



# ANYSBERG MANAGEMENT ROADS

## CONDITION ASSESSMENT - STORMWATER DAMAGE

**PROJECT REF NO: 11755000**

*10 July 2025*

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<b>REPORT DESCRIPTION</b>	CONDITION ASSESSMENT AND RECOMMENDATIONS

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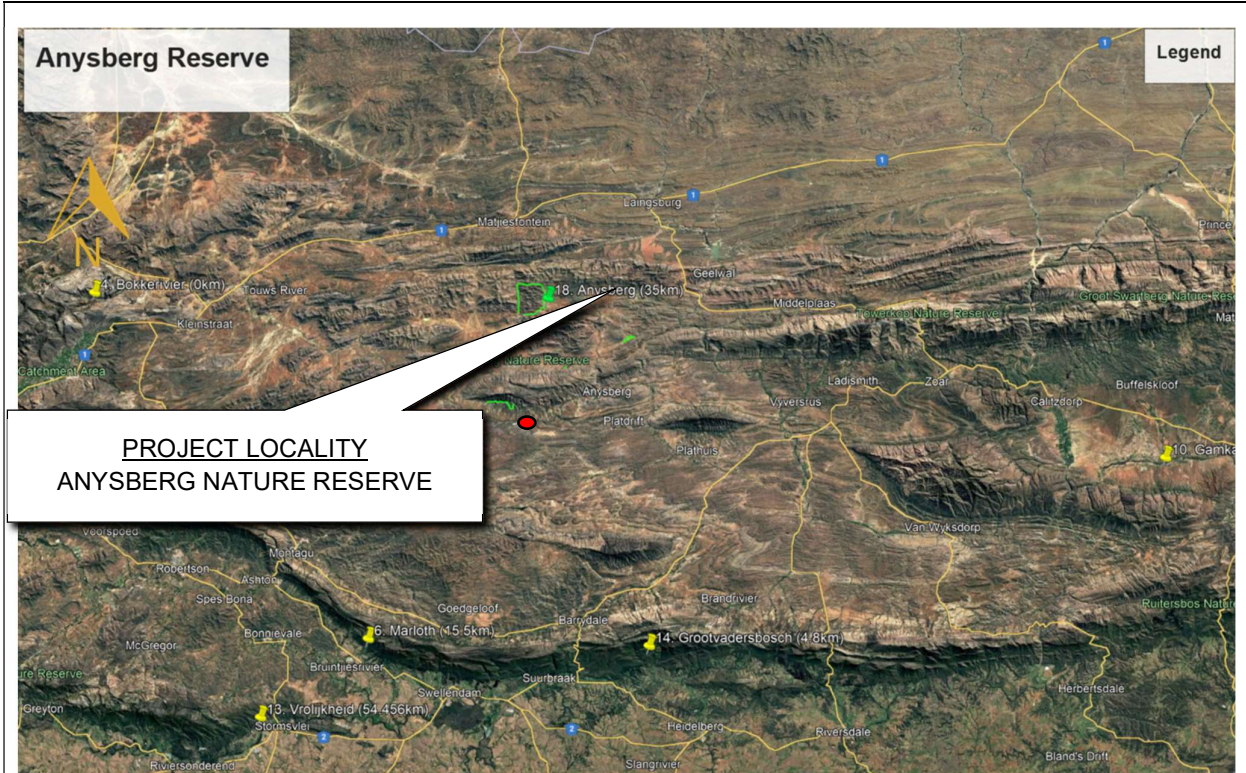


Figure 1: Project locality plan.

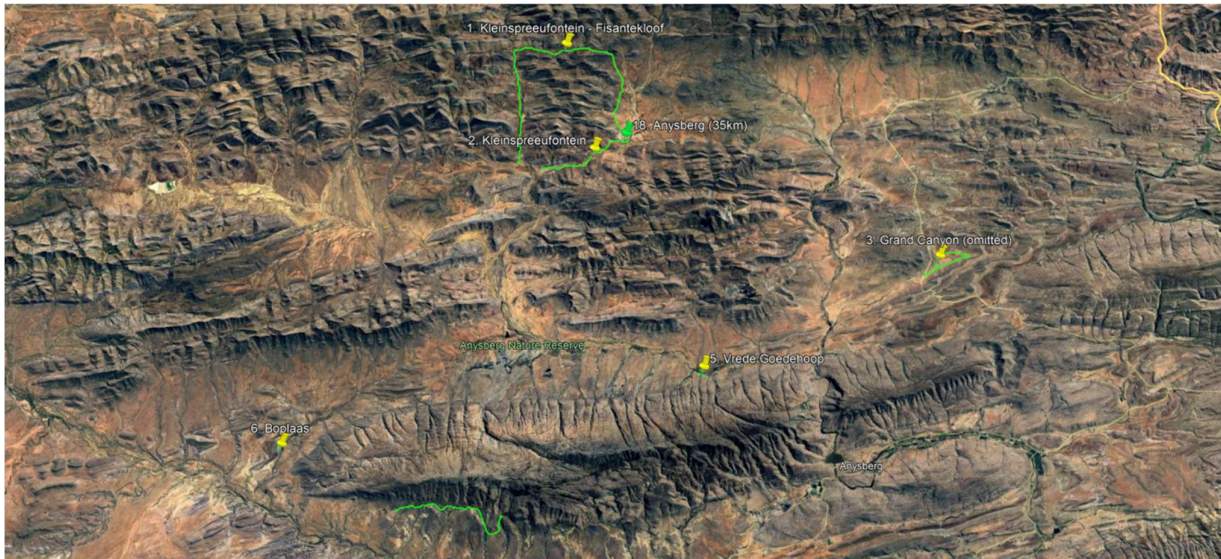


Figure 2: Anysberg Management Roads



**LOCALITY PLANS**

# CONDITION ASSESSMENT ANYSBERG MANAGEMENT ROADS

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## 1. INTRODUCTION

V3 Consulting Engineers (Pty) Ltd was appointed by the Western Cape Government Department of Infrastructure to conduct conditional assessments of storm-damaged infrastructure across 22 CapeNature reserves in the Western Cape. This report focuses on the Anysberg reserve Management Roads, located near the town of Laingsburg, as indicated on the locality plans (Figures 1 and 2).

The assessment was commissioned following infrastructure damage caused by severe storms across the province in 2024, which raised concerns from the CapeNature authority. The storm damage has negatively impacted operations, and various forms of damage were observed, including:

- Eroded roads,
- Damaged stream crossings,
- The loss of fines in (eroded) road tracks, and
- Damaged buildings and other infrastructure.

Site visits were conducted from 11 to 12 June 2025 to assess the current condition of the affected infrastructure within the Anysberg Nature Reserve. One team comprising two members from V3 Consulting Engineers (Pty) Ltd, undertook the assessments.

### 1.1 PROJECT SCOPE / BRIEF

The scope of works included:

- Conducting site inspections to assess the condition of storm-damaged elements along the Anysberg Management Roads,
- Compiling a report on findings and offering advice on remedial measures where necessary, and
- Providing provisional cost estimates for the repairs to the required infrastructure.

### 1.2 BASIS OF INFORMATION

This assessment is based on visual inspections conducted on-site. All measurements should be considered approximate.

Previous reports consulted include:

- Preliminary Design report and estimate by SKCMasakhizwe Engineers for erosion protection measures at the Anysberg reserve (Vrede Goedehoop Road), July 2015,
- Environmental Authorisation issued by DEDEAT dated March 2016, and
- Road repair drawings by MBB Consulting Engineers (date unknown).

Prior to fieldwork, the assessment team conducted desktop studies using the provided background information and Google Maps imagery to evaluate the infrastructure layouts, potential construction methods for repairs, and identify visible storm damaged infrastructure on this information. Following this process the teams developed marked-up drawings and a checklist of roads to inspect.

On site, V3 representatives met with CapeNature personnel (refer to Attendance Register – Annexure B) to gather contextual information, including details on prior remedial efforts to form a holistic understanding of the infrastructure status.

Please note: No invasive testing or exploratory investigations were performed. Therefore, there remains a possibility of unforeseen issues arising when a contractor begins remedial work.

## 2. SITE DESCRIPTION

### 2.1 CAPE NATURE – ANYSBERG NATURE RESERVE

<b>Site name:</b>	CapeNature –Anysberg Nature Reserve
<b>Management Road Assessments:</b>	<p>Assessments were conducted on the following roads:</p> <ol style="list-style-type: none"> <li>1. Kleinspreeufontein – Fisantekloof</li> <li>2. Kleinspreeufontein</li> <li>3. Touwsfontein - Jan Pieterskloof</li> <li>4. Vrede – Goedehoop, and</li> <li>5. Boplaas.</li> </ol> <p>Note that a sixth road (Grand Canyon), originally on the list was omitted as Cape Nature officials have subsequently repaired the road since the flood events of 2024.</p>

## 3. ON SITE ASSESSMENT

### 3.1 Kleinspreeu Fisantekloof Road

This access route is 15.3km in length and provides access to the northern boundary of the reserve and existing structures located there. It adjoins the Kleinspreeufontein road which in effect forms a circular road.

This road starts approximately 19km northeast from the Anysberg reserve offices through parts of private property.

It is to be noted that road repairs would be required before the start of the Kleinspreeufontein Fisantekraal road as the access to it is in very poor condition.

From the start of the track, it was evident that it is not used often, judging from the vegetation growth in the middle of the track. There are signs of major overland runoff over the roadway based on the level of erosion observed in the roadway in some places.

Several major stream crossings are encountered (ch. 1750, 2340, 3260, 3600, 4120, 5540 and ch. 5800 that warrants the construction of major low low-level or culverts structures to divert stormwater runoff though or over the roadway.

From ch. 6000 to ch. 15200 it is understood that the road is in a passable condition. Consideration should be given to the crossings at ch. 7640, 7930, 9080 and 12600 where noticeable stream crossings are noted based on satellite data and where provision for low level drifts and/or culverts structures should be made.

### 3.2 Kleinspreeufontein Track

This access road is 5.02km in length adjoins the Kleinspreeufontein Fisantekraal road. It serves as the western entrance to the KSF.

At ch. 140 a major stream crossing is encountered with no structure in place. After ch. 140 the roadway is in fair condition up to ch. 700. After ch. 700 the roadway is on top of exposed shale (no gravel wearing course) and although driveable, can lead to tyre damage. Heavy blading/dozing will be required up to ch. 1000. After ch. 1000 a major stream crossing is encountered that will require a stormwater culvert structure. Further main crossings are encountered at ch. 1340 and 1650. After ch. 1650 the road is in a passable condition for a vehicle with a high ground clearance. Heavy grading will be required here.

At ch. 3000, the road is located adjacent to a major stream crossing and a section of the roadway has washed away up to ch. 3400. It is recommended that the roadway be relocated out of the stream crossing

Further stream crossings are encountered at ch. 3520. Between ch. 3520 to ch. 4100 it is recommended that the entire section be provided with a grass block section. Between ch. 4300 to ch. 4400 the road cross the same stream again which will also require a low-level crossing. From ch. 4400 to the end the road is in a passable condition.

It is to be noted that two major stream crossings are required to access the end of this roadway. These will have to be updated to provide construction access. The upgrading of these two crossings has been allowed for.

### 3.3 Grand Canyon (Omitted)

In discussions with Mr Brand (Anysberg Reserve manager), this road was repaired after the 2024 floods and there was thus no need to assess this track.

### 3.4 Touwsfontein – Jan Pieterskloof

This track is 7.22km in length and is located in the southern part of the reserve. It provides access to the eastern/southern part of the reserve's fence. The road starts approximately 23km away from the reserve offices.

This road has no gravel wearing course and is only suitable for vehicle with a good clearance. There is no formal road clearance that was done and is juts a track in the veld.

Minor stream crossings are encountered at ch. 2400, ch. 2900 and ch. 3260. Heavy blading/dozing will be required from ch. 3260 to ch. 4600 in some places. At ch. 4600 a new drift structure is required. Between ch. 4600 to ch. 5000 the road is not passable and a new track will have to be constructed.

After ch. 5400 it was indicated by the reserve wardens that the remainder of the road was in a fair condition.

It is to be noted that a 200m section of concrete strip or grass blocks will be required before the start if the track (steep incline).

### 3.5 Vrede Goede Hoop

This is the main access road from Laingsburg to the nature reserve offices. One specific section was identified that was being problematic and which is 670m in length. The specific problem section is located next to the portion adjacent to the Prinsriver, an order 2 stream. A minor wash away is located at ch. 60. The main concern is the section between ch. 200 and ch. 300 where extensive erosion is caused to the riverbank. Based on site assessments, extensive retaining structures has high as 8m will have to be constructed to prevent the complete washaway of the road. Two options are available:

- Construction using gabion structure as per the existing embankment protection, and
- Construction of a concrete retaining wall.

The report by SKC Masakhizwe Consulting Engineers provides extensive details on remedial measures (see Annexure B).



Figure 1: Vrede Goedehoop Road - Extend of Eroded embankment

An alternative here is to divert the road to a completely new position (see Figure 1).



Figure 2: Proposed alternative route

As the roadway is the main public entrance to the Anysberg Reserve, it serves a critical purpose.

For a detailed breakdown of individual observations and descriptions, refer to the condition assessment attached as Annexure A.

### 3.6 Boplaas Track

The assessed section is 490m in length and is used by the public. The road portion is adjacent a stream and has very erodible in situ soil. Existing gabions were found on the downstream side of the road which appeared to retain erosion to an extent. It is noted that areas that do not have these gabions exhibit erosion.

The main primary recommendation for this section is the infilling of dongas (or reshaping of the roadway), placing of gravel overlay which is less erodible, the provision of gabions and reno mattresses on the downstream side of the road, concrete drifts to divert runoff away from the roadway.

For a detailed breakdown of individual observations and descriptions, refer to the condition assessment attached as Annexure A.

## 4. ONSITE ASSESSMENT

### 3.7 SITE ASSESSMENT CHECKLISTS AND PHOTOGRAPHS

Each road was assessed using a uniform checklist listing all the elements grouped by function and with details such as size and quantity. A rating system is used to rate the current condition of each element and as guidance to urgency and severity of intervention required. The ratings ranked as follows:

**1- Excellent:** No intervention required now. Element should function as intended for another 2-3 years.

**2- Good:** Element still functioning as intended, but plan for maintenance within the next 1-2 years.

**3- Average:** Element in fair condition with no immediate risk but is recommended to be addressed within a year.

**4- Poor:** Element poses a risk / is at risk and remedial action to be taken as soon as possible.

**5- Critical:** Element poses a serious safety / functionality risk and should be barred off / not used at all.

Each road has been assessed and reported on individually. For a detailed breakdown of individual observations and descriptions, refer to the condition assessment attached as Annexure A

Kleinspreu Fisantekloof Road



Photo 1: Taken at Ch 0.



Photo 2: Taken at Ch 800.



Photo 3: Taken at Ch 1380.



Photo 4: Taken at Ch 1740 at stream crossing.



Photo 5: Taken at Ch 2340 (stream crossing)



Photo 6: Taken at Ch 3240.



Photo 7: Taken at Ch 3300.



Photo 8: Taken at Ch 3550 –



**Photo 9: Taken at 3600**



**Photo 10: Taken at Ch 4120.**



**Photo11: Taken at Ch 4160**



**Photo 12: Taken at CH 4360.**



**Photo 13: Taken at ch. 5800**



**Figure 14: Taken at ch. 6000**



**Photo 15: Taken on approach from offices**



**Photo 16: Taken on approach from offices**

**Kleinspreufontein Road**



**Photo 1: Taken at ch. 140**



**Photo 2: Taken at ch. 200**



**Photo 3: Taken at ch. 1340**



**Photo 4: Taken at ch. 1640**



**Photo 5: Taken at ch. 1700**



**Photo 6: Taken at ch. 2000**



**Photo 7: Taken at ch. 3220**



**Photo 8: Taken at ch. 3640**



**Photo 9: Taken at ch. 3900**



**Photo 10: Taken at ch. 5020**



**Photo 11: Taken at approach to road**



**Photo 12: Taken at approach to road**

Touwsfontein



**Photo 1: Taken at ch. 180**



**Photo 2: Taken at ch. 2400**



**Photo 3: Taken at ch. 3200**



**Photo 4: Taken at ch. 4300 (steep incline)**



**Photo 5: Taken at ch. 4600**



**Photo 5: Taken at ch. 4620**

Vrede Goedehoop



Photo 1: Taken at ch. 40



Photo 1: Taken at ch. 200 before embankment



Photo 4: Taken at embankment



Photo 4: Taken at embankment

Vrede Goedehoop



Photo 1: Taken at ch. 150



Photo 3: Taken at ch. 150



Photo 3: Taken at ch. 150



Photo 4: Taken at ch. 200

## 5. REPAIR WORKS SPECIFICATIONS

### 5.1 Rolling Dips/Water Bars:

Rolling dips collect surface runoff and direct it across and away from the roadway or trail, minimizing erosion.

- Construct using:
  - Imported gravel humps, placed at an angled alignment to divert water gently off the road surface.

Rolling Dips are to be constructed wherever areas are subjected to sheet flow and is not summarised in this section.

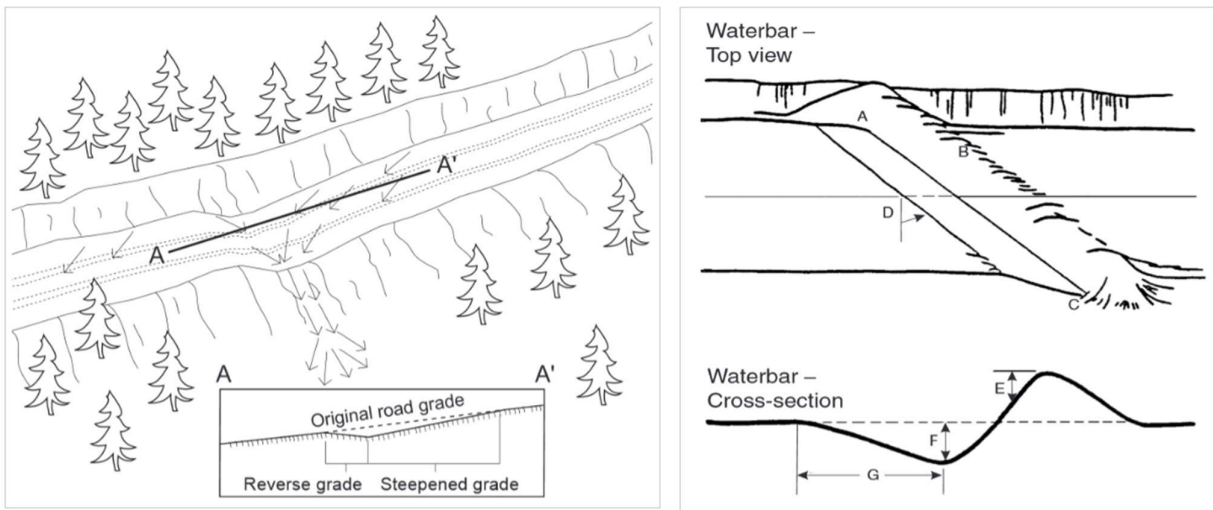


Figure 3: Rolling Dips/Water Bars

### 5.2 Concrete Access Strips

Concrete access strips are often constructed to provide basic, low-maintenance vehicle access over erodible, steep, or wet terrain. While there is no single national standard document specific to rural 4x4 access strips, they are usually designed using principles from the following references:

### 5.3 Reference Standards & Guidelines:

1. South African National Standards (SANS):
  - SANS 1200 G: Concrete (Structural)
  - SANS 10100-1: The structural use of concrete – Part 1: Design
  - SANS 10100-2: The structural use of concrete – Part 2: Materials and execution of work
2. TMH 1: Standard Methods of Testing Road Construction Materials – CSIR
3. COLTO (Committee of Land Transport Officials) Standard Specifications
4. SANRAL Standard Drawings (particularly rural road and low-volume roads manual)

**Table 1 Typical Specifications for Concrete Access Strips**

Item	Specification
<b>Strip Width</b>	600 mm to 800 mm per wheel path
<b>Gap Between Strips</b>	600 mm to 1000 mm (depending on wheel track width)
<b>Strip Length per Panel</b>	2.0 m (Cast Alternatively with Expansion joints every 10m)
<b>Concrete Class</b>	25 MPa at 28 days (Class 25/19)
<b>Aggregate Size</b>	Max 19 mm (Standard)
<b>Strip Thickness</b>	150 mm for standard access (light vehicles); increase to 175–200 mm for heavier 4x4s or steep gradients
<b>Base Layer</b>	150 mm G5 or G6 compacted to 95% Mod AASHTO (as per SANS 1200DM)
<b>Subgrade</b>	Minimum CBR of 8%, otherwise subgrade improvement required
<b>Jointing</b>	Cast in alternate 2 m sections to allow for shrinkage cracking (construction joints every 2 m). Provide a 15 mm wide expansion joint at every 10 m interval and at all interfaces with fixed structures. Fill joint with bitumen-impregnated fiberboard to full slab depth (150 mm). Seal with flexible mastic if desired to prevent debris ingress.
<b>Surface Finish</b>	Light broom finish for traction
<b>Edge Restraint</b>	Optional – may include edge thickening or shallow side drains for drainage control
<b>Reinforcement</b>	Typically unreinforced for cost, but can include light mesh (A142) if needed for durability or in steep terrain

#### 5.4 Drainage Considerations:

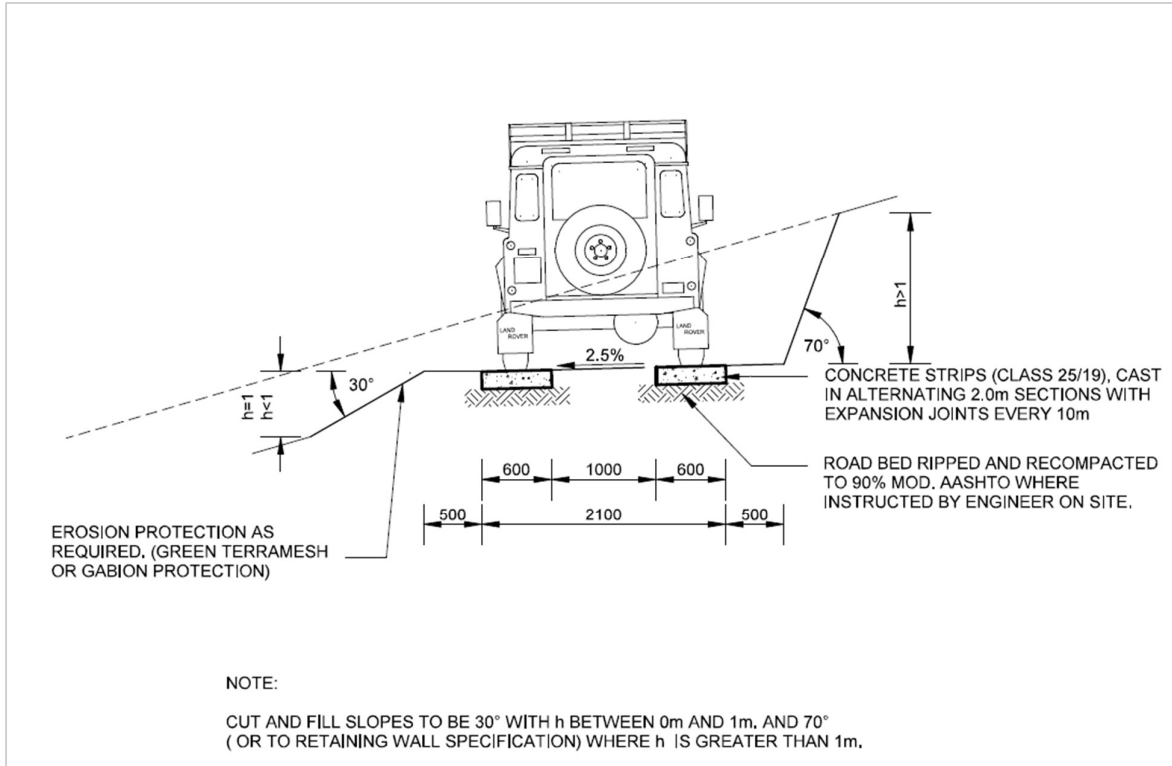
- Lateral fall or crown to prevent water ponding.
- Provide mitre drains or side ditches at regular intervals.
- Cross-fall of ~3% is typical to ensure runoff.

#### 5.5 Construction Notes:

- Cast alternate slabs to prevent thermal cracking.
- Cure with plastic sheeting or curing compound for at least 7 days.
- Compact sub-base and base thoroughly to reduce future movement.
- Concrete must be vibrated or well-compacted to reduce voids.

**Table 2: Approximate length of concrete strips to be constructed**

Management Road Assessments	Length (m)
2. Kleinspreufontein	217m



**Figure 4: Typical Cross-Section of Concrete Access Strip**

## 5.6 Low Level Crossing

Low-level crossings are designed to provide vehicular access over intermittent or seasonal watercourses where high-level bridges are not economically feasible.

Culverts can optionally be incorporated into the low-level crossing to facilitate the controlled passage of water during low to moderate flow conditions. This reduces the risk of erosion and surface washouts, enhances road safety, and prolongs the service life of the crossing. The provision and installation of culverts are dependent on the accessibility of the site for transporting construction materials. In areas with difficult or steep terrain, the delivery of precast elements may not be feasible. In such cases, alternative solutions or omitting culverts may be considered based on practical constructability and environmental conditions.

## 5.7 Culvert Specification

- Type: Precast concrete box culvert
- Dimensions: 1200 mm wide x 300 mm high
- Quantity: Optional based on site-specific hydrological assessment
- Placement: Transverse to the road, below the low-level slab or gravel surface
- Inlet/Outlet Protection: Rock pitching or Reno® Mattresses are recommended to prevent scour.

These culverts are suitable for rural and low-traffic volume routes where the watercourse experiences occasional flows. The size (1200 x 300 mm) is effective for small catchments or where flow is shallow and dispersed. In larger or fast-flowing watercourses, additional culverts or alternative hydraulic structures may be required.

## 5.8 Maintenance and Monitoring

Regular inspection and removal of debris are essential to maintain flow capacity. Blockages can lead to overtopping and potential damage to the crossing.

## 5.9 Summary

The optional use of 1200 x 300 mm culverts in low-level crossings provides a practical and cost-effective solution for managing intermittent water flows. However, implementation is subject to the ability to transport and install culvert units in challenging terrain. Final culvert numbers and placements should be determined through a site-specific assessment, considering hydrology, constructability, and logistical constraints.

**Table 3: Approximate number of low-level crossings to be constructed**

Management Road Assessments	Number (No)
1. Kleinspreufontein – Fisantekloof	9
2. Kleinspreufontein	8
4. Touwsfontein - Jan Pieterskloof	3
5. Vrede – Goedehoop	N/A
6. Boplaas	1

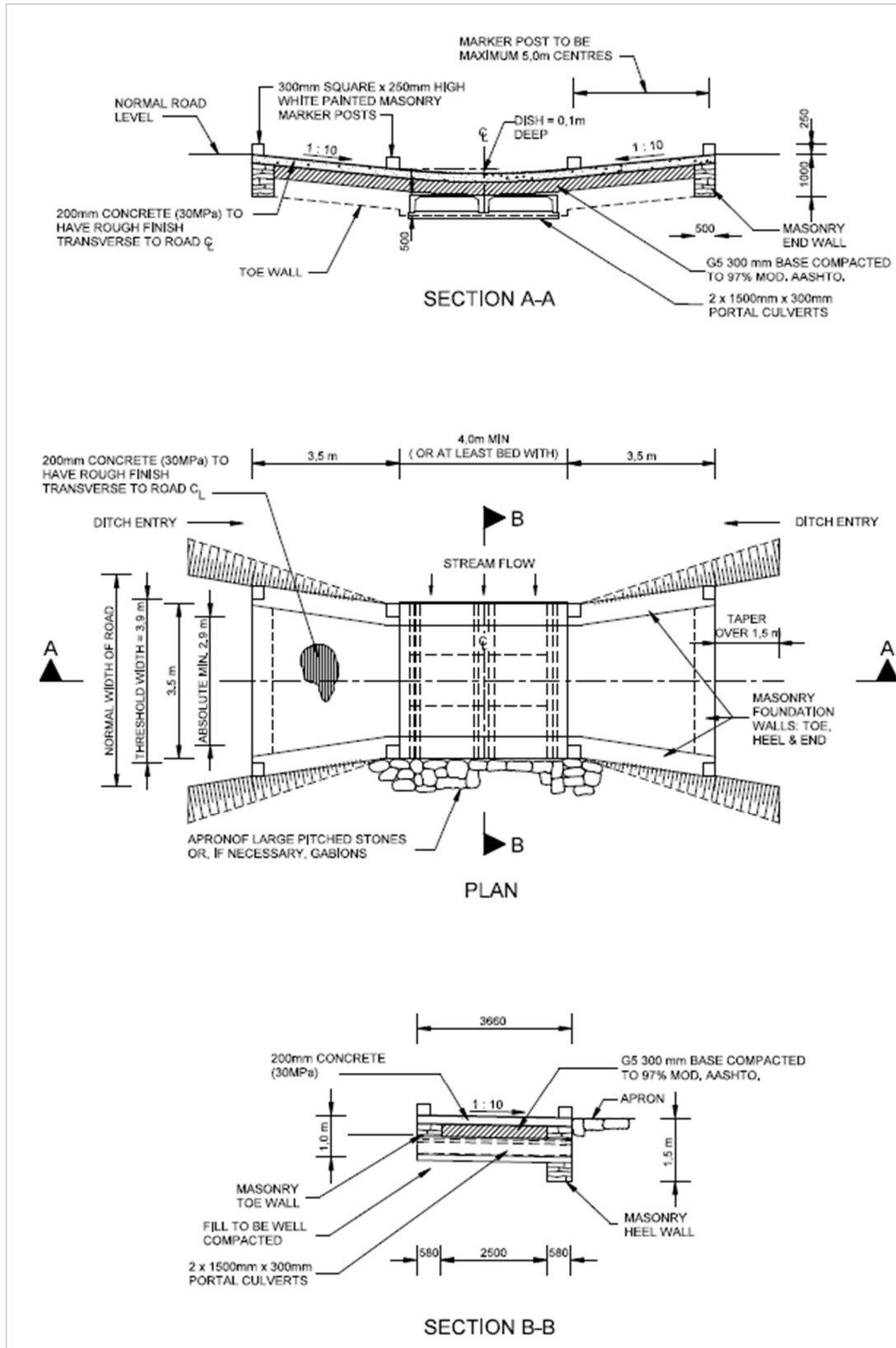


Figure 5: Typical Low-Level Crossing

## 5.10 Concrete Drifts

Concrete drifts are low-water crossings constructed to allow the safe and reliable passage of vehicles over intermittent or low-flow watercourses. In rural areas with two-track maintenance access roads, these drifts serve as cost-effective and low-maintenance alternatives to conventional bridges, particularly in terrains where watercourses cross frequently and where stormwater flow is seasonal.

The primary function of concrete drifts is to facilitate vehicle access during dry conditions while withstanding occasional submersion during floods. For rural two-track maintenance access roads, especially in undeveloped or mountainous areas, they improve accessibility without significantly altering the natural drainage system.

Concrete drifts are especially suitable for rugged terrain where the construction of culverts or bridges is constrained by cost, limited access to heavy machinery, or environmental sensitivity. Their low profile minimizes visual and ecological impact while maintaining essential connectivity for maintenance purposes.

## 5.11 Drift Design Considerations

- Concrete Strength: Concrete Class 25/19 is commonly used, offering sufficient durability against abrasion and water exposure.
- Foundation: Drifts are cast in-situ on a compacted sub-base or rock bed to prevent undermining and ensure structural stability.
- Hydraulic Capacity: The structure is designed to be overtopped by floodwater.
- Surface Texture: A broom or brush finish is applied to enhance traction for maintenance vehicles.
- Approach Protection: Gabions and Reno® Mattresses may be included upstream and downstream to reduce erosion at entry and exit points.

**Table 4: Approximate number of concrete drifts to be constructed**

Management Road Assessments	Number (No)
1. Kleinspreeufontein – Fisantekloof	4
2. Kleinspreeufontein	8
4. Touwsfontein - Jan Pieterskloof	3
5. Vrede – Goedehoop	0
6. Boplaas	1

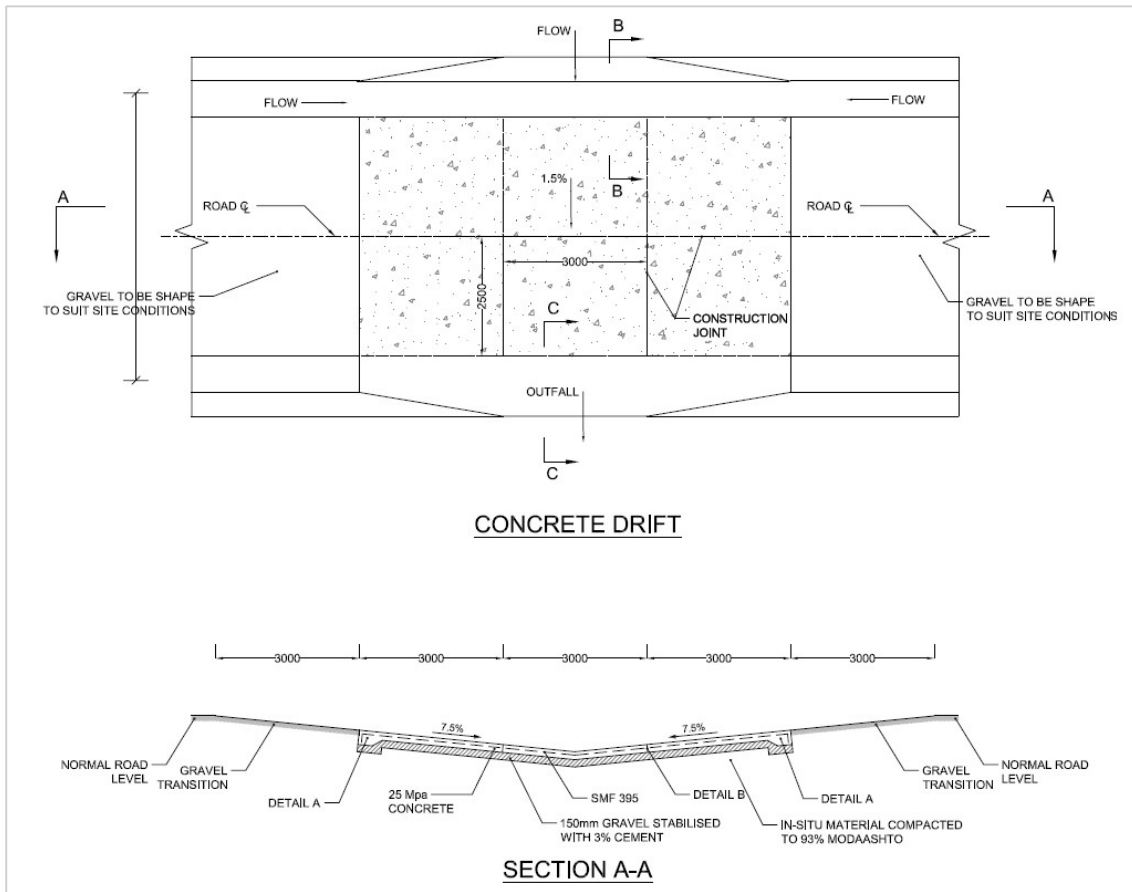


Figure 6: Typical Concrete Drift

Note: Image sourced from <https://www.sanparks.org/wp-content/uploads/2021/09/concrete-drift-drawing.pdf>

## 5.12 Gabion Wall for Erosion Protection on Steep Slopes

Two-track maintenance access roads traversing steep terrain are particularly susceptible to surface runoff and erosion, which can undermine road stability and cause washaways. In areas where terrain conditions limit the use of conventional stormwater drainage or retaining structures, gabion walls serve as a cost-effective, durable, and locally adaptable erosion protection solution.

Gabion walls are used to:

- Stabilize the toe of steep embankments and cut slopes.
- Prevent soil erosion and retain fill or natural slope material.
- Protect road shoulders and maintain track width and integrity.

## 5.13 Design Considerations

- Height: Gabion walls should typically not exceed 3.0 m in height without stepped terraces or additional geotechnical design.
- Batter: A stepped or battered configuration (e.g., 6V:1H) increases stability.
- Foundation: Compact and level foundation with possible use of filter fabric to prevent soil migration.
- Drainage: Adequate weep holes or granular backfill should be provided to relieve hydrostatic pressure.
- Materials: Galvanized or PVC-coated wire baskets filled with well-graded angular rock (preferably 100–200 mm in size).

## 5.14 Construction Notes

- Use local rock fill where available to reduce costs and logistics.
- Layer baskets tightly and securely with staggered joints.
- Install from the lowest elevation upward.
- Vegetation can be introduced for additional surface stabilization.

## 5.15 Typical Applications

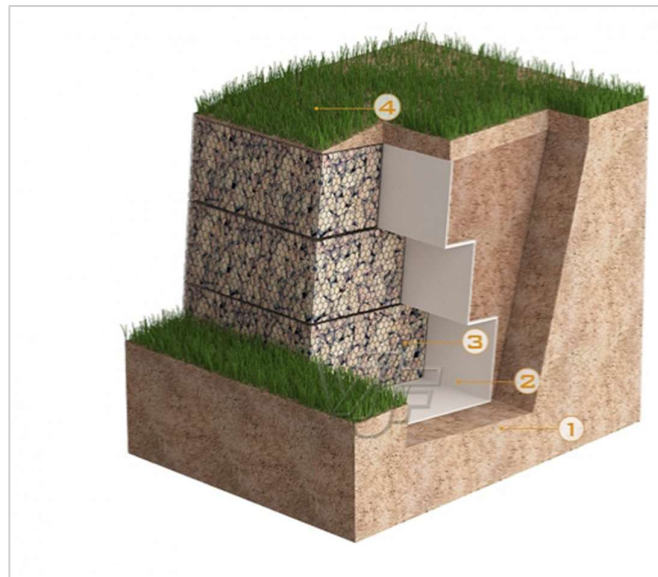
- Downslope protection on outer edges of mountain tracks.
- Retaining material on inside bends of tight curves with cut slopes.
- Intermittent check structures in erosive gullies adjacent to the road.

## 5.16 Maintenance

Annual inspection for settlement, wire corrosion, or dislodged rock is essential, especially after heavy rainfall events. Repair or replacement of damaged baskets should be prioritized to prevent further slope degradation.

**Table 5: Approximate square metres of Gabion retaining walls to be constructed**

Management Road Assessments	Area (m <sup>2</sup> )
Vrede Goedehoop	1300
Boplaas	300



**Figure 7: Typical Gabion Wall for Erosion Protection on Steep Slopes**

Note: Image sourced from <https://www.geotech.hr/en/gabion-walls/>

## 6. GENERAL

The Contractor shall note that the site is within a popular tourist amenity. The Contractor shall comply with all CapeNature, Western Cape Governments and Local Authority regulations including those relating to health, the environment and fire. The Contractor shall ensure that all camp facilities, including those for fueling, comply with all such regulations.

Should the contract period include either the Easter weekend and / or the end of year builders' holidays the camp shall be dis-established in its entirety prior to such periods and re-established at the end of such periods.

The Contractor shall provide sufficient latrine facilities for its workers as required by local regulations and these shall be located in close proximity to the work area.

The following is to be noted when works are undertaken at the Anysberg Nature Reserve:

- **Reinstatement of services and structures damaged during construction**

The Contractor shall inform the Employer's Agent immediately when a service or structure is damaged. The extent of the damage and a proposal on how to reinstate the service or structure shall be submitted to the Employer's Agent on a sketch with dimensions and time frames.

The Contractor shall not be allowed to reinstate any service or structure unless indicated so by the Employer's Agent. The Contractor shall render all reasonable assistance to the service or structure owner with the reinstatement of the service or the structure if required.

The Contractor shall be liable to reinstate the service or structure to its original state or for the full cost thereof if reinstated by others.

- **Water and Power Supply**

The Contractor shall make their arrangements for water supply, and the cost, if any, will be for the Contractor's account.

The Contractor shall make his arrangements for the supply of electricity that he may require for the execution of the works and the costs of any connections, additional reticulation and the supply of electricity shall be borne by the Contractor.

- **Waste Disposal**

The Contractor shall make their arrangements for solid and liquid waste disposal off-site. No disposal of any waste will be permitted within the nature reserve.

- **Ablution Facilities**

Ablution facilities are not available on site. The Contractor shall therefore make the necessary arrangements to provide these facilities.

- **Dealing with high winds**

The site is situated in a region where high winds and seasonal rain can be expected. Strong winds occur during the summer and winter months and rain occurs during the winter.

All heaps of materials, either forming part of the excavations or imported for use in construction, shall be kept covered during high winds to prevent contamination of surrounding vegetation.

- **Excavation**

All excavations shall be carried out by suitable equipment operating strictly within the work area as defined above. Any excavation by mechanical means shall be carried out by mechanical equipment operating from the existing road surface within the demarcated work area. All excavation shall be carried out such that no damage to the environment, including flora and fauna, shall occur and that the natural vegetation surrounding the working areas is not affected in any way.

Material from excavations required for backfilling may be stockpiled outside the demarcated work area on the existing road, but shall be stockpiled strictly on the surface and shall not be allowed to encroach

onto the shoulders or onto vegetation abutting the road. If this requirement is not strictly adhered to, the Contractor shall not be allowed to stockpile material on the road but shall stockpile material at locations directed by the Employer's Agent. No compensation for any additional expense that may be incurred in this regard shall be paid.

## 7 PROJECT BUDGET

### 7.1 PROVISIONAL BUDGET – PROJECT INCEPTION

No provisional budget for the project has been noted by the Department. The consultant team was tasked to determine a provisional budget during the combined Stages 1 and 2 scope assessment and determination by compiling an elemental estimate of all works and items deemed to be included in the project scope of work.

Upon review of the combined Stages 1 and 2 reports, the Department is to indicate which items are to be included or not, and a provisional project budget will be established to secure funding. The final project budget will be refined during Stage 3.

### 7.2 PROVISIONAL BUDGET – CURRENT ELEMENTAL ESTIMATE COST

#### 7.2.1 Quantity Surveyor

The estimated budget is based on a priced provisional bill of quantities method with rates taken from the Framework BOQ prices of 2025/2026 as supplied by the Western Cape Government. The estimate considered the following assumptions:

- Framework rates were used,
- A Preliminary and General mark-up percentage is added based on expected mark-ups from contractors, in this case a factor of 35% was used due to the remoteness of this reserve,
- Contingencies at 15%
- A provisional 5% allowance for escalation,
- Professional fees allowed at 10%, including additional PSPs, Land Surveyor, Arborist, AIAA and OHS.
- Disbursements allowance of 5%.

**Table 7: Cost Estimate - Anysberg Reserve**

Section	Construction cost	Priority 1	Priority 2	Priority 3
<u>Primary Elements of Management Roads:</u>				
1. Kleinspreeufontein – Fisantekloof	R5,889,185.00	R5,889,185.00		
2. Kleinspreeufontein	R4,003,308.20	R4,003,308.20		
3. Grand Canyon (omitted)				
4. Touwsfontein - Jan Pieterskloof	R3,268,027.50	R3,268,027.50		
5. Vrede – Goedehoop, and	R3,269,770.00	R3,269,770.00		
6. Boplaas.	R1,099,875.00	R1,099,875.00		
<b>Estimated current Construction cost excl. P &amp; G, Fees, Escalation &amp; VAT</b>	<b>R17,530,165.70</b>	<b>R17,530,165.70</b>	<b>R -</b>	<b>R -</b>
Preliminary and General (35%)	R4,382,541.43	R 4,382,541.43	R -	R -
<b>Subtotal</b>	<b>R21,912,707.13</b>	<b>R21,912,707.13</b>	<b>R -</b>	<b>R -</b>
Contingency (15%)	R3,286,906.07	R3,286,906.07	R0.00	R0.00
<b>Estimated current cost excl. Fees &amp; VAT</b>	<b>R25,199,613.19</b>	<b>R25,199,613.19</b>	<b>R0.00</b>	<b>R0.00</b>
Escalation costs (5%)	R1,259,980.66	R1,259,980.66	R0.00	R0.00
<b>Estimated final cost excl. Fees &amp; VAT</b>	<b>R26,459,593.85</b>	<b>R26,459,593.85</b>	<b>R0.00</b>	<b>R0.00</b>
Professional fees (10%)	R2,645,959.39	R2,645,959.39	R0.00	R0.00
Disbursements (5%)	R1,322,979.69	R1,322,979.69	R0.00	R0.00
<b>Estimated final cost excl. VAT</b>	<b>R30,428,532.93</b>	<b>R30,428,532.93</b>	<b>R0.00</b>	<b>R0.00</b>
Value Added Tax (15%)	R4,564,279.94	R4,564,279.94	R0.00	R0.00
<b>ESTIMATED FINAL COST ALL INCLUSIVE</b>	<b>R34,992,812.87</b>	<b>R34,992,812.87</b>	<b>R0.00</b>	<b>R0.00</b>

The estimate (R 30, 428, 532.93 excluding VAT) exceeds the original budget of R 20, 000,000.00 with 52%.

## 8 SUBCONSULTANT SCHEDULE

The Construction Regulations 2014 mandate that a site specific health and safety risk assessment be undertaken for all construction work projects. In addition, in terms of Regulation 5(1)(o) and (p) of the Construction Regulations, it is a requirement that monthly health and safety audits be undertaken to ensure compliance to a contractors safety plan.

Therefore an OHS subconsultant will have to be appointed prior to construction.

The NEMA (National Environmental Management Act) mandates environmental audits for activities requiring environmental authorization. Specifically, Regulation 34 of the 2014 EIA Regulations requires the auditing of environmental authorizations, EMPs (Environmental Management Programmes), and closure plans, if applicable. These audits must be conducted by an independent party with relevant expertise and the reports submitted to the relevant environmental authorities.

## 9 PROJECT SCHEDULE

### 11.1 PROVISIONAL SCHEDULE

The provisional timeline for the project is summarized as per the South African Council for Project Construction Management Professionals (SACPCMP) stages of standard services.

**Table 7.1: Provisional project timeline**

Stage No.	Description	Timeline	Comment
1	Inception	*02 October 2023 – **19 January 2024	*Stages 1 and 2 combined. **Inclusive of Builder's Break. <i>Client review and approval period:</i> <i>08 January 2024 – 19 January 2024</i>
2	Concept and Viability	*02 October 2023 – **19 January 2024	<i>Client review and approval period:</i> <i>26 April – 24 May 2024</i>
3	Detail Design	22 January 2024 – 24 May 2024	<i>Client review, approval, and procurement period:</i> <i>05 August – 25 October 2024</i> ***All efforts to be made to reduce this portion of schedule.
4	Document and Procurement	***27 May 2024 – 25 October 2024	Final estimated construction period to be determined at end of Stage 3. **Inclusive of Builder's Break.
5	Construction	**28 October 2024 – 27 June 2025	All efforts to be made to avoid overall project timeline overrun.
6	Closeout	30 June 2025 – 08 August 2025	

❖ *Timelines are an estimation and subject to change pending approvals.*

For a detailed project schedule breakdown refer to Annexure i: Provisional Project Schedule Stages 1-6.



# ANNEXURE A

## Condition Assessment

PROJECT: CapeNature Condition Assessment					DATE: 2025-07-10
DESCRIPTION: Anysberg Nature Reserve - Kleinspreeufontein - Fisantekloof					
Photo ID	Stake Value	Distance	Priority	Description	Erosion Control and Drainage Measures
123052	0		4. Poor	Start of road	Heavy grading/water bars
123753	300	300		Heavy grading/water bars	
124117	500	200		Heavy grading/water bars	
124350	680	180		Road washed out	Reshaping
124446	720	40		Heavy grading/water bars	
124605	800	80		Heavy grading/water bars	
124827	1000	200		Heavy grading/water bars	
125049	1180	180		Heavy grading/water bars	
	1185	5			
125109	1200	15		Stream crossing	Reno Matressed 12m long x 3m wide
125322	1240	40		Normal grading/waterbars	
125535	1380	140		Road washed out	Heavy grading/water bars
125738	1480	100		Road washed out	Heavy grading/water bars/grassblock tracks from 1380
130107	1720	240		Road washed out	Heavy grading/water bars/grassblock tracks from 1380
130137	1740	20		Stream crossing	Reno Matressed 12m long x 3m wide
130239	1820	80	Road washed out	Start grassblocks	
130348	1910	90	End grassblocks		
130510	2000	90	Heavy grading/water bars ch 2000 to ch 2300		
151822	2300	300	Heavy grading/water bars ch 2000 to ch 2300		
151748	2340	40	Stream crossing	Reno Matressed 12m long x 3m wide	
151723	2380	40	3. Average	Heavy grading/water bars ch 2380 to ch 2700	
132119	2480	100	Heavy grading/water bars ch 2380 to ch 2700		
132400	2700	220	Fair condition ch 2700 to ch 2900	Light grade/do nothing	
133507	2900	200	2. Good	Fair condition ch 2700 to ch 3240	Light grade/do nothing
133754	3100	200	Fair condition ch 2700 to ch 3240	Light grade/do nothing	
134048	3240	140	4. Poor	Stream crossing	Provide low level drift (concrete)
134136	3300	60	Road washed out	Heavy grading/water bars for 20m	
134237	3320	20			
134448	3410	90	2. Good	Good condition ch 3410 to ch 3550	Nil
134756	3550	140			
134856	3600	50	4. Poor	Stream crossing	Provide low level drift (concrete)/gabion drift
135137	3720	120	2. Good	Fair condition ch 3720 to ch 3900	
135514	3900	180	4. Poor	Road washed out ch 3900 to 4120	Heavy grading/water bars/grassblock tracks
135846	4120	220		Road washed out ch 3900 to 4120	Heavy grading/water bars/grassblock tracks
135903	4120	0		Stream crossing	Provide low level drift (concrete)

PROJECT: CapeNature Condition Assessment					DATE: 2025-07-10	
DESCRIPTION: Anysberg Nature Reserve - Kleinspreeufontein - Fisantekloof						
Photo ID	Stake Value	Distance	Priority	Description	Erosion Control and Drainage Measures	
140004	4160	40		Road washed out ch 4120 to 4280	Heavy grading/water bars	
140136	4280	120		Road washed out ch 4120 to 4280	Heavy grading/water bars	
140231	4360	80	3. Average	grading 4280 to 4360	Heavy grading/water bars	
140242	4360	0	4. Poor	Stream crossing	New grassblock drift	
140950	4860	500	2. Good		Grading 4360 to 5200	
141511	5200	340				
141713	5300	100				Medium grading
	5320	20				
141713	5340	20			Road fair condition	Heavy grading/water bars for 20m
141914	5500	160		Road fair condition		
141955	5520	20	4. Poor	Road washed out	New grassblock drift	
142320	5520	0	3. Average		Heavy grading/water bars	
142333	5780	260		Stream crossing	Heavy grading/water bars	
	5800	20	4. Poor	Stream crossing	New grassblock drift	
142343	5800	0	3. Average	Fair condition ch 5800 to 6000	Heavy grading/water bars	
142645	6000	200		Fair condition ch 5800 to 6000	Heavy grading/water bars	
	7640	1640		Heavy grading ch 6000 to 7640	Heavy grading/water bars	
	7640	0	4	Stream crossing	New grassblock drift	
	7640	0	3. Average	Heavy grading ch 7640 to 7930	Heavy grading/water bars	
	7930	290	4. Poor	Stream crossing	New grassblock drift	
	7930	0	3. Average	Heavy grading ch 7930 to 9080	Heavy grading/water bars	
	9080	1150	4. Poor	Stream crossing	New grassblock drift	
	9930	850	3. Average	Heavy grading ch 9090 to 12600	Heavy grading/water bars	
	12600	2670	4. Poor	Stream crossing	New grassblock drift	
	15300	2700	3. Average	Heavy grading ch 12600 to 15300	Heavy grading/water bars	
Misc. works						
81306			4	Poor condition		
82954			4	Poor condition		
83606			4	Water crossing	18m x 3m drift gabions	
92739			4	Water crossing	18m x 3m drift gabions	

PROJECT: CapeNature Condition Assessment					DATE: 2025-07-10	
DESCRIPTION: Anysberg Nature Reserve - Kleinspreefontein						
Photo ID	Stake Value	Distance	Priority	Description	Erosion Control and Drainage Measures	
	0	0	3. Average			
140	140	140	4. Poor	Stream crossing	Construct drift 12m x 3m wide with reno matress	
105333	200	60		Stream crossing	Construct drift 18m x 3m wide with reno matress	
105108	320	120				
104454	760	440			Grading only	
104316	900	140			Road washed out	heavy grading to ch 1180 (280M)
103753	1180	280				
103500	1340	160			Stream crossing	Construct drift 12m x 3m wide with reno matress
103340	1420	80			Stream crossing	Construct drift 12m x 3m wide with reno matress
103026	1640	220			Stream crossing	Construct drift 18m x 3m wide with reno matress
103000	1700	60				Construct new roadway
102712	1950	250			Regrading	
102605	2000	50	3. Average	Stream crossing	Heavy grading/water bars/grassblock tracks from 1380	
101951	2480	480	2		Regrade 2000 to 2980	
101337	2980	500	5. Critical			
101059	3060	80		Road washed out	Reconstruct road away from watercourse ch 3km- 3.4km	
100940	3220	160		Road washed out	Reconstruct road away from watercourse ch 3km- 3.4km	
100707	3400	180		Road washed out	Reconstruct road away from watercourse ch 3km- 3.4km	
100459	3520	120	3. Average		Construct drift 12m x 3m wide with reno matress	
100328	3640	120	5. Critical		Reconstruct roadway 3520 to 4100 complete or grassblocks/strips this entire section or reroute roadway	
100238	3700	60		Reconstruct roadway 3520 to 4100 complete or grassblocks/strips this entire section or reroute roadway		
095831	3900	200		Reconstruct roadway 3520 to 4100 complete or grassblocks/strips this entire section or reroute roadway		
	4100	200		Reconstruct roadway 3520 to 4100 complete or grassblocks/strips this entire section or reroute roadway		
95129	4120	20	3. Average		Heavy grading ch 4100 to 4300	
	4300	180		100m section ch 4300 to ch4400		
94431	4400	100	4. Poor		Heavy grading ch 4400 to ch 4700	
115542	4700	300		Light grading ch 4700 to 5020		
120014	5020	320	3. Average		End of road	
Misc. works						
92811			4. Poor	Road washed out	Construct drift 12m x 3m wide with reno matress	
92739				Road washed out	Construct drift 12m x 3m wide with reno matress	

PROJECT: CapeNature Condition Assessment					DATE: 2025-07-10
DESCRIPTION: Anysberg Nature Reserve - Grand Canyon (omitted)					
Photo ID	Stake Value	Distance	Priority	Description	Erosion Control and Drainage Measures

PROJECT: CapeNature Condition Assessment				DATE: 2025-06-25	
DESCRIPTION: Anysberg Nature Reserve - Touwsfontein/Jan Pieterskloof					
Photo ID	Stake Value	Distance	Priority	Description	Erosion Control and Drainage Measures
	0				
IMG_20250612_093845 IMG_20250612_093937 IMG_20250612_094029	2400	2400	Low	Exiting Stream Crossing.	Stream Crossing. LHS Slope Stability Poor 100m. Stream Marshy, Add Drift. Scour In Road Surface
IMG_20250612_094714	2900	500	Low	Exiting Stream Crossing.	Stream Crossing. Add Drift.
IMG_20250612_095044	3200	300	Low	Scour on RHS of road edge/embankment	Scour RHS 30m. Gabions RHS + Drain LHS + Improve
IMG_20250612_095900	4300	1100	Low	Steep Section. Slight Erosion on Tracks.	Add Concrete Strips on Steep Section. Slight Erosion on Rest On Foot.
IMG_20250612_100005 IMG_20250612_100930 IMG_20250612_101026 IMG_20250612_101440 IMG_20250612_101816 IMG_20250612_101921 IMG_20250612_102140	4600	300	Low	Virtually non-existent Road	No Road. Completely Dilapidated. No Maintenance. Construct New Road. 2 Stream Crossings.

PROJECT: CapeNature Condition Assessment					DATE: 2025-07-10
DESCRIPTION: Anysberg Nature Reserve - Vrede Goede Hoop - see report					
Photo ID	Stake Value	Distance	Priority	Description	Erosion Control and Drainage Measures
	0		5. Critical	Embankment eroded	Extensive Erosion measures required (6m gabion wall or concrete wall Alternative new road

