructure, avoid the most sensitive environmental features where possible, mitigate unavoidable temporary impacts through enforceable EMPr measures, and maximise municipal resource-efficiency and service-delivery benefits.	
Provide a description of any other property and site alternatives investigated.	
No alternative properties outside of George Municipal Erf 325 were taken forward for detailed assessment. The proposed activity is directly linked to George Municipality's infrastructure planning and requires temporary stockpile and construction camp areas close to the Rand Street and Rosedale Main Extension project. Erf 325 is municipal land, is located within the broader project area, and allows the Municipality to manage surplus cut material within its own landholding without needing to acquire, lease or disturb additional private land. For this reason, the consideration of alternatives focused on different site layouts and footprint arrangements within Erf 325, rather than on alternative properties.	

Alternative sites currently undeveloped north of the N2 would have been considered had they not already been allocated to the Metro Grounds Project expansion which make them unsuitable for short-term temporary stockpile sites.

Several site layout alternatives were investigated during the planning and assessment process. The initial layout included potential stockpile sites, construction camp areas and temporary access haul roads identified by the engineering team to provide sufficient space for temporary stockpiling of surplus material. This initial layout was circulated to the appointed specialists so that areas of environmental, aquatic, biodiversity, agricultural, visual and service-related sensitivity could be identified.

Following specialist input, the original stockpile layout was amended. The revised layout reduced and refined the stockpile footprints to avoid or reduce impacts on sensitive areas, including wetland buffers, valley-edge fynbos, watercourses, faunal habitat features, areas close to residential receptors, and existing or planned municipal service infrastructure. The aquatic assessment also considered an alternative layout that incorporated buffer areas around aquatic features. This layout highlighted areas where access routes still encroached into wetland buffers, and these routes were subsequently revised in the final preferred alternative.

The specialist process therefore resulted in the assessment of a sequence of site alternatives: the initial engineering layout, a revised specialist-informed layout, an aquatic-buffer-informed layout, and finally the preferred layout. During this process, a sixth initial stockpile area was removed or not carried forward, and the final proposal was reduced to **five stockpile / construction camp areas**. The final preferred alternative is therefore the outcome of a comparative process that sought to retain sufficient functional stockpile capacity while avoiding sensitive environmental features and minimising potential social, visual and service conflicts.

For the Phase 2 Geotechnical Assessment, alternative access arrangements were also considered. The preferred approach is to use existing roads and tracks wherever possible. Where no existing access is available, or where tracks are too narrow, short-term temporary tracks may be created or widened only to the minimum width required. In areas constrained by aquatic features, slopes or sensitive vegetation, lower-impact methods such as micro-siting, hand excavation or portable drilling equipment must be used where required by the specialist mitigation measures.

Overall, the other site alternatives investigated were internal layout and access alternatives within Erf 325. No other property alternative was preferred because Erf 325 is municipal land, is close to the source and future use of the fill material, avoids the need for additional land acquisition, and supports efficient municipal infrastructure delivery.

The final preferred alternative was selected because it best balances the operational need for temporary stockpile and construction camp site space with the need to avoid sensitive biodiversity and aquatic features, reduce visual and dust impacts on nearby communities, protect municipal services, and allow rehabilitation after use.

Provide a motivation for the preferred property and site alternative including the outcome of the site selection matrix.

The preferred property alternative is **George Municipal Erf 325**, as it is municipal-owned land located within the broader area required to support the Rand Street and Rosedale Main Extension projects. The property is preferred because it enables George Municipality to temporarily store and reuse surplus cut material from municipal infrastructure projects within its own landholding, close to both the source and future use of the material. This avoids the need to acquire, lease or disturb additional private land and reduces the cost, transport impacts and logistical burden associated with off-site disposal and the importation of commercial fill material.

The preferred site alternative is the **final revised layout of five temporary stockpile / construction camp areas**, associated haul roads, and the Phase 2 geotechnical investigation access routes and test positions. The preferred layout is the outcome of an iterative alternatives assessment process. An initial engineering layout was first identified to provide sufficient space for temporary stockpiling. This layout was then circulated to the relevant specialists and refined in response to environmental, aquatic, biodiversity, agricultural, visual and engineering services inputs. The process resulted in the removal/reduction of higher-impact areas, a reduction from the initial six stockpile areas to five preferred areas, and the realignment of access routes to avoid wetland buffers and other sensitive features as far as practicable.

The selection matrix favoured the preferred alternative because it achieved the best overall balance between **technical feasibility, municipal need, environmental acceptability, social considerations and operational efficiency**.

The preferred site layout scored most favourably because it:

- is located entirely on municipal land;
- avoids conflict with known future housing project areas and existing municipal services;
- provides sufficient stockpile capacity for approximately **757 472 m³** of material at any one time;
- places the main stockpile and construction camp footprints within transformed agricultural fields rather than intact natural habitat;
- avoids wetland buffers, watercourses and valley-edge fynbos as far as practicable;
- allows access from existing roads and tracks where available;
- limits new temporary haul roads and geotechnical access tracks to the minimum practical footprint;
- reduces visual and amenity impacts through buffers, height restrictions, dust control and screening;
- enables rehabilitation of all temporary disturbance areas after use; and
- supports the efficient reuse of surplus municipal construction material.

From an ecological perspective, the preferred alternative is motivated because the stockpile sites are located mainly within previously transformed and disturbed areas dominated by exotic and invasive vegetation. The more sensitive features, including valley-edge fynbos, wetland habitats, watercourses, wetland buffers and faunal habitat features, have been avoided or buffered as far as possible. Where temporary disturbance cannot be completely avoided, particularly for geotechnical test pits, boreholes and access, the disturbance is small-scale, short-term and reversible, with strict micro-siting, ECO supervision, soil management and rehabilitation requirements.

From an aquatic and erosion-risk perspective, the preferred alternative was selected because it responds to the presence of wetlands, watercourses, steep slopes and erodible soils. The final layout places stockpile areas on lower-gradient land as far as practicable, requires setbacks from delineated wetland edges, realigns haul roads outside wetland buffers where possible, and includes stormwater, silt-control, topsoil and rehabilitation measures to prevent sediment movement into aquatic systems.

From a visual and social perspective, the preferred alternative was selected because it reduces impacts on nearby residential receptors while still allowing the activity to fulfil its municipal infrastructure purpose. Sites 1, 4 and 5 have higher visual sensitivity due to their proximity to residences, but the preferred alternative incorporates mitigation such as stockpile height restrictions, residential buffers, dust suppression, screening of construction camp areas, a Bitou hedgerow screen at Site 4, controlled access and rehabilitation. Sites 2 and 3 present comparatively lower visual and social risk due to greater separation from sensitive receptors.

From an agricultural perspective, the preferred alternative is acceptable because the affected areas are not under formal agricultural production and are used only informally or intermittently. The impact is temporary and reversible, provided topsoil is stripped, stored, replaced and the areas are reshaped and reseeded after use.

The outcome of the selection matrix therefore supports the preferred property and site alternative as the most suitable option. Other layout alternatives either had greater potential to encroach into wetland buffers, sensitive biodiversity areas, steep slopes, visually sensitive areas or service/future housing constraints, or did not provide the same practical balance between stockpile capacity and environmental avoidance. The preferred alternative maximises the positive municipal and socio-economic benefits of the proposal while minimising and mitigating unavoidable negative impacts through the EMPr and specialist-recommended conditions.

Overall, the preferred property and site alternative is motivated on the basis that it is **practical, available, municipally controlled, environmentally informed, technically feasible, cost-effective and capable of rehabilitation**. It is therefore the alternative that best satisfies the project need while giving effect to the mitigation hierarchy and reducing residual environmental and social impacts to acceptable levels.

Provide a full description of the process followed to reach the preferred alternative within the site.

The preferred alternative was reached through an iterative site-layout refinement process informed by the project need, engineering requirements, ownership constraints, specialist input and environmental sensitivity mapping. The activity had to be located on land available to George Municipality and close enough to the Rand Street and Rosedale Main Extension project area to make the temporary stockpiling and reuse of material practical and cost-effective. For this reason, the alternatives assessment focused on identifying the most suitable stockpile, construction camp, haul road and geotechnical investigation footprints within **George Municipal Erf 325**, rather than on alternative properties outside the municipal landholding.

The first step was the identification of potential stockpile and construction camp areas by the engineering team to provide sufficient temporary storage capacity for surplus municipal cut material. This initial layout included a number of possible stockpile areas and associated temporary haul roads that would allow material to be delivered, stored, managed and removed for reuse in future road and municipal infrastructure projects. At this stage, the layout was based primarily on operational requirements, including proximity to the road extensions, available space, access, anticipated stockpile volumes, construction camp requirements and municipal service-delivery needs.

The initial stockpile layout was then circulated to the appointed specialists for assessment. Specialist input was obtained for, inter alia, agriculture, terrestrial biodiversity and plant species, terrestrial animal species, aquatic biodiversity, landscape and visual character, and heritage. The purpose of this step was to test the initial engineering layout against site-specific environmental and planning constraints and to determine which areas should be avoided, reduced, buffered or managed through mitigation. The specialists considered desktop informants, including the DFFE Screening Tool, the Western Cape Biodiversity Spatial Plan, mapped wetlands and watercourses, conservation planning information, vegetation type and ecosystem status, as well as field verification of the actual site conditions.

The specialist assessments confirmed that the site is not uniformly sensitive. The larger proposed stockpile areas are located mainly within transformed agricultural fields and areas dominated by exotic and invasive vegetation, while the more sensitive features are associated with valley-edge fynbos, wetland areas, watercourses, wetland buffers, steeper slopes and faunal habitat features. This distinction was important because it allowed the layout to be refined so that the main stockpile and construction camp footprints could be directed to the lower-sensitivity transformed areas, while avoiding the more sensitive biodiversity and aquatic features as far as practicable.

Following the initial specialist input, the original layout was amended. Stockpile footprints were reduced or shifted, and the layout was revised to avoid sensitive areas and better accommodate specialist recommendations. The aquatic input was particularly important because wetland and watercourse buffers had to be considered. An alternative layout was prepared that incorporated the aquatic buffer areas, and this showed where certain access routes still encroached into wetland buffer areas. These encroachments were then reconsidered, and the access routes were further refined in the final preferred alternative to avoid or reduce buffer encroachment as far as practicable.

The layout was also refined in response to visual and social considerations. The visual assessment identified that some of the stockpile and construction camp areas, particularly Sites 1, 4 and 5, have higher visual and amenity sensitivity due to their proximity to residential receptors and municipal worker dwellings. This influenced the preferred layout and mitigation requirements by requiring buffers from residences, stockpile height restrictions, screening of construction camps, dust management, controlled access, and specific screening at Site 4. Sites 2 and 3 were identified as comparatively lower visual-risk areas due to their greater separation from sensitive receptors.

Engineering and municipal service constraints were also considered. George Municipality's Electrical Engineering Services Department requirements were taken into account to ensure that the preferred sites would not conflict with existing or planned municipal services. The final layout also avoids known future housing project areas, thereby ensuring that the temporary stockpiling activity does not sterilise land required for other municipal planning priorities.

As part of the refinement process, the number of stockpile sites was reduced from the initial layout to the final preferred layout of **five stockpile / construction camp areas**. These final sites provide sufficient temporary stockpile capacity, while representing the best balance between operational feasibility and environmental acceptability. The preferred layout allows for the temporary stockpiling of approximately **757 472 m³** of material at any one time and consolidates construction camp functions within the assessed stockpile footprints, avoiding the need for additional disturbance elsewhere.

The temporary haul roads and access arrangements were also refined through the same process. Existing roads, tracks and disturbed routes are to be used wherever possible. Where new or widened access is unavoidable, it has been limited to the minimum practical width and extent. Access roads to the stockpile and construction camp areas will be temporary, approximately 5–6 m wide, with a total length of approximately 950 m, and will be rehabilitated after use. The routes were selected to minimise encroachment into wetland buffers, reduce erosion risk, avoid steep slopes where possible, and prevent unnecessary disturbance of vegetation.

The Phase 2 Geotechnical Assessment was also incorporated into the preferred alternative because it is required to inform the future Rand Street and Rosedale Main Extension design and separate environmental assessment process. The geotechnical investigation points and temporary access routes were assessed in relation to the same environmental constraints. Existing access is preferred, new tracks are limited to approximately 5 m wide where required, and test pits and boreholes are to be micro-sited under ECO supervision. In sensitive areas, lower-impact methods such as hand excavation or portable drilling equipment must be used where required by specialist mitigation measures. Test pits will be backfilled after excavation and boreholes will be used for monitoring groundwater levels and water quality only, with no groundwater abstraction proposed.

The outcome of the internal alternatives process and selection matrix therefore favoured the final revised layout as the preferred alternative because it achieved the best overall balance between the following criteria:

- use of municipal land already controlled by the applicant;
- proximity to the Rand Street and Rosedale Main Extension project;
- sufficient temporary stockpile capacity;
- avoidance of future housing areas and municipal services;
- placement of the main footprints within transformed agricultural fields;
- avoidance of wetland buffers, watercourses and valley-edge fynbos as far as practicable;
- reduced visual and amenity impacts on nearby residential receptors;
- use of existing roads and disturbed tracks wherever possible;
- limited and reversible temporary disturbance for geotechnical works;
- ability to rehabilitate disturbed areas after use; and
- maximisation of the socio-economic benefit of reusing surplus municipal material.

In summary, the preferred alternative was not selected as a single fixed engineering layout at the outset. It was developed through a sequential process of identifying operationally suitable areas, testing them through specialist assessments, revising the layout in response to environmental and service constraints, reducing and refining stockpile footprints, adjusting haul roads and geotechnical access arrangements, and incorporating mitigation measures into the EMP. The final preferred alternative is therefore the site layout that best avoids negative impacts, minimises and mitigates unavoidable temporary impacts, and maximises the positive municipal, environmental and socio-economic benefits of the proposal.

Provide a detailed motivation if no property and site alternatives were considered.

No alternative properties were considered because the proposed activity is functionally and geographically tied to **George Municipal Erf 325**. The applicant and landowner are the same entity, namely **George Municipality**, and the activity is required to support municipal infrastructure delivery, specifically the Rand Street and Rosedale Main Extension projects and related future municipal infrastructure works. The purpose of the activity is to temporarily stockpile surplus cut material generated from municipal projects so that it can be reused as fill material for other municipal road and infrastructure projects. This requires land that is municipally controlled, close to the source and future use of the material, accessible to construction vehicles, and capable of accommodating temporary stockpiling and construction camp site functions without creating additional land acquisition or tenure constraints.

Erf 325 was therefore selected because it is already owned and controlled by George Municipality, is located within the broader municipal infrastructure planning area, and is sufficiently close to the Rand Street and Rosedale Main Extension project to make the temporary storage and reuse of material practically and economically feasible. Considering properties outside Erf 325 would introduce unnecessary logistical, legal, financial and environmental implications, including the need to acquire, lease or secure permissions over third-party land, establish additional access routes, transport material over longer distances, and potentially

disturb land that has not been assessed or that may have greater environmental, agricultural, social or service-related constraints.

The proposed activity is also temporary and directly related to municipal construction logistics, rather than being a permanent land-use development requiring a comparison of alternative development parcels. The activity does not require a new privately owned development site or a permanently converted land parcel. Instead, it requires temporary working space within municipal land to support municipal infrastructure implementation. The use of Erf 325 avoids the need to burden private landowners, avoids unnecessary expansion of the disturbance footprint beyond municipal land, and enables the Municipality to control environmental management, access, security, rehabilitation and post-use land management directly.

The site is also appropriate because it is already influenced by existing and planned municipal infrastructure, historical disturbance, transformed fields and surrounding urban-edge land uses. Specialist input confirmed that the larger stockpile areas can be accommodated mainly within transformed agricultural fields and disturbed areas, while avoiding the more sensitive features such as wetland buffers, watercourses, valley-edge fynbos, sensitive faunal habitat and visually sensitive residential interfaces as far as practicable. The alternatives assessment therefore focused appropriately on **site and layout alternatives within Erf 325**, rather than on alternative properties.

This internal layout alternatives process provided a meaningful and reasonable assessment of alternatives. Various stockpile / construction camp footprints, haul road alignments, aquatic buffer responses and geotechnical access options were considered and refined through input from the appointed specialists and municipal engineering services. The layout was amended from the initial engineering proposal to the final preferred alternative, reducing the number of stockpile areas from six to five, avoiding current and future housing project areas, avoiding existing services, reducing encroachment into sensitive aquatic and biodiversity features, and incorporating buffers, access refinements and mitigation measures.

No other property alternative would achieve the same combination of municipal control, proximity, operational feasibility, cost efficiency, infrastructure-support value and environmental manageability. Alternative properties would likely increase haulage distances, disposal and fill costs, traffic impacts, greenhouse gas and dust emissions, administrative complexity and the risk of disturbance to additional unassessed land. In contrast, Erf 325 allows the Municipality to retain and reuse suitable material within its own infrastructure system, reducing the need for off-site disposal and imported commercial fill.

Accordingly, the exclusion of property alternatives is considered reasonable and justified. The assessment of alternatives was therefore appropriately limited to identifying and refining the most suitable stockpile, construction camp, temporary access and geotechnical investigation footprints within Erf 325. This approach satisfies the purpose of the alternatives assessment by comparing feasible and reasonable options available to the applicant, avoiding unnecessary impacts, mitigating unavoidable temporary impacts, and maximising the positive municipal, environmental and socio-economic benefits of the proposed activity.

List the positive and negative impacts that the property and site alternatives will have on the environment.

Positive impacts

- **Use of municipal land:** The preferred property, George Municipal Erf 325, is already owned and controlled by George Municipality. This avoids the need to acquire or disturb additional private land and allows the Municipality to manage access, stockpiling, rehabilitation and environmental compliance directly.
- **Efficient reuse of material:** The stockpile sites will allow surplus cut material from municipal infrastructure projects to be stored and reused as fill material for future road and infrastructure works. This reduces disposal requirements, reduces the need to import commercial fill, and supports more sustainable and cost-effective municipal service delivery.
- **Reduced transport and disposal impacts:** Reusing material close to the Rand Street and Rosedale Main Extension project will reduce haulage distances, traffic movements, fuel use, emissions, dust generation and pressure on disposal facilities when compared with off-site disposal and importation of new fill material.
- **Avoidance through layout refinement:** The preferred site alternative was refined to avoid the most sensitive environmental features as far as practicable. The final layout reduced the number of stockpile areas from the initial layout, avoids current and future housing project areas and existing services, and places the main stockpile areas within transformed agricultural fields rather than intact natural habitat.
- **Protection of biodiversity and aquatic features:** The preferred layout avoids valley-edge fynbos, wetlands, watercourses and wetland buffers as far as practicable. The stockpile areas are located mainly in degraded or transformed areas of lower ecological sensitivity, reducing the risk of permanent loss of important biodiversity features.
- **Temporary and reversible land use:** The activity is temporary, and the affected stockpile, construction camp site and access areas will be rehabilitated after use. Topsoil stripping, storage, replacement, ripping of compacted areas and reseeded will assist in restoring the land to a managed condition.
- **Support for future infrastructure:** The proposal supports the Rand Street and Rosedale Main Extension projects, which are intended to improve access and connectivity within the George municipal area. This provides a broader public infrastructure benefit.
- **Improved environmental knowledge:** The Phase 2 geotechnical test pits and monitoring boreholes will provide site-specific subsurface and groundwater information to inform the design and assessment of the future road extension project. The boreholes are for monitoring only, with no abstraction proposed.

Negative impacts

- **Temporary loss of vegetation:** Establishment of the stockpile areas, construction camp site areas, haul roads and geotechnical access tracks will result in temporary disturbance of vegetation and topsoil. Although the main stockpile areas are transformed, disturbance must be carefully managed to prevent unnecessary expansion of the footprint.
- **Soil compaction and erosion:** Vehicle movement, stockpiling and temporary road creation may compact soils and increase erosion risk, particularly because the soils are shallow duplex soils and parts of the site drain towards wetlands

and watercourses. Disturbance on steeper slopes or exposed areas could increase runoff and sediment movement if not mitigated.

- **Risk to wetlands and watercourses:** The site contains or is close to watercourses, valley-bottom wetlands and wetland buffers. If runoff, sediment, hydrocarbons or waste enter these systems, water quality, aquatic habitat and wetland functioning could be affected. This risk is reduced through setbacks, stormwater controls, silt management, pollution prevention and rehabilitation.
- **Impacts on biodiversity features:** The larger stockpile sites avoid the most sensitive habitats, but geotechnical access routes and investigation points may occur near or within valley-edge fynbos and other sensitive areas. Potential impacts include localised vegetation disturbance, disturbance to habitat connectivity, spread of alien invasive plants and disturbance of sensitive faunal habitat.
- **Faunal disturbance:** Construction activities may disturb fauna using the site or adjacent habitats, including ground-dwelling species, birds, small mammals, amphibians and invertebrates. Evidence of golden mole tunnels and potential habitat for sensitive species such as Knysna Warbler requires micro-siting, ECO supervision, nest checks where relevant and fauna rescue procedures.
- **Alien invasive plant spread:** Soil disturbance, vehicle movement and stockpiling can create conditions for alien invasive plants to establish or spread, particularly in already disturbed areas. This requires ongoing alien plant control during and after rehabilitation.
- **Visual intrusion and sense of place:** The stockpiles and construction camps will create a temporary visual impact, particularly at Sites 1, 4 and 5 due to their proximity to residential receptors. Visual impacts may include a more industrial or construction-related character, temporary loss of local amenity and reduced visual quality. Mitigation includes buffers, screening, stockpile height limits and rehabilitation.
- **Dust and air quality nuisance:** Stockpiled material, exposed soil and haul road traffic may generate dust during dry or windy conditions. Dust may affect nearby residents, road users and surrounding vegetation if not controlled through watering, speed limits, stabilisation and covering or shaping of stockpiles.
- **Noise and traffic disturbance:** Trucks, machinery, earthmoving equipment and geotechnical plant may create temporary noise, safety and traffic impacts. These will be localised and construction-related but require controlled access, speed limits, signage, security and adherence to working-hour restrictions where applicable.
- **Pollution risk:** Construction camp sites, vehicles and machinery may create risks of hydrocarbon spills, waste mismanagement or contamination of soil, surface water and groundwater. This requires bunded storage, drip trays, spill kits, regular vehicle checks, waste controls and ECO monitoring.

Overall environmental balance

The preferred property and site alternatives have both positive and negative environmental implications. The key positive outcome is that the proposal uses municipal land and transformed areas to support efficient reuse of municipal construction material, while avoiding the need for additional land acquisition, disposal and importation impacts. The main negative impacts are temporary disturbance, erosion risk, dust, visual intrusion, fauna disturbance and potential impacts on wetlands, watercourses and biodiversity features. However, these impacts are expected to be localised, temporary and manageable, provided that the preferred layout is implemented and all specialist mitigation, EMPr requirements, rehabilitation measures and ECO monitoring are strictly applied.

1.2.	Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
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Provide a description of the preferred activity alternative.

The preferred activity alternative is the **temporary establishment and operation of five stockpile sites / construction camp areas on George Municipal Erf 325**, together with the associated temporary haul roads, access tracks, Phase 2 geotechnical test pits and monitoring boreholes required to support the Rand Street and Rosedale Main Extension projects.

This activity alternative was selected because it best enables George Municipality to meet the project need while avoiding unnecessary environmental and social impacts. The activity provides for the temporary storage of surplus cut material generated from municipal infrastructure projects so that it can be reused as fill material for future road and infrastructure works. This avoids treating reusable material as waste, reduces off-site disposal requirements, reduces the need to import commercial fill material, and supports a more sustainable and cost-effective municipal service delivery approach.

The preferred activity alternative avoids negative impacts by locating the main stockpile and construction camp activities within **transformed agricultural fields and previously disturbed areas**, rather than within the more sensitive valley-edge fynbos, wetland, watercourse and wetland-buffer areas. The activity has also been designed to use existing roads, tracks and disturbed routes wherever possible. Where new temporary haul roads or access tracks are unavoidable, these are limited to the minimum practical width and extent and will be rehabilitated after use.

The preferred activity alternative further avoids and reduces impacts by consolidating the construction camp function within the assessed stockpile footprints. This prevents the need to establish separate construction camp site areas elsewhere and limits construction-related disturbance to areas that have already been assessed by the specialists. The final layout was informed by specialist input and municipal engineering service requirements, and the original activity layout was amended to reduce encroachment into sensitive areas, avoid future housing project areas and avoid existing service constraints.

Unavoidable negative impacts associated with the preferred activity alternative are temporary and will be mitigated through the EMPr and specialist recommendations. These impacts include temporary vegetation and topsoil disturbance, soil compaction, dust, visual intrusion, noise, construction traffic, erosion risk, potential sediment movement towards wetlands and watercourses, alien invasive plant spread, and potential disturbance to fauna. Mitigation includes footprint demarcation, no-go areas, ECO supervision, topsoil stripping and separate storage, erosion and stormwater controls, dust suppression, speed control,

stockpile height limits near residences, visual screening, spill prevention, waste management, fauna checks and rehabilitation of disturbed areas after use.

The Phase 2 Geotechnical Assessment portion of the activity is also part of the preferred activity alternative. This includes temporary test pits and monitoring boreholes required to inform the engineering design and separate environmental assessment process for the future Rand Street and Rosedale Main Extension project. These activities are short-term, small-scale and reversible. Test pits will be backfilled after investigation, boreholes will be used for monitoring groundwater levels and water quality only, and no groundwater abstraction is proposed. Access to investigation points will be micro-sited under ECO supervision, with hand excavation or portable drilling equipment used where required in sensitive areas.

The preferred activity alternative maximises positive impacts by enabling the Municipality to reuse suitable material within its own infrastructure programme. This reduces municipal expenditure, reduces haulage distances, reduces fuel use and emissions, reduces pressure on disposal facilities, and supports future infrastructure delivery. It also contributes indirectly to the implementation of the Rand Street and Rosedale Main Extension projects, which are intended to improve access and connectivity between surrounding residential areas and the broader George urban, industrial and business network.

Overall, the preferred activity alternative is considered the most appropriate because it gives effect to the mitigation hierarchy. It avoids sensitive features where practicable, minimises unavoidable disturbance, provides clear mitigation for temporary impacts, allows for rehabilitation after use, and maximises the positive municipal, environmental and socio-economic benefits associated with the reuse of surplus construction material.

Provide a description of any other activity alternatives investigated.

Other activity alternatives were considered during the planning and assessment process, but were not preferred because they were less practical, less cost-effective, or likely to result in greater environmental, social or logistical impacts than the preferred temporary stockpiling and reuse option.

1. Disposal of surplus material off-site

One activity alternative would be to remove surplus cut material from municipal infrastructure projects and dispose of it at an approved disposal or spoil facility. This option was not preferred because it would treat potentially reusable material as waste, increase haulage distances, increase truck movements through the surrounding road network, increase fuel use and emissions, and create additional pressure on disposal facilities. It would also result in significant additional costs to each municipal project that generates surplus material.

This alternative would avoid temporary stockpiling impacts on Erf 325, but it would transfer impacts elsewhere and would not support the Municipality's objective of reusing suitable material for future road and infrastructure works. It would therefore reduce the positive socio-economic and resource-efficiency benefits of the proposal.

2. Importation of commercial fill material

Another activity alternative would be to source and import commercial fill material from external borrow pits or suppliers when fill is required for the Rand Street and Rosedale Main Extension projects and other municipal infrastructure works. This alternative was not preferred because it would result in unnecessary procurement costs, increased transport impacts, and greater reliance on external material sources, while surplus municipal cut material would still need to be disposed of separately.

This option would therefore generate a double impact: disposal of usable municipal material on the one hand, and extraction, purchase and transport of replacement material on the other. It would not represent efficient resource use and would not maximise the municipal cost-saving and sustainability benefits identified for the preferred alternative.

3. Establishment of separate construction camp areas outside the stockpile footprints

A further activity alternative would be to establish contractor construction camp areas separately from the stockpile sites. This was not preferred because it would create additional disturbance footprints, require separate access and servicing arrangements, and increase the area requiring environmental management and rehabilitation. By contrast, the preferred activity consolidates the construction camp function within the assessed stockpile footprints, thereby containing construction-related disturbance within areas already evaluated by the specialists.

4. Initial six-stockpile activity layout

The initial activity layout included six potential stockpile areas with associated haul roads. This layout was circulated to the specialists for assessment. The aquatic, biodiversity, visual, agricultural and engineering service inputs indicated that the original layout had greater potential to affect sensitive features, including wetland buffers, valley-edge fynbos, residential receptors, existing services and areas linked to future municipal planning.

This layout was therefore amended and reduced. The final preferred layout comprises five stockpile / construction camp areas and associated access routes, with the main footprints located in transformed agricultural fields and disturbed areas. The initial six-site layout was not preferred because it did not provide the same level of avoidance and mitigation as the final specialist-informed alternative.

5. Aquatic-buffer-informed layout

An alternative layout was also considered after incorporating aquatic buffer areas. This layout was useful because it identified where stockpile areas and access routes could conflict with wetland buffers and aquatic features. However, the aquatic-buffer-informed layout still showed encroachment into wetland buffer areas for access. This informed a further revision of the access arrangements in the final preferred alternative, where haul roads were realigned or reduced to avoid wetland buffers as far as practicable.

This alternative was therefore not selected as the final layout, but it was important in refining the proposal and ensuring that aquatic sensitivities were properly incorporated into the preferred activity design.

6. Different geotechnical access and investigation methods

For the Phase 2 Geotechnical Assessment, different access and investigation methods were considered. The least-impact approach is to use existing roads and tracks wherever possible and to limit new temporary tracks to the minimum practical width and extent. Where existing routes are too narrow, temporary widening may be required. Where slopes, dense vegetation, wetlands or other sensitive features constrain access, lower-impact alternatives such as hand excavation, portable drilling equipment, micro-siting, and foot access for monitoring are required.

More intensive access creation or unrestricted vehicle access was not preferred because it would increase vegetation disturbance, soil compaction, erosion risk, sediment movement and potential impacts on fauna and aquatic features. The preferred geotechnical activity alternative therefore requires site-specific access decisions under ECO supervision and strict implementation of the EMPr and specialist method statements.

7. No-go / no-development activity alternative

The no-go alternative would involve not establishing the stockpile sites, construction camp areas, haul roads or Phase 2 geotechnical investigation access and test positions. This would avoid all direct temporary impacts associated with vegetation disturbance, topsoil stripping, stockpiling, dust, visual intrusion, noise, erosion risk and temporary access creation.

However, the no-go alternative would not meet the municipal project need. Surplus cut material would still need to be disposed of elsewhere, suitable fill material would need to be imported for future infrastructure projects, and the Phase 2 Geotechnical Assessment required to inform the Rand Street and Rosedale Main Extension design and EIA process would not be undertaken. This would undermine cost-effective infrastructure delivery and would remove the opportunity to reuse material within the municipal system.

Provide a motivation for the preferred activity alternative.

The preferred activity alternative is the temporary establishment and operation of five stockpile sites / construction camp areas on George Municipal Erf 325, together with associated temporary haul roads, temporary geotechnical access routes, Phase 2 geotechnical test pits and monitoring boreholes. This alternative is preferred because it best meets the municipal need for temporary material storage and geotechnical investigation while avoiding sensitive areas as far as practicable, mitigating unavoidable impacts, and maximising the positive municipal, environmental and socio-economic benefits of the proposal.

The activity is required to support George Municipality's planned infrastructure programme, in particular the Rand Street and Rosedale Main Extension projects. These projects require substantial volumes of suitable fill material, while other municipal projects generate surplus cut material that can be reused. The preferred activity allows the Municipality to retain this surplus material within its own infrastructure system, rather than disposing of it off-site and later importing commercial fill material. This represents a more sustainable and cost-effective use of municipal resources.

The preferred activity alternative is also motivated because it reduces broader environmental impacts associated with conventional spoil disposal and imported fill. By temporarily stockpiling and reusing suitable material close to the future road works, the Municipality can reduce haulage distances, truck movements, fuel use, emissions, dust, disposal pressure and material procurement requirements. The activity therefore supports the principle of resource efficiency and reduces unnecessary duplication of impacts.

From an environmental perspective, the preferred activity has been refined in response to specialist findings. The main stockpile and construction camp areas are located largely within transformed agricultural fields and previously disturbed areas dominated by exotic and invasive vegetation, rather than within intact valley-edge fynbos, wetlands, watercourses or wetland buffers. The initial layout was revised following aquatic, biodiversity, agricultural, visual and engineering input, and the final activity layout reduced and refined the stockpile areas and access routes to avoid sensitive features and municipal service constraints as far as practicable.

The preferred activity alternative gives effect to the mitigation hierarchy. Avoidance has been achieved by placing the larger activity footprints in lower-sensitivity transformed areas, avoiding current and future housing project areas and existing services, and setting stockpiles and haul roads away from wetlands and valley-edge fynbos where possible. Minimisation is achieved by limiting temporary access roads and geotechnical tracks to the minimum required width and extent, using existing roads and tracks wherever available, and restricting disturbance at test pits and boreholes to the smallest practical footprint.

Where impacts cannot be fully avoided, they can be mitigated through the EMPr and specialist recommendations. Required mitigation includes demarcation of approved footprints, no-go areas around sensitive features, ECO supervision, topsoil stripping and separate storage, use of suitable temporary road surfacing to prevent rutting, erosion and stormwater controls, dust suppression, spill prevention, waste management, alien invasive plant control, fauna search-and-rescue procedures, safe excavation practices, and rehabilitation after use.

The inclusion of the Phase 2 geotechnical investigation in the preferred activity alternative is also justified because it is necessary to inform the design and environmental assessment of the future Rand Street and Rosedale Main Extension project. These works are temporary, small-scale and reversible. Test pits will be backfilled after inspection, monitoring boreholes will be used only to monitor groundwater levels and water quality, and no groundwater abstraction is proposed. In sensitive areas, test positions and access routes must be micro-sited under ECO supervision, and hand excavation or portable drilling equipment must be used where required by specialist mitigation measures.

The preferred activity also has social and planning benefits. The stockpile and construction camp activities are temporary and support planned municipal road infrastructure that will improve access and connectivity between surrounding residential areas and the broader George urban, industrial and business network. Although temporary nuisance impacts such as dust, noise, traffic movement and visual intrusion may occur, these impacts are manageable through buffers, stockpile height restrictions, screening, speed control, dust control, access management, security and rehabilitation.

Alternative activities, such as off-site disposal of surplus material, importation of commercial fill, separate construction camp establishment elsewhere, unrestricted access creation, or the no-go alternative, were not preferred because they would either increase cost, create additional disturbance, reduce resource efficiency, transfer impacts elsewhere, or fail to meet the municipal infrastructure need. The preferred activity alternative provides the best balance between operational feasibility, environmental acceptability, cost-effectiveness and public infrastructure benefit.

Overall, the preferred activity alternative is motivated because it is temporary, practical, municipally controlled, environmentally informed, capable of rehabilitation, and aligned with the need to reuse municipal resources efficiently. With full implementation of the EMP and specialist mitigation measures, the residual impacts are expected to be localised, temporary and manageable, while the positive contribution to municipal infrastructure delivery and resource efficiency is maximised.

Provide a detailed motivation if no activity alternatives exist.

No additional activity alternatives are considered reasonable or feasible because the proposed activity is specifically required to meet a defined municipal infrastructure need: the temporary storage and reuse of surplus cut material from municipal projects, together with the Phase 2 geotechnical investigations required to inform the Rand Street and Rosedale Main Extension project.

The activity is not a discretionary development that could be replaced by a materially different land use. Its purpose is functional and project-specific. George Municipality requires temporary stockpile capacity close to the source and future use of the material so that suitable fill can be retained and reused for municipal road and infrastructure projects. The associated construction camp use is also directly linked to the implementation of the Rand Street and Rosedale Main Extension works. Similarly, the geotechnical test pits and monitoring boreholes are required to obtain site-specific engineering, groundwater and subsurface information for the future road design and separate Scoping and EIA process.

The only practical means of achieving this purpose is to temporarily stockpile the material, provide associated construction camp site space and undertake the necessary geotechnical investigations. Alternative activities such as disposing of the material off-site, importing commercial fill material, or not undertaking the geotechnical assessment would not meet the project need. Off-site disposal would treat reusable municipal material as waste, increase haulage distances, increase costs, increase truck movements, and create additional pressure on disposal facilities. Importing commercial fill would result in unnecessary procurement and transport impacts while surplus municipal material would still require disposal. The no-go option would avoid the temporary site impacts, but would not provide the required stockpile capacity, would not support resource-efficient municipal infrastructure delivery, and would prevent the collection of geotechnical information needed for proper design and environmental assessment of the future road extensions.

It is therefore reasonable that no fundamentally different activity alternatives were taken forward. Instead, the assessment appropriately focused on refining the manner in which the required activity will be undertaken. This included assessing and refining the stockpile footprints, construction camp locations, haul road alignments, temporary access tracks, geotechnical test positions and mitigation measures. The activity was amended through specialist input to avoid sensitive features as far as practicable, including wetland buffers, watercourses, valley-edge fynbos, faunal habitat features, visually sensitive residential interfaces, future housing areas and existing municipal services.

The absence of further activity alternatives is also justified by the temporary and reversible nature of the proposed works. The stockpile sites and haul roads will only be used for the duration required by the municipal infrastructure projects and will be rehabilitated thereafter. The geotechnical test pits are short-term interventions that will be backfilled after investigation, while monitoring boreholes will be used for groundwater monitoring only, with no abstraction proposed. The activity therefore does not result in a permanent alternative land use but provides temporary infrastructure-support functions subject to strict environmental management.

The preferred activity gives effect to the mitigation hierarchy by avoiding sensitive areas where possible, limiting disturbance to defined temporary footprints, using existing roads and tracks wherever available, micro-siting geotechnical works under ECO supervision, protecting topsoil, managing erosion and stormwater, controlling dust and visual impacts, preventing pollution, managing alien invasive plants, protecting fauna, and rehabilitating all disturbed areas after use.

Accordingly, the exclusion of additional activity alternatives is considered reasonable and defensible. The proposed activity is the only feasible activity capable of meeting the municipal need, while the alternatives assessment has still been meaningful because it considered different layout, access and implementation options within the required activity. The final preferred activity therefore represents the most appropriate way to avoid negative impacts, mitigate unavoidable temporary impacts, and maximise the positive benefits of resource reuse, cost-effective municipal service delivery, reduced disposal requirements, reduced need for imported fill, and support for future road infrastructure.

List the positive and negative impacts that the activity alternatives will have on the environment.

Preferred activity alternative: temporary stockpiling, construction camp use, haul roads and geotechnical investigations
Positive impacts

- **Efficient reuse of municipal material:** Surplus cut material from municipal infrastructure projects can be stored and reused as fill material for future road and infrastructure works, instead of being disposed of as waste.

- **Reduced need for imported fill:** The activity reduces reliance on commercial fill material from external sources, thereby reducing extraction, procurement and transport requirements.
- **Reduced transport-related impacts:** Reuse of material close to the Rand Street and Rosedale Main Extension projects reduces haulage distances, truck trips, fuel use, emissions, dust and pressure on the road network.
- **Reduced pressure on disposal facilities:** Less reusable material will need to be transported to spoil or disposal sites.
- **Use of already disturbed areas:** The final activity layout places the main stockpile and construction camp areas mainly within transformed agricultural fields and disturbed areas, avoiding intact fynbos, wetland areas and wetland buffers as far as practicable.
- **Temporary and reversible disturbance:** The stockpile, construction camp site, haul road and geotechnical access impacts are temporary and can be rehabilitated after use.
- **Improved information for future infrastructure planning:** The Phase 2 geotechnical test pits and monitoring boreholes will provide site-specific subsurface and groundwater information required to inform responsible design and assessment of the future Rand Street and Rosedale Main Extension project.
- **Support for municipal service delivery:** The activity supports more cost-effective implementation of public infrastructure and indirectly supports improved future access and connectivity in the George municipal area.

Negative impacts

- **Temporary vegetation and soil disturbance:** Establishment of stockpiles, construction camps, haul roads, geotechnical access tracks, test pits and boreholes will disturb vegetation and topsoil.
- **Compaction and erosion risk:** Vehicle movement, stockpiling and temporary road creation may compact soils and increase erosion, especially on slopes and where soils drain toward wetlands and watercourses.
- **Risk to wetlands and watercourses:** Sediment, runoff, hydrocarbons, dust or waste could enter aquatic systems if not properly managed.
- **Biodiversity disturbance:** Geotechnical access and investigation points may affect valley-edge fynbos, remnant indigenous vegetation, faunal habitat and biodiversity priority areas if not micro-sited and controlled.
- **Faunal disturbance:** Construction activities may disturb ground-dwelling fauna, birds, small mammals, amphibians and invertebrates, including areas where golden mole tunnels or suitable habitat for sensitive species may occur.
- **Alien invasive plant spread:** Disturbed soils and vehicle movement can encourage alien invasive plant establishment and spread.
- **Dust and air quality nuisance:** Exposed soils, haul roads and stockpile handling may generate dust, particularly during dry or windy conditions.
- **Noise and traffic disturbance:** Trucks, earthmoving machinery, drilling equipment and construction camp activities may create temporary nuisance and safety risks.
- **Visual intrusion and sense-of-place impacts:** Stockpiles and construction camps may be visible from nearby residential areas, particularly Sites 1, 4 and 5, resulting in temporary visual and amenity impacts.
- **Pollution risk:** Construction camps, machinery and vehicles may create risks of fuel, oil, chemical or waste contamination if not properly controlled.

Other activity alternatives

Off-site disposal of surplus material

Positive impacts

- Avoids some temporary stockpiling impacts on Erf 325.
- Reduces the need for temporary stockpile management, visual screening and rehabilitation on the preferred site.

Negative impacts

- Treats reusable municipal material as waste.
- Increases haulage distances, truck movements, fuel use, emissions, dust and road safety risks.
- Increases disposal costs and pressure on disposal or spoil facilities.
- Transfers environmental impacts to another site rather than avoiding them.
- Removes the opportunity to reuse material for future municipal infrastructure projects.

Importation of commercial fill material

Positive impacts

- May reduce the need to store large volumes of material on site if surplus municipal material is not reused.
- Provides engineered material from an external source if required for specific construction specifications.

Negative impacts

- Increases extraction impacts at borrow pits or commercial material sources.
- Increases procurement, transport, fuel, emissions, dust and traffic impacts.
- Does not solve the need to dispose of surplus cut material generated by municipal projects.
- Creates a duplicated impact: disposal of usable material and importation of replacement material.

Separate construction camps outside the stockpile footprints

Positive impacts

- Could allow construction camp sites to be located away from specific sensitive receptors if suitable land were available.

Negative impacts

- Creates additional disturbance footprints.

- Requires additional access, servicing, waste management and rehabilitation areas.
- Increases the risk of impacts on unassessed land.
- Is less efficient than consolidating construction camp site functions within the assessed stockpile footprints.

No-go alternative

Positive impacts

- Avoids direct temporary impacts from stockpiling, haul roads, construction camps, test pits and boreholes on Erf 325.
- Avoids temporary dust, noise, visual intrusion, vegetation disturbance and soil disturbance on the preferred site.

Negative impacts

- Does not meet the municipal need for temporary storage and reuse of surplus material.
- Increases the likelihood that reusable material will be disposed of off-site.
- Increases future reliance on imported commercial fill.
- Increases municipal infrastructure delivery costs.
- Prevents the Phase 2 geotechnical assessment required to inform the Rand Street and Rosedale Main Extension design and separate EIA process.
- Reduces the opportunity for more efficient, sustainable and cost-effective municipal service delivery.

Overall conclusion

The preferred activity alternative has the most favourable environmental balance because it maximises the reuse of municipal material, reduces off-site disposal and imported fill requirements, supports future infrastructure delivery, and confines the main activity footprint to transformed areas.

The negative impacts are mainly temporary, localised and manageable through the EMPr, specialist mitigation measures, ECO supervision, footprint demarcation, erosion and stormwater controls, dust suppression, fauna protection, alien invasive plant control and rehabilitation. Thus, the preferred activity alternative is environmentally preferable to off-site disposal, imported fill, separate construction camp site establishment or the no-go alternative.

1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts
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Provide a description of the preferred design or layout alternative.

The design and layout alternatives were considered and refined within George Municipal Erf 325 to identify the most appropriate arrangement of stockpile sites, construction camp areas, haul roads, geotechnical access tracks, test pits and monitoring boreholes. The purpose of considering design and layout alternatives was to ensure that the proposed activity could meet the operational need for temporary stockpiling and site-specific geotechnical investigation, while avoiding sensitive environmental and social receptors as far as practicable.

Initial design / layout alternative

The initial layout comprised a larger arrangement of potential stockpile sites / construction camp areas and associated haul roads identified by the engineering team. This layout was primarily informed by the need to provide sufficient temporary storage capacity for surplus cut material, construction camp site space and access for heavy vehicles and machinery, within area not affected by current services, planned housing or other planned uses. The initial layout was circulated to the appointed specialists to determine whether any of the proposed areas should be avoided, reduced, buffered or amended.

The initial layout was not preferred in its original form because specialist input identified potential sensitivities associated with wetland buffers, watercourses, valley-edge fynbos, steep slopes, faunal habitat features, residential receptors and existing or planned municipal services. The initial layout therefore had a greater potential to result in avoidable impacts and was used as the starting point for refinement rather than as the final preferred layout.

Specialist-informed revised layout

Following the initial specialist review, the layout was amended to reduce the stockpile footprint and avoid sensitive areas where possible. The revised layout directed the main stockpile / construction camp areas towards transformed agricultural fields and disturbed areas, rather than remnant fynbos, wetlands, watercourses or wetland buffer areas. This revision also considered the agricultural assessment, which confirmed that the proposed stockpile areas are not used for formal agriculture and that impacts would be temporary and reversible with topsoil management and rehabilitation.

This revised layout improved the environmental acceptability of the proposal by reducing direct impacts on biodiversity features, avoiding more sensitive habitats, reducing the risk of sediment movement into aquatic systems, and improving the potential for post-use rehabilitation.

Aquatic-buffer-informed layout

A further design alternative was considered after incorporating the aquatic sensitivity information and wetland buffer areas. This layout was important because it showed where stockpile areas and access routes could interact with aquatic features. The application of buffer areas resulted in further refinement of the proposed layout, particularly in relation to haul roads and access routes that could otherwise encroach into wetland buffers.

The aquatic-buffer-informed layout was not adopted unchanged because some access routes still showed potential encroachment into wetland buffer areas. However, it directly influenced the preferred layout by requiring haul roads to be realigned outside wetland buffers where possible, stockpile areas to be restricted to lower-gradient areas at least

50 m from delineated wetland edges as far as practicable, and runoff, erosion and sediment-control measures to be incorporated into the EMPr.

Final preferred design / layout alternative

The final preferred layout comprises five temporary stockpile / construction camp areas, associated temporary haul roads, and the Phase 2 Geotechnical Assessment test positions and access routes. This is the preferred design alternative because it provides the required temporary stockpile capacity while avoiding or reducing impacts on the most sensitive environmental and social features.

The preferred layout **avoids** negative impacts by:

- locating the main stockpile and construction camp areas mainly within transformed agricultural fields and previously disturbed areas;
- avoiding wetland buffers, watercourses and valley-edge fynbos as far as practicable;
- avoiding current and future municipal housing project areas;
- avoiding existing municipal service infrastructure, including electrical engineering service constraints;
- using existing roads, paths and disturbed tracks wherever possible;
- limiting new temporary haul roads to the minimum practical width and length;
- restricting geotechnical test pit and borehole footprints to the minimum required area;
- micro-siting geotechnical investigation points and access routes under ECO supervision;
- avoiding active golden mole tunnels, sensitive plants, nests and other faunal habitat features where practicable; and
- keeping stockpile and construction camp areas away from residential receptors where possible.

Where impacts cannot be fully avoided, the preferred layout includes **mitigation to reduce impacts to acceptable levels**. This includes demarcation and fencing of approved footprints, designation of no-go areas, topsoil stripping and storage, use of temporary road surfacing where required, stormwater controls, silt fencing or topsoil berms, erosion control, dust suppression, stockpile height restrictions, screening of construction camps, hazardous substance management, spill response, waste management, fauna search-and-rescue procedures, and rehabilitation of disturbed areas after use.

Visual mitigation measures

The mitigation measures required by the visual specialist in relation to residential dwellings was further added to the proposed layout and certain height restrictions, distance buffers and screening were required on the layout.

The visual and social sensitivities influenced the final layout and mitigation. Sites 1, 4 and 5 are closer to residential receptors and therefore require stricter visual and dust mitigation, including reduced stockpile heights, buffers, dust suppression, screening and rehabilitation. Site 4 requires particular attention because of its proximity to residential units and the need for dedicated screening. Sites 2 and 3 are comparatively lower-risk from a visual and residential amenity perspective.

Geotechnical access and layout alternatives

The design alternative for the Phase 2 Geotechnical Assessment is based on a least-disturbance approach. Existing roads and tracks must be used wherever possible. Where existing access is not available or is too narrow, temporary tracks may be created or widened only to the minimum required extent, generally approximately 5 m wide. Where steep slopes, wetlands, watercourses or sensitive vegetation are present, access routes must be selected in consultation with the ECO and must follow less sensitive, lower-gradient and previously disturbed areas wherever possible and make use of the least disturbance methods.

Lower-impact investigation methods must be used where required, including hand excavation or portable drilling equipment in sensitive areas. Test pits must be backfilled immediately after investigation, topsoil must be stored and replaced correctly, monitoring boreholes must be made safe, and no groundwater abstraction is proposed.

How the preferred design maximises positive impacts

The preferred design maximises positive impacts by enabling George Municipality to reuse surplus municipal cut material as fill for future road and infrastructure projects. This reduces disposal requirements, reduces the need for imported commercial fill, reduces haulage distances, lowers costs, reduces fuel use and emissions, and supports more sustainable municipal service delivery. The consolidation of construction camp functions within the assessed stockpile footprints also avoids creating additional disturbance elsewhere.

Overall conclusion

The preferred design and layout alternative is the result of a progressive refinement process. The original engineering layout was amended in response to specialist findings, aquatic buffer requirements, visual and residential sensitivities, biodiversity constraints, municipal service requirements and future land-use considerations. The final layout is therefore the alternative that best avoids negative impacts, mitigates unavoidable temporary impacts and maximises the positive municipal, environmental and socio-economic benefits of the proposal.

Provide a description of any other design or layout alternatives investigated.

None applicable to the required activity

Provide a motivation for the preferred design or layout alternative.

The preferred design/layout alternative is motivated because it represents the most environmentally responsive and technically practical configuration of the proposed stockpile sites, construction camp areas, haul roads and geotechnical investigation

access routes. The layout was progressively refined from the initial engineering proposal through specialist input to avoid wetland buffers, watercourses, valley-edge fynbos, sensitive faunal habitat, residential receptors, future housing areas and existing municipal services as far as practicable.

The preferred layout places the main stockpile and construction camp site footprints within transformed agricultural fields and previously disturbed areas, while using existing roads and tracks wherever possible and limiting new temporary access to the minimum required width and extent. Where impacts cannot be fully avoided, the layout allows for effective mitigation through ECO supervision, footprint demarcation, topsoil management, erosion and stormwater controls, dust suppression, visual screening, stockpile height restrictions and rehabilitation after use.

The preferred design is therefore supported because it achieves the best balance between meeting the municipal need for temporary material storage and geotechnical investigation, avoiding sensitive environmental features, reducing temporary social and visual impacts, and maximising the positive benefits of reusing surplus municipal material for future infrastructure works.

Provide a detailed motivation if no design or layout alternatives exist.

Alternatives considered and described above

List the positive and negative impacts that the design alternatives will have on the environment.

Positive impacts

- **Avoidance of sensitive aquatic features:** The preferred layout was refined to avoid wetlands, watercourses and wetland buffers as far as practicable. Stockpile areas were restricted to lower-gradient areas and haul roads were realigned where possible to reduce encroachment into aquatic buffer areas.
- **Avoidance of sensitive terrestrial biodiversity features:** The preferred design places the main stockpile and construction camp areas mainly within transformed agricultural fields and disturbed areas, rather than within valley-edge fynbos or higher-sensitivity biodiversity areas.
- **Reduced impact on plant species and terrestrial biodiversity:** By locating the stockpile footprints outside intact fynbos remnants and areas likely to support Species of Conservation Concern, the design reduces the likelihood of permanent biodiversity loss.
- **Reduced faunal disturbance:** The layout allows for micro-siting of geotechnical test pits, boreholes and access routes to avoid golden mole tunnels, nests, dense faunal habitat and other sensitive features where practicable.
- **Use of existing roads and tracks:** The design prioritises existing access routes and disturbed surfaces, which reduces the need for new vegetation clearance, soil disturbance and habitat fragmentation.
- **Reduced erosion and sedimentation risk:** By directing stockpile areas to flatter, lower-gradient land and requiring temporary road surfacing, stormwater controls, topsoil management and rehabilitation, the preferred layout reduces the risk of erosion and sediment movement towards wetlands and watercourses.
- **Reduced visual and amenity impacts:** The preferred layout responds to nearby residential receptors by incorporating buffers, stockpile height restrictions, construction camp setbacks, screening and rehabilitation, particularly at Sites 1, 4 and 5.
- **Protection of municipal planning and services:** The final layout avoids known future housing project areas and existing municipal service infrastructure, reducing the risk of conflict with future land use and municipal operations.
- **Consolidation of disturbance:** Construction camp functions are accommodated within the assessed stockpile footprints, avoiding the need for additional construction camp site areas elsewhere.
- **Temporary and reversible footprint:** The design allows the stockpile, haul road and geotechnical access areas to be rehabilitated after use, reducing long-term environmental impact.

Negative impacts

- **Temporary vegetation clearance:** Even with the preferred layout, some vegetation and topsoil will be disturbed for stockpile areas, haul roads, geotechnical access tracks, test pits and boreholes.
- **Disturbance in sensitive geotechnical areas:** Some geotechnical investigation points and access routes may still occur near or within valley-edge fynbos, wetland-associated areas or mapped biodiversity priority areas, requiring strict micro-siting and ECO supervision.
- **Soil compaction:** Vehicle movement, stockpiling and temporary access creation may compact soils, especially within stockpile and haul road footprints.
- **Erosion risk:** The site contains shallow, erosion-prone soils and areas that drain towards valley-bottom wetlands. Disturbance on slopes or exposed soils may increase runoff and sediment movement if not properly managed.
- **Aquatic impact risk:** Although direct impacts are avoided where possible, runoff, sediment, dust, hydrocarbons or waste could still affect wetlands and watercourses if mitigation is not implemented.
- **Alien invasive plant spread:** Soil disturbance and vehicle movement may encourage alien invasive plant establishment or spread, particularly in already disturbed areas and along access routes.
- **Faunal disturbance:** Temporary work may disturb ground-dwelling fauna, birds, amphibians, invertebrates and small mammals, including areas where golden mole activity has been recorded or where suitable habitat occurs.
- **Dust generation:** Stockpile handling, exposed surfaces and vehicle movement may generate dust, especially during dry or windy conditions and near residential receptors.
- **Noise and traffic nuisance:** Haul roads, construction camp activity, geotechnical drilling and earthmoving equipment may create temporary noise, movement and safety impacts.
- **Visual intrusion:** The stockpiles and construction camp sites will temporarily introduce a construction-related visual character, especially where located close to residential receptors at Sites 1, 4 and 5.
- **Pollution risk:** Construction camp sites, vehicles, machinery and stockpile operations may create risks of hydrocarbon spills, waste mismanagement or contamination if controls are not applied.

Overall conclusion

The design/layout alternatives have both positive and negative environmental implications. The initial layouts had greater potential to affect wetland buffers, valley-edge fynbos, sensitive faunal habitat, residential receptors and municipal services.

The preferred layout is environmentally preferable because it was refined through specialist input to place the main disturbance in transformed areas, use existing access where possible, avoid sensitive features, minimise temporary disturbance and allow rehabilitation after use. The remaining negative impacts are expected to be temporary, localised and manageable, provided that all EMPs and specialist mitigation measures are implemented.

1.4.	Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
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Provide a description of the preferred technology alternative:

The preferred technology alternative is the use of **temporary, low-impact construction and stockpile management methods** that maximise the reuse of existing municipal material while minimising new resource demand. This includes temporarily stockpiling suitable surplus cut material from municipal infrastructure projects on George Municipal Erf 325 so that it can be reused as fill material for the Rand Street and Rosedale Main Extension projects and other future municipal infrastructure works.

This option reduces resource demand by avoiding the unnecessary disposal of reusable material and reducing the need to import commercial fill from external borrow pits or suppliers. It also improves resource-use efficiency by keeping material within the municipal infrastructure system, reducing haulage distances, reducing fuel use and emissions, and lowering the cost of both disposal and procurement.

The preferred technology approach also includes practical low-impact methods for site establishment and management, including:

- using existing roads, tracks and disturbed surfaces wherever possible;
- limiting new temporary haul roads and access tracks to the minimum required width and length;
- using G5 or other suitable temporary surfacing where needed to prevent rutting and erosion;
- stripping and storing topsoil separately for later rehabilitation;
- using temporary stormwater controls, silt fencing, seeded topsoil berms or windrows to manage runoff and sediment;
- placing excavated soil on tarpaulins or geofabric during geotechnical investigations;
- using hand excavation or portable drilling equipment in sensitive areas where required;
- using monitoring boreholes for groundwater level and water-quality monitoring only, with no groundwater abstraction;
- using municipal water sources only where water is required for dust suppression or construction purposes;
- using bunded fuel and hazardous substance storage, drip trays, spill kits and regular vehicle leak checks;
- implementing dust suppression, speed control, stockpile shaping and revegetation; and
- rehabilitating stockpile, construction camp sites, haul road and temporary access areas after use.

This technology option therefore applies the mitigation hierarchy by avoiding unnecessary new material extraction, minimising disturbance, preventing pollution, reducing erosion and dust, and enabling rehabilitation.

Provide a description of any other technology alternatives investigated.

Other technology alternatives considered or implied include the following:

1. Off-site disposal technology / conventional spoil removal

This option would involve removing surplus cut material from municipal projects and transporting it to an approved spoil or disposal facility. It was not preferred because it would treat potentially reusable material as waste, increase truck trips, fuel consumption, emissions, dust, road safety risks and pressure on disposal facilities. It would also increase project costs and remove the opportunity to reuse the material beneficially for future municipal works.

2. Importation of commercial fill material

This option would involve sourcing fill from external commercial suppliers or borrow areas instead of reusing municipal cut material. It was not preferred because it would increase extraction impacts elsewhere, increase transport distances, increase project costs, and duplicate environmental impacts: usable material would still require disposal while replacement material would be imported from elsewhere.

3. More intensive access creation and heavy plant access

A more intensive technology option would involve creating wider or more permanent haul roads and allowing unrestricted heavy vehicle access to all stockpile and geotechnical positions. This was not preferred because it would increase vegetation clearance, soil compaction, erosion risk, sediment movement toward wetlands and watercourses, disturbance of faunal habitat and rehabilitation requirements. The preferred approach instead uses existing access wherever possible and limits new temporary access to the smallest practical footprint.

4. Standard mechanical geotechnical investigation only

A conventional approach would rely only on TLBs, excavators and drill rigs to access all test pit and borehole positions. This option was not preferred for sensitive areas because it could cause unnecessary disturbance to wetland buffers, valley-edge fynbos, steep slopes and faunal habitat. The preferred technology alternative allows for hand excavation and portable drilling equipment where required by specialist mitigation measures.

5. No reuse / no stockpile option

Under this option, no temporary stockpiling and reuse system would be implemented. Although this would avoid temporary disturbance at the stockpile sites, it would not address the municipal need for fill material, would increase reliance on off-site disposal and imported commercial fill, and would reduce the resource-efficiency and cost-saving benefits of the project.

Provide a motivation for the preferred technology alternative.

The preferred technology alternative is motivated because it provides the most resource-efficient and environmentally responsible method of meeting the project need. It allows George Municipality to reuse suitable surplus cut material from municipal infrastructure projects rather than disposing of it as waste and later importing replacement fill. This directly reduces resource demand, transport impacts, disposal pressure, fuel use, emissions and project costs.

It is also preferred because the technology and methods proposed are temporary, reversible and capable of rehabilitation. The approach limits the disturbance footprint by using existing infrastructure wherever possible, restricting new haul roads and access tracks to the minimum required, and using lower-impact methods such as hand excavation, portable drilling, tarpaulins/geofabric, temporary surfacing and ECO-directed micro-siting in sensitive areas.

The preferred technology alternative also responds directly to the site constraints identified by the specialists. It reduces erosion and sedimentation risks through topsoil management, temporary stormwater controls, silt fencing and rehabilitation. It reduces aquatic and groundwater risks through pollution prevention, bunded storage, spill controls, no abstraction from rivers or groundwater, and monitoring boreholes. It reduces social and visual impacts through dust suppression, speed limits, stockpile shaping, screening and height restrictions near sensitive receptors.

Overall, the preferred technology alternative is favoured because it maximises the positive environmental and socio-economic benefits of material reuse and cost-effective municipal service delivery, while avoiding and mitigating negative impacts associated with vegetation disturbance, erosion, dust, water pollution, traffic, visual intrusion and rehabilitation failure. With full implementation of the EMPr and specialist mitigation measures, this technology alternative represents the best balance between operational practicality, environmental protection and resource-use efficiency

Provide a detailed motivation if no alternatives exist.

Alternatives considered above

List the positive and negative impacts that the technology alternatives will have on the environment.

Preferred technology alternative: reuse of surplus municipal material with low-impact temporary stockpile, access and geotechnical methods

Positive impacts

- Reduces the need to dispose of reusable cut material at off-site spoil or disposal facilities.
- Reduces the need to import commercial fill material from external borrow areas or suppliers.
- Reduces haulage distances, truck movements, fuel consumption, emissions, dust generation and road-related disturbance.
- Makes efficient use of material already generated by municipal infrastructure projects.
- Reduces cumulative impacts through pressure on disposal facilities and external material sources.
- Supports cost-effective municipal infrastructure delivery and improved resource efficiency.
- Allows temporary use of municipal land rather than requiring new permanent infrastructure or additional land disturbance elsewhere.
- Uses existing roads, tracks and disturbed surfaces wherever possible, thereby reducing new vegetation clearance and soil disturbance.
- Limits new temporary haul roads and geotechnical access tracks to the minimum practical width and extent.
- Allows for lower-impact investigation methods, including micro-siting, hand excavation and portable drilling equipment in sensitive areas where required.
- Protects soil resources through topsoil stripping, separate storage, replacement and rehabilitation.
- Reduces erosion and sedimentation risk through temporary surfacing, silt controls, stormwater management and post-use rehabilitation.
- Protects groundwater and surface water by avoiding abstraction and requiring spill prevention, drip trays, bunded storage and monitoring boreholes.
- Enables disturbed areas to be rehabilitated after use, reducing long-term environmental effects.

Negative impacts

- Temporary vegetation clearance and soil disturbance will still occur within stockpile, haul road, construction camp site and geotechnical access footprints.
- Heavy vehicles and machinery may compact soils, especially within haul roads and stockpile working areas.
- Temporary access creation may increase erosion risk, particularly on slopes or shallow duplex soils.
- Exposed soil, stockpiled material and vehicle movement may generate dust, particularly during dry or windy conditions.
- Runoff from stockpile or access areas could carry sediment towards wetlands and watercourses if controls are not properly implemented.
- Machinery, fuel storage and construction camp activities create a risk of hydrocarbon or hazardous substance contamination if poorly managed.
- Temporary stockpiling and construction camp site activities may create visual intrusion, noise and traffic disturbance near residential receptors.
- Disturbed areas may encourage alien invasive plant establishment if rehabilitation and follow-up control are not implemented.

- Geotechnical access and test positions may temporarily disturb sensitive vegetation or faunal habitat if micro-siting is not properly applied.

Alternative technology: off-site disposal of surplus material

Positive impacts

- Avoids the need for some temporary stockpile storage on Erf 325.
- Reduces site-specific visual, dust and soil disturbance impacts associated with temporary stockpiling on the preferred site.

Negative impacts

- Treats reusable municipal material as waste rather than as a resource.
- Increases haulage distances, truck trips, fuel use, emissions, dust and traffic safety risks.
- Places additional pressure on spoil or disposal facilities.
- Transfers environmental impacts to another location rather than avoiding them.
- Increases municipal project costs and reduces resource-use efficiency.
- Does not support reuse of material for future municipal infrastructure projects.

Alternative technology: importation of commercial fill material

Positive impacts

- Provides access to commercial engineered fill material where specific material specifications are required.
- May reduce short-term reliance on on-site stockpiled material.

Negative impacts

- Increases demand for material extraction from borrow pits or commercial sources.
- Increases procurement, transport, fuel use, emissions and dust impacts.
- Does not resolve the need to manage surplus cut material generated by municipal projects.
- Creates a duplicated impact, as reusable material would still require disposal while replacement material is sourced elsewhere.
- Increases infrastructure delivery costs.

Alternative technology: wider or more permanent access routes and unrestricted heavy plant access

Positive impacts

- May provide easier construction access and manoeuvring for heavy vehicles and machinery.
- Could reduce operational constraints for contractors.

Negative impacts

- Requires greater vegetation clearance and soil stripping.
- Increases soil compaction and erosion risk.
- Increases sediment movement towards wetlands and watercourses.
- Creates a larger rehabilitation liability.
- Increases the risk of disturbance to valley-edge fynbos, faunal habitat and sensitive features.
- Is less consistent with the mitigation hierarchy than temporary, narrow, controlled access routes.

Alternative technology: conventional mechanical-only geotechnical investigation

Positive impacts

- May be quicker and simpler from an engineering implementation perspective.
- Allows standard machinery such as TLBs, excavators and drill rigs to be used throughout.

Negative impacts

- Could result in unnecessary access creation in sensitive areas.
- Increases the risk of disturbance to wetland buffers, valley-edge fynbos, steep slopes and fauna habitat.
- Increases soil compaction, vegetation damage and erosion risk.
- Does not adequately respond to specialist recommendations for hand excavation, portable drilling or ECO-directed micro-siting in sensitive locations.

No-reuse / no-stockpile technology option

Positive impacts

- Avoids temporary stockpile-related disturbance on the preferred site.
- Avoids temporary visual, dust and construction-camp impacts associated with the stockpile areas.

Negative impacts

- Does not meet the municipal need to retain and reuse suitable fill material.
- Increases reliance on off-site disposal and imported commercial fill.
- Increases municipal infrastructure costs.
- Increases overall transport-related environmental impacts.
- Reduces the positive resource-efficiency and sustainability benefits of the proposal.

The preferred technology alternative has the most favourable environmental balance because it reduces resource demand, maximises reuse of municipal material, limits transport-related impacts, uses temporary and low-impact methods, and allows disturbed areas to be rehabilitated.

The negative impacts are mainly temporary, localised and manageable through EMP controls, ECO supervision, topsoil management, erosion and stormwater controls, dust suppression, pollution prevention, micro-sifting and rehabilitation.

By comparison, the other technology alternatives either transfer impacts elsewhere, increase resource demand, increase transport impacts, or create larger disturbance footprints.

1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
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Provide a description of the preferred operational alternative.

The preferred operational alternative is the **short-term, controlled use of the five approved stockpile sites / construction camp areas as temporary departure uses**, linked to municipal infrastructure implementation and material reuse. The stockpile sites are not intended to operate as long-term or permanent spoil sites, waste disposal areas, borrow pits, commercial material yards or permanent municipal depots. Their function is limited to the temporary storage, management and removal of suitable surplus cut material for reuse in municipal road and infrastructure projects, particularly the Rand Street and Rosedale Main Extension projects. The impacts associated with operational short-term uses have been avoided or mitigated as indicated below.

The **Phase 2 geotechnical assessment is not an operational activity**. It is a short-term investigation activity required to inform the design and separate environmental assessment process for the Rand Street and Rosedale Main Extension project. Test pits will be excavated, inspected and backfilled, and monitoring boreholes will be installed for groundwater level and quality monitoring only. These activities do not form part of the ongoing operation of the stockpile sites and no water abstraction is proposed.

The preferred operating approach is therefore based on strict temporary site control, including:

- use of only the approved five stockpile / construction camp footprints;
- controlled access via approved haul roads and existing roads/tracks where available;
- stockpiling only of suitable clean cut material generated from municipal infrastructure projects;
- no acceptance of general waste, hazardous waste, contaminated spoil or unauthorised fill;
- use of sites only for the duration required by the municipal project need;
- dust suppression and speed control on haul roads;
- stormwater and erosion controls to prevent sediment movement into wetlands and watercourses;
- stockpile height limits, especially near residential receptors;
- buffers and screening where required;
- safe storage of fuels and hazardous substances within construction camp areas;
- provision of adequate sanitation, waste skips and litter controls;
- site security to prevent illegal dumping and unauthorised access;
- ECO monitoring and compliance with the EMP; and
- full rehabilitation of the stockpile, construction camp site and temporary access areas after use.

This preferred operational alternative avoids negative impacts by limiting the use to temporary, approved and demarcated areas, excluding waste disposal and long-term industrial use, and ensuring that the activity remains linked to municipal infrastructure delivery rather than becoming a permanent land-use change.

Provide a description of any other operational alternatives investigated.

Operational alternatives considered

1. Preferred controlled short-term operation of the stockpile sites

This is the preferred operational alternative. It allows the Municipality to temporarily receive, store and reuse suitable surplus construction material under controlled conditions, with access, stormwater, dust, waste, visual, safety and rehabilitation measures regulated through the EMP. This alternative provides the required operational flexibility while ensuring that the use remains temporary and reversible.

2. Uncontrolled or extended stockpile operation

An alternative would be to allow stockpiling to continue without strict time limits, site controls, material controls or rehabilitation triggers. This alternative is not preferred because it could result in the sites effectively becoming long-term spoil areas or informal depots, with increased risk of dust, visual intrusion, erosion, alien invasive plant spread, illegal dumping, uncontrolled vehicle movement and loss of rehabilitation opportunity.

3. Operation as a permanent municipal storage / depot area

Another operational alternative would be to convert the sites into permanent municipal material storage or depot areas. This is not preferred because the current proposal is for temporary departure use only. A permanent depot-type use would represent a different land-use outcome, could result in permanent visual and amenity impacts, longer-term traffic and dust impacts, greater hardening of surfaces, and possible additional planning and environmental requirements.

4. Off-site operational management of surplus material

This alternative would involve removing surplus material directly from project sites to an off-site spoil or disposal facility, or to another storage area outside Erf 325. This is not preferred because it would increase haulage distances, fuel use, emissions, dust, road traffic impacts, disposal costs and pressure on disposal facilities. It would also reduce the resource-efficiency benefit of retaining and reusing suitable material within the municipal system.

5. No operational use of the stockpile sites

Under this alternative, the stockpile sites would not be operated. This would avoid temporary operational impacts on Erf 325, but would not meet the municipal need for short-term material storage and reuse. Surplus material would need to be disposed of elsewhere, and suitable fill would likely need to be imported for future municipal projects.

Provide a motivation for the preferred operational alternative.

The preferred operational alternative is motivated because it provides the best balance between municipal operational need, environmental protection, social acceptability and rehabilitation potential. It allows George Municipality to use municipal land for a short-term and controlled purpose that supports infrastructure delivery, while avoiding permanent land-use change and preventing the sites from becoming unmanaged spoil or waste areas.

The preferred alternative maximises positive impacts by enabling the reuse of suitable surplus material, reducing disposal requirements, reducing the need to import commercial fill, lowering haulage distances, reducing costs and supporting more sustainable municipal service delivery. It also consolidates temporary construction-related activities within assessed footprints rather than dispersing disturbance across additional sites.

At the same time, unavoidable operational impacts can be mitigated through enforceable management measures. These include demarcation, material controls, access control, dust suppression, speed limits, stormwater management, erosion controls, stockpile height limits, visual screening, waste management, hazardous substance controls, site security, ECO monitoring and rehabilitation. The temporary departure nature of the use is central to its acceptability, because it ensures that the land is not permanently transformed and that disturbed areas can be reinstated after use.

Provide a detailed motivation if no alternatives exist.

Operational alternatives have been considered.

List the positive and negative impacts that the operational alternatives will have on the environment.

Preferred controlled short-term operational alternative

Positive impacts

- Enables reuse of suitable municipal cut material as fill for future infrastructure projects.
- Reduces off-site disposal requirements and pressure on disposal facilities.
- Reduces the need to import commercial fill material.
- Reduces transport distances, truck trips, fuel use, emissions and dust compared with off-site disposal/importation.
- Keeps the activity within approved and assessed footprints.
- Allows temporary use of municipal land without permanent land-use conversion.
- Enables implementation of access control, dust control, stormwater controls and rehabilitation.
- Supports cost-effective municipal service delivery and future road infrastructure.

Negative impacts

- Temporary dust generation from exposed material, haul roads and vehicle movement.
- Temporary noise and traffic from trucks, machinery and construction camp activity.
- Temporary visual intrusion and altered sense of place near residential receptors.
- Soil compaction within stockpile and haul road footprints.
- Risk of erosion and sediment movement toward wetlands and watercourses if controls fail.
- Risk of hydrocarbon spillages or waste mismanagement if construction camp site controls are not implemented.
- Risk of alien invasive plant spread on disturbed soils.
- Need for active rehabilitation and follow-up monitoring after closure.

Uncontrolled or extended stockpile operation

Positive impacts

- Provides operational flexibility and longer material storage availability.
- May reduce immediate pressure to remove material quickly.

Negative impacts

- Increased risk of sites becoming permanent spoil or depot areas.
- Greater dust, visual, traffic and noise impacts over a longer period.
- Increased erosion, compaction and alien invasive plant risks.
- Increased risk of illegal dumping and unauthorised access.
- Reduced likelihood of successful rehabilitation.
- Less compliance with the temporary departure-use purpose of the proposal.

Permanent municipal depot / long-term storage alternative

Positive impacts

- Provides a long-term municipal material management facility.
- Could support future municipal logistics if separately planned and authorised.

Negative impacts

- Represents a permanent land-use change rather than a temporary departure use.
- Would likely increase long-term visual, dust, noise and traffic impacts.
- May require additional planning and environmental approvals.
- Could permanently alter the character and use of Erf 325.

- Would reduce the reversibility of the current proposal.

Off-site operational management alternative

Positive impacts

- Avoids operational stockpile impacts on Erf 325.
- Reduces localised visual and dust impacts at the preferred stockpile sites.

Negative impacts

- Increases haulage distances, truck movements, emissions, dust and road safety risks.
- Increases disposal and material procurement costs.
- Transfers environmental impacts to another site.
- Reduces resource-use efficiency.
- Does not maximise reuse of municipal material close to the future infrastructure works.

No operational use alternative

Positive impacts

- Avoids temporary operational impacts on Erf 325.
- Avoids stockpile-related dust, noise, visual and traffic impacts on nearby receptors.

Negative impacts

- Does not meet the municipal need for temporary material storage and reuse.
- Increases reliance on off-site disposal and imported fill.
- Increases municipal infrastructure costs.
- Reduces the sustainability and resource-efficiency benefits of the proposal.
- Does not support the practical implementation of the Rand Street and Rosedale Main Extension infrastructure works.

Overall conclusion

The preferred operational alternative is the controlled, short-term operation of the five stockpile / construction camp areas as temporary departure uses, with no permanent stockpile, depot or waste disposal function. The geotechnical assessment is separate from this operational phase and is limited to short-term investigation and monitoring activities. The preferred operational alternative is environmentally preferable because it maximises the benefits of material reuse and municipal cost savings while keeping operational impacts temporary, localised, controlled and capable of rehabilitation.

1.6. The option of not implementing the activity (the 'No-Go' Option).

Provide an explanation as to why the 'No-Go' Option is not preferred.

As discussed above the no-go option is not preferred because it would not meet the demonstrated municipal need for temporary stockpile areas and contractor camp space to support the Rand Street and Rosedale Main Extension projects. If the activity does not proceed, surplus cut material from municipal infrastructure projects would likely need to be disposed of off-site, while suitable fill material would still need to be imported for future municipal works. This would increase haulage distances, disposal costs, material procurement costs, fuel use, dust, emissions and pressure on disposal facilities.

The no-go option would also prevent the Phase 2 Geotechnical Assessment from being undertaken, which is required to inform the design and separate environmental assessment process for the future road extensions.

Although the no-go option would avoid the temporary site-specific impacts associated with stockpiling, access and geotechnical testing, it would not deliver the resource-efficiency, cost-saving, infrastructure-support and service-delivery benefits of the preferred alternative. The preferred alternative is therefore considered more desirable, provided that all EMPr and specialist mitigation measures are implemented and the stockpile sites remain short-term, temporary departure uses.

1.7. Provide an explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist.

Explained above – alternatives considered.

1.8. Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.

The preferred alternative is the **final specialist-informed layout comprising five temporary stockpile / construction camp areas, associated temporary haul roads, and the Phase 2 geotechnical investigation access routes, test pits and monitoring boreholes.** The preferred location for the activity is **George Municipal Erf 325**, within land owned and controlled by George Municipality.

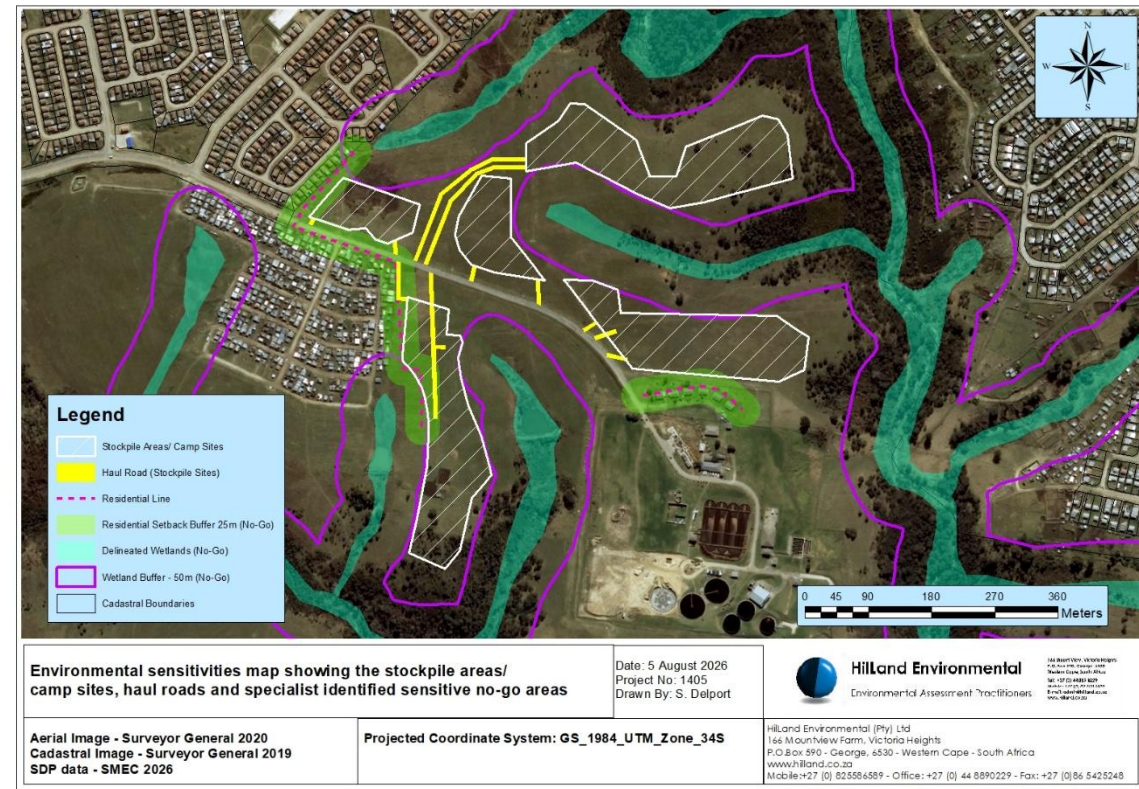
This alternative is preferred because it enables the Municipality to temporarily store and reuse suitable surplus cut material for future municipal road and infrastructure projects, particularly the Rand Street and Rosedale Main Extension projects, while avoiding sensitive environmental features as far as practicable. The preferred layout places the main stockpile and construction camp site footprints mainly within transformed agricultural fields and disturbed areas, avoids wetland buffers, watercourses, valley-edge fynbos, residential receptors, future housing areas and municipal services where possible, and allows all temporary disturbance areas to be rehabilitated after use.

The preferred alternative therefore represents the most appropriate balance between meeting the municipal infrastructure need, maximising the positive benefits of material reuse and cost-effective service delivery, and minimising environmental and social impacts through specialist mitigation measures, EMPr requirements and ECO monitoring.

2. "No-Go" areas

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).

No-go areas have been identified and restricted by the specialists as indicated above – see no-go mapping, Appendix B2 and Appendix H.



3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

Seven rating scales will be considered when assessing potential impacts. These include:

- extent;
- duration;
- intensity;
- status of impact;
- probability;
- degree of confidence; and
- significance.

In assigning significance ratings to potential impacts before and after mitigation the following approach presented below is to be adhered to:

1. The core criteria for determining significance ratings are "extent", "duration" and "intensity". The preliminary significance ratings for combinations of these three criteria are given.
2. The status of an impact is used to describe whether the impact will have a negative, positive or neutral effect on the surrounding environment. An impact may therefore be negative, positive (or referred to as a benefit) or neutral.
3. Describe the impact in terms of the probability of the impact occurring and the degree of confidence in the impact predictions, based on the availability of information and knowledge.
4. Additional criteria to be considered, which could "increase" the significance rating if deemed justified, with motivation, are the following:

- Permanent / irreversible impacts (as distinct from long-term, reversible impacts);
- Potentially substantial cumulative effects; and

- High level of risk or uncertainty, with potentially substantial negative consequences.
5. Additional criteria to be considered, which could “decrease” the significance rating if justified, with motivation, is the following:
 - Improbable impact, where confidence level in prediction is high.
 6. When assigning significance ratings to impacts after mitigation:
 - First, consider probable changes in intensity, extent and duration of the impact after mitigation, assuming effective implementation of mitigation measures, leading to a revised significance rating; and
 - Then moderate the significance rating after taking into account the likelihood of proposed mitigation measures being effectively implemented. Consider:
 - Any potentially significant risks or uncertainties associated with the effectiveness of mitigation measures;
 - The technical and financial ability of the proponent to implement the measure; and
 - The commitment of the proponent to implementing the measure, or guarantee over time that the measures would be implemented.
 - 7. The cumulative impacts of a project should also be considered. “Cumulative impacts” refer to the impact of an activity that may become significant when added to the existing activities currently taking place within the surrounding environment.
 - 8. Where applicable, assess the degree to which an impact may cause irreplaceable loss of a resource. A resource assists in the functioning of human or natural systems, i.e. specific vegetation, minerals, water, agricultural land, etc.

A. Significance

The significance ratings are based on largely objective criteria and inform decision-making at a project level as opposed to a local community level. In some instances, therefore, whilst the significance rating of potential impacts might be “low” or “very low”, the importance of these impacts to local communities or individuals might be extremely high. The importance which I&APs attach to impacts must be taken into consideration, and recommendations should be made as to ways of avoiding or minimising these negative impacts through project design, selection of appropriate alternatives and / or management.

The relationship between the significance ratings after mitigation and decision-making can be broadly defined as follows (see overleaf): substance

Significance rating	Effect on decision-making
VERY LOW; LOW	Will not have an influence on the decision to proceed with the proposed project, provided that recommended measures to mitigate negative impacts are implemented.
MEDIUM	Should influence the decision to proceed with the proposed project, provided that recommended measures to mitigate negative impacts are implemented.
HIGH; VERY HIGH	Would strongly influence the decision to proceed with the proposed project.

B. Extent

“Extent” defines the physical extent or spatial scale of the impact.

Rating	Description
LOCAL	Extending only as far as the activity, limited to the site and its immediate surroundings. Specialist studies to specify extent.
REGIONAL	Southern Cape. Specialist studies to specify extent.
NATIONAL	South Africa
INTERNATIONAL	

C. Duration

“Duration” gives an indication of how long the impact would occur.

Rating	Description
SHORT TERM	0 - 5 years
MEDIUM TERM	5 - 15 years
LONG TERM	Where the impact will cease after the operational life of the activity, either because of natural processes or by human intervention.
PERMANENT	Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

D. Intensity

“Intensity” establishes whether the impact would be destructive or benign.

Rating	Description
ZERO TO VERY LOW	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
LOW	Where the impact affects the environment in such a way that natural, cultural and social functions and processes continue, albeit in a slightly modified way.
MEDIUM	Where the affected environment is altered, but natural, cultural and social functions and processes continue, albeit in a modified way.
HIGH	Where natural, cultural and social functions or processes are altered to the extent that it will temporarily or permanently cease.

E. Loss of resources

“Loss of resource” refers to the degree to which a resource is permanently affected by the activity, i.e. the degree to which a resource is irreplaceable.

Rating	Description
LOW	Where the activity results in a loss of a particular resource, but where the natural, cultural and social functions and processes are not affected.
MEDIUM	Where the loss of a resource occurs, but natural, cultural and social functions and processes continue, albeit in a modified way.
HIGH	Where the activity results in an irreplaceable loss of a resource.

F. Status of impact

The status of an impact is used to describe whether the impact would have a negative, positive or zero effect on the affected environment. An impact may therefore be negative, positive (or referred to as a benefit) or neutral.

G. Probability

“Probability” describes the likelihood of the impact occurring.

Rating	Description
IMPROBABLE	Where the possibility of the impact to materialise is very low either because of design or historic experience.
PROBABLE	Where there is a distinct possibility that the impact will occur.
HIGHLY PROBABLE	Where it is most likely that the impact will occur.
DEFINITE	Where the impact will occur regardless of any prevention measures.

H. Degree of confidence

This indicates the degree of confidence in the impact predictions, based on the availability of information and knowledge.

Rating	Description
HIGH	Greater than 70% sure of impact prediction.
MEDIUM	Between 35% and 70% sure of impact prediction.
LOW	Less than 35% sure of impact prediction.

I. Significance

“Significance” attempts to evaluate the importance of a particular impact, and in doing so incorporates the above three scales (i.e. extent, duration and intensity).

Rating	Description
VERY HIGH	Impacts could be EITHER: of high intensity at a regional level and endure in the long term; OR of high intensity at a national level in the medium term; OR of medium intensity at a national level in the long term.
HIGH	Impacts could be EITHER: of high intensity at a regional level and endure in the medium term; OR of high intensity at a national level in the short term; OR of medium intensity at a national level in the medium term; OR of low intensity at a national level in the long term; OR of high intensity at a local level in the long term; OR of medium intensity at a regional level in the long term.
MEDIUM	Impacts could be EITHER: of high intensity at a local level and endure in the medium term; OR of medium intensity at a regional level in the medium term; OR of high intensity at a regional level in the short term; OR of medium intensity at a national level in the short term; OR of medium intensity at a local level in the long term; OR of low intensity at a national level in the medium term;

	OR of low intensity at a regional level in the long term.
LOW	Impacts could be EITHER of low intensity at a regional level and endure in the medium term; OR of low intensity at a national level in the short term; OR of high intensity at a local level and endure in the short term; OR of medium intensity at a regional level in the short term; OR of low intensity at a local level in the long term; OR of medium intensity at a local level and endure in the medium term.
VERY LOW	Impacts could be EITHER of low intensity at a local level and endure in the medium term; OR of low intensity at a regional level and endure in the short term; OR of low to medium intensity at a local level and endure in the short term.
INSIGNIFICANT	Impacts with: Zero to very low intensity with any combination of extent and duration.
UNKNOWN	In certain cases, it may not be possible to determine the significance of an impact.

J. Degree to which impact can be mitigated

This indicates the degree to which an impact can be reduced / enhanced.

Rating	Description
NONE	No change in impact after mitigation.
VERY LOW	Where the significance rating stays the same, but where mitigation will reduce the intensity of the impact.
LOW	Where the significance rating drops by one level, after mitigation.
MEDIUM	Where the significance rating drops by two to three levels, after mitigation.
HIGH	Where the significance rating drops by more than three levels, after mitigation.

K. Reversibility of an impact

This refers to the degree to which an impact can be reversed.

Rating	Description
IRREVERSIBLE	Where the impact is permanent.
PARTIALLY REVERSIBLE	Where the impact can be partially reversed.
FULLY REVERSIBLE	Where the impact can be completely reversed.

Determination and ranking of potential impacts is based on years of experience working on similar developments across the same area as well as applying sound environmental knowledge informed by available information on site, vegetation, development type, current condition and other relevant factors that could/ will influence such a development

4. Assessment of each impact and risk identified for each alternative

Note: The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

Table 1: Temporary disturbance of transformed stockpile / construction camp areas

Assessment criterion	Description
Phase	Planning, design, development, operational and decommissioning / rehabilitation
Potential risk	Temporary disturbance of transformed agricultural fields used for stockpile areas and construction camp areas.
Nature of impact	Direct disturbance of vegetation, topsoil stripping, soil compaction, temporary loss of informal grazing potential, dust generation, visual intrusion and potential alien invasive plant establishment.
Extent and duration	Site-specific and local. Short- to medium-term for the duration of the temporary stockpile / construction camp use, followed by rehabilitation.
Consequence of impact or risk	Without mitigation, the disturbance could result in soil compaction, erosion, dust, loss of topsoil quality and poor rehabilitation outcomes.
Probability of occurrence	Definite, as the stockpile / construction camp areas will be established and used.
Degree to which impact may cause irreplaceable loss of resources	Low. The stockpile areas are located mainly within transformed agricultural fields and disturbed areas, and no intact fynbos or confirmed plant SCC occur within the stockpile footprints.
Degree to which impact can be reversed	High. The impact is temporary and reversible through topsoil conservation, reshaping, ripping, reseeding and rehabilitation.
Indirect impacts	Dust nuisance, runoff from exposed areas, spread of alien invasive plants, and possible sediment movement if stormwater is not controlled.
Cumulative impacts prior to mitigation	Low to medium. The impact may add to existing disturbance in the urban-edge landscape, but the site is already transformed and influenced by municipal infrastructure and historical land use.
Significance rating prior to mitigation	Low to medium negative.

Degree to which impact can be avoided	Moderate. The activity itself cannot be fully avoided if the stockpile sites are required, but the most sensitive habitats have been avoided through layout refinement.
Degree to which impact can be managed	High. Impacts can be managed through demarcation, access control, stockpile management, dust suppression and ECO monitoring.
Degree to which impact can be mitigated	High. Topsoil management, stormwater controls and rehabilitation will reduce the impact.
Proposed mitigation	Confine activities to approved and demarcated footprints; strip and store topsoil separately; keep topsoil windrows stable and vegetated where appropriate; prevent vehicle movement outside approved areas; manage dust through watering, speed control and stabilisation; install stormwater and erosion controls; prohibit waste disposal; manage alien invasive plants; rehabilitate all stockpile and construction camp areas after use by ripping compacted soils, reshaping, replacing topsoil and reseeding with suitable grass species.
Residual impacts	Temporary disturbance of previously transformed land, with possible limited residual compaction or altered vegetation cover if rehabilitation is incomplete.
Cumulative impact post mitigation	Low negative to negligible.
Significance of impact after mitigation	Low negative / negligible.

Table 2: Impacts on terrestrial biodiversity and plant species, as extracted from Confluent Environmental's assessment, App G:

8.2 Design and Layout Phase

8.2.1 Placement of geotechnical investigation points in intact or semi-intact fynbos vegetation increases the risk of disturbance to critically endangered Garden Route Granite Fynbos and its associated BSP-designated areas.

The location of geotechnical investigation points was determined by the consulting engineers (SMEC) based on the proposed road infrastructure alignment and associated sewer realignment requirements. Several of these points fall in or adjacent to valley edge fynbos. The locations of individual boreholes and test pits cannot all be moved without compromising the geotechnical objectives of the investigation. Mitigation from a Terrestrial Biodiversity and Botanical perspective is therefore limited. Mitigation measures (Table 10) mainly concern micro-siting the location of investigation points *if* there are avoidable biodiversity features (e.g. moving a hole 50cm to avoid digging out a *Leucadendron* sp.)

Table 10: Layout and Design Phase Terrestrial Biodiversity Impact Mitigation Table.

Mitigation and Outcomes	Responsibility
Mark out the access route and investigation point with the ECO prior to access in order to avoid sensitive plants as far as possible.	ECO and Contractor

8.3 Construction Phase

8.3.1 Temporary disturbance to valley edge fynbos during access and excavation leading to increased invasive alien plants and erosion risk in a CR ecosystem, CBA, and ESA.

Access to geotechnical investigation points in valley edge fynbos will require crossing vegetated slopes. The 5m x 5m (i.e., 25 square meters) clearance required for each investigation point, combined with vehicle or foot access routes, may result in temporary disturbance to secondary fynbos vegetation within the critically endangered (CR) Garden Route Granite Fynbos and its associated CBA and ESA designations.

In addition to this, the temporary disturbance of soil for the excavation of test pits and drilling of boreholes creates conditions favourable for the establishment of ruderal and invasive alien plant species. Given the high density of invasive species already present in the surrounding landscape, including listed NEMBA Category 1b species such as *Hakea sericea*, *Acacia mearnsii*, and *Acacia melanoxylon*, disturbed soil within or adjacent to fynbos remnants presents a real risk of expanding the alien invasion footprint into currently intact fynbos patches, further fragmenting these already highly isolated fynbos remnants. Proposed mitigation measures are in Table 11 below.

Table 11: Construction Phase Terrestrial Biodiversity Impact Mitigation Table.

Mitigation and Outcomes	Responsibility
Access to investigation points must prioritise existing tracks and disturbed surfaces over natural vegetation in good condition at all times. Follow the guidance provided in Dabrowski (2026) for each specific area. This entails the ECO marking out the access route with least disturbance together with the contractor prior to commencing with the work.	Contractor, Geotechnical team, ECO
When the ECO marks out the access route, they must prioritise lower gradient slopes over steep slopes, and disturbed vegetation over undisturbed natural (fynbos) vegetation.	Contractor, Geotechnical team, ECO
The disturbance footprint must be strictly limited to the 5m x 5m area required for each investigation point. Additional clearing beyond this footprint should only be related to gaining access to the site, which should also be minimised.	Contractor, Geotechnical team, ECO
1. Topsoil must be stored separately from subsoil. 2. Topsoil must be stripped and stored separately as per the SMEC method statement and replaced last during backfilling to preserve the indigenous seed bank. 3. Test pits must be backfilled immediately following excavation and logging, with topsoil replaced last	Contractor, Geotechnical team, checked by ECO
All excavated soil must be placed on geofabric or tarpaulin as per the SMEC method statement to minimise contact with surrounding vegetation and reduce the risk of seed dispersal and soil loss from disturbed soil	Contractor, Geotechnical team, checked by ECO
After test pits are closed disturbed and site access has concluded, the contractor must seed the area with kweek grass across the 5m x 5m footprint.	Contractor, Checked by ECO

8.6 Impact Assessment Tables

The impact assessment presented in Table 13 follows the rating methodology outlined in Appendix 11.2. These assessments illustrate both the significance of potential impacts prior to mitigation and the anticipated effectiveness of the proposed mitigation measures discussed above.

From the impact assessment tables presented together below, the residual impact for the proposed stockpile and boreholes associated with the geotechnical assessment is considered "Negligible" across all three impacts assessed. This is consistent with the no-go scenario. Prior

to the implementation of the mitigation measures proposed, the impacts would have been “Minor”, so with the mitigation measures in place impacts can be reduced even further.

Table 12: Impact assessment ratings and associated residual impacts.

Mitigation	May 2026 test pit and borehole positions		No-go
	Without	With	Without
LAYOUT AND DESIGN: Placement of geotechnical investigation points in intact or semi-intact fynbos vegetation increases the risk of disturbance to critically endangered Garden Route Granite Fynbos and its associated BSP-designated areas.			
Duration	Brief	Brief	Immediate
Extent	Very limited	Very limited	Very limited
Intensity	Low	Very low	Negligible
Probability	Certain	Certain	Highly unlikely
SCORE	Minor: -42	Negligible:-35	Negligible:-3
CONSTRUCTION: Temporary disturbance to valley edge fynbos during access and excavation leading to increased invasive alien plants and erosion risk in a CR ecosystem, CBA, and ESA.			
Duration	Short term	Brief	Immediate
Extent	Very limited	Very limited	Very limited
Intensity	Low	Very low	Negligible
Probability	Certain	Certain	Highly unlikely
SCORE	Minor: -49	Negligible:-35	Negligible: -3

8.5 Decommissioning Phase

As test pits are backfilled immediately following excavation and boreholes will be monitored on an ongoing basis, no decommissioning phase applies to the present activity.

Table 3: Impacts on terrestrial fauna and faunal habitat , as extracted from Confluent Environmental's assessment, App G:

8.3 Layout and Design phase

Prevention of habitat loss for SCC requires careful site selection for proposed development. Habitat loss in the bushy vegetation and potential negative effects on fauna using the river can mostly be reduced on the site through changes in footprints for stockpile areas. The placement of stockpile sites can have negative effects on the health of fauna using the watercourse, wetlands, and other associated riverine habitats downstream due to the slope of the stockpile areas potentially depositing debris into the river. The adjusted stockpile areas that were reduced to accommodate watercourse buffers were recommended by the Aquatic Specialist (Figure 17) and adopted by the municipality (Figure 18). Given that these reductions have the added benefit of protecting habitat for fauna they are further endorsed in this report.



Figure 17. Alternative Stockpile sites as recommended by the Aquatic Specialist's Report (J. Dabrowski — Confluent Environmental).

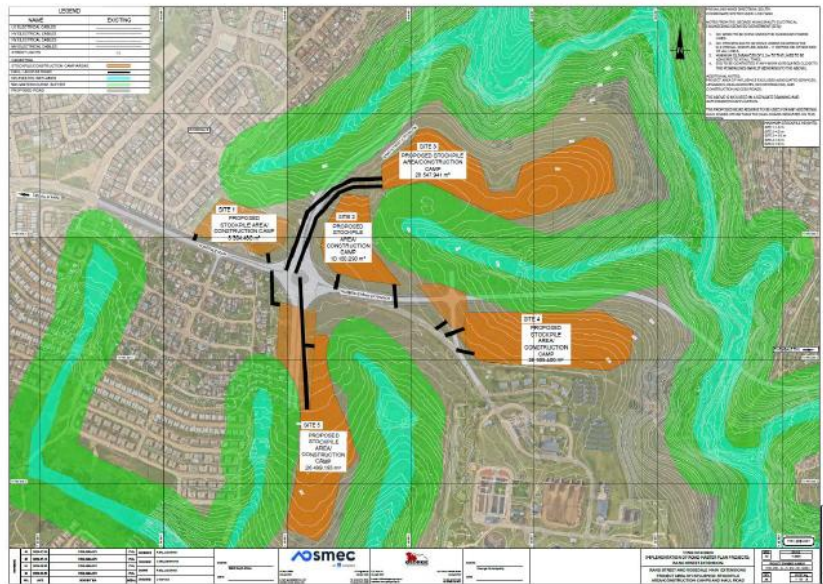


Figure 18. Updated stockpile area and haul roads provided by SMEC following adjustment to recommendations by the aquatic specialist.

8.4 Construction Phase Impacts: Test Pit and Borehole Areas

The construction phase for the test pits and boreholes will have the highest impacts on fauna species due to increased moving vehicles, noise, and habitat destruction associated with the proposed activities. An Environmental Control Officer (ECO) must be appointed for the duration of the phase to monitor and report back on implementation of the mitigation measures. The ECO must be present on site at the start of construction, and twice a week thereafter during the establishment/ construction phase.

8.4.1 Disturbance and deterrence of bird SCC possibly breeding at the site due to the activities associated with establishment of test pits and boreholes.

Description: The faunal assessment indicates both Black-crowned Night Heron and Knysna Warbler as having a medium likelihood of occurrence. Since these SCC are highly mobile and the habitats outlined in the present study are not scarce, mitigation measure are provided to ensure the more sedentary life stages of the SCC are not negatively affected by establishment of test pits and boreholes.

Consequences of impact:

- Construction related activity can result in nest trees/bushes being damaged and lost reducing local populations size of the SCC.

- If deterred from the area (temporarily or permanently), the SCC may not be able to find suitable alternative breeding habitat and skip a breeding season(s). This has negative consequence for the population growth and stability of an endangered species.

Impact Assessment:

Duration of the impact on the avifauna will be as long as construction occurs. **Extent** is also not altered before and after mitigation. **Intensity** and **probability** of the impact, however, is reduced by the mitigation measures proposed.

	Without Mitigation	With Mitigation
Duration	Medium term	Medium term
Extent	Limited	Limited
Intensity	High	Very low
Probability	Likely	Rare / improbable
Confidence	Medium	Medium
Reversibility	High	High
Irreplaceability	Medium	Medium
Significance	Minor - negative	Negligible - negative

Mitigation measures:

1. Primarily along access routes and at each geotechnical site, active searching for nests and nestlings are to be conducted by the ECO for avifaunal SCC in their laying season (August to October for Black-crowned Night Heron and August to December for Knysna Warbler) in suitable habitat. Should no work take place during these seasons, adherence to this recommendation is not necessary.
2. Should nests be found and positively identified as/ suspected of being the avian SCC construction of boreholes and test pits are to cease at that location until after fledging has occurred and the nest has been abandoned following which they may continue.
3. The ECO is to walk and mark a preferred path to the test pits and boreholes prior to clearing of vegetation. Paths through dense vegetation are to be hand cut. If a nest is encountered, work on that pathway is to cease and an alternative route must be chosen by the ECO. If no alternative route exists, then work on that route must cease until fledging has occurred and the nest has been abandoned following which, work may continue.

8.4.2 *Detrimental loss of habitat for fauna within and outside of the footprint of the geotechnical investigation sites.*

Description: Access, vegetation clearance and soil disturbance will result in some loss of habitat space in the landscape, whether temporary or permanent. This includes access paths as well as the 5x5m cleared area for test pit and borehole sites. This is especially relevant for Golden Moles, an SCC confirmed to occur at the site.

Consequences of impact:

- Temporary disturbance of suitable habitat for fauna SCC to live, forage, and breed.

- Loss of species with which SCC have obligatory relationships (i.e. host plants and ants for butterfly larvae).

Impact Assessment:

Since the mitigation measures include guidelines on rehabilitation of vegetation for the benefit of fauna, **duration** is ameliorated. Management of the impacts outside of the footprint of the development reduces the **extent** of habitat reduction. With the micro-siting mitigation, natural functions of Golden Mole SCC are preserved, reducing the **intensity** of the impact.

	Without Mitigation	With Mitigation
Duration	Permanent	Medium term
Extent	Limited	Very limited
Intensity	High	Very low
Probability	Almost certain / Highly probable	Unlikely
Confidence	Medium	Medium
Reversibility	Medium	High
Irreplaceability	Low	Low
Significance	Moderate - negative	Negligible - negative

Mitigation measures:

1. A change in position through micro-siting of test pits and boreholes is necessary where evidence of Golden Moles is confirmed by the ECO. Active tunnels must be avoided. This should be feasible in almost all cases as tunnels observed were not densely clustered.
2. Protection and reuse of topsoil of test pits can be critical for the success of rehabilitation of vegetation following construction/ establishment processes in the bushy vegetation areas as some native vegetation may be present here. Topsoil may contain a valuable seedbank of indigenous plants that regenerate after the soil is replaced. Topsoil removed during establishment should be treated with care (not mixed with subsoils and replaced at the surface). This is already outlined in the geotechnical method statement for the present activity but is reiterated here

8.4.3 *Habitat and fauna negatively affected by the management of the construction site (i.e., staff, equipment, etc).*

Description: The management of materials and staff on the site is also an important impact of development. If managed properly, many accidents and unanticipated negative impacts on fauna and the surrounding environment can be avoided.

Consequences:

- Loss of habitat or harm to fauna outside of designated construction areas.
- Litter and pollution of natural environment.
- Potential health and safety hazards (for staff and fauna) on the site and in the surrounding environment.

Impact Assessment:

As the mitigation on layout and littering/ contamination apply to impacts outside of the project area, **extent** is reduced post-mitigation. Mitigation measures surrounding littering, waste, and management of the excavation sites in particular reduce the **intensity** of the impact. Having any recommendations for good management on site generally reduces the **probability** of the present impact.

	Without Mitigation	With Mitigation
Duration	Medium term	Medium term
Extent	Limited	Very limited
Intensity	Moderate	Negligible
Probability	Almost certain / Highly probable	Rare / improbable
Confidence	Medium	Medium
Reversibility	Medium	Low
Irreplaceability	Low	Low
Significance	Minor - negative	Negligible - negative

Mitigation measures:

1. All new staff must be briefed about the layout of the works and must be made aware of the no-go areas as the surrounding environment is sensitive and must not be disturbed. Staff must be made aware of what all fauna SCC look like and informed to report all fauna encountered on site to the ECO. This should form part of a site induction at which the ECO must be present.
2. No littering, waste dumping, or burning is allowed on the site or in the surrounding environment. All waste is to be collected in designated bins with lids that can be secured or stored in a secure area when construction is not taking place (evenings, weekends, holidays, etc.) to prevent interference by animals. All waste is to be transported to a registered waste disposal facility off site.
3. Should excavations be left open overnight, they are to be appropriately fenced (e.g. construction shade net fencing) to prevent animals falling into the hole.
4. Any small items or building materials which can be carried away by medium-large animals should be safely stored in containers or locked away in a designated area to prevent interference from animals, causing possible harm to them and preventing them from removing such items from site.

5. Construction should take place during daylight hours so that the site can be adequately monitored for fauna during work hours, and to minimise the use of permanent artificial lighting at night which attracts many animal species (predominantly insects and associated predators) and subjects them to the risks of construction. The exception to this is lighting for security purposes at construction camps overnight which should be motion triggered as a preference.

8.4.4 *Harm/Death of fauna, particularly invertebrates and soil dwelling mammal SCC, due to construction related activities.*

Description: Fauna may occur on site and be killed or seriously harmed during works. Cryptic and ground-dwelling species, like the golden mole SCC, are difficult to detect and are limited in their mobility rendering them vulnerable to earthmoving activities. The golden mole SCC depends on the bushy vegetation habitat and siltier soils designated as low SEI. This SCC is highly adaptable to modified environments but impacts on individuals and the population must be kept to a minimum.

Consequences of impact:

- Loss of threatened species.
- Loss of genetic diversity from remaining fauna populations.
- General loss of biodiversity.

Impact Assessment:

Micrositing of test pits and boreholes in the area where Golden Mole SCC are likely to occur reduces the damage the development does to the natural functions of the SCC in its environment and therefore the **intensity** of the present impact. This holds for the recommendations included on common fauna as well. The likelihood that fauna may come to harm due to the development shows a reduction in **probability**, with the mitigation measures aiming to protect not only SCC but also common fauna that may occur within the project area.

	Without Mitigation	With Mitigation
Duration	Medium term	Medium term
Extent	Very limited	Very limited
Intensity	High	Very low
Probability	Likely	Unlikely
Confidence	Medium	Medium
Reversibility	Medium	Medium
Irreplaceability	Medium	Low
Significance	Minor - negative	Negligible - negative

Mitigation measures:

1. Micrositing of test pits and boreholes to avoid areas where active Golden Mole tunnels were found is recommended. This would involve moving the test pit / borehole 50cm to avoid tunnels, which is unlikely to influence the findings of the geotechnical investigations.
2. Should signs of fauna with limited mobility or an SCC be found within the demarcated area (e.g. a snake in a test pit), a search and rescue operation should be undertaken to relocate fauna to a suitable location in similar habitat nearby. The ECO or an experienced animal handler should be contacted to undertake this at the commencement or re-commencement of establishment of boreholes/test pits. Pictures / videos must be provided, and the ECO must be informed.
3. No works may commence until the ECO is satisfied that all fauna with limited mobility and/or SCC have been successfully removed from the demarcated footprint area.
4. At any point during construction of boreholes and test pits, if an animal with limited mobility is observed on site, this should be reported to the ECO and construction temporarily halted. Procedures outlined in Box. 1 must be followed for all fauna encounters.

Box 1: Best practice principles for ALL fauna encounters during construction or operational phases of projects

If any animals are seen on site, a photo or a video should be taken if possible (to assist in identification) and all fauna encountered on site should be reported to the ECO immediately. This is particularly important when:

- An animal is harmed or compromised in any way during construction.
- Ground-dwelling animals their nests or eggs are unearthed during earthworks (e.g. moles, tortoise eggs, terrapins/frogs estivating).
- An animal with limited mobility is found (e.g. tortoises, moles, chameleons).
- Any potentially dangerous animal is encountered. This includes any potentially venomous animal (e.g. snakes, scorpions) or any medium-large animal that has become cornered in an enclosed area such that it cannot escape (e.g. porcupines, monkeys, baboons, antelope). It is critical in the case of snakes/ scorpions to get pictures/videos to aid in identification and appropriate treatment of anyone needing medical assistance.
- Any animal that shows a reluctance to escape or move away from the construction site thereby increasing its exposure to harm or increasing the risk of injuring people on site.

The ECO should provide guidance or assistance to get all animals to safety, treating any injured animals, and issuing instructions on when to continue with construction (once they are satisfied that all animals have been removed from site) or put additional mitigation measures in place to protect animals on the site from harm.

For any injured animals or animals to be removed from site (domestic or wild):

A local SPCA or animal welfare society can collect and treat most animals and should be the first point of call for assistance. If they cannot directly assist, they will revert and notify the relevant authorities/vets.

For any assistance with snake removals/relocations, identifications, or bite treatment contact the African Snakebite Institute. The contact details of a suitably qualified snake handler are provided at the following link: <https://snakeremoval.co.za/george>. Also available are the following emergency contacts.

SNAKEBITE EMERGENCIES:

Poisons Information Helpline	+27 881 555 777
Dr Jenna Taylor	+27 83 631 4816
Dr Christoff Bell	+27 73 174 0199
Johan Marais	+27 82 494 2039
Jason Seale	+27 82 781 8498
Arno Naude	+27 83 739 9303
Dr PJC Buys	+26 481 127 5109 (Namibia)

GET THE FREE APP:



(Scan this code with your phone's camera.)

8.5 Conclusion of Construction Phase

The conclusion of any project is an essential but often overlooked aspect of projects. This relates primarily to the cleaning up of the site once construction has concluded to reduce residual impacts at the site.

1. Construction sites must be cleared of all waste material, rubble, and debris associated with the construction phase at regular intervals during, and at the conclusion of the construction phase.

8.6 Operational Phase Impacts: Test Pit and Borehole Areas

The operational phase is unlikely to incur impacts on fauna if appropriate procedure is followed. Persons conducting water chemistry and water table monitoring are to **replace covers for boreholes** after testing is concluded to prevent animals from falling in. Sites are to be accessed on foot where an existing vehicle track is not available.

8.7 Decommissioning Phase: Stockpile Area and Test Pits

Stockpiles and haul roads are not intended to exist after the Rand Street Extension project is concluded. This area will therefore undergo a decommissioning process to restore the area to the transformed vegetation it currently is or to the habitat that ought to occupy this area according to the most recent National Vegetation Map. The Aquatic Specialist's Report outlines the method this should follow if the latter applies. Since native fauna are likely to colonise the vegetation that is reintroduced, it is recommended that vegetation be selected to facilitate this (that is, native plants rather than exotic or alien ones). This also serves the purpose of preventing invasive alien plant infestation of the recently disturbed stockpile site.

Test pits are to be filled on the day they are established and protocols outlined in the Geotechnical Report ensures that topsoil is to be preserved and replaced after test pits are decommissioned.

Table 4: Impacts on wetlands, watercourses and aquatic biodiversity, as extracted from Confluent Environmental' s assessment, App G:

5.2 Design and Layout Phase

5.2.1 Boreholes and Test Pits

The location of proposed monitoring boreholes and test pits was provided by the consulting engineers and aligns with proposed infrastructure related to the road extension and associated realignment of sewer lines. There are no design modifications applicable, and the layout is aligned with proposed infrastructure. Therefore, no recommendations are made for this phase of the impact assessment.

5.2.2 Stockpiling Areas

Layout of the stockpiling areas is an aspect considered in terms of this impact assessment. This is because the stockpiling areas provided by the municipality at present mostly include steep slopes that would drain to valley-bottom watercourses.

Potential Impacts

- If stockpiling areas include steep sloping land, then materials could wash off downslope into the watercourse, increasing turbidity and introducing pollutants.
- Furthermore, the disturbance could interfere with wildlife utilising watercourses as corridors for movement, through extensive reduction of green space close to wetlands or riparian areas.
- Stockpiling sites are temporary, and it is uncertain what the fate of this land will be once concluded. Given the improved road access and existing surrounding development, it is conceivable that formal development could be proposed on the stockpile sites in future. Therefore, it is important that the area of transformation be limited to what might be developed in future.

Mitigation Measures

- The primary mitigation measure is to reduce the stockpiling areas to align with areas of lower gradient situated at least 50m from delineated wetland areas (Figure 16 & Figure 17).
- It is recommended that all haul roads be realigned to enter the adjusted stockpiling areas (Figure 16) outside of the 50m wetland buffers. The haul road to the 2.91 ha field could be moved out of the buffer, or could connect via the 1.3 ha area, which could also be joined to the 2.91 ha area.
- If any area could be further reduced or removed, the 0.7 ha stockpile area would be recommended for removal given the practical difficulty of aligning it out of the buffer.

Note The George Municipality agreed to adopt these mitigation measures and revised the proposed layout of the stockpile areas and haul roads in accordance (Figure 18).



Figure 16. Proposed alternative stockpiling areas in relation to 50m wetland buffers and 1m contours.



Figure 17. Simplified layout of the proposed alternative stockpiling areas. Haul roads to the 2.91 ha field would need to be moved out of the buffer.

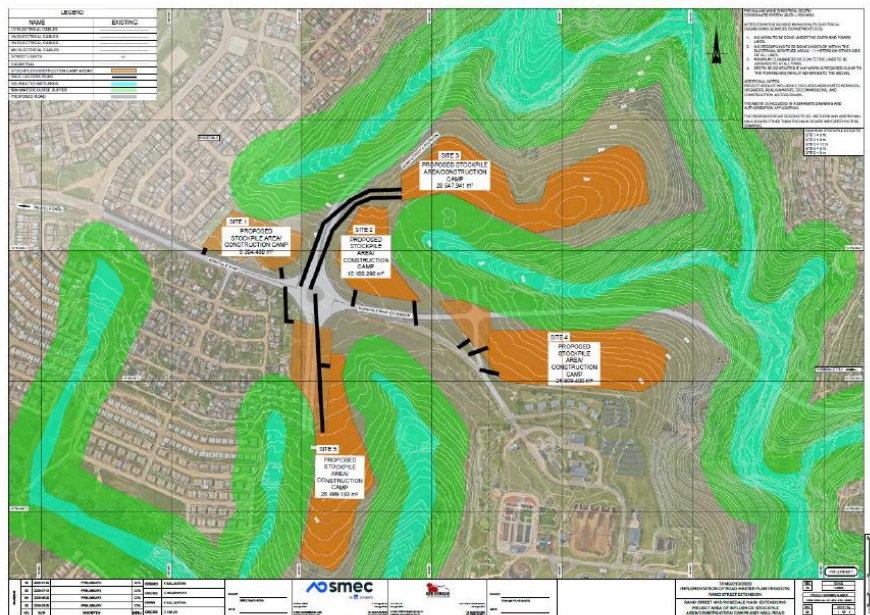


Figure 18. Revised layout of the stockpile areas and associated haul road provided by SMEC for the George Municipality in response to recommended mitigation measures in this report.

Potential impacts for watercourses associated with the layout phase for stockpiling areas are rated as Minor provided the mitigation measures as fully implemented (Table 4).

Table 4. Impact assessment for the design and layout phase for stockpiling areas.

Impact	Intensity	Duration	Extent	Probability	Significance	Significance Rating	Reversibility	Irreplaceability	Confidence
Design and Layout Phase: Stockpiling Areas									
Impact: Stockpiling on steep slopes increases risk of contaminants entering a watercourse									
Without Mitigation	High	Medium term	Limited	Almost certain	-66	Minor	Medium	Low	High
With Mitigation	Moderate	Short term	Very limited	Likely	-40	Minor	Medium	Low	High
Impact: Disturbance associated with stockpile areas could impact wildlife movement through watercourse corridors									
Without Mitigation	High	Medium term	Limited	Almost certain	-66	Minor	Medium	Low	High
With Mitigation	Moderate	Medium term	Limited	Likely	-50	Minor	Medium	Low	High
Impact: Stockpiling footprint may be proposed for development in future due to the degrading effect of this land use									
Without Mitigation	High	Permanent	Local	Almost certain	-90	Moderate	Low	Low	Medium
With Mitigation	Moderate	Permanent	Limited	Likely	-65	Minor	Low	Low	Medium

5.3 Construction Phase

5.3.1 Boreholes & Test Pits

A similar approach to drilling boreholes and excavating test pits will take place in terms of vehicle access. Vehicle access would be more likely to create impacts than the activity of borehole drilling or excavation of the test pit. Some of the geotechnical investigation points are in terrestrial areas with easy access across grassy fields, or existing dirt tracks. However, some of the points are located in/adjacent to watercourses with dense vegetation that must be traversed. In most cases existing tracks can be used to get to within 20m or so of the target site.

Potential Impacts

- Where slopes are steep and well vegetated, vehicles or personnel could take a route through natural, dense vegetation to access the watercourse area. Riparian or wetland vegetation may be temporarily or permanently disturbed during this process.
- Alien vegetation could become established post-disturbance, increasing the extent of alien vegetation in this already invaded system.
- The disturbance footprint could become larger than necessary if an access route is not carefully selected with minimisation of damage in mind. This may result in soil erosion.

Mitigation Measures

- Appoint an Environmental Control Officer (ECO) to inspect watercourse areas indicated in this report (A – E) with the appointed contractor and agree on a site-specific approach following the mitigation measures in this report in each case. The ECO presence can be limited to an initial site investigation, followed by an inspection of sensitive areas at conclusion of the works to ensure agreed actions were followed.
- Disturbance of vegetation can be mitigated by selecting the less vegetated and/or less steep of two slopes above a watercourse. E.g. at Area A, the western slope is less steep with much less dense and sensitive vegetation than the eastern slope. It is therefore recommended that access be obtained from the south-western slopes as far as possible (Figure 19 & Figure 20).
- Disturbance can be further limited by selecting access points using existing tracks and pathways (Figure 21 & Figure 22). The access route selected should always prioritise existing disturbance areas over undisturbed natural vegetation, even if this means travelling over a longer distance.

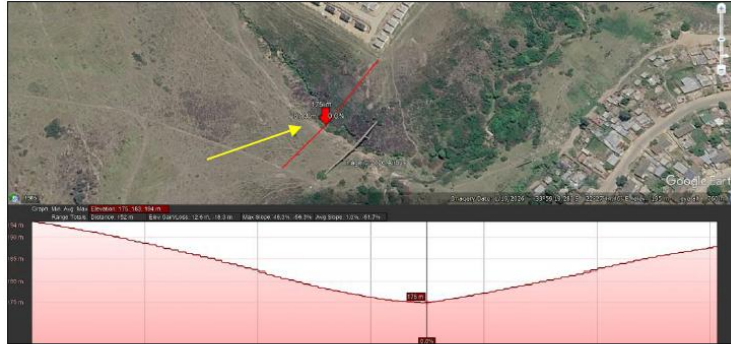


Figure 19. Google satellite image of Area A indicating the elevation profile (red line) across the valley with more dense vegetation and a steeper slope on the north-eastern side. Access here should be from the south-western slope (yellow arrow).



Figure 20. Example where the southern bank is less vegetated than the northern bank at Area C. In this instance, access should be prioritised from the southern bank.



Figure 21. Area B indicating existing tracks (yellow arrows) from which access can be obtained to geotechnical investigation points.



Figure 22. Area D and Area E showing existing tracks (yellow arrows) and roads that can be used to access geotechnical investigation points.

- Through discussion with a local contractor who provides geotechnical investigation services, it was noted that in areas where vegetation is dense and the site sensitive (ie. In a wetland), test pits can be dug by hand using shovels where practical. Where access options are seriously constrained, this alternative must be considered if the depth of the test pit can still be achieved. This may result in exceeding the 5x5m disturbance footprint, but could be considered preferable by the ECO if the investigation site has less sensitive features than the access route.
- Where feasible, a portable drilling rig should be used, that can be moved from the vehicle's closest 'low disturbance parking point' to the borehole drilling point.
- The contractor must strictly follow the 'last out, first in' system of soil replacement for test pits, as per the provided method statement from SMEC.
- Soil excavated from pits, should be placed onto a tarpaulin to preserve underlying vegetation, and to ensure minimal soil loss, as per the SMEC method statement.

Potential impacts for watercourses associated with the construction phase for test pits and boreholes are rated as Negligible both with and without mitigation measures (Table 5). The mitigation measures provided should be fully implemented to ensure impacts are minimised.

Table 5. Impact assessment for the construction phase for boreholes and test pits.

Impact	Intensity	Duration	Extent	Probability	Significance	Significance Rating	Reversibility	Irreplaceability	Confidence
Construction Phase: Boreholes and Test Pits									
Impact: Access to geotechnical investigation points could create excessive disturbance									
Without Mitigation	Low	Brief	Very limited	Likely	-30	Negligible	High	Low	High
With Mitigation	Very low	Brief	Very limited	Unlikely	-15	Negligible	High	Low	High

5.3.2 Stockpile Areas

The construction phase for stockpile areas essentially consists of preparing the stockpile area for the operational phase and grading associated haul roads. If the stockpile area is not well prepared, then operational phase impacts are likely to be greater than necessary.

Potential Impacts

- Loss of valuable topsoil that could be used in rehabilitation at a later stage.
- Enlargement of the stockpile area through spread of material storage or poorly controlled vehicle access.

Mitigation Measures

- Survey and peg out each of the stockpile areas.
- Install a perimeter fence around the surveyed perimeter of the stockpile area. This fence can be basic (e.g. wire game fence) but may be upgraded depending on the security requirements of the site.
- When installing the above fence, dig in a layer of 70% shade cloth attached to the perimeter fence (e.g. with wire or cable ties) to double up as a silt fence on areas where runoff will exit the site (Figure 23). If it cannot be attached to the perimeter fence for some reason, then it should be dug into place approximately 50cm on the inside of the fenceline with dropper supports. This shade net may be attached along the full length and height of the fence to minimise dust, and provide screening for nearby residents.



Figure 23. Example of silt fence attached to perimeter fence of a construction area.

- Grub the site to remove vegetation and topsoil and create a demarcated topsoil stockpile site. Topsoil must be stored to a maximum of 2m high and retained in a fenced off area to prevent loss or accidental removal during operation of the stockpile area. The topsoil area must be labelled as such and indicated for conservation as it can be used at a later point in rehabilitation.
- Topsoil can be stored in a berm around the edge of the stockpile areas where it must be seeded with Kweek (*Cynodon dactylon*) grass and oats seed to stabilise it and reduce losses. If this can be achieved it would negate the need for the silt fence described in the first point. The entire perimeter of the stockpile area where runoff could occur should have either a topsoil berm or a silt fence. However, if the berm is selected, then careful management of stormwater will be required within the stockpile areas.
 - Create level surfaces as far as possible, to avoid the development of preferential flow paths and ponding on the stockpile area following rainfall.
 - Establish sufficient road and turning space within the stockpile area that vehicles have adequate room to manoeuvre without needing to move beyond the designated stockpile area.

Provided the recommended mitigation measures are fully implemented, the construction phase impacts for stockpiling areas are rated as negligible (Table 6).

Table 6. Impact assessment for the construction phase for the stockpiling areas.

Impact	Intensity	Duration	Extent	Probability	Significance	Significance Rating	Reversibility	Irreplaceability	Confidence
Construction Phase: Stockpiling Areas									
Impact: Loss of valuable topsoil and spread of other materials from the stockpile area									
Without Mitigation	High	Short term	Limited	Likely	-50	Minor	Medium	Medium	High
With Mitigation	Low	Brief	Very limited	Unlikely	-18	Negligible	High	Medium	High

5.4 Operational Phase

5.4.1 Boreholes & Test Pits

The operational phase of monitoring boreholes and test pits is not relevant because there are no impacts. Test pits will immediately be closed following excavation, while boreholes will be accessed by water quality testing personnel on foot for the periodic collection of samples.

5.4.2 Stockpile Areas

The operational phase of the stockpile area is associated with the storage and operation of heavy vehicles, storage of materials, and accommodation of various personnel on site in temporary site offices (e.g. security guards and foreman).

Potential Impacts

- Inadequate storage of hazardous waste may result in the loss or runoff of material downslope into the natural environment, or into a watercourse.
- Continued operation of heavy vehicles, especially during wet weather, can result in severe soil compaction, development of preferential flow paths, exacerbating runoff containing silt from the stockpile area.
- Poor waste disposal facilities may result in personnel disposing of litter or human waste in the surrounding natural environment.

Mitigation Measures

- Delineate areas for the storage of hazardous waste such as fuel (ie. Petrochemicals, bitumen, oil, cement, lime). Bitumen should be kept in a large container such as a plastic water tank which is stored on a plastic-lined sandbag bunded dam.
- Diesel would be kept in tanks which need to be protected in a bund wall constructed of bricks with enough capacity to contain the full tank volume should it fail.

- Vehicles must be checked for fuel leaks, and all leaks must be immediately repaired to prevent environmental pollution.
- The site office/store should maintain a constant store of sandbags, a roll of hessian, bidim fabric and wooden droppers. All of which can be used to contain materials, prevent material loss from the site, and can be used when contaminated water must be contained on the site.
- Bare soil surfaces can be covered with a layer of bark as a means of dust suppression, to reduce soil compaction, and reduce vehicle rutting during wet weather.
- Heavy vehicle use on the stockpile area should be avoided during wet weather to prevent rutting of the soil which can create preferential flow paths.
- Ensure there is a designated area for waste disposal including adequate chemical toilets and rubbish bins, all of which are regularly serviced.
- Larger waste must be disposed of in a skip for transfer to landfill.
- No waste to be discharged beyond the fenced stockpile area.
- Poor security can result in access by vandals or thieves which can compromise environmental safety. E.g. theft or breakage of plastic tank taps has resulted in a bitumen spill at a previous stockpile site. Therefore, the site camp must have a designated full time security guard to prevent unauthorised entry.

The results of the impact assessment for the operational phase for the stockpile areas indicate impacts will range from negligible to minor provided all mitigation measures are implemented (Table 7).

Table 7. Impact assessment for the operational phase for the stockpile areas.

Impact	Intensity	Duration	Extent	Probability	Significance	Significance Rating	Reversibility	Irreplaceability	Confidence
Operational Phase: Stockpiling Areas									
Impact: Inadequate storage of hazardous waste leading to pollution of the environment and watercourses									
Without Mitigation	High	Short term	Limited	Probably	-40	Minor	Medium	Medium	High
With Mitigation	Moderate	Brief	Very limited	Probably	-28	Negligible	High	Medium	High
Impact: Soil compaction leading to increased runoff rates									
Without Mitigation	Very high	Medium term	Limited	Almost certain	-72	Minor	Medium	Medium	High
With Mitigation	Moderate	Medium term	Very limited	Likely	-45	Minor	Medium	Medium	High
Impact: Poor waste disposal leading to pollution of the local environment									
Without Mitigation	Moderate	Short term	Limited	Probably	-36	Minor	High	Medium	High
With Mitigation	Very low	Brief	Very limited	Rare	-10	Negligible	High	Medium	High

5.5 Decommissioning Phase

5.5.1 Boreholes & Pits

No post-operational rehabilitation measures are recommended for either the boreholes or for test pits. Test pits are unlikely to require rehabilitation if topsoil has been replaced as specified. While there may be establishment of alien vegetation, it is acknowledged that the entire catchment area is already extensively invaded by alien plant species, and removal of plants from these particular points will not effectively remediate this issue. Furthermore, these sites are being investigated with a view to development of the Rand Street extension, meaning that they will eventually be disturbed again during construction of the road.

5.5.2 Stockpile Areas

When the stockpile areas are no longer required, there may be waste remaining on the site, and the soil is likely to be highly compacted.

Potential Impacts

- Compacted soils have high surface runoff rates which can result in preferential flow paths downslope that exacerbate erosion.
- Soil that is left exposed and bare is likely to be colonised by alien vegetation. This must be managed because these areas currently have no alien invasive vegetation.
- Indigenous vegetation cover may be slow to recover due to soil compaction and poor soil conditions.

Mitigation Measures

- All solid waste must be removed from the site and disposed of appropriately depending on whether it is hazardous or not.
- No liquid or solid waste can be disposed of in the local environment.
- Any spilled hazardous waste or materials must be cleaned up and disposed of appropriately.
- The subsoil should first be ripped to alleviate compaction, followed by respreading the conserved topsoil which should be replaced to cover the entire site.
- Once topsoil has been replaced, the area should be completely seeded with a moderate to dense coverage of *Cynodon dactylon* (Kweek) grass seed. This should be thoroughly watered to ensure establishment of the grass.
- Once the grass seed has germinated, the perimeter fencing should be removed from the site.
- The stockpile sites should be inspected 3-months and 6-months post-closure to remove any alien plants that have established.

Table 8. Impact assessment for the rehabilitation phase for the stockpiling areas.

Impact	Intensity	Duration	Extent	Probability	Significance	Significance Rating	Reversibility	Irreplaceability	Confidence
Rehabilitation Phase									
Impact: Compacted and exposed soil will attract alien plant invasion and be vulnerable to erosion.									
Without Mitigation	High	Long term	Local	Likely	-65	Minor	Moderate	Low	High
With Mitigation	Low	Short term	Limited	Unlikely	-24	Negligible	High	Low	High

Table 5: Soil erosion, compaction and loss of topsoil

Assessment criterion	Description
Phase	Development, operational and decommissioning / rehabilitation
Potential risk	Erosion, soil compaction, topsoil loss and reduced rehabilitation potential.
Nature of impact	Direct disturbance of shallow duplex soils that are prone to erosion, with compaction from vehicles and stockpiling, and potential sediment movement downslope.
Extent and duration	Site-specific and local. Temporary to medium-term, depending on the duration of stockpile use and success of rehabilitation.
Consequence of impact or risk	Unmanaged soil disturbance may lead to rutting, erosion, sediment movement into wetlands, reduced infiltration, poor vegetation recovery and reduced land capability.
Probability of occurrence	Probable without mitigation due to vehicle movement, exposed soils and stockpile activities.
Degree to which impact may cause irreplaceable loss of resources	Low to moderate. Topsoil is a valuable resource but can be conserved and reused if properly stripped and stored.
Degree to which impact can be reversed	High if topsoil is conserved and compaction is ripped; moderate if erosion channels form or topsoil is lost.
Indirect impacts	Sedimentation of wetlands and watercourses, dust generation, alien invasive plant spread and reduced rehabilitation success.
Cumulative impacts prior to mitigation	Medium negative, particularly where slopes drain toward watercourses and wetlands.
Significance rating prior to mitigation	Medium negative.
Degree to which impact can be avoided	Moderate. Soil disturbance cannot be fully avoided, but sensitive slopes and aquatic buffers can be avoided where practicable.
Degree to which impact can be managed	High. Soil impacts can be managed through method statements, haul road design and monitoring.

Degree to which impact can be mitigated	High. Topsoil handling and rehabilitation can substantially reduce long-term impacts.
Proposed mitigation	Strip and store topsoil separately before stockpiling; store topsoil in low stable windrows around the site perimeter; avoid mixing topsoil and subsoil; use G5 or suitable driving surface where required to prevent rutting; install temporary stormwater controls; avoid heavy vehicle access during wet conditions; restrict vehicles to demarcated haul roads and turning areas; place excavated material from test pits on geofabric or tarpaulins; backfill test pits immediately; rip compacted soils after use; reshape areas to natural contours; replace topsoil and reseed with suitable grass species.
Residual impacts	Limited residual compaction or erosion may remain if rehabilitation is not fully successful, but impacts are expected to be low with proper implementation.
Cumulative impact post mitigation	Low negative.
Significance of impact after mitigation	Low negative.

Table 6: Dust and air quality nuisance

Assessment criterion	Description
Phase	Development, operational and decommissioning / rehabilitation
Potential risk	Dust generation from haul roads, exposed soils, material handling and stockpile surfaces.
Nature of impact	Temporary nuisance impact on nearby residents, road users, workers and vegetation; potential reduction in local amenity and air quality during dry or windy conditions.
Extent and duration	Local. Short- to medium-term during stockpile use, material movement and rehabilitation.
Consequence of impact or risk	Without mitigation, dust may cause nuisance to nearby residential receptors and contribute to visual and health-related concerns.
Probability of occurrence	Probable, especially during dry and windy conditions and when vehicles move on exposed surfaces.
Degree to which impact may cause irreplaceable loss of resources	Very low. Dust impacts are nuisance-based and temporary.

Degree to which impact can be reversed	High. Dust impacts cease once activities stop and surfaces are stabilised.
Indirect impacts	Reduced amenity, complaints from residents, dust deposition on vegetation, and reduced visibility in immediate work areas.
Cumulative impacts prior to mitigation	Low to medium negative in combination with existing urban and construction-related dust sources.
Significance rating prior to mitigation	Medium negative, particularly near sensitive residential receptors.
Degree to which impact can be avoided	Moderate. Dust cannot be fully avoided during material handling, but can be reduced through layout and controls.
Degree to which impact can be managed	High. Dust can be managed through operational controls.
Degree to which impact can be mitigated	High. Control measures are practical and effective.
Proposed mitigation	Water or otherwise stabilise haul roads and exposed surfaces during dry and windy conditions; enforce speed limits; cover or stabilise short-term stockpiles near residences where required; shape and vegetate long-term stockpiles and topsoil windrows; limit stockpile heights near sensitive receptors; suspend or reduce dust-generating activities during high-wind conditions if necessary; maintain access roads; monitor dust complaints and implement corrective action.
Residual impacts	Temporary and localised dust nuisance may still occur during dry or windy periods.
Cumulative impact post mitigation	Low negative.
Significance of impact after mitigation	Low negative.

Table 7: Visual character and sense of place

As per the specialist assessment, VRM African, App G:

The following impact criteria were used to assess the preliminary visual impacts. The criteria were defined by the Western Cape DEA&DP Guideline for involving Visual and Aesthetic Specialists in EIA Processes (Oberholzer, 2005). The yellow highlighted text below reflects the finding relevant to the stockpile project.

Impact Assessment rating table

Criteria	Definition
<u>Extent</u>	The spatial or geographic area of influence of the visual impact, i.e.: • <i>site-related</i>: extending only as far as the activity. • local: limited to the immediate surroundings. • <i>regional</i>: affecting a larger metropolitan or regional area. • <i>national</i>: affecting large parts of the country. • <i>international</i>: affecting areas across international boundaries.
<u>Duration</u>	The predicted life-span of the visual impact: • short term, (e.g., duration of the construction phase). • <i>medium term</i>, (e.g., duration for screening vegetation to mature). • <i>long term</i>, (e.g., lifespan of the project). • <i>permanent</i>, where time will not mitigate the visual impact.
<u>Intensity</u>	The magnitude of the impact on views, scenic or cultural resources. • <i>low</i>, where visual and scenic resources are not affected. • medium, where visual and scenic resources are affected to a limited extent. • <i>high</i>, where scenic and cultural resources are significantly affected.
<u>Probability</u>	The degree of possibility of the visual impact occurring: • <i>improbable</i>, where the possibility of the impact occurring is very low. • probable, where there is a distinct possibility that the impact will occur. • highly probable, where it is most likely that the impact will occur. • <i>definite</i>, where the impact will occur regardless of any prevention measures.
<u>Cumulative Effects</u>	Taking into account the local extent, moderate incremental change to landscape character, high probability of visibility, and permanent duration, the cumulative visual impact significance is assessed as Medium. The cumulative effects are not expected to result in a substantial degradation of scenic resources or a fundamental alteration of landscape character beyond existing urban trends. As such, while the cumulative impact is noticeable and permanent, it remains acceptable within the broader urban context of George.
<u>Significance</u>	The significance of impacts can be determined through a synthesis of the aspects produced in terms of their nature, duration, intensity, extent and probability, and be described as:

	• low, where it will not have an influence on the decision. • medium, where it should have an influence on the decision unless it is mitigated. • high, where it would influence the decision regardless of any possible mitigation.
The proposed George Stockpiles and associated infrastructure development is likely to result in a visual impact of high negative significance without mitigation, reduced to Medium with mitigation. The extent of the impact is local, limited to the immediate surroundings of the Skaapkop River Valley and adjacent residential areas, with no anticipated influence on regional or nationally significant scenic resources. The intensity of the impact is assessed as medium with mitigation (dust and 25m setback), as the development will introduce noticeable infrastructure into the residential areas bordering the stockpile area. While the Skaapkop River and its riparian corridor contribute positively to local landscape character and sense of place, the surrounding landscape is already visually modified by urban residential areas, background views of industrial development, the N2 Highway and major service infrastructure. The probability of the visual impact occurring is high, given the scale of the proposed infrastructure, the openness of the river valley, and the close proximity of residential receptors and transport corridors with high levels of visual exposure. The development will be clearly visible to local residents and road users. The duration of the impact is temporary (medium-term) and expected to only last three years for the duration of the construction of the Rand Street Extension.	

Mitigations

To ensure that the risks to the larger Skaapkop River open space system is not degraded, and wind blown dust does not become a nuisance factor for adjacent residential communities, the following visual impact specific mitigations are proposed. These mitigations should be seen as additional to best practice mitigations for road and stockpile environmental management. A tabulated format of the below mitigations are contained in Annexure C for inclusion in the EMP. Given that there is potential for Medium to High Visual Impact (without mitigation), mitigation should be a condition of authorisation. The mitigation setback area is mapped below.

Pre-Construction (Planning & Design)

- Planning for the stockpiles and haul roads should be located a minimum of 25m buffer from any residential structure (formal or informal). These areas should be retained as a No-Go area.
- Construction Camp sites to be setback 50m from residential property boundaries. Construction camp sites should be screened with a shade netting fence around the construction camp.
- Planning for stockpiles in areas in close proximity to residential areas, Site 1, 4 & 5, should restrict heights to 4m or less so as to ensure that visual intrusion and wind exposure is reduced.
- Stockpiles and topsoil windrow layouts should be designed to allow for water bowser access for dust suppression and vegetation establishment.
- ECO to prepare a Vegetation Establishment and Dust Monitoring Plan prior to construction, including defined re-seeding triggers.
 - Record baseline wind rose / prevailing wind direction for the site to inform stockpile orientation and screening requirements relative to residential receptors.
 - Take special consideration for berg-wind conditions for planning of stockpiles to ensure that dust impacts will be minimised.
- Given the close proximity of Site 4 Stockpile/ Construction Camp to the residential units within the George WWTW, visual screening mitigation by means of planting a hedgerow of Bitou along the fenceline (outside of the fence) should be planned.

Construction (Stockpile, Topsoil & Haul Road Management)

- 25m setback from residential structures (formal and informal).
- General stockpiles: maximum height 12m.
- Stockpiles adjacent to residential areas: maximum height 4m, to reduce visual intrusion and wind prominence.
- When not being actively worked, cover short-term stockpiles (≤6 months) located within 50m of residential areas with securely anchored tarpaulins/ or suitably covered with fires, to suppress wind-blown dust from the heaps.

- Long-term stockpiles (>6 months): shape to appear natural and lightly compact.
- Strip topsoil from all impacted areas and stockpile in windrows at the edge of the stockpile/construction site, not exceeding 2m in height, to limit soil sterilisation. The windrows should be placed in such a manner as to not generate ponding or be exposed to drainage lines where the topsoil can be washed away.
- Shape topsoil windrows to appear natural and seeded with a kweek/oats mixture as soon as possible after shaping has taken place.
- Water long-term stockpiles and top-soil windrows via bowser for dust suppression and to support planted vegetation.
- Seed long-term stockpiles with a Kweek grass and oats mixture; target established vegetated cover within 6 months.
- Manage dust from vehicle movement and road construction continuously through the construction period.
- (Site 4 – site-specific) Given the close proximity of the Site 4 Stockpile/Construction Camp to residential units within the George WWTW, establish a visual screening hedgerow of Bitou (*Chrysanthemoides monilifera*) along the outside of the fenceline, between construction camp/stockpile establishment and WWTW boundary.
 - **0.75–1.0m centre-to-centre spacing** in a single row for a dense, continuous screen — canopy closure achievable within roughly 12–18 months given the species' rapid growth rate.
- Implement wheel-wash or rumble strips at exits where material is tracked onto paved roads
- Apply generic haul road and stockpile dust mitigations per Annexure C.
 - Enforce reduced vehicle speed limits on unpaved haul roads.
 - Apply water or an approved dust palliative to haul roads during dry or windy conditions.
 - Increase watering frequency on, or temporarily cover, exposed stockpile and topsoil surfaces during high-wind events.
 - Minimise the area of exposed/disturbed ground open at any one time through progressive stripping and rehabilitation.
 - Time dust suppression (wetting) of haul routes and exposed surfaces to coincide with periods of concentrated large-vehicle activity near sensitive receptors, rather than a fixed schedule alone.

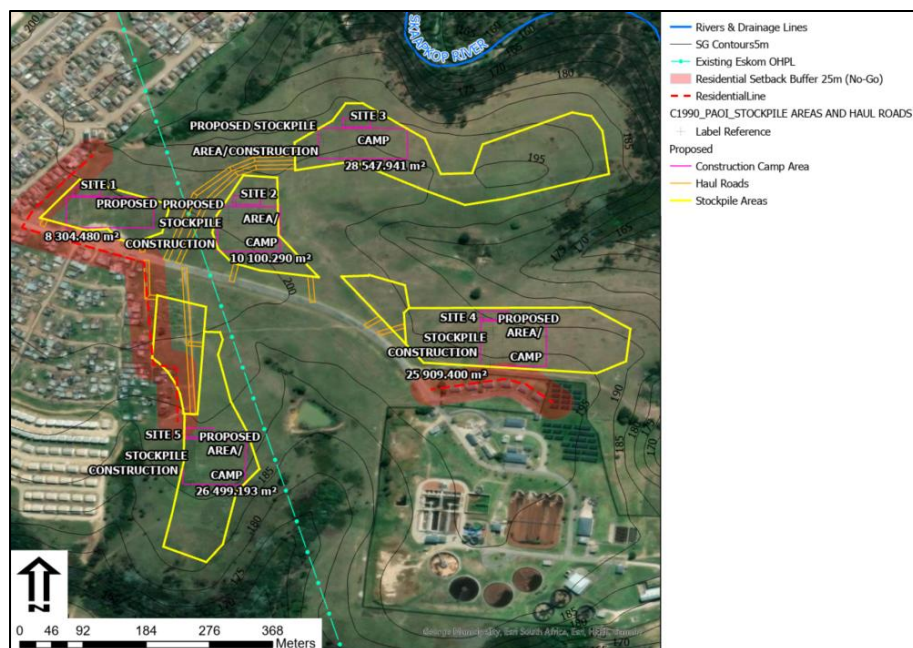
Construction (Ongoing Monitoring)

- ECO to inspect vegetation cover on long-term stockpiles and topsoil windrows at defined regular intervals (every two months).
- Re-seed stockpile areas without delay where vegetated cover has failed to establish and dust nuisance risk is identified.
- Maintain a dust/community complaints register; investigate and respond to complaints from adjacent residents within a defined timeframe.
- Undertake periodic dust monitoring at the residential boundary closest to stockpile areas.
- (Site 4 – site-specific) Monitor establishment and health of the Bitou screening hedgerow at Site 4; replace failed plants to maintain continuous visual screening for the duration of construction.

Post-Construction (Rehabilitation & Closure)

- Rip compacted hard-impact areas (construction camp, temporary roads) to 0.5m depth prior to rehabilitation.
- Reshape previously impacted areas to appear natural relative to the surrounding landscape.
- Re-apply stockpiled topsoil to disturbed areas as part of rehabilitation and restoration.
- Rehabilitate disturbed areas to natural vegetation.
- Use locally sourced/indigenous species for final vegetation establishment, in addition to the kweek/oats nurse crop.
- Monitor rehabilitated areas for a defined aftercare period (e.g. two growing seasons) to confirm vegetation establishment and dust risk closure.
- Remove temporary screening and dust-control infrastructure once rehabilitation success is confirmed.

A tabling of the above mitigations into a responsibility Environmental Management Plan can be found in Annexure C.



Residential Very High Visual Exposure 25m setback map depicting No-Go areas.

Table 8: Noise, traffic and community amenity

Assessment criterion	Description
Phase	Development, operational and decommissioning / rehabilitation
Potential risk	Temporary noise, traffic movement, safety and amenity impacts from trucks, machinery, construction camp activity and haul road use.
Nature of impact	Nuisance and safety-related impact affecting nearby residents, workers, pedestrians and road users.
Extent and duration	Local. Temporary to medium-term, linked to establishment, operation and rehabilitation of stockpile / construction camp site areas.
Consequence of impact or risk	Without mitigation, increased vehicle movements and machinery may cause nuisance, safety risks, dust, noise and conflict with surrounding land uses.
Probability of occurrence	Probable. Vehicle and machinery movement will occur during the temporary use period.

Degree to which impact may cause irreplaceable loss of resources	Very low. The impact is nuisance- and safety-related and does not result in loss of irreplaceable environmental resources.
Degree to which impact can be reversed	High. Impacts cease after the temporary operational period.
Indirect impacts	Community complaints, reduced local amenity, dust generation, road safety concerns and unauthorised access risks.
Cumulative impacts prior to mitigation	Low to medium negative when considered with other municipal infrastructure and construction-related activity in the area.
Significance rating prior to mitigation	Medium negative.
Degree to which impact can be avoided	Moderate. Some traffic and machinery use is unavoidable, but routes and operating practices can reduce impacts.
Degree to which impact can be managed	High. Impacts can be managed through operational controls, access control and communication.
Degree to which impact can be mitigated	High. Practical measures are available and enforceable through the EMP.
Proposed mitigation	Use approved access routes only; demarcate haul roads and turning areas; enforce speed limits; maintain roads to reduce dust and noise; restrict activities to reasonable working hours where practicable; prevent unnecessary idling, hooting and revving; secure the site to prevent unauthorised access; provide signage; manage contractor parking and movement; ensure construction camps are set back from residences and screened; respond to complaints through a formal complaints register and corrective action process.
Residual impacts	Temporary localised nuisance from vehicle movement and machinery will remain but should be manageable.
Cumulative impact post mitigation	Low negative.
Significance of impact after mitigation	Low negative.

Table 9: Pollution risk, waste and hazardous substances

Assessment criterion	Description
Phase	Development, operational and decommissioning / rehabilitation
Potential risk	Soil, surface water or groundwater contamination from hydrocarbons, hazardous substances, construction waste, litter or poor construction camp site management.
Nature of impact	Direct and indirect contamination risk affecting soil, wetlands, watercourses, groundwater and visual amenity.
Extent and duration	Site-specific to local. Short-term if spills are promptly contained; potentially longer-term if contamination is unmanaged.
Consequence of impact or risk	Without controls, spills or waste mismanagement could contaminate soils, enter aquatic systems, affect groundwater quality and create health and nuisance risks.
Probability of occurrence	Possible. The probability increases if vehicles, fuels, hazardous substances and construction camps are poorly managed.
Degree to which impact may cause irreplaceable loss of resources	Low to moderate. Small spills are reversible with clean-up; severe contamination could have more persistent local impacts.
Degree to which impact can be reversed	Moderate to high, depending on the nature, scale and response time of the incident.
Indirect impacts	Pollution of wetlands and watercourses, harm to fauna, groundwater contamination, odours, litter and attraction of nuisance animals.
Cumulative impacts prior to mitigation	Medium negative in combination with other urban and infrastructure pressures on the aquatic system.
Significance rating prior to mitigation	Medium negative.
Degree to which impact can be avoided	High through prevention and proper site management.
Degree to which impact can be managed	High through bunding, inspection, waste controls and emergency response.

Degree to which impact can be mitigated	High if incidents are contained and cleaned quickly.
Proposed mitigation	Store fuels and hazardous substances in bunded areas; use drip trays under stationary plant and fuel/oil storage; keep spill kits on site; inspect vehicles and machinery regularly for leaks; repair leaks immediately; prohibit servicing outside designated areas; provide adequate waste bins, skips and chemical toilets; service sanitation facilities regularly; prohibit burning, burying or dumping of waste; remove waste to licensed facilities; prevent acceptance of contaminated material or unauthorised waste; maintain full-time security to prevent illegal dumping; train staff in spill response; report and remediate spills immediately.
Residual impacts	Low residual contamination risk if controls are properly implemented.
Cumulative impact post mitigation	Low negative.
Significance of impact after mitigation	Low negative / negligible.

Table 10: Alien invasive plant spread

Assessment criterion	Description
Phase	Development, operational and decommissioning / rehabilitation
Potential risk	Further establishment or spread of alien invasive plants in disturbed stockpile, haul road, access and rehabilitation areas.
Nature of impact	Disturbance of soil creates favourable conditions for alien plant invasion, which may degrade terrestrial and aquatic habitats and reduce rehabilitation success.
Extent and duration	Site-specific to local. Medium- to long-term if not controlled after rehabilitation.
Consequence of impact or risk	Without mitigation, disturbed areas could become invaded, increasing fire risk, reducing biodiversity value, increasing erosion and affecting adjacent fynbos and wetland habitats.
Probability of occurrence	Probable without mitigation, given existing alien invasive species and disturbed conditions.
Degree to which impact may cause irreplaceable loss of resources	Moderate if alien spread affects remnant fynbos or wetland habitats; low within transformed stockpile areas if controlled.

Degree to which impact can be reversed	Moderate to high if controlled early; lower if invasion becomes established.
Indirect impacts	Reduced habitat quality, erosion, altered fire behaviour, suppression of indigenous vegetation and increased management costs.
Cumulative impacts prior to mitigation	Medium negative due to existing alien invasion pressure in the landscape.
Significance rating prior to mitigation	Medium negative.
Degree to which impact can be avoided	Moderate. Soil disturbance cannot be fully avoided, but spread can be prevented and controlled.
Degree to which impact can be managed	High through active monitoring and clearing.
Degree to which impact can be mitigated	High if follow-up clearing is implemented.
Proposed mitigation	Minimise soil disturbance; clean machinery where necessary to prevent seed transfer; strip and store topsoil carefully; stabilise disturbed soils quickly; seed rehabilitated areas; implement alien invasive plant control during and after use; remove listed invasive species in accordance with NEMBA and CARA requirements; implement the River MMP where applicable; inspect rehabilitated areas at 3 and 6 months post-closure and remove alien regrowth.
Residual impacts	Possible limited alien regrowth requiring follow-up management.
Cumulative impact post mitigation	Low negative.
Significance of impact after mitigation	Low negative / negligible.

Table 11: Agricultural potential and temporary exclusion of land

Assessment criterion	Description
Phase	Development, operational and decommissioning / rehabilitation
Potential risk	Temporary exclusion of land from informal grazing or future agricultural use and temporary reduction in soil productivity.
Nature of impact	Temporary loss of access to land, topsoil disturbance, compaction and possible reduction in land capability if rehabilitation is poor.
Extent and duration	Site-specific. Temporary for the duration of stockpile / construction camp site use, followed by rehabilitation.
Consequence of impact or risk	Without mitigation, land capability may be reduced through compaction, topsoil loss or poor revegetation.
Probability of occurrence	Definite temporary exclusion during stockpile / construction camp site use.
Degree to which impact may cause irreplaceable loss of resources	Low. The site is not under formal agricultural production and has low to moderate agricultural potential.
Degree to which impact can be reversed	High with proper topsoil management and rehabilitation.
Indirect impacts	Reduced informal grazing availability, soil erosion and alien plant spread if rehabilitation is not undertaken.
Cumulative impacts prior to mitigation	Low negative, given limited formal agricultural use.
Significance rating prior to mitigation	Low negative.
Degree to which impact can be avoided	Low to moderate, because the stockpile use requires temporary exclusion of land.
Degree to which impact can be managed	High.

Degree to which impact can be mitigated	High.
Proposed mitigation	Strip 30 cm of topsoil before stockpiling; store topsoil in low windrows; do not mix topsoil and subsoil; remove all foreign material after use; reshape areas to natural contours; rip compacted soils; replace topsoil; reseed with natural veld grasses or suitable grass species; retain the area for informal grazing or an approved alternative land use after rehabilitation.
Residual impacts	Temporary loss of use during stockpiling, with low residual impact if rehabilitation is successful.
Cumulative impact post mitigation	Negligible to low negative.
Significance of impact after mitigation	Low negative / negligible.

Table 12: Positive socio-economic and resource-efficiency impact

Assessment criterion	Description
Phase	Planning, design, development and operational
Potential risk	Positive impact associated with reuse of surplus municipal cut material and support for future municipal infrastructure delivery.
Nature of impact	Positive environmental and socio-economic impact through resource reuse, reduced disposal requirements, reduced importation of commercial fill, reduced haulage distances and improved municipal cost efficiency.
Extent and duration	Local to municipal. Short- to medium-term during stockpile use, with longer-term benefit for municipal infrastructure delivery.
Consequence of impact or risk	The proposal improves the efficiency of municipal infrastructure implementation and reduces the environmental burden associated with disposal and imported fill.
Probability of occurrence	Definite if the preferred alternative is implemented.
Degree to which impact may cause irreplaceable loss of resources	Not applicable; this is a positive impact that reduces resource demand.

Degree to which impact can be reversed	Not applicable; the benefit occurs through implementation.
Indirect impacts	Reduced municipal costs, reduced truck movements, reduced emissions, reduced pressure on disposal facilities, improved future road connectivity and more sustainable service delivery.
Cumulative impacts prior to mitigation	Positive cumulative contribution to municipal material reuse and infrastructure efficiency.
Significance rating prior to mitigation	Medium positive.
Degree to which impact can be avoided	Not applicable; positive impact should be maximised.
Degree to which impact can be managed	High. The benefit depends on controlled acceptance, storage and reuse of suitable material.
Degree to which impact can be mitigated	Not applicable; mitigation relates to controlling negative effects while maximising benefits.
Proposed mitigation / enhancement	Use only suitable clean surplus material from municipal infrastructure projects; manage stockpiles for reuse rather than disposal; keep accurate records of material volumes and movement; minimise haulage distances; coordinate stockpile use with the Rand Street and Rosedale Main Extension projects and future municipal infrastructure needs; prevent contamination of material; rehabilitate sites after use.
Residual impacts	Continued positive contribution to municipal cost savings, resource efficiency and reduced transport / disposal impacts.
Cumulative impact post mitigation	Medium positive.
Significance of impact after mitigation	Medium positive.

Table 13: No-go alternative

Assessment criterion	Description
Phase	Planning and decision-making

Potential risk	No temporary stockpile sites, construction camp areas, haul roads or geotechnical investigations would be authorised.
Nature of impact	Avoidance of direct site-specific impacts, but loss of municipal resource-efficiency, infrastructure-support and geotechnical information benefits.
Extent and duration	Site-specific avoidance of impacts on Erf 325; municipal-level negative implications for material management and infrastructure planning.
Consequence of impact or risk	Surplus material would likely need to be disposed of off-site, while future projects may require imported commercial fill. The Phase 2 Geotechnical Assessment would not be undertaken, delaying or weakening design and assessment of the future road extensions.
Probability of occurrence	Definite if the no-go alternative is selected.
Degree to which impact may cause irreplaceable loss of resources	Low in relation to Erf 325, but the opportunity to reuse material and reduce resource demand would be lost.
Degree to which impact can be reversed	Moderate. The Municipality could later seek alternative authorisation, but this would delay infrastructure planning and resource reuse.
Indirect impacts	Increased haulage, higher municipal costs, increased disposal pressure, increased demand for imported fill, increased emissions and reduced infrastructure delivery efficiency.
Cumulative impacts prior to mitigation	Medium negative when considering broader municipal resource and infrastructure implications.
Significance rating prior to mitigation	Medium negative from a municipal service-delivery and resource-efficiency perspective; low positive for avoiding local site disturbance.
Degree to which impact can be avoided	Not applicable.
Degree to which impact can be managed	Low to moderate, as the no-go option does not provide the required stockpile or geotechnical function.
Degree to which impact can be mitigated	Low, because the project need would remain unresolved.
Proposed mitigation	If the no-go alternative is selected, alternative lawful disposal and material sourcing arrangements would be required; however, these would likely increase environmental and financial costs.
Residual impacts	Loss of resource reuse opportunity, increased reliance on off-site disposal and imported fill, and delay or limitation of geotechnical information for future road design.

Cumulative impact post mitigation	Medium negative.
Significance of impact after mitigation	Medium negative.

SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.		
Summary of specialist findings, impact management measures and influence on the proposed activity			
Specialist assessment	Key findings	Key impact management measures	Influence on the proposed activity
Agriculture – Gert Malan, 2026	The proposed stockpile areas are not currently used for formal agriculture, with only occasional informal grazing observed. The soils are shallow duplex soils, prone to erosion, with low to moderate land capability. The principal agricultural impact is the temporary exclusion of land from informal agricultural / grazing use during stockpiling. The impact is temporary and reversible if rehabilitation is undertaken.	Strip and store the top 30 cm of topsoil before stockpiling; store topsoil in low windrows around the site perimeter; avoid mixing topsoil and subsoil; remove all foreign material after use; reshape the area to its natural topography; rip compacted soils; replace topsoil; reseed with suitable natural veld/grass species; retain the area for informal grazing unless another land use is approved.	The agricultural findings confirmed that the stockpile sites could be accommodated in transformed fields without unacceptable agricultural loss. They influenced the proposal by requiring the stockpile use to remain temporary, by requiring topsoil conservation and rehabilitation, and by ensuring that the land can be restored to its current functional condition after use.
Plant Species and Terrestrial Biodiversity – Confluent, 2026	The broader area has very high mapped biodiversity sensitivity and falls within biodiversity priority areas, including WCBSP CBA categories. The mapped vegetation type is associated with Garden Route Granite Fynbos, but field verification confirmed that the proposed stockpile areas are mainly transformed agricultural fields dominated by exotic and invasive species. Remnant valley-edge fynbos is more sensitive and should be avoided where practicable. No plant Species of Conservation Concern were confirmed within the stockpile footprints.	Avoid valley-edge fynbos and sensitive habitats where practicable; retain the final specialist-informed layout; micro-site geotechnical test pits, boreholes and access routes with the ECO; use existing tracks and disturbed areas first; strictly limit each geotechnical disturbance footprint; place excavated material on tarpaulins/geofabric; separate and replace topsoil; backfill test pits immediately; rehabilitate disturbed areas; implement alien invasive plant control and follow-up monitoring.	These findings directly influenced the change from the initial engineering layout to the final preferred layout. The stockpile sites were directed to transformed, lower-sensitivity fields; sensitive valley-edge fynbos and wetland-associated habitats were avoided as far as practicable; and the geotechnical assessment was required to follow micro-siting, footprint limitation and ECO supervision.
Terrestrial Animal Species – Confluent, 2026	No faunal Species of Conservation Concern were directly encountered during the survey, but suitable habitat or evidence was recorded for sensitive fauna, including golden mole tunnels and possible habitat for species such as Knysna Warbler. The site is sensitive where dense vegetation, wetland-associated habitat, valley-edge fynbos and ground-dwelling fauna habitat occur. Impacts are mainly linked to temporary disturbance, access creation, machinery movement and open excavations.	Conduct nest searches for relevant avifaunal SCC if work occurs during breeding seasons in suitable habitat; hand-cut paths through dense vegetation under ECO supervision where required; micro-site test pits and boreholes to avoid active golden mole tunnels; move test positions where sensitive faunal features are found; demarcate no-go areas; include fauna awareness in staff induction; stop work if fauna with limited mobility are encountered; undertake search and rescue by the ECO or qualified handler where required; make open excavations safe; replace borehole covers after monitoring.	The faunal assessment influenced the proposal by requiring access and investigation points to be flexible and micro-sited rather than fixed rigidly on paper. It also influenced the EMPr by adding fauna-specific controls, nest checks, golden mole tunnel avoidance, safe excavation requirements and staff awareness procedures.
Aquatic Biodiversity – Confluent, 2026	The site is located in an area of very high aquatic biodiversity sensitivity, with watercourses, wetlands, valley-bottom wetland systems and wetland buffers occurring within or adjacent to the broader site. Some watercourses are	Restrict stockpile areas to lower-gradient land and as far as practicable at least 50 m from delineated wetland edges; realign haul roads outside wetland buffers where possible; use existing access routes; limit new temporary access; install	The aquatic findings had a major influence on the preferred layout. The initial stockpile and haul road layout was revised after applying aquatic buffers. Stockpile footprints were reduced or shifted, haul roads were realigned where practicable, and strict

	modified or channelised, but they still require protection. The stockpile areas generally drain towards valley-bottom wetlands, creating risks of runoff, sedimentation, erosion, hydrocarbon pollution and water quality deterioration if unmanaged. The aquatic risk matrix indicates low risk with full mitigation.	stormwater and silt controls; use seeded topsoil berms, shade-cloth silt fencing or other runoff controls where needed; avoid heavy vehicle use during wet weather; prevent hydrocarbon and waste pollution through bunding, drip trays, spill kits and regular vehicle checks; prohibit water abstraction from wetlands, rivers or groundwater; rehabilitate disturbed areas; undertake post-closure inspections and alien plant control.	runoff, erosion, water-quality and pollution-prevention measures were incorporated into the EMP. The need for General Authorisation / NWA compliance was also informed by this assessment.
Landscape and Visual Character – VRM Africa, 2026	The broader receiving environment is urban-edge and infrastructure-influenced, but several stockpile and construction camp sites are close to residential receptors. Sites 1, 4 and 5 have the greatest visual and amenity sensitivity due to proximity to communities and worker dwellings, while Sites 2 and 3 are comparatively lower risk. The visual impact would be high negative without mitigation and medium with mitigation. No fatal flaw was identified, but the western section of Site 4 requires a no-go/buffer response and dedicated screening.	Maintain a 25 m no-go buffer from residential structures for stockpile areas; set construction camps back 50 m from residential property boundaries; screen construction camps with shade netting where required; limit stockpile heights to 4 m at Sites 1, 4 and 5 and 12 m generally elsewhere; manage dust through watering, covering or stabilising short-term stockpiles near residences and speed control; shape and vegetate long-term stockpiles and topsoil windrows; establish a Bitou hedgerow screen at Site 4; rehabilitate disturbed areas after use.	The visual assessment influenced the final layout and operating conditions by identifying areas where stockpiling would be more sensitive to nearby residents. It resulted in buffer requirements, height limits, screening, dust controls and specific mitigation at Site 4. It also confirmed that the activity should remain temporary and that rehabilitation is essential to restore local amenity.
Heritage / Heritage Western Cape	Heritage screening/comment was required in terms of the BAR process. Based on the information provided in the document, no heritage fatal flaw has been identified for the preferred activity. The activity is temporary and located within a landscape already influenced by municipal infrastructure and previous disturbance.	Implement any requirements or final comments from Heritage Western Cape; stop work and notify the relevant authority if archaeological material, palaeontological material, graves or human remains are uncovered; include chance-find procedures in the EMP.	The heritage process influenced the proposal by requiring heritage compliance to be addressed through the BAR appendices and EMP. It did not appear to require a change to the preferred layout, but chance-find procedures should remain part of the management framework.
Engineering / George Municipality Electrical Engineering Services / SMEC layout refinement	The initial engineering layout was developed to provide sufficient temporary stockpile capacity and access for municipal infrastructure projects. Specialist and municipal services input identified the need to avoid future housing project areas, existing services, wetland buffers, visually sensitive receptors and higher-sensitivity ecological areas.	Refine the stockpile layout; reduce the number of stockpile sites from the initial layout to five preferred sites; avoid existing services and future housing areas; use approved temporary haul roads; use existing tracks where possible; limit temporary roads to the minimum required width and length; rehabilitate temporary access routes after use.	Engineering and municipal service input directly shaped the final preferred alternative. The proposal evolved from an initial engineering layout to a specialist-informed layout and finally to the preferred layout showing five stockpile/construction camp areas, temporary haul roads, geotechnical access routes, test pits and monitoring boreholes.

The specialist findings collectively influenced the proposed activity through an iterative design and layout refinement process. The initial engineering layout was circulated to the specialists, who identified environmental, agricultural, aquatic, biodiversity, faunal, visual and service-related constraints. In response, the layout was refined to reduce the number and extent of stockpile areas, avoid wetland buffers and valley-edge fynbos as far as practicable, avoid current and future housing areas and existing municipal services, and place the main stockpile / construction camp footprints within transformed agricultural fields.

The assessments confirmed that the site is not uniformly sensitive. The transformed agricultural fields proposed for the main stockpile areas are of lower site-specific ecological and agricultural sensitivity, whereas the valley-edge fynbos, wetlands, watercourses, wetland buffers and faunal habitat features are more sensitive and require avoidance, buffering or micro-siting. This distinction was central to the preferred alternative.

The geotechnical assessment component was also influenced by the specialist findings. Although the test pits and monitoring boreholes are required to inform the future Rand Street and Rosedale Main Extension design and separate EIA process, their

implementation must be temporary, small-scale and carefully controlled. The specialists required micro-siting under ECO supervision, use of existing tracks where possible, hand excavation or portable drilling in sensitive areas where required, no groundwater abstraction, immediate backfilling of test pits, safe borehole management, and rehabilitation of disturbed access tracks.

The proposed activity has therefore been shaped by the mitigation hierarchy. Sensitive features have been avoided where practicable; disturbance has been minimised through footprint reduction and route refinement; unavoidable temporary impacts will be managed through EMPr controls; and disturbed areas will be rehabilitated after use. Key mitigation measures include topsoil stripping and replacement, erosion and stormwater controls, dust suppression, visual screening, stockpile height limits, wetland and watercourse protection, alien invasive plant control, fauna search-and-rescue procedures, spill prevention, waste management, ECO monitoring and post-closure rehabilitation checks.

Overall, the specialists support the proposed activity subject to strict implementation of the preferred layout, specialist recommendations and EMPr requirements. The residual impacts are expected to be temporary, localised and manageable, with biodiversity, aquatic and agricultural impacts generally reduced to low or negligible levels after mitigation. The visual impact remains locally noticeable at the more exposed sites, particularly Sites 1, 4 and 5, but is reduced through buffers, screening, stockpile height limits, dust control and rehabilitation. The preferred alternative is therefore considered acceptable because it enables municipal material reuse and infrastructure support while incorporating specialist-driven avoidance, mitigation and rehabilitation measures.

2. List the impact management measures that were identified by all Specialist that will be included in the EMPr

1. General layout, access and footprint control

- The final preferred layout must be implemented as assessed by the specialists.
- All stockpile sites, construction camp areas, haul roads, geotechnical access routes, test pits and boreholes must be clearly demarcated before works commence.
- No activities may occur outside the approved and demarcated footprints.
- No-go areas must be clearly demarcated and signposted, particularly wetlands, watercourses, wetland buffers, valley-edge fynbos, sensitive faunal habitat and areas close to residential receptors.
- Existing roads, tracks and disturbed surfaces must be used wherever possible.
- New temporary access routes must be limited to the minimum width and length required.
- Vehicle turning areas must be demarcated within the approved stockpile, construction camp site or haul road footprints.
- Access routes must avoid steep slopes, wetland buffers and sensitive vegetation as far as practicable.
- Temporary haul roads to stockpile / construction camp areas must be rehabilitated after use.
- Temporary geotechnical access tracks must be rehabilitated immediately after the relevant test pit or borehole works are complete.

2. ECO supervision, method statements and compliance monitoring

- An ECO must be appointed before commencement of establishment works.
- The ECO must be present during initial site demarcation, micro-siting of sensitive works and start-up of construction / testing activities.
- The ECO must monitor compliance with specialist mitigation measures and the EMPr.
- The ECO must be present at staff induction and must brief staff on no-go areas, fauna procedures, waste management and sensitive environmental features.
- Site-specific method statements must be prepared for:
 - stockpile site establishment;
 - temporary haul road construction;
 - geotechnical access;
 - test pit excavation and backfilling;
 - borehole installation and monitoring;
 - topsoil management;
 - stormwater and erosion control;
 - hazardous substances and spill response;
 - rehabilitation.
- Method statements must be approved before the relevant activity starts.
- ECO monitoring must include regular audits during establishment, operation and rehabilitation.
- Corrective action must be implemented immediately where non-compliance is identified.

3. Agricultural soil and topsoil management

- Topsoil must be stripped from stockpile sites before stockpiling commences.
- Topsoil must be stripped to a depth of approximately 30 cm, where available.
- Topsoil must be stored separately from subsoil.
- Topsoil and subsoil may not be mixed.
- Topsoil must be stored in low, stable windrows around the site perimeter.
- Topsoil windrows must be protected from erosion and may be seeded or stabilised where required.
- Compaction must be minimised by restricting vehicle movement to demarcated haul roads and working areas.
- After stockpiling has ceased, compacted areas must be ripped or loosened.

- The site must be reshaped to its natural topography as far as practicable.
- Conserved topsoil must be replaced after reshaping and decompaction.
- Rehabilitated areas must be reseeded with suitable natural veld grass / locally appropriate grass species.
- Unless another land use is approved, rehabilitated areas should remain available for informal grazing or equivalent low-impact use.

4. Terrestrial biodiversity and plant species measures

- Valley-edge fynbos and sensitive habitats must be avoided as far as practicable.
- Stockpile areas must remain within transformed agricultural fields and disturbed areas as assessed.
- No additional stockpile expansion may occur into remnant fynbos, wetland buffers or sensitive vegetation areas.
- Geotechnical test pits, boreholes and access routes must be micro-sited with the ECO before access or excavation.
- Sensitive plants must be avoided where possible.
- If a sensitive plant or suitable SCC habitat is identified at a proposed test pit or borehole position, the position must be shifted slightly, where feasible, to avoid direct disturbance.
- Each geotechnical disturbance footprint must be limited to the minimum practical area, generally approximately 5 m x 5 m.
- Excavated soil from test pits must be placed on tarpaulins, geofabric or plastic liners to prevent unnecessary soil spread and vegetation damage.
- Topsoil from geotechnical excavations must be stored separately and replaced last during backfilling.
- Test pits must be backfilled as soon as logging / assessment is complete.
- Disturbed test pit areas must be stabilised and seeded after closure.
- Alien invasive plant control must be implemented during and after works.
- The approved River MMP, including alien species control, must be implemented where applicable.

5. Terrestrial fauna management measures

- Pre-construction checks must be undertaken in suitable habitats where faunal SCC may occur.
- Nest searches for avifaunal SCC must be undertaken in suitable habitat if work occurs during relevant breeding periods.
- For Black-crowned Night Heron, nest searches must be undertaken during the August–October breeding period if works are scheduled in suitable habitat.
- For Knysna Warbler, nest searches must be undertaken during the August–December breeding period if works are scheduled in suitable habitat.
- If no work is scheduled during relevant breeding periods, nest searches are not required.
- Paths through dense vegetation must be hand-cut where required and only under ECO supervision.
- If a nest is encountered, work on that route must stop and an alternative route must be selected.
- Test pits and boreholes must be micro-sited to avoid active golden mole tunnels.
- Where active golden mole tunnels are identified, the test pit or borehole must be shifted at least 50 cm, where feasible.
- Staff must be trained to identify and report fauna encounters.
- Any fauna encountered on site must be reported to the ECO immediately.
- Work must stop if fauna with limited mobility or SCC are encountered until they are safely moved or the ECO provides instruction.
- Fauna search-and-rescue must be undertaken by the ECO or a suitably qualified handler where required.
- Injured animals must be referred to an appropriate animal welfare organisation or qualified handler.
- Snake removals must be undertaken by a qualified snake handler.
- Open excavations left overnight must be fenced, covered or otherwise made safe to prevent fauna entrapment.
- Borehole covers must be replaced after monitoring to prevent animals falling in.
- Waste and food waste must be controlled to avoid attracting animals.
- Construction should occur during daylight hours where practicable.
- Security lighting should be motion-triggered and kept to the minimum required for safety.

6. Aquatic biodiversity, wetlands and watercourse protection

- Wetlands, watercourses and wetland buffers must be avoided as far as practicable.
- Stockpile areas must be restricted to lower-gradient land and, where practicable, at least 50 m from delineated wetland edges.
- Haul roads must be realigned outside wetland buffers where possible.
- Existing tracks must be used wherever possible to reduce new disturbance.
- New temporary access near aquatic features must be limited to the minimum practical extent.
- No stockpiling, waste disposal, refuelling, vehicle servicing or hazardous substance storage may occur within wetlands, watercourses or their buffers.
- Runoff from stockpile areas must be managed to prevent sediment entering wetlands or watercourses.
- Stockpile areas must be levelled or shaped to prevent preferential flow paths and ponding.
- Silt fences, shade-cloth barriers, seeded topsoil berms or equivalent sediment controls must be installed where runoff may leave disturbed areas.
- Stormwater must be directed into stable vegetated areas and not directly into wetlands or watercourses.

- Heavy vehicle use must be avoided during wet weather where rutting, compaction or sediment movement may occur.
- Hand excavation or portable drilling equipment must be used in sensitive aquatic areas where required by the specialist.
- No water may be abstracted from rivers, wetlands or groundwater.
- Water required for dust suppression or construction must be obtained from approved municipal sources.
- Disturbed areas near aquatic features must be rehabilitated immediately after use.
- Post-closure inspections must be undertaken to confirm soil stability and alien plant control.

7. Erosion, stormwater and sediment control

- Erosion-control measures must be installed before or at the start of disturbance.
- Exposed soils must be stabilised as soon as practicable.
- Temporary haul roads must be surfaced with G5 or other suitable material where required to prevent rutting and erosion.
- Temporary stormwater controls must be installed along haul roads and stockpile areas.
- Stormwater must not be concentrated or discharged directly into wetlands or drainage lines.
- Sediment control measures must be maintained throughout the active use period.
- Slopes must be avoided where possible; where unavoidable, access must follow natural contours and lower-gradient routes.
- Bare areas must be reseeded or stabilised after use.
- Compacted soils must be ripped during rehabilitation.
- Erosion features must be repaired immediately when identified.

8. Stockpile and construction camp management

- Stockpile sites must be surveyed, pegged and fenced before use.
- Only approved stockpile sites may be used.
- Only suitable clean cut material from municipal infrastructure projects may be stockpiled.
- No hazardous waste, general waste, contaminated material or unauthorised fill may be accepted.
- Stockpile areas must be managed as temporary departure uses and may not become permanent spoil sites, waste sites or depots.
- Adequate internal access and vehicle manoeuvring space must be provided to prevent vehicles moving outside the approved footprint.
- Construction camp areas must be located within the approved stockpile / construction camp site footprints.
- Construction camps must be set back at least 50 m from residential property boundaries where required by the visual specialist.
- All construction camp site areas must have adequate sanitation, waste bins, skips and controlled storage areas.
- The sites must be kept neat and orderly.
- Full-time security must be provided where required to prevent unauthorised access, illegal dumping and environmental incidents.

9. Dust and air-quality management

- Dust suppression must be implemented during dry and windy conditions.
- Haul roads and exposed surfaces must be watered or otherwise stabilised where necessary.
- Vehicle speeds must be controlled on haul roads and within stockpile areas.
- Short-term stockpiles near residences must be covered or stabilised where required.
- Long-term stockpiles and topsoil windrows must be shaped and vegetated where practicable.
- Dust-generating activities should be reduced or suspended during high-wind events where dust cannot be controlled.
- Dust complaints must be recorded and corrective action implemented.
- Stockpile heights must be limited as required by the visual specialist to reduce visual and dust impacts.

10. Visual and landscape mitigation measures

- A 25 m no-go buffer must be maintained from residential structures for stockpile areas.
- Construction camps must be set back 50 m from residential property boundaries and screened with shade netting where required.
- Stockpile heights must be limited to 4 m at Sites 1, 4 and 5.
- Stockpile heights may not exceed 12 m generally elsewhere, unless otherwise authorised.
- Site 4 must receive specific visual screening due to its proximity to residential units / worker dwellings.
- A Bitou hedgerow screen must be established at Site 4 as recommended.
- Construction camp areas must be screened where visible from sensitive receptors.
- Stockpiles must be shaped to reduce visual intrusion.
- Long-term stockpiles and topsoil windrows must be vegetated where appropriate.
- Sites must be maintained in a neat and controlled condition.
- Disturbed areas must be rehabilitated after use to restore local visual amenity.

11. Waste management and pollution prevention

- No littering, dumping or burning of waste may occur on site.
- All waste must be stored in secure bins or skips.
- Waste must be removed to a registered disposal facility.
- Adequate chemical toilets must be provided and serviced regularly.
- Waste may not be discharged beyond the fenced or demarcated work areas.
- Small items and building materials must be stored in containers or locked areas.
- Fuel, oil, bitumen and hazardous substances must be stored in bunded or lined areas.
- Drip trays must be used under stationary plant, fuel storage and oil storage.
- Spill kits and spill containment materials must be available on site.
- Vehicles and machinery must be inspected regularly for leaks.
- Leaks must be repaired immediately.
- Vehicle servicing may only occur in designated controlled areas.
- Contaminated soil must be removed and disposed of at an approved facility.
- Spill incidents must be reported to the ECO and remediated immediately.
- Illegal dumping within or around the temporary stockpile sites must be monitored and prevented.

12. Groundwater and borehole management

- Monitoring boreholes may only be used for groundwater-level and groundwater-quality monitoring.
- No groundwater abstraction is permitted.
- Boreholes must be securely capped when not being monitored.
- Borehole covers must be replaced after each monitoring event.
- Monitoring teams must use established access routes.
- Where no vehicle access exists, monitoring must be undertaken on foot.
- Pollution-prevention measures must be implemented to protect groundwater from hydrocarbon or hazardous substance contamination.

13. Geotechnical test pit and borehole measures

- Geotechnical works must be limited to the approved Phase 2 investigation requirements.
- Test pits and boreholes must be micro-sited with the ECO.
- Each test pit / borehole working area must be limited to approximately 5 m x 5 m, unless otherwise justified and approved.
- Existing tracks must be used wherever possible.
- Where existing access is too narrow, widening must be kept to the minimum required.
- Temporary geotechnical access tracks should not exceed approximately 5 m wide unless specifically required for safety or equipment access.
- Hand excavation must be used in sensitive wetland or vegetation areas where practical.
- Portable drilling equipment must be used where aquatic or biodiversity constraints prevent normal vehicle access.
- Excavated material must be placed on tarpaulin, geofabric or plastic liner.
- Soil must be replaced in the correct order, with topsoil replaced last.
- Test pits must be backfilled on the day of excavation wherever practicable.
- Disturbed test pit areas must be seeded / stabilised after closure.
- No additional vegetation clearance is permitted after the initial access and testing disturbance.
- After installation, borehole access must be limited to periodic monitoring only.

14. Rehabilitation and decommissioning measures

- All temporary stockpiled material must be removed once the stockpile use is complete.
- All foreign material, rubble, waste and construction-related materials must be removed from the site.
- No waste or fill material may be left on site or disposed of locally.
- Temporary fencing must remain until rehabilitation is sufficiently established.
- Compacted soils must be ripped or loosened.
- Areas must be reshaped to natural contours as far as possible.
- Conserved topsoil must be replaced.
- Rehabilitated areas must be seeded with suitable grass species, including *Cynodon dactylon* (kweek) where specified.
- Rehabilitated areas must be watered thoroughly where required to establish vegetation.
- Perimeter fencing may only be removed once grass cover is established and the ECO confirms stabilisation.
- Sites must be inspected at 3 and 6 months after closure.
- Alien invasive regrowth must be removed during post-closure inspections.
- Additional rehabilitation must be undertaken where erosion, poor vegetation cover or alien invasion is identified.

15. Heritage / chance-find measures

- Any requirements from Heritage Western Cape must be included in the EMPr once final comment is received.
- If archaeological material, palaeontological material, graves or human remains are uncovered, work in the immediate area must stop.
- The ECO and relevant heritage authority must be notified.
- Chance finds must be protected from further disturbance until the competent heritage authority provides instruction.

16. Community, safety and amenity measures

- Access control and security must be implemented to prevent unauthorised access and illegal dumping.
- Construction traffic must use approved access routes only.
- Speed limits must be enforced.
- Working hours should be limited to reasonable daytime periods where practicable.
- Unnecessary idling, hooting, revving and night-time disturbance must be avoided.
- Construction camps and stockpile areas near residences must be screened and managed to reduce nuisance.
- Dust, noise, traffic and visual complaints must be recorded in a complaints register.
- Corrective action must be implemented in response to valid complaints.
- Safety signage must be placed at access points, haul roads and active work areas.

Overall EMPr requirement

All specialist mitigation measures must be incorporated into the EMPr and made binding on the applicant, contractor, subcontractors and geotechnical team. The EMPr must require the final preferred layout, temporary nature of the stockpile / construction camp use, ECO monitoring, strict footprint control, avoidance of sensitive features, pollution prevention, topsoil conservation, dust and visual controls, fauna protection, aquatic protection and rehabilitation of all temporary disturbance areas.

3.	List the specialist investigations and the impact management measures that will not be implemented and provide an explanation as to why these measures will not be implemented.
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Based on the available specialist summaries, all specialist impact management measures identified for the proposed activity are intended to be implemented through the EMPr, with the exception of measures that are conditional, not applicable in certain circumstances, or superseded by the revised preferred layout.

Specialist measure	Will it be implemented?	Explanation
Avifaunal SCC nest searches during breeding seasons	Conditional / only if required	This measure will only be required if works occur within suitable habitat during the relevant breeding periods. If no work is scheduled during those periods, or if the relevant habitat will not be disturbed, the measure is not required.
Hand-cutting access paths through dense vegetation	Conditional / only where required	This will only be implemented where access through dense vegetation is unavoidable. Where existing roads, tracks or disturbed routes can be used, hand-cutting will not be necessary.
Shifting test pits / boreholes to avoid sensitive plants or golden mole tunnels	Conditional / site-specific	This will be implemented where sensitive plants, active golden mole tunnels or sensitive faunal features are found during micro-siting. If no such features occur at a specific test position, relocation will not be required.
Use of portable drilling equipment	Conditional / only where feasible and necessary	Portable drilling will only be required where aquatic, slope, vegetation or access constraints prevent normal low-impact access by small plant. Where existing access is adequate and no sensitive features are affected, standard small drilling equipment may be used.
Hand excavation in sensitive wetland areas	Conditional / only where practical and required	This measure will only apply where test pits are required in or near sensitive wetland or buffer areas and where hand excavation is practical. Where testing is outside such areas, or where hand excavation is not technically feasible, ECO-directed access and mitigation will apply instead.
50 m setback from delineated wetland edges for stockpiles	Implemented as far as practicable	The preferred layout has been designed to avoid wetlands and buffers as far as possible. Where full setback is not achievable because of access or site constraints, runoff, erosion, silt and pollution-control measures will be implemented to manage residual risk.
Haul roads located entirely outside wetland buffers	Implemented as far as practicable	The layout was revised to reduce wetland-buffer encroachment. Where temporary access cannot fully avoid buffer areas, the routes must be minimised, controlled, stabilised and rehabilitated after use.
Establishment of Bitou hedgerow screening at Site 4	To be confirmed / conditional	This has been recommended by the visual specialist. If practical and accepted by the applicant / authority, it should be included in the EMPr. If not implemented, an equivalent visual screening measure should be required to achieve the same mitigation objective.
Covering bare soil with bark for dust suppression	May not be implemented exactly as worded	This may be substituted with more practical dust-control measures such as watering, stabilisation, shaping, seeding, speed control and covering short-term stockpiles where required. Bark cover may not be practical or necessary across large stockpile or haul road areas.
Revegetation with indigenous plants	Implemented in adapted form	Rehabilitation will focus on stabilising disturbed areas with suitable grass cover and locally appropriate species. In transformed stockpile areas,

		restoration to intact indigenous fynbos is not required; the objective is to stabilise soil, prevent erosion and return the areas to a managed condition resembling the pre-activity condition.
No specific rehabilitation of test pits if topsoil is replaced	Not treated as "no rehabilitation"	Although the specialist notes that no additional rehabilitation may be required if topsoil is correctly replaced, the EMPr should still require backfilling, topsoil replacement, stabilisation and monitoring to ensure no erosion or alien invasive establishment occurs.
Measures linked to an "operational phase" for geotechnical works	Not applicable as operational measures	The Phase 2 geotechnical assessment is not an operational activity. Once test pits are closed and boreholes are installed, only periodic monitoring access is required. These measures should therefore be included as monitoring / access controls rather than operational stockpile measures.
Measures for sensitive habitats that are avoided by the final layout	Not required for avoided areas	Some measures become unnecessary where the final specialist-informed layout avoids the relevant sensitive feature entirely. However, these areas must still be demarcated as no-go areas and protected from accidental disturbance.

No specialist impact management measures are intentionally excluded from implementation.

All applicable specialist recommendations will be incorporated into the EMPr.

Measures that are not implemented in full are those that are conditional on site-specific circumstances, not applicable because the final layout avoids the relevant sensitive feature, or capable of being replaced by an equivalent measure that achieves the same environmental management outcome.

Where a specialist measure is conditional, the ECO must confirm its applicability before the relevant activity proceeds.

4. Explain how the proposed development will impact the surrounding communities.

The proposed development will have both positive and negative impacts on the surrounding community, although the negative impacts are expected to be temporary, localised and manageable if the EMPr and specialist mitigation measures are implemented.

The proposed stockpile sites and construction camp areas are located within the broader George urban-edge environment, close to existing and developing communities including Rosedale, Borchards, Thembaletu and Pacaltsdorp, as well as municipal infrastructure such as the George Wastewater Treatment Works. The surrounding community may therefore be affected mainly during the temporary establishment, use and rehabilitation of the stockpile sites, haul roads and construction camp areas.

The main potential negative impacts on the community relate to dust, noise, construction traffic, visual intrusion, safety and general nuisance. Dust may be generated from exposed soils, stockpiled material, haul roads and vehicle movement, particularly during dry or windy conditions. Noise may arise from trucks, earthmoving machinery, stockpile handling and construction camp activity. The movement of construction vehicles may also create temporary traffic and safety concerns if access is not properly controlled. These impacts are most relevant at stockpile sites located close to residential receptors, particularly Sites 1, 4 and 5.

The stockpiles and construction camps may also affect the visual character and sense of place for nearby residents. The activity will temporarily introduce a more construction-related or industrial appearance into parts of the local landscape. This may reduce local amenity while the sites are active, although the broader receiving environment is already influenced by urban development, roads, municipal infrastructure and the wastewater treatment works. The impact is therefore not expected to permanently alter the broader character of the area, provided that the use remains temporary and rehabilitation is undertaken after use.

These potential community impacts have directly influenced the proposal. The preferred layout was refined to avoid sensitive residential interfaces as far as practicable, and the visual specialist recommended specific controls such as a 25 m no-go buffer from residential structures for stockpile areas, a 50 m setback for construction camps from residential property boundaries, screening of construction camps, stockpile height limits at Sites 1, 4 and 5, dust suppression, speed control on haul roads, and a Bitou hedgerow screen at Site 4. The EMPr must also include controlled access, site security, signage, waste management, complaint response procedures and rehabilitation measures.

The proposal also has positive community benefits. It will support municipal infrastructure delivery by allowing George Municipality to temporarily store and reuse surplus cut material for future road and infrastructure works, including the Rand Street and Rosedale Main Extension projects. This will reduce the cost of material disposal and imported fill, reduce unnecessary haulage, and support more cost-effective service delivery. The future road extensions are intended to improve access and connectivity between surrounding residential areas and the broader George urban, business and industrial network.

Overall, the proposed development is expected to have short-term nuisance impacts on nearby communities during the temporary stockpile and construction camp use, mainly through dust, noise, visual intrusion and construction traffic. However, these impacts can be reduced through the preferred layout, buffers, screening, dust control, traffic and access management, security and rehabilitation. The longer-term community benefit is associated with improved municipal infrastructure efficiency, reduced public expenditure on disposal and imported material, and support for future road connectivity.

5.	Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.	
The risk of climate change has been considered in the context of the nature, scale and duration of the proposed activity. The proposal is for the short-term temporary use of five stockpile / construction camp areas, together with temporary access routes and the Phase 2 geotechnical investigation works. It is not a long-term climate-dependent land use, does not involve permanent infrastructure that is materially vulnerable to future climate conditions, and does not rely on rainfall, groundwater abstraction, irrigation, agricultural production or climate-sensitive operational inputs. The proposed activity is therefore not expected to be significantly influenced by long-term climate-change risks such as gradual temperature increase, long-term rainfall shifts or sea-level rise. However, short-term climate-related weather events, particularly more intense rainfall, storm events, prolonged dry periods and stronger wind conditions, could influence the temporary works by increasing the risk of erosion, sediment-laden runoff, dust generation, wet-weather rutting, soil compaction and potential movement of sediment towards wetlands and watercourses. These potential risks have been considered and addressed through the design and mitigation measures recommended by the specialists and to be included in the EMPr. The preferred layout locates the main stockpile areas on lower-gradient, transformed land where possible, avoids wetlands and watercourses as far as practicable, and requires temporary stormwater and erosion-control measures. These include silt fencing, seeded topsoil berms or equivalent sediment controls where runoff may leave the site, stabilisation of exposed soils, controlled haul routes, avoidance of heavy vehicle use during wet weather, topsoil stripping and storage, dust suppression during dry and windy conditions, and rehabilitation of all temporary disturbance areas after use. The proposal also reduces climate-related resource demand by enabling the reuse of surplus municipal cut material as fill material for future municipal infrastructure projects. This reduces the need for off-site disposal and imported commercial fill, thereby reducing haulage distances, fuel use, emissions and material procurement requirements when compared with conventional disposal and importation options. Overall, climate change is not a determining constraint for the proposal because the activity is temporary, short-term, reversible and not climate-dependent. The main climate-related considerations are short-term weather risks during implementation, which have been addressed through stormwater control, erosion prevention, dust management, wet-weather work restrictions, careful topsoil management and rehabilitation requirements. With these measures in place, the proposed activity is not expected to create or be exposed to significant climate-change-related impacts.		
6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.	
There do not appear to be any fundamental or unresolved conflicts between the recommendations of the specialists. The specialist inputs are generally complementary and have been integrated into the final preferred layout and EMPr requirements. Potential areas of overlap or tension between specialist recommendations The main areas where recommendations had to be balanced were:		
Specialist issue	Potential conflict / overlap	How it was resolved
Aquatic sensitivity vs engineering access requirements	The aquatic specialist recommended avoiding wetlands, watercourses and wetland buffers as far as practicable, while access is required to the stockpile sites and geotechnical investigation points.	The layout was revised after applying aquatic buffer information. Haul roads were realigned, where possible, existing tracks must be used first, new access is limited to the minimum practical width and extent, and any unavoidable buffer-related risk is managed through stormwater, erosion, silt and pollution-control measures.
Terrestrial biodiversity vs geotechnical investigation requirements	Some test pits, boreholes and access routes may occur near valley-edge fynbos or mapped biodiversity priority areas, while the biodiversity specialist recommended avoiding sensitive vegetation and limiting disturbance.	The geotechnical activities were retained because they are required to inform the future road design and EIA process, but they must be micro-sited with the ECO, limited to small temporary footprints, use existing access where possible, and be rehabilitated after testing.
Faunal sensitivity vs access and excavation	The fauna specialist identified potential golden mole activity and possible sensitive bird habitat, while access and test pit excavation are required.	The recommendations were integrated through pre-work checks, micro-siting to avoid active golden mole tunnels, nest searches where relevant during breeding periods, fauna search-and-rescue procedures, safe excavation management, and ECO supervision.
Visual sensitivity vs stockpile capacity	The visual specialist identified that Sites 1, 4 and 5 are more sensitive due to proximity to residential receptors, while these sites are needed to provide sufficient temporary stockpile capacity.	The sites were not removed entirely, but visual mitigation was strengthened. This includes buffers from residences, stockpile height limits, construction camp setbacks, shade-net screening, dust control, a Bitou hedgerow screen at Site 4, and rehabilitation after use.
Agricultural rehabilitation vs biodiversity rehabilitation	The agricultural specialist recommends restoring soil function and reseeding with grass cover, while biodiversity measures require protection of indigenous seed banks and alien invasive control.	These recommendations are compatible. Topsoil must be conserved and replaced, disturbed areas must be stabilised, and alien invasive plants must be controlled. In transformed stockpile areas the objective is rehabilitation to a stable managed condition, while in more sensitive areas disturbance must be minimised and natural recovery supported.
Long-term stockpile/depot use	Some operational controls could imply an ongoing operational phase, while the	The activity is clarified as a temporary departure use, not a permanent depot, waste site or long-term material yard.

vs temporary departure use	proposal is for short-term temporary stockpile / construction camp use only.	Operational measures apply only while the temporary stockpile/ construction camp site areas are active. The geotechnical assessment is not treated as an operational activity, except for periodic borehole monitoring access.
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No specialist recommendation has been rejected due to a direct conflict with another specialist recommendation. Where recommendations overlapped or created practical constraints, they were resolved through refinement of the layout, prioritisation of avoidance where practicable, micro-siting under ECO supervision, use of existing disturbed access routes, strict footprint control, and inclusion of the relevant mitigation measures in the EMP.

The final preferred alternative therefore reflects a consolidated specialist-informed approach: the main stockpile and construction camp areas are located in transformed fields, sensitive wetland, aquatic, faunal and biodiversity features are avoided or buffered as far as practicable, visual and community impacts are mitigated through setbacks and screening, and all temporary disturbance areas must be rehabilitated after use.

7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.
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Specialist study	Key findings	Impact management measures to be included in the EMP	Influence on the proposed activity
Agriculture – Gert Malan, 2026	The proposed stockpile sites are not currently used for formal agriculture and are subject only to occasional informal grazing. The soils are shallow duplex soils, prone to erosion, with low to moderate land capability. The agricultural impact is therefore mainly the temporary exclusion of land from grazing and possible effects on soil structure and topsoil condition, rather than the permanent loss of productive agricultural land.	Strip topsoil to approximately 30 cm where available before stockpiling; store topsoil separately from subsoil in low, stable windrows; prevent mixing of topsoil and subsoil; protect topsoil from erosion; remove all foreign material after use; reshape the areas to natural contours; rip compacted soils; replace conserved topsoil; reseed with natural veld grasses or suitable locally appropriate grass species; and retain the land for informal grazing or another approved low-impact use after rehabilitation.	The findings support the use of the transformed fields for temporary stockpiling, provided that soil resources are protected and the sites are rehabilitated after use. They confirm that the proposal will not result in the permanent loss of agricultural potential if the required rehabilitation measures are implemented.
Plant Species and Terrestrial Biodiversity – Confluent, 2026	The DFFE Screening Tool identified very high terrestrial biodiversity and plant species sensitivity. Field verification confirmed that the main stockpile footprints are located mostly within transformed agricultural fields dominated by exotic and invasive vegetation. No plant Species of Conservation Concern were confirmed within the stockpile footprints. The more sensitive biodiversity features are associated with valley-edge fynbos, remnant indigenous vegetation and wetland-associated habitats linked to Garden Route Granite Fynbos and WCBSP CBA areas.	Retain the final preferred layout; avoid valley-edge fynbos, remnant indigenous vegetation and wetland buffers as far as practicable; prevent expansion of stockpile areas into sensitive habitats; micro-site geotechnical test pits, boreholes and access routes with the ECO; use existing tracks and disturbed surfaces first; limit each geotechnical disturbance footprint to the minimum practical area; place excavated soil on tarpaulin or geofabric; separate and replace topsoil; backfill test pits immediately after logging; stabilise and rehabilitate disturbed areas; and implement alien invasive plant control and follow-up monitoring.	The layout was refined so that the main stockpile / construction camp areas are confined to transformed fields, while sensitive fynbos and wetland-associated habitats are avoided as far as practicable. The findings also require ECO-supervised micro-siting and strict mitigation for geotechnical works in or near sensitive areas.
Plant Species and Terrestrial Biodiversity – Confluent, 2026	Valley-edge fynbos is the highest biodiversity informant on the site. Although fragmented and invaded, it represents remnant habitat associated with Garden Route Granite Fynbos and may support plant SCC or suitable SCC habitat in places.	Treat valley-edge fynbos as a no-go / avoidance area as far as practicable. Where geotechnical access or test positions cannot avoid these areas, disturbance must be limited to the smallest practical footprint, existing tracks or disturbed areas must be used first, and rehabilitation must be undertaken immediately after testing.	This influenced the proposal by requiring avoidance of valley-edge fynbos in the stockpile layout and by requiring careful, site-specific control of geotechnical access and investigation points.
Terrestrial Animal Species – Confluent, 2026	The DFFE Screening Tool identified high terrestrial animal species sensitivity.	Undertake ECO-supervised micro-siting; avoid active golden mole tunnels and shift test pits or boreholes at least 50 cm where feasible;	The findings require flexible positioning of geotechnical points and access routes, fauna-specific management

	No animal SCC were directly encountered during the field survey, but golden mole tunnels were recorded and suitable habitat may occur for fauna SCC such as Knysna Warbler in dense wetland, riparian and valley-edge vegetation. Most impacts are linked to temporary habitat disturbance, access creation, machinery movement and open excavations.	conduct nest searches for relevant avifaunal SCC if work occurs in suitable habitat during breeding periods; hand-cut paths through dense vegetation only where required and under ECO supervision; demarcate no-go areas; train staff to identify and report fauna encounters; stop work where fauna with limited mobility or SCC are encountered; undertake fauna search-and-rescue by the ECO or a suitably qualified handler; make open excavations safe; replace borehole covers after monitoring; secure waste and food waste; and minimise unnecessary lighting.	procedures and ECO supervision rather than rigid implementation of fixed points where faunal features are encountered.
Terrestrial Animal Species – Confluent, 2026	Potential habitat exists for avifaunal SCC, including Knysna Warbler in dense wetland, riparian or thicket-like vegetation, and other bird species in suitable habitat. The likelihood of occurrence varies by species and habitat quality.	If work is proposed in suitable habitat during the relevant breeding periods, nest searches must be undertaken before disturbance. If active nests are found, work on that route or area must cease and an alternative route must be identified in consultation with the ECO.	This influenced the proposal by requiring seasonal and habitat-specific checks before disturbance in sensitive vegetation, particularly for geotechnical access routes.
Aquatic Biodiversity – Confluent, 2026	The site falls within an area of very high aquatic biodiversity sensitivity. Wetlands, watercourses, valley-bottom wetland systems and aquatic buffers occur within or adjacent to the broader site. Several aquatic systems are modified or incised, but still perform hydrological and ecological functions. The main risks are runoff, erosion, sedimentation, hydrocarbon contamination and dust or sediment movement into aquatic systems. With mitigation, the aquatic risk is low and can be managed under the applicable National Water Act process.	Locate stockpile areas on lower-gradient land and at least 50 m from delineated wetland edges as far as practicable; realign haul roads outside wetland buffers where possible; use existing access routes; limit new temporary access; install silt fencing, shade-cloth barriers, seeded topsoil berms or equivalent sediment controls where runoff may leave disturbed areas; avoid heavy vehicle use during wet weather; prohibit stockpiling, refuelling, servicing, hazardous substance storage or waste disposal in wetlands, watercourses or buffers; use bunded storage, drip trays, spill kits and leak checks; prohibit abstraction from rivers, wetlands or groundwater; rehabilitate disturbed areas; undertake post-closure inspections and alien plant control.	The aquatic findings had a major influence on the preferred layout by requiring reduction and relocation of stockpile areas, refinement of haul roads, protection of wetland buffers and inclusion of stormwater, erosion and pollution controls in the EMPr.
Aquatic Biodiversity – Confluent, 2026	The proposed stockpile areas generally drain towards valley-bottom wetlands. The principal aquatic risk is not direct wetland loss, but sediment-laden runoff, erosion, hydrocarbon contamination and altered runoff patterns if exposed soils and stockpiles are not properly managed.	Install stormwater and sediment controls before or at the start of disturbance; stabilise exposed soils; direct runoff into stable vegetated areas rather than directly into wetlands or drainage lines; maintain sediment controls throughout the active use period; avoid wet-weather heavy vehicle movement where rutting may occur; and rehabilitate disturbed areas promptly after use.	This influenced the proposal by requiring stockpile areas to be located on lower-risk slopes where practicable and by requiring temporary stormwater, erosion and sediment-control measures as core EMPr requirements.
Visual and Landscape Character – VRM Africa, 2026	The receiving environment is an urban-edge and infrastructure-influenced landscape, but several stockpile and construction camp site areas are close to residential receptors. Sites 1, 4 and 5 have the greatest visual and amenity sensitivity, while Sites 2 and 3 are comparatively lower risk.	Maintain a 25 m no-go buffer from residential structures for stockpile areas; set construction camps back 50 m from residential property boundaries; screen construction camp sites with shade netting where required; limit stockpile heights to 4 m at Sites 1, 4 and 5 and 12 m generally elsewhere; manage dust through watering, covering or stabilising short-term stockpiles near residences and speed control; shape and vegetate longer-term	The visual assessment influenced residential buffers, stockpile height limits, construction camp setbacks, screening requirements, Site 4 mitigation, dust controls and the requirement that the stockpile / construction camp site use remains temporary and rehabilitated after use.

	The visual impact is high negative without mitigation and medium with mitigation. No visual fatal flaw was identified, but the western portion of Site 4 requires a buffer / no-go response and dedicated screening.	stockpiles and topsoil windrows; establish a Bitou hedgerow or equivalent screen at Site 4; maintain neat sites; and rehabilitate disturbed areas after use.	
Heritage / Heritage Western Cape process	Heritage screening/comment is required as part of the BAR process. Based on the available information, no heritage fatal flaw has been identified. The activity is temporary and located in a landscape already influenced by disturbance and municipal infrastructure.	Incorporate any final requirements from Heritage Western Cape into the EMP. Include chance-find procedures requiring work to stop if archaeological material, palaeontological material, graves or human remains are uncovered, with notification of the ECO and relevant heritage authority before work resumes.	The heritage process does not appear to require a layout change, but it requires compliance with HWC requirements and inclusion of chance-find procedures in the EMP.
Engineering / SMEC / George Municipality Electrical Engineering Services	The original engineering layout was developed to provide adequate temporary stockpile capacity and access. Specialist and municipal services input identified the need to avoid future housing project areas, existing services, wetland buffers, visually sensitive receptors and higher-sensitivity ecological areas.	Use the final SMEC layout; avoid service constraints and future housing areas; use existing roads and tracks where available; limit new haul roads to approximately 5–6 m wide and rehabilitate after use; limit temporary geotechnical access tracks to approximately 5 m wide where required; avoid unnecessary widening; and rehabilitate all temporary access routes after use.	Engineering and municipal service input shaped the final preferred layout by balancing stockpile capacity with service constraints, future planning areas, environmental avoidance and access limitations.
Phase 2 Geotechnical Assessment requirements	The Phase 2 geotechnical assessment is required to inform the design and separate EIA process for the Rand Street and Rosedale Main Extension project. It is not an operational stockpile activity. Test pits and boreholes are temporary investigation activities, and boreholes are for monitoring groundwater levels and quality only. No groundwater abstraction is proposed.	Test pits must be backfilled after logging/assessment; boreholes must be capped and made safe after installation and after each monitoring event; no groundwater abstraction is permitted; access to boreholes for monitoring must follow established routes; where no vehicle access exists, monitoring must occur on foot; and all temporary geotechnical disturbance areas must be stabilised and rehabilitated as required.	This distinction influenced the proposal by separating short-term investigative works from the temporary operational use of the stockpile sites and by ensuring that geotechnical activities remain small-scale, temporary and controlled.

The specialist findings collectively influenced the proposed activity through an iterative layout refinement process.

The initial engineering layout was amended to avoid wetland buffers, watercourses, valley-edge fynbos, sensitive faunal habitat, residential receptors, future housing areas and existing municipal services as far as practicable.

The final preferred layout confines the main stockpile / construction camp areas to transformed and disturbed fields, while geotechnical works will be undertaken as short-term, micro-sited activities under ECO supervision.

All applicable specialist recommendations must be incorporated into the EMP, including footprint demarcation, no-go areas, topsoil management, stormwater and erosion controls, dust suppression, alien invasive plant control, fauna protection, pollution prevention, visual screening and rehabilitation after use.

8. Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.



Cares et al., 2023 visual representation of the mitigation hierarchy applied in this assessment to reach the preferred alternative

▪ Avoidance

The proposed SDP (for both the stockpile areas and geotechnical investigation) has been extensively guided by specialist input. Therefore, sensitive biodiversity features were identified and have been avoided in the preferred SDPs. The stockpile areas were located within disturbed areas associated with existing and planned municipal infrastructure. The footprint areas were further restricted to the minimum area required and existing access routes to be utilised where possible.

▪ Minimisation

The specialist assessments have identified the potential impacts on biodiversity, fauna, soils, water resources and visual character. Based on the impacts, mitigation measures were recommended by specialist to minimise the potential impacts. Measures include limiting vegetation clearing, undertaking search-and-rescue procedures, protecting topsoil, implementing stormwater and erosion controls, controlling dust and noise, managing waste appropriately and restricting activities to approved disturbance areas.

▪ restoration / rehabilitation

Both the stockpile areas, the geotechnical investigation points and associated accesses are temporary. Once the activity or use of the site is complete, the disturbed areas will be rehabilitated. This includes the replacement of topsoil, reinstatement of natural contours, erosion repair and revegetation. Rehabilitation requirements have been incorporated into the EMPr and method statements to ensure ecological functioning is re-established after closure.

▪ offset

The specialist investigations did not identify residual impacts of a nature or magnitude that would warrant biodiversity offsets. The identified impacts can be adequately managed through avoidance, minimisation, rehabilitation and enhancement measures.

▪ enhance

The proposal promotes resource efficiency through the reuse of surplus road-building and excavated materials that would otherwise be disposed of as waste.

Alien invasive vegetation will be removed and controlled, and disturbed areas will be rehabilitated with indigenous vegetation where appropriate.

These measures provide an opportunity to improve environmental conditions relative to the current state of portions of the site while supporting circular economy objectives.

Based on the application of the mitigation hierarchy, the best practicable environmental option was reached which is proposed for environmental authorisation. All penitential impacts associated with the proposal has been systematically avoided where possible, mitigated where unavoidable and rehabilitation to be implemented following disturbance and enhancements through the restoration measures proposed.

SECTION J: GENERAL

1. Environmental Impact Statement

1.1. Provide a summary of the key findings of the EIA.

The Basic Assessment confirms that the proposed activity is required to support George Municipality's planned infrastructure delivery, specifically the Rand Street and Rosedale Main Extension projects, by providing temporary stockpile / construction camp areas and associated access routes for the storage and reuse of suitable surplus cut material. The proposal will also enable the Phase 2 Geotechnical Assessment required to inform the design and separate environmental assessment process for the future road extensions.

The EIA found that the preferred location, **George Municipal Erf 325**, is appropriate because it is municipal-owned land located within the broader municipal infrastructure planning area. No alternative properties were taken forward because the activity is functionally linked to municipal infrastructure works and requires land close to the source and future use of the material. The final preferred layout comprises **five temporary stockpile / construction camp areas**, temporary haul roads, and geotechnical investigation access routes, test pits and monitoring boreholes.

The specialist studies confirmed that the site is environmentally constrained but not uniformly sensitive. The main stockpile / construction camp areas are located largely within transformed agricultural fields and previously disturbed areas dominated by exotic and invasive vegetation. These areas have lower site-specific ecological and agricultural sensitivity. The more sensitive environmental features occur mainly in the surrounding or adjacent areas and include **valley-edge fynbos, wetlands, watercourses, wetland buffers, steep slopes and potential faunal habitat**, including areas where golden mole activity was recorded.

The biodiversity and plant species assessment found that the broader area is mapped as having very high biodiversity sensitivity and is associated with WCBSP Critical Biodiversity Areas and Garden Route Granite Fynbos. However, the preferred stockpile footprints avoid intact fynbos and no plant Species of Conservation Concern were confirmed within the main stockpile sites. The main biodiversity risk relates to temporary disturbance associated with geotechnical access and investigation points near valley-edge fynbos and other sensitive habitat. With ECO-supervised micro-siting, avoidance of sensitive features, footprint control, topsoil management, rehabilitation and alien invasive plant control, the residual terrestrial biodiversity impact is expected to be low to negligible.

The terrestrial animal species assessment found that no faunal Species of Conservation Concern were directly encountered during the survey, but suitable habitat or evidence exists for sensitive fauna, including golden mole activity and potential habitat for species such as Knysna Warbler. The EIA therefore requires fauna-sensitive implementation measures, including micro-siting of test pits and boreholes, nest searches where relevant, avoidance of active golden mole tunnels, staff awareness, fauna search-and-rescue procedures, safe management of open excavations and rehabilitation of disturbed habitat.

The aquatic biodiversity assessment identified wetlands, watercourses, valley-bottom wetland systems and wetland buffers within or adjacent to the project area. Although several aquatic systems are modified, they still perform hydrological and ecological functions. The principal aquatic risks are erosion, sediment-laden runoff, altered drainage, dust deposition and pollution from hydrocarbons or waste. The preferred layout was therefore refined to avoid wetland buffers and watercourses as far as practicable, with stockpile areas located on lower-gradient land and haul roads adjusted where possible. With stormwater controls, sediment barriers, wet-weather restrictions, pollution prevention and rehabilitation, aquatic risks are expected to be low.

The agricultural assessment concluded that the affected areas are not under formal agricultural production and are used only occasionally for informal grazing. The agricultural impact is therefore temporary and reversible, provided that topsoil is stripped, stored, replaced, compacted areas are ripped, and the sites are reshaped and reseeded after use.

The visual assessment found that the activity will create a noticeable temporary local visual impact, particularly at Sites 1, 4 and 5 due to proximity to residential receptors and municipal worker dwellings. The visual impact is high negative without mitigation and medium with mitigation. Required visual measures include residential buffers, construction camp setbacks, shade-net screening, stockpile height limits, dust control, a Bitou hedgerow screen or equivalent screening at Site 4, and rehabilitation after use.

The EIA also identified temporary community-related impacts, including dust, noise, traffic, visual intrusion, safety and nuisance impacts during establishment, operation and rehabilitation of the stockpile / construction camp areas. These impacts are expected to be localised and temporary and can be managed through controlled access, speed limits, dust suppression, working-hour controls, site security, complaint response procedures, waste management and rehabilitation.

From a socio-economic perspective, the proposal has a positive contribution because it allows George Municipality to reuse surplus cut material rather than dispose of it off-site and later import commercial fill. This reduces disposal costs, material procurement costs, haulage distances, fuel use, emissions, dust, pressure on disposal facilities and overall municipal infrastructure delivery costs. The proposal therefore supports resource efficiency and more cost-effective municipal service delivery.

The EIA found no fundamental conflicts between specialist recommendations. Where different constraints overlapped, they were resolved through the final specialist-informed layout, the use of existing access where possible, micro-siting under ECO supervision, avoidance of sensitive features, and incorporation of all applicable mitigation measures into the EMPr.

Overall, the key finding of the EIA is that the preferred alternative is acceptable from an environmental perspective, provided that the activity remains a **short-term temporary departure use**, does not become a permanent spoil site or depot, and all specialist recommendations and EMPr measures are implemented. The residual impacts are expected to be temporary, localised and manageable, while the positive municipal and resource-efficiency benefits are significant enough to support the preferred alternative.

1.2.	Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)
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Environmental sensitivities map showing the stockpile areas/ camp sites, haul roads and specialist identified sensitive no-go areas

Date: 5 August 2026
Project No: 1405
Drawn By: S. Delpont



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Aerial Image - Surveyor General 2020
Cadastral Image - Surveyor General 2019
SDP data - SMEC 2026

Projected Coordinate System: GS_1984_UTM_Zone_34S

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1.3. Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.

Alternative	Positive Impacts and Benefits	Negative Impacts and Risks
Preferred Alternative	- Reuse of surplus road-building and excavated materials, reducing waste disposal requirements. - Reduces demand for virgin construction materials from borrow pits and quarries. - Supports implementation of the Rand Street Extension Project and future municipal infrastructure projects. It therefore also provides socio-economic benefits by supporting municipal service delivery and infrastructure development. - Promotes resource efficiency and circular economy principles through material recovery and reuse. - Utilises an already disturbed site and existing infrastructure Where possible.	- Loss and disturbance of indigenous vegetation within the approved footprints. - Potential impacts on species of conservation concern, including the George Golden Mole. - Soil disturbance, erosion and sedimentation risks associated with site preparation and stockpiling activities. - Potential impacts on stormwater quality and drainage patterns. - Dust generation from vehicle movement and stockpiles. - Visual impacts associated with stockpile operations. - Noise impacts associated with construction equipment and vehicle activity.
No-Go Alternative	- No additional vegetation clearing or habitat disturbance. - No dust, noise or visual impacts associated with stockpile activities. - No additional stormwater, erosion or pollution risks associated with the development. - Current environmental conditions remain unchanged.	- Loss of opportunity to reuse surplus road-building material. - Increased disposal of suitable excavated material to landfill or alternative facilities. - Increased reliance on virgin construction materials sourced from borrow pits and quarries. - Reduced efficiency in municipal infrastructure delivery. - Failure to realise the resource-efficiency and waste-minimisation benefits associated with the proposal.

The proposed activity will have both **positive and negative impacts** on the environment and surrounding community. The negative impacts are expected to be mainly **temporary, localised and manageable**, provided that the preferred layout is implemented and all specialist mitigation measures are included in the EMP.

Impact / risk	Positive impacts	Negative impacts / risks	Overall significance with mitigation
Municipal resource efficiency and service delivery	The proposal will allow George Municipality to reuse suitable surplus cut material from municipal infrastructure projects as fill material for future road and infrastructure works. This reduces disposal costs, reduces the need to import commercial fill, reduces haulage distances, lowers fuel use and emissions, and supports more cost-effective municipal service delivery.	If not managed properly, stockpiled material could become contaminated, mixed with unsuitable material or misused as informal spoil, reducing its reuse value.	Medium positive.
Infrastructure planning and future connectivity	The stockpile / construction camp areas support the Rand Street and Rosedale Main Extension projects, which are intended to improve access and connectivity between residential areas and the broader George urban, industrial and business areas. The geotechnical investigations will provide important design and groundwater information for the future road extensions.	The no-go option would delay or undermine the ability to reuse material efficiently and would prevent the collection of geotechnical information needed for responsible road design.	Medium positive.
Biodiversity and vegetation	The preferred layout avoids the most sensitive biodiversity features as far as practicable and places the main stockpile areas within transformed agricultural fields and disturbed areas dominated by exotic and invasive vegetation.	Temporary disturbance of vegetation and soil will occur. Geotechnical access routes and test positions may affect valley-edge fynbos, remnant indigenous vegetation or mapped biodiversity priority areas if not carefully micro-sited. Alien invasive plant spread may occur on disturbed soils.	Low negative to negligible, subject to ECO supervision, micro-siting, footprint control, rehabilitation and alien invasive plant management.
Fauna and faunal habitat	Sensitive faunal areas can be avoided or managed through micro-siting, staff awareness, search-and-rescue procedures and rehabilitation.	The activity may temporarily disturb ground-dwelling fauna, birds, small mammals, amphibians and invertebrates. Golden mole tunnels and potential habitat for species such as Knysna Warbler require careful management. Open excavations may present a risk to fauna.	Low negative with mitigation.
Wetlands, watercourses and aquatic biodiversity	The revised layout avoids wetlands, watercourses and wetland buffers as far as practicable and incorporates stormwater, erosion and pollution controls. Monitoring boreholes will improve understanding of groundwater conditions without abstraction.	Sediment-laden runoff, erosion, dust deposition, hydrocarbon spills or waste could affect wetlands and watercourses if controls fail. Some access may still occur near aquatic buffers.	Low negative with full mitigation and National Water Act compliance.
Soils, topsoil and erosion	Topsoil can be conserved and reused during rehabilitation. Temporary use of transformed land provides an opportunity to stabilise disturbed areas after stockpile removal.	Soil stripping, vehicle movement, stockpiling and temporary access roads may cause compaction, erosion and sediment movement, especially on shallow duplex soils and slopes draining toward wetlands.	Low negative with topsoil management, stormwater controls, erosion control, ripping and rehabilitation.
Agricultural potential / informal grazing	The affected areas are not under formal agricultural production and can be rehabilitated after use.	The land will be temporarily unavailable for informal grazing or low-intensity use while stockpile / construction camp activities are active. Poor rehabilitation could reduce soil condition.	Low negative to negligible after rehabilitation.
Groundwater and aquifer protection	Monitoring boreholes will provide groundwater level and quality information. No groundwater abstraction is proposed.	Hydrocarbon spills, waste mismanagement or contaminated runoff could affect shallow groundwater if not prevented.	Low negative to negligible with pollution prevention, bunding, drip trays, spill response and borehole safety controls.

Dust and air quality	Dust impacts can be controlled through watering, speed limits, stabilisation, covering or shaping of stockpiles, and rehabilitation.	Dust may affect nearby residents, road users, workers and vegetation, particularly during dry or windy conditions and near Sites 1, 4 and 5.	Low negative with mitigation; locally noticeable during dry/windy periods.
Noise and traffic	Controlled access and defined haul routes can reduce unmanaged vehicle movement.	Trucks, earthmoving equipment, drilling equipment and construction camp activities may create temporary noise, traffic and safety nuisance for nearby residents and road users.	Low negative with speed control, signage, access management, working-hour controls and security.
Visual character and sense of place	The activity is temporary and reversible. Screening, height limits and rehabilitation will reduce visual effects.	Stockpiles and construction camps will temporarily introduce a construction-related / industrial visual character, especially near residential receptors at Sites 1, 4 and 5. Site 4 is particularly sensitive and requires screening.	Medium negative at the most exposed sites, reducing to low/medium with mitigation.
Community amenity and well-being	The proposal supports municipal infrastructure delivery and may indirectly benefit surrounding communities through improved future connectivity and more efficient service delivery.	Nearby communities may experience temporary nuisance from dust, noise, visual intrusion, traffic, safety risks and construction activity.	Low to medium negative during active use, manageable through buffers, screening, dust suppression, access control, security and complaint response.
Waste and pollution risk	Controlled construction camp management can prevent illegal dumping and pollution.	Poor management could result in litter, illegal dumping, sanitation issues, hydrocarbon spills, contaminated material or waste entering the environment.	Low negative with strict waste management, security, spill controls and ECO monitoring.
Climate-related weather risks	Reuse of municipal material reduces transport-related emissions and resource demand compared with disposal/importation alternatives.	Heavy rainfall may increase erosion and runoff risk; dry and windy periods may increase dust generation.	Low negative with erosion controls, stormwater measures, wet-weather restrictions and dust suppression.

The main positive impacts of the proposal are linked to **resource efficiency, reduced disposal and import costs, reduced transport impacts, support for municipal infrastructure delivery, and improved future road connectivity**. The main negative impacts relate to **temporary vegetation and soil disturbance, erosion risk, impacts on wetlands and watercourses if runoff is not controlled, fauna disturbance, dust, noise, traffic, visual intrusion and temporary nuisance to nearby communities**.

Overall, the proposed activity is considered environmentally and socially acceptable because the preferred layout avoids sensitive features as far as practicable, confines the main stockpile / construction camp areas to transformed fields, keeps the use temporary, and requires rehabilitation after use. With full implementation of the EMP, ECO monitoring and specialist mitigation measures, the residual negative impacts are expected to be **low to medium**, localised and temporary, while the positive municipal and resource-efficiency benefits are expected to be **meaningful and beneficial**.

2. Recommendation of the Environmental Assessment Practitioner ("EAP")

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr											
<table><tr><th>Impact</th><th>Management (specific measures available in the EMPr)</th><th>Impact Management Outcome</th></tr><tr><td>Loss of indigenous vegetation and habitat</td><td>Limit clearing to approved stockpile sites and only when the site is to be used; undertake search-and-rescue where required; clearly demarcate no-go areas; rehabilitate disturbed areas (stockpile areas and respective access roads) with retained topsoil. Limit clearing to the geotechnical investigation points. Rescue topsoil at these points. Rehabilitate following investigation (the investigation points and the access tracks where required and advices by the ECO).</td><td>Loss of indigenous vegetation is minimised and confined to authorised areas, with disturbed areas rehabilitated to a stable and functioning ecological condition.</td></tr><tr><td>Impacts on species of conservation concern, including the George Golden Mole</td><td>Pre-construction ecological walk-throughs; search-and-rescue procedures; environmental awareness training; minimise habitat disturbance.</td><td>Injury, mortality and habitat loss for species of conservation concern are minimised and biodiversity conservation objectives are maintained.</td></tr></table>				Impact	Management (specific measures available in the EMPr)	Impact Management Outcome	Loss of indigenous vegetation and habitat	Limit clearing to approved stockpile sites and only when the site is to be used; undertake search-and-rescue where required; clearly demarcate no-go areas; rehabilitate disturbed areas (stockpile areas and respective access roads) with retained topsoil. Limit clearing to the geotechnical investigation points. Rescue topsoil at these points. Rehabilitate following investigation (the investigation points and the access tracks where required and advices by the ECO).	Loss of indigenous vegetation is minimised and confined to authorised areas, with disturbed areas rehabilitated to a stable and functioning ecological condition.	Impacts on species of conservation concern, including the George Golden Mole	Pre-construction ecological walk-throughs; search-and-rescue procedures; environmental awareness training; minimise habitat disturbance.	Injury, mortality and habitat loss for species of conservation concern are minimised and biodiversity conservation objectives are maintained.
Impact	Management (specific measures available in the EMPr)	Impact Management Outcome										
Loss of indigenous vegetation and habitat	Limit clearing to approved stockpile sites and only when the site is to be used; undertake search-and-rescue where required; clearly demarcate no-go areas; rehabilitate disturbed areas (stockpile areas and respective access roads) with retained topsoil. Limit clearing to the geotechnical investigation points. Rescue topsoil at these points. Rehabilitate following investigation (the investigation points and the access tracks where required and advices by the ECO).	Loss of indigenous vegetation is minimised and confined to authorised areas, with disturbed areas rehabilitated to a stable and functioning ecological condition.										
Impacts on species of conservation concern, including the George Golden Mole	Pre-construction ecological walk-throughs; search-and-rescue procedures; environmental awareness training; minimise habitat disturbance.	Injury, mortality and habitat loss for species of conservation concern are minimised and biodiversity conservation objectives are maintained.										

Soil disturbance, erosion and sedimentation	Implement stormwater controls, diversion berms, silt traps and erosion protection measures; rehabilitate exposed areas promptly.	Soil erosion and sediment transport are prevented, protecting surrounding ecosystems and maintaining site stability.
Loss of topsoil resources	Strip, stockpile and protect topsoil separately; utilise topsoil during rehabilitation. This is to be done for the stockpile areas, the associated access roads, and geotechnical investigation points.	Topsoil resources are conserved and reused to support successful rehabilitation and revegetation.
Impacts on water resources and stormwater quality	Maintain stormwater management infrastructure; prevent contamination; contain sediment-laden runoff.	Surface water quality and natural drainage patterns are maintained and downstream aquatic systems are protected.
Dust generation	Apply dust suppression where required; manage stockpile surfaces; limit vehicle speeds; maintain haul roads.	Dust emissions remain within acceptable levels and nuisance impacts on surrounding receptors are minimised.
Visual impacts	Maintain approved stockpile heights and profiles; implement housekeeping measures; rehabilitate disturbed areas following closure.	Visual intrusion is reduced and the site remains compatible with surrounding land uses.
Noise disturbance	Restrict activities to approved working hours; maintain machinery and equipment.	Noise impacts on surrounding receptors remain within acceptable levels.
Waste generation and littering	Remove litter regularly; separate reusable and non-reusable materials; dispose of waste at authorised facilities. Ensure proper management of the sites to ensure that the public do not dump waste on the stockpile sites.	Waste generation is minimised and the site remains free of litter and unlawful dumping.
Spread of alien invasive species	Remove and control alien invasive vegetation during site preparation, operational phase and rehabilitation.	Alien invasive species are controlled and indigenous ecological functioning is improved over time.
Resource consumption and waste of construction materials	Reuse suitable excavated and road-building materials; segregate stockpiles by material type.	Construction materials are reused

2.2. Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.

The environmental acceptability of the proposed activity is conditional on the activity remaining a short-term, temporary use within the final specialist-informed layout and on the full implementation of all specialist mitigation measures through the EMPr.

The Environmental Authorisation should therefore be conditional on the following:

- use of the final preferred layout only;
- no expansion beyond the approved stockpile, construction camp, haul road, geotechnical access, test pit and borehole footprints;
- appointment of an ECO before commencement;
- ECO-supervised micro-siting of geotechnical test pits, boreholes and access routes; protection of wetlands, watercourses, wetland buffers, valley-edge fynbos and sensitive faunal habitat; and implementation of all topsoil, erosion, stormwater, dust, visual, fauna, alien invasive plant, waste, pollution-prevention and rehabilitation measures.
- The stockpile sites must not become permanent spoil sites, waste disposal areas, borrow pits, commercial material yards or municipal depots, and only suitable clean municipal cut material may be stockpiled.
- The Phase 2 geotechnical assessment must remain a short-term investigation activity only, with test pits backfilled after logging, boreholes used for groundwater level and quality monitoring only, no groundwater abstraction permitted, and future monitoring access limited to established routes or foot access where no vehicle route exists.
- The authorisation should also require compliance with the applicable National Water Act process, incorporation of any final requirements from DWS, CapeNature, Heritage Western Cape and other commenting authorities,
- implementation of visual mitigation at sensitive sites including buffers, height limits and screening,
- and post-closure rehabilitation monitoring at least 3 and 6 months after decommissioning to confirm soil stability, vegetation establishment, erosion control and alien invasive plant management.

If these conditions are implemented, the residual impacts are expected to remain temporary, localised and manageable.

2.3. Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.

It is recommended that environmental authorisation is provided for both the creation of the stockpile areas, associated access roads, and activities for the phase 2 Geotechnical investigation.

The approval should be subject to the implementation of the recommended mitigation measures and the EMPr (App H).

The assessment found that the proposed development will provide a dedicated facility for the temporary storage and reuse of surplus road-building and excavated materials associated with the Rand Street Extension Project and other municipal

infrastructure projects. The proposal supports efficient resource utilisation, reduces waste generation, decreases reliance on virgin construction materials, and contributes to improved municipal infrastructure delivery.

Although the specialist studies identified potential impacts on biodiversity, fauna, soils, stormwater, visual character and surrounding environmental resources, none of the specialists identified fatal flaws that would preclude the development from proceeding. The studies concluded that the identified impacts can be reduced to acceptable levels through the implementation of appropriate avoidance, mitigation, rehabilitation and monitoring measures.

The proposal further makes use of an already disturbed area associated with municipal infrastructure development and incorporates measures to minimise environmental impacts through careful site management, stormwater controls, topsoil conservation, rehabilitation and biodiversity protection measures.

Accordingly, it is considered that the benefits of the proposed development outweigh the residual environmental impacts and that the activity is environmentally acceptable, provided that all recommended mitigation measures are implemented.

2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.
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The assessment of the proposed stockpile facility was undertaken using the best available information at the time of the specialist investigations and environmental assessment process. Although sufficient information was available to assess the likely impacts of the proposal, a number of assumptions, uncertainties and limitations remain inherent in the assessment process. These have been addressed through the application of the precautionary principle and the inclusion of appropriate mitigation and monitoring measures.

Assumptions

- It is assumed that all mitigation measures and management actions contained in the Environmental Management Programme (EMPr), specialist reports and method statements will be fully implemented throughout the construction, operation and rehabilitation phases.
- It is assumed that stockpiling activities will be restricted to the approved stockpile footprint and that no unauthorised disturbance outside these areas will occur.
- It is assumed that stormwater controls, erosion prevention measures and sediment management structures will be properly maintained to prevent impacts on surrounding biodiversity and aquatic systems.
- The assessment assumes that the stockpiled material will consist primarily of suitable road-building and excavated material and that contaminated or unsuitable material will not be accepted at the facility.
- It is assumed that rehabilitation measures, including topsoil replacement and revegetation of disturbed areas, will be implemented following closure of the stockpile facility.

Uncertainties including specialist assessment highlighted uncertainties

- Biodiversity assessments provide a snapshot of site conditions at the time of the survey. Species distributions, habitat utilisation and faunal activity may vary seasonally and over time. Consequently, species that were not recorded during the survey period may occur on or utilise the site intermittently.
- Although evidence of the Endangered George Golden Mole was identified, the precise distribution and abundance of individual animals within the broader area cannot be determined with certainty. For this reason, search-and-rescue and ecological management measures have been incorporated into the project
- Future operational requirements, including the volume, frequency and duration of stockpiling activities, may vary depending on municipal infrastructure needs and construction schedules. However, these changes are not expected to alter the overall nature of the assessed impacts.
- The effectiveness of rehabilitation measures cannot be guaranteed with complete certainty, as revegetation success is influenced by climatic conditions, soil characteristics and ongoing maintenance.

Gaps in Knowledge

- As with all environmental assessments, there is a degree of uncertainty regarding future environmental conditions and ecological responses that may occur over the lifespan of the project.
- The final source, quantity and timing of materials delivered to the stockpile facility may only be confirmed as future municipal projects are implemented. However, the assessment considered the maximum reasonably foreseeable activities associated with the facility.
- Long-term ecological responses following rehabilitation can only be verified through post-construction monitoring and site inspections. Consequently, adaptive management measures have been included in the EMPr should unexpected impacts be identified.

Notwithstanding the assumptions, uncertainties and identified gaps in knowledge, the specialist studies concluded that the proposal could proceed provided that the recommended mitigation measures, monitoring requirements and rehabilitation actions are implemented.

No fatal flaws or significant information deficiencies were identified that would preclude the assessment of impacts or informed decision-making.

2.5.	The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.
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The EA for the Phase 2 Geotechnical investigation is anticipated to take place immediately after the EA is issued and the appeal period is concluded and the necessary notifications are provided.

The use of the temporary stockpile sites is anticipated to commence within the first year of the EA being issued.

The use of the stockpile sites will be linked to the temporary departure planning application which is for a period of 5 years and which can be renewed as required thereafter until they are no longer required for the Rand Street, Rosedale Main extension project.

The consolidation, subdivision and rezoning of land to create the road reserve of the Rand Street and Rosedale Main Extensions is planned to commence within this timeframe and will include the required zoning.

The Rand street timing for which the stockpile sites need to remain in use is as follows:

- Anticipated funding secured – July 2028
- Anticipated start date – March 2030
- Anticipated completion date – March 2034
- Anticipated Defects and Liability end – June 2035

Please note: These dates are indicative and directly dependent on the Rand Street and Rosedale Main Extension Project. If funding is not secured in accordance with the timelines above, these timeframes will need to be extended. Because the two projects are interconnected, the stockpiles must remain open for the entire duration of the Rand Street and Rosedale Main Extension Project.

The EA for the stockpile use therefore needs to remain in force until at least 2036 to allow for full rehabilitation after construction is complete and the stockpile sites decommissioned and rehabilitated.

3. Water

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.

Where water will be used is for dust suppression activities. It is recommended (as included in the EMPr) that potable water is not to be used for the routine dust suppression activities where alternative sources are available such as harvested stormwater or water obtained from authorised alternative sources.

Dust-generating activities will be managed through operational controls, such as limiting vehicle speeds and maintaining stockpile moisture levels, thereby reducing the volume of water required.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.

The proposed activity has been designed to reduce, reuse and recycle waste as far as practically possible by treating suitable surplus municipal cut material as a reusable resource rather than as waste. The primary waste-reduction measure is the temporary establishment of stockpile areas on George Municipal Erf 325, where clean surplus material generated from municipal infrastructure projects can be stored and later reused as fill material for the Rand Street and Rosedale Main Extension projects and other future municipal infrastructure works. This reduces the need to dispose of usable material at off-site spoil or disposal facilities and reduces the need to import commercial fill material from external borrow sources.

The proposal also reduces waste and resource demand by locating the stockpile sites close to the source and future use of the material. This minimises haulage distances, fuel use, emissions, dust generation, road traffic impacts and disposal costs. The use of municipal land further avoids the need to disturb additional land elsewhere for material storage or disposal. Only suitable clean cut material may be accepted at the stockpile sites, and the sites may not be used for general waste, hazardous waste, contaminated spoil, illegal dumping or permanent disposal.

During the construction camp and stockpile use period, waste will be managed through designated waste storage areas, bins or skips, regular removal to appropriate licensed facilities, and the prohibition of littering, dumping or burning of waste on site. Hazardous substances such as fuel, oil or bitumen must be stored in bunded or lined areas, with drip trays, spill kits and leak inspections used to prevent contamination of soil, watercourses, wetlands or groundwater. Any contaminated material must be removed to an approved facility and may not be mixed with reusable stockpile material.

The design also makes provision for reuse of topsoil during rehabilitation. Topsoil will be stripped, stored separately in windrows, protected from erosion, and replaced after the temporary stockpile or access use is complete. Temporary haul road material such as G5 or suitable surfacing should be removed or reused where feasible, and all foreign material must be cleared from the site before rehabilitation. Disturbed areas will then be ripped, reshaped, topsoiled and reseeded to prevent erosion and restore the land to a stable condition.

Overall, the design reduces waste by avoiding unnecessary disposal, promotes reuse by retaining suitable municipal material for future infrastructure projects, and supports recycling/resource efficiency through the separation and reuse of topsoil and clean fill material. These measures ensure that the activity remains a temporary resource-recovery and material-management intervention rather than a waste disposal activity.

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
N/A - The project does not electricity.	

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

Note: Duplicate this section where there is more than one Applicant.

I **JOHANNES FRANCISCUS KOEGELENBERG**, ID number **7908065048081** ~~in my personal capacity or~~ duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
 - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
 - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
 - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
 - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
 - Legitimate costs in respect of specialist(s) reviews; and
 - the provision of security to ensure compliance with applicable management and mitigation measures;
- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the Applicant:

Date:

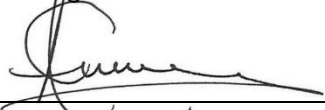
George Municipality

Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I ...Cathy Avierinos....., EAP Registration number ...2019/1053..... as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;


Signature of the EAP:

18 September 2026

Date:

HillLand Environmental

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

I, EAP Registration number as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP:

Date:

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I ...Stephan Stead....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Signature of the specialist:

18 September 2026

Date:

VRM Africa

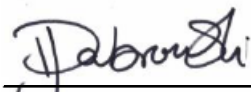
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I ...Dr Jackie Dabrowski....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Signature of the specialist:

18 September 2026

Date:

Confluent Environmental

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I ...Kim Daniels....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Signature of the specialist:

18 September 2026

Date:

Confluent Environmental

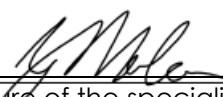
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I ...Gert Malan....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Signature of the specialist:

18 September 2026

Date:

N/A

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I ...Dr Peter Nilssen....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Peter Nilssen

Signature of the specialist:

18 September 2026

Date:

CARM

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

I, as the appointed Review Specialist hereby declare/affirm that:

- I have reviewed all the work produced by the Specialist(s):
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP:

Date:

Name of company (if applicable):