PROPOSED RESIDENTIAL HOUSE PHILIP ON PORTION 257 OF THE FARM MELKHOUTE FONTEIN NO. 480, STILL BAY, WESTERN CAPE

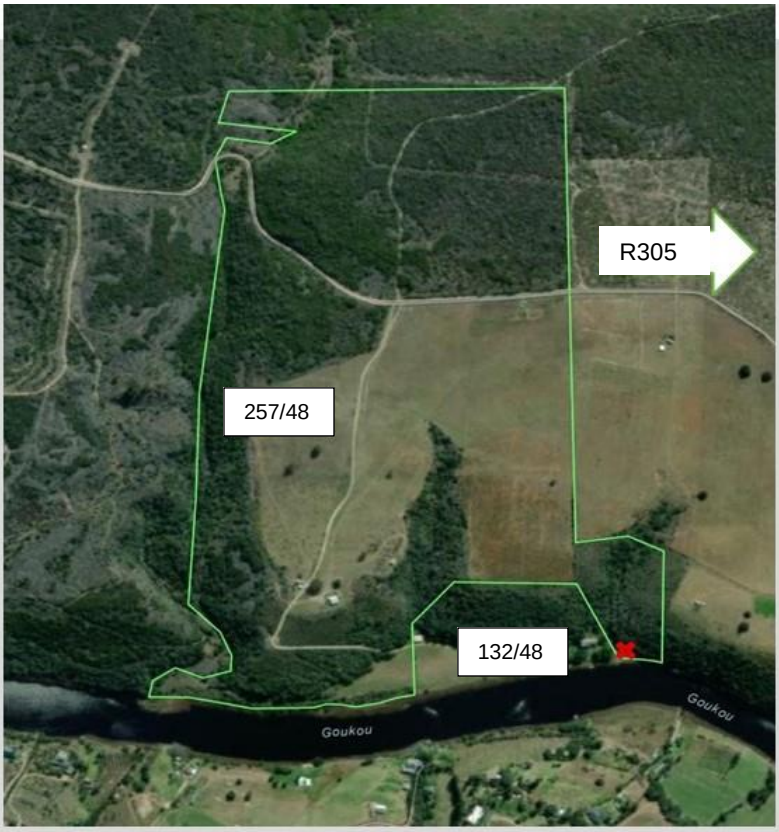

Table 1 : Current Report Version

Report Title:	**PROPOSED RESIDENTIAL HOUSE PHILIP ON PORTION 257 OF THE FARM MELKHOUTE FONTEIN NO. 480, STILL BAY, WESTERN CAPE**
Client:	Mr PV ELLIS
Report Number:	T105
Revision Number:	03

Table 1 : Report Revision History

Date	**Rev**	**Written By**	**Reviewed By**		**Distribution**	**Format**
			Name	**Institution**		
17 March 2025	01	Thomas Martinson	Japie van Eeden		E-mail	.pdf
1 April 2025	02	Thomas Martinson	Japie van Eeden		E-mail	.pdf
10 April 2025	03	Thomas Martinson	Japie van Eeden		E-mail	.pdf

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1. Introduction

Thomas Martinson, a knowledgeable professional multi discipline Construction Manager with more than 40 years experience in construction and project management, was appointed by Mr F V Ellis to prepare the necessary Civil Engineering Service Report for the proposed building of one residential house on Portion 257 of the farm Melkhoute Fontein 480, Riethuiskraal, Hessequa Local Municipality, Western Cape near Still Bay.

Japie van Eeden, a registered Professional Engineer (Pr Eng), reviewed the report.

The total size of the property is 50,15 ha.

The development consists of a primary residential house with a disturbed footprint of not more than 158 m². The only excavations will be for the foundations of the house supports, the 6 m² excavation for the conservancy tank and a 4 m² concrete slab for the rain water tank. The 36 m² parking area will be undisturbed.

This dwelling will be provided by a basic access road, 3 phase electrical supply from Escom and a 6,0 cu.m conservancy tank.

Figure 1: Locality map (Google Earth Image)

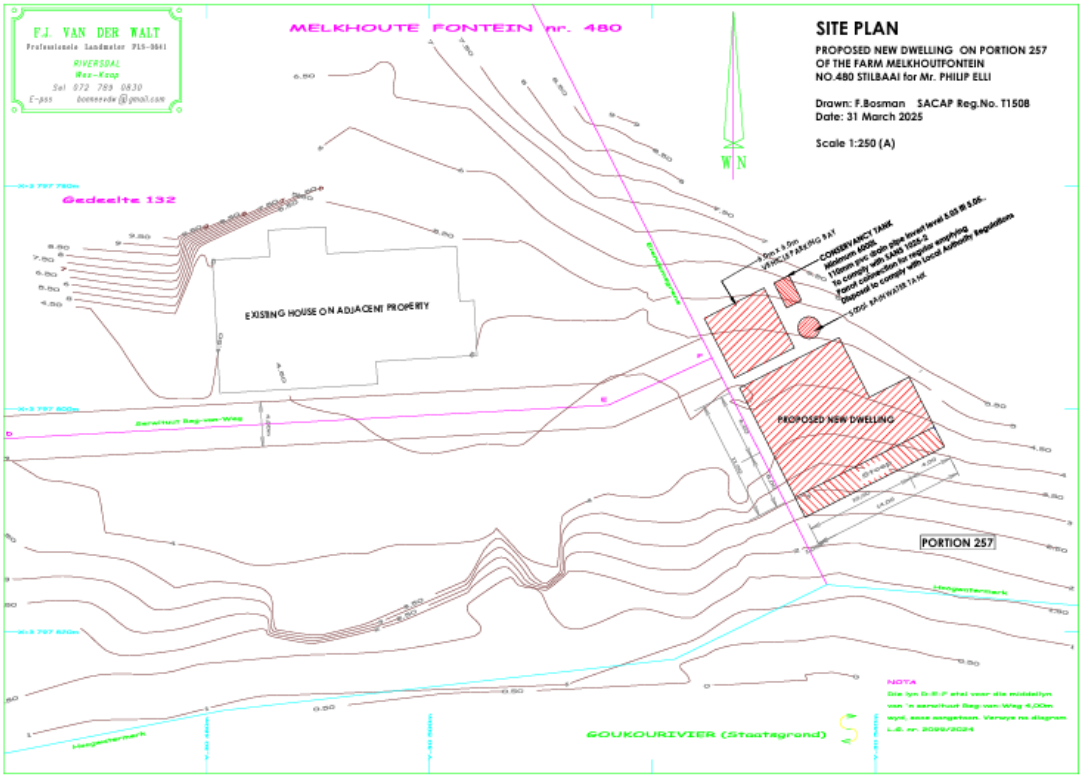

Figure 2: Site layout

2. LAND USE

The current zoning is Agricultural 1 (AGR1) for the total area. Application will be made for a departure of the building line from 30m to 1m from the adjacent property.

3. EXISTING SERVICES

3.1 Buildings

Existing Farm Worker house on top of the hill as well as an old farm worker house, that is being used as a storage facility.

3.2 Water

An existing borehole with a capacity of 8 000 litre/day supplies water to two x 5 000 litre water tanks next to the borehole. These tanks gravity feed (20m head) via a Ø20mm water pipeline to two x 2 500 litre water tanks on top of the hill above the proposed dwelling. A Ø 32mm above ground pipeline runs from the storage tanks on the hill to the existing dwelling on 132/480. (37m head). **(See Figure 3: Existing water supply)**

Figure 3: Existing water supply

3.3 Sewerage

None

3.4 Electricity

Three phase Escom electrical connection is available on site.

3.5 Access and Roads

Access to the proposed development position is via an unnamed gravel road that connects to the R305. The gravel road continues south towards the Goukou River, where it traverses the neighboring portion 132/480 in front of the existing dwelling via a servitude that is currently being registered.

3.6 Refuge Removal Services

Hessequa municipality collect refuse on Thursdays at the entrance gate of the farm.

3.7 Storm Water

The area is naturally drained in a southern direction towards the Goukou River

4. PROPOSED CIVIL ENGINEERING SERVICES

4.1 House Construction

The proposed development will not result in any additional construction of infrastructure within the dynamic, tidal extent of the estuary and construction and operational phase activities will not impact on the base flows or hydrological regime (i.e. timing and magnitude of surface flows) of the estuary and are of such a scale that will in no way impact on the frequency of estuary mouth closure.

The proposed new dwelling will be constructed in timber frame to comply with relevant SABS codes and the National Building Regulations. Relevant Codes to adhere to include SANS 517, 1040, 10082, 10160 and 10163.

A raised timber base floor structure on SABS approved treated timber columns secured to B600 Engineer designed steel reinforced pre-fabricated concrete footings will eliminate the need for excavations and /or filling and secure the floor level of the house to be constructed above the 1:100-year flood line. The floor level will be at 5,5m above the high-water mark as per the recommendation of WML Coast Consulting engineers who conducted a Flood Level Study of the Goukou River in the vicinity of Farm 480/257 Melkhoutfontein in July 2023.

Internal and external floors structures, wall frames and roof structure are all per the designs and specifications provided by the appointed civil Engineers. Wall frame cavities will allow for the reticulation of electrical wiring, plumbing, water lines, gas, TV and other required services and all cavities are to be tightly packed with non-combustible fibre wool insulation.

External walls will be cladded with fibre cement planking.

The roof cover will be ColorBond AZ 200 metal profile sheets to manufacturers specification.

4.2 Water

4.2.1 Water During Construction Phase

Water during construction will be available via the existing water supply from the top of the hill above the new dwelling.

4.2.2 Water for Long Term Use

The expected water usage will be between 800 – 1 000 litres/day. Two new 5 000 litre water tanks will be installed above the new dwelling on top of the hill as indicated. A new Ø 40mm above ground pipeline will be installed from the storage tanks on the hill to the proposed new dwelling. (37m head). This water supply will be used for residential usage. **(See Figure 4: Planned water supply)**

Figure 4: Planned water supply

Drinking water will be purified water supplied via 10 litre water bottles on a countertop water dispenser in the kitchen.

The recommended water storage capacity for household use is 10 000 litres.

A further 5 000 litre rainwater tank will be installed next to the house and will be connected to the house supply water with a booster pump.

It is proposed that the residential unit be equipped with the following water saving technology:

- **Dual Flush Toilets**
- **Low flow shower heads** – It is proposed that the residential unit be equip with low flow shower heads, as these can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008 - http://eartheasy.com/live_lowflow_aerators.htm). Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the homeowner but must have a flow of less than 7 litres per minute

- **Low flow faucets** - Low flow faucets use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 litres per minute
- **Rainwater Tank** - The house will be fitted with a 5 000 litre rainwater collection tank that will be connected to the house water supply with a booster pump via a filter system
- **Geyser and pipe insulation** - Apart from the savings in terms of energy as detailed above, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required. Homeowners must be required to install geyser and pipe insulation; this must be included in their building guidelines.

4.3 Sewerage

The calculated sewage and grey water generation from the new dwelling has been calculated as 500 - 750 litre/day. A masonry conservancy tank will be constructed according to SANS 10400-P:2010 Edition 3. The capacity of the tank will be 6 000 litres and will be constructed next to the parking area above the house at the 5,5m contour line in line with the registered servitude road to the new dwelling. The sewage will be collected by the Hessequa municipality on request.

4.4 Electricity

Three Phase Escom connection is available on site.

4.5 Access and Roads

No new access roads need to be constructed for access to the new home.

4.6 Storm water

The structure of the new dwelling will be above ground level and will not affect the current flow of storm water on the property.

4.7 Solid waste

Two types of refuse will be generated. The following options for disposing of the refuse will be followed.

4.7.1 Normal household refuse

A distinction will be made on the premises between recyclable and non-recyclable refuse. Both these types of refuse will be delivered to the closest refuse collection point at the current farm gate where it will be collected by the municipality.

4.7.2 Garden refuse

Will be managed on-site by the resident of the home through a composting facility in such a way that it does not pose a fire hazard to the environment.

5. CONSTRUCTION PHASE IMPACTS AND MITIGATIONS

The following construction impacts and mitigations will have to be implemented as per the Specialist Aquatic Biodiversity assessment conducted by Dr. J.M Dabrowski (PhD) in November 2024.

Figure 5: Map indicating No-Go area in purple and recommended access route (green arrow) to the development area in Portion 257 of Farm 480.

5.1 Impact 1

Transformation of habitat within the Estuarine Functional Zone (EFZ) of the Goukou River estuary. Construction of the residential dwelling will occur within a transformed section of the Goukou EFZ which offers limited habitat options for estuarine biota. No part of the development will occur within the river and no aquatic estuarine biota are expected to be adversely impacted. It is therefore unlikely that this development will significantly affect the ecological or functional attributes of the broader estuarine system.

5.1.1 Mitigation:

- Working areas must be clearly demarcated. Estuarine habitat outside of the working area must be designated as No-Go and no disturbance (i.e. trampling, smothering etc.) of estuarine habitat in this area is permitted. A 10 m buffer (measured from the edge of the bankfull channel) must be implemented and be clearly demarcated as a No-Go area
- No excavated material must be dumped or stockpiled in the No-Go area
- A comprehensive method statement must be drawn up which provides a clear step by step plan of the sequence of construction activities that will be undertaken. The method statement must aim to minimise the length of time that cleared areas remain exposed and vulnerable to erosion.

5.2 Impact 2

Erosion and sedimentation caused by clearance of vegetation during construction Clearing of vegetation will expose soil which may be vulnerable to erosion resulting in sediment input into the estuary and smothering and die-back of estuarine vegetation.

5.2.1 Mitigation:

- Working areas must be clearly demarcated to avoid unnecessary clearing of vegetation. Estuarine habitat outside of the working area must be designated as No-Go and no disturbance (i.e. trampling, smothering etc.) of estuarine habitat in this area is permitted
- For Alternative A, vegetation clearance must be limited to the proposed location of supporting piles
- Construction of the dwelling must be planned for the dry season (May to July). A comprehensive method statement must be drawn up which provides a clear step by step plan of the sequence of construction activities that will be undertaken. The method statement must aim to minimise the length of time that cleared areas remain exposed and vulnerable to erosion
- Silt fencing must be placed along the lower southern boundary of the development footprint to prevent sediment input in the event of a rainfall event
- Any disturbed, exposed areas outside of the development footprint must be reprofiled to natural contours and re-vegetated.

5.3 Impact 3

Disturbance of estuarine and coastal habitat caused by general construction activities. The proposed location of the dwelling is located immediately adjacent to sensitive estuarine and habitat. Failure to adequately manage activities on the construction site (e.g. access to construction areas, location and management of laydown and stockpile areas, waste management etc.) could lead to physical disturbance, solid waste pollution (e.g. general litter, building rubble, construction materials, cement etc.) and chemical pollution (e.g. hydrocarbons from vehicles and machinery and wastewater from cement mixing and temporary ablution facilities) of estuarine habitat.

5.3.1 Mitigation:

- Access to the construction area through the No-Go area is not permitted. Access must be restricted to the strip of transformed EFZ immediately south of the main residential dwelling on Portion 132 of Farm 480
- No construction materials may be stored or stockpiled outside of the area delineated by the rock revetment or in any part of the undeveloped areas of the EFZ. Portion 257 of Farm 24 Melkhoutefontein
- Rubble and waste materials must be managed on site and must not be dumped or stockpiled within the No-Go area
- Chemical toilets should be provided on-site at 1 toilet per 10 persons
- Waste from chemical toilets must be disposed of regularly (at least once a week) in a responsible manner by a registered waste contractor.

6. GENERAL

For any further queries do not hesitate to contact Thomas Martinson on 083 564 7098 or Japie van Eeden on 082 418 9003.

Yours truly

T.J. MARTINSON
Construction Manager

Reviewed by:

J.D. van EEDEN Pr Eng.