

DRAFT BASIC ASSESSMENT REPORT

PROPOSED FOUR (4) TWO-BEDROOM SELF-CATERING
ACCOMMODATION UNITS ON PORTION 9 OF FARM 707
OSBOSCH, KOUGA LOCAL MUNICIPALITY
HUMANSDORP REGISTRATION DIVISION, SARAH
BAARTMAN DISTRICT MUNICIPALITY, EASTERN CAPE.
REF NO: EC08/C/LN1&3/M/30-2026

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JULY 2026

ACES Consulting Report Revision

DOCUMENT TITLE	Draft Basic Assessment for the proposed four (4) two-bedroom self-catering accommodation units on Portion 9 of Farm 707 Osbosch, Kouga Local Municipality, Humansdorp Registration Division, Sarah Baartman District Municipality, Eastern Cape.
CLIENT NAME	Economy Drive CC (Reg. no. 1997/011784/23)
DOCUMENT REFERENCE	EC08/C/LN1&3/M/30-2026
STATUS	Draft Basic Assessment Report
ISSUE DATE	JULY 2026
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REPORT VERSION	Version 1 – JULY 2026

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BASIC ASSESSMENT REPORT

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Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014 as amended, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

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8. The report must be compiled by an independent environmental assessment practitioner (EAP). The EAP must satisfy conditions 11 below.
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

11.1 The Environmental Assessment Practitioner (EAP) must be registered in terms of S24H Regulations with the Registration Authority EAPASA as from 8 August 2022.

11.2. S24H (14) states that “only a person registered as an Environmental Assessment practitioner may perform tasks in connection with an application for an environmental authorisation contemplated in

(a) Chapter 5 of the Act read with the Environmental impact Assessment Regulations.

(b) Section 24G of the Act

(c) Chapter 5 of the National Environmental Management Waste Act 2008 (Act No 59 of 2008) read with the Environmental Impact Assessment Regulations

11.3. Tasks in regulation 14 may only be conducted by an EAP that is registered

11.4. Regulations 20 of S24H indicates the offences and penalties as indicated below:

“20. Offences and penalties

(1) A person is guilty of an offence if that person-

(a) contravenes regulation 14 of the Regulations; or

(b) pretends to be a registered environmental assessment practitioner or registered candidate environmental assessment practitioner.

(2) A person convicted of an offence in terms of subregulation (1) is liable to the penalties contemplated in section 49B(3) of the Act.”.

Section 49B(3) of the Act states:

“A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment.”.

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ACRONYMS

1. ACES Adekite Consortium Environmental Specialists
2. AMSL Height Above Mean Sea Level
3. BAR Basic Assessment Report
4. CA Competent Authority
5. CBA Critical Biodiversity Area
6. CFR Cape Floristic Region
7. DBAR Draft Basic Assessment Report
8. DEDEAT Department of Economic Development, Environmental Affairs and Tourism
9. DFFE Department of Forestry, Fisheries and the Environment
10. DWS Department of Water and Sanitation
11. EA Environmental Authorisation
12. EAP Environmental Assessment Practitioner
13. ECBCP Eastern Cape Biodiversity Conservation Plan 2019
14. ECO Environmental Control Officer
15. EFZ Estuary Functional Zone
16. ESA Ecological Support Area
17. EIA Environmental Impact Assessment
18. EMP Environmental Management Plan
19. EMPr Environmental Management Programme
20. FBAR Final Basic Assessment Report
21. FEPA Freshwater Ecosystem Priority Area
22. FOOTPRINT Refers to the actual coverage of the residence, excluding landscaping
23. HWM Highwater Mark
24. I&AP Interested and Affected Party
25. NBA National Biodiversity Assessment
26. NEMA National Environmental Management Act (Act no 107 of 1998)
27. NEMPAA National Environmental Management: Protected Areas Act
28. NEMBA National Environmental Management Biodiversity Act
29. NFEPA National Freshwater Ecosystem Priority Areas
30. NPAES National Protected Areas Expansion Strategy
31. PE Protected Environment
32. PES Present Ecological State
33. P.O.S. Private Open Space
34. PPP Public Participation Process
35. RLE Red List Ecosystem
36. SACNASP South African Council for Natural Scientific Professions
37. SANBI South African National Biodiversity Institute
38. SAPAD South African Protected Areas Database
39. SBDM Sarah Baartman District Municipality
40. SDF Spatial Development Framework
41. SDP Site Development Plan
42. SCC Species of Conservation Concern
43. SSVR Site Sensitivity Verification Report
44. STR National Screening Tool Report
45. SWSA Strategic Surface Water Area
46. TOPS National List of Threatened or Protected Species
47. WUL Water Use Licence

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

NO

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail.

1.1. Project Background

This Draft Basic Assessment Report (DBAR) has been prepared for the proposed development of four (4) two-sleeper self-catering holiday accommodation units on Portion 9 (a Portion of Portion 3) of Farm 707 Osbosch, located on the left bank of the Kromme River estuary within the Kouga Local Municipality, Humansdorp Registration Division, Sarah Baartman District Municipality, Eastern Cape Province.

The project proponent, Economy Drive CC, appointed Adekite Consortium of Environmental Specialists (ACES) as the independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment process and submit the application for Environmental Authorisation in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998, as amended) and the EIA Regulations, 2014 (as amended).

The proposed development requires Environmental Authorisation as it entails the construction of buildings and associated infrastructure within 100 m of the high-water mark of the Kromme River Estuary, involves earthworks of more than 5m³ and vegetation clearance of more than 300m² within this regulated area, and constitutes small-scale tourism accommodation outside an urban area. These listed activities are addressed in detail in subsequent sections of this report.

Portion 9 has been rezoned as a resort since 2010 (see attached zoning certificate Appendix G). The owners do not intend to establish any other amenities and plan to only construct the 4 self-catering units for accommodation. No amenities, shops, community hall or recreational facilities are to be provided which will be contrary to the ambience of the property.

The proposed development is not expected to significantly affect the functioning of the Kromme River Estuary or its associated ecological and physical processes. Although the site falls within the broader Estuarine Functional Zone (EFZ), the proposed development footprint has been positioned within an already transformed area and old agricultural lands. No development is proposed within the EFZ, intertidal saltmarsh habitat, or any areas that contribute directly to estuarine functioning. This is discussed in more detail in subsequent sections of this report. The entire project inclusive of the conservancy tanks for sewerage is constructed above the 5 meter contour line, which is currently accepted as the limit of the estuarine functional zone for applications for Environmental Authorisation (National Biodiversity Technical Report 3; Estuary Realm Technical Report 2018).

1.2. Location & Description of the Site

The proposed development site is located on Portion 9 (a Portion of Portion 3) of Farm 707 Osbosch, within the Kouga Local Municipality, Sarah Baartman District Municipality, Eastern Cape Province, approximately 8.8 km north of St Francis Bay and 20 km south of Humansdorp. See Figure 1, Figure 2 & Figure 3 - **Locality Maps (Appendix A1, A2 & A3).**

Access is obtained from the R330 via an existing gravel access road stretching eastwards (3.5km) approaching the site from the north-eastern corner, and within a privately managed area with controlled security access. See Figure 1 & Figure 2 - **Locality Maps (Appendix A1, A2 & A3).**

The site has an extent of approximately 7 185 m² according to the **Title Deed - Appendix G1** and the **SG Diagram - Appendix A4**, and is currently undeveloped, with no infrastructure in place on the site.

The site falls within a rural-coastal interface area associated with the Kromme River estuarine system and is zoned **Resort Zone II** in terms of the Kouga Local Municipality Land Use Scheme, which permits holiday accommodation. Please refer to **Kouga LUS Zoning Map - Appendix A5** and **Zoning Certificate - Appendix G2.**

Directly north, south and east of the site, there is a strip of open area zoned as Private Open Space (POS), separating the site from the estuary on the south and other houses to the east as well as the property north. The area between the Private Open Spaces and the cadastral boundaries is the subject property, Zoned Resort Zone, currently undeveloped (see LUS Zoning Map – Appendix A5 and SG Diagram - Appendix A4).

The surrounding area comprises a mix of low-density rural land uses, agricultural holdings, and coastal residential development, including the Tides of Kromme estate located directly to the east, across from the Private Open Space. Refer to Figure 4; **Surrounding areas pertinent to site - Appendix A3.**

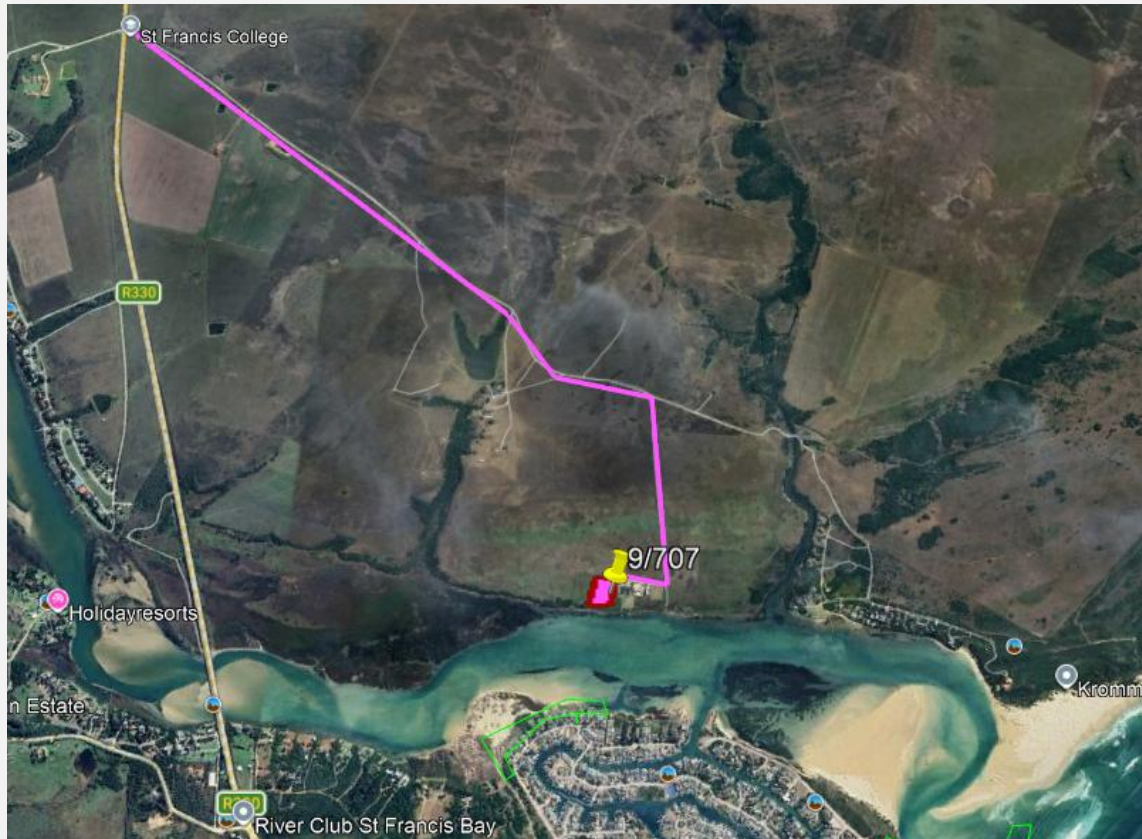


FIGURE 1 GOOGLE EARTH LOCALITY MAP SHOWING THE LOCATION OF THE SITE IN PROXIMITY TO THE KROMME RIVER ESTUARY AND R330

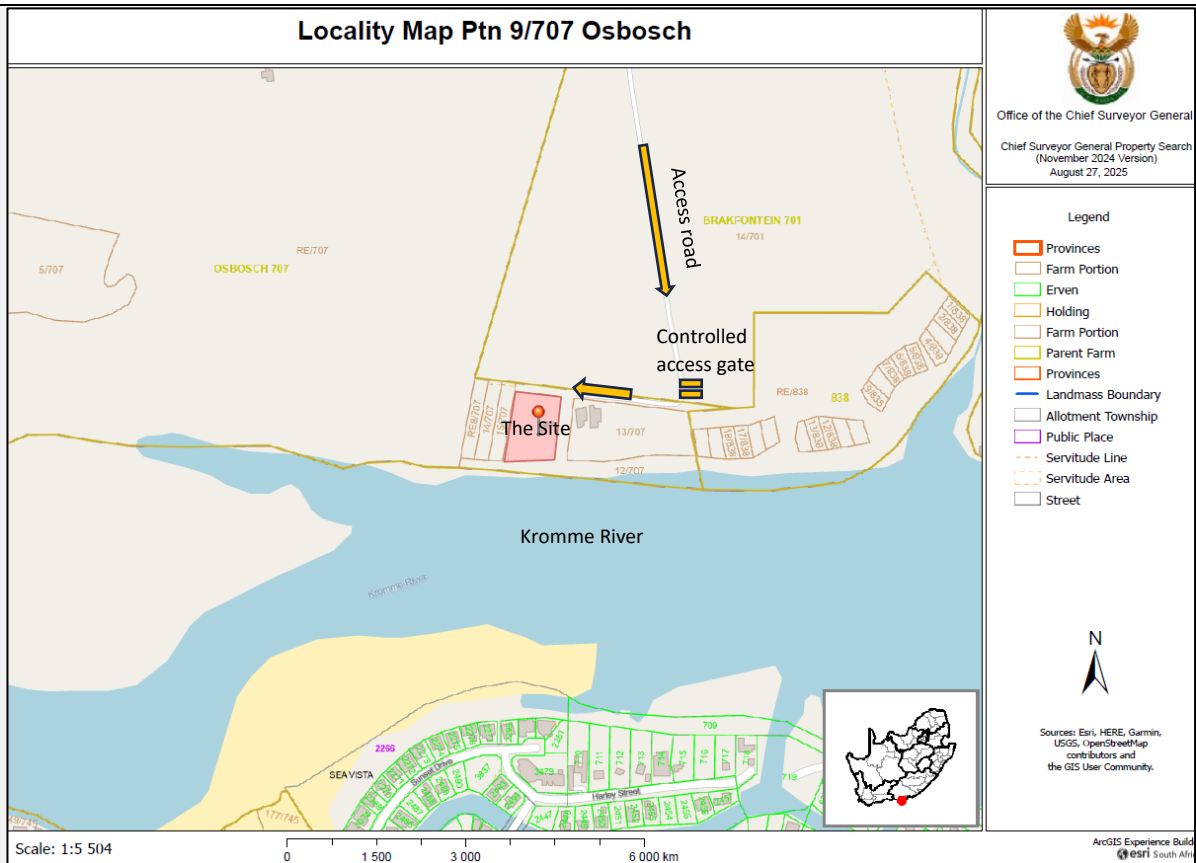


FIGURE 2 LOCALITY MAP OF PTN 9 OF FARM 707 OSBOSCH



FIGURE 3 AERIAL VIEW OF THE SITE (GOOGLE EARTH 2024)

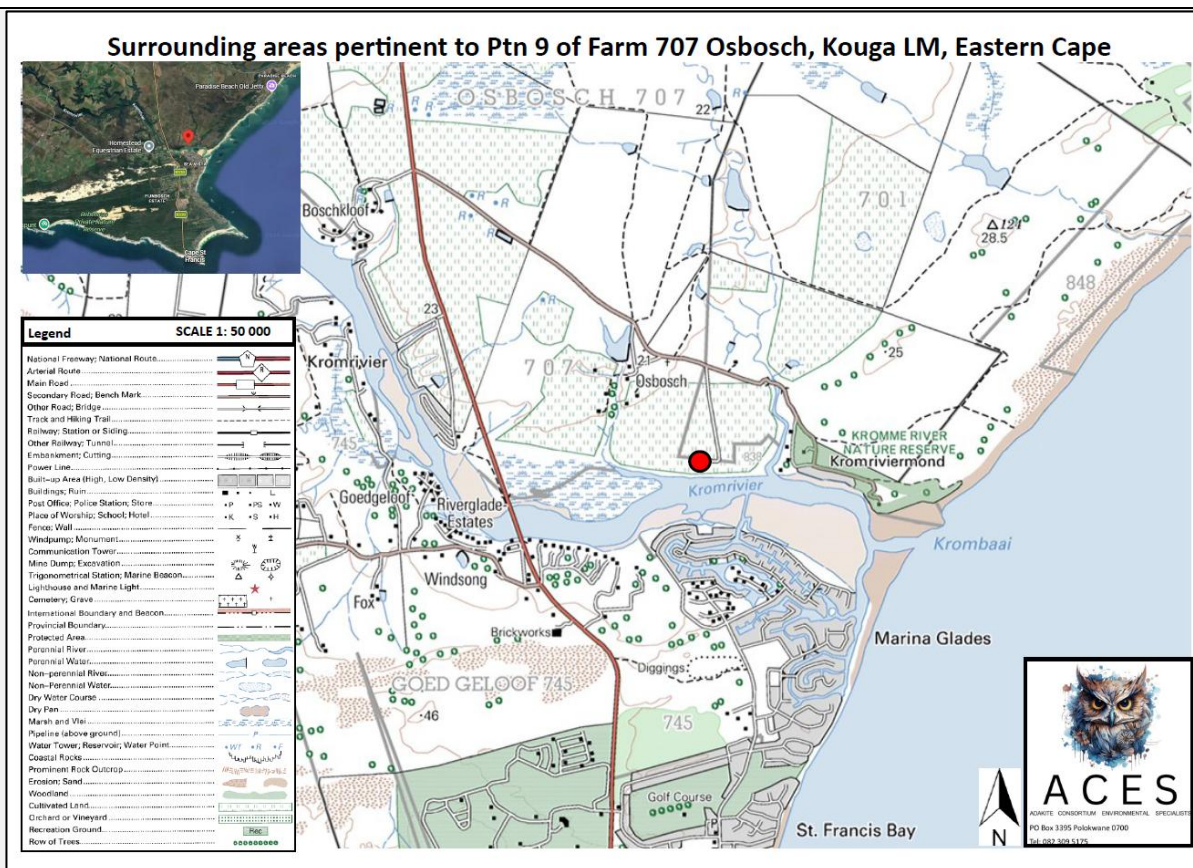


FIGURE 4 SURROUNDING AREAS PERTINENT TO SITE

The site is characterised by a gently sloping, low-relief landscape falling southwards toward the estuary. Please refer to **Appendix A6 - Contour Map**. Highest elevation recorded on the northern boundary is 6m AMSL and the lowest along the southern boundary approximately 3.3m AMSL, along a stretch of approximately 100m from the northern to the southern boundary.

The area supports a dense grass and forb cover, with no protected species or SCC. The site was historically used for agricultural purposes with signs of historical mowing, therefore resulting in a modified habitat with scattered alien species.

The property's southern boundary is situated 18.04m north of the left bank of the Kromme River estuary (please refer to **SG Diagram – Appendix A4**). Intertidal and supratidal estuarine habitats, including mudflats, salt-marsh communities and submerged eelgrass beds, occur within the broader Kromme Estuary. These habitats are located outside the proposed development footprint but contribute to the high ecological sensitivity of the receiving environment. & Figure 5.

Approximately 50% of the development footprint lies within 100m of the high-water mark.

No verified floodline delineation is available for the site. While there is an indication from the project architect that portions of the property may be affected by the 1:100-year floodline, this could not be independently verified. The proposed development footprint has therefore been located within the highest and most suitable area of the property and outside the any saltmarsh habitat and EFZ, and above the 5m topographical contour line. Please refer to Figure 5 & Figure 6.

Historical aerial imagery and recent observations post recent storm events indicate that high-water levels remain contained within the estuarine channel and associated riparian margins, with no evidence of flooding extending near or into the proposed development area. See **Appendix A7 for historical aerial imagery** and aerial imagery post May 2026 low-pressure storm, and June storm, which caused a significant rise in water levels and local flooding in the surrounding areas. The second storm event, which occurred on 3 June 2026, followed the severe May storm that had already filled the local dams. Despite these antecedent conditions, no water entered the site during the June event.

The site is mapped within the broader Estuarine Functional Zone (EFZ), according to the National Biodiversity Assessment – Estuarine Functional Map (2018). The development footprint is proposed outside of this mapped zone. See Figure 6. (**Appendix A8 – Map of Triggered Areas**).

This is discussed in more detail in subsequent sections.



FIGURE 5 MAP ILLUSTRATING 100M HWM, 5 M CONTOUR AND PROPOSED 40M BUFFER

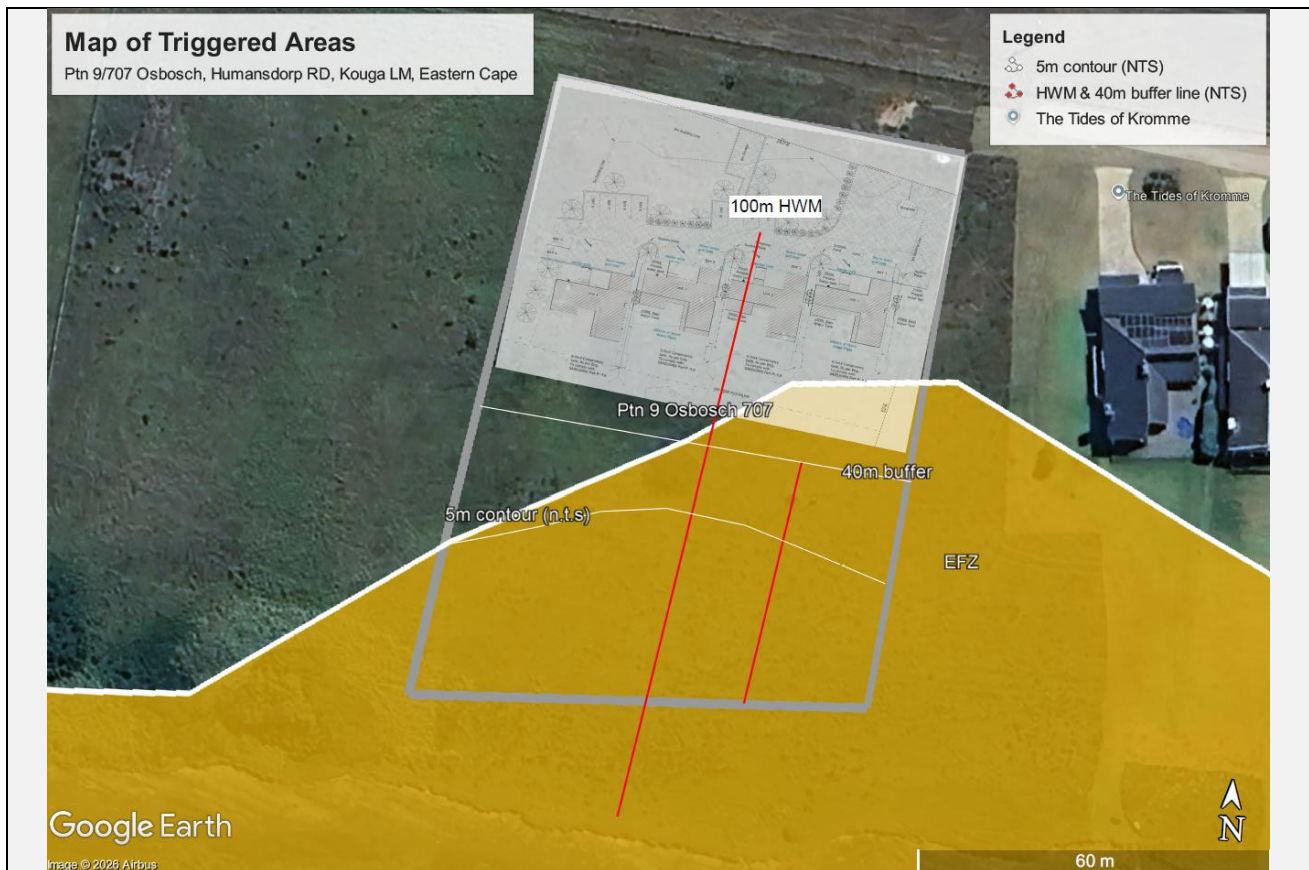


FIGURE 6 MAP INDICATING TRIGGERED AREAS AND EFZ IN PROXIMITY TO THE DEVELOPMENT FOOTPRINT

1.3. Project Description & Associated Infrastructure

The proposed development entails the establishment of four (4) self-catering units on the northern section of the site. Each dwelling unit will comprise a two-bedroom, two-and-a-half-bathroom configuration, with a total building footprint of approximately 115 m² per unit (including covered decking and porches). The combined structural coverage of all four dwellings amounts to ±461 m², representing 6.42% of the total erf area.

The development layout includes thirteen (13) parking bays, equating to two bays per unit plus five visitor bays to comply too the Kouga Land Use Scheme. The total coverage for parking and dwellings collectively accounts for ±8.7% of the site.

The development footprint and parking areas have been designed to maintain a 5 m building line from the property boundaries.

The development footprint is positioned towards the northern section of the property, furthest away from the left bank of the Kromme River Estuary and outside of the mapped EFZ (NBA, 2018) and above the 5m topographical contour which typically delineates the EFZ (National Biodiversity Assessment 2018 - Estuary Realm Technical Report). See Figure 5 & Figure 6; Appendix A8 – Map of Triggered Areas).

The overall site layout retains open natural areas on the southern half of the property, thereby minimising disturbance to the surrounding riverine and estuarine environment. **A buffer of at least 40m is proposed from the southern boundary and the development footprint. See Figure 5 and Figure 6.**

No direct access to the estuary is allowed, only along the current P.O.S.

Please refer to Figure 7; **Facility Illustrations - Appendix C1 & C2.**

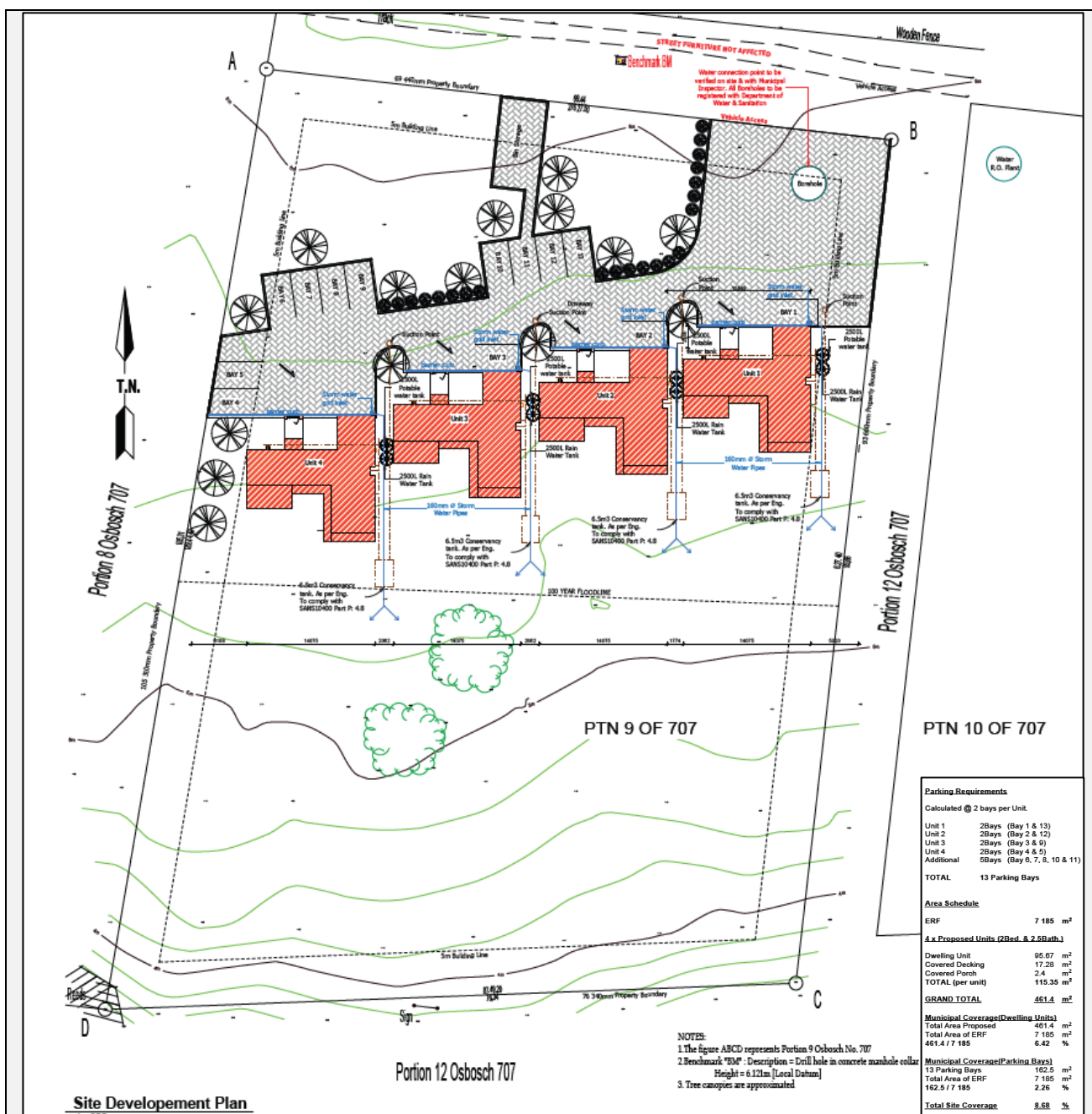


FIGURE 7 PRELIMINARY SDP OF THE PROPOSED DEVELOPMENT

1.3.1. Building Material

The units are designed as single-storey low-rise structures, with building heights compliant with the applicable zoning controls. The units will be built of standard brick and mortar walls, with an IBR roof and a combination of plaster and paint, timber cladding and stone cladding. Foundations, platforms and roof structure will be signed off by a qualified engineer. Final building plans will be submitted to DEDEAT prior to construction on approval of this application.

1.3.2. Sewerage

Each dwelling unit will be serviced by an individual on-site sealed conservancy tank with a capacity of 6.5 m³, located downslope of the units, but above the 5m topographical contour and outside the mapped EFZ (NBA, 2018). Sewer flows will be conveyed via a gravity-fed pipe system designed in accordance with SANS 10400 Part P. For more information regarding sewerage management, please refer to Section A.11 and the **Civil Engineering Services Report – Appendix D1** for more information.

The conservancy tank shall be installed within an impermeable brick-and-mortar containment bund designed to contain any accidental leakage.

The Kouga Local Municipality provides a conservancy tank emptying service in the area, and the tanks will be emptied on a regular basis upon request by the property owner. No on-site effluent disposal systems, soakaways, or infiltration trenches are proposed, thereby reducing the risk of groundwater or estuarine contamination. Each unit has its own suction point on the northern side of the unit, easily accessible for the municipal truck.

1.3.3. Potable Water

Potable water for the development will be sourced from an existing on-site borehole, supplemented by rainwater harvesting. Borehole abstraction volumes fall within the limits of Schedule 1 water use in terms of the National Water Act. Abstracted groundwater will be treated on site using an appropriate water treatment system to ensure compliance with SANS 241 drinking water quality standards.

In addition, rainwater harvested from roof surfaces will be collected and stored in dedicated water storage tanks for supplementary use, including potable use following appropriate treatment and/or for non-potable purposes such as irrigation and cleaning, thereby reducing reliance on groundwater resources. Treated and harvested water will be stored in dedicated potable water storage tanks associated with each unit. For more information regarding Water Use, please refer to Section A.12 and the **Civil Engineering Services Report – Appendix D1** for more information.

1.3.4. Energy Supply

The units will be 100% off-grid with electricity supply to the site provided through on-site renewable energy systems. Roof-mounted solar photovoltaic (PV) panels, inverters, and battery storage will be installed to nullify grid energy demand. The development will incorporate low-voltage and energy-efficient lighting and fittings. Hot water will be supplied via gas geysers. All electrical and gas installations will comply with applicable SANS standards and safety requirements. The project is earmarked to be totally off-grid. Please refer to Section A.13: Energy Efficiency and **Civil Engineering Services Report – Appendix D1** for more information.

1.3.5. Roads, Access & Parking

Access to the site is obtained from the R330 Provincial Road via an existing gravel access road (approximately 3.5km) approaching the property from the northeast. No new external access roads are required. The site is accessed via a security gate into a privately managed residential area. Traffic volumes associated with the development are expected to be low and limited to occasional guest and service vehicle access. Site access is proposed on the north-eastern corner of the site. Internally, a short section of access road and parking areas will be provided. Parking is accommodated by thirteen (13) on-site parking bays, which exceeds the minimum parking requirements applicable to the development. Internal access and parking areas will be surfaced with interlocking concrete paving suitable for low traffic volumes. Please refer to Section A.5 Site Access for more information.

No estuarine access is proposed from the southern boundary of the site. Access to the estuary will be from the public open space east of the site. No jetties or boat-launching facilities are proposed. No pathways or landscaping will be allowed within the 40m setback line.

1.3.6. Stormwater

Stormwater management for the proposed development has been designed in accordance with the **Civil Engineering Services Report – (Appendix D1)** and is based on the site's gentle gradients, permeable sandy soils, and low runoff potential. Runoff from roof surfaces will be directed to rainwater harvesting tanks, reducing peak stormwater flows and contributing to on-site water reuse.

Overflow from the rainwater tanks, together with runoff from paved areas and parking surfaces, will be managed through a combination of overland flow, kerbing, and limited underground stormwater conveyance, and will be discharged onto grassed filtration areas downslope of the development. This approach allows stormwater to dissipate and infiltrate naturally prior to reaching the estuarine environment. Please refer to Biodiversity Assessment Report (BioAssets – Dr Vlok, 2026), section 3.3.1.

The civil assessment confirms that no formal stormwater attenuation or detention structures are required, as post-development runoff volumes are not expected to exceed pre-development conditions. Stormwater measures are intended to prevent erosion and minimise the risk of sediment or pollutant transport toward the left bank of the Kromme River estuary.

Site-Specific Stormwater Management Measures

To mitigate any potential impacts of stormwater runoff from the proposed development, a series of design interventions and passive management strategies will be implemented:

- **Gutter and Downpipe Network:**

All roofed sections of the dwelling will be fitted with a comprehensive system of gutters and downpipes designed to efficiently collect and direct stormwater.

- **Rainwater Harvesting Tanks:**

Stormwater collected via gutters will be directed into appropriately sized rainwater harvesting tanks, to be used for non-potable domestic purposes such as toilet flushing, laundry, garden irrigation, and potentially emergency firewater. This will drastically reduce the volume of stormwater runoff exiting the site.

- **Slow Release and Overflow Control:**

Overflow pipes from rainwater tanks will be designed to direct excess water away from structures and towards safe dispersal zones, ensuring slow release and minimising erosion risk.

- **Pervious Surfaces:**

Where possible, permeable paving or gravel will be used for pathways and driveways to enhance infiltration and reduce hard surface runoff.

Overland Flow and Natural Dispersion

In the unlikely event that rainfall exceeds the capacity of the proposed stormwater management measures, excess stormwater will be allowed to disperse as diffuse sheet flow across the site in accordance with the natural topography. Stormwater will **not** be discharged directly into the Kromme Estuary, concentrated into artificial channels, or directed towards any saltmarsh habitat.

A vegetated buffer of approximately 40 m will be maintained between the southern edge of the proposed development footprint and the southern property boundary closest to the estuary. This buffer area, in addition to the 18.5m POS area will remain in a natural vegetated state and will function as a filtration and attenuation zone, reducing stormwater velocities, promoting infiltration, and assisting in the trapping of sediment before runoff reaches the estuarine environment. No development, clearing, hard surfacing, manicured lawns or stormwater infrastructure is proposed within this buffer area. No footpaths, landscaping or hard surfaces will be constructed in the buffer zone.

The stormwater management approach is intended to mimic existing hydrological conditions as far as practicable by promoting infiltration and maintaining diffuse flow patterns. Where necessary, additional measures such as vegetated swales, permeable surfaces, or energy dissipation structures will be incorporated to further reduce flow velocities and minimise the potential for erosion, sediment transport, or impacts on the adjacent estuarine environment.

1.4. Project Phases Overview

The project will be divided into three different phases: Planning and Design Phase, Construction Phase, and Operational Phase. The Construction Phase will include a brief Construction Closure phase. There will be *no* Decommissioning or Closure Phase as the Operational Phase will continue while the development still stands and is being utilized.

1.4.1. Planning & Design Phase

This phase will involve all the planning for the development, including:

- Obtaining environmental authorisation
- Obtaining all the necessary municipal approvals and service connections,
- Demarcating the development area,
- Identifying any sensitive or 'no-go' zones on the site,

- Architectural and structural designing of the building,
- Selection of construction materials.

1.4.2. Construction Phase

This phase is expected to have the highest amount of environmental impact. The methodology described below outlines the step-by-step approach for executing the works while ensuring environmental sensitivity and compliance with national building standards.

1. Site Preparation

- **Site Clearance and Surveying**

The site will be surveyed to establish the exact footprint and levels based on approved plans. Any vegetation within the development footprint will be removed, and the site boundaries will be pegged and marked.

- **Tree and Vegetation Management**

All removal of natural vegetation will be limited to the area required for construction. Existing indigenous vegetation inside the working area will be retained where possible. No vegetation that falls outside the construction area may be damaged, cut or removed. Removed material will be disposed of responsibly in a rented skip and taken to the Humansdorp Landfill.

- **Access and Temporary Infrastructure**

Temporary construction access will be from the existing access on the north-eastern corner of the site, with minimal surface disturbance. All construction laydown, material storage, and contractor facilities will be confined to the approved development footprint and within the Private Open Space directly north of the site. No construction-related activities will occur on adjoining Private Open Space areas unless expressly authorised and subject to rehabilitation requirements. Strictly no construction-related activities are to be permitted outside of the development footprint, nearest to the EFZ or within the 40m buffer area.

The approved construction footprint and 40m buffer area shall be clearly demarcated prior to the commencement of construction using high-visibility safety fencing, barrier tape, and appropriate signage.

2. Excavation and Earthworks

- **Foundation Excavation**

Excavation will commence in line with the foundation layout and engineer's and geotechnical specifications.

3. Building Materials and Construction Process

- **Foundation and Concrete Works**

Foundations will consist of reinforced concrete footings and surface beds as per structural engineer requirements. Continuous damp-proof membranes are to be positioned underneath all slabs. The recommended foundation depth is 1m below ground level, according to the Geotechnical study (**Appendix D3**).

- **Superstructure (Timber, Brick, and Concrete Construction)**

External and internal walls will be constructed using standard brickwork. Mortar mixes will comply with SANS specifications. Roof trusses and structural timber will be treated according to SANS 10005 standards against fungal decay, termite, and borer attack. Damp-proof courses are to be installed in all walls to create a moisture barrier.

- **Slabs, Decks and Patios**

Covered patios and timber decks will be constructed using weather-resistant materials with appropriate flashing, drainage, and supports.

- **Roofing and Finishes**

Roofing will include trusses with concrete or clay tiles, or IBR. Roof insulation will meet the minimum thermal R-values set by SANS 10400-XA. External finishes will be weather-resistant and suitable for the environment. Roofing will be non-reflective.

- **Windows, Doors, and Fixtures**

Aluminium or uPVC windows and doors will be installed, with glazing certified as per SANS 10400-N. All fixtures will be installed following completion of wet works and finishes.

4. Environmental Considerations During Construction

- **Dust, Noise, and Stormwater Control**

Dust suppression (via wetting) and noise mitigation measures will be implemented. Temporary stormwater diversion structures will prevent erosion and siltation during the rainy season.

- **Material Storage and Waste Management**

Designated zones will be used for material storage to prevent contamination within the development footprint. Waste (e.g., packaging, off cuts) will be separated and removed to licensed facilities, such as the Humansdorp Landfill. Chemically treated materials (paints, solvents) will be stored securely and disposed of per regulations.

5. Construction Closure and Site Rehabilitation

- **Final Site Cleanup**

All temporary structures, machinery, and surplus materials will be removed from the site. The area will be cleared of construction waste and tidied for handover.

- **Rehabilitation and Landscaping**

Exposed soil areas will be stabilised, and indigenous vegetation will be replanted where applicable. Any disturbed areas outside the footprint will be rehabilitated using erosion control methods and local groundcover species.

- **Final Inspections and Compliance**

Inspections will be conducted by the relevant professionals (architect, engineer, and building inspector) before final handover. Compliance certificates (electrical, plumbing, gas, glazing, and structural) will be obtained prior to occupancy certification.

1.4.3. Operational Phase

This phase entails operations of the final development. All maintenance of the development will be the responsibility of the landowner or tenant.

1.5. Biodiversity Sensitivity Overview

This section provides an overview of the sensitivities associated with terrestrial, freshwater and estuarine biodiversity. More detail can be found in subsequent sections of this report.

1.5.1. Terrestrial Biodiversity

According to the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019), the site is located within Terrestrial Ecological support Area (ESA) 1 and ESA 2 and bordering Critical Biodiversity Area (CBA) 1 along the southern boundary. The ECBCP (2019) maps the site within Freshwater ESA 1, bordering CBA 1 along the southern boundary. See **Appendices A9 & A10 for ECBCP Terrestrial and Freshwater maps**. A Biodiversity Assessment was undertaken by a SACNASP registered specialist, who concluded that the Terrestrial Biodiversity sensitivity remains as High Sensitivity as these areas play an important role in maintaining ecological connectivity, estuarine vegetation and overall functioning, and habitat for terrestrial fauna and avifaunal species linked to aquatic systems. See subsequent sections of this report and the Biodiversity Assessment Report in **Appendix D2** for more detail.

According to the SANBI BGIS National Vegetation Map (VegMap, 2024), the site is mapped predominantly as Elands Forest Thicket (AT25), classified as Least Concern, within the Albany Thicket Bioregion. Along the southern boundary of the site, vegetation is mapped as Albany Alluvial Vegetation (AZa6), which is classified as Endangered and associated with alluvial systems within the Albany Thicket Biome. North of the site, the mapped vegetation transitions into

Humansdorp Shale Renosterveld (FRs19), an Endangered vegetation type within the Eastern Fynbos–Renosterveld Bioregion, while Sundays Mesic Thicket (Least Threatened) occurs approximately 700 m east of the site. See **Appendix A11 and A12 – LUDS Vegetation maps 2018 and 2024**. This correlates with the **National Biodiversity Assessment 2025 Terrestrial Red List Ecosystems**. See **Appendix A13**.

The site is moderately transformed due to historical agricultural use and mowing. The National Screening Tool Report (STR) rating of Medium sensitivity was maintained for plant species, with no SCC or protected species present on site, however, in the broader context, the estuarine proximity contributes to the area's ecological value. In addition, the estuary is an important site for Eel Grass (*Zostera capensis*). The proposed 40m buffer between the development footprint and the southern boundary of the site can be a corridor for indigenous plants to reestablish and to ensure that the estuary bank is protected. See section B: Groundcover – Vegetation and **Appendix D2 – Biodiversity Assessment** for more detail on the vegetation.

A Terrestrial Animal Species Assessment was undertaken to inform the sensitivity of the site relating to fauna species and to verify the findings of the Screening Tool Report. Site inspections confirmed that the site is moderately modified because of historical agricultural use, mowing, and grazing, with a lack of suitable habitat for the listed species of conservation concern. The High sensitivity rating given by the STR was confirmed due to the site's location within a sensitive estuarine landscape and its potential use by faunal Species of Conservation Concern in the surrounding area. Again, the proposed 40m buffer may become a reestablished corridor of intact natural habitat that can serve the local fauna species, including avifauna, for nesting and foraging opportunities. See section on Terrestrial Fauna (Section B) later in this report and please refer to the **Terrestrial Animal Assessment** in **Appendix D4** for more details.

1.5.2. Kromme River Estuary

The Kromme River catchment is located west of Jeffreys Bay within the Fish to Tsitsikamma Water Management Area. The river originates in the Tsitsikamma Mountains and drains a catchment of approximately 1,100 km² before entering the Indian Ocean. The river is regulated by the Churchill and Mpofu Dams, which have substantially altered natural flow patterns by reducing freshwater inflows, attenuating flood peaks and trapping sediment that would naturally reach the estuary.

The Kromme Estuary is one of the largest estuarine systems in the Eastern Cape and is classified as a permanently open, marine-dominated estuary. The estuary supports a range of important habitats, including open water areas, saltmarshes, mudflats, reedbeds and submerged macrophyte communities, including *Zostera capensis* (eelgrass), a species of conservation concern, that provide important ecological functions such as fish nursery habitat, nutrient cycling, sediment retention and biodiversity support. Although eelgrass was not recorded within the development footprint, its presence within the estuary contributes to the overall ecological importance of the system.

According to the National Biodiversity Assessment: Estuarine Threat Status Protection Level (ETS-EPL - NBA) 2025, the Kromme Estuary is classified as having a combined ecosystem threat status and ecosystem protection level of **Vulnerable (VU)** and **Poorly Protected (PP)**.

The National Biodiversity Assessment Estuary Realm Technical Report 2018 states that threats to the Kromme include the development of the Marina Glades and associated canal systems that have modified portions of the estuary through:

- Alteration of natural shoreline habitats.
- Changes to local hydrodynamics and sediment movement.
- Loss of natural estuarine vegetation in developed areas.
- Increased boating activity and associated disturbance.

In addition, the Kromme River Estuary faces a number of existing and potential threats. Historically, the construction of upstream dams, such as the mentioned Mpofu, has significantly reduced freshwater inflows, resulting in increased marine influence, altering salinity levels, and changes to natural estuarine processes. Development pressures associated with residential expansion, and tourism facilities have modified portions of the estuary and its shoreline habitats, contributing to habitat loss, fragmentation, and changes in hydrodynamic and sedimentation patterns. Additional threats include

deterioration in water quality from stormwater runoff, wastewater contamination, and agricultural inputs from the wider catchment, as well as the spread of invasive alien plant species that can alter habitat structure and ecological functioning. Human activities within and adjacent to the EFZ, including vegetation clearing, infrastructure development, recreational activities, and increased human presence, may further disturb sensitive estuarine habitats and species. Climate change presents an increasing threat through sea-level rise, altered rainfall patterns, prolonged droughts, increased storm intensity, coastal erosion, and changes in freshwater inflows. Collectively, these pressures have the potential to affect the ecological integrity of the estuary and the functioning of important habitats, including estuarine vegetation, fish nursery areas, waterbird habitats, and submerged macrophyte beds such as *Zostera capensis*, which play an important role in supporting biodiversity and maintaining estuarine ecosystem processes.

The estuary also contains approximately 30–40 ha of saltmarsh habitat, making it one of the larger saltmarsh systems in South Africa.

The Kromme River Estuary supports a diverse assemblage of estuarine fauna and functions as an important habitat for fish, crustacean, worm and bivalve species. Approximately 24 fish species have been recorded within the lower reaches of the estuary, including four species of mullet (*Mugilidae*), Spotted Grunter (*Pomadasys commersonnii*), Blacktail (*Diplodus capensis*), Zebra (*Diplodus cervinus*) and the endangered White Steenbras (*Lithognathus lithognathus*). Only a small proportion of these species breed within the estuary, while the majority are marine-spawning species that utilise the estuary as a nursery and feeding habitat during their juvenile life stages. The estuary also supports a range of macrobenthic organisms, including crustaceans, worms and bivalves that inhabit the sediment of intertidal sand and mud flats and contribute to estuarine food webs and ecosystem functioning. Common species include sand prawns (*Callichirus kraussi*), pencil bait (*Solen capensis*) and bloodworms (*Arenicola loveni*), all of which are harvested for recreational fishing bait under permit and bag-limit regulations. The estuary periodically supports additional marine-associated species, including rays, sharks, sea turtles and other transient fish species, reflecting its ecological connectivity with the marine environment.

The NBA 2018 Estuarine Ecosystem Map places the southern portion of the property within the mapped EFZ. See Figure 8. The EFZ encompasses the estuary, associated floodplain, estuarine habitats and the physical and biological processes necessary to maintain estuarine functioning. In South Africa, the EFZ is generally delineated using the 5 m contour above mean sea level (AMSL) and includes areas influenced by flooding, sediment movement, channel migration and coastal storm events. The EFZ therefore represents the broader area required to sustain estuarine ecological functioning and should not be confused with floodlines or development setbacks.

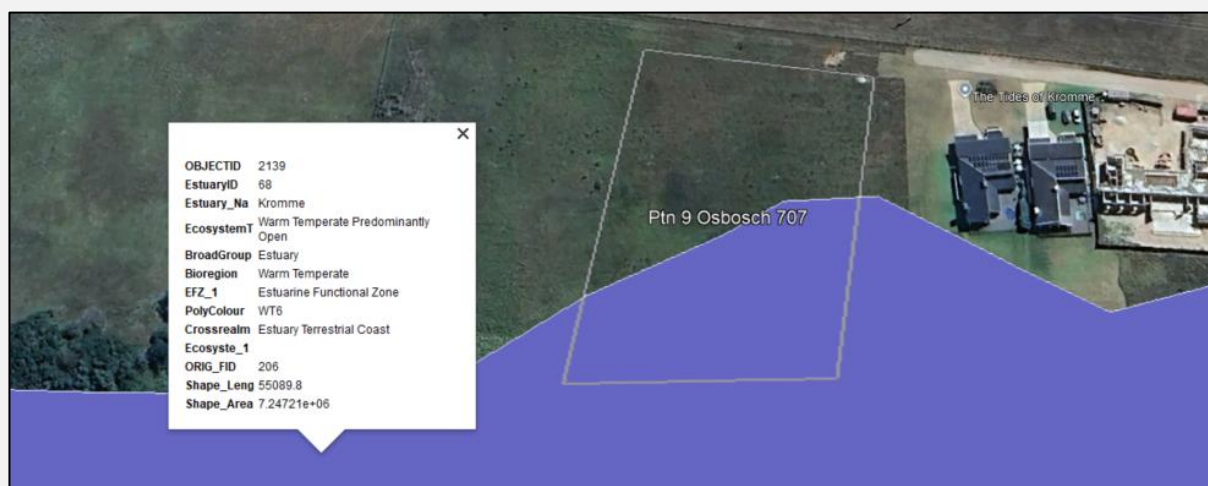


FIGURE 8 THE SITE IN RELATION TO THE MAPPED EFZ (NBA ESTUARINE ECOSYSTEM MAP: 2018)

Although the site falls within the broader mapped EFZ, the proposed development footprint has been located above the 5m topographical contour, within a previously transformed and disturbed portion of the site; specifically, the northern

section. The 5m topographical contour has generally been used to delineate the EFZ in South Africa, according to the National Biodiversity Assessment – Estuary Realm Technical Report, 2018.

High-sensitivity habitats, including the saltmarshes, occur outside the proposed development footprint and will be retained. A vegetated buffer of approximately 40 m will be maintained between the southern edge of the development footprint and the southern property boundary closest to the estuary.

No formal floodline delineation has been undertaken for the property. However, site observations and surrounding development patterns indicate that development within the area has historically been concentrated above approximately 3m AMSL, likely reflecting practical consideration of flood risk and estuarine influences. The proposed development footprint follows this established pattern and is located landward of the lower-lying estuarine and saltmarsh areas, above the 5m contour and outside the mapped EFZ.

Based on the location of the proposed footprint within an already disturbed area, outside of the mapped EFZ and above the 5m contour, and the maintenance of the 40 m vegetated buffer, **the proposed development is not expected to significantly affect the ecological functioning, hydrological processes or long-term integrity of the Kromme Estuary.**

1.6. Legislative Environment

The intended project is a listed activity in terms of Sections 24(2) and 24(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended). The NEMA Regulations (as amended by GN. 517 of 11 June 2021) promulgated in terms of Chapter 5 of the Act provide for the control of certain activities as listed in Government Notice Regulation (GN R.) No. 327, 325 and 324. Activities listed in these notices must comply with the regulatory requirements listed in GN R. 326, which prohibits such activities until written Authorisation is obtained from the Competent Authority (CA). Please refer to Section 10 for details regarding the applicable legislation.

2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity
- (d) the technology to be used in the activity
- (e) the operational aspects of the activity
- (f) the option of not implementing the activity

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative.

2.1. The property on which or location where it is proposed to undertake the activity:

Property Alternative 1 (Preferred) – Ptn 9 of Farm Osbosch

No alternative properties were considered, as Ptn 9 of Farm 707 Osbosch is owned by the proponent and was acquired for the specific purpose of the proposed development. The property is zoned Resort Zone II, which permits the intended land use with appropriate buffers to the Kromme River estuary. The site therefore represents the only feasible and preferred location for the activity.

Property Alternative 2 – None

2.2. The type of activity to be undertaken:

Activity Alternative 1 (Preferred) – Resort Zone II – Low-density Holiday Accommodation

The development of low-density, self-catering holiday accommodation is considered a feasible land use option in terms of the current Resort Zone II zoning applicable to the site. This activity allows development to be spatially limited, enabling the placement of structures outside above the 5m topographical contour (outside the mapped EFZ) and facilitating the retention of buffer areas adjacent to the Kromme River estuary. Operational impacts are generally intermittent in nature and limited by low occupancy levels; however, construction and operational activities would still require careful management to prevent impacts on estuarine processes, faunal movement, and water quality. With appropriate avoidance measures and mitigation, this activity is considered potentially compatible with the environmental sensitivities present, subject to authorisation conditions.

Activity Alternative 2: Agricultural Land Use

Agricultural use remains a theoretically feasible alternative given the historical land use context of the broader area. From an environmental perspective, however, agriculture on this site presents increased risk due to its proximity to the estuary, partial inclusion within the 100 m high-water mark, presence of seasonal seepage zones, and sandy soils prone to erosion and nutrient leaching. Ongoing agricultural activities would likely require repeated soil disturbance, irrigation, and fertiliser or pesticide application, which could result in chronic diffuse impacts to the estuarine system through runoff and subsurface flow. As these impacts are difficult to manage and may persist over the long term, agriculture is considered less environmentally appropriate for this specific site.

Activity Alternative 3: Long-Term Permanent Residential Accommodation

Permanent residential development was considered as an alternative land use. While potentially reducing seasonal fluctuations in occupancy, permanent accommodation would result in continuous, year-round human presence, increased traffic volumes, sustained demand on water and sanitation services, and ongoing domestic activity in close proximity to the estuarine environment. From an environmental perspective, this alternative is likely to exert greater cumulative pressure over time compared to intermittent holiday accommodation, particularly in relation to disturbance, wastewater management, and domestic activities, and is therefore considered less suitable given the sensitivity of the receiving environment.

Additionally permanent residency would necessitate a rezoning application, as residency in a resort is limited to 90 consecutive day per annum.

Activity Alternative 4: High-Density Tourism Accommodation and Recreational Facility

Facilities such as swimming pool, recreation club, caravan site or activity-based usage was also considered during the initial project discussions and were rejected in favour of the preferred option above, due to the invasive nature of the activities and direct impact on the estuarine system. Influence of such activities would also be intrusive raising noise levels hence being rejected.

The demand on water and bulk services would be considerably increased and the imposition on the biodiversity, and ambience of the estuary unacceptable. Road usage along the gravel access road would require high maintenance levels and noise would be unacceptable to the immediate neighbours to the east.

2.3. The design or layout of the activity:

Layout Alternative 1 (Preferred):

The preferred layout (**Appendix C1 & C2 – Preferred Design & Layout**) locates all buildings and associated infrastructure explicitly on the northern section of the property, above the 5m topographical contour (EFZ) and as far as practicably possible from the estuarine zone, with a **minimum 40 m setback** maintained between the southern boundary (adjacent to the left bank of the Kromme River estuary) and the development footprint. The dwellings are oriented to face the Kromme River to optimise views without extending development closer to the estuary, while roof falls are directed northward and eastward toward designated rainwater harvesting tanks, reducing runoff toward the estuarine edge. Conservancy tanks are proposed in place of soakaways or French drains, as this approach limits subsurface effluent infiltration and is considered more environmentally appropriate given the proximity of the estuary and seasonal seepage conditions.

Layout Alternative 2 (Not Preferred):

This option positioned the development footprint further towards the central and southern portions of the site, with certain associated infrastructure, including the conservancy tank, located partially within the EFZ, increasing the risk of flood-related impacts and potential effects on estuarine processes. See **Appendix C3 & C4 – Design & Layout Alternative**.

2.4. The technology to be used in the activity:

No alternative technologies are proposed, and the development will utilise standard, proven construction and servicing methods suitable for the coastal–estuarine environment. Structural steel will be treated to prevent corrosion, and composite or corrosion-resistant materials will be used for window frames and doors.

Damp-proofing will be installed beneath the floors and walls to prevent ground moisture and rising damp associated with seasonal wet conditions. Water supply will be supported by a combination of rainwater harvesting and borehole supply, while electricity will be provided primarily through solar photovoltaic panels with battery storage. Sewage will be managed via sealed conservancy tanks, sealed within a brick-and-mortar containment bund, rather than soakaways, to prevent accidental leakages resulting in subsurface contamination and protect the estuarine environment.

2.5. The operational aspects of the activity:

The operation of the proposed development will be governed by the Resort Zone II zoning, which restricts the land use to low-density tourism and accommodation-related activities. As such, no feasible operational alternatives are applicable, as the zoning prescribes the nature and intensity of use. Operational activities will be limited to short-term guest occupation, routine maintenance, and basic servicing, with no industrial, commercial, or high-intensity operations proposed. The operational phase is therefore expected to remain low impact, provided that conditions of Environmental Authorisation and relevant management measures are adhered to.

2.6. The option of not implementing the activity (No-Go Alternative).

The no-go alternative entails not proceeding with the proposed development, resulting in the site remaining in its current, modified condition. While this option would avoid development-related impacts, it would also mean that the proponent's lawful development rights in terms of the current zoning are not exercised, and that potential local socio-economic benefits, including short-term construction employment and limited operational job opportunities, would not be realised by the surrounding community.

Development of the site would likely result in higher municipal rates and related charges compared to the no-go alternative, whereas an undeveloped site would continue to contribute at a lower valuation level.

In addition, without active land management, existing invasive alien plant species may continue to spread, and unmanaged vegetation may increase the risk of uncontrolled or illegal fires, which could negatively affect surrounding properties and the adjacent estuarine environment.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

List alternative sites if applicable.

Alternative:

Alternative S1¹ (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

Latitude (S):

Longitude (E):

34°	08' 16.40"	24°	49' 31.75"

In the case of linear activities:

Alternative:

Alternative S1 (preferred or only route alternative)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S2 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1² (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

Alternative:

Size of the activity:

461m ²

Length of the activity:

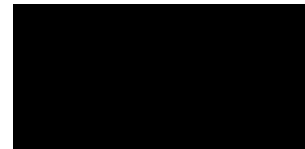
¹ "Alternative S.." refer to site alternatives.

² "Alternative A.." refer to activity, process, technology or other alternatives.

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)



Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

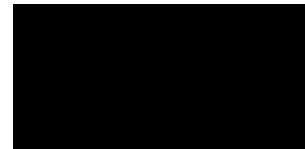
Alternative:

Size of the site/servitude:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)



5. SITE ACCESS

Does ready access to the site exist?

YES

If NO, what is the distance over which a new access road will be built.



Access to the site is obtained from the R330 provincial road, via an existing gravel access road (3.5km) approaching the property from the north. The site is within a private gated area. Access to the site is from the north-eastern corner. No new access roads are proposed as part of the development. The existing access is considered adequate to accommodate the low traffic volumes associated with the proposed low-density self-catering accommodation, with vehicle movements largely limited to guest arrivals and departures and periodic service access. No upgrades to the public road network are anticipated as a result of the proposed development.

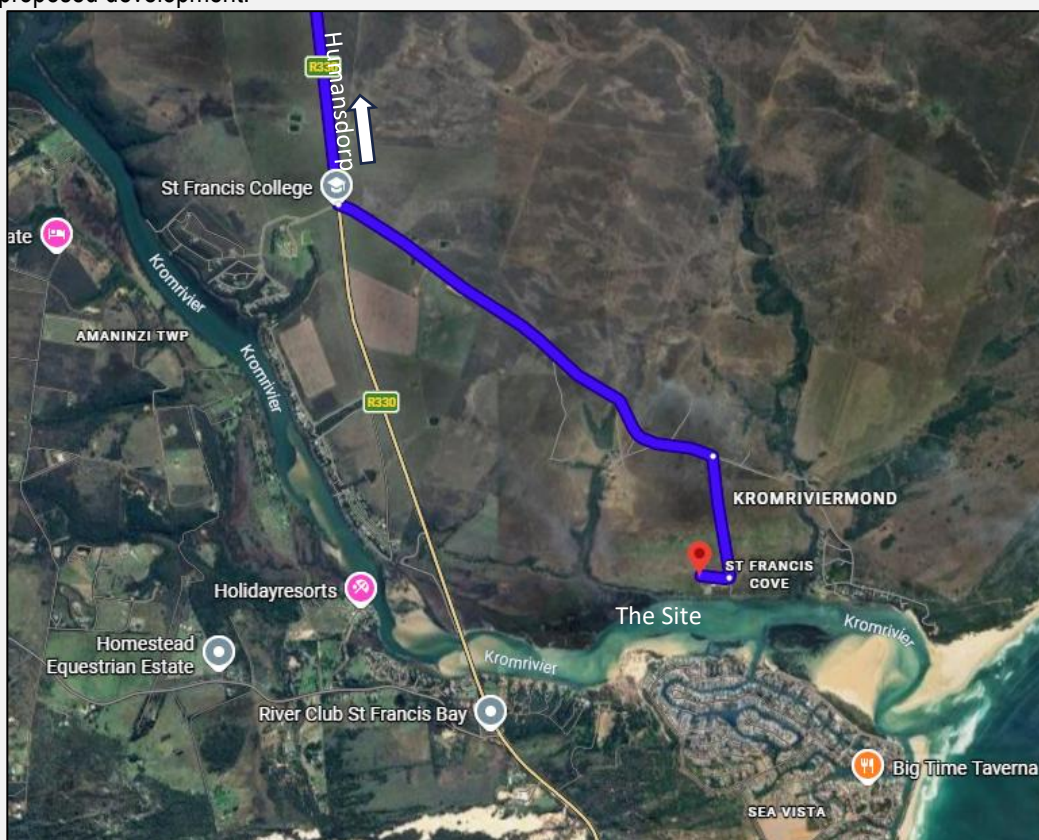


FIGURE 9 THE SITE IS ACCESSED FROM THE R330 LINKING ST FRANCIS BAY TO HUMANSDORP



FIGURE 10 SITE ACCESS IS FROM THE NORTHEASTERN CORNER

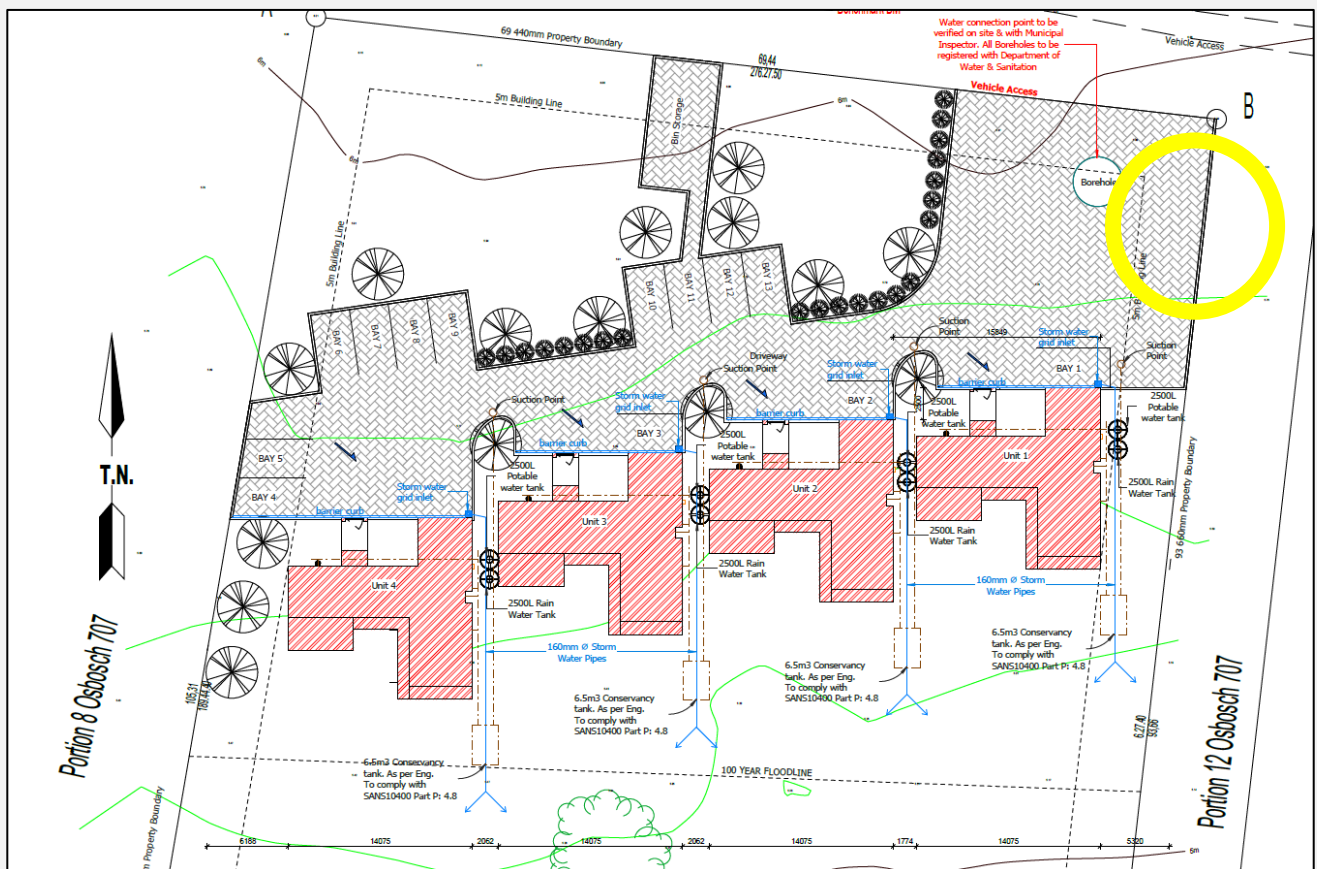


FIGURE 11 SDP SHOWING VEHICLE ACCESS POINT ON NORTHEASTERN CORNER (SEE IN YELLOW)

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as **Appendix A1** **Appendix A14** to this document.



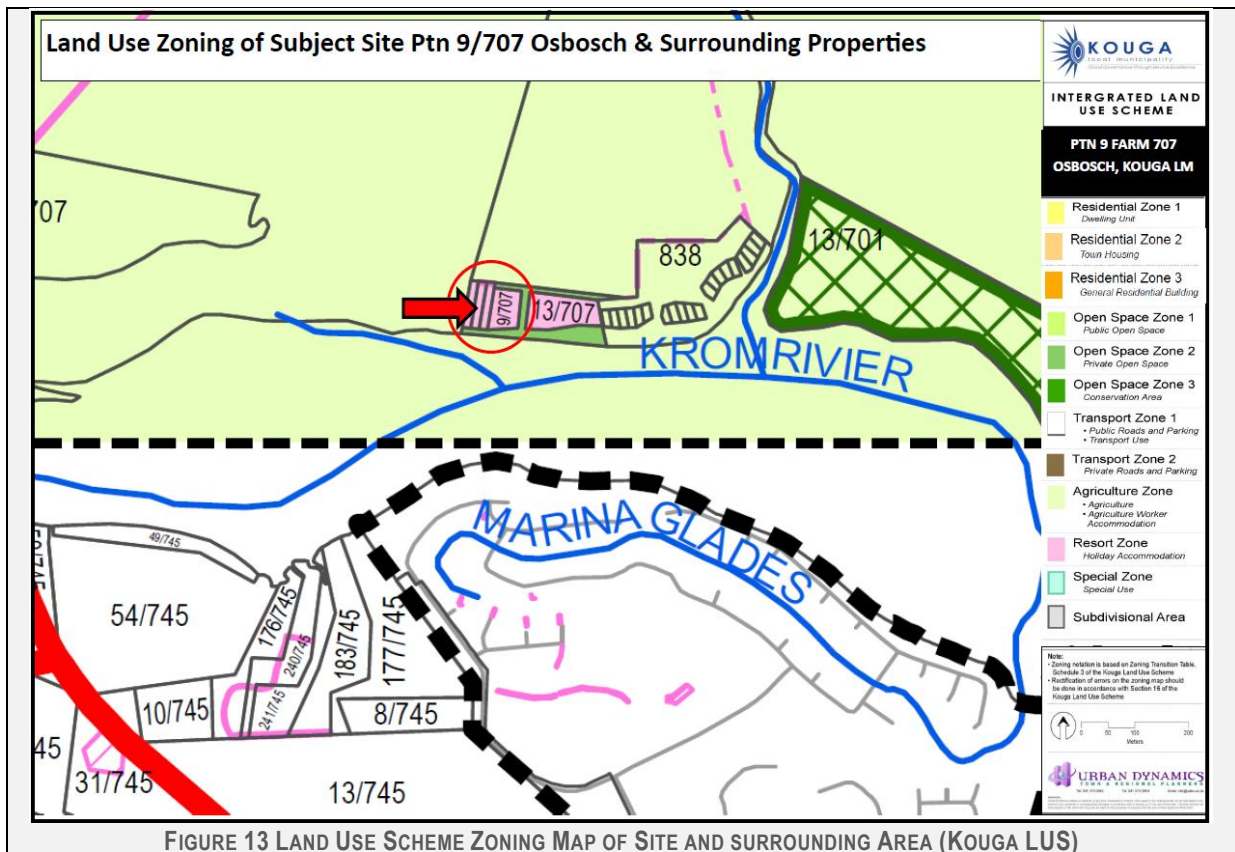
The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;

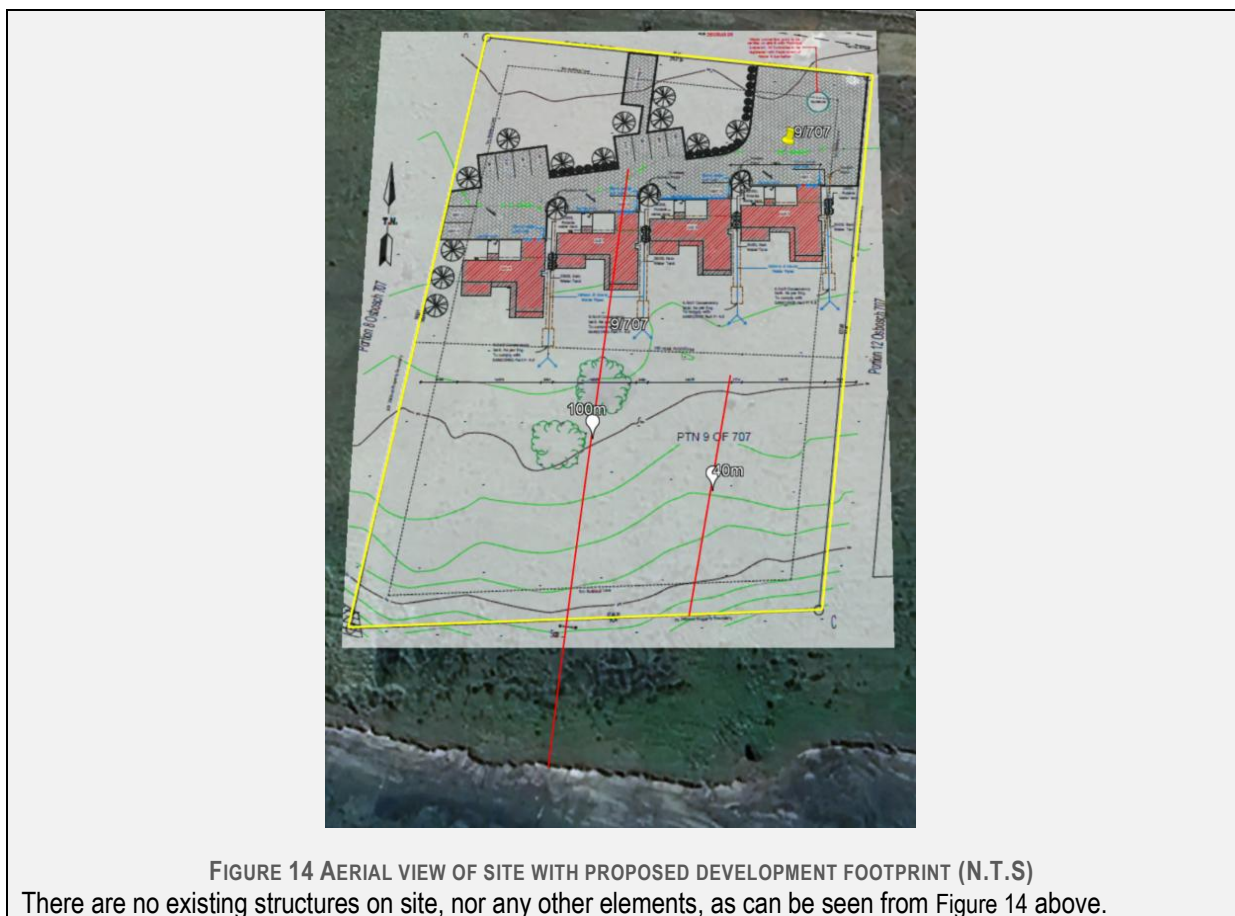
Refer to Figure 2, and **Appendix A1 – Locality Map.**

- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;

Refer to Figure 13 below and **Appendix A5 – Kouga LM Land Use Scheme Zoning Map.**



6.4 the exact position of each element of the application as well as any other structures on the site;



- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

There is a two-phase electricity transformer and overhead line just 20m northeast of the site from which the proponent could possibly apply to ESKOM for a connection. However, the development is planned to be entirely off grid by means of solar and gas. There is also a borehole on the northeastern corner of the site. See Figure 12 and **Appendix A14 – Site Plan Map**.

There are no existing sewer lines, or overhead telecommunication lines, but there is an internet fiber connection positioned on the northeastern corner of the site.

- 6.6 all trees and shrubs taller than 1.8 metres;

None.

- 6.7 walls and fencing including details of the height and construction material;

No walls or fencing exist around the site perimeter at the time of the compilation of this report. A fence does exist north of the site, beyond the Private Open Space.

No fence or wall is to be constructed along the southern boundary of the site.

Final plans will be submitted to DEDEAT on issue of Environmental Authorization and final design.

- 6.8 servitudes indicating the purpose of the servitude;

None.

- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;

YES – The Kromme River estuary is located 18.04m from the southern boundary of the property. Please refer to Figure 12 and **Appendix A4 – Site Plan Map**.

- The 1:100 year floodline (where available or where it is required by DWA);

A 100-year floodline may occur along the site close to the midline of the site, however no official delineation study has been done and therefore this cannot be verified. Please refer to Figure 12 and **Appendix A6 – Site Plan Map**. It is worth mentioning that the recent extreme storm events that occurred early May and early June 2026, no water encroached onto the site from the left bank. Even with the dams that were filled post May storm events, the second storm that occurred in June, there was still no water entering onto the site. Please refer to **Appendix A7 – Aerial photographs**.

- ridges; **NONE**
- cultural and historical features; **NONE**
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

The site contains modified indigenous vegetation consisting mainly of a grass and forb layer, with scattered *Tarchoanthus littoralis* and *Erythrina afra*. Alien grasses, forbs, and isolated *Yucca* plants are present. Sedges such as *Cyperus congestus* and *Imperata cylindrica* occur in lower-lying areas near the estuary, indicating seasonal moisture. No protected or Red Data plant species were recorded, and historical mowing and grazing have significantly altered the vegetation. *Zostera capensis* occurs within the estuary but was not observed adjacent to the site and will not be directly impacted.

More details on the vegetation can be found in Section B.4 – Groundcover, and the **Biodiversity Specialist**

assessment Report – Appendix D2.

- 6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan;

Please refer to **Appendix A6 – Contour Map.**

The site comprises gently undulating, low-gradient terrain, with ground levels gradually declining from approximately 6.21 m amsl in the northern portion to about 3.10 m amsl along the southern boundary toward the Kromme River. No steep slopes or abrupt changes in elevation are present, and the overall landform reflects a low-relief valley-side setting associated with the adjacent river corridor.

- 6.11 the positions from where photographs of the site were taken.

Photographs were taken in all compass directions - Please refer to Appendix B.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Please refer to **Appendix B – Site Photographs.**

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

Please refer to **Appendix C1 & C2 – Facility Illustrations.** Final plans will be submitted to DEDEAT once environmental authorization has been granted.

9. ACTIVITY MOTIVATION

- 9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

R 6 500 000.00

What is the expected yearly income that will be generated by or as a result of the activity?

R 1 500 000.00

Will the activity contribute to service infrastructure?

NO

Is the activity a public amenity?

NO

How many new employment opportunities will be created in the development phase of the activity?

100

What is the expected value of the employment opportunities during the development phase?

R1 800 000.00

What percentage of this will accrue to previously disadvantaged individuals?

70%

How many permanent new employment opportunities will be created during the operational phase of the activity?

5

What is the expected current value of the employment opportunities during the first 10 years?

R 5 000 000.00

What percentage of this will accrue to previously disadvantaged individuals?

80-90%

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

Need for the Development

The proposed development seeks to utilise land that is already designated and zoned for tourism-related activities in terms of the Kouga Local Municipality Land Use Scheme. The property is zoned **Resort Zone II**, and the proposed self-catering accommodation falls within the primary land use rights associated with this zoning. The development therefore provides an opportunity to make productive use of land that has been earmarked for tourism purposes without requiring rezoning or departures from existing planning controls. The proposal utilises land already designated and zoned for tourism-related development, thereby reducing pressure to develop greenfield sites elsewhere within the municipality.

The tourism sector remains a significant contributor to the economy of the Kouga region, with the St Francis Bay and Kromme River areas attracting visitors seeking nature-based, coastal and estuarine recreational experiences. The proposed development will provide additional tourism accommodation within an established tourism destination, thereby supporting visitor demand and contributing to local economic activity. The development contributes to the diversification of tourism accommodation options within the Kromme River and St Francis Bay area, supporting the region's tourism economy and broadening visitor opportunities.

The development is also expected to generate temporary employment opportunities during construction and permanent employment opportunities during operation, while supporting local suppliers and service providers.

The proposal further responds to the need for sustainable tourism development that can contribute to economic growth while maintaining the environmental qualities that attract visitors to the region. The tourism sector is a recognised economic driver within the Kouga region, and the proposed development will contribute to local employment opportunities, tourism expenditure and associated economic multipliers.

Desirability of the Development

The proposed development is considered desirable as it is a low-key tourism establishment, consistent with the existing planning and land use framework applicable to the property. The site is zoned **Resort Zone II**, and the proposed use is compatible with both the zoning provisions and the established tourism character of the wider St Francis Bay and Kromme River area, where tourism accommodation, holiday facilities and nature-based recreation are prominent land uses.

The proposal is consistent with the broader spatial planning objectives of the Kouga Municipality Spatial Development Framework (SDF), which recognise tourism as an important contributor to local economic development.

The site is located within an area characterised by existing residential, resort and tourism-related land uses. The proposal therefore represents an infill or complementary tourism development rather than an isolated or incompatible land use.

The development has been designed as a low-key, low-density self-catering accommodation facility confined to a defined development footprint, thereby limiting the extent of disturbance and avoiding unnecessary expansion into surrounding natural areas. The layout has specifically been informed by environmental constraints, with all proposed infrastructure located outside the Estuarine Functional Zone (EFZ) and maintaining a minimum setback of approximately 40 m from the southern property boundary adjacent to the Kromme River Estuary. These measures assist in protecting the ecological functioning and integrity of the estuarine environment.

The proposed development does not involve intensive industrial, commercial or high-density residential activities and is therefore compatible with the environmental sensitivity and scenic character of the estuarine landscape.

The development capitalises on the area's existing scenic and recreational attributes while maintaining the natural character that underpins the tourism appeal of the Kromme River estuary.

The development footprint has been located on elevated portions of the site and outside the estuarine functional area, thereby reducing exposure to routine tidal influences and enhancing long-term resilience to environmental change.

In addition, wastewater from the low-density tourist accommodation units will be managed through sealed conservancy tanks, which are considered appropriate for a site located in close proximity to an estuary and seasonal seepage areas. This approach reduces the potential risk of contamination of surface and groundwater resources.

The proposed development is considered desirable because it represents the utilisation of land already zoned for tourism purposes within an established tourism destination, while avoiding the most environmentally sensitive portions of the property. The proposal supports local economic development and tourism growth without necessitating rezoning or significant changes to the existing land use character of the area.

Indicate any benefits that the activity will have for society in general:

- Short-term employment opportunities are expected during the construction phase.
- Limited long-term employment opportunities may be created during the operational phase.
- The development may support local contractors, suppliers, and service providers within the Kouga Local Municipality.
- The addition of low-density tourism accommodation may contribute to the existing tourism offering in the greater St Francis Bay and Kromme River area.
- Increased property valuation may result in higher municipal rates and associated service revenue compared to the undeveloped scenario.
- The development makes use of land already zoned for Resort Zone II, thereby utilising existing land use rights.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

- Short-term employment opportunities may be created during the construction phase, particularly for local labour.
- Limited operational employment opportunities may arise for housekeeping, maintenance, and property management services.
- Local businesses within the Kouga area may benefit from procurement of materials, services, and maintenance requirements associated with the development.
- The presence of additional low-density accommodation may support visitor expenditure in nearby towns, including St Francis Bay, Sea Vista, Humansdorp, and the surrounding area.
- The development may contribute indirectly to municipal revenue through increased property valuation and associated rates, which support local service provision.

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act (Act No. 107 of 1998)	Department of Forestry, Fisheries and the Environment (DFFE) and the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	1998
National Environmental Management Act (Act No. 107 of 1998), Environmental Impact Assessment Regulations	Department of Forestry, Fisheries and the Environment (DFFE) and the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2017
National Environmental Management: Biodiversity Act (Act No. 10 of 2004) Alien and Invasive Species Regulations, 2014 (as amended)	Department of Forestry, Fisheries and the Environment (DFFE) and the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2014

National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)	Department of Forestry, Fisheries and the Environment (DFFE) and the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2008
DFFE (2025) Draft National Guideline for the Consideration of Climate Change Implications in Applications for Environmental Authorisations	Department of Forestry, Fisheries and the Environment (DFFE)	2025
Climate Change Act 22 of 2024	Department of Forestry, Fisheries and the Environment (DFFE)	2024
National Coastal Management Programme (2025–2031)	Department of Forestry, Fisheries and the Environment (DFFE)	2025
National Environmental Management Laws Amendment Act (2 of 2022)	Department of Forestry, Fisheries and the Environment (DFFE)	2022
Environment Conservation Act (Act 73 of 1989)	DFFE	1989
National Heritage Resources Act 25 of 1999	SAHRA /ECHPA	2008
Provincial Nature and Environmental Conservation Ordinance No 19 of 1974	DEDEAT	1974
Eastern Cape Climate Change Response Strategy	DEDEAT	2011
National Water Act (Act No. 36 of 1998)	Department of Water & Sanitation	1998
Conservation of Agricultural Resources Act	DALRRD	
National Environmental Management: Waste Act (Act No. 59 of 2008)	Department of Forestry, Fisheries and the Environment (DFFE)	2008
SBDM Coastal Management Programme	SBDM	2020
Kouga Local Economic Development Strategy	Kouga Local Municipality, Eastern Cape	2019
Kouga Spatial Development Framework	Kouga Local Municipality, Eastern Cape	2020
Kouga Integrated Development Plan	Kouga Local Municipality, Eastern Cape	2023/2024
Kouga Land Use Scheme (Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)	Kouga Local Municipality, Eastern Cape	2013
The South African Vegetation Map (Mucina and Rutherford)	South African National Biodiversity Institute (SANBI)	2006
The Eastern Cape Biodiversity Conservation Plan (ECBCP)	South African National Biodiversity Institute (SANBI)	2019
National Biodiversity Assessment 2018	SANBI	2018
National Biodiversity Assessment 2025	SANBI	2025
Eastern Cape Coastal Management Programme	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2015
The Garden Route Biodiversity Sector Plan (Kouga & Koukamma Municipalities)	South African National Biodiversity Institute (SANBI)	2010
The National Freshwater Ecosystem Priority Areas (NFEPA) project	South African National Biodiversity Institute (SANBI)	2011/2014
National Web Based Environmental Screening Tool	Department of Forestry, Fisheries and the Environment (DFFE)	2021
National Building Regulations and Building Standards Act (Act No. 103 of 1977)	Kouga Local Municipality, Eastern Cape	1977

10.1. Listed Activities in Terms of the NEMA EIA Regulations 2014, as amended:
LISTED ACTIVITIES IN TERMS OF THE NEMA EIA REGULATIONS 2014, AS AMENDED:

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
Listing Notice 1 – GNR. 983 of 2014 (as amended by GNR. 327 of 07 April 2017) Activity 17 – Development within 100 m of the high-water mark, including structures or infrastructure exceeding 50 m² such as stabilising walls or rock revetments. Activity 19A – Infilling, excavation, or movement of material exceeding 5 m³ within 100 m of the high-water mark, associated with the proposed foundation and site preparation works.	The proposed development entails the construction of buildings and associated infrastructure exceeding 50 m² within 100 m of the high-water mark of the Kromme River estuary, a watercourse. The activity relates specifically to development in close proximity to the estuarine environment, where such structures have the potential to influence aquatic and riparian systems if not appropriately managed. The proposed development will involve excavation and movement of material exceeding 5 m³ within 100m of the high-water mark of the Kromme River estuary, associated with site preparation, foundation excavations, and installation of services. No infilling of the estuary or direct modification of the watercourse is proposed.
Listing Notice 3 – GNR. 985 of 2014 (as amended by GNR. 324 of 07 April 2017) Activity 5 – Development of tourism or hospitality facilities accommodating fewer than 15 people, located outside urban areas within or near protected areas, critical biodiversity areas, watercourses, or estuarine zones in the Eastern Cape. Activity 12.a. Clearance of 300 m² or more of indigenous vegetation within 100 m of the high-water mark in the Eastern Cape.	The proposed development comprises low-density self-catering tourism accommodation for fewer than 15 persons, located outside an urban area and in close proximity to a watercourse and estuarine environment. The activity relates to the establishment of small-scale tourism facilities within a sensitive environmental context. The proposed development will require the clearance of more than 300 m² of indigenous vegetation within 100 m of the high-water mark of the Kromme River estuary, associated with the building footprint and associated infrastructure. Vegetation clearance will be limited to the minimum area required for development.

11. WASTE, EFFLUENT, EMISSION, AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES

If yes, what estimated quantity will be produced per month?

3m³

How will the construction solid waste be disposed of (describe)?

Waste will be kept in skips to be removed once filled to the nearest landfill in Humansdorp. Chemical containers will be disposed of by storing in closed lid skips for appropriate disposal. All cement bags will be kept and stored for disposal at landfill site.

Where will the construction solid waste be disposed of (describe)?

At the Humansdorp Landfill Site approximately 20km away.

Will the activity produce solid waste during its operational phase?

YES

Only general household waste will be generated.

If yes, what estimated quantity will be produced per month?

1.5m³

How will the solid waste be disposed of (describe)?

Cardboards, paper, plastics, glass, tin and metals to be recycled by engaging appropriate contractors.

General waste to be kept in bins for disposal at the Humansdorp Landfill by the property owner, as the municipal waste removal services do not service this area.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Municipal Waste Stream and recycling stations.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

NO

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

NO

If yes, what estimated quantity will be produced per month?

N/A

Will the activity produce any effluent that will be treated and/or disposed of on site?

NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES

If yes, provide the particulars of the facility:

Facility name:	KwaNomzamo Waste Water Treatment Works		
Contact person:	Kouga Local Municipality		
Postal address:	208 Coetzee St, Kruisfontein, Humansdorp, 6306		
Postal code:	6306		
Telephone:	042 200 2200	Cell:	-
E-mail:	callcenter@kouga.gov.za	Fax:	-

Describe the measures that will be taken to ensure the optimal reuse or recycling of wastewater, if any:

N/A

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

NO

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

N/A

11(d) Generation of noise

Will the activity generate noise?

YES

If yes, is it controlled by any legislation of any sphere of government?

NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

Noise generation will occur only during the construction phase. No significant noise is anticipated during the operational phase, as the proposed activity comprises low-density holiday accommodation.

Description of Noise (Type and Level)

Construction noise will be typical of small-scale building activities and will include intermittent sounds from:

- Concrete mixing and placement
- Bricklaying and general masonry work
- Power tools (e.g. drills, grinders)
- Delivery vehicles and light construction machinery

Noise levels are expected to fall within the typical range for small construction sites, generally between 70–85 dB(A) at source, decreasing significantly with distance. Given the limited scale of the development and the absence of heavy industrial equipment, noise impacts are expected to be temporary, localised, and confined to normal daytime working hours.

No blasting, pile driving, or high-impact industrial activities are proposed.

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

☐ Municipal	☐ Water board	☐ Groundwater	☐ River, stream, dam or lake	☐ Other: Rainwater	☐ The activity will not use water
------------------------------------	--------------------------------------	--------------------------------------	---	--	--

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate:

the volume that will be extracted per month:

1.92kl/day = 57.6kl/month

Does the activity require a water use permit from the Department of Water Affairs?

NO

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The proposed development incorporates several design measures to promote energy efficiency, including a 100% off-grid establishment. Electricity supply will be generated through solar photovoltaic panels with battery storage, thereby reducing reliance on the Eskom grid.

The dwellings are designed to maximise natural light and ventilation, reducing daytime lighting and cooling requirements. Roof insulation and appropriate building materials are proposed to improve thermal performance and reduce internal heat gain and heat loss.

Energy-efficient lighting (LED fittings) and low-voltage systems will be installed. Heat exchanger systems will be incorporated into the water heating infrastructure to improve energy efficiency and reduce electricity or gas demand associated with geyser operation. Solar or gas geysers are recommended.

Gas stoves and ovens are recommended.

Collectively, these measures are intended to reduce overall energy consumption and improve operational sustainability.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

SEE ABOVE.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):



2. Paragraphs 1 - 6 below must be completed for each alternative.
3. Has a specialist been consulted to assist with the completion of this section?

YES

If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline

2.2 Plateau

2.3 Side slope of hill/mountain

2.4 Closed valley

2.5 Open valley

2.6 Plain

2.7 Undulating plain / low hills

2.8 Dune

2.9 Seafront (bank of estuary)

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

Please refer to the **Geotech soil assessment report in Appendix D3.**

A geotechnical investigation was undertaken by Outeniqua Geotechnical Services in November 2022 to assess the suitability of Portion 9 of Farm 707 for the proposed development. The investigation included eight test pits and Dynamic Cone Penetrometer (DCP) tests across the site.

The site is underlain by alluvial deposits overlying shale of the Bokkeveld Group. The soil profile generally consists of a shallow topsoil layer underlain by firm to medium-dense silty and gravelly clayey sands, transitioning to highly weathered and fractured shale bedrock at depths ranging between approximately 1.2 m and 2.1 m below ground level. A perched groundwater table was encountered within the shale at some test locations at depths of approximately 1.9 m to 2.1 m below ground level.

Laboratory testing classified the soils as low-plasticity clayey sands with low expansion potential. DCP testing indicated generally competent founding conditions, with estimated allowable bearing pressures ranging from approximately 50 kPa in the upper soil horizons to 200 kPa within the dense weathered shale material. The geotechnical assessment identified no significant constraints associated with active clay, collapsible soils, flooding, seismicity, slope instability, or difficult excavation conditions. The site was classified as NHBRC Class S1, indicating generally favourable founding conditions.

The geotechnical report concludes that the site is suitable for the proposed development using conventional construction methods, provided that standard engineering recommendations are implemented. These include founding structures on competent natural soils or engineered fill, ensuring adequate stormwater management to prevent ponding and infiltration around foundations, and maintaining appropriate subgrade preparation and compaction for roads and driveways.

Overall, the geotechnical conditions are considered favourable for development, with no fatal flaws identified from a soil stability or foundation perspective.

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	YES		
Dolomite, sinkhole or doline areas		NO	
Seasonally wet soils (often close to water bodies)	YES		
Unstable rocky slopes or steep slopes with loose soil		NO	
Dispersive soils (soils that dissolve in water)		NO	
Soils with high clay content (clay fraction more than 40%)		NO	
Any other unstable soil or geological feature		NO	
An area sensitive to erosion		NO	

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER (& Environmental Sensitivities)

Indicate the types of groundcover present on the site:

4.1 Natural veld — good condition^E

4.2 Natural veld — scattered aliens^E

4.3 Natural veld with heavy alien infestation^E

4.4 Veld dominated by alien species^E

4.5 Gardens

4.6 Sport field

4.7 Cultivated land

4.8 Paved surface

4.9 Building or other structure

4.10 Bare soil

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld—good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

4.1. Vegetation

A Biodiversity Specialist Assessment was conducted by a SACNASP registered scientist (please refer to **Appendix D2 – Biodiversity Assessment Report**). The study confirmed that the vegetation on Portion 9 of Farm 707 Osbosch is largely modified due to historic cultivation, mowing, and grazing, and currently consists of secondary grassland dominated by grasses and forbs with scattered shrubs such as *Tarchonanthus littoralis* and isolated individuals of *Erythrina afra*. Alien species are present and include invasive grasses and exotic ornamentals such as *Yucca gigantea*. Lower-lying areas closer to the estuary support sedges and moisture-associated species such as *Cyperus congestus* and *Imperata cylindrica*, indicating seasonal seepage and subsurface moisture movement toward the estuary.

According to the National Vegetation Map (2024) and the National Biodiversity Assessment (2025) Red List Ecosystems (RLE2025), the northern section of the site falls within the Elands Forest Thicket Vegetation type (Least Concern) and the southern section falls within the Albany Alluvial Vegetation. Albany Alluvial vegetation is classified as **Endangered** and associated with terrestrial vegetation within the EFZ (RLE2025).

Please refer to Figure 15 & Figure 16; **Appendices A11 & A12 Veg Maps**, and **Appendix A13 NBA 2025 RLE Map**.

No protected or Red Data plant species were recorded on the site during the field survey, and the habitat is considered degraded and of low intrinsic botanical sensitivity. Although no protected or Red Data plant species were recorded within the terrestrial portion of the site, the ecological sensitivity remains elevated due to the site’s association with an Ecological Support Area (ESA) that contributes to hydrological connectivity with the Kromme River estuary, which supports *Zostera capensis* (eelgrass), a sensitive and protected aquatic species that plays an important role in sediment stabilisation, water quality maintenance, and providing critical habitat for aquatic organisms.

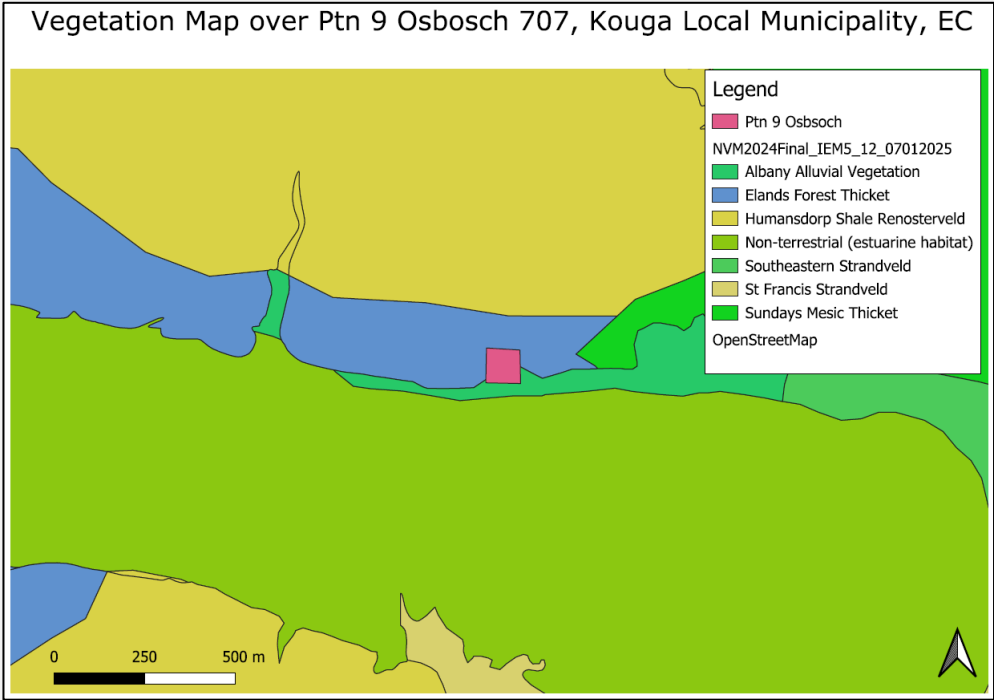


FIGURE 15 VEGETATION MAP OF THE SITE (MUCINA & RUTHERFORD; SANBI BGIS, 2024)

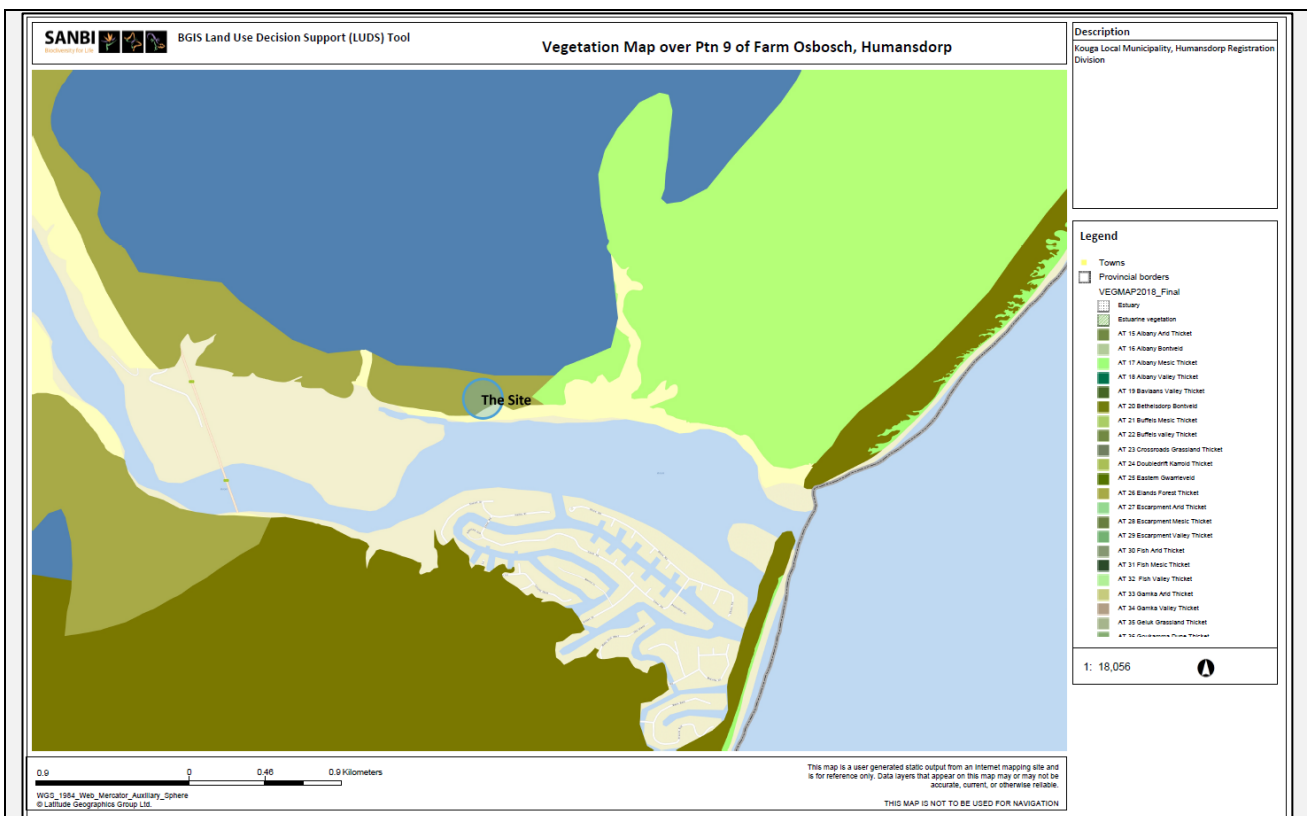


FIGURE 16 VEGETATION MAP (SANBI BGIS 2018)



FIGURE 17 PHOTOS OF THE GENERAL VEGETATION ON SITE



FIGURE 18 LOCATION OF PROPOSED DEVELOPMENT FOOTPRINT

4.2. Biodiversity

4.2.1. Critical Biodiversity, Ecological Support, and Protected Areas

According to the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019), Portion 9 of Farm Osbosch 707 falls predominantly within terrestrial Ecological Support Areas (ESA 1 and ESA 2) (Figure 19), with a small portion along the southern boundary intersecting a terrestrial Critical Biodiversity Area (CBA 1). The site also forms part of Freshwater ESA 1 and borders Freshwater CBA 1 associated with the Kromme River estuary, reflecting its ecological role in supporting the functioning and connectivity of this sensitive estuarine system (Figure 20).

The site is located within the Garden Route Biosphere Reserve, which is listed in the South African Conservation Areas Database (SACAD, 2023) and contributes to regional biodiversity conservation objectives. The nearest protected area is the Kromme River Mouth Nature Reserve, located approximately 700 m east of the site (SAPAD, 2023) (Figure 21). Although the site does not fall within a formally proclaimed protected area or National Protected Area Expansion Strategy (NPAES) priority area, it is situated within a broader ecological landscape that includes threatened ecosystems such as Humansdorp Shale Renosterveld and ecologically important estuarine habitats (Figure 21).

The ecological sensitivity of the site is therefore primarily linked to its location within ESA and adjacent CBA areas, its proximity to the Kromme River estuary, and its role in maintaining ecological processes, habitat connectivity, and supporting species movement within the estuarine and coastal landscape.

Please refer to Figure 19 & Figure 20; **Appendices A9 & A10 – ECBCP 2019 – Maps of Freshwater & Terrestrial CBA/ESAs**, and Figure 21; **Appendix A15 – SAPAD Map**.

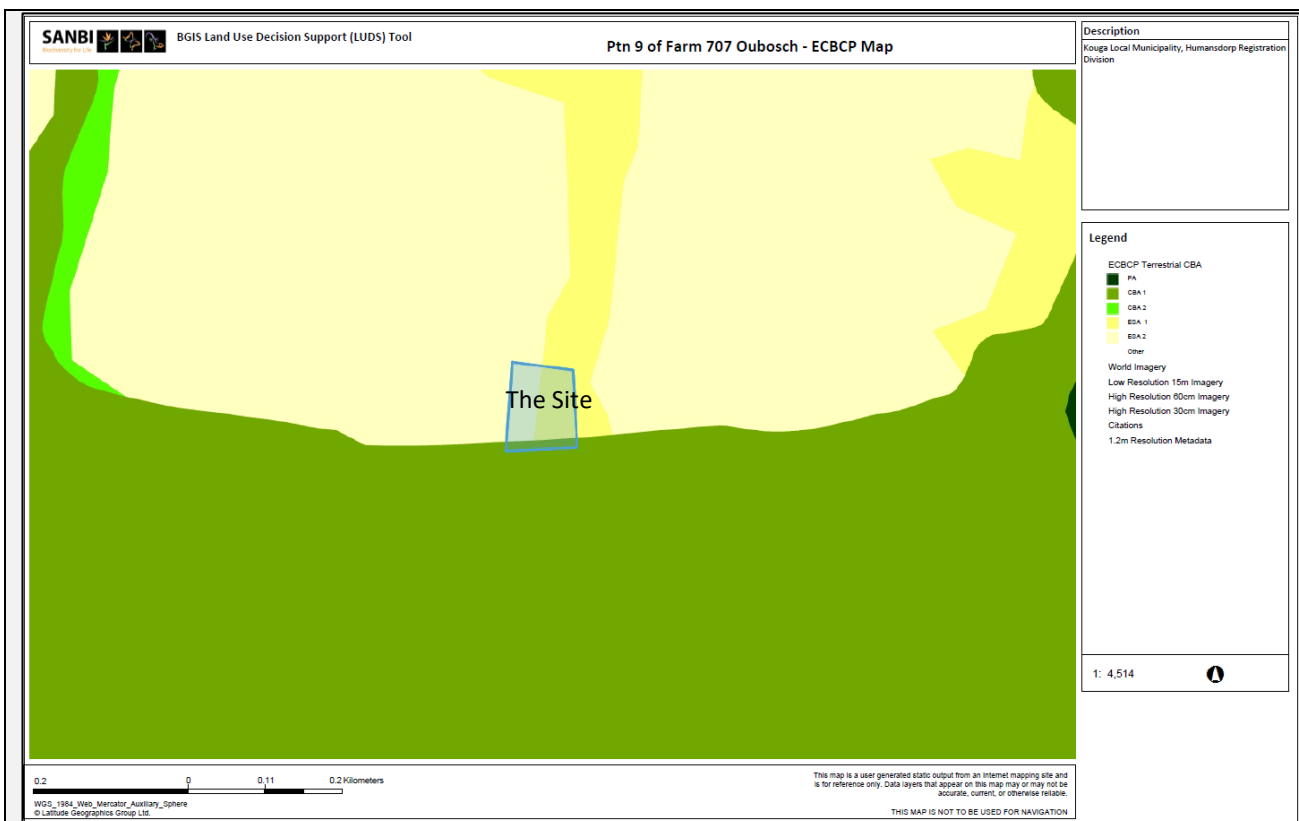


FIGURE 19 MAP SHOWING TERRESTRIAL CBAS AND ESAS IN PROXIMITY TO THE SITE (ECBCP, 2019)

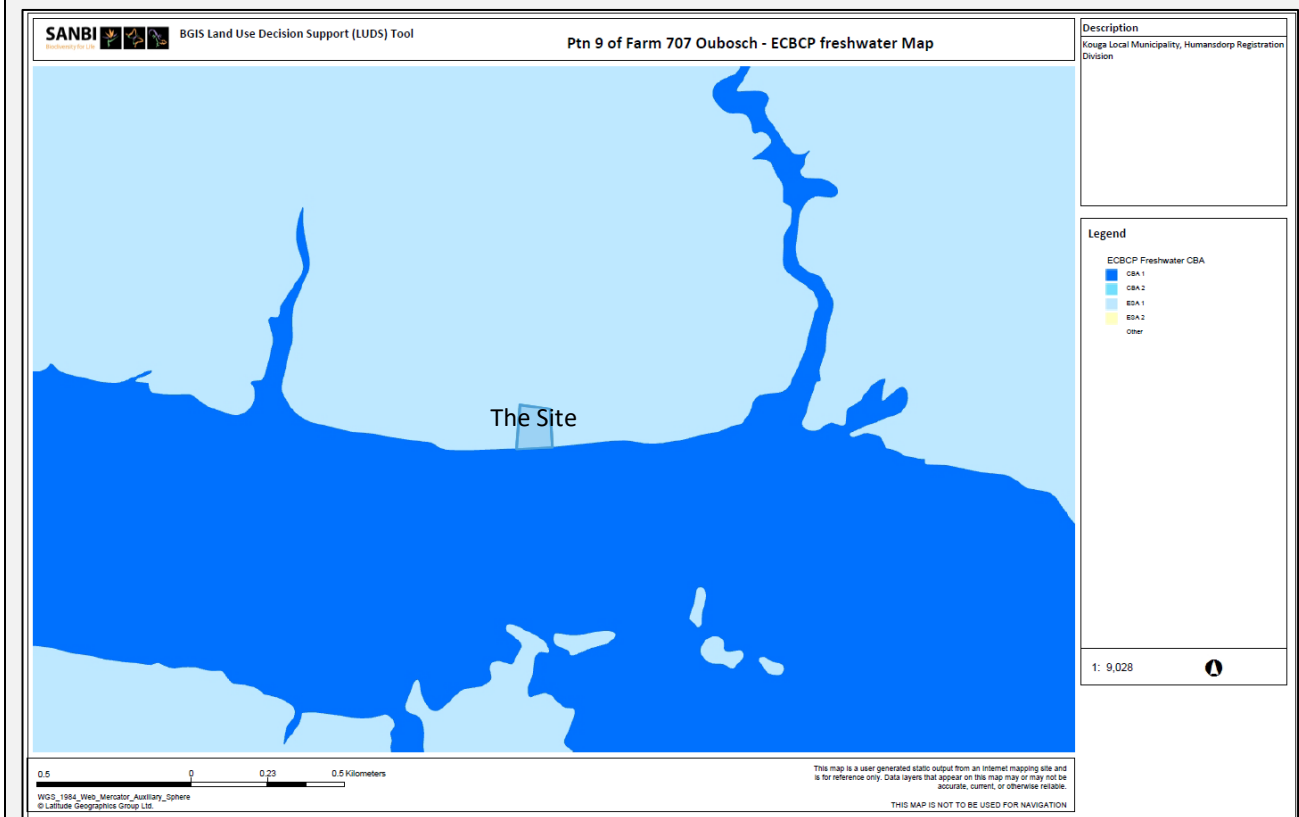


FIGURE 20 FRESHWATER ESA/CBA IN PROXIMITY TO THE SITE (ECBCP, 2019)

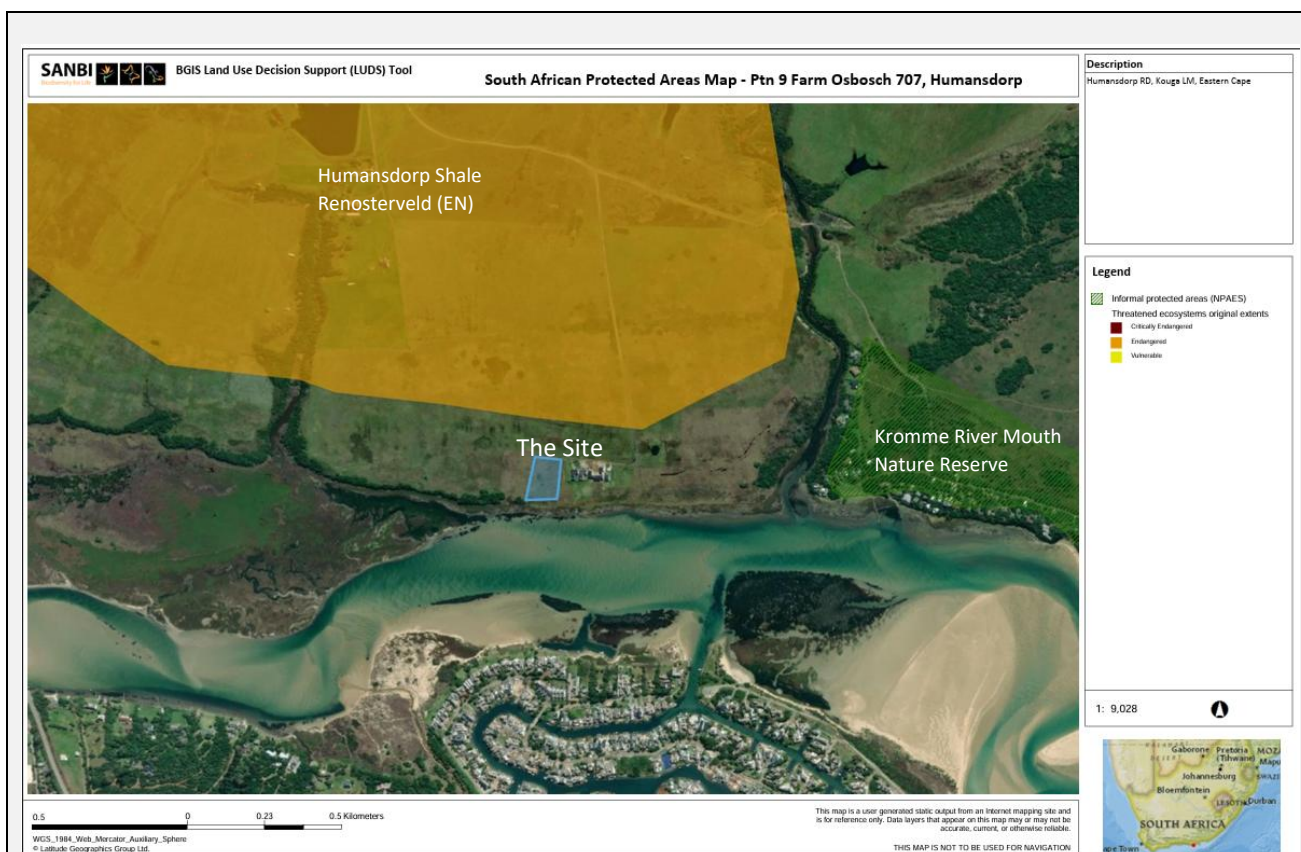


FIGURE 21 SOUTH AFRICAN PROTECTED AREAS MAP

4.2.3. Aquatic Biodiversity

The site is associated with a Freshwater Ecological Support Area (ESA), reflecting its role in supporting the ecological functioning of the adjacent Kromme River Estuary. The ESA comprises a seasonal seepage zone that forms part of the natural drainage pathway through which surface and subsurface water move southwards from the catchment towards the estuary. The sandy soil profile and shallow groundwater table facilitate this hydrological connectivity, while the vegetation composition within the seepage area indicates periodic saturation during the rainy season. Although no permanent watercourses or wetlands occur on the site, the seepage area contributes to the movement of freshwater into the estuarine environment.

The National Screening Tool assigns a Very High sensitivity rating to the aquatic biodiversity theme, which was confirmed by the biodiversity specialist following desktop assessment and site verification. This sensitivity is primarily attributable to the site's proximity to the Kromme River Estuary, the presence of the Freshwater Ecological Support Area, and the hydrological connectivity between the development site and the receiving aquatic environment.

Although the proposed development will not directly impact any aquatic habitat, there is potential for indirect impacts during both the construction and operational phases. These include sediment-laden runoff from earthworks, contamination from sewage systems, hydrocarbons, fuels, oils, detergents, herbicides and pesticides, as well as pollutants transported via stormwater runoff from roofs, paved surfaces and landscaped areas. Poorly managed runoff and erosion may degrade water quality, increase turbidity, alter nutrient dynamics and adversely affect aquatic vegetation and estuarine ecological functioning.

The Kromme River Estuary is an ecologically important estuarine system that supports high biodiversity, significant recreational value and important ecosystem services. Although the estuary has become increasingly marine-dominated due to reduced freshwater inflows from upstream impoundments and abstraction, these changes have reduced its capacity to assimilate pollutants, making the system particularly sensitive to additional contamination from surrounding land uses. Consequently, maintaining effective stormwater management, erosion control, wastewater containment, and

protection of natural subsurface drainage pathways is essential. Provided these mitigation measures are implemented and maintained, potential impacts are expected to remain localised and of low significance. Nevertheless, owing to the ecological importance and inherent sensitivity of the receiving environment, the Very High aquatic biodiversity sensitivity rating is considered appropriate and is retained.

See section 3.3 of the Biodiversity Report (Vlok, 2026) for more detail regarding Aquatic Sensitivity.

4.2.4. Kromme Estuarine Sensitivity

The Kromme River Estuary is a highly sensitive estuarine ecosystem that has undergone significant ecological and hydrological changes as a result of altered freshwater inflows caused by upstream impoundments and water abstraction. Historically, the estuary exhibited a natural salinity gradient, ranging from freshwater conditions in the upper reaches to marine conditions near the mouth. However, reduced freshwater inflows have transformed the system into a **predominantly marine-dominated estuary**, with salinity levels frequently remaining close to seawater conditions throughout much of its length (Baird & Heymans, 1996; Wooldridge, 2007). This shift has reduced habitat diversity and altered ecological functioning within the estuary.

The reduction in freshwater inflows has also decreased the transport of nutrients, organic matter, and suspended sediments into the estuary, resulting in reduced phytoplankton productivity and changes to the estuarine food web (Scharler & Baird, 2003). Increased water clarity, resulting from lower sediment loads and fewer flood events, has facilitated the extensive expansion of eelgrass (*Zostera capensis*), a species of conservation concern that plays an important role in sediment stabilisation, nutrient cycling, and the provision of habitat for fish and invertebrates. The estuary now supports extensive eelgrass beds, with biomass estimated to be substantially greater than under natural conditions (Wooldridge, 2007). While these habitats provide important ecological functions, they have also altered species composition by favouring vegetation-associated species over species dependent on unvegetated sediments.

Changes in sediment transport and hydrological processes have further altered the estuary. Reduced flood frequency has resulted in increased sediment accumulation and the formation of extensive sandbanks, particularly in the lower estuary, which can restrict tidal exchange and contribute to persistently elevated salinity levels. Longer water residence times have reduced the estuary's natural flushing capacity, increasing the potential accumulation of pollutants originating from urban runoff, boating activities, septic systems, and other human activities.

The Kromme Estuary functions as a critical nursery area for numerous estuarine-dependent and marine fish species, including the endangered White Steenbras (*Lithognathus lithognathus*), Spotted Grunter (*Pomadasys commersonnii*), Leervis (*Lichia amia*), Blacktail (*Diplodus capensis*), Cape Stumpnose (*Rhabdosargus holubi*), Flathead Mullet (*Mugil cephalus*), Southern Mullet (*Chelon richardsonii*), and other mullet species. These species rely on sheltered estuarine habitats during critical juvenile life stages before migrating to marine environments as adults. Alterations to freshwater inflow, salinity regimes, habitat structure, and nutrient dynamics have the potential to affect the ecological conditions required to support these life cycles.

The estuary also supports diverse invertebrate communities that have responded differently to the altered environmental conditions. Species associated with vegetated habitats, such as the estuarine shrimp (*Palaemon peringueyi*), have increased in abundance due to the expansion of eelgrass beds, while species associated with unvegetated muddy sediments, such as the mud prawn (*Upogebia africana*), have likely declined. Changes in salinity, sediment dynamics, nutrient availability, and flushing processes have also influenced estuarine bivalves, macrobenthic worms, and other estuarine-dependent invertebrates.

Given its ecological importance, biodiversity value, and sensitivity to further disturbance, the Kromme Estuary remains a system of high conservation significance. Any development within its zone of influence should ensure the protection of estuarine processes, maintenance of ecological buffers, prevention of pollution, and management of stormwater and wastewater to avoid further degradation of this already modified but ecologically important estuarine ecosystem.

It is also worth mentioning that the May 2026 low-pressure storm event which caused excessive rise in water levels within the estuaries in the Kouga LM, did not have an impact on the site. The water levels did not rise into the site boundaries.

This was confirmed by the landowner, as well as from aerial imagery (SAEON – South African Estuary Information System: Kromme. See **Appendix A7 – Aerial photographs**.



FIGURE 22 AERIAL PHOTOGRAPH OF THE KROMME ESTUARY ON THE 9TH OF MAY 2026, POST SEVERE STORM EVENT

The proposed development incorporates mitigation measures, including the use of sealed conservancy tanks, controlled stormwater conveyance systems, maintenance of ecological buffer areas, and minimisation of soil disturbance. These measures will reduce the risk of contamination and maintain natural infiltration processes. Based on the location of the proposed footprint within an already disturbed area, and the maintenance of the 40 m vegetated buffer, **the proposed development is not expected to significantly affect the ecological functioning, hydrological processes or long-term integrity of the Kromme Estuary or any freshwater resource.**

For detailed impacts and their mitigation measures, please refer to Table 7 & Table 9 later in Section D.

4.2.3. Terrestrial Fauna

The National Screening Tool Report assigns a High sensitivity rating to the site for animal species, which is confirmed based on the findings of the desktop assessment and site inspection. While only a few common and widespread terrestrial fauna species were recorded on site, the location of the site within a sensitive estuarine landscape, its proximity to the Kromme River, and the presence of suitable habitat for avifaunal Species of Conservation Concern in the surrounding area support this rating. The site may be utilised intermittently for foraging, movement, or as part of a broader habitat mosaic by SCC waterbirds and birds of prey, and the availability of small mammals further enhances its ecological function. On this basis and considering the wider ecological context rather than on-site species presence alone, the faunal sensitivity of the site is appropriately retained as High.

A Faunal Specialist Assessment was compiled by a SACNASP registered scientist which confirmed that the site supports modified terrestrial habitat dominated by secondary grassland, which provides suitable conditions for common small mammal, reptile, and invertebrate species. Evidence of burrowing and surface runways observed during the site inspection indicates the presence of small fossorial mammals, most notably the Hottentot Mole-rat (*Cryptomys hottentotus*), which is widespread in the Eastern Cape and listed as Least Concern. Signs of larger mammal activity, likely attributable to the Cape Hare (*Lepus capensis*), were also recorded. These species are well adapted to disturbed grassland environments and can utilise surrounding open areas for foraging and refuge.

The site also provides habitat for a range of invertebrates, including grass-dwelling spider species, and may be utilised intermittently by avifaunal species for foraging.

There are no trees of significant height which would provide nesting opportunities for certain avifaunal species. Although no faunal Species of Conservation Concern (SCC) were recorded on the site during the assessment, the surrounding

landscape, including the adjacent Kromme River estuary, supports several SCC, particularly bird species associated with estuarine (e.g. Caspian Tern) and open grassland habitats (e.g. Blue Crane). The proximity of the site to the estuary increases its ecological importance as part of a broader habitat mosaic that supports faunal movement and ecological connectivity.

Due to the historical modification of the site through mowing, grazing, and cultivation, faunal diversity is considered reduced compared to undisturbed habitat. However, the site remains functionally important as part of an Ecological Support Area contributing to the integrity of the adjacent estuarine ecosystem and offering potential foraging opportunities for SCC such as the Blue Crane and African Crowned Eagle.

Potential impacts associated with the proposed development are expected to be localised and primarily limited to disturbance and temporary displacement of common fauna, with surrounding habitat providing opportunities for relocation.

Please refer to **Appendix D4 – Animal Species Assessment Report**.

4.3. Estuary Erosion and Flood Risk

According to the DFFE Coastal Viewer, the site shows a *Low to Moderate* risk relating to Estuary Flood Risk and Estuary Erosion Risk. The footprint is proposed for the northern section of the site, in the area identified as *Low* Estuary Flood and Erosion Risk.

See below Figure 23 & Figure 24 (**Appendix A16 & A17**).

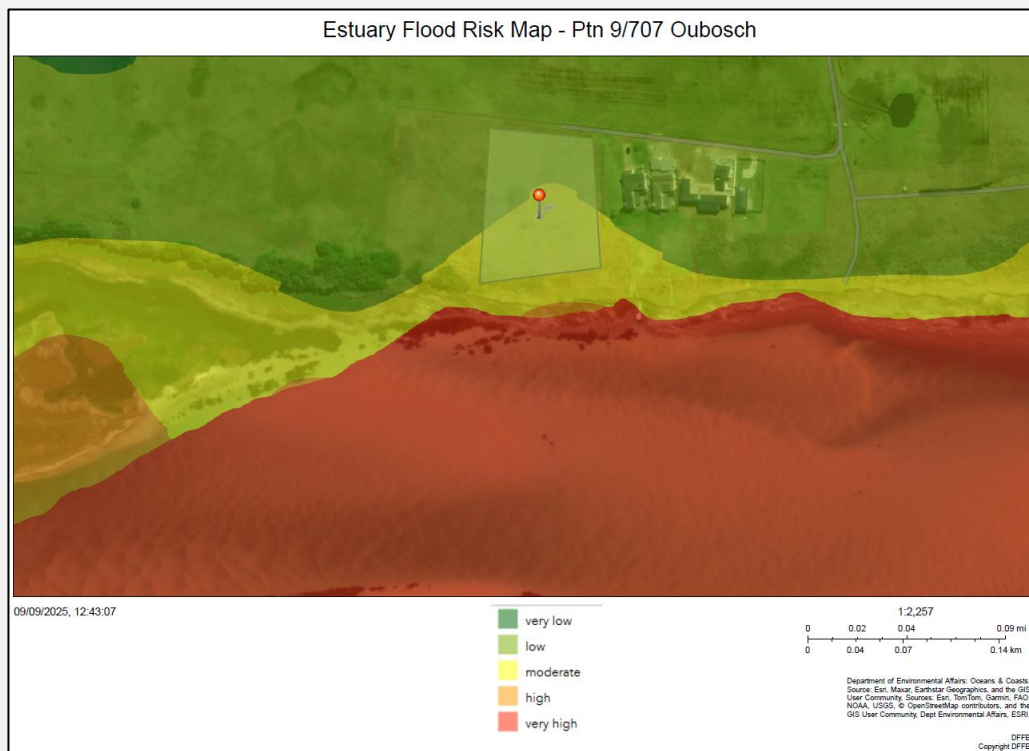
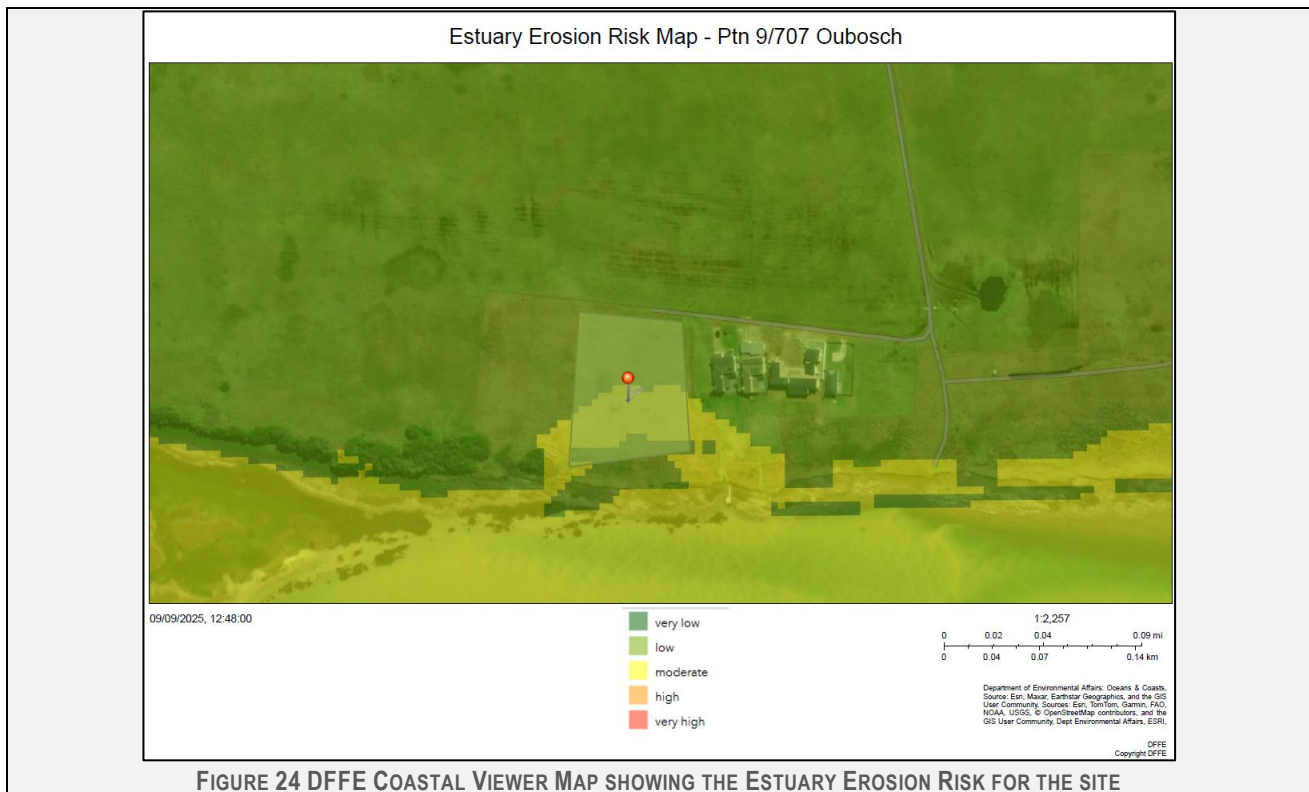


FIGURE 23 DFFE COASTAL VIEWER MAP SHOWING THE ESTUARY FLOOD RISK FOR THE SITE



5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural areas

5.2 Low density residential

5.3 Medium density residential

5.4 High density residential

5.5 Informal residential

5.6 Retail commercial & warehousing

5.7 Light industrial

5.8 Medium industrial^{AN}

5.9 Heavy industrial^{AN}

5.10 Power station

5.11 Office/consulting room

5.12 Military or police base/station/compound

5.13 Spoil heap or slimes dam^A

5.14 Quarry, sand or borrow pit

5.15 Dam or reservoir

5.16 Hospital/medical centre

5.17 School

5.18 Tertiary education facility

5.19 Church

- 5.20 Old age home
- 5.21 Sewage treatment plant^A
- 5.22 Train station or shunting yard^N
- 5.23 Railway line^N
- 5.24 Major road (4 lanes or more)^N
- 5.25 Airport^N
- 5.26 Harbour
- 5.27 Sport facilities
- 5.28 Golf course
- 5.29 Polo fields
- 5.30 Filling station^H
- 5.31 Landfill or waste treatment site
- 5.32 Plantation
- 5.33 Agriculture
- 5.34 River, stream or wetland**
- 5.35 Nature conservation area
- 5.36 Mountain, koppie or ridge
- 5.37 Museum
- 5.38 Historical building
- 5.39 Protected Area
- 5.40 Graveyard
- 5.41 Archaeological site
- 5.42 Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

If YES, specify:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

If YES, specify:

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including

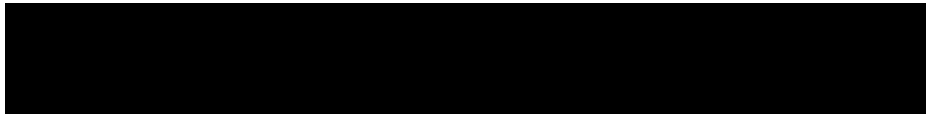
Archaeological or palaeontological sites, on or close (within 20m) to the site?

	NO
	Uncertain, but unlikely.

If YES, explain:

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:



Will any building or structure older than 60 years be affected in any way?

NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or

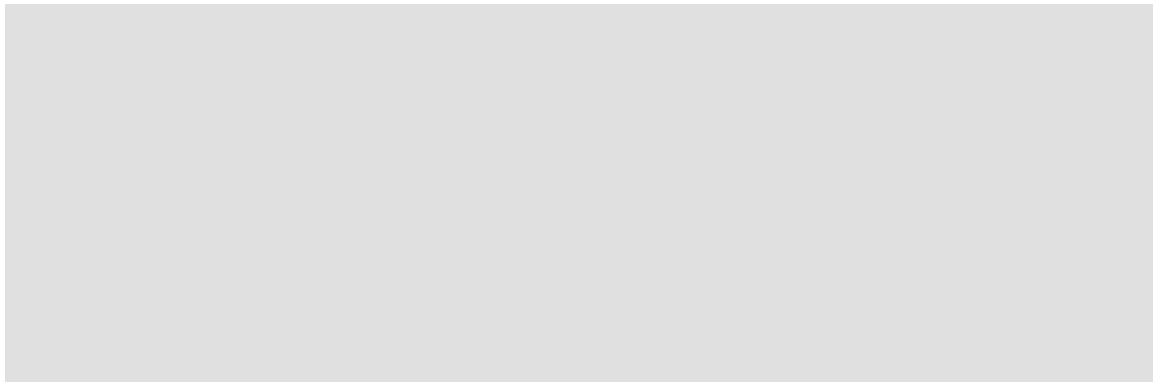
(iii) any other disadvantage.

A full PP report will be attached to the FBAR and submitted to the Authorities for comment. Below is a table indicating the mechanism, date and appendix number for the public participation undertaken to date.

Please note that the first phase. PHASE 1 of the PPP included the Invitation to Register as IAP and therefore the notice served solely as a call for interested and affected parties (I&APs) to register. The primary purpose of the initial notice was to inform the public and relevant stakeholders of the proposed development and to invite their registration and input. Feedback received during this consultation phase will assist in confirming, refining, or amending the list of triggered activities to be included in the final Basic Assessment Report and Environmental Authorisation application.

A second phase, PHASE 2 is to take place on the2026, inviting IAPs and Stakeholders to comment on the Draft Basic Assessment Report by means of a site notice placed at the entrance gate where the site is located, and at the turn-off from the R330. An advertisement is to be placed in the Kouga Express, and emails sent out to all adjoining landowner, Interest groups, registered IAPs and Stakeholders.

TABLE 1 SUMMARY OF THE PUBLIC PARTICIPATION PROCESS TO DATE



2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
 - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
 - (iii) the nature and location of the activity to which the application relates;
 - (iv) where further information on the application or activity can be obtained; and
- 5. the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

The proposed project is of local interest only and consequently only the local Kouga Express Newspaper was utilized. **See Appendices E4 (Phase 1).**

Phase 1:

Notices were placed on at the entrance gate to the area where the site is located. See **Appendices E2 & E3 (Phase 1)**. Invitation letters including the BID were sent to the immediate neighbours, IAPs and Stakeholders via email (**See Appendices E5-E8 (Phase 1)**).

Phase 2 –

Proof of notice, letters emailed and Kouga Express tear sheet will be included in the FBAR.

4. DETERMINATION OF APPROPRIATE MEASURES

Due to the localised nature of the proposed project and size of the project, stakeholders of interest as well as the immediate neighbours and community forums were notified. Emails, site notices and newspaper notices, in English, were deemed sufficient. Identified I&APs responded and registered.

I&AP's who may be interested or had comments and contributions or objections were asked to register to receive the Basic Assessment Report.

A Stakeholder and I&AP list is attached under Appendix E1.

5. COMMENTS AND RESPONSE REPORT

A draft comments and response report can be found in **Appendix E15**.

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application

List of
authorities
informed:

Please refer to **Appendix E1**

DEDEAT

DFFE (Oceans & Coasts)

SAPS

Kouga Local Municipality

Sarah Baartman District Municipality

ECPHRA

List of authorities from whom comments have been received:

None to date. All comments will be included in the FBAR.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

None to date. All comments will be included in the FBAR.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

There were no issues raised during the initial call for registration of I&APs.

One suggestion was made (**Appendix E13**) and that was to invest in the establishment of trees.

Another request from an IAP (**Appendix E14**) was that he remain informed on the planned road from the current existing infrastructure to the new development.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

Please refer to **Appendix E15 Comments/Response Report**.

Please refer to Table 7, Table 8 & Table 9 – Impact Statement, for mitigation measures proposed.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

The purpose of the impact assessment is to assign relative significance to predicted impacts associated with the project, and to determine the manner in which impacts are to be avoided, mitigated and/or managed. The potentially significant environmental impacts were identified based on the nature of the receiving environment, a review of the proposed activities, and the issues raised in the public participation process.

The potential impacts of the proposed development were identified by the National Screening Tool, through a site inspection, the Environmental Assessment Practitioners experience and expertise in the field and Specialist study reports.

In the Basic Assessment Report, the potential impacts are broadly identified and outlined. An assessment of the potential impacts is provided, identifying the impacts that are potentially significant and recommending management and mitigation measures to reduce the impacts.

Anthropogenic activity generally, poses various risks to the bio-physical environment as well as to the residents or businesses and environmental features in the surrounding area. Therefore, it is important that these possible risks are considered during the lifetime and especially the planning of the development. Risks and identified aspects were assessed and addressed through a process based on experience with similar developments, and an evaluation of the receiving environment of each aspect scored, evaluated, and mitigated where practical and significant. Previous experience has shown that it is often not feasible or practical to identify and to address every possible impact.

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

If any impacts that pose significant environmental risks are identified, a scarce resource or environmental hazard which potentially endangers human or animal well-being, species extinction, endangered habitat threatened or where the rating and ranking is controversial due to the aspect, will a 'No Development Statement' be recommended.

For a detailed list of all potential direct, indirect and cumulative impacts that are likely to occur, please refer to Table 6, Table 7, Table 8 and Table 9. The methodology is described below.

2.1. Alternative (Preferred Alternative)

2.1.1 Methodology

Methodology Step 1 - Nature and Type of Impact

TABLE 2 METHODOLOGY STEP 1 - NATURE & TYPE OF IMPACT

CRITERIA	CATEGORIES	EXPLANATION
Overall Nature	Positive	Benefit to the affected biophysical or human environment.
	Negative	Negative impact on affected biophysical or human environment.
Type	Direct	Caused by the action and occur at the same time and place.
	Indirect or Secondary	Caused by the action but the effect may happen at a later time or farther removed in distance but are still reasonably foreseeable. May include growth inducing effects and other effects related to induced changes in the patterns of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
	Cumulative	The impact of the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period.

Methodology Step 2 - Impact Rating Criteria

TABLE 3 METHODOLOGY STEP 2 - IMPACT RATING CRITERIA

CRITERIA	CATEGORIES	EXPLANATION
Spatial Extent (E)	Site (1)	Immediate area of activity incorporating a 50m zone which extends from the edge of the affected area.
	Local (2)	Area up to and/or within 10km of the site.
	Regional (3)	Entire community, drainage basin, landscape, etc.
	National (4)	South Africa
Duration of Impact (D)	Very short-term (1)	Impact would last for the duration of the activities such as land clearing, land preparation, fertilising, weeding, pruning and thinning. Quickly reversible (0-1 years)
	Short-term (2)	The lifetime of the impact will be of a short duration (2-5 years)
	Medium-term (3)	Impact would last for the duration of the project activity, such as harvesting. Reversible over time (5-15 years)
	Long-term (4)	Impact would continue beyond harvesting/extraction of the trees (15+ years)
	Permanent (5)	Impact would continue beyond decommissioning.
Impact Severity (S)	Negative	Based on separately described categories examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. • 0: small and will have no meaningful effect on the environment. • 2: minor and will not result in an impact on processes. • 4: low and will cause a slight impact on processes. • 6: moderate and will result in processes continuing but in a modified way. • 8: high (processes are altered to the extent that they temporarily cease); • 10: very high and results in complete destruction of patterns and permanent cessation of processes.
	Positive	
Reversibility (R)	Completely Reversible (0)	The impact can be completely reversed with the implementation of correct mitigation and rehabilitation measures.

	Partly Reversible (0.5)	The impact can be partly reversed providing mitigation measures are implemented and rehabilitation measures are undertaken.
	Irreversible (1)	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures.
Irreplaceable Loss (I)	Resource will not be lost (0)	The resource will not be lost or destroyed provided mitigation or rehabilitation measures are implemented.
	Resource may be partly destroyed (0.5)	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.
	Resource cannot be replaced (1)	The resource cannot be replaced no matter which management or mitigation measures are implemented.
Probability of Occurrence (P)	Unlikely (1)	≤40% probability. Very improbable (probably will not happen).
	Possible (2)	40% probability. Improbable (some possibility but low likelihood).
	Probable (3)	≥70% probability. Probable (distinct probability).
	Highly Probable (4)	≥80%. Highly probable (most likely).
	Definite (5)	≥90% probability. Definite (impact will occur regardless of any prevention measures).

Methodology Step 3 - Impact Significance

The Impact Significance rating is calculated using the following formula:

EQUATION 1: METHODOLOGY STEP 3 - IMPACT SIGNIFICANCE

$$\text{Impact Significance} = (E + D + S + R + I) \times P$$

Methodology Step 4 - Impact Significance Rating

Based on the Total, an impact significance rating is assigned.

TABLE 4 METHODOLOGY STEP 4 - IMPACT SIGNIFICANCE RATING

Impact Significance	Negligible (0-22)	Risk/impact may result in very minor alternations of the environment and can easily be avoided by implementing appropriate mitigation measures and will not have an influence on decision-making.
	Low (22-45)	Risk/impact may result in very minor alternations of the environment and can easily be avoided by implementing appropriate mitigation measures and will not have an influence on decision-making.
	Moderate (45-68.5)	Risk/impact will result in moderate alternation of the environment and can be reduced or avoided by implementing appropriate mitigation measures and will only have an influence on decision-making if not properly mitigated.
	High (68.5-90)	Risk/impact will result in high alternation of the environment even with the implementation of appropriate mitigation measures and will have an influence on the decision-making.
	Very High (90-105)	Risk/impact will result in major alternation of the environment even with the implementation of appropriate mitigation measures and will have an influence on decision-making.

Methodology Step 5 – Mitigation of Impacts

TABLE 5 METHODOLOGY STEP 5 - MITIGATION OF IMPACTS

Mitigation Potential (The ability to manage or mitigate an impact given the necessary resources and feasibility of application.)	High	Relatively east and cheap to manage. Specialist expertise or equipment generally not required. The nature of the impact is understood and may be mitigated through the implementation of a management plan or through good 'housekeeping'. Regular monitoring needs to be undertaken to ensure that any negative consequences remain within acceptable limits. The significance of the impact after mitigation is likely to be low or negligible.
	Moderate	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate. May not be possible to mitigate the impact entirely, with a residual impact(s) resulting.
	Low	Will not be possible to mitigate this impact entirely regardless of the expertise and resources applied. The potential to manage the impact may be beyond the scope of the Project. Management of this impact is not likely to result in a measurable change in the level of significance.

1. DESIGN & PLANNING PHASE IMPACTS

The activities involved in the design and pre-construction (planning) phase primarily focus on planning and designing for the intended development, conducted through desktop work. Occasionally, site visits may be necessary, but their influence is minimal, such as capturing photographs, GPS points, etc.

The identified impacts associated with the intended development, including the proposed mitigation measures, are listed below in Table 6.

2. CONSTRUCTION PHASE AND CONSTRUCTION CLOSURE IMPACTS

The construction phase of the development involves the transformation of the physical landscape within the designated footprint which could result in a spectrum of consequential environmental effects. Activities involved with the site preparation, structural erection and the establishment of essential infrastructural elements need to align with the preservation of the natural environment throughout the entire construction phase.

In Table 7, the main environmental impacts associated with the Construction Phase are listed, along with mitigation strategies and sustainable practices that balance the imperatives of development with the imperatives of environmental responsibility.

Table 8 identifies all the Construction Closure potential impacts and their significance ratings. It is important to take note of the impacts and their mitigation measures during this phase since there is no decommissioning phase or closure phase for this development.

3. OPERATIONAL PHASE IMPACTS

As the site becomes inhabited during Operational Phase of the development and infrastructural networks become fully operational, a complex interplay between human activity and environmental dynamics emerges, giving rise to several potential environmental impacts.

Municipal By-laws will regulate the operational phase of development. Minimal environmental impacts are foreseen caused by the operational phase.

Please refer to Table 9 for the main identified impacts associated with the Operational Phase of the development, relating to energy consumption, waste generation and resource utilization.

2.1.2. Design & Planning Phase

TABLE 6 DESIGN & PLANNING PHASE - POTENTIAL IMPACTS, THEIR SIGNIFICANCE RATING BEFORE AND AFTER MITIGATION, AND PROPOSED MITIGATION MEASURES

Potential impacts:	Significance rating of impacts (positive or negative) PRIOR TO MITIGATION:	Proposed mitigation:	Significance rating of impacts (positive or negative) AFTER MITIGATION:	Risk of the impact and mitigation not being implemented
1. Legal & Policy Compliance Not adhering to environmental regulations, legal requirements, and obtaining necessary permits can result in a situation where the project violates municipal environmental policies. This could jeopardize the project's approval by the municipality, ultimately leading to project failure and unforeseen adverse economic impacts. Affected I&AP's can insist on compliance with possible confrontational events.	Low Negative (30)	• The EA and EMPr must be consulted during planning and design phase. • Copies of the EA and EMPr must always be available to all parties involved with the design and planning of the development. • Environmental Awareness Training must be conducted in site meetings and talks with workers. • Kouga spatial planning and land use management by-laws must be adhered to. • A structural engineer (Pr.Eng) must be appointed. • Should the proposed structures exceed Kouga Land Use Scheme restrictions, the necessary departure approval must be obtained from the Kouga Local Municipality. • Building plans must be approved by the Kouga Municipality Building Department	Negligible	Low Risk Mandatory compliance and permitting processes ensure adherence. Public consultations and collaboration with authorities address legal and policy issues. Established guidelines and updates provide a clear framework for compliance. Risk assessments and legal advice help identify and address compliance issues. Review and monitoring by regulatory bodies enforce adherence. Financial incentives and funding requirements motivate compliance.
2. Training & Permitting EMPr and EA conditions are not read or signed off by contractor. Construction staff are not adequately trained in Environmental issues with regards to construction projects. Emergency and contingency plans are not drawn up leading to construction staff injury or death if an accident occurs. Protected plant species found on site are destroyed or removed without correct permits and authorisation.	Low Negative (22)	• The Contractor must sign and agree to the EMPr along with the EA conditions. • Before commencing construction, it is imperative to acquire and put into effect worker health and safety measures along with the necessary personal protective equipment (PPE) requirements. • It is essential for all staff members to possess knowledge of emergency and contingency plans, ensuring a comprehensive understanding of potential hazards and the necessary protocols to follow in case of an emergency.	Negligible	Low Risk Mandatory compliance and permitting processes ensure adherence. Public consultations and collaboration with authorities address legal and policy issues. Established guidelines and updates provide a clear framework for compliance.

				Risk assessments and legal advice help identify and address compliance issues. Review and monitoring by regulatory bodies enforce adherence. Financial incentives and funding requirements motivate compliance.
3. Project Design & Site Planning Designs and layouts not approved or finalised. No ECO appointed. Contractor and construction staff are not aware of the precise development footprint. Location of laydown, stockpiles and storage containers, rental skip, and other building material. Site access. Erosion and building damage due to lack of appropriate foundation according to the ground type and slope.	Low Negative (33)	• At least one month prior to construction, the contractor and/or proponent needs to appoint an independent ECO. • The final designs and layouts need to be approved by all relevant parties and Competent Authorities prior to construction. • ECO is to approve construction method statement and check whether final building plans have been stamped and approved by municipality. • Site clearing must be kept to the development footprint. • Appropriate foundations are to be designed and approved by a structural engineer. • Laydown areas, aggregate stockpiles and storage/equipment containers must be placed in areas that are not susceptible to erosion and storm water runoff. Containment berms must be placed around aggregate stockpile and cement bags.	Negligible	Low Risk Adherence to building codes and permit requirements ensures inclusion of mitigation measures. ECO must inspect site layout plan prior to commencement and all storage areas. Public and regulatory input ensures concerns are addressed in the design. Early risk identification and design adjustments incorporate necessary measures. Experienced professionals and specialist consultations ensure effective integration. Developer reputation and market demand for sustainable projects drive the inclusion of effective measures.

2.1.3. Construction Phase

TABLE 7 CONSTRUCTION PHASE - POTENTIAL IMPACTS, THEIR IMPACT SIGNIFICANCE RATING BEFORE AND AFTER MITIGATION, AND PROPOSED MITIGATION MEASURES

Potential impacts:	Significance rating of impacts PRIOR TO MITIGATION (positive or negative):	Proposed mitigation:	Significance rating of impacts AFTER MITIGATION:	Risk of the impact and mitigation not being implemented
1. Legal & Policy Compliance Direct, Indirect, Cumulative Commencement of construction without Environmental Authorisation. Encroachment into the estuarine functional zone. Encroachment into the 40m setback area. Non-compliance with EMPr requirements. Non-compliance with NEMA, NEMBA, ICMA, and National Water Act. Failure to comply with Kouga Land Use Scheme Resort Zone II restrictions. Failure to comply with Kouga building plan approvals. Failure to comply with waste disposal regulations. (NEMWA) Failure to comply with alien invasive species regulations (NEMBA AIS). Failure to comply with Chance Find Procedures with archaeological or paleontological findings.	Moderate Negative (45)	• Obtain Environmental Authorisation prior to construction. • The EA and EMPr must at all times be adhered to during construction. • Copies of the EA and EMPr must always be available on site. • Environmental Awareness Training must be conducted in site meetings and talks with workers. • The Contractor must be registered by the NHBRC. • Appointment of independent ECO to conduct regular compliance inspections. • Application for authorisations to be in line with proposed land use. • Clearly demarcate development footprint and 40m setback area. No persons or personnel permitted within this area. • Comply with Kouga building plan conditions. • Implement alien invasive species control programme.	Low Negative	Low Risk DEDEAT as a strict regulatory framework mandates compliance with NEMA legislation & municipal policies. Penalties for non-compliance apply. Public scrutiny and stakeholder engagement.
2. Infrastructure / Development Footprint Direct, Indirect, Cumulative Permanent transformation of ESA terrestrial habitat. Removal of secondary grassland and indigenous shrub layer. Localised loss of faunal burrows (Hottentot Mole-rat habitat). Displacement of small mammals, reptiles, and invertebrates. Fragmentation of habitat connectivity between inland areas and	High Negative (70)	• Development area and no-go zones to be taped or clearly demarcated • Vegetation clearance should strictly be limited to the development footprint. • Maintain 40m setback area. • Avoid construction within seepage concentration zones. • Implement rehabilitation using indigenous species after construction. • No vehicle parking, machinery or equipment to encroach beyond where the development footprint is demarcated. • Use permeable surfaces where possible. • Maintain natural vegetation buffer zones. • Material laydown area to be kept within development footprint, and not within the private open spaces.	Low Negative	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMPr is to be consulted prior to and during construction detailing the appropriate mitigation measures.

estuary. Loss of seepage zone hydrological function within footprint. Increased edge effects and habitat disturbance. Physical alteration of low-gradient estuarine landscape. Reduced ecological support function to adjacent estuary. Potential disturbance of eelgrass habitat indirectly via sediment movement. Excavation and earthworks may disturb soils, increasing erosion risk, particularly given the proximity to the estuary and seasonal seepage areas. Building does not comply with intended usage. Illegal dumping of spoil in private open spaces.		• Minimise exposed soil areas and stabilise disturbed soils as soon as possible. • Implement construction sequencing to minimize exposed soil areas and ensure stabilisation before moving to new areas. • Avoid construction during heavy rainfall events. • No concrete work is to be done on rainy days to prevent cementitious water from running into sensitive areas. • Implement erosion control measures, (e.g. geotextiles, and/or berms.) • Retention ponds are to be in place to prevent rubble, concrete, and cementitious movement. • Maintain natural drainage pathways for natural seepage movement. • Avoid obstruction of seep zones. • Implement appropriate stormwater management measures. • Building plans will be assessed and passed by the Kouga LM which will determine the allowable building parameters. • The buildings are to be used according to the LUS zoning of Resort II. • Spoil is to be reused where possible such as in levelling, landscaping; where not feasible to be reused, spoil must be removed to a licensed landfill, such as the Humansdorp landfill. • Application to be made to the Kouga for permission for laydown area as well as siting of container for tools, material and building supply storage is required, if not on site.		Non-compliance would result in immediate halting of the project and penalties.
3. Stormwater Runoff Direct, Cumulative Increased stormwater runoff due to hard surfaces. Accelerated surface water flow toward estuary. Increased sediment transport into estuary. Increased turbidity affecting eelgrass downstream. Alteration of seepage hydrology. Soil erosion from exposed sandy soils. Transport of pollutants into estuary. Localised flooding or water concentration.	High Negative (70)	• The civil engineering assessment confirms that pre-development stormwater flow on Portion 9 Osbosch is very low, even during a 1:100-year flood event, and the proposed development will therefore generate only minimal additional runoff. • Rainwater harvesting tanks will be installed to reduce runoff volumes and support sustainable water management. • Stormwater generated from paved and impermeable areas to be controlled through the installation of barrier kerbs along the southern edge of paved areas to prevent uncontrolled runoff and erosion. • Stormwater to be collected at grid inlets positioned at low points adjacent to each dwelling, thereby preventing surface flow concentration and reducing erosion potential. • Collected stormwater to be conveyed via a piped stormwater system consisting of four 160 mm diameter stormwater pipes, which are designed to safely accommodate stormwater flows associated with at least a 1:50-year flood event. • Stormwater discharge is to be directed onto grassed surfaces downslope of the development, allowing infiltration and natural dissipation prior to reaching the estuarine environment, thereby reducing erosion and sediment transport. • Natural drainage patterns and seepage flow paths to be maintained, and no obstruction or concentration of stormwater flow will be permitted outside the engineered system. • Disturbed areas are to be stabilised and rehabilitated as soon as possible to prevent erosion and sediment transport. • No stormwater will be discharged directly into the Kromme River estuary via pipes or channels. • Construction materials, spoil, and waste will be stored away from drainage pathways to prevent contamination of stormwater. • Sequence the land disturbing activities. • Disturbed areas must be permanently stabilised after construction. • Maintain natural grass and vegetation cover in the 40m setback area.	Low-Moderate Negative	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties. Regular inspections of stormwater drainage systems along roads by site environmental officer.

4. Construction Waste Direct, Indirect, Cumulative General waste, spent grinding material, surplus concrete, paint cans, construction rubble, cement bags and other construction waste. Chemically treated waste. Soil contamination from waste. Visual degradation of site. Attraction of vermin and scavengers. Injury risk to fauna. Windblown litter entering estuary. Long-term pollution if improperly disposed. Half-completed building/skeleton/excavated property that endangers life and is an eyesore to community and discourages investment.	Moderate Negative (48)	• Waste management plan must be put in place outlining specific measures for managing construction waste. • General waste should be placed in lidded skips and disposed of on a regular basis at the Municipal landfill site such as Humansdorp landfill site, or by an accredited waste contractor. • Where possible, construction waste should be reused or recycled. Contacting the local community Ward Councillor to identify entrepreneur and supply with waste materials. • Building rubble must be reused where possible. Otherwise, the rubble will be disposed of through means of hiring a skip and driven away to a Municipal landfill. • Surplus aggregate used as backfill under floor platforms/slabs. • Burning of waste material will not be permitted. • The ECO must conduct a site closure inspection and issue a compliance statement at the end of the construction period that all the equipment, sheds, temporary offices, and surplus material has been removed before the retention is paid out. • No mechanism exists nor authority exists that can administer a guarantee of completion. The Municipality does not have any requirements that guarantees of completion must be given. Bank guarantees in a case such as this will only be issued to the estate of the developer. No insolvency can be covered. Should a property remain abandoned, the municipality will lay claim to the property and sell on auction to the highest bidder, who will then have responsibility of completing/scraping and rehabilitating the erf for a new project.	Negligible	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMPr is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties. A waste management plan serves as a guide for project implementation, ensuring mitigation measures for construction waste are implemented.
5. Site Management Direct, Indirect, Cumulative Squatting of construction staff on site. No safe and hygienic area available for construction staff. Pollution caused by construction staff. Rodents, scavenging animals and other vermin might be attracted to the site from food left over by construction staff. Disturbance outside approved footprint. Disturbance to environment within EFZ. Disturbance within 40m setback area. Soil and vegetation disturbance due to uncontrolled access. Environmental damage due to lack of supervision. Fishing in the estuary. Launching of boats, raft, canoes, or other.	Low Negative (22)	• Contractor may not permit any staff to take lodging or camp out on site. • Contractor must ensure that there are adequate temporary shaded areas for construction staff to take their breaks and eat their food. • General waste produced by construction staff is to be discarded in the skip or designated general waste areas. • No cooking / boiling water on fires permitted on site or surrounding areas. • No food to be left on site. • Restrict access routes. • Provide site supervision. • Regular ECO inspections. • Environmental awareness training. • Maintain site control at all times. • No poaching. • No snares. • Sufficient chemical toilets to be placed on site and serviced regularly. • No fishing, netting, sucking for prawn or bait collection is permitted during the construction period by any personnel. • No power boats may be launched, jetties constructed (without EA application) or mechanised access to the estuary permitted.	Negligible	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMPr is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties.

Bathing / swimming in estuary. Inadequate sanitation resulting in open defecation and urination in the veld.				
6. General Handling & Storage of Materials Direct, Indirect & Cumulative Materials are not stored in designated areas, causing obstruction on site and surrounds. Theft of materials on site may occur. Materials may be at risk from fire or may be a fire hazard themselves. Material may cause obstruction of stormwater channels. Hydrocarbon spills contaminating soils. Rapid pollutant migration due to permeable soils. Contamination of seepage water. Indirect contamination of estuary.	Low Negative (22)	• All storage areas must be visibly demarcated and fenced off. • All materials kept on site must be fenced off or placed in a rental container with no unauthorised access permitted. • All relevant Health and Safety legislation as required in South Africa should be strictly adhered to, including but not limited to the Occupational Health and Safety Act, 1993 (No. 85 of 1993). • Laydown areas to be carefully planned for duration of contract. • Loose aggregate prone to wind forces to be covered or dampened. • Fuel must be stored in bunded areas. • Drip trays are to be placed under machinery and vehicles. • Spill kits are to be readily accessible on site. • Immediate spill clean-up. • No refuelling near seep zones.	Negligible	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties.
7. Ablution Facilities Direct Construction staff might use surrounding natural areas as a toilet if no ablution facilities are present on site. Unsanitary conditions might be caused on site due to lack of sanitary services. Sewage leakage into soil. Contamination of seepage water. Nutrient loading to estuary. Pathogen introduction into environment.	Low Negative (22)	• Contractor is responsible - must ensure that ablution facilities are available on site. • Ablution facilities may not be placed on natural vegetation, but rather temporary platforms, away from the site construction area and away from the 40m setback area and seep areas. • All ablutions are to be maintained and kept clean under the supervision of the contractor. • One toilet per 10 workers must be secured in place to prevent it from filling over. • Spilling of any ablution facility related chemicals or waste are prohibited. • The Contractor shall be responsible to remove any accumulations of chemicals and waste from the ablution site and dispose of such waste at an approved hazardous waste disposal site or sewage plant at his/her own expense. • Construction staff may not ablate anywhere else but in the toilets. • Toilets must be emptied regularly with proof of servicing provided on a regular basis to the ECO.	Negligible	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties.
8. Loss of Vegetation & Associated Habitat Direct, Cumulative Loss of indigenous vegetation. Loss of habitat for small mammals and invertebrates. Loss of potential breeding and foraging habitat for avifauna. Reduction in ecological support function.	High Negative (72)	• Construction must be limited to the precise footprint therefore minimising secondary disturbance and minimising the size of the area that needs revegetation. • Protect surrounding vegetation. • No threatened plant species were found on site, but the vegetation cover must be treated as sensitive with steps taken to prevent disturbance and to encourage habitation of endemic species. • Rehabilitate disturbed areas with site-appropriate indigenous species. • An ongoing alien invasive management programme should take place on site, protecting surrounding habitats from degradation. • Audit reporting by the Environmental Control Officer during construction is recommended.	Moderate Negative	Moderate Risk Removal of vegetation and soil compaction and replacing with concrete is inevitable. Specialist studies were done to determine specific mitigation measures specific to the biodiversity of the area.

Increased invasive species establishment. Erosion & Sedimentation – removing large portions of vegetation will leave topsoil exposed to the elements leading to soil erosion and run-off. Soil stability will be lost. Soil compaction as a result of heavy vehicles moving. Removal of local vegetation leading to 'open habitats' creating an environment conducive to alien invasive plant species. Decline in biodiversity and disruption in the local food chain, disrupting intricate ecological relationships.		• Suitable stormwater management measures must be implemented in response to the vegetation clearing to mitigate the risk of excessive stormwater runoff and potential erosion into the estuary and neighbouring development. • Landscaping, if any, must incorporate indigenous species and indigenous trees, with a preference to those native to the study area and its immediate vicinity. The chosen species should aim to emulate habitat type characteristic to the ecological landscape before construction takes place. • Construction activities must take place outside of fauna and avifauna breeding season.		An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures.
9. Biodiversity - Terrestrial and Aquatic Direct, Cumulative Cumulative impacts include habitat fragmentation and disturbance, disrupting the ecosystem. There may be an influx of undesirable invasive species, disrupting the local ecosystem. Permanent loss of modified terrestrial habitat within the development footprint. Disturbance and displacement of small mammals, reptiles, amphibians, and invertebrates. Disturbance to avifaunal species, including estuarine-associated birds using adjacent habitat. Habitat fragmentation and reduction of available foraging and refuge areas. Disturbance from construction noise, vibration, and increased human presence. Risk of injury or mortality to fauna during vegetation clearing and construction activities. Loss or alteration of ecological connectivity between terrestrial and estuarine habitats. Indirect disturbance to raptors and predatory birds that forage in open grassland areas. Increased sediment runoff into the Kromme River estuary during earthworks.	Very High Negative (95)	• Impacts on the environment as defined were assessed by the undertaking of Animal assessment and Biodiversity Assessment by SACNASP specialists registered. Please refer to Appendices D2 & D4. • It is recommended to keep a 40 m setback between the dwelling footprint and the southern boundary of the property, as this will ensure limited intrusion into the estuary zone and lower disturbance of birds feeding or breeding in the estuary margin. • The area will be a zone where water can penetrate and lower the potential of accelerated flows into the estuary (lower erosion potential and siltation). • The proposed buffer zone will ensure that the development doesn't compromise the protected vegetation unit (Albany Alluvial Vegetation) associated with the estuary on the southern side of the property (CBA and EFZ). • Manage runoff water to the south to ensure no erosion (low probability) occur. Rainwater can be harvested to water landscaped areas or for grey water use in the dwelling. • There was no evidence of protected animal species found on site. Any species of SCC found during construction must be reported and if necessary for relocation, then a specialist must be consulted and the appropriate permits must be applied for from DFFE. • No developments or alteration of the environment is allowed beyond the development line. • Vegetation clearance and earthworks shall be undertaken in a phased, controlled manner to allow fauna, such as the molarats to move away naturally, and where practicable, outside of peak breeding periods. • Any excavations or trenches must be checked on a regular basis in case animals may have fallen in or occupied the area. • All temporary stockpile areas including litter and rubble must be removed when construction is complete. • Planting of tall indigenous trees may encourage certain birds to nest on site. • Limit construction to daylight hours only. • Fit bird flight diverters to any overhead power lines to improve visibility to flying birds. • All personnel shall receive an environmental induction including fauna awareness. • Prior to and during construction, the site shall be checked for active burrows, runways, or nests, and disturbance avoided where possible. • Earthworks shall proceed slowly, machinery movement shall be limited to designated routes, and excavations shall not be left open overnight (escape ramps to be provided where required).	Low Negative	Low Risk Consultation with experts such as the specialist studies done to determine specific mitigation measures specific to the biodiversity of the area. An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties. Public awareness and pressure from community activism and scrutiny. Stakeholder engagement.

Deterioration of estuarine water quality due to sedimentation, construction runoff, or operational activities. Pollution of aquatic environments from hydrocarbons, cement, sewage, chemicals, or construction materials. Alteration of natural seepage flow paths and subsurface hydrological processes. Nutrient enrichment of the estuary from surface runoff and wastewater. Indirect impacts on sensitive estuarine vegetation such as eelgrass (<i>Zostera capensis</i>). Disturbance to aquatic and estuarine fauna due to increased human presence and activity. Localised modification of seepage-associated habitats and wet areas.		• No trapping, poisoning, or intentional harm to fauna shall be permitted. • No disturbance shall occur within the riverbanks, and avifaunal and crustacean nesting burrows shall be avoided. • Ground disturbance shall be limited to areas strictly necessary for construction, and the use of pesticides or insecticides shall be avoided unless approved. • Minimise unnecessary external night lighting to reduce disturbance to nocturnal fauna. • Compliance with fauna-related mitigation measures shall be monitored by the ECO, and any injured or displaced fauna shall be reported and managed by a suitably qualified person. • Ensuring the 40m buffer between the development footprint and the southern property boundary is maintained.		
10. Fire Direct Construction staff making fire for cooking of food or for warmth may cause veld fires. Loss of property itself and hazardous to the neighbouring properties. Soils exposed to rain, heat, and wind factors. Loss of ESA habitat and loss of green areas if fire spreads. During drought periods, the site is more prone to wildfires. Fires may be caused by construction staff's cigarette butts or fires made to keep warm. Sparks from welding, blow torches or other construction related activities may cause fire. Wildfire can cause damage to construction equipment, stored building materials or partially constructed infrastructure.	High Negative (85)	• Implement a Fire Management Plan. • No cooking fires allowed on or near the site. • Duty of care must be taken with blow torches, grinding equipment and any heat generating procedures. • Avoid high-risk activities such as welding or grinding during hot, dry and windy conditions. • Firefighting equipment to be in place on site including water bowser with an attached water pump and generator. • Personnel to be made aware of fire hazard at Toolbox Talk in the mornings and be trained on fire prevention and emergency response procedures. • Local fire brigade numbers to be on speed dial of building foreman. • Temporary firebreaks where necessary. • Rehabilitate and disturbed or burnt area with indigenous vegetation following construction. • Store construction materials in designated cleared areas away from dense vegetation.	Moderate Negative	Moderate Risk Legal requirements and building codes. An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties. Insurance requirements. Architects, engineers and H&S officers are involved.
11. Soil & Geology Direct Potential exists for high-intensity rainfall events to cause erosion, sediment transport, and disruption of exposed soil surfaces during construction.	Moderate Negative (67)	• Limit all excavation, clearing, and earthworks strictly to the approved development footprint and by light machinery only. • Remove and stockpile topsoil separately for reuse during rehabilitation and landscaping. • Stabilise exposed soil surfaces as soon as possible after excavation to prevent erosion. • Avoid construction activities during periods of heavy rainfall where feasible. • Implement erosion control measures such as temporary berms, contouring, and vegetation cover.	Low Negative	Low Risk NHBRC building regulations and standards apply. Specialist input including engineers are appointed to determine best

Loss of topsoil and soil resources due to excavation for foundations, conservancy tanks, water pipes, and stormwater infrastructure. Exposure of loose sandy and alluvial soils during construction, increasing susceptibility to wind erosion and water runoff. Alteration and disturbance of the natural soil profile and underlying shale layers due to excavation and earthworks. Soil erosion and degradation resulting from vegetation removal and soil exposure. Soil compaction caused by construction vehicles and machinery, reducing infiltration capacity and soil structure integrity. Alteration of subsurface drainage patterns and seepage flow due to excavation and foundation installation. Localised soil instability, settlement, or subsidence due to excavation within moderately compressible alluvial soils, as identified in the geotechnical report. Soil contamination resulting from spills or leaks of hydrocarbons, cement, chemicals, or hazardous materials during construction. Soil contamination resulting from improper handling or leakage of sewage from temporary ablution facilities or conservancy tanks. Increased sediment transport to adjacent areas, including neighbouring properties and downslope areas toward the estuary. Improper handling, stockpiling, or illegal dumping of excavated spoil material resulting in soil degradation and erosion. Non-compliant or poorly managed earthworks resulting in long-term soil instability or erosion. Cumulative degradation of soil structure and ecological function if disturbed areas are not rehabilitated properly.		• Ensure all foundations and excavations comply with geotechnical recommendations, including founding on competent material and using engineered fill where required. • Trenched sidewall must be battered to prevent collapse. • Compact all backfill and fill material to appropriate engineering specifications to prevent settlement. • Maintain natural drainage patterns and avoid obstruction of seepage pathways. • Restrict movement of construction vehicles to designated areas to prevent unnecessary soil compaction. • Store excavated spoil in designated areas away from drainage pathways and seepage zones. • Remove excess spoil material and dispose of it at a licensed waste disposal facility. • Prevent illegal dumping of spoil material on site or surrounding areas. • Store fuels, cement, and hazardous materials in designated areas with spill containment measures. • Provide spill kits on site and ensure immediate cleanup of any spills. • Install and maintain properly serviced chemical toilets for construction workers. • Ensure conservancy tanks are properly installed and sealed to prevent leakage. • Rehabilitate all disturbed areas immediately after construction using indigenous vegetation and stockpiled topsoil. • Conduct regular site inspections to identify and address erosion, instability, or contamination. • Ensure all earthworks comply with approved engineering and environmental specifications.		foundation options according to soil type. An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties. Insurance requirements.
12. Air Quality Direct Generation of dust from excavation, site clearing, and earthworks, particularly due to the sandy and alluvial soil composition of the site.	Low Negative (25)	• Limit vegetation clearing and earthworks to the minimum area required for construction. • Stabilise exposed soil surfaces as soon as possible after excavation. • Stockpile excavated soil in designated areas and minimise stockpile height and duration. • Cover or stabilise stockpiled soil where exposed for extended periods. • Restrict vehicle movement to designated access routes and minimise unnecessary vehicle trips. • Implement dust suppression measures such as wetting exposed surfaces during dry and windy conditions where necessary.	Negligible	Low Risk Legal requirements and building codes. An independent ECO officer will conduct regular site inspections.

Wind-blown dust from exposed soil surfaces and stockpiled spoil material during dry and windy conditions common in the coastal environment. Dust generation from movement of construction vehicles and machinery on unpaved access routes and within the site. Dust emissions from handling, loading, and offloading of construction materials such as sand, cement, and aggregate. Localised deterioration of air quality affecting adjacent properties and surrounding natural environments. Deposition of dust on surrounding vegetation, potentially affecting plant health and ecological functioning. Dust deposition into nearby seepage areas and indirectly toward the Kromme River estuary, potentially affecting sensitive aquatic habitats. Exhaust emissions from construction vehicles, generators, and machinery, contributing to localised air pollution. Release of particulate matter during mixing and use of cement and concrete. Temporary nuisance impacts to nearby receptors due to dust and emissions during construction activities. Cumulative air quality degradation if construction dust is not adequately controlled. Windblown waste – prevailing wind west-SW, into farmlands and towards Paradise Beach area. Windblown waste into agricultural areas where livestock and wild animals may choke on waste when consumed. Waste entering into estuarine environment affecting aquatic birds and animals.		• Avoid construction activities during periods of strong winds where feasible. • Cover construction materials such as sand and cement during storage and transport. • Handle and transfer construction materials carefully to minimise dust generation. • Ensure all construction vehicles and machinery are properly maintained to minimise exhaust emissions. • Switch off idling vehicles and machinery when not in use. • Locate construction material storage areas away from sensitive receptors and drainage pathways. • Rehabilitate disturbed areas promptly after construction to prevent long-term dust generation. • Ensure compliance with National Environmental Management: Air Quality Act requirements. • Conduct regular site inspections to monitor dust generation and implement corrective measures where necessary.		The detailed BA and EMPr is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties.
13. Water Use Direct Increased demand for potable water during construction for activities such as concrete mixing, dust suppression, and general construction use. Temporary strain on groundwater supply if construction water is sourced from the existing borehole.	High Negative (68)	• Minimise potable water use during construction by implementing efficient water management practices. • Use water sparingly for dust suppression and only when necessary to control dust. • Prioritise the use of stored rainwater, where available, rather than groundwater. • Avoid excessive use of water that may result in runoff, erosion, or pooling. • Inspect water storage tanks, hoses, and connections regularly for leaks and repair immediately if detected. • Ensure proper supervision of water use by construction personnel. • Avoid unnecessary discharge of water onto exposed soil surfaces.	Low Negative	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMPr is to be consulted prior to and during construction detailing the appropriate mitigation measures.

Unsustainable or inefficient use of potable water resources during construction activities. Loss of water through leaks, wastage, or poor water management practices on site. Indirect pressure on regional water resources due to cumulative construction water demand. Increased runoff and erosion if excessive water is used for dust suppression. Potential contamination of surface water or seepage areas from improper handling of water used in construction activities. Reduced availability of potable water resources if water is not used efficiently.		• Prevent contamination of surface water, seepage areas, and the estuary through proper water handling practices. • Educate construction personnel on responsible and efficient water use. • Ensure compliance with National Water Act requirements and municipal water use regulations. • Use water-efficient construction methods where feasible. • Rehabilitate disturbed areas promptly to reduce ongoing water requirements for dust control. • Ensure rainwater harvesting systems are installed as early as possible to support water supply during later construction phases.		Non-compliance would result in immediate halting of the project and penalties. Consultation with experts such as the specialist studies done to determine specific mitigation measures specific to the biodiversity of the area. Stakeholder engagement.
14. Noise Direct Generation of construction noise from excavation, earthworks, and foundation preparation activities. Noise from operation of construction machinery such as excavators, compactors, generators, and concrete mixers. Noise from delivery vehicles transporting building materials to and from the site. Intermittent high noise levels associated with cutting, drilling, and installation of structural components. Disturbance to nearby residential receptors, particularly properties located within the surrounding low-density residential and resort areas. Disturbance to terrestrial fauna, including small mammals, reptiles, and invertebrates present within and adjacent to the site. Disturbance to avifaunal species, including estuarine and waterbird species utilising the nearby Kromme River estuary. Temporary displacement of fauna from preferred habitat areas due to construction-related noise and human presence. Short-term degradation of the natural acoustic environment within the estuarine and rural landscape.	Low (22)	• Restrict construction activities to normal daylight working hours (typically between 07:00 and 17:00 on weekdays), with no construction during night-time, weekends, or public holidays unless authorised. • Ensure all construction equipment and machinery are properly maintained and fitted with appropriate silencers or mufflers. • Avoid unnecessary idling of construction vehicles and machinery. • Locate stationary noise-generating equipment, such as generators, as far as practicable from sensitive receptors. • Limit simultaneous operation of multiple high-noise generating equipment where feasible. • Inform nearby property owners of construction schedules where appropriate. • Minimise duration of high-noise activities where possible. • Restrict construction activities to the approved development footprint to minimise disturbance to surrounding areas. • Ensure construction personnel are trained to minimise unnecessary noise. • Comply with applicable municipal noise control regulations and standards. • Monitor noise levels if complaints are received and implement corrective measures where required. • Maintain the ecological buffer between the development and estuary to reduce disturbance to estuarine fauna.	Low Negative	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during construction detailing the appropriate mitigation measures. Non-compliance would result in immediate halting of the project and penalties. Stakeholder engagement. Municipal bylaws and zoning regulations in place that address noise pollution and land use compatibility.

Cumulative increase in noise levels when combined with existing background noise from surrounding development.				
15. Traffic Direct Temporary increase in traffic volumes associated with delivery of construction materials, equipment, and personnel to and from the site. Increased use of the existing gravel access road, potentially resulting in surface degradation, rutting, or localised erosion. Increased risk of road safety hazards due to movement of construction vehicles, particularly where access roads are narrow or shared with residential users. Temporary obstruction or disruption of access to neighbouring properties due to delivery vehicles or construction-related traffic. Generation of dust from vehicle movement on unpaved access roads, potentially affecting nearby properties and vegetation. Increased wear and tear on local road infrastructure due to construction vehicle loads. Temporary inconvenience to local residents and road users due to increased traffic activity. Potential safety risks to pedestrians, cyclists, and other road users within the surrounding residential and resort environment. Risk of accidental spillage of construction materials during transport. Cumulative increase in traffic levels during the construction period, although limited due to the small scale of the development.	Low Negative (36)	• Use existing approved access routes to the site and avoid creation of new access tracks. • Restrict construction vehicle access to designated access roads only. • Limit delivery times to normal working hours to avoid peak traffic periods where applicable. • Ensure construction vehicles do not obstruct access to neighbouring properties. • Maintain access roads in a safe and usable condition throughout the construction period. • Repair any damage caused to access roads as a result of construction activities. • Ensure construction vehicles are roadworthy and comply with traffic regulations. • Enforce low vehicle speeds on access roads to reduce dust generation and improve safety. • Implement dust suppression measures on access roads if excessive dust generation occurs. • Ensure loads transported to and from the site are properly secured to prevent spillage. • Provide clear signage where necessary to warn of construction traffic. • Minimise the number of vehicle trips by coordinating deliveries where possible. • Ensure construction personnel park within designated areas on site and not on public or access roads. • Avoid unnecessary vehicle movement outside the defined construction footprint.	Low	Low Risk An independent ECO officer will conduct regular site inspections. Non-compliance would result in immediate halting of the project and penalties. Stakeholder engagement. Access monitoring.
16. Employment Opportunities Direct Job opportunities created due to construction activities.	High Positive	• No mitigation required. • Employment of local labourers to be encouraged.	High Positive	N/A
17. Safety & Security Direct, Indirect Risk of injury to construction workers due to operation of heavy machinery, excavation activities, and handling of construction materials.	Low Negative (22)	• Secure the construction site with temporary fencing or controlled access barriers to prevent unauthorised entry. • Clearly demarcate the construction footprint and hazardous areas such as excavations and trenches. • Install appropriate warning signage indicating construction hazards and restricted access areas. • Restrict access to authorised personnel only.	Negligible	Low Risk An independent ECO officer will conduct regular site inspections. The detailed BA and EMP is to be consulted prior to and during

Risk of injury to members of the public or neighbouring residents if unauthorised persons gain access to the construction site. Risk of falls, trips, or accidents due to uneven ground, excavations, and construction-related hazards. Risk of injury due to improper handling or storage of construction equipment, tools, and materials. Risk of accidental entry into excavations or trenches by workers, visitors, or wildlife. Increased safety risk due to movement of construction vehicles and machinery within the site and along access routes. Risk of fire, explosion, or injury associated with improper storage or handling of fuels, flammable materials, and gas cylinders. Risk of theft or vandalism of construction materials, equipment, and infrastructure. Risk of unauthorised access to hazardous areas within the construction site. Potential safety risks to neighbouring properties if construction activities are not properly controlled. Safety risk associated with construction activities occurring near seepage areas or uneven terrain. Cumulative safety risk if construction activities are poorly managed or supervised.		• Provide appropriate personal protective equipment (PPE) to all construction workers and ensure proper use. • Ensure all machinery and equipment are operated by trained and competent personnel. • Store construction materials, fuels, and hazardous substances in designated, secure areas. • Ensure safe storage and handling of flammable materials and gas cylinders. • Provide fire extinguishers and firefighting equipment on site. • Maintain good housekeeping practices to prevent accidents. • Ensure safe access routes are maintained within the site. • Cover or secure excavations when not in use. • Supervise construction activities at all times. • Ensure construction personnel are trained in site safety procedures. • Implement emergency response procedures. • Ensure construction vehicles operate at safe speeds and follow designated routes. • Ensure compliance with Occupational Health and Safety Act requirements. • Prevent unauthorised parking or access by construction personnel outside designated areas.		construction detailing the appropriate mitigation measures. Security will be enforced.
18. Heritage, Cultural & Paleontological Direct Possible archaeological, cultural or historic sites found within the development area. Project may negatively impact on the palaeontological heritage.	Negligible (20)	• Chance finds must be reported to a heritage practitioner of relevant Heritage Authority. • The National Screening Tool did not flag any cultural historical features over the site and a chance find procedure has been specified in the EMP. • There is no palaeontological sensitivity expected due to the geology of the area. Chance find procedures are to be followed should anything be found during construction.	Negligible	Low Risk ECHPRA is the regulating body concerning cultural and heritage aspects.

2.1.4. Construction Closure

TABLE 8 CONSTRUCTION CLOSURE - POTENTIAL IMPACTS, SIGNIFICANCE RATING BEFORE AND AFTER MITIGATION, AND PROPOSED MITIGATION MEASURES

Potential impacts:	Significance rating of impacts PRIOR TO MITIGATION (positive or negative):	Proposed mitigation:	Significance rating of impacts AFTER MITIGATION:	Risk of the impact and mitigation not being implemented
1. Decommissioning of Construction Site Direct, Cumulative Leftover materials, spills, waste etc. may be left behind after construction staff and contractor leave site. Construction activities may damage environment with alien vegetation populating the cleared areas. Concrete spills may harden the ground. Excess rubble may be left behind. The site may be polluted. Damage to neighbouring properties and roads might occur.	Negligible (18)	• The entire site and neighbouring properties are to be checked for spills and all contaminated materials properly disposed of. • All alien vegetation resulting from disturbed areas from construction activities are to be removed. • Hardened surfaced due to concrete and other material spillage are to be removed. Construction rubble is to be disposed of at a registered landfill site, ideally through a skip rental company. • All litter is to be picked up and disposed of in skips and removed from site and taken to landfill. • Any damage caused to neighbouring properties or road must be repaired by contractor.	Negligible	Low Risk Regulatory compliance Permitting requirements. Contractual obligations. Financial guarantees. Community expectations. Industry standards and best practices.
2. Site Rehabilitation Indirect, Cumulative Large vegetation areas may be disturbed after construction activities. Loss of topsoil. Alien vegetation could potentially repopulate disturbed areas. Erosion.	Low Negative (29)	• The ECO must ensure all disturbed areas be covered by topsoil and revegetated where necessary and that all hard paved surfaces are level. • All stormwater outlets to be fitted with retarding bollards or sumps to catch debris and oil spills. • Rehabilitation and revegetation must take place immediate after construction ends. • Areas that have been revegetated need to be watered until re-established. • Indigenous vegetation needs to be planted.	Negligible	Low Risk Regulatory compliance EMPr specifications. Contractual obligations. Financial guarantees. Community expectations. ECO appointed. Penalties and fines.

2.1.5. Operational Phase

TABLE 9 OPERATIONAL PHASE – POTENTIAL IMPACTS, IMPACT SIGNIFICANCE RATING BEFORE AND AFTER MITIGATION, AND PROPOSED MITIGATION MEASURES

Potential impacts:	Significance rating of impacts PRIOR TO MITIGATION (positive or negative):	Proposed mitigation:	Significance rating of impacts AFTER MITIGATION:	Risk of the impact and mitigation not being implemented
1. Solid Waste Direct Generation of general domestic solid waste from guests occupying the four self-catering accommodation units. Improper storage of solid waste resulting in littering and visual degradation of the site. Windblown litter dispersing into surrounding terrestrial habitat and toward the Kromme River estuary. Pollution of surrounding soil and vegetation due to improper disposal or accidental spillage of waste. Attraction of scavengers such as rodents, birds, and small mammals, potentially altering natural faunal behaviour and increasing human-wildlife conflict. Indirect impacts on sensitive estuarine ecosystems through accumulation or dispersal of waste materials. Accumulation of recyclable materials such as plastics, glass, and packaging contributing to environmental pollution if not properly managed. Visual impacts associated with poorly managed waste storage areas. Health and hygiene risks associated with accumulation of unmanaged solid waste. Cumulative contribution to solid waste generation within the broader coastal and estuarine environment.	Low Negative (25)	• Provide adequate solid waste storage facilities within each accommodation unit. • Provide a designated central solid waste storage area on site. • Ensure all waste containers are covered, sealed, and animal-proof to prevent scavenging and wind dispersal. • Ensure waste storage containers are located away from drainage pathways, seepage zones, and environmentally sensitive areas. • Ensure waste is stored in durable containers that prevent leakage or spillage. • Arrange for regular removal of solid waste by the Kouga Local Municipality or a licensed private waste contractor. • Dispose of all waste at a licensed municipal waste disposal facility. • Implement waste separation practices where feasible to encourage recycling. • Provide labelled bins for recyclable materials such as plastic, glass, and metal. • Educate guests on proper waste disposal practices. • Prohibit dumping or burning of solid waste on site. • Maintain good housekeeping practices at all times. • Conduct regular inspections to ensure waste storage areas remain clean and functional. • Immediately clean up any waste spills. • Ensure compliance with the National Environmental Management: Waste Act and Kouga Local Municipality waste management by-laws.	Negligible	Low Risk Legal requirements and regular inspections ensure adherence to waste management practices. Integrated waste management plans and contracts with waste management companies ensure ongoing practices. Resident education and community involvement foster compliance. Cost savings from recycling and potential fines for non-compliance. Maintaining a good reputation and resident satisfaction motivates compliance. Effective waste management is critical for public health and safety, necessitating strict adherence.

2. Stormwater Direct, Indirect, Cumulative Increased stormwater runoff from impermeable surfaces such as roofs, paving, and access areas. Alteration of natural drainage patterns and seepage flow paths due to the presence of buildings and associated infrastructure. Localised soil erosion caused by concentrated stormwater discharge. Transport of sediments, nutrients, and pollutants from developed areas into surrounding terrestrial and estuarine environments. Indirect degradation of water quality within the Kromme River estuary. Potential cumulative impacts on the estuarine ecosystem, including sensitive habitats such as eelgrass (<i>Zostera capensis</i>), due to long-term runoff. Reduced natural infiltration of stormwater due to increased surface hardening. Pollution of soil and surrounding habitat from stormwater carrying contaminants such as oils, detergents, and general surface pollutants. Localised flooding or water ponding if stormwater is not properly managed. Disturbance to seepage zones and ecological support functions if natural drainage pathways are altered. Visual and environmental degradation if erosion or stormwater damage occurs. Cumulative alteration of hydrological processes within the estuarine support environment.	Moderate Negative (52)	• Implement the engineered stormwater management system as recommended in the civil engineering report. • Install barrier kerbs to guide stormwater toward designated collection points. • Install grid inlets at designated low points adjacent to each dwelling to capture stormwater. • Install and maintain stormwater pipes (160 mm diameter) to convey stormwater safely away from structures. • Maintain rainwater harvesting tanks and gutters to ensure adequate collection of rainwater. • Discharge stormwater onto natural grassed areas to allow natural infiltration and dissipation prior to reaching the estuary. • Ensure no direct discharge of stormwater into the Kromme River estuary. • Maintain natural drainage pathways and avoid obstruction of seepage areas. • Install and maintain rainwater harvesting tanks to reduce stormwater runoff volumes. • Maintain stormwater infrastructure regularly to ensure proper functioning. • Ensure paved areas are limited to the minimum required footprint. • Use permeable surfaces where feasible to promote infiltration. • Prevent accumulation of pollutants on paved surfaces. • Maintain vegetation buffers to promote natural filtration of runoff. • Inspect stormwater infrastructure regularly for blockages or damage. • Repair damaged stormwater infrastructure promptly. • Ensure compliance with civil engineering and environmental specifications. • Maintain vegetation cover on surrounding areas. • No footpaths through the buffer area to the estuarine banks allowed. Access must be through the current available areas that have been historically formed within the private open space.	Negligible	Low Risk Legal requirements and regular inspections enforce adherence. Integrated stormwater systems and professional maintenance ensure continuous operation. Effective stormwater management is crucial for preventing flooding and protecting health and the environment. Avoiding costly damages and penalties motivates ongoing compliance. Sustainability goals and environmental protection efforts encourage long-term commitment. Detailed master plans include strategies for sustainable stormwater management.
3. Water & Sewerage Direct, Indirect, Cumulative	Moderate Negative (45)	• Install rainwater harvesting tanks to supply potable water and reduce reliance on municipal water supply. • Implement water conservation measures, including water-efficient fixtures and fittings. • Regularly inspect water supply systems for leaks and repair immediately if detected.	Negligible	Low Risk Strict regulations and regular inspections ensure adherence.

Increased demand for potable water associated with occupancy of the four self-catering accommodation units. Pressure on groundwater supply, Unsustainable water use if water conservation measures are not implemented. Leakage from internal water supply systems resulting in localised soil saturation or erosion. Contamination of soil and surrounding habitat due to leakage or failure of sewage conservancy tanks. Indirect contamination of seepage zones and the Kromme River estuary through leakage of untreated sewage. Pollution of groundwater and soil due to improper sewage storage or disposal. Nutrient enrichment of surrounding soil and aquatic environments due to sewage leakage. Public health risks associated with sewage leakage or improper management. Odour impacts resulting from poorly maintained sewage storage systems. Cumulative degradation of estuarine water quality if sewage systems fail or are not properly managed. Alteration of natural soil and seepage conditions due to leakage or excessive water discharge. Long-term environmental impacts associated with improper sewage management.		• Maintain conservancy tanks in accordance with approved engineering specifications. • Ensure conservancy tanks are watertight and properly sealed to prevent leakage. • Arrange for regular emptying of conservancy tanks by a licensed waste contractor. • Dispose of sewage at a licensed municipal wastewater treatment facility. • Inspect conservancy tanks regularly for structural integrity and leakage. • Repair or replace damaged tanks immediately. • Ensure no untreated sewage is discharged into the environment. • Prohibit use of soakaways, French drains, or other infiltration-based sewage disposal systems. • Use environmentally friendly cleaning products where possible. • Prevent disposal of hazardous chemicals into sewage systems. • Ensure compliance with National Water Act and municipal wastewater regulations. • Ensure proper supervision and maintenance of water and sewage systems. • Maintain environmental buffer zones between sewage infrastructure and the estuary.		Well-designed systems and professional maintenance ensure consistent operation. Proper management is critical for preventing health hazards. Avoiding costly repairs and penalties motivates ongoing compliance. Routine maintenance and trained personnel ensure effective management. Maintaining a good reputation and resident satisfaction is crucial.
4. Energy Usage Direct, Indirect, Cumulative Increased energy demand associated with occupation and operation of the four self-catering accommodation units. Cumulative contribution to regional energy demand, particularly during peak usage periods. Energy inefficiency resulting from improper use or maintenance of electrical systems and appliances. Indirect contribution to greenhouse gas emissions associated with grid-based electricity consumption.	Low Negative (30)	• Install solar photovoltaic (PV) panels to supply renewable energy to the accommodation units. • Install battery storage systems to store solar energy and reduce reliance on grid electricity. • Connect to the Eskom grid only as a backup power supply. • Use energy-efficient appliances within all accommodation units. • Install energy-efficient LED lighting throughout the development. • Use gas geysers to reduce electricity demand associated with water heating. • Design buildings to maximise natural lighting and ventilation to reduce energy demand. • Install appropriate insulation in roofs and walls to improve thermal efficiency. • Regularly inspect and maintain solar energy systems to ensure efficient operation. • Educate occupants on energy-efficient practices. • Ensure proper installation and maintenance of all electrical infrastructure. • Use low-voltage electrical systems where feasible. • Switch off unused electrical appliances and lighting when not in use.	Negligible	Low Risk Energy efficiency standards and building codes mandate compliance. Cost savings and strong returns on investment motivate ongoing energy efficiency. Smart technologies and renewable energy integration ensure consistent energy management.

Increased energy demand associated with lighting, water heating, refrigeration, and general domestic appliance use. Increased energy demand associated with heating and cooling if buildings are not properly insulated or designed.		• Ensure compliance with relevant electrical and building regulations. • Minimise unnecessary outdoor lighting to reduce energy consumption and ecological disturbance.		Growing demand for energy-efficient and sustainable living encourages implementation. Advancements in energy-efficient technologies support sustained implementation. Energy efficiency enhances marketability and brand reputation, motivating continuous adherence.
5. Impact on Indigenous Vegetation Direct, Indirect, Cumulative Permanent loss of indigenous and semi-natural vegetation within the development footprint due to the presence of buildings, paved areas, and associated infrastructure. Loss of ecological support function of vegetation within the Ecological Support Area (ESA), particularly vegetation associated with seepage zones draining toward the Kromme River estuary. Indirect disturbance to surrounding indigenous vegetation due to ongoing human presence and site use. Trampling and physical damage to vegetation outside the development footprint by occupants, maintenance personnel, or visitors. Introduction and spread of alien invasive plant species facilitated by disturbance, landscaping, or human activity. Reduction in vegetation cover and ecological connectivity between terrestrial habitat and the estuarine environment. Alteration of vegetation composition due to landscaping or vegetation clearing outside approved development areas. Indirect impacts on sensitive estuarine vegetation, including eelgrass (<i>Zostera capensis</i>), due to changes in runoff quality or increased sedimentation. Long-term degradation of ecological functioning if indigenous vegetation buffers are not maintained. Increased soil erosion in areas where vegetation is removed or disturbed.	Very High Negative (100)	• Limit all operational activities strictly to the approved development footprint. • Maintain the minimum 40 m ecological buffer between the development footprint and the estuarine boundary. • Protect surrounding indigenous vegetation and prohibit unnecessary clearing. • Demarcate ecological buffer areas as no-go zones where appropriate. • Rehabilitate disturbed areas using locally indigenous plant species. • Implement an alien invasive plant monitoring and removal programme. • Prevent dumping of garden waste or vegetation material in natural areas. • Avoid landscaping with invasive or non-indigenous plant species. • Encourage use of indigenous vegetation in landscaping to maintain ecological integrity. • Control access to sensitive areas, particularly seepage zones and buffer areas. • Educate occupants regarding the ecological sensitivity of the site and surrounding vegetation. • Maintain vegetation buffers to protect against erosion and runoff. • Monitor vegetation condition periodically and implement corrective measures where degradation is observed. • Avoid disturbance of seepage zones and natural drainage pathways. • Ensure stormwater management measures prevent erosion or vegetation damage. • Ensure compliance with NEMBA Alien and Invasive Species Regulations. • Maintain overall ecological functioning of the site as part of the estuarine support environment.	Low Negative	Low Risk The development footprint is small, clearly defined, and located outside the most sensitive estuarine and seepage areas, with a 40 m buffer maintained. Standard, proven measures such as restricting disturbance, maintaining buffer zones, and controlling invasive species are easily implementable and enforceable. The low-intensity operational use further reduces the likelihood of mitigation failure.

Cumulative loss of indigenous vegetation within the broader estuarine support environment due to incremental development. Visual and ecological degradation of the natural landscape if vegetation is not properly managed.				
6. Job Creation and Economic Impact Direct The proposed project will contribute to the local economy through job creation. Surrounding property value will increase due to the additional development and attractiveness of the area. Tourism economy may increase. Municipal income increases with higher property values. Increase in property value.	High Positive	• Source staff and labourers locally. • Ensure marketable area and supports increase in property value for all neighbours • When property value escalates then municipal income is increased. • Ensure prices are market-related and competitive. • The development is not intended to house any businesses, shops or commercial ventures.	High Positive	N/A
7. Noise Direct Operational noise due to occupants. Noise due to increased traffic.	Negligible (10)	• Encourage guests to keep noise levels low. • Enforce a noise curfew. • Discourage loud music and parties. • Encourage wildlife viewing. • Put up speed limit signs.	Negligible	Low Risk Legal requirements and regular inspections ensure adherence to noise regulations. Resident education and community involvement foster compliance. Maintaining a good reputation and resident satisfaction motivates compliance.
8. Fire Direct, Indirect Increased risk of veldfires from human activities, such as outdoor cooking, smoking, electrical faults, or improper disposal of flammable materials – especially during drought periods. Spread of fire into surrounding natural vegetation – especially during windy and dry conditions – resulting in loss of indigenous vegetation and wildlife habitat. Damage to infrastructure and property. Loss of biodiversity due to uncontrolled fires. Increase soil erosion following fire events, particularly during heavy rainfall events, leading to sedimentation of nearby drainage lines.	High Negative (95)	• Implement a fire safety and emergency response plan for the development. • Prohibit open fires in natural vegetation areas. • Provide designated braai or cooking areas that are properly controlled and located away from vegetation. • Install and maintain fire extinguishers and firefighting equipment within buildings. • Educate residents and visitors on fire safety practices. • Establish and maintain firebreaks around the development where required in accordance with the National Veld and Forest Fire Act (Act 101 of 1998). • Maintain defensible space around buildings by clearing excessive vegetation or dry plant material. • Remove invasive alien plant species, which often increase fire intensity and spread. • Conduct regular vegetation maintenance within the property. • Use fire-resistant or fire-retardant building materials where possible. • Ensure adequate access roads and turning areas for emergency vehicles. • Provide reliable water supply points for firefighting purposes (e.g., tanks, hydrants). • Maintain clear emergency access routes at all times. • Implement ongoing environmental awareness for residents and staff regarding fire risks. • Monitor surrounding vegetation and control invasive alien species that may increase fire intensity.	Low Negative	Low Risk The mitigation measures are simple management and maintenance actions (e.g., vegetation clearing, firebreak maintenance, and fire safety awareness) that are easy to implement. Most mitigation measures form part of standard fire safety and property management practices for residential developments. Compliance with the National Veld and Forest Fire Act (Act 101 of 1998) requires landowners to implement

		•Rapidly rehabilitate burned or disturbed areas with indigenous vegetation. •Implement stormwater management measures to control runoff. •Stabilise exposed soils through vegetation re-establishment or erosion control measures.	fire prevention measures such as firebreaks. The measures do not require specialised equipment or significant financial investment, making implementation practical and feasible. Many of the mitigation measures (e.g., fire extinguishers, emergency access, controlled braai areas) are typically required through building regulations and municipal safety requirements. The presence of residents and property management will allow for ongoing monitoring and maintenance of fire prevention measures.
9. Estuarine and Riparian Environments Direct, Indirect, Cumulative Disturbance of the estuarine environment from unauthorised recreational boating activities. Damage to riparian vegetation from trampling and swimming. Riverbank erosion and sedimentation from recreational activities and illegal launching of boats. Disturbance to aquatic and avifaunal species. Pollution of the estuarine environment due to littering, improper waste disposal, fuel spills from boats. Increased stormwater runoff into the environment.	High Negative (95)	•Boats may not be launched from the riverbank below the southern boundary of the property. •All motorised boats must make use of existing public launching facilities within the estuary area. •Public launching typically occurs at the following sites: -R330 bridge launch area (informal public access) -St Francis Canals Small Boat Harbour slipway (formal slipway) -Tietiesbaai / canal entrance slipway (limited use) •Only non-motorised vessels such as canoes and kayaks may be launched from the designated Private Open Space area, and not directly from the natural riverbank. •All boating activities must comply with Kouga Municipal boating regulations, including adherence to no-wake zones and vessel safety requirements. •Access to the estuary should be restricted to designated access points only, specifically from the private open space. •Signage should be installed informing visitors that access to the riverbank below the southern boundary is prohibited. •Riparian vegetation should be protected and retained wherever possible, and disturbed areas should be rehabilitated with indigenous species. •Maintain vegetated buffer areas along the riverbank to stabilise soils. •Limit access to designated areas to prevent repeated disturbance. •Recreational activities should be limited to designated areas to reduce disturbance to natural habitats. •Adequate waste disposal facilities must be provided within the development. •Visitors and residents should be educated regarding responsible waste management practices. •No refuelling or servicing of boats should occur near the estuarine environment or riverbank. •Signage should be installed to discourage littering and pollution of the estuary. •Implement appropriate stormwater management systems to control runoff.	Low Risk The mitigation measures rely largely on behavioural controls and management rules (e.g., no launching from the riverbank), which are easy to enforce. Signage and access control can clearly direct visitors to permitted areas and restrict access to sensitive riverbank areas. The mitigation measures align with existing Kouga Municipal boating regulations, which already govern vessel use, safety, and no-wake zones in the estuary. Alternative established public boat launching sites already exist (R330 bridge launch area, St Francis Canals Small Boat Harbour slipway, and Tietiesbaai slipway), reducing pressure to launch from the riverbank. Low Negative

		•Ensure stormwater is dissipated through natural vegetation areas where possible before entering the estuary. •Avoid direct discharge of untreated stormwater into the estuarine system. •Maintain vegetated buffer areas along the riverbank to filter runoff and reduce sedimentation.		Canoes and kayaks are allowed to launch from the designated Private Open Space area, providing a controlled access point that reduces environmental disturbance. The mitigation measures require minimal financial investment, mainly involving signage, management oversight, and visitor awareness. The development will have ongoing management or oversight by property owners or managers, allowing continued monitoring and enforcement of the rules.
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2.1.6. Decommissioning and Closure Phases:

There are no Decommissioning and Closure phases relevant for this project. Once the construction is complete, the landowners will rent out the units to guests to generate income through tourism, remaining in Operational Phase. Therefore, there will be no impacts related to these phases.

3. CLIMATE CHANGE ASSESSMENT

Climate change issues must be considered as part of the EIA process Please consider the Climate Change guideline. EAP must determine:

The effects of climate change – such as rising sea-levels, droughts, and floods – threaten to slow down economic and social development. Climate resilience is therefore a crucial aspect of economic development in low- and middle-income countries such as South Africa. However, addressing climate impacts in isolation is unlikely to achieve equitable, efficient, or effective outcomes. Instead, it is necessary to integrate climate resilience into growth and development planning.

As such, assessing the effect of the proposed development on climate change and vice, versa an integrated and implementable guideline is necessary. To this end, the following resources can serve as guidelines:

- Eastern Cape Climate Change Response Strategy (ECCCRS), 2011;
- Department of Forestry, Fisheries and the Environment (DFFE). 2025. *Draft National Guideline for the Consideration of Climate Change Implications in Applications for Environmental Authorisations, Atmospheric Emission Licences and Waste Management Licences*. Government Notice 6759, Government Gazette No. 53574 of 24 October 2025. Revised draft published for a second round of public comment.
- Department of Forestry, Fisheries and the Environment (DFFE). 2025. *National Coastal Management Programme 2025–2031*

Story abridged directly from University of Cape Town News: 20 October 2022 | Story Helen Swingler Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Working Group II Report.

There are conspicuous gaps in South Africa's provision and mitigation planning for human-induced climate change and global warming. "Climate Change in South Africa: Risks and opportunities for climate-resilient development in the IPCC Sixth Assessment WGII Report", and the authors quote "The South African government would be wise to take note and put significant effort into mitigating and adapting to current and future climate impacts," as:

1. In the past decade the country has experienced the six hottest years recorded, as well as multi-year droughts, floods, and marine heatwaves along the coast.
2. The IPCC's assessment of climate risk in Africa has risen from low levels of risk in the IPCC fifth assessment to moderate levels of risk in the sixth assessment.
3. The WGII report shows Africa lags internationally in terms of institutional responses to the problem of global warming. Most of the reported responses are at a household level, often through behavioural change.

- a) **The potential impact of climate change on society and the economy, whether the impact is negative or positive, considering that society needs to be at the centre of the proposed development.**

Climate change is expected to influence society and the economy through:

- increased temperatures,
- altered rainfall patterns,
- more frequent extreme weather events,
- droughts,
- flooding,
- sea-level rise
- and associated impacts on infrastructure, water resources, biodiversity and ecosystem services.

The proposed development is located within a coastal-estuarine environment adjacent to the Kromme River Estuary, an area that may be vulnerable to climate-related changes including increased storm intensity, coastal erosion, estuarine

flooding, higher sea levels and shifts in hydrological processes. These changes could affect tourism infrastructure, access roads, services, maintenance costs and the long-term viability of development within the broader coastal zone.

The tourism sector, which contributes significantly to the local economy, may experience both positive and negative effects. Improved tourism opportunities may arise from increased demand for nature-based and coastal tourism experiences; however, these benefits may be offset by damage to infrastructure, reduced environmental quality, increased operational costs and disruptions associated with extreme weather events. Climate-related impacts on ecosystem services provided by the Kromme Estuary, including recreational opportunities, biodiversity conservation, fisheries support, water regulation and aesthetic value, may also have economic consequences for surrounding communities and businesses. Estuaries provide important social and economic benefits, including support for tourism, property values, recreation and fisheries, all of which may be affected by climate-related changes. (NBA 2015 Estuary Realm Technical Report)

From a societal perspective, climate change may increase risks to human safety, infrastructure, water security and livelihoods. Vulnerable communities are generally more susceptible to climate-related impacts due to limited adaptive capacity. Consideration of climate resilience within development planning is therefore important to ensure that developments remain functional, safe and economically sustainable over their lifespan. The Draft National Guideline for the Consideration of Climate Change Implications in Applications for Environmental Authorisations (2025) identifies climate change impacts on society, the economy and the environment as key considerations within the environmental assessment process.

The Kouga Municipal area and broader Eastern Cape experienced a prolonged drought between 2015 and 2023, which resulted in significant water shortages and restrictions that affected residents, businesses, tourism establishments and municipal service delivery. Such events demonstrate the vulnerability of local communities and economic activities to climate-related changes in rainfall patterns and water availability. Future increases in drought frequency and severity may place additional pressure on municipal water resources, potentially affecting both residents and tourism-related developments within the region. Measures that reduce dependence on municipal potable water supplies, such as rainwater harvesting and water-efficient design, can contribute to improved climate resilience and reduced pressure on local water resources.

Climate change is also expected to increase the frequency and intensity of veld fires within the region. More frequent fire events may threaten human safety, tourism infrastructure, ecosystem services, and economic activities dependent on the natural environment. Increased fire risk may result in higher maintenance, insurance and disaster management costs, while also affecting the aesthetic and ecological value of the surrounding landscape that supports tourism within the Kromme Estuary and St Francis Bay region.

The proposed development is relatively small in scale and will provide short-term employment during construction and support local tourism activities during operation. Provided that the development footprint remains outside the Estuary Functional Zone setback requirements and incorporates appropriate stormwater management, erosion control and climate-resilient design measures, the development is not expected to materially increase climate-related risks to society or the local economy. However, future climate change may influence the long-term operation and maintenance requirements of the development, particularly in relation to extreme rainfall events, flooding and coastal processes.

b) The potential alternatives of the proposed development, alternatives that will have less impact on climate change (environment and generation of waste included), the society and economy;

In accordance with the Draft National Guideline for the Consideration of Climate Change Implications in Applications for Environmental Authorisations (2025), consideration must be given to alternatives that may reduce impacts on climate change, the environment, society and the economy.

The proposed tourism accommodation development is located within an area already zoned for resort-related land uses and has been designed to minimise disturbance to environmentally sensitive areas. No alternative land use was identified that would provide substantially lower climate-related impacts while still achieving the project objectives. However, several

design and operational alternatives have been considered to reduce the development's environmental footprint and improve climate resilience.

Water Resource Alternatives

- Incorporation of rainwater harvesting systems to reduce dependence on municipal potable water supplies.
- Installation of low-flow fittings and water-efficient appliances.
- Landscaping with indigenous drought-tolerant vegetation requiring minimal irrigation.
- Utilisation of sealed conservancy tanks rather than conventional on-site soakaway systems, thereby reducing potential risks to the adjacent estuarine environment.

Energy Alternatives

- Installation of rooftop solar photovoltaic systems and solar water heating systems.
- Use of energy-efficient lighting and appliances.
- Building orientation and design measures that maximise natural lighting and ventilation, thereby reducing energy demand for heating and cooling.

Development Layout Alternatives

- Concentrating development within a defined footprint and avoiding environmentally sensitive areas, including the EFZ and 40m buffer area.
- Retaining existing indigenous vegetation wherever possible to maintain ecosystem functioning, biodiversity value and carbon sequestration capacity.
- Limiting earthworks and disturbed areas to reduce erosion risks and associated greenhouse gas emissions from construction activities.
- Stormwater management alternatives incorporate controlled runoff systems using barrier kerbs, grid inlets, and piped conveyance to grassed areas, reducing erosion, sediment transport, and downstream ecological impacts.
- Material alternatives include the use of durable, corrosion-resistant construction materials and energy-efficient building components, reducing long-term maintenance requirements and associated environmental impacts.

Waste Management Alternatives

- Implementation of waste separation and recycling measures during both construction and operational phases.
- Reduction of construction waste through efficient material use and procurement practices.
- Use of durable, locally sourced building materials where feasible to reduce transportation-related emissions and improve long-term sustainability.

Climate Resilience Alternatives

- Designing stormwater infrastructure to accommodate more intense rainfall events predicted under future climate scenarios.
- Incorporating erosion control measures and maintaining vegetated buffers.
- Implementing fire management measures, including firebreak maintenance and compliance with the National Veld and Forest Fire Act (Act 101 of 1998), to reduce wildfire risks associated with increasing temperatures and prolonged drought conditions.

No-Go Alternative

The No-Go Alternative was also considered, which would avoid all construction-related emissions and environmental impacts; however, the preferred development incorporates sustainability measures that significantly reduce climate change impacts compared to conventional development practices.

From a societal and economic perspective, the proposed development represents a low-density tourism use that is expected to contribute to the local economy through employment opportunities, tourism expenditure and associated economic activity. The adoption of water-efficient, energy-efficient and environmentally sustainable design measures will reduce operational costs, improve resilience to future climate-related stresses, and reduce pressure on municipal infrastructure and natural resources. Consequently, no practicable alternative has been identified that would significantly reduce climate-related impacts while still achieving the intended tourism and economic objectives of the development. Climate-resilient design and resource-efficient operation are therefore considered the preferred approach.

c) whether, and to what extent, the proposed development will result in the release of greenhouse gas (GHG) emissions;

Area of concern: Greenhouse gasses:

The contribution of greenhouse gasses to climate change and the reduction of these emissions are a priority. As all developments and anthropogenic activity, accumulatively contributes to these emissions, even small-scale reductions from residential property activities and awareness of the footprint created by these activities, can contribute to a larger scale reduction in emissions.

The proposed development will generate greenhouse gas emissions during both the construction and operational phases. Construction-related emissions will arise primarily from the use of construction vehicles, machinery, transportation of materials and building activities. Operational emissions will be associated with electricity consumption, vehicle travel, waste generation and the use of gas appliances. Given the relatively small scale and low-density nature of the proposed tourism accommodation development, the anticipated greenhouse gas emissions are expected to be low when compared to large-scale residential, commercial or industrial developments.

Energy usage:

According to the ECCCRS - emissions within this sector include amongst others, public electricity and heat production; transport; commercial and residential emissions. The use of gas appliances may reduce reliance on grid electricity during periods of supply interruption; however, gas remains a fossil fuel and still contributes to greenhouse gas emissions. The greatest emission reductions would be achieved through the use of renewable energy technologies such as solar photovoltaic systems and energy-efficient appliances. Solar power installation for additional energy usage will result in a lower dependency on coal fired electricity, overall contributing to lower emissions on a miniscule scale. However, when seen as a cumulative contribution the impact will be vital to the benefit of society in general.

Mitigation measures would include:

- Heat pumps – Heat pumps are generally more energy efficient than conventional electric resistance geysers and can significantly reduce electricity consumption for water heating, particularly in moderate coastal climates.
- Insulation of geyser and water pipes.
- Set thermostat lower to approximately 60 0C.
- Solar panels for electricity, geysers.
- Gas stoves and energy efficient lighting and implements.
- Window size for heat exchange.
- Insulated roofing material.
- Cavities between bricks in outer walls for maintenance of temperature.
- Rainwater harvesting.

Waste emissions:

Waste: emissions within this sector are from waste management including disposal of solid waste and wastewater treatment.

Mitigation:

Waste streams can be sorted at source into re-usable streams of plastic, glass, metals and paper. These streams can be either delivered to re-cyclers in Humansdorp or provide opportunity to local disenfranchised residents to supplement or

create income streams, thus reducing landfill requirements and the subsequent release of methane gas, odours and municipal fuel requirements.

There should be cardboard, wood, tin, plastic, paper and glass that gets generated that can be recycled and provide income streams.

Construction Emissions

During construction, greenhouse gas emissions will primarily originate from fuel consumption by construction vehicles and machinery, transportation of materials to site, and the manufacture of building materials.

Mitigation measures may include:

- regular maintenance of vehicles and machinery to ensure efficient fuel consumption,
- minimising unnecessary idling of equipment,
- sourcing materials locally where feasible to reduce transportation distances,
- consolidating deliveries,
- limiting the extent and duration of construction activities.
- where practical, construction waste should be reused or recycled to reduce the demand for new materials and associated emissions.

d) Whether the proposed development is necessary to achieve long term decarbonisation goals;

The proposed development is not specifically required to achieve national, provincial or municipal long-term decarbonisation goals, as it does not constitute a renewable energy, carbon sequestration, public transport, or other climate change mitigation project. However, the proposed tourism accommodation development can contribute indirectly to decarbonisation objectives through the incorporation of energy-efficient design measures, renewable energy technologies, water conservation initiatives, sustainable waste management practices, and the retention of indigenous vegetation.

The development is of a relatively small scale and is not expected to result in significant greenhouse gas emissions. Through the use of solar energy systems, energy-efficient appliances and lighting, rainwater harvesting, waste reduction measures, and environmentally responsible building practices, the development can reduce its operational carbon footprint and contribute to broader sustainability objectives. While the project is not essential for achieving long-term decarbonisation targets, it is capable of supporting climate-resilient and low-carbon development principles consistent with national climate change adaptation and mitigation objectives.

Possible contribution to decarbonisation:

Currently, under the laws of South Africa, the development will have a miniscule positive contribution to decarbonisation nationally, but a more positive influence locally by reducing demand on the Municipal infrastructure by utilising less energy from the grid as well as utilising rainwater harvesting.

Mitigation -Small scale mini-grid and standalone systems

However, if the South African Government should allow for feedback into the grid from businesses, industry and households that produce surplus solar energy due to the fairly large solar installations that can be set up on their premises, then Grid-connected PV on buildings and for utility generation would play a considerable role in decarbonisation.

Possible energy sources that could be integrated into the design of this specific project and which would help the decarbonisation efforts is solar energy due to the sufficient roof space.

e) The impact of the development on social, economic, natural and built environment that are crucial for climate change, adaptation and resilience;

The proposed development is not expected to result in significant impacts on the social, economic, natural or built environments that support climate change adaptation and resilience. The development footprint has been designed to avoid environmentally sensitive areas, including the EFZ and associated ecological buffers.

Social & Economic Perspective

From a social and economic perspective, the development is expected to provide temporary employment during construction and contribute to the local tourism economy during operation. The incorporation of rainwater harvesting, water-efficient technologies and energy-efficient design measures will improve resilience to future droughts, water shortages and increasing energy costs.

“Although climate change has many negative social and economic implications, the necessary adjustment of global modes of production to a more sustainable, low carbon economy is likely to result in many opportunities for the generation of “green” jobs.” (ECCCRS).

The contribution that the proposed development can make to the social environment is that the demand for solar power/wind energy to be installed, is perceived as so called “green” jobs, in the manufacturing of the panels.

Renewable energy technologies result in more jobs per unit energy than nuclear, coal and gas. A number of jobs can be created in the Biogas, Bioethanol, Solar Water Heating and Biodiesel industries.

Natural Environment Perspective

From a natural environment perspective, the Kromme River Estuary and surrounding indigenous vegetation provide important ecosystem services, including biodiversity support, water regulation, erosion control and tourism value. Retention of indigenous vegetation, maintenance of ecological buffers and implementation of erosion and stormwater management measures will assist in maintaining these functions and supporting climate resilience.

Built Environment Perspective

From a built environment perspective, the development will incorporate climate-responsive measures, including sustainable water use, appropriate stormwater management and fire risk management, to improve resilience to droughts, extreme rainfall events and veld fires. The project is too small to have any lasting impact and will not have any lasting influence in climate change.

Overall, the proposed development is expected to have a low impact on systems that support climate change adaptation and resilience and may contribute positively through the implementation of sustainable design and management measures.

f) the projected impact of climate change on proposed development; and surrounding environment, and implications for the development.

According to the ECCCRS the following climate change aspects could impact on the development:

Climate Change Manifestation	2nd Order Impact	3rd Order Impact	Environment
More hot days and heat waves	Increased morbidity and mortality among elderly and infirm (e.g. HIV/AIDS patients)	Increased strain on health services	Social & Economic Systems
Mitigation - Designing the units with self-sufficient ventilation for summer periods to keep it cool. - Additionally, the size of the windows exposed to the elements are subjected to heat exchange and with appropriate window openings, whirlybird ventilation, floor level vents and designed from insulated materials will enable the units to be kept warm in winter months and cool in summer.			
Increased storm severity/ Extreme weather events.	Coupled with more intense rain, catchment hardening due to development, and reduced integrity of water catchments: increased risk of flooding or flash floods	Direct threat to infrastructure within flood-prone areas; Direct threat to human life.	Social & Economic Systems
Mitigation: Increased storm severity would imply increase of wind and rain. Appropriate angled roof design to deflect wind as well as the type of roof sheeting will increase resilience to storm events.			

- Roof materials and fixing will play an important part in the integrity of the structure and keeping out extreme weather events. - Water tanks must be fixed so as not to be blown over and damaged. - Storm water management will play a vital role to drain water in a responsible way to the appropriate systems. Keeping storm water from damaging infrastructure is an important way to harvest water as well as direct to channels and rivers for drainage.			
Climate Change Manifestation	2nd Order Impact	3rd Order Impact	Environment
Increased frequency and intensity of veldfires due to prolonged drought, higher temperatures and stronger wind conditions.	Increased risk of ignition and rapid spread of wildfires in surrounding natural vegetation.	Potential damage to infrastructure, loss of vegetation, and risk to human safety.	Natural & Social Systems
Mitigation: - Firebreaks should be established and maintained in accordance with the National Veld and Forest Fire Act (Act 101 of 1998). - Vegetation around structures should be managed to reduce excessive fuel loads. - Fire hoses and pressure pumps should be installed where necessary for effective fire response. - Residents and visitors should be made aware of fire safety measures and emergency procedures. Climate change is projected to result in higher temperatures, altered rainfall patterns, prolonged droughts, increased evaporation rates, more frequent and intense storm events, flooding, and an increased risk of veld fires within the Eastern Cape. These changes may affect both the proposed development and the surrounding environment over the long term. The proposed development may be impacted by reduced water availability during drought periods, increased demand for water resources, greater maintenance requirements due to heat exposure, increased wildfire risk, and potential stormwater management challenges associated with more intense rainfall events. Increased temperatures may also place stress on indigenous vegetation and surrounding ecosystems. The surrounding environment, including the Kromme River Estuary and associated ecological systems, may experience changes in hydrological processes, increased erosion, shifts in vegetation composition, and increased pressure on estuarine habitats and biodiversity. Estuarine ecosystems are recognised as being vulnerable to climate change stressors, including altered freshwater inflows, increased temperatures, sea-level rise and extreme weather events. (NBA 2015 Estuary Realm Technical Report) The implications for the proposed development include the need to incorporate climate-resilient design measures such as rainwater harvesting, water-efficient technologies, appropriate stormwater management, erosion control, indigenous landscaping, energy-efficient infrastructure and fire risk management. With the implementation of these measures, the development is expected to remain resilient to projected climate change impacts and is not anticipated to result in significant climate-related risks to the surrounding environment. Impact Significance: Low to Medium Negative (without mitigation); Low Negative (with mitigation).			

- g) **Explanation of how the impacts is likely to be exacerbated or minimised as result of climate change and what measures are likely to be implemented to accommodate and manage (adapt to) the anticipated worst scenario where applicable**

"A critical climate change message is that "Everyone has a role to play in reducing emissions (mitigation) and everyone will be affected by climate change (adaptation)" (ECCCRS). - Since 1993 thermal expansion of the oceans has contributed about 57% of the sum of the estimated individual contributions to the sea level rise, with decreases in glaciers and ice caps contributing about 28% and losses from the polar ice sheets contributing the remainder. - From 1993 to 2003 the sum of these climate contributions is consistent within uncertainties with the total sea level rise that is directly observed.
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- It is likely that the incidence of extreme high sea level has increased at a broad range of sites worldwide since 1975.
- The Eastern Cape is expected to experience highest temperature increases towards the north-west interior, while lowest increases are likely along the coast.
- In the Eastern Cape a mirror pattern is expected where a wetting trend is expected eastwards.

Mitigation

- All designs for roof fixing and exposed surfaces to be able to withstand gale force wind events up to 100km/h
- Storm water drainage to be designed so that no concentrated release occurs.
- Ventilation design important in large structures and design against strong winds which could strip roof sheeting and create hazardous debris.
- Fire hoses to be installed with a pressure pump for effective usage.

Climate change is expected to exacerbate existing environmental pressures within the region through increased temperatures, prolonged drought periods, more intense rainfall events, increased wildfire risk and greater variability in water availability. These changes may increase stress on indigenous vegetation, reduce water availability, increase erosion potential, place additional pressure on the Kromme River Estuary and associated ecosystems, and increase maintenance requirements for infrastructure.

The impacts may be minimised through the implementation of climate-resilient design and management measures. These include the use of rainwater harvesting systems, water-efficient fittings and appliances, indigenous drought-tolerant landscaping, erosion and stormwater management measures, energy-efficient infrastructure, and the retention of natural vegetation and ecological buffers. Appropriate fire management measures, including the maintenance of firebreaks and compliance with the National Veld and Forest Fire Act (Act 101 of 1998), will further reduce climate-related risks.

Under a worst-case scenario involving prolonged drought, severe storm events or wildfire occurrence, the development may experience reduced water availability, infrastructure damage, increased maintenance costs and temporary disruption of tourism activities. The incorporation of water conservation measures, climate-responsive building design, effective stormwater management systems and fire risk management plans will improve the adaptive capacity of the development and reduce vulnerability to these events.

Provided that these measures are implemented and maintained throughout the operational life of the development, the anticipated climate change impacts are expected to remain manageable and of low significance, while supporting the long-term resilience of both the development and the surrounding environment.

h) Whether, and to what extent, the impacts identified in (a) -(g) can be mitigated.

The climate change-related impacts identified in Sections (a) to (g) can largely be mitigated through the implementation of appropriate design, construction and operational measures. While the proposed development will contribute a relatively small amount of greenhouse gas emissions compared to broader regional and global emission sources, climate change is likely to have a greater influence on the development through increased temperatures, droughts, extreme rainfall events and wildfire risks.

Mitigation and adaptation measures include the incorporation of rainwater harvesting systems, water-efficient fittings and appliances, energy-efficient building design, renewable energy technologies where feasible, responsible waste management practices, indigenous drought-tolerant landscaping, stormwater management measures, erosion control and fire risk management. The retention of indigenous vegetation and ecological buffers will further support ecosystem resilience and assist in maintaining ecological functioning.

Additional measures that may further reduce climate-related impacts include the increased use of renewable energy systems, improved energy efficiency within buildings, public awareness regarding sustainable resource use, and adherence to evolving national, provincial and municipal climate change strategies, legislation and policies.

Provided that the recommended mitigation and adaptation measures are implemented and maintained throughout the life of the development, the identified climate change impacts are expected to be reduced to a low level of significance and are not anticipated to compromise the long-term viability or resilience of the development.

4. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

A summary of the impacts during the Design and Planning, Construction and Operational Phases and their significance before and after mitigation is summarised in the below tables.

DESIGN AND PLANNING PHASE

TABLE 10 SUMMARY OF DESIGN & PLANNING PHASE IMPACTS

DESIGN & PLANNING PHASE			
Impact	Significance (before mitigation)		Significance (after mitigation)
1. Legal and policy compliance	Low Negative		Negligible
2. Training and permitting	Low Negative		Negligible
3. Project Design & Site Planning	Low Negative		Negligible

The proposed development has undergone a comprehensive assessment of potential environmental impacts for the **Design & Planning Phase**. This phase is of utmost importance as proper planning and design help reduce the amount of potential environmental impacts during both construction and operational phases.

Overall, the impacts of the development during the Design & Planning Phase will be Low before mitigation to Negligible after mitigation measures. During this phase of the development, there are a total of 3 main negative impacts identified (**Error! Reference source not found.**) which need be considered as part of the decision-making and designing of the development, prior to construction.

During the Design and Planning phase, the potential environmental impacts are assessed across several key areas. Initially, the impact of ensuring compliance with municipal, provincial, and national environmental policies is considered *low negative*. However, by integrating strict compliance measures, such as obtaining necessary permits, conducting thorough environmental assessments, and incorporating sustainable practices, the significance of this impact can be reduced to *negligible*.

Training of personnel and securing permits and approvals from the Local Authority are essential components of the design and planning phase. Initially, this impact is *Low Negative* as it involves routine procedures. Through continuous training programs and stringent permitting processes, the significance of this impact remains *negligible* after mitigation.

The project design and site planning phase involve selecting the site and planning the layout, which are critical for minimizing environmental disruption. Initially, this impact is considered *Low Negative* since it predominantly involves planning activities which may be omitted. By incorporating environmental considerations into the site selection and design process, the significance of this impact remains *negligible* after mitigation.

In conclusion, the design and planning phase of the proposed activity, when managed with effective mitigation measures, poses minimal environmental risks.

CONSTRUCTION PHASE

TABLE 11 SUMMARY OF CONSTRUCTION PHASE IMPACTS

CONSTRUCTION PHASE			
Impact	Type of Impact	Significance (before mitigation)	Significance (after mitigation)
1. Legal and policy compliance	Direct Indirect Cumulative	Moderate Negative	Low Negative
2. Infrastructure / Development Footprint	Direct Indirect Indirect	High Negative	Low Negative
3. Stormwater Runoff	Direct Indirect Cumulative	High Negative	Low Negative
4. Construction Waste	Direct Indirect Cumulative	Moderate Negative	Negligible
5. Site Management	Direct Indirect Cumulative	Low Negative	Negligible
6. General Handling and Storage of Materials	Direct Indirect Cumulative	Low Negative	Negligible
7. Ablution Facilities	Direct	Low Negative	Negligible
8. Loss of Vegetation and Associated Habitat	Direct Cumulative	High Negative	Moderate Negative
9. Biodiversity – Terrestrial and Aquatic	Direct Cumulative	Very High Negative	Low Negative
10. Fire	Direct	High Negative	Moderate Negative
11. Soil & Geology	Direct	Moderate Negative	Low Negative
12. Air Quality	Direct	Low Negative	Negligible
13. Water Use	Direct	High Negative	Low Negative
14. Noise	Direct	Low Negative	Low Negative
15. Traffic	Direct	Low Negative	Low Negative
16. Employment Opportunities	Direct	High Positive	High Positive
17. Safety & Security	Direct Indirect	Low Negative	Negligible
18. Heritage, Cultural & Palaeontological	Direct	Negligible	Negligible
CONSTRUCTION CLOSURE PHASE			
1. Decommissioning of Construction Site	Direct Cumulative	Negligible	Negligible
2. Site Rehabilitation	Indirect Cumulative	Low Negative	Negligible

Relating to the potential impacts during the **Construction Phase**, as summaries in Table 11 above, overall, the impacts of the proposed development on Portion 9 of Farm 707 Osbosch are anticipated to range from **Very High Negative to Negligible prior to mitigation**, and from **Moderate Negative to Negligible after mitigation** measures are implemented.

A total of eighteen (18) impacts were identified during the Construction Phase, comprising seventeen (17) negative impacts and one (1) positive impact associated with employment opportunities.

Prior to mitigation, one (1) impact, namely Heritage, Cultural and Palaeontological Resources, was considered Negligible. Seven (7) impacts were assessed as Low Negative prior to mitigation, including Site Management, General Handling and Storage of Materials, Ablution Facilities, Air Quality, Noise, Traffic, and Safety and Security. These impacts are primarily localised and temporary in nature. Following mitigation, **five (5) of these impacts are reduced to Negligible significance, while Noise and Traffic remain Low Negative** due to the inherent nature of construction activities, although their extent and duration remain limited and manageable.

Three (3) impacts were assessed as **Moderate Negative** prior to mitigation, namely **Legal and Policy Compliance, Construction Waste, and Soil and Geology**. Following implementation of appropriate mitigation measures, including adherence to the Environmental Management Programme (EMPr), responsible waste disposal, and erosion control measures, **all Moderate Negative impacts are reduced to Low Negative or Negligible significance**.

Five (5) impacts were assessed as **High Negative** prior to mitigation, namely **Infrastructure and Development Footprint, Stormwater, Loss of Vegetation and Associated Habitat, Fire, and Water Use**. Following mitigation, **Infrastructure Footprint, Stormwater, Fire and Water Use impacts are reduced to Low Negative significance, while Loss of Vegetation and Associated Habitat is reduced to Moderate Negative significance** due to the permanent nature of vegetation transformation within the development footprint. However, the impact is limited in extent, as the development footprint is small and a minimum 40 m setback between the development and the southern boundary of the site will be maintained.

One (1) impact, namely **Biodiversity (Terrestrial and Aquatic)**, was assessed as **Very High Negative** prior to mitigation due to the proximity of the site to the Kromme River estuary, the presence of Ecological Support Areas (ESA), proximity to EFZ and the ecological importance of the estuarine environment. With the implementation of mitigation measures, including maintaining ecological buffers, restricting construction activities to demarcated areas, and protecting sensitive seepage and estuarine support areas, this impact is **reduced to Low Negative** significance.

The main **positive impact identified during the Construction Phase relates to Employment Opportunities**, which is considered High Positive both before and after mitigation, as the development will provide employment opportunities for local contractors, labourers, and service providers, contributing to the local economy.

The Construction Closure Phase includes two (2) impacts associated with the decommissioning of the construction site and site rehabilitation. Decommissioning impacts are considered Negligible both before and after mitigation, while Site Rehabilitation is considered Low Negative prior to mitigation but reduces to Negligible following proper rehabilitation and site clean-up measures.

To summarise:

PRIOR TO MITIGATION	POST MITIGATION
Very High Impact Significance:	Very High Impact Significance:
Biodiversity: Terrestrial and Aquatic	None
High Impact Significance	High Impact Significance
1. Infrastructure / Development Footprint	None
2. Stormwater runoff	Moderate Impact Significance
3. Loss of vegetation and associated habitat	1. Loss of vegetation and associated habitat
4. Fire	2. Fire
3. Fire	Low Impact Significance
4. Water use	1. Legal & Policy Compliance
Moderate Impact Significance	2. Infrastructure / Development footprint
1. Legal & Policy compliance	3. Stormwater runoff
2. Construction waste	4. Biodiversity – Terrestrial & Aquatic
3. Soil & Geology	5. Soil and Geology
Low Impact Significance	6. Water use
1. Site management	7. Noise
2. General handling and storage of materials	8. Traffic
3. Ablution facilities	
4. Air quality	
5. Noise	
6. Traffic	
7. Safety & Security	
8. Site Rehabilitation	

Cumulative Impacts associated with the Construction and Construction Closure Phases

The cumulative impacts associated with the construction and construction closure phases are primarily related to the temporary disturbance of the receiving environment through vegetation clearance, habitat transformation, increased stormwater runoff, construction waste generation, water use, soil disturbance, and potential impacts on terrestrial and

aquatic biodiversity. These impacts must be considered in conjunction with existing and reasonably foreseeable development activities within the broader Kromme River estuarine and coastal environment, where ongoing habitat loss and fragmentation have the potential to incrementally reduce ecological integrity. During construction, the most significant cumulative impacts are associated with the loss of vegetation and associated habitat, biodiversity disturbance, alteration of natural drainage patterns, and increased sediment and pollutant transport to the estuarine system if not adequately managed. However, the proposed development footprint is limited in extent, avoids the EFZ where possible, maintains the prescribed setback from the estuary, and incorporates mitigation measures aimed at protecting sensitive ecological features. The implementation of a site-specific Environmental Management Programme (EMPr), erosion and stormwater controls, waste management measures, rehabilitation of disturbed areas, and strict management of construction activities will substantially reduce cumulative impacts to low or negligible levels.

During the construction closure phase, the decommissioning of temporary construction infrastructure and rehabilitation of disturbed areas will contribute positively to the recovery of ecological function and landscape stability. Consequently, **no significant residual cumulative impacts are anticipated following construction closure, and the development is not expected to result in unacceptable cumulative environmental degradation within the broader receiving environment during the construction phase.**

IN CONCLUSION

The specialist studies, including the Biodiversity Assessment, Terrestrial Faunal Assessment, and Geotechnical Investigation, confirm that while the site forms part of an ecologically sensitive estuarine support environment, no plant or animal Species of Conservation Concern were recorded within the development footprint, and the site has already been partially transformed by historical land use activities. Furthermore, the development is located outside the Estuarine Functional Zone (EFZ), maintains a minimum 40 m ecological buffer from the estuary, and incorporates appropriate stormwater management, erosion control, and environmental management measures designed to protect the surrounding environment.

The site is underlain by competent geological material with no identified risk of dolomite instability, sinkholes, or slope failure, and the gently sloping topography allows for safe and stable development when appropriate construction practices are implemented.

The assessment identified several potential impacts associated with the construction phase, including vegetation clearing, habitat disturbance, biodiversity impacts, soil disturbance, stormwater runoff, construction waste generation, water use, noise, traffic, and general construction-related activities. While some of these impacts, particularly those relating to biodiversity and vegetation loss, are unavoidable due to the nature of the proposed development, the implementation of the prescribed mitigation measures will substantially reduce their significance. The development footprint is limited in extent and has been designed to avoid the most sensitive environmental features, thereby minimising direct ecological disturbance.

From a cumulative impact perspective, the proposed development must be considered within the context of existing and future development pressures within the broader Kromme River estuarine and coastal environment. The most notable cumulative risks relate to the incremental loss of habitat, disturbance of ecological processes, increased stormwater runoff, and potential impacts on estuarine functioning. However, given the relatively small development footprint, the retention of ecological buffer areas, the avoidance of the EFZ, and the implementation of comprehensive environmental management and rehabilitation measures, the cumulative impacts are not expected to result in significant degradation of the broader receiving environment. Following rehabilitation and construction site closure, residual cumulative impacts are anticipated to be low to negligible.

In summary, the majority of identified impacts during the construction phase can be reduced to Low or Negligible significance through the implementation of the recommended mitigation measures and adherence to the Environmental Management Programme (EMPr). The surrounding ecological support areas, estuarine habitats, and ecological processes will largely remain intact and functional. Based on the findings of the specialist assessments, the impact evaluation, and the cumulative impact assessment, the proposed development can proceed with acceptable environmental risk, provided that all mitigation measures and management actions are strictly implemented throughout the construction and construction closure phases.

OPERATIONAL PHASE

TABLE 12 SUMMARY OF OPERATIONAL PHASE IMPACTS

OPERATIONAL PHASE				
Impact		Type of Impact	Significance (before mitigation)	Significance (after mitigation)
1.	Solid Waste	Direct	Low Negative	Negligible
2.	Stormwater	Direct Indirect Cumulative	Moderate Negative	Negligible
3.	Water & Sewage	Direct Indirect Cumulative	Moderate Negative	Negligible
4.	Energy Usage	Direct Indirect Cumulative	Low Negative	Negligible
5.	Impact on Indigenous Vegetation	Direct Indirect Cumulative	Very High Negative	Low Negative
6.	Job creation and Economic impact	Direct	High Positive	High Positive
7.	Noise	Direct	Negligible	Negligible
8.	Fire	Direct Indirect	High Negative	Low Negative
9.	Estuarine and Riparian Environments	Direct Indirect Cumulative	High Negative	Low Negative

The impacts associated with the Operational Phase, as summarised in Table 12, are anticipated to range from **Very High Negative to Negligible prior to mitigation**, and from **Low Negative to Negligible after mitigation** measures are implemented. A total of nine (9) impacts were identified during the Operational Phase, comprising five (7) negative impacts, one (1) positive impact, and one (1) negligible impact associated with noise.

Prior to mitigation, two (2) impacts, namely **Solid Waste and Energy Usage** were assessed as **Low Negative**. **Solid Waste and Energy Usage impacts are considered Low Negative** due to the small scale and low-density nature of the development, and these are reduced to **Negligible significance following mitigation measures** such as proper waste management and the incorporation of renewable energy systems, including solar panels and energy-efficient infrastructure.

Stormwater and Water & Sewage impacts were assessed as Moderate Negative prior to mitigation due to the proximity of the development to the Kromme River estuary and the potential risk of runoff contamination or improper sewage management. However, the implementation of engineered stormwater systems, rainwater harvesting, and sealed conservancy tanks ensures that these impacts are **reduced to Negligible significance**. The stormwater design allows for controlled discharge onto grassed areas, maintaining natural infiltration and minimising erosion or sediment transport to the estuarine environment.

Fire and Estuarine and Riparian Environments both were assessed as **High Negative prior to mitigation**, but **reduced to Low** as mitigation measures, if implemented correctly, are efficient in reducing the impact significance. The impact on **Indigenous Vegetation**, including the potential for vegetation disturbance and encroachment into sensitive ecological areas, was assessed as **Very High Negative prior to mitigation** due to the ecological importance of the estuarine support environment and the presence of Ecological Support Areas (ESA). Following mitigation measures, including maintaining a minimum 40 m setback from the southern boundary to the development footprint, restricting operational activities to the defined development footprint and outside of the EFZ, implementing alien invasive species control, and preserving surrounding natural vegetation, **this impact is reduced to Low Negative significance**. These measures ensure the long-term protection of ecological functioning and minimise disturbance to the surrounding estuarine support environment.

Noise impacts during the Operational Phase are considered Negligible both before and after mitigation due to the low-intensity nature of the development, which comprises small-scale self-catering accommodation with minimal vehicle movement and no industrial or high-noise activities.

The positive impacts identified during the Operational Phase relates to Job Creation, Economic Impact and Property Value increase, which is assessed as High Positive both before and after mitigation. The development will contribute to the local economy through employment opportunities, increased tourism activity, and associated economic benefits to the Kouga Local Municipality and surrounding communities.

To summarise:

PRIOR TO MITIGATION	POST MITIGATION
Very High Impact Significance:	Very High Impact Significance:
1. Impact on Indigenous vegetation	None
High Impact Significance	High Impact Significance
1. Fire	None
2. Estuarine and Riparian Environments	Moderate Impact Significance
Moderate Impact Significance	None
1. Stormwater	Low Impact Significance
2. Water & Sewage	1. Impact on indigenous vegetation
Low Impact Significance	2. Fire
1. Solid waste	3. Estuarine and Riparian environment
2. Energy usage	

Cumulative Impacts associated with the Construction and Construction Closure Phases

The cumulative impacts associated with the operational phase of the proposed development are primarily related to the long-term presence of tourism accommodation within the broader Kromme River estuarine and coastal environment. In combination with existing and reasonably foreseeable developments in the region, cumulative impacts may arise through incremental habitat transformation, increased human activity, elevated demand on water and energy resources, stormwater generation, wastewater production, and potential disturbance to estuarine and riparian ecosystems. The most significant cumulative risks are associated with impacts on indigenous vegetation, ecological connectivity, and the ecological functioning of the adjacent estuarine environment, which is already subject to pressures from surrounding residential, tourism, and recreational land uses.

Without mitigation, the gradual loss and fragmentation of natural vegetation and the potential degradation of estuarine and riparian habitats could contribute to a reduction in ecological integrity within the broader landscape. However, the proposed development footprint is limited in extent, retains substantial areas of natural vegetation, maintains a minimum 40 m buffer from the estuary, and is located outside the EFZ. Furthermore, operational management measures, including stormwater controls, wastewater containment through conservancy tanks, waste management practices, fire prevention measures, and the protection of remaining natural vegetation, will significantly reduce the likelihood and extent of cumulative environmental impacts.

The development is also expected to contribute positively to the local economy through job creation, tourism expenditure, and associated economic activity, resulting in cumulative socio-economic benefits within the Kouga municipal area. With the implementation of the recommended mitigation measures and ongoing environmental management, the residual cumulative impacts associated with the operational phase are anticipated to be low to negligible, and the development is not expected to result in significant cumulative degradation of the surrounding estuarine, riparian, or terrestrial environments.

IN CONCLUSION

The operational phase of the proposed development will result in a range of environmental and socio-economic impacts associated with the ongoing use of the tourism accommodation facility. The primary environmental considerations relate to stormwater management, water consumption, sewage disposal, energy usage, fire risk, the protection of indigenous vegetation, and the maintenance of the ecological functioning of adjacent estuarine and riparian environments. If not appropriately managed, these activities have the potential to contribute to habitat disturbance, increased runoff, pollution, and degradation of sensitive ecological features.

The impact assessment identified indigenous vegetation and associated habitat, as well as the estuarine and riparian environment, as the most sensitive receptors during the operational phase. However, the development has been designed to minimise environmental disturbance through a limited development footprint, the retention of natural vegetation

wherever possible, the maintenance of a minimum 40 m buffer from the estuary, and the avoidance of the EFZ. Additional mitigation measures, including the implementation of stormwater controls, the use of sealed conservancy tanks, responsible waste management practices, water conservation measures, fire prevention protocols, and ongoing environmental awareness among staff and visitors, will further reduce potential impacts.

Following the implementation of the recommended mitigation measures, the significance of all identified negative operational impacts is reduced to Low or Negligible levels. The development is not expected to result in significant long-term degradation of the surrounding terrestrial, riparian, or estuarine environments. Conversely, the project is anticipated to generate positive socio-economic benefits through employment opportunities, support for the local tourism sector, and associated economic activity within the region.

Overall, the operational phase is considered environmentally acceptable, provided that the mitigation measures and management actions contained in the Environmental Management Programme (EMPr) are effectively implemented and maintained throughout the life of the development. The residual impacts are considered manageable and do not present a fatal flaw to the proposed development.

Climate Change Statement

Climate change is expected to remain an important consideration for both the proposed development and the surrounding environment over the long term. South Africa has experienced a number of significant climate-related events in recent years, including prolonged droughts, extreme rainfall events, flooding, elevated temperatures and increased wildfire occurrences. These events highlight the importance of incorporating climate resilience and resource efficiency into future development planning.

The proposed tourism accommodation development is not expected to be a significant contributor to greenhouse gas emissions. Emissions associated with the development will primarily arise from construction activities, transportation, energy consumption and waste generation. These emissions are anticipated to be relatively low due to the small-scale and low-density nature of the proposed development and can be further reduced through energy-efficient design measures, renewable energy technologies, water conservation initiatives and responsible waste management practices. Climate change is likely to influence the development through increased temperatures, prolonged drought periods, greater variability in rainfall, more intense storm events and an increased risk of veld fires. These changes may result in increased pressure on water resources, greater maintenance requirements for infrastructure, increased erosion potential and additional stress on surrounding natural ecosystems, including the Kromme River Estuary and associated vegetation communities.

The broader Kromme Estuary and coastal environment are already subject to pressures associated with historical development, altered hydrological processes and climate-related changes. Climate change may further contribute to erosion, changes in freshwater inflows, increased sediment movement, vegetation stress and impacts on estuarine ecological functioning. The retention of indigenous vegetation, maintenance of ecological buffers, implementation of stormwater management measures and responsible water use practices will assist in maintaining ecosystem resilience.

To improve long-term climate resilience, the development should:

- Incorporate rainwater harvesting and water-efficient technologies to reduce dependence on municipal water supplies;
- Utilise energy-efficient building design and renewable energy technologies where feasible;
- Maintain indigenous vegetation and ecological buffers;
- Implement erosion and stormwater management measures;
- Incorporate appropriate fire risk management measures, including maintenance of firebreaks where required; and
- Ensure compliance with the Environmental Management Programme (EMP), municipal requirements and relevant environmental legislation.

Overall, the anticipated climate change impacts are considered manageable and of low significance, provided that the recommended mitigation and adaptation measures are implemented throughout the construction and operational phases of the development.

No-go alternative (compulsory)

The no-go option would retain the status quo of the site. Impacts that will arise from the no-go option are the following:

Negative Direct Impacts

- Loss of opportunity to utilise land already zoned Resort Zone II for its intended purpose.
- Loss of potential employment opportunities during both construction and operational phases.
- Loss of economic activity associated with tourism accommodation in the St Francis Bay and Kromme River area.
- No contribution to municipal revenue through increased property rates and service charges.
- Continued presence and potential spread of alien invasive plant species currently occurring on site due to lack of active management.
- Continued unmanaged ecological degradation of the site due to absence of rehabilitation, monitoring, or controlled land use.
- Loss of opportunity to implement environmentally responsible infrastructure designed to protect sensitive areas, including controlled stormwater management and sewage containment.
- Reduced economic viability and productive use of privately owned land.

Positive Direct Impacts

- No vegetation clearing or permanent transformation of habitat within the development footprint.
- No disturbance to terrestrial fauna or displacement of species associated with construction or human presence.
- No risk of soil disturbance, erosion, or compaction associated with construction activities.
- No risk of pollution of the estuarine environment from construction or operational activities.
- No increase in stormwater runoff or alteration of natural drainage patterns.
- No generation of construction waste, operational waste, or associated environmental impacts.
- No increase in noise, traffic, or human activity within the site.
- Continued ecological functioning of the site in its current state.

Maintenance of the current ecological support role of the site within the broader Kromme River estuarine environment

SECTION E. RECOMMENDATIONS OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES

Is an EMPr attached?

YES

The EMPr must be attached as Appendix F.

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

There are no critical issues associated with the intended construction of the proposed tourism accommodation units proposed for Ptn 9 Osbosch 707, and all potential effects can be effectively mitigated to reduce the risk or significance of impacts to an acceptable level. This is contingent upon strict adherence to the recommendations detailed in the specialist reports and the Environmental Management Programme (EMPr).

Operational and layout alternatives were considered. The preferred alternative represents the least environmentally damaging option, as it limits the scale and intensity of development compared to the broader range of uses permitted under the existing Resort II zoning. Rather than establishing a commercial tourism resort, the proposal comprises four low-intensity self-catering accommodation units designed to minimise disturbance, retain the ecological integrity of the site, and avoid significant impacts on the Kromme Estuary and its associated ecological processes.

The EAP believes that the Basic Assessment Report contains adequate information for the competent authority to make an informed decision. Based on the project's nature and scope, it is the EAP's suggestion that the project is environmentally acceptable, as long as the prescribed mitigations in this report are correctly put into practice.

The EAP's Recommendation

Following the completion of the Basic Assessment Process, Site Sensitivity Verification Report, specialist studies, public participation process, and environmental impact assessment, it is the opinion of the Environmental Assessment Practitioner (EAP) that the Preferred Alternative is environmentally acceptable and may proceed, subject to the implementation of the recommended mitigation measures and compliance with the Environmental Management Programme (EMPr).

The specialist investigations confirmed that although the site forms part of a sensitive ecological support area, the proposed development footprint is located outside the EFZ, maintains a minimum 40 m ecological buffer from the Kromme River estuary, and avoids the most sensitive environmental features present on the property. No plant or animal Species of Conservation Concern were recorded within the development footprint, and no fatal environmental flaws were identified that would preclude the proposed development from proceeding.

The impact assessment determined that the majority of identified impacts can be reduced to Low or Negligible significance through the implementation of the prescribed mitigation measures. While some residual impacts relating to vegetation loss and habitat transformation are unavoidable, these impacts are localised, limited in extent, and do not compromise the ecological functioning of the broader estuarine environment. Furthermore, cumulative impacts are not anticipated to result in significant degradation of the receiving environment due to the limited development footprint, retention of ecological buffers, and implementation of environmental management measures.

The EAP therefore recommends that Environmental Authorisation be granted for the proposed development, subject to the following conditions and recommendations:

- All mitigation measures contained within this BAR and the specialist reports must be incorporated into the EMPr and implemented throughout the planning, construction, operation, and rehabilitation phases of the development.
- A suitably qualified and independent Environmental Control Officer (ECO) must be appointed prior to the commencement of construction activities.
- A clearly demarcated construction footprint and laydown area must be established prior to the commencement of any site activities.
- No stockpiling of materials, storage of equipment, parking of vehicles, or construction-related activities may occur within the ecological buffer area, private open space areas, or any portion of the estuarine environment.
- A minimum 40 m ecological setback from the southern boundary adjacent to the estuary must be maintained.
- The entire development footprint, including conservancy tanks and associated infrastructure, must be located above the 5m topographical contour.
- Disturbed areas must be rehabilitated as soon as practicably possible following construction.
- No open fires may be permitted on site.
- No boat launching or associated recreational access to the estuary may occur south of the property boundary. Boat launching must be restricted to authorised public or private launch facilities.
- A Chance Find Procedure must be implemented should any archaeological, heritage, or palaeontological material be uncovered during construction.
- The following management plans and method statements must be prepared and implemented prior to the commencement of relevant activities:
 - Stormwater and Contingency Management Plan;
 - Erosion Management Plan;
 - Rehabilitation Management Plan; and
 - Alien Invasive Vegetation Management Plan.

- Alternative water and energy sources should be incorporated into the overall services design where feasible to reduce reliance on municipal resources and improve climate resilience.

Based on the findings of the assessment process, specialist investigations, impact assessment, and cumulative impact assessment, the proposed development is considered environmentally acceptable and is not expected to result in unacceptable impacts on the receiving environment, provided that all mitigation measures and Environmental Authorisation conditions are implemented and maintained throughout the life of the project.

PREPARED BY:	DESIGNATION	DATE	DOC REF
F JERLING	REG CANDIDATE EAP 2023/6932	16 July 2026	EC08/C/LN1&3/M/30-2026
L POTGIETER	REG EAP 2019/286	16 July 2026	

SIGNATURES of EAPs





Leander Potgieter

Francette Jerling

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Public Participation

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

Appendix A – MAPS

Appendix A1 –

Locality Map

Locality Map Ptn 9/707 Osbosch



Office of the Chief Surveyor General

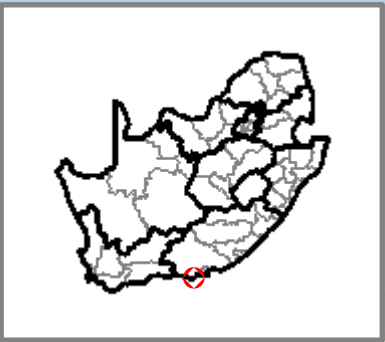
Chief Surveyor General Property Search
(November 2024 Version)
August 27, 2025

Legend

- Provinces
- Farm Portion
- Erven
- Holding
- Farm Portion
- Parent Farm
- Provinces
- Landmass Boundary
- Allotment Township
- Public Place
- Servitude Line
- Servitude Area
- Street



Sources: Esri, HERE, Garmin,
USGS, OpenStreetMap
contributors and
the GIS User Community.



Scale: 1:5 504

0 1 500 3 000 6 000 km

Appendix A2 – Locality Map with Coordinates

Locality Map - Ptn 9/707 Osbosch

Kouga Local Municipality, Humansdorp Registration Division



Activity Location		
No.	Latitude	Longitude
1	34° 8'14.77"S	24°49'30.62"E
2	34° 8'15.13"S	24°49'33.19"E
3	34° 8'18.19"S	24°49'32.81"E
4	34° 8'18.23"S	24°49'29.84"E

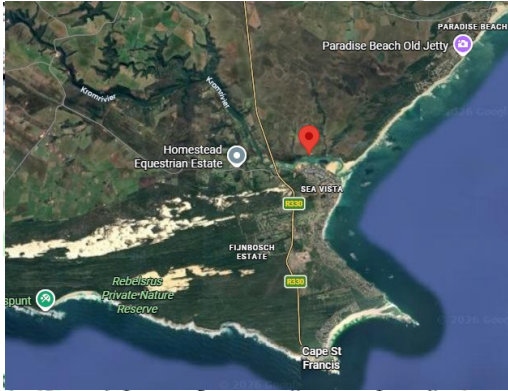


Google Earth

Image © 2025 Airbus

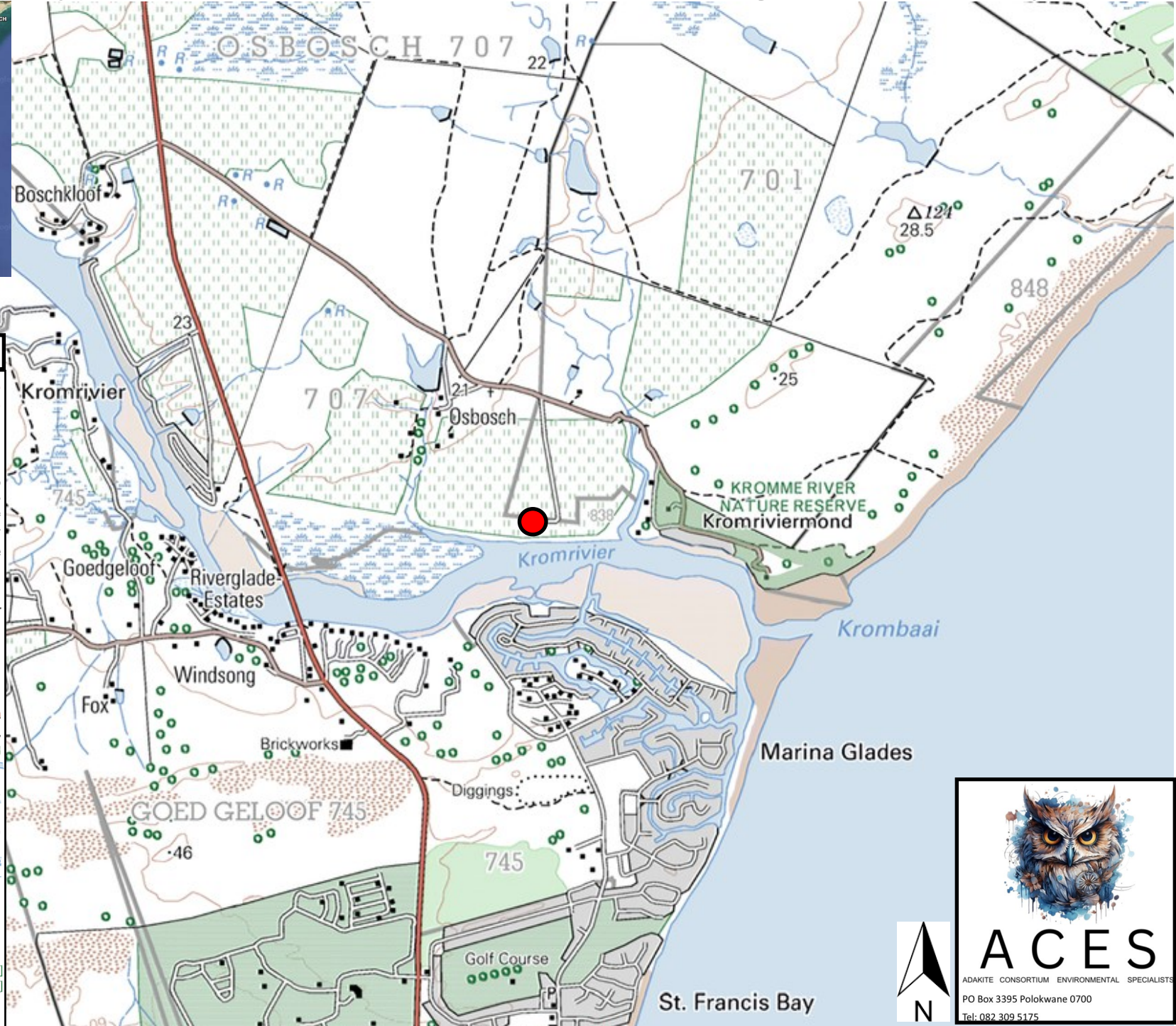
Appendix A3 – Surrounding Areas Pertinent to Site

Surrounding areas pertinent to Ptn 9 of Farm 707 Osbosch, Kouga LM, Eastern Cape



Legend **SCALE 1: 50 000**

National Freeway; National Route.....	
Arterial Route.....	
Main Road.....	
Secondary Road; Bench Mark.....	
Other Road; Bridge.....	
Track and Hiking Trail.....	
Railway; Station or Siding.....	
Other Railway; Tunnel.....	
Embankment; Cutting.....	
Power Line.....	
Built-up Area (High, Low Density).....	
Buildings; Ruin.....	
Post Office; Police Station; Store.....	
Place of Worship; School; Hotel.....	
Fence; Wall.....	
Windpump; Monument.....	
Communication Tower.....	
Mine Dump; Excavation.....	
Trigonometrical Station; Marine Beacon.....	
Lighthouse and Marine Light.....	
Cemetery; Grave.....	
International Boundary and Beacon.....	
Provincial Boundary.....	
Protected Area.....	
Perennial River.....	
Perennial Water.....	
Non-perennial River.....	
Non-Perennial Water.....	
Dry Water Course.....	
Dry Pan.....	
Marsh and Vlei.....	
Pipeline (above ground).....	
Water Tower; Reservoir; Water Point.....	
Coastal Rocks.....	
Prominent Rock Outcrop.....	
Erosion; Sand.....	
Woodland.....	
Cultivated Land.....	
Orchard or Vineyard.....	
Recreation Ground.....	
Row of Trees.....	



ACES
 ADAKITE CONSORTIUM ENVIRONMENTAL SPECIALISTS
 PO Box 3395 Polokwane 0700
 Tel: 082 309 5175

Appendix A4 – SG Diagram

SIDES Metres	ANGLES OF DIRECTION		CO-ORDINATES		
			Y System	WG25	X
	Constant		0,00		+3700000,00
AB	69,44	276 27 50	A	+	16125,54
BC	93,66	6 27 40	B	+	16056,54
CD	76,34	87 49 20	C	+	16067,06
DA	105,31	189 44 40	D	+	16143,36
				+	80061,10
				+	77171,06

△ No. 93 GOEDGELOOF

△ No. 124 BRAK

S.G.No.

2661/2002

Approved

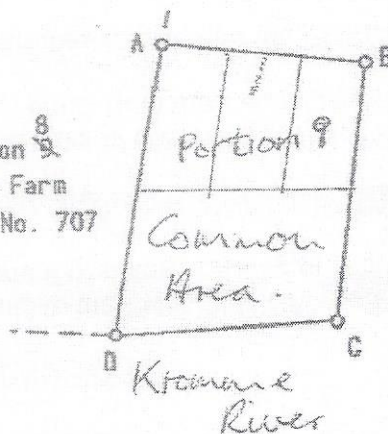
Surveyor-General

31-7-2002

Beacons

All beacons are 20mm Iron Pegs & Cairns

Portion 8
of the Farm
Osbosch No. 707



Portion 12
of the Farm
Osbosch No. 707

Scale: 1/2500

The Figure A B C D represents 7185 Square Metres of land being
PORTION 9 (a portion of Portion 3) of the Farm Osbosch No. 707

Situate in the Kouga Municipality

Administrative District of Humansdorp

PROVINCE OF THE EASTERN CAPE

Surveyed in May 2002 by me.

R.J. Hemsley

R.J. Hemsley (PLS 0258)
Professional Land Surveyor

This diagram is annexed to
No.

Dated

i.f.o

Registrar of Deeds

The original diagram is

No. 3715/1944 annexed to
Transfer/Grant

No. 1945-133-6619

File No. Humd.707

S.R.No. E 1178/2002

Comp. AN-20AB (3631)
AN-20AB/W41 (6146)

DATE 11-03-2002

DATE 7 March 2002

Appendix A5 – Land Use Scheme Map

Land Use Zoning of Subject Site Ptn 9/707 Osbosch & Surrounding Properties

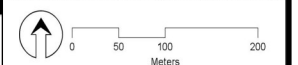


INTERGRATED LAND USE SCHEME

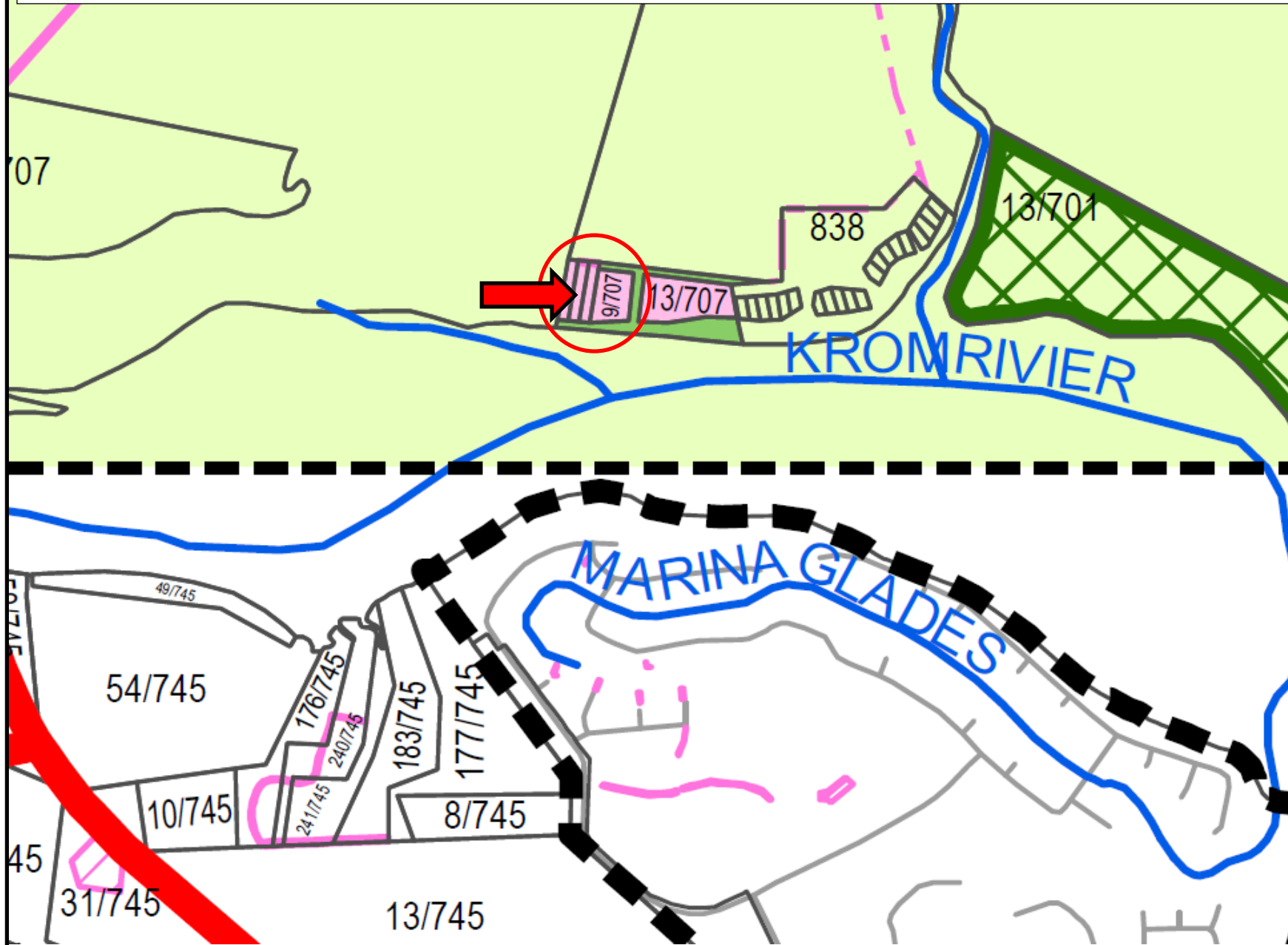
PTN 9 FARM 707 OSBOSCH, KOUGA LM

- Residential Zone 1
Dwelling Unit
- Residential Zone 2
Town Housing
- Residential Zone 3
General Residential Building
- Open Space Zone 1
Public Open Space
- Open Space Zone 2
Private Open Space
- Open Space Zone 3
Conservation Area
- Transport Zone 1
• Public Roads and Parking
• Transport Use
- Transport Zone 2
Private Roads and Parking
- Agriculture Zone
• Agriculture
• Agriculture Worker Accommodation
- Resort Zone
Holiday Accommodation
- Special Zone
Special Use
- Subdivisional Area

Note:
 • Zoning notation is based on Zoning Transition Table, Schedule 3 of the Kouga Land Use Scheme
 • Rectification of errors on the zoning map should be done in accordance with Section 16 of the Kouga Land Use Scheme



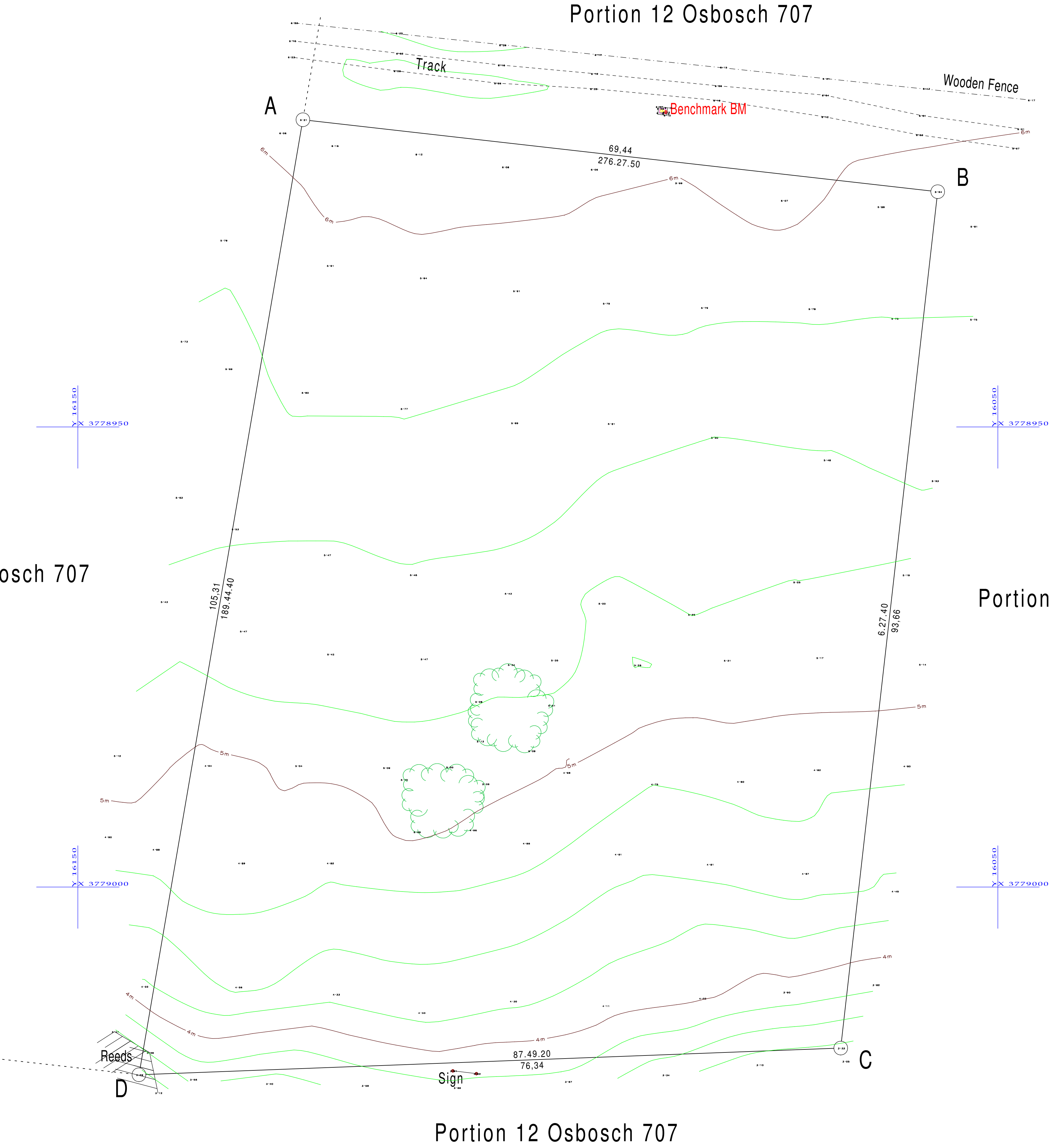
URBAN DYNAMICS
 TOWN & REGIONAL PLANNERS
 Tel: 041 374 3080 Tel: 041 374 3084 Email: info@urban.co.za



Appendix A6 – Contour Plan Map

PORTION 9 OSBOSCH No. 707

SCALE 1:250 [Wg.25] 



NOTES:
1. The figure ABCD represents Portion 9 Osbosch No. 707
2. Benchmark "BM" : Description = Drill hole in concrete manhole collar
Height = 6.121m [Local Datum]
3. Tree canopies are approximated
4. Contours at 0.25m intervals
5. Cadastral beacons have not been verified by survey

TOPOGRAPHICAL SURVEY :

Surveyed by : ALLEN NICHOLSON
SURVEYOR

Date of Survey : 08/02/2021

Coordinate System :WG.25 Datum : LLD (Land Levelling Datum) SA GEOD 2010
Scale 1:250 @ A1 Landscape

083 459 4655 : allenr.nicholson@gmail.com



Appendix A7 – Aerial Photographs taken of site

Aerial Photographs of the Kromme River Estuary

Post June 3rd – 4th storm – Taken 10 June 2026 10:37. (Source: South African Estuary Information System (SAEIS – SAEON))



Post May 5th – 7th Low pressure system storm – Taken 09 May 2026 11:00. (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 08 December 2025 09:57 (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 24 October 2025 10:17 (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 08 August 2024 10:35 (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 22 August 2023 10:17 (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 01 January 2017 (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 1961 (Source: South African Estuary Information System (SAEIS – SAEON))



Taken 1969 (Source: South African Estuary Information System (SAEIS – SAEON))



The site

FIGURE 6
1969
1:36000

CMS 45

Taken 1979 (Source: South African Estuary Information System (SAEIS – SAEON))



Appendix A8 – Map of Triggered Areas

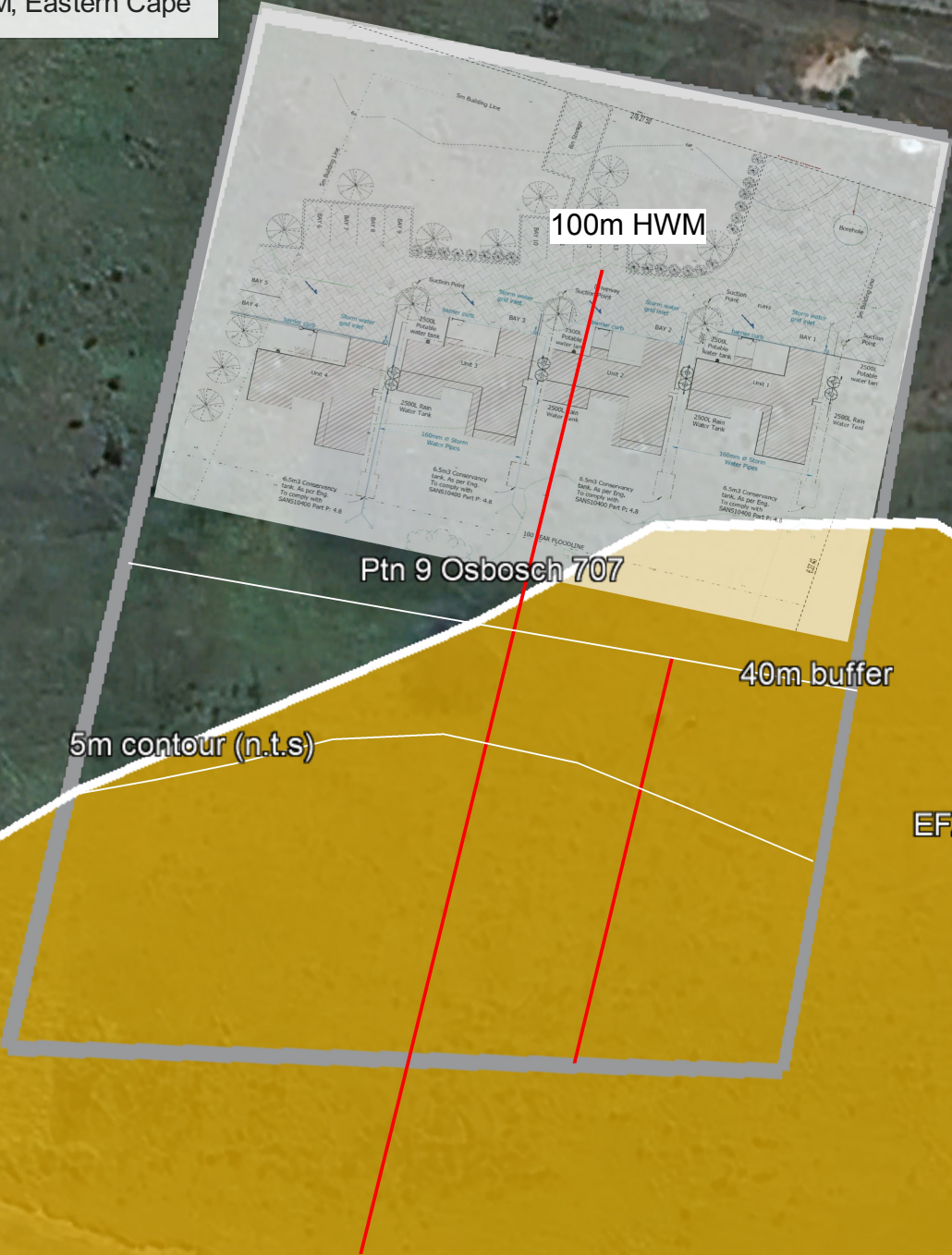
Map of Triggered Areas

Ptn 9/707 Osbosch, Humansdorp RD, Kouga LM, Eastern Cape

Legend

- 5m contour (NTS)
- HWM & 40m buffer line (NTS)
- The Tides of Kromme

The Tides of Kromme



Appendix A9 – ECBCP Terrestrial Map

Legend

ECBCP Terrestrial CBA

- PA
- CBA 1
- CBA 2
- ESA 1
- ESA 2
- Other

World Imagery

- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery

Citations

- 1.2m Resolution Metadata

Appendix A10 – ECBCP Freshwater Map

Ptn 9 of Farm 707 Oubosch - ECBCP freshwater Map

Description

Kouga Local Municipality, Humansdorp Registration Division

Legend

ECBCP Freshwater CBA

CBA 1

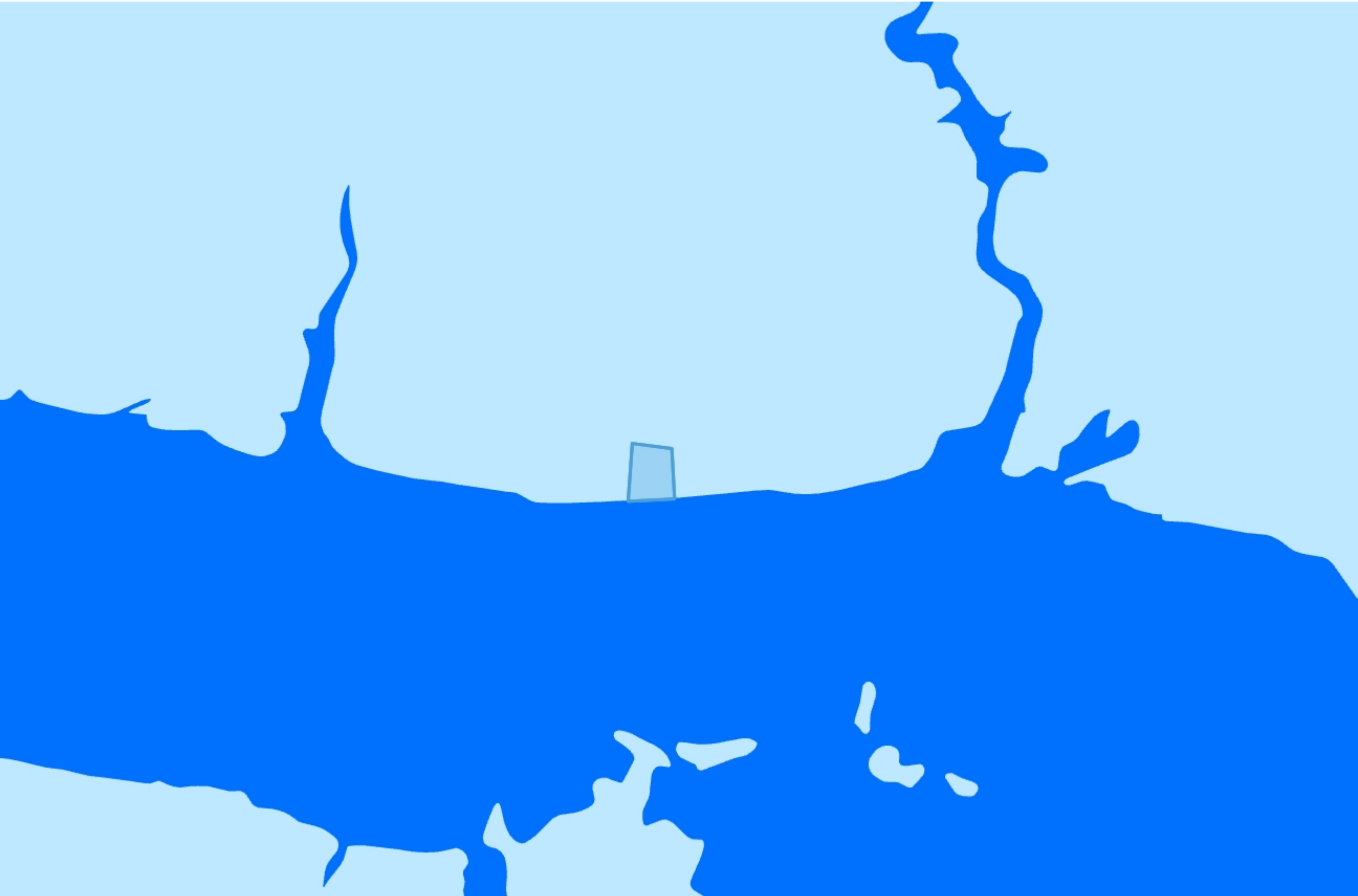
CBA 2

ESA 1

ESA 2

Other

1: 9,028

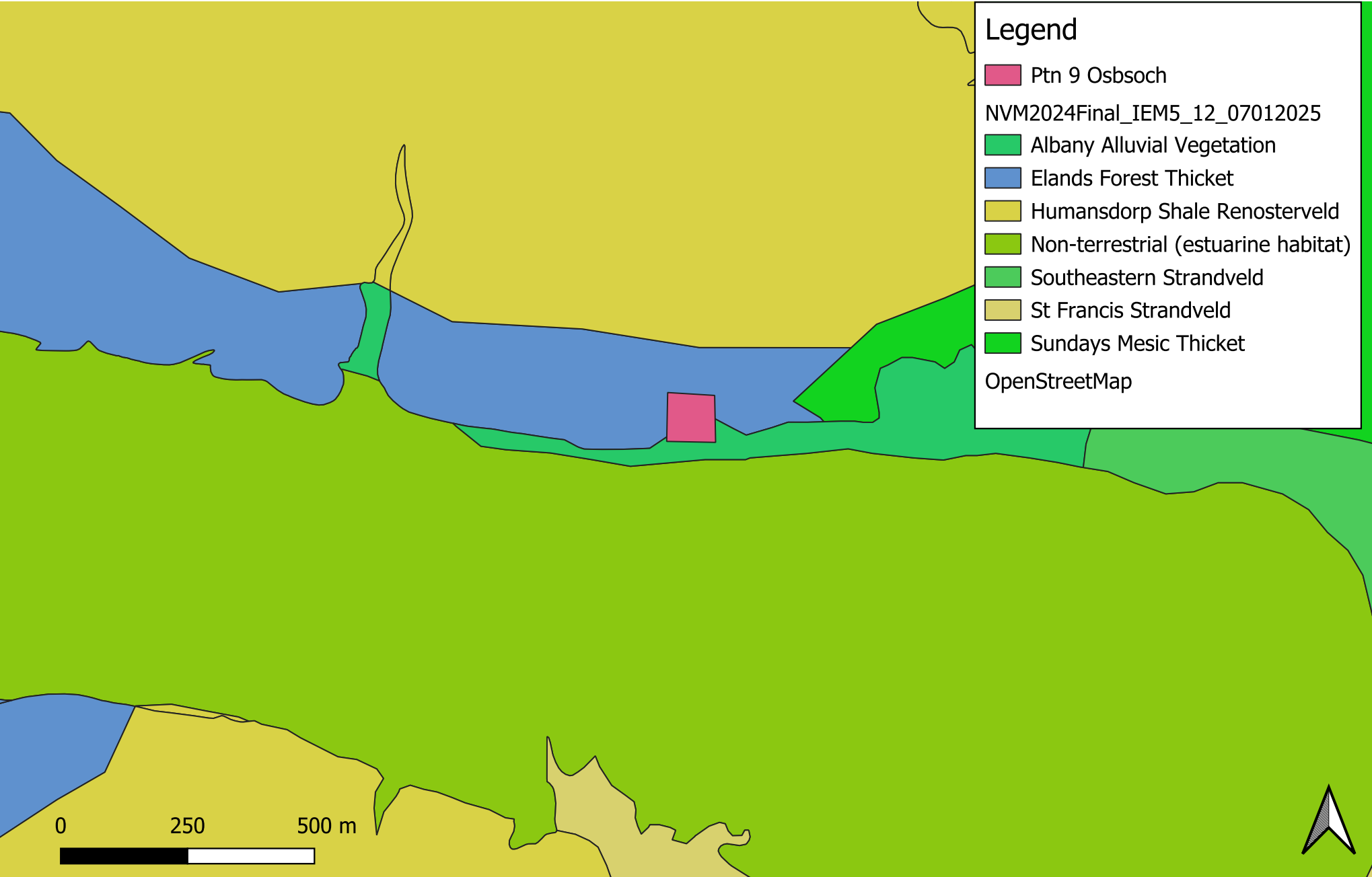


0.5 0 0.23 0.5 Kilometers

Appendix A11 – Vegetation Map (National Veg Map, 2018)

Appendix A12 – Vegetation Map (National Veg Map, 2024)

Vegetation Map over Ptn 9 Osbosch 707, Kouga Local Municipality, EC



Appendix A13 – Red List Ecosystems Map (NBA 2025)

National Biodiversity Assessment 2025 - Terrestrial Red List Ecosystem: Ptn 9 of Farm 707
Osbosch, Humansdorp RD, Kouga LM

Legend

- Site polygon
- nba2025_terr_rle_epl
 - Albany Alluvial Vegetation
 - Elands Forest Thicket
 - Humansdorp Shale Renosterveld
 - Non-terrestrial (estuarine habitat)
 - Sundays Mesic Thicket
- ESRI Satellite

0 100 200 m



Appendix A14 – Site Plan Map

Site Plan Map

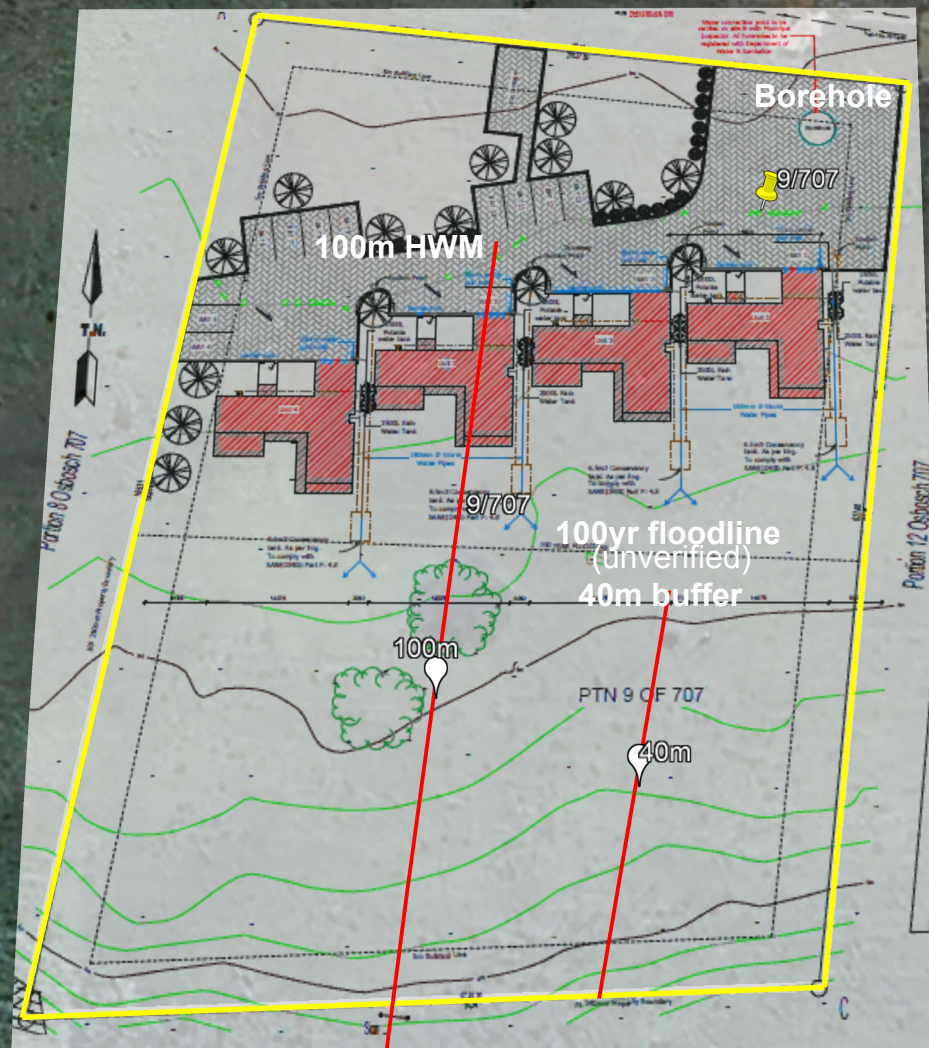
- Ptn 9/707 Osbosch

Legend

-  100mHWM & 40m buffer
-  9/707
-  Feature 2
-  The Tides of Kromme

Humansdorp RD, Kouga LM, Eastern Cape

Electric Transformer

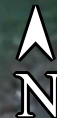


The Tides of Kromme

Google Earth

Kromme River Left Bank

60 m



Appendix A15 – Protected Areas Map

Description

Humansdorp RD, Kouga LM, Eastern Cape

Legend

Informal protected areas (NPAES)

Threatened ecosystems original extents

Critically Endangered

Endangered

Vulnerable

1: 9,028

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Latitude Geographics Group Ltd.

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

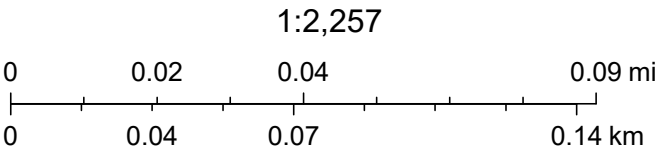
THIS MAP IS NOT TO BE USED FOR NAVIGATION

Appendix A16 – Estuary Flood Risk Map

Estuary Flood Risk Map - Ptn 9/707 Oubosch



09/09/2025, 12:43:07



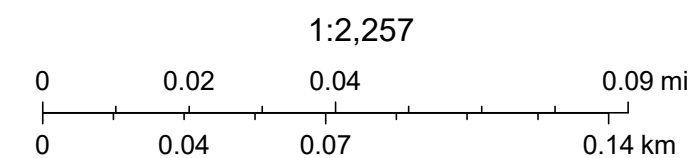
Department of Environmental Affairs: Oceans & Coasts,
Source: Esri, Maxar, Earthstar Geographics, and the GIS
User Community, Sources: Esri, TomTom, Garmin, FAO,
NOAA, USGS, © OpenStreetMap contributors, and the
GIS User Community, Dept Environmental Affairs, ESRI,

Appendix A17 – Estuary Erosion Risk Map

Estuary Erosion Risk Map - Ptn 9/707 Oubosch



09/09/2025, 12:48:00



Department of Environmental Affairs: Oceans & Coasts,
Source: Esri, Maxar, Earthstar Geographics, and the GIS
User Community, Sources: Esri, TomTom, Garmin, FAO,
NOAA, USGS, © OpenStreetMap contributors, and the
GIS User Community, Dept Environmental Affairs, ESRI,

Appendix B – SITE PHOTOGRAPHS

Site Photographs – Taken October 2025

Ptn 9 of Farm 707 Osbosch, Kouga LM





View overlooking the site in a northeasterly direction from the southwestern corner.



View overlooking the site in a northwestern direction from the southeastern corner.



View looking west from the southeastern corner of the site.



View of the Kromme riverbank south of the site, looking in an easterly direction. This is not within the site's boundary.

View from the riverbank looking up
towards the site in a northerly
direction.



Appendix C – FACILITY ILLUSTRATIONS

Appendix C1 – Preferred Option – Site Development Plan



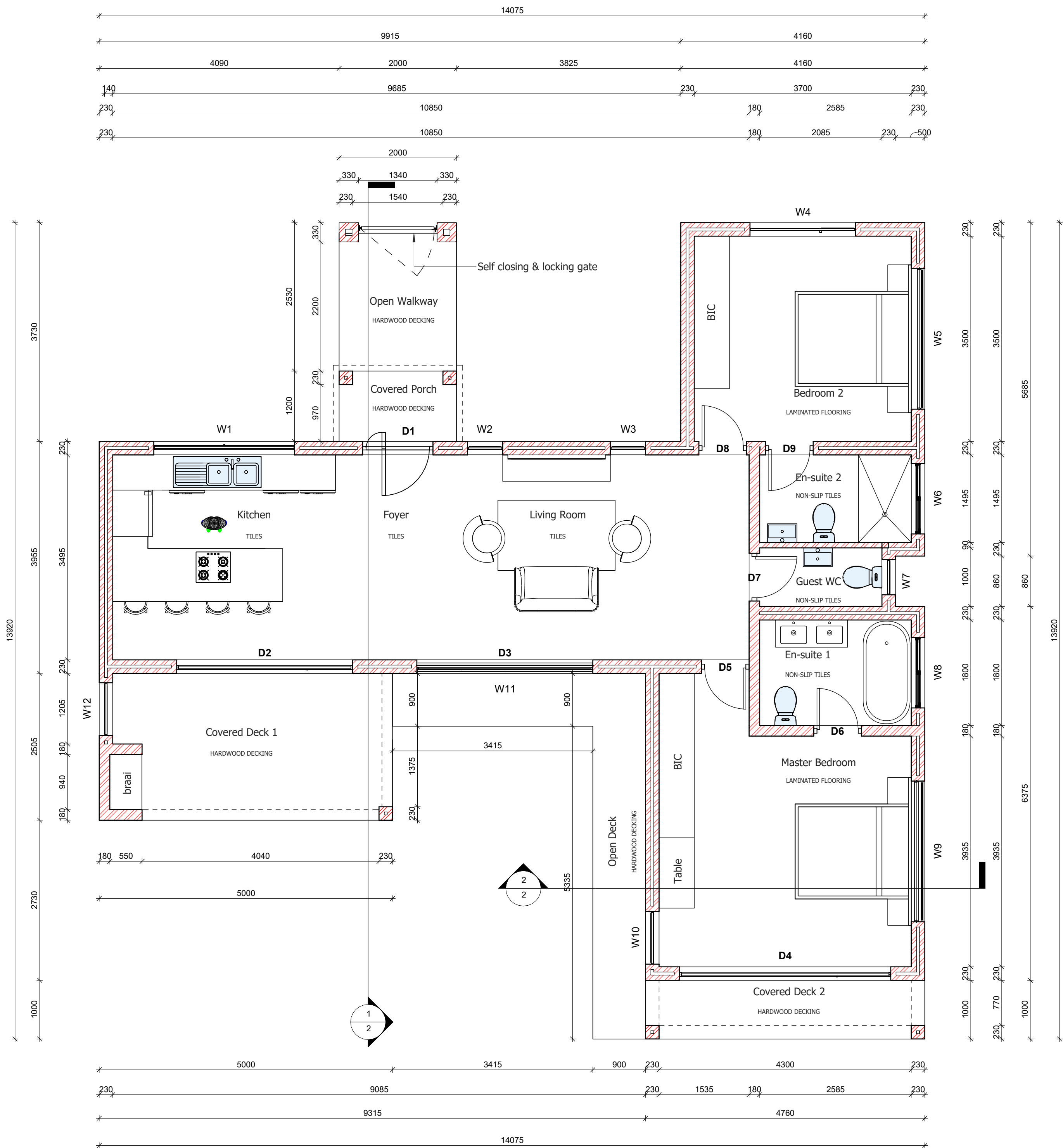
NOTES:

1. The figure ABCD represents Portion 9 Osbosch No. 707
2. Benchmark "BM": Description = Drill hole in concrete manhole collar
Height = 6.121m [Local Datum]
3. Tree canopies are approximated

Client: Economy Drive CC	
Delosio Arch Designs (Pty) Ltd	
PROJECT NO: 08170 2412	
Jacques Delosio info@jacquedelosio.co.za	12 Horner Park, Johannesburg
SAPAC- PAD Z988966	
Drawing Title:	
Partion 9 of Farm Oschoboch 707 Humandorpf	
Drawing Title:	
"Proposed Holiday Housing" Drawings for Municipal Submission	
Drawing No: 10	Designer: D. Delosio
Scale: As Indicated	Drawn: D.J. Delosio
Date: June 2025	Engineer: Signus Consulting
Client: Economy Drive CC	
Client Signature:	
Project No: STB707-2025/06/01	

 JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Appendix C2 – Preferred Option – Building Plans



Unit 1 Floor Plan
1 : 50

Unit 1 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1200	600
W7	600	600
W8	1200	600
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 1 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3000	2100
D3	3000	2100
D4	3600	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass. All glass to comply with the minimum Cu value needed. Glass/Aluminium as specified must comply with SANS 10400.

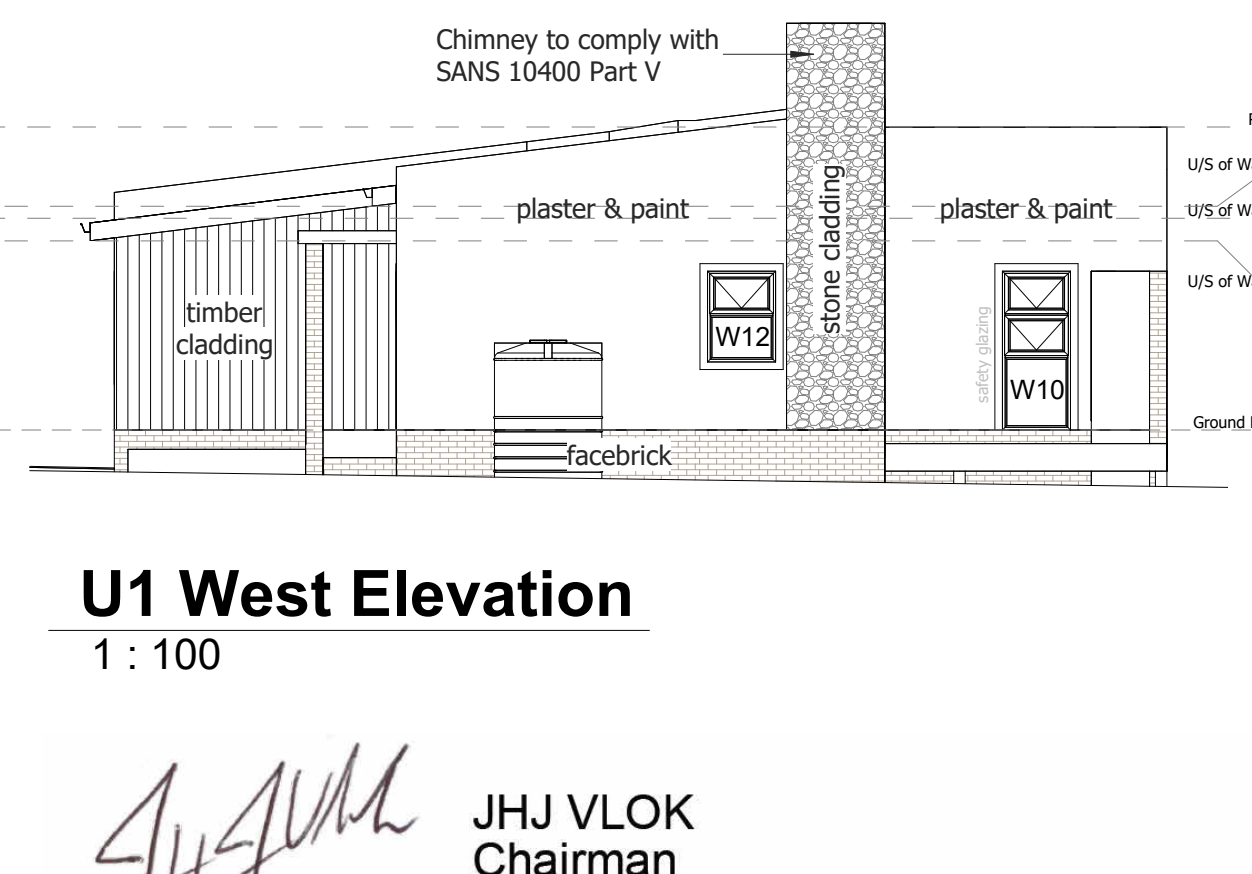
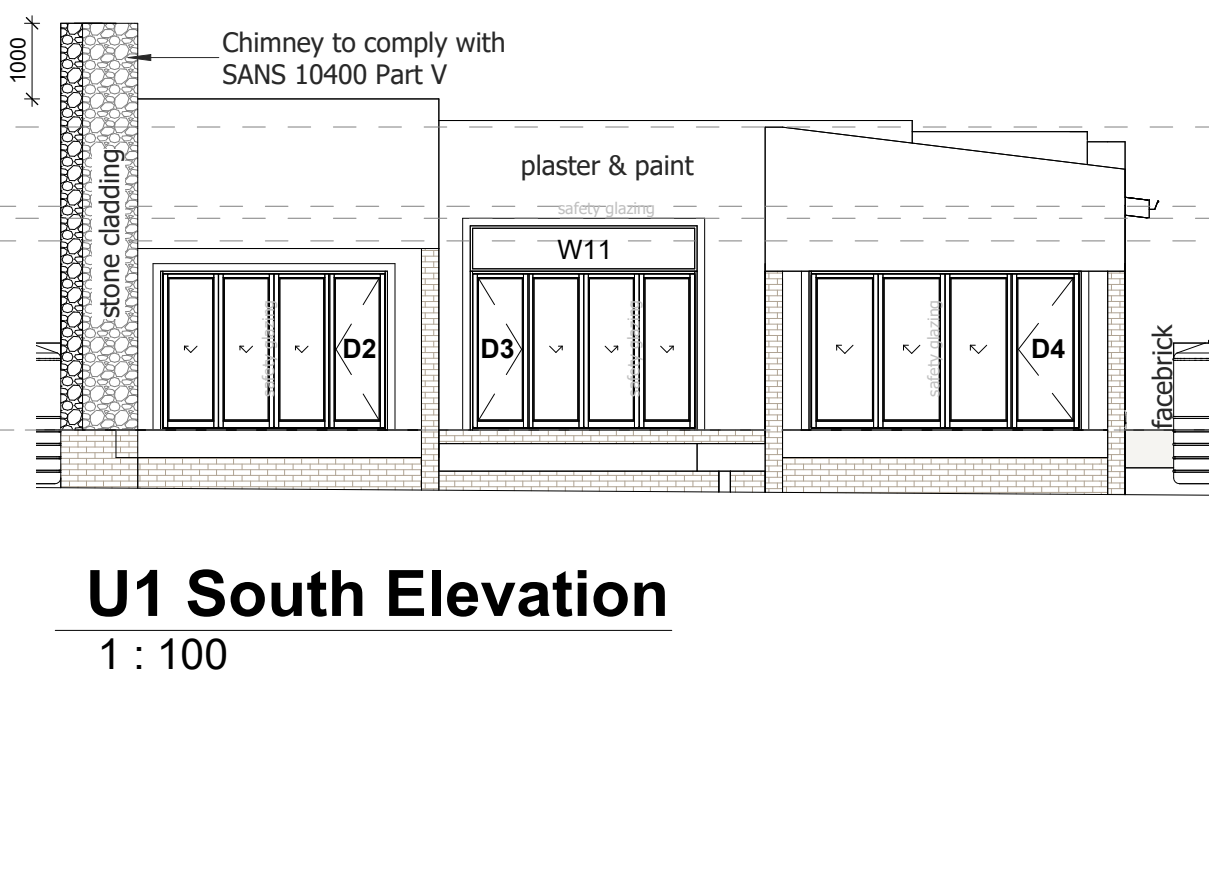
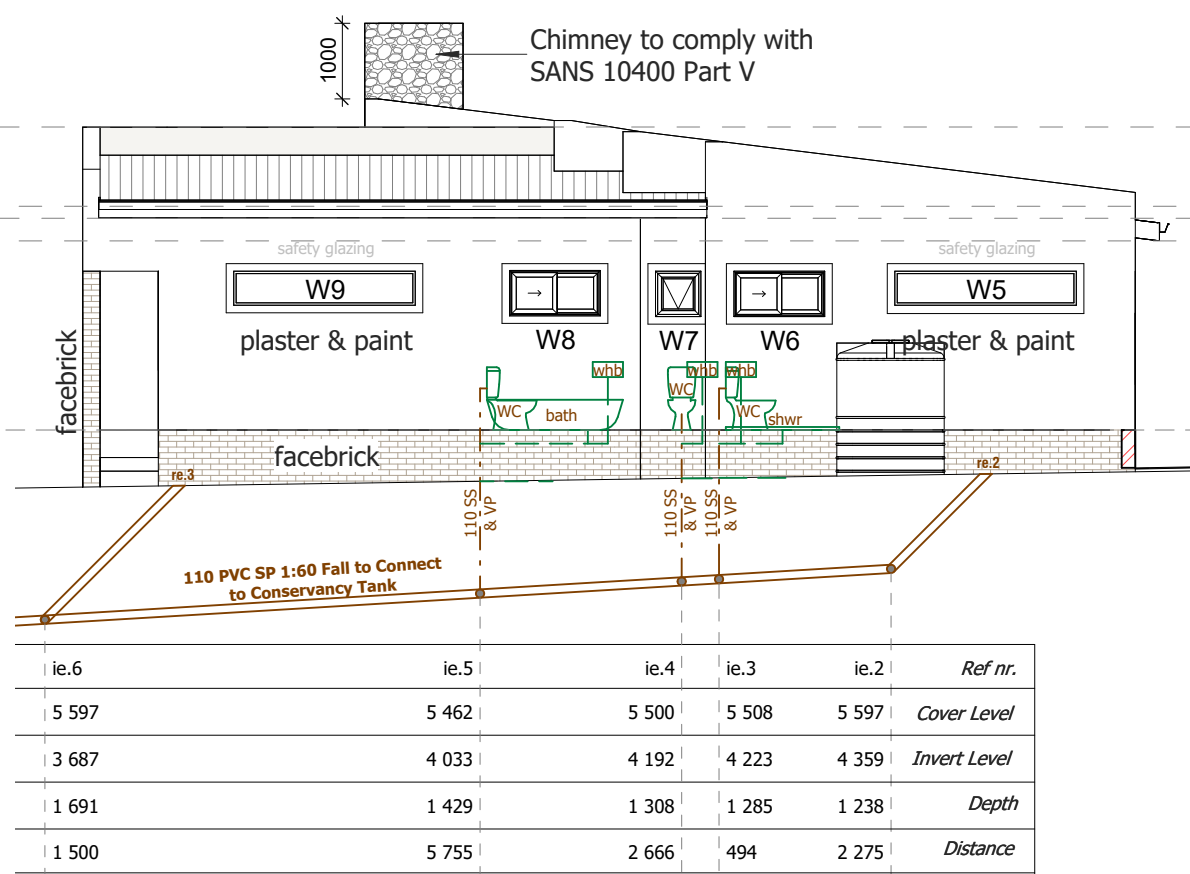
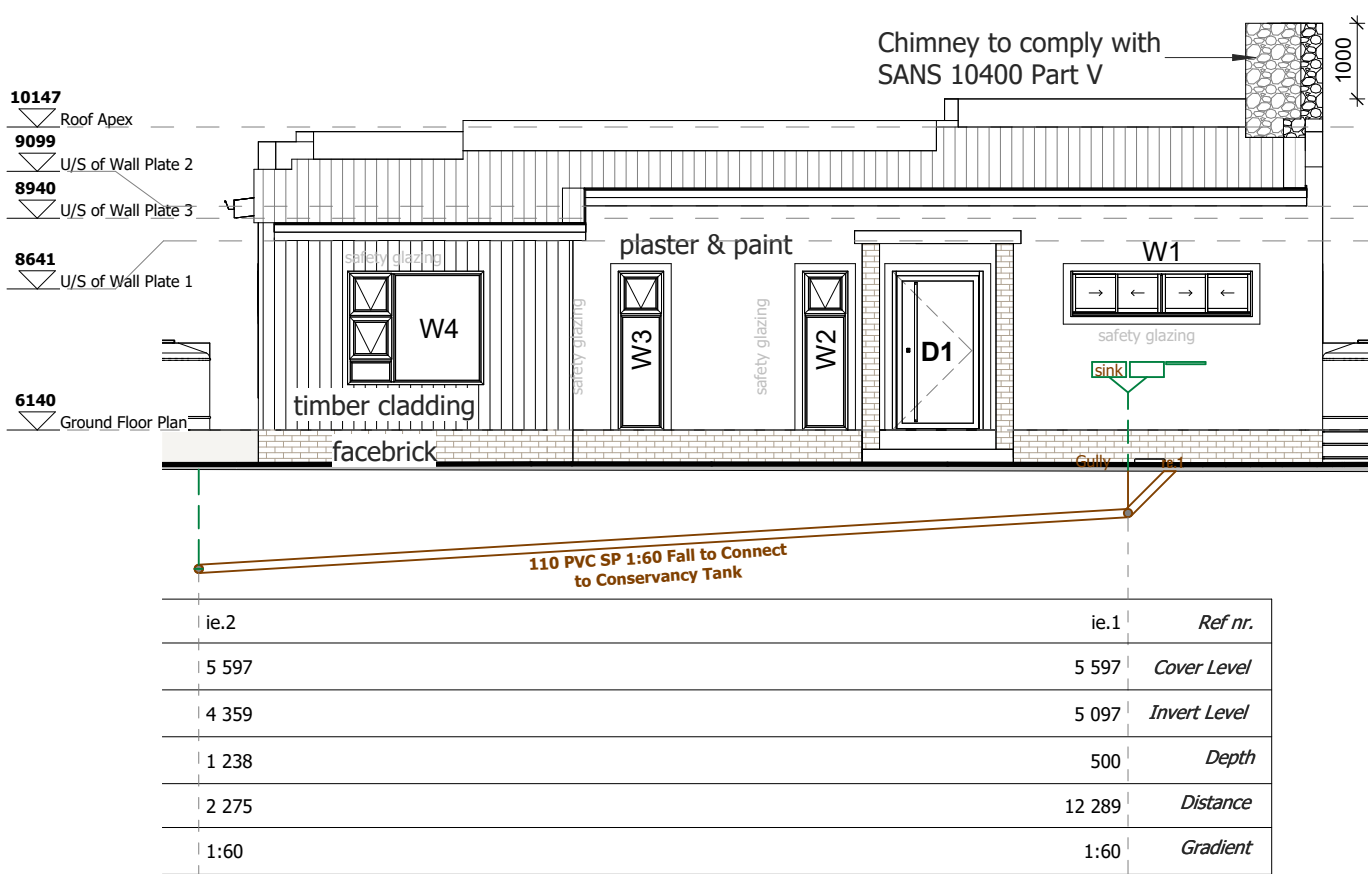


Unit 1 : Fenestration Calculations

Fenest	ORIENTATION	Cl	FENESTRATION AREAS				SHADING - Clause 5.2					SPECIFICATION - Clause 5.2		ENTER shgc values		Averaging	
Catalogue reference	window plan ref	Orientation sector	window width mm	window vertical mm	number quantity	window area m ²	shading height mm	multiplier Table 3	required shading projection	actual shgc (design)	compliant 1= yes 0= no	U-value	required shgc-value T4,col 3&4	Enter shgc compliant 1=yes 0=no	Enter non-compliant shgc 0=no	ww area x required shgc	
	W1	W,NW,N,NE,E	2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43	
	W2	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38	
	W3	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38	
	W4	W,NW,N,NE,E	1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81	
	W5	W,NW,N,NE,E	2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38	
	W6	W,NW,N,NE,E	1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25	
	W7	W,NW,N,NE,E	600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13	
	W8	W,NW,N,NE,E	1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22	
	W9	W,NW,N,NE,E	2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32	
	W10	W,NW,N,NE,E	900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66	
Total W,NW,N,NE,E orientated fenest'n area						12,51	➡							12,51		➡	3,96
	W11	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a	⬇ ⬇ ⬇		n/a	
	D2	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a	
	D3	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a	
	D4	SW,S,SE	3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a	
Storey total fenestration area						38,97											
Storey net internal floor area						83,24											
Fenestration %: IF >20%, use this to enter Table 4						46,82	%					Average weighted-by-area shgc					0,32

U1 South Elevation
1 : 100

U1 West Elevation
1 : 100



Drawing No: 1

Municipal Stamp:

Drawing Index:

Portion 9 of Farm Oosbosch 707
7155m²
T00071832/2011
Portion 9 of Farm Oosbosch 707
Humansdorp
Resort Zone 2
Holiday Housing
N/A

Drawing Index:

SHEET	Unit	Sheet	Contents
SHEET 1	Unit 1	sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 2	Unit 1	sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 3	Unit 2	sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 4	Unit 2	sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 5	Unit 3	sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 6	Unit 3	sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 7	Unit 4	sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 8	Unit 4	sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 9	Unit 5	sheet 01	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work. Figure dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings. The design of this drawing is the property of Oelofse ArchDesigns and copyright is reserved by him.

Alle vereistes van munisipaliteit en ander betrokke owerhede moet streng nagekom word. Bouaannemers en onderaannemers moet alle maters en vlakke op die terrein nagaan alvorens enige bouwerk n aanvang neem. Grootte maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorbehou.

REV DATE DRAWN DESCRIPTION

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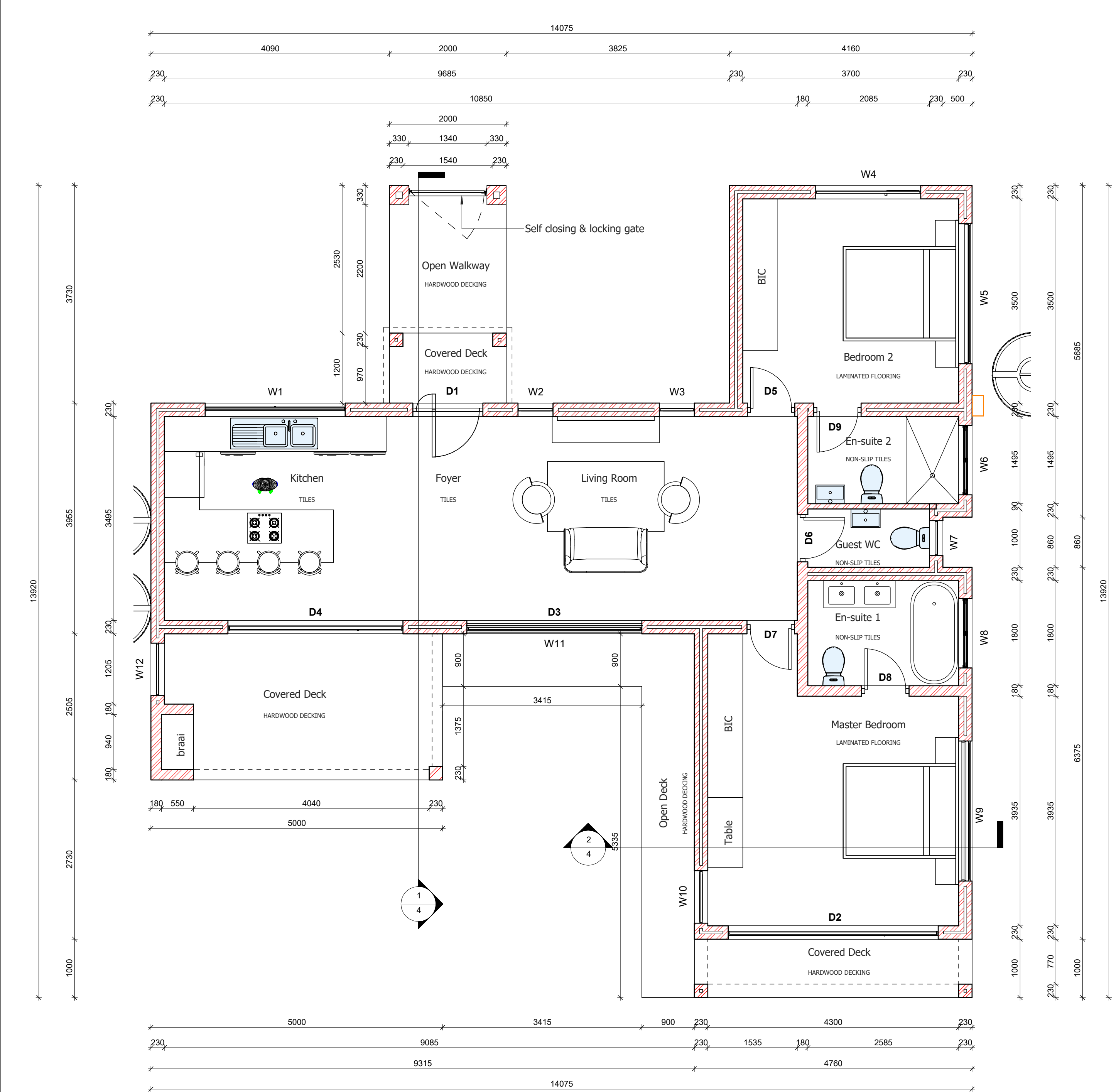
Oelofse ArchDesigns (Pty) Ltd
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412
SACAP: PAD 29888866

Diens / Service: Portion 9 of Farm Oosbosch 707 Humansdorp

Drawing Title: "Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting Designer: J. Oelofse
Scale: As indicated SACAP: PAD 29888866
Date: June 2025 Drawn: D.J. Oelofse
Client: Economy Drive CC SACAP: APP 70613985
Client Signature:
Project No: STB707-2025/06/01

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024



Unit 2 Floor Plan
1 : 50

Unit 2 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1190	590
W7	600	600
W8	1190	590
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 2 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3600	2100
D3	3000	2100
D4	3000	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

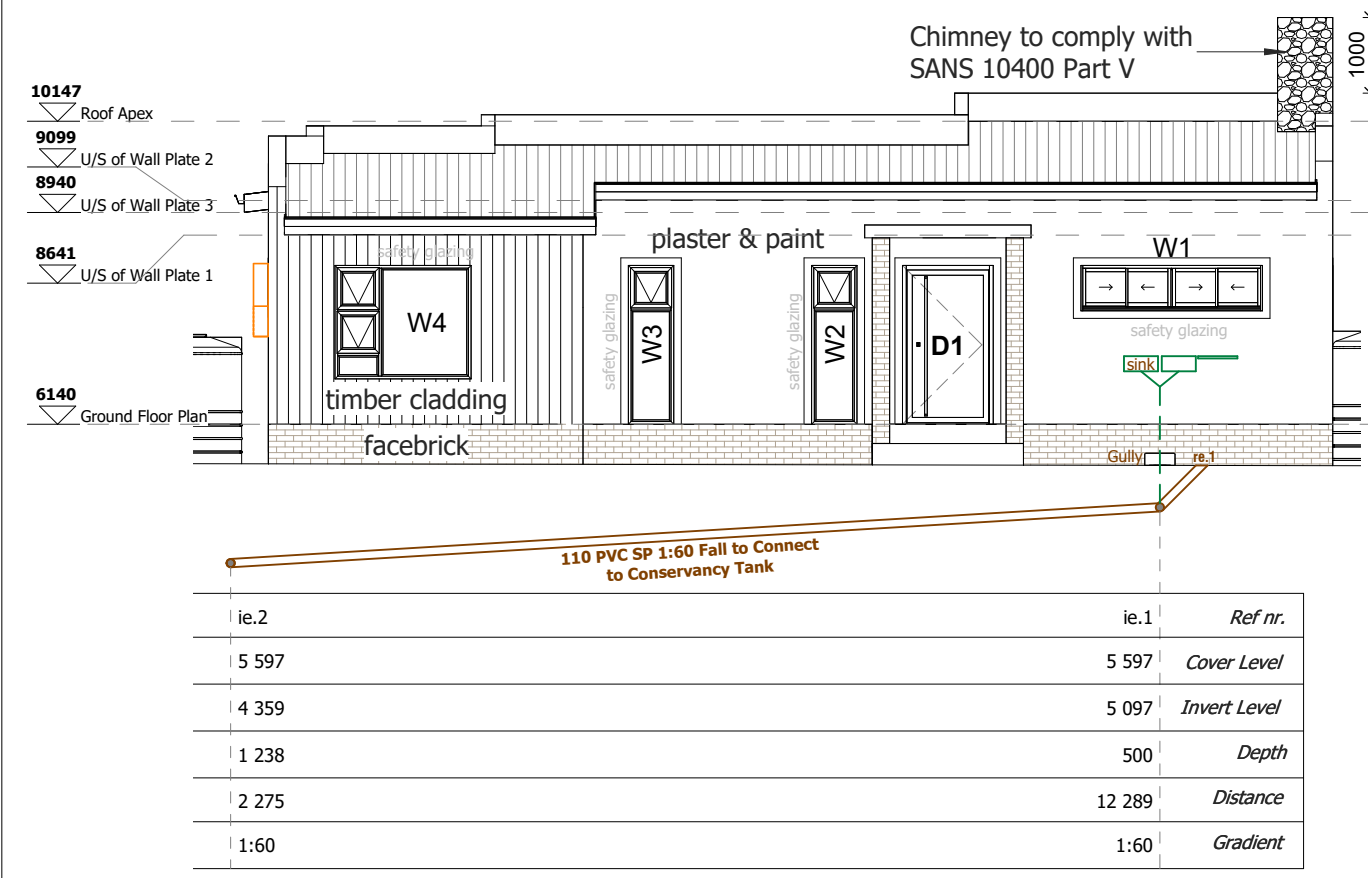
Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.



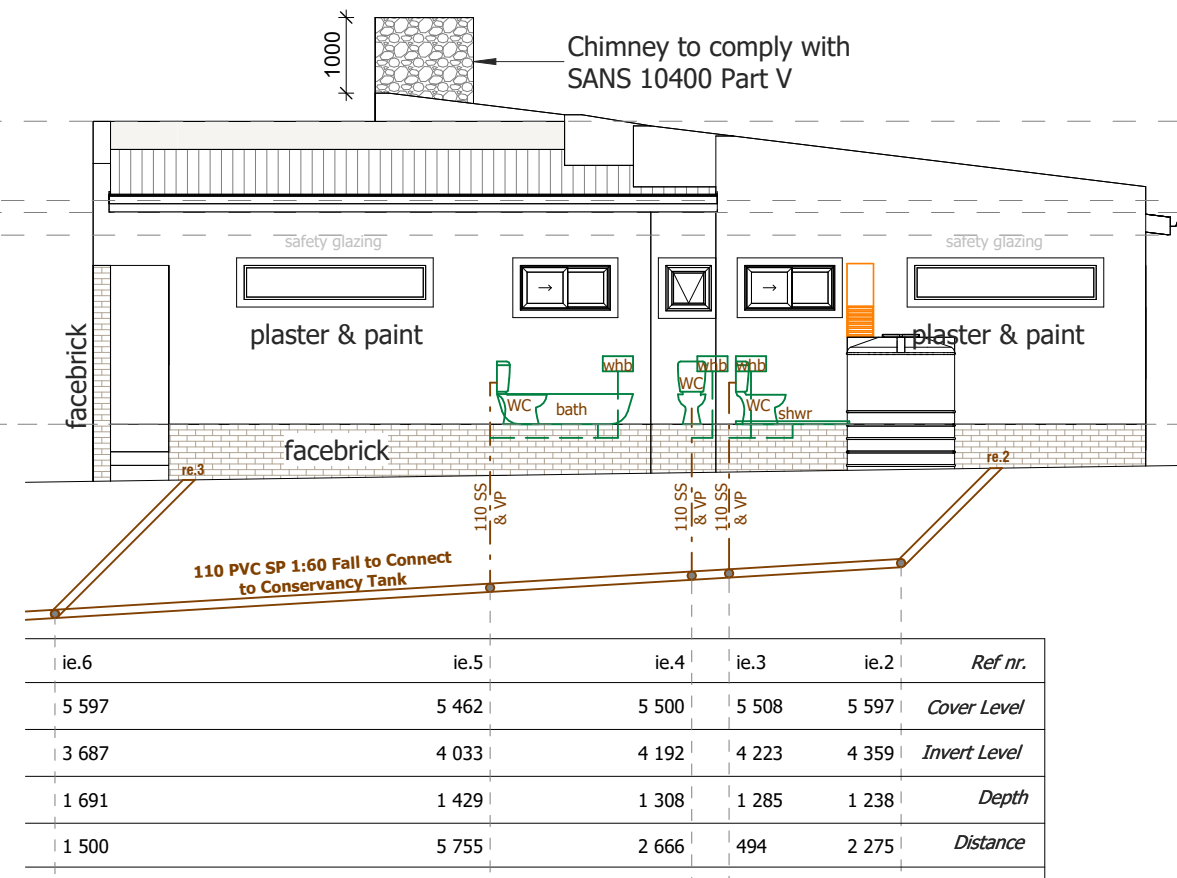
Site Plan U2
1 : 500

Unit 2 : Fenestration Calculations

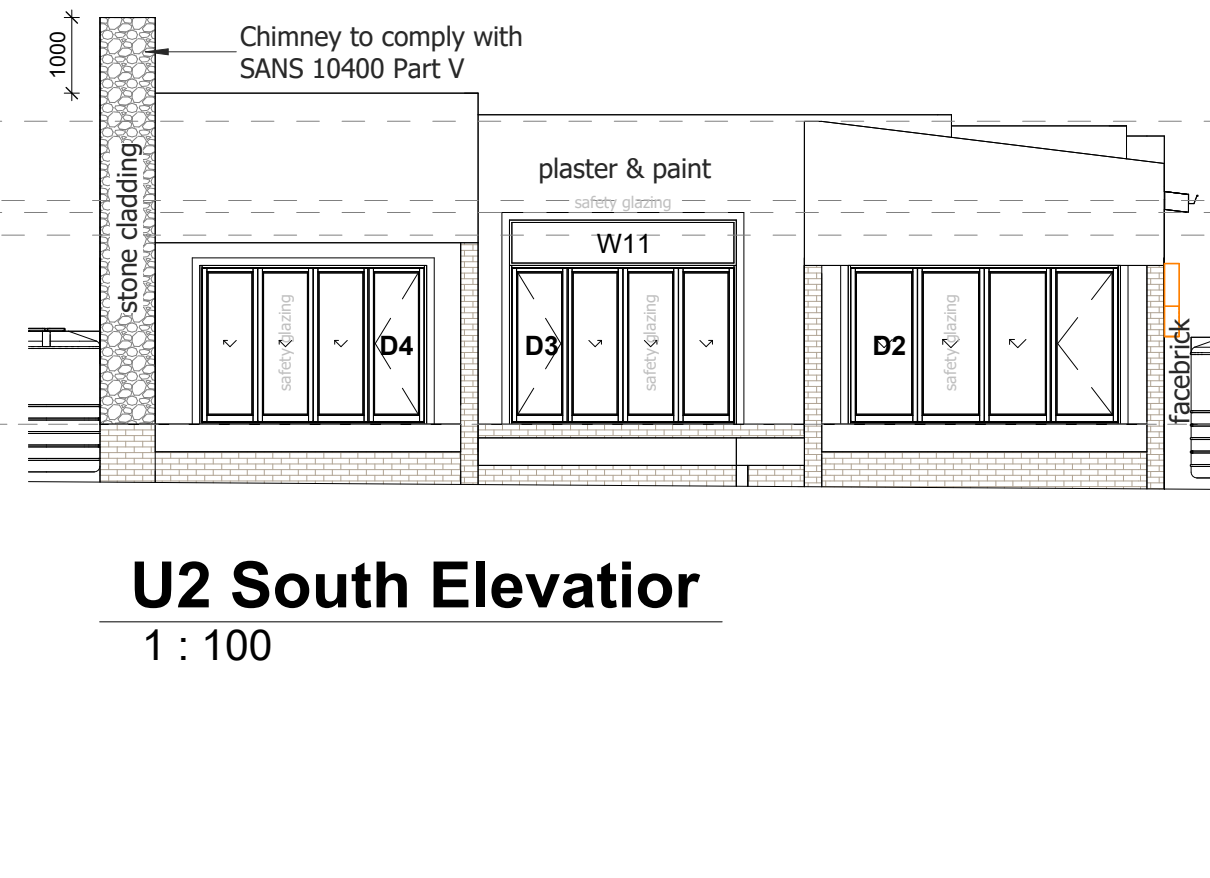
Fenest	ORIENTATION Cl		FENESTRATION AREAS				SHADING - Clause 5.2					SPECIFICATION - Clause 5.2		ENTER shgc values		Averaging		
Catalogue reference	Window plan ref	Orientation sector	Window width mm	Window vertical mm	Number (quantity)	Window area m ²	Shading height mm	Multiplier Table 3	Required shading projection	Actual shgc (design) projection	Compliant 1= yes 0= no	U-value	Required shgc-value T4,col 3&4	Enter shgc compliant 1=yes 0=no	Enter non-compliant shgc 0=no	ww area x required shgc		
	W1	W,NW,N,NE,E	2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43		
	W2	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38		
	W3	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38		
	W4	W,NW,N,NE,E	1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81		
	W5	W,NW,N,NE,E	2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38		
	W6	W,NW,N,NE,E	1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25		
	W7	W,NW,N,NE,E	600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13		
	W8	W,NW,N,NE,E	1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22		
	W9	W,NW,N,NE,E	2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32		
	W10	W,NW,N,NE,E	900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66		
Total W,NW,N,NE,E orientated fenest'n area						12,51	➡								12,51	➡ 3,96		
	W11	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a		⬇	n/a		
	D2	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a		
	D3	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a		
	D4	SW,S,SE	3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a		
Storey total fenestration area						38,97												
Storey net internal floor area b						83,24												
Fenestration %: IF >20%, use this to enter Table 4						46,82	%					Average weighted-by-area shgc					0,32	



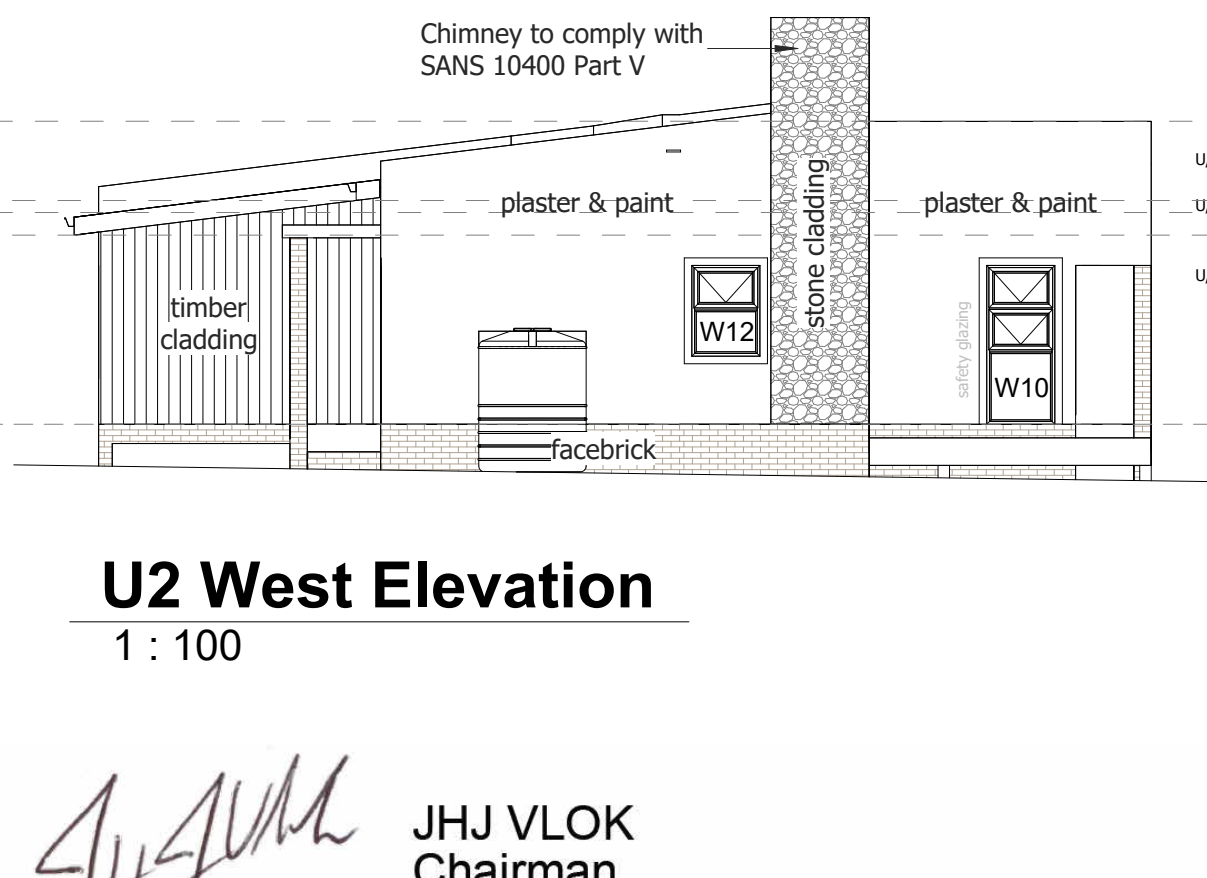
U2 North Elevation
1 : 100



U2 East Elevation
1 : 100



U2 South Elevation
1 : 100



U2 West Elevation
1 : 100

Drawing No: 3

Municipal Stamp:

Drawing Index:

Portion	9 of Farm Oosbosch 707
Stand Size	7155m ²
Title Deed Address	T000071832/2011 Portion 9 of Farm Oosbosch 707 Humansdorp
Zoning Classification	Resort Zone 2
P.A. Plan Number	N/A

Drawing Index:

SHEET 1	Unit 1 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 2	Unit 1 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 3	Unit 2 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 4	Unit 2 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 5	Unit 2 sheet 03	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 6	Unit 3 sheet 01	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 7	Unit 3 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 8	Unit 4 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 9	Unit 4 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.
Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.
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Geskiede maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorbehou.

REV	DATE	DRAWN	DESCRIPTION

Client:
Economy Drive CC

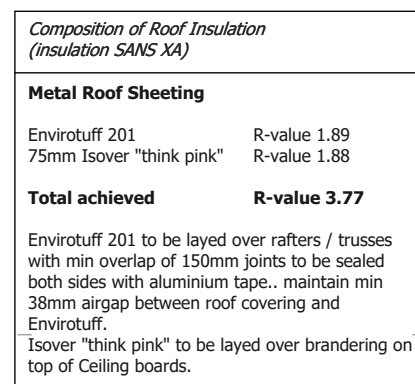
Oelofse ArchDesigns (Pty) Ltd
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412
SACAP: PAD 29888866

Diens / Service:
Portion 9 of Farm Oosbosch 707 Humansdorp

Drawing Title:
"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting Designer: J. Oelofse
Scale: As indicated SACAP: PAD 29888866
Date: June 2025 Drawn: D.J. Oelofse
Client: Economy Drive CC SACAP: APP 70613985
Client Signature:
Project No: **STB707-2025/06/01**

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024



1 : 50

1 : 50

TYPICAL SCHEMATIC GAS INSTALLATION

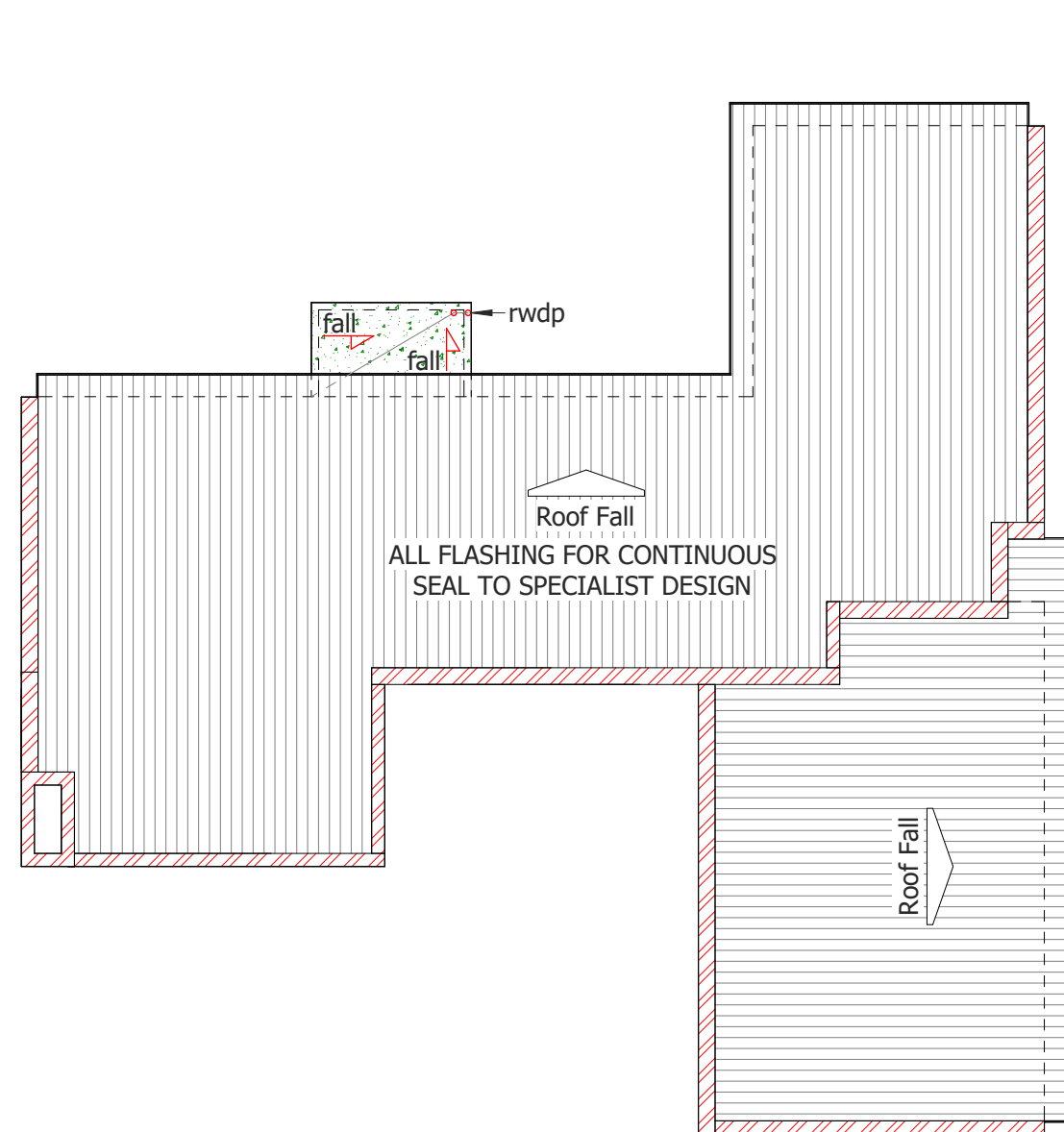
DIAGRAM INDICATES SAFETY DISTANCES

The diagram illustrates the following safety distances:

- 1000mm clearance from the Door to the Gas Cylinder.
- 1000mm clearance from the Gas Cylinder to the Window.
- 2000mm clearance from the Window to the Open Electric Drain.
- 500mm clearance from the Open Electric Drain to the end of the Gas Line.
- 750mm clearance from the Gas Line to the Electrical Outlet.
- Total distance from Door to end of Gas Line: 5000mm.

Notes:

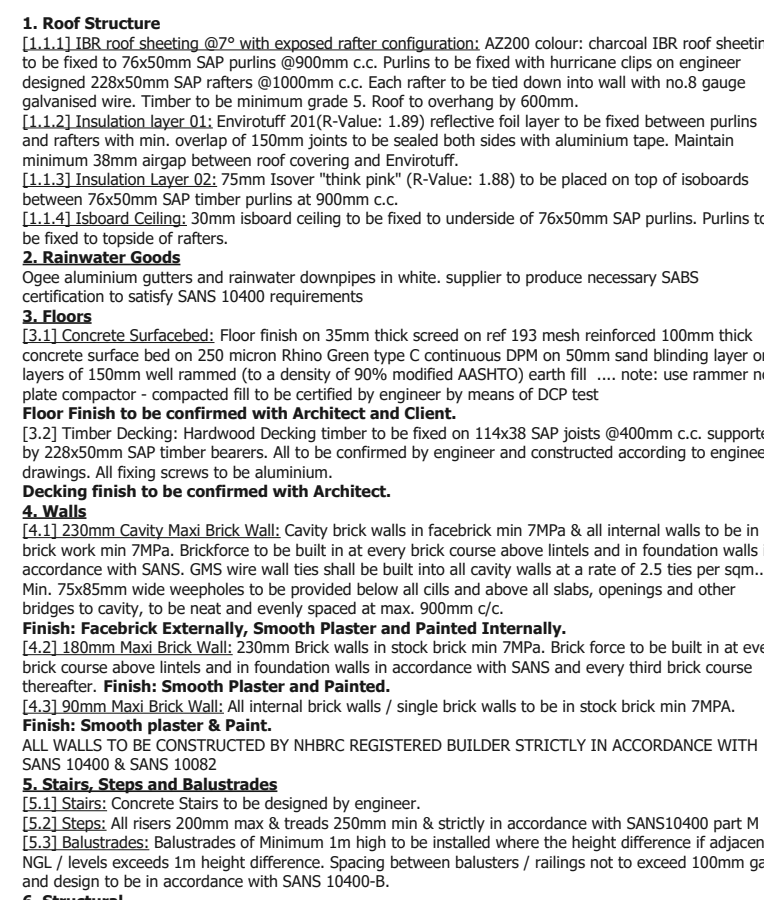
1. Bottle(s) cannot be placed closer than 1m to a door.
2. Bottle(s) cannot be placed closer than 2m to an open drain or depression, where gas can gather if the bottle leaks.
3. Bottle(s) cannot be placed closer than 1m to an electrical switch, motor, generator, pump pump etc.
4. Bottle(s) cannot be placed closer than 1m to the side of a window unless there is at least 300mm between the bottom of the window and the top of the bottle and no combustible mat has been placed between the window and the bottle.
5. Bottle(s) cannot be placed closer than 1m to a boundary wall, unless the is a double brick "firewall" > 150mm thick with ventilation gas in the wall.
6. Hq and large gas cylinders to be a lockable steel cage.



1 : 100

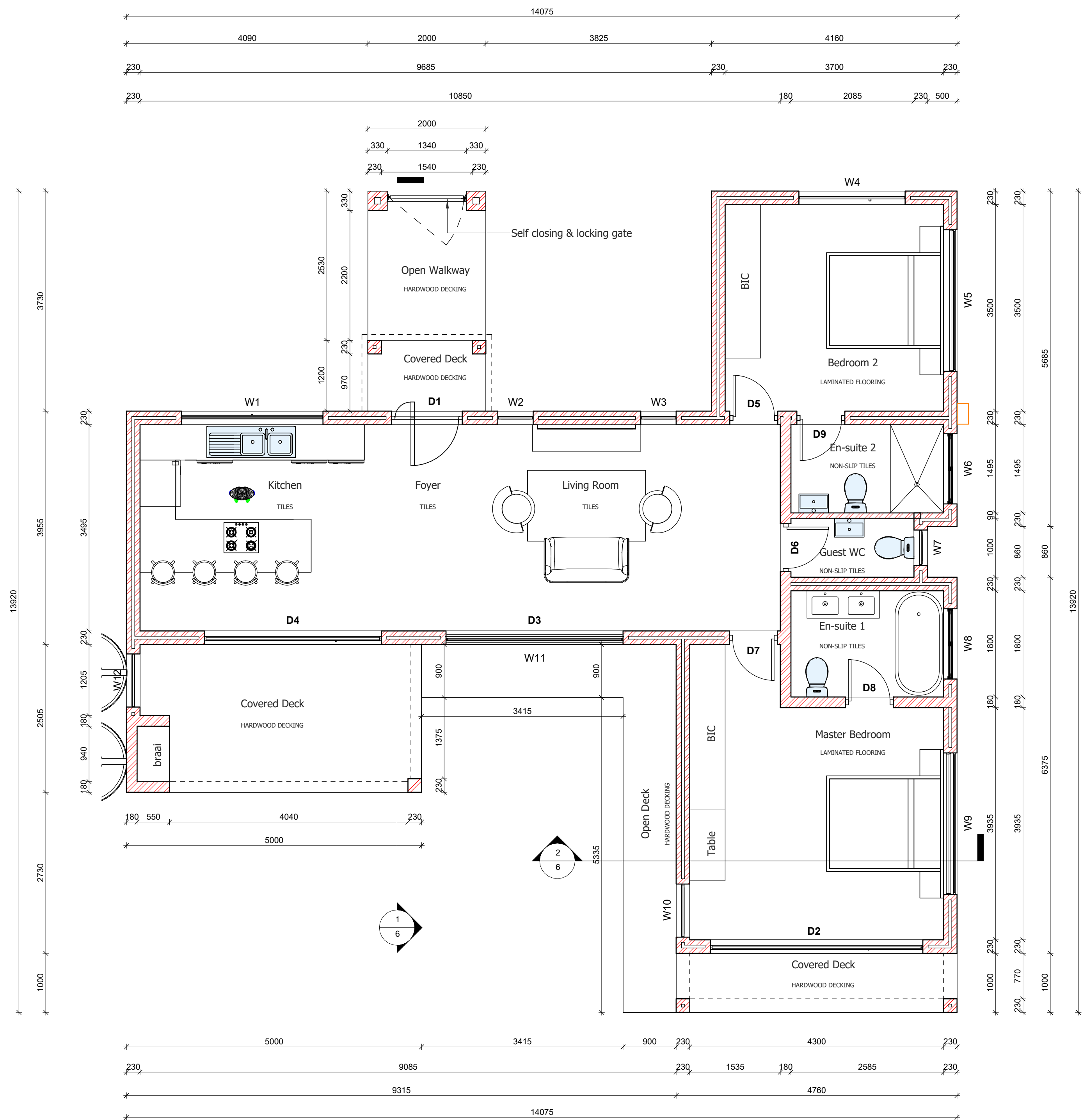
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1 : 25



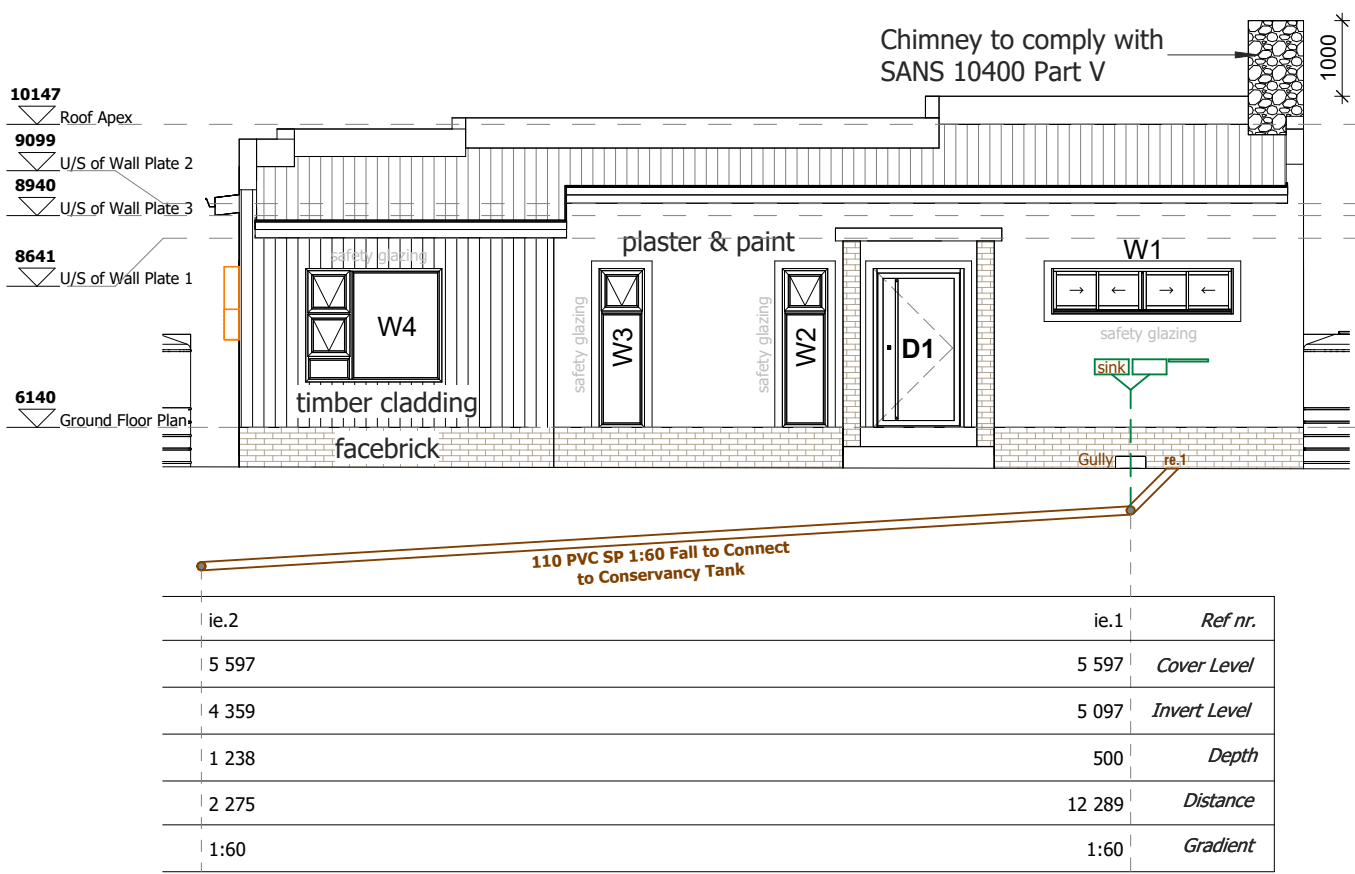
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Drawing No: 4	
Municipal Stamp:	
Drawing Index:	
Portion Stand Size Title Deed Address Zoning Classification P.A. Plan Number	9 of Farm Oschbosch 707 7185m ² T000071832/2011 Portion 9 of Farm Oschbosch 707 Humansdorp Resort Zone 2 Holiday Housing N/A
Drawing Index:	
SHEET 1	Unit 1 sheet 01 - Site Position Plan - Floor Plan - Window & Door Schedule - Fenestration Calculations - Elevations - Drainage Section
SHEET 2	Unit 1 sheet 02 - Sections - Service Plan - Energy Calculations - Roof Plan - Details
SHEET 3	Unit 2 sheet 01 - Site Position Plan - Floor Plan - Window & Door Schedule - Fenestration Calculations - Elevations - Drainage Section
SHEET 4	Unit 2 sheet 02 - Sections - Service Plan - Energy Calculations - Roof Plan - Details
SHEET 5	Unit 3 sheet 01 - Site Position Plan - Floor Plan - Window & Door Schedule - Fenestration Calculations - Elevations - Drainage Section
SHEET 6	Unit 3 sheet 02 - Sections - Service Plan - Energy Calculations - Roof Plan - Details
SHEET 7	Unit 4 sheet 01 - Site Position Plan - Floor Plan - Window & Door Schedule - Fenestration Calculations - Elevations - Drainage Section
SHEET 8	Unit 4 sheet 02 - Sections - Service Plan - Energy Calculations - Roof Plan - Details
SHEET 9	sheet 03 - Sections - Service Plan - Energy Calculations - Roof Plan - Details
All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work. Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings. The design of this drawing is the property of Oelofse ArchDesigns and copyright is reserved by him. Alle vereistes van munisipaliteit en ander betrokke owerheids moet streng nagekom word. Bousaamenners en onderaannemers moet alle matas en vlakke op die terrein naagaan alvorens enige bouwerk in aanvang neem. Geskaakte matas moet voorkeur geniet bo geskaalde matas en groot skaal tekeninge het klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiering word deur hom voorgoed.	
REV	DATE DRAWN DESCRIPTION
Client: Economy Drive CC	
Oelofse ArchDesigns (Pty) Ltd Jacques Oelofse info@oelofsearchdesigns.co.za 081 700 2412 ARCHITECTURE & DESIGN STUDIO 12 Merrie Place, Paradise Beach Jeffrey's Bay SACAP: PAD 29888866	
Dien / Service: Portion 9 of Farm Oschbosch 707 Humansdorp	
Drawing Title:	
"Proposed Holiday Housing" Drawings for Municipal Submission	
Engineer: Sigma Consulting	Designer: J. Oelofse
Scale: As indicated	SACAP: PAD 29888866
Date: June 2025	Drawn: D.J. Oelofse
Client: Economy Drive CC	SACAP: APP 70613985
Client Signature:	
Project No: STB707-2025/06/01	



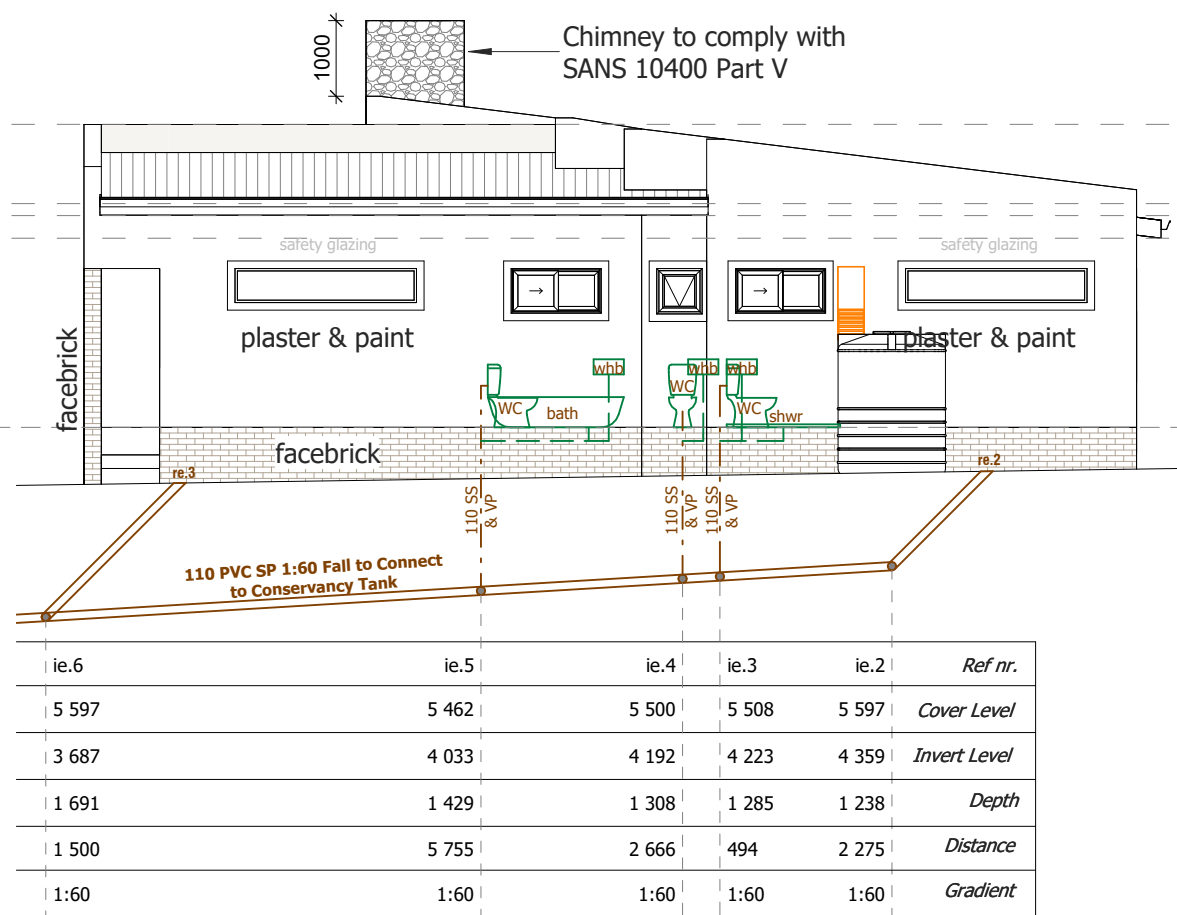
Unit 3 Floor Plan

1 : 50



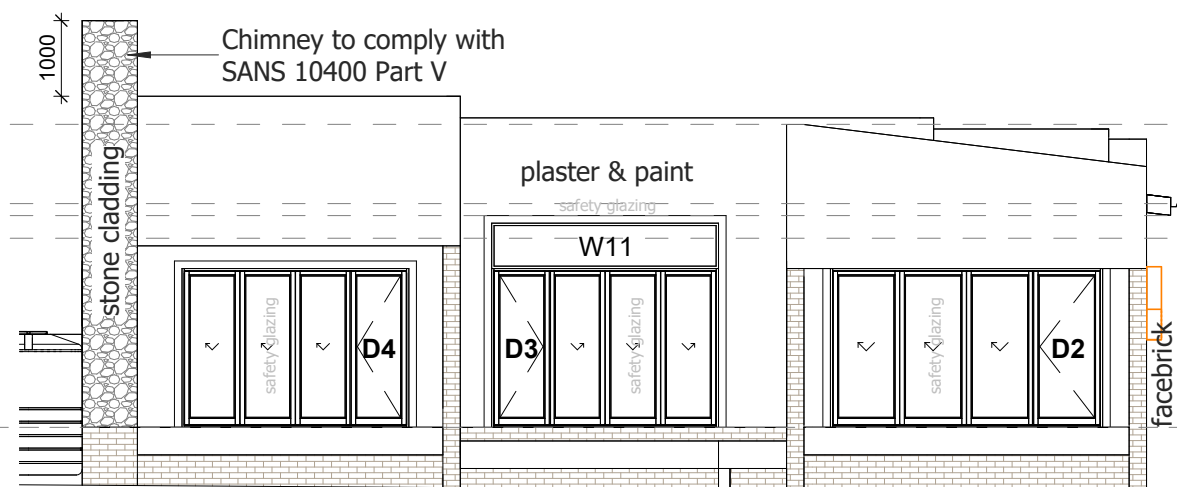
U3 North Elevation

1 : 100



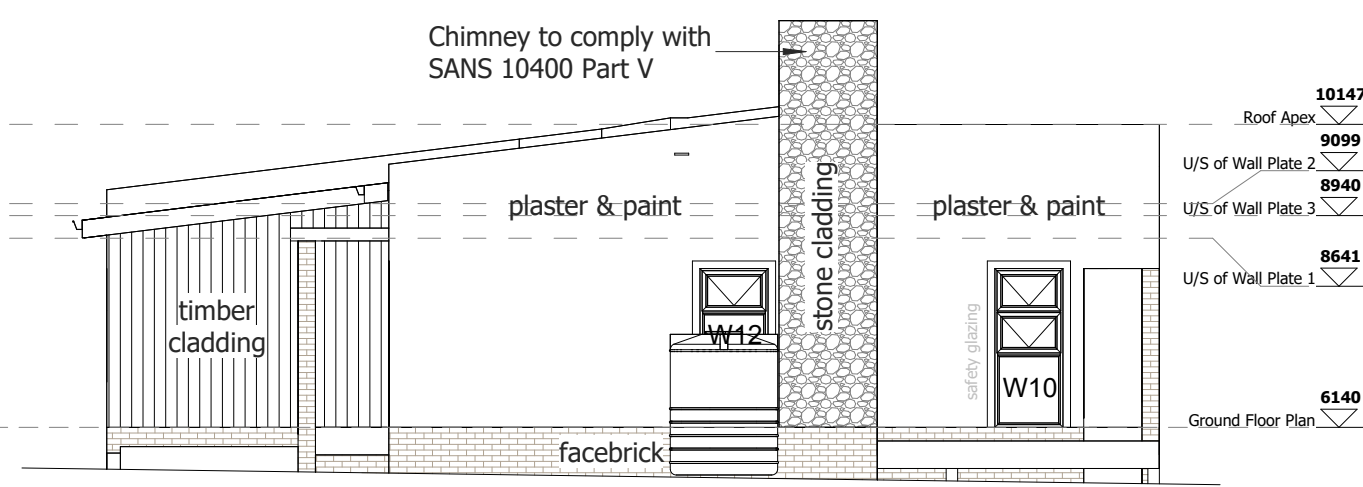
U3 East Elevation

1 : 100



U3 South Elevation

1 : 100



U3 West Elevation

1 : 100

Unit 3 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1190	590
W7	600	600
W8	1190	590
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 3 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3600	2100
D3	3000	2100
D4	3000	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

Glass Note:
Glass of which the total area exceeds that of 1m²
&/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum
Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.

Unit 3 : Fenestration Calculations

Fenest		ORIENTATION		FENESTRATION AREAS			SHADING - Clause 5.2					SPECIFICATION - Clause 5.2		ENTER shgc values		Averaging			
Catalogue reference	Window plan ref	Orientation sector	window width mm	window vertical mm	number (quantity)	window area m ²	shading height mm	multiplier Table 3	required shading projection	actual shading projection	compliant 1= yes 0= no	U-value	required shgc-value T4, col 3&4	Enter shgc compliant 1=yes	Enter non-compliant shgc 0=no	ww area x required shgc			
	W1	W,NW,N,NE,E	2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43			
	W2	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38			
	W3	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38			
	W4	W,NW,N,NE,E	1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81			
	W5	W,NW,N,NE,E	2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38			
	W6	W,NW,N,NE,E	1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25			
	W7	W,NW,N,NE,E	600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13			
	W8	W,NW,N,NE,E	1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22			
	W9	W,NW,N,NE,E	2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32			
	W10	W,NW,N,NE,E	900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66			
Total W,NW,N,NE,E orientated fenest'n area						12,51	➡								12,51	← 3,96			
	W11	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a			↘ n/a			
	D2	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			↘ n/a			
	D3	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			↘ n/a			
	D4	SW,S,SE	3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
Storey total fenestration area						38,97													
Storey net internal floor area						83,24													
Fenestration %: IF >20%, use this to enter Table 4						46,82	%										Average weighted-by-area shgc	0,32	



Site Plan U3

1 : 500

Drawing No: 5

Municipal Stamp:

Drawing Index:

Portion	9 of Farm Oschbosch 707
Stand Size	7135m²
Title Deed Address	1000771832/2011
Address	Portion 9 of Farm Oschbosch 707
Zoning	Humansdorp
Classification	Resort Zone 2
P.A. Plan Number	Holiday Housing
	N/A

Drawing Index:

SHEET 1	Unit 1 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 2	Unit 1 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 3	Unit 2 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 4	Unit 2 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 5	Unit 3 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 6	Unit 3 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 7	Unit 4 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 8	Unit 4 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 9	sheet 03	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.
Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.
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Geskiede maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorgehou.

Client: **Economy Drive CC**

Oelofse ArchDesigns (Pty) Ltd
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412
SACAP: PAD 29888866

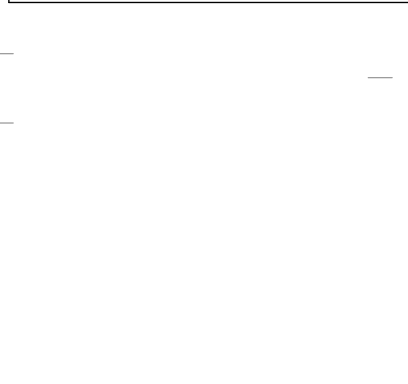
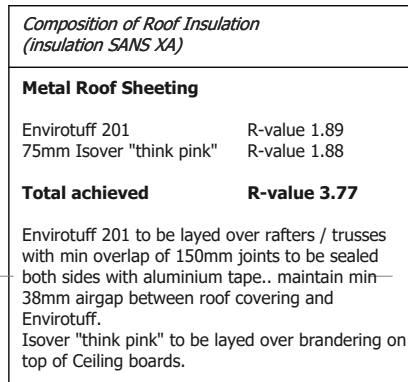
Diens / Service: **Portion 9 of Farm Oschbosch 707 Humansdorp**

Drawing Title: **"Proposed Holiday Housing" Drawings for Municipal Submission**

Engineer: Sigma Consulting Designer: J. Oelofse
Scale: As indicated SACAP: PAD 29888866
Date: June 2025 Drawn: D.J. Oelofse
Client: Economy Drive CC SACAP: APP 70613985
Client Signature:
Project No: **STB707-2025/06/01**

J.H. Vlok

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024



U3 Section 2

TYPICAL SCHEMATIC GAS INSTALLATION

DIAGRAM INDICATING SAFETY DISTANCES

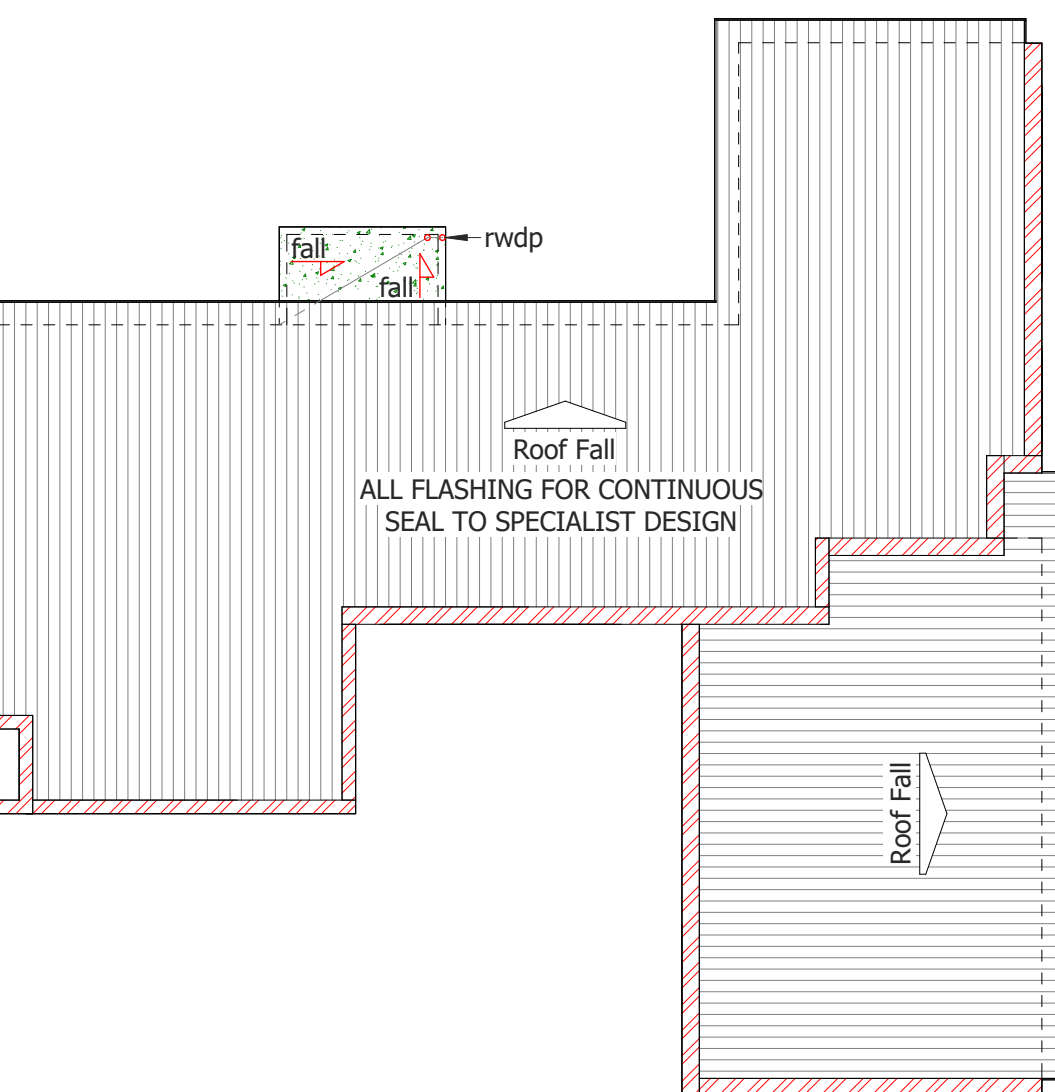
The diagram illustrates the following safety distances:

- 1000mm between the Gas Cylinder and the Door.
- 1000mm between the Gas Cylinder and the Window.
- 2000mm between the Boiler and the Window.
- 1000mm between the Boiler and the Open Bath/Drain.
- 500mm between the Boiler and the Electrical Outlet.
- A total clearance of 1000mm is indicated at the bottom.

1. Boilers cannot be placed closer than 1m to a door.
2. Boilers cannot be placed closer than 2m to an open drain or depression, where gas can gather if the boiler leaks.
3. Boilers cannot be placed closer than 5m to an electrical switch, motor, generator, pool pump etc.
4. Boilers cannot be placed closer than 1m to the side of a window unless there is at least 2000mm between the bottom of the window and the top of the boiler and a non-ventilating roof has been provided between the window and the boiler.
5. Boilers cannot be placed closer than 1m to a secondary wall, unless the is a double brick "firewall" - i.e. 1.5m tall, with no ventilation gaps in the wall.
6. Any large gas cylinders to be in lockable steel cage.

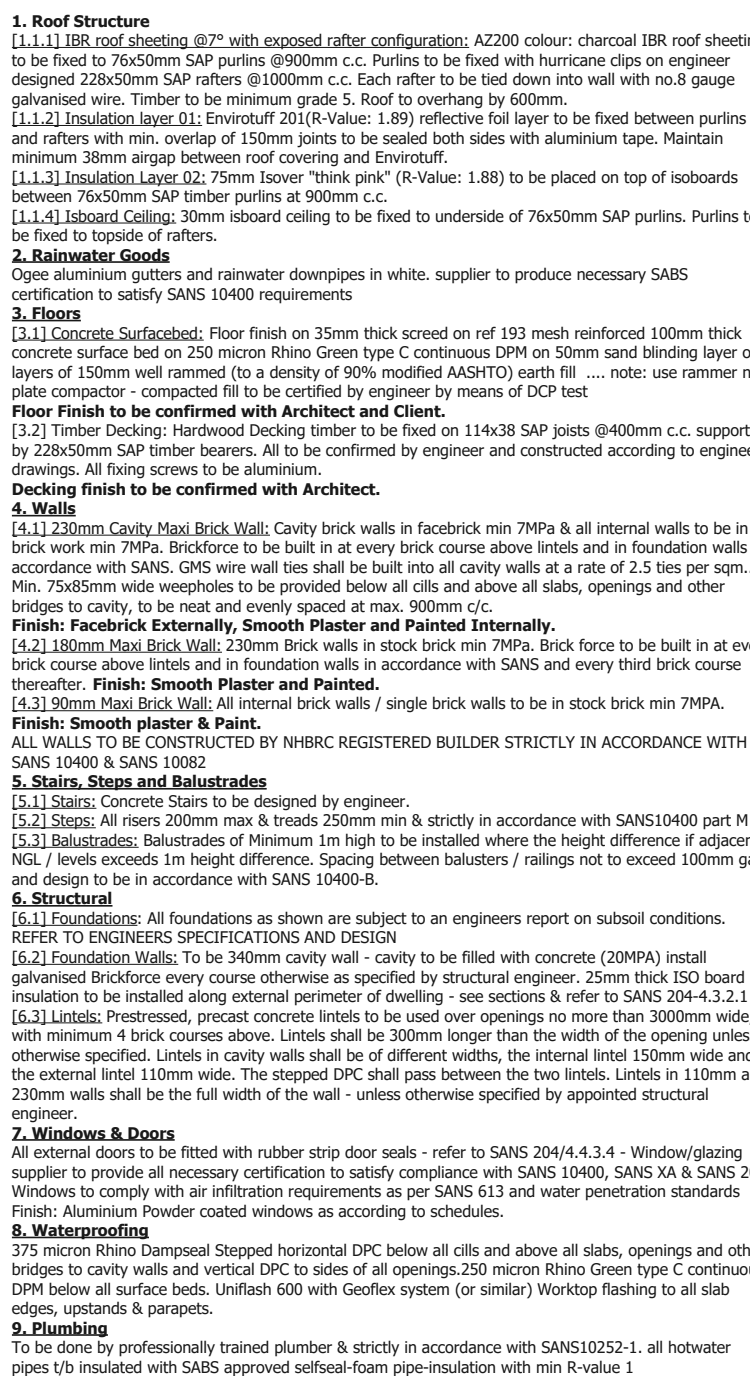
Electrical Legends

	1 Lever Light Switch 2 Lever Light Switch 3 Lever Light Switch 4 Lever Light Switch Single Exterior Waterproof Light Switch
	Double Electrical Socket @ 1100mm AFPL Double Electrical Socket @ 300mm AFPL Pull-up Tower Socket (top of counter / work tops) Single Interior Socket with Coverplate Oven Connection Point Shaver Connection Main Distribution Board
	Satellite Dish Outlet Telephone / ADSL Connection High Power Ceiling Mount Wireless Point Range Extender / Access Point
	Single Down Light - LED Boxed Down Lights LED (Directional) Small/Medium Pendant Light Large Pendant Light (Chandelier) Recessed Foot Wall Light Feature Exterior Uplight Interior Flood Light Internal Wall Lights Pool Lights Led Tube T5 14W LED Universal Tube LED Double Tube G13 36W LED strip - 7w per meter Heat Resistant Light Standard Light Fitting Ceiling Fan With Light 40w



Unit 3 Roof Plan

1 : 100



Foundation Detail

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.

Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.

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Geskryfte matas moet voorkeur geniet bo geskaalde matas. In groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op skaal tekeninge is die eiendom van Oelofse ArchDesigns en kopiereg word daaraan toegeken.

Client:

Economy Drive CC



Oelofse ArchDesigns (Pty) Ltd



Jacque Oelofse
 info@oelofsearchdesigns.co.za

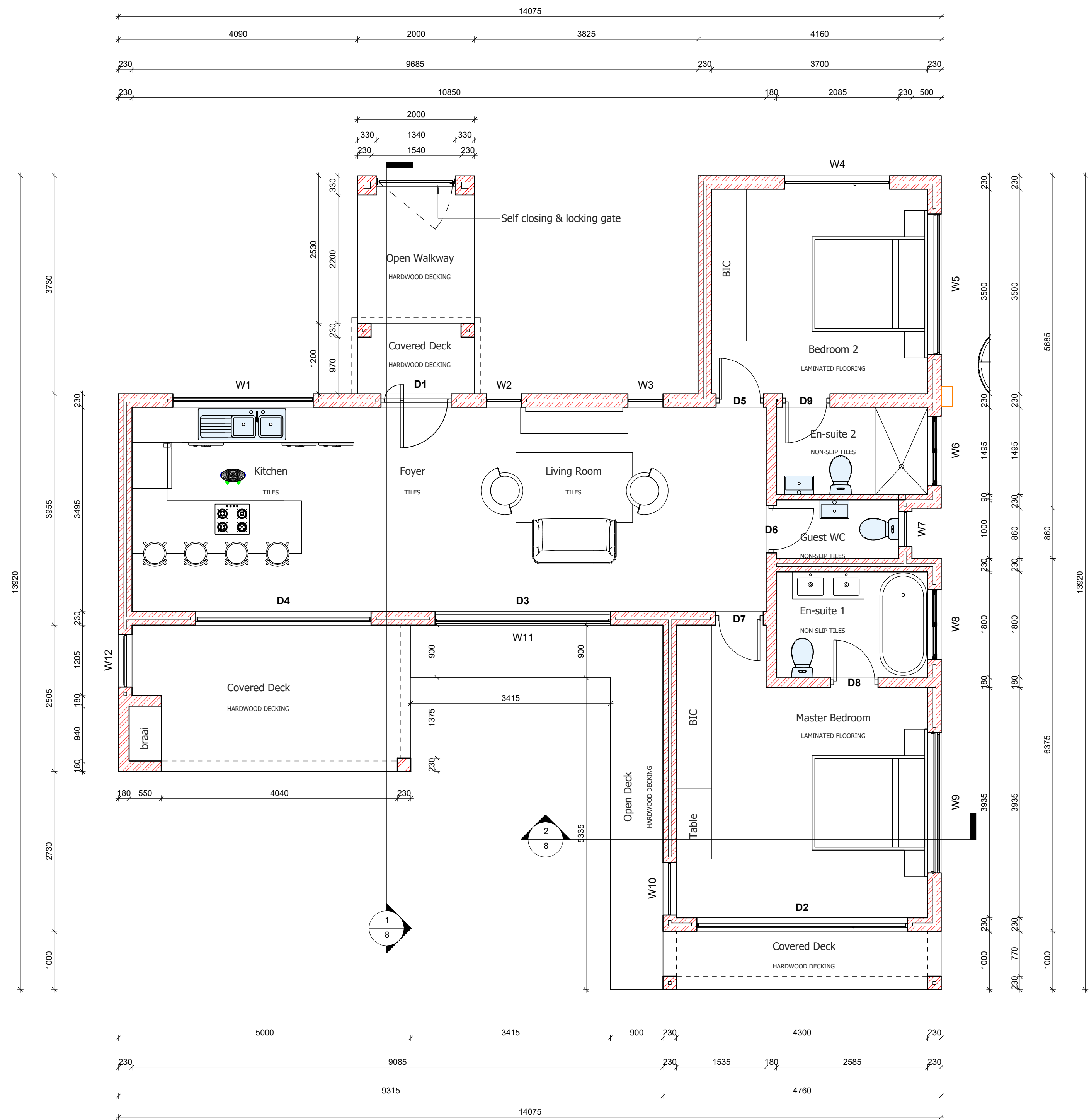
081 700 2412

Architecture & Design Studio

SACAP: PAD 29888866

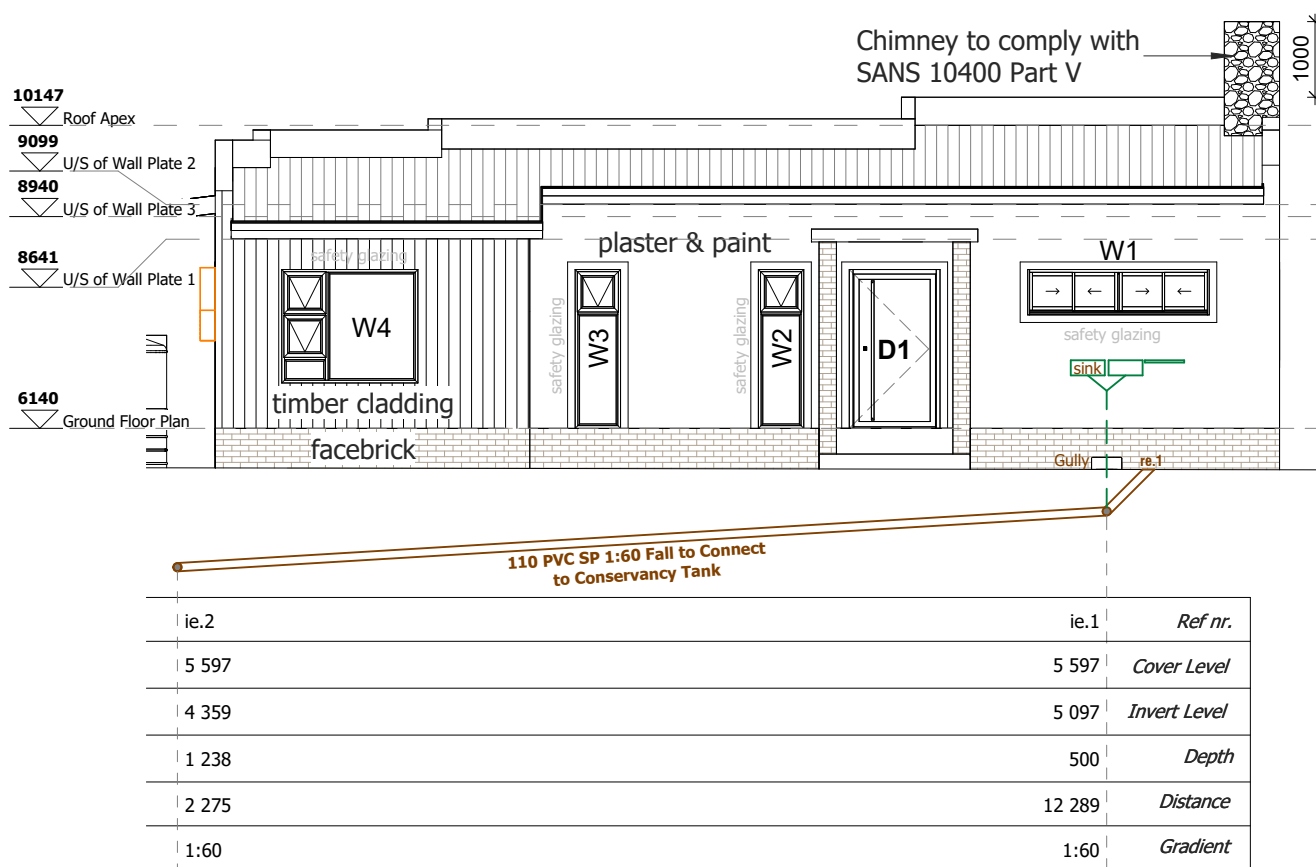
13 Merrie Place, Paradise Beach
Jeffreys Bay

Diens / Service:		Portion 9 of Farm Oschbosch 707 Humansdorp	
Drawing Title:			
"Proposed Holiday Housing" Drawings for Municipal Submission			
Engineer: Sigma Consulting		Designer: J. Oelofse	
Scale: As indicated		SACAP: PAD 29888866	
Date: June 2025		Drawn: D.J. Oelofse	
Client: Economy Drive CC		SACAP: APP 70613985	
Client Signature: _____			
Project No: STB707-2025/06/01			



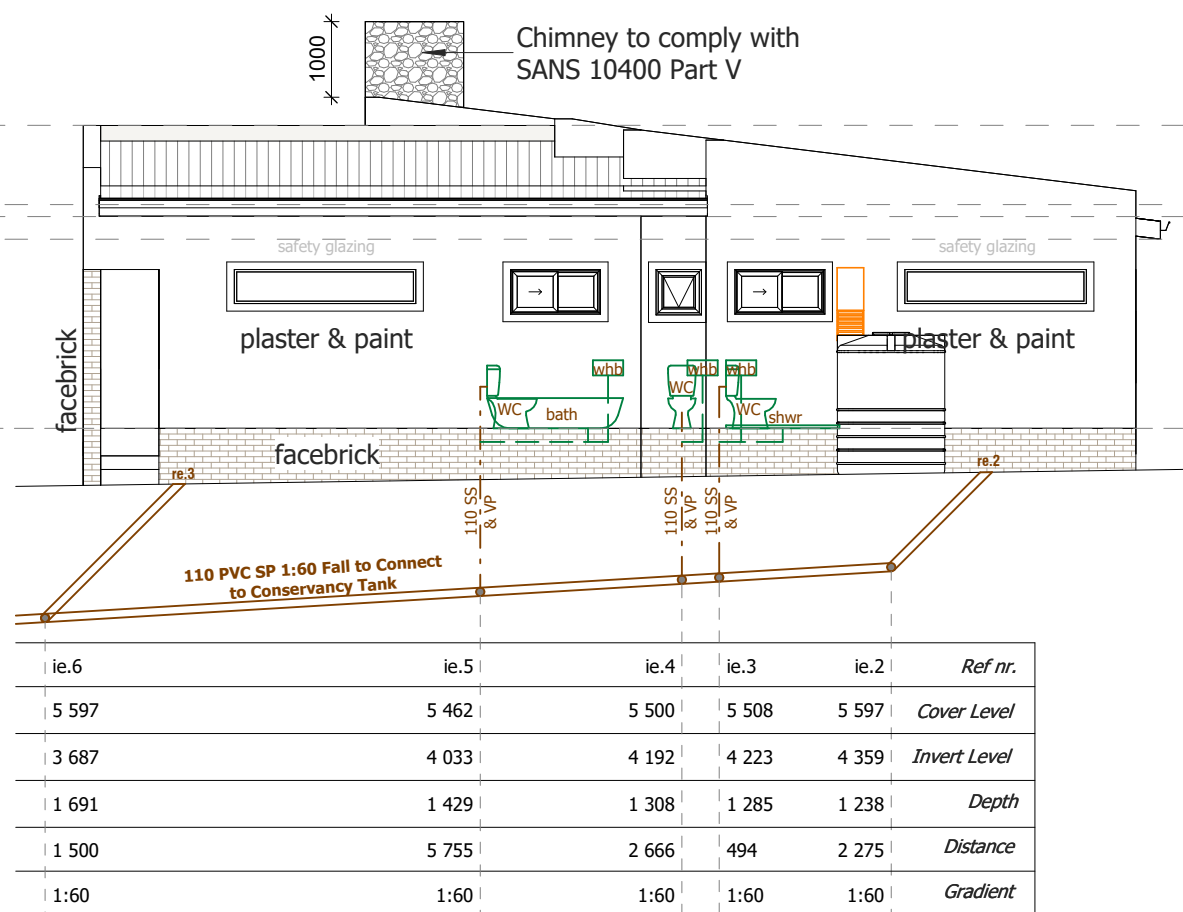
Unit 4 Floor Plan

1 : 50



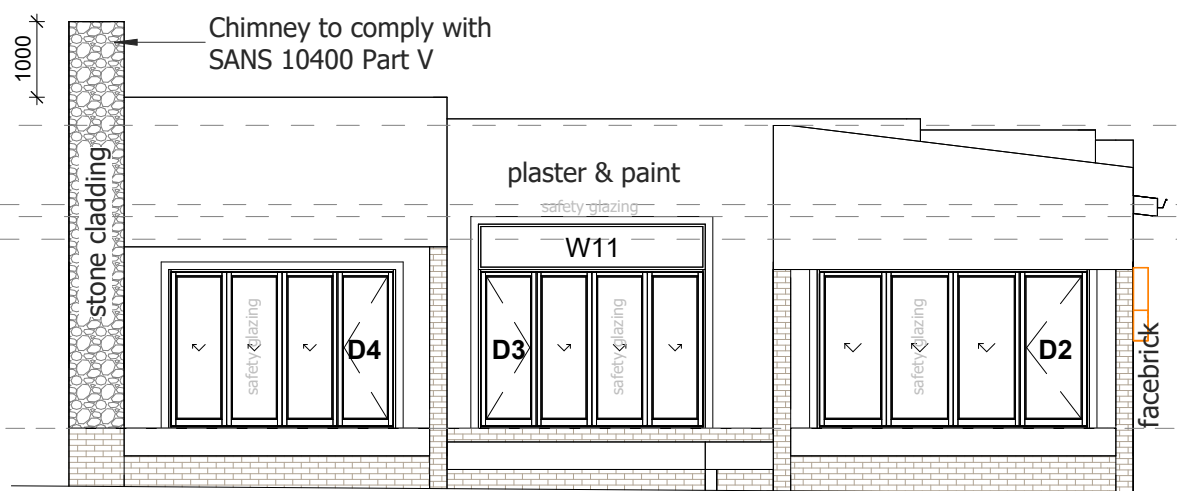
U4 North Elevation

1 : 100



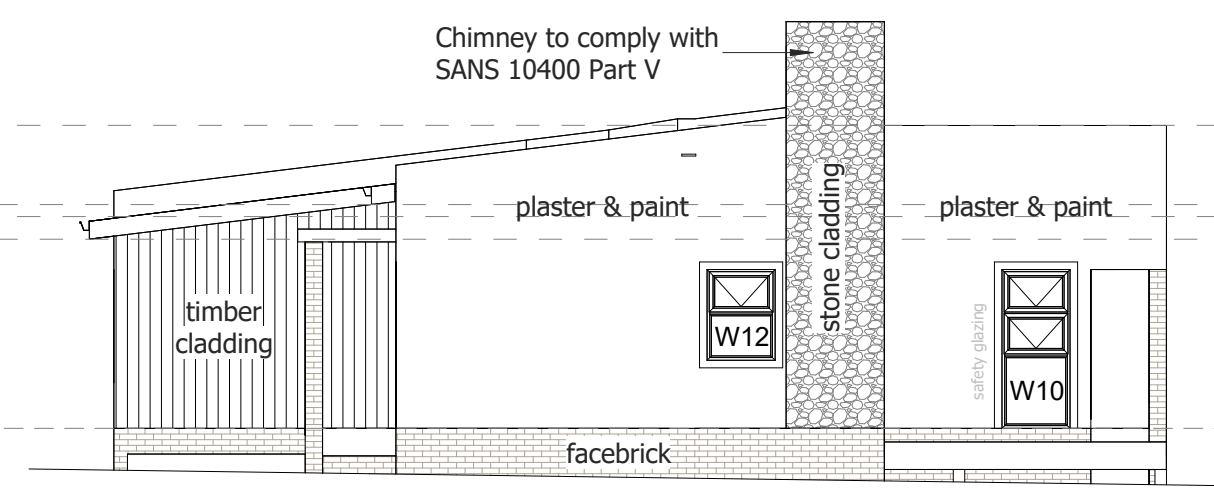
U4 East Elevation

1 : 100



U4 South Elevation

1 : 100



U4 West Elevation

1 : 100

Unit 4 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1190	590
W7	600	600
W8	1190	590
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 4 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3600	2100
D3	3000	2100
D4	3000	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.

Unit 4 : Fenestration Calculations

Fenest		ORIENTATION	Cl	FENESTRATION AREAS				SHADING - Clause 5.2				SPECIFICATION - Clause 5.2		ENTER shgc values		Averaging	
Catalogue reference	window plan ref	Orientation sector		width mm	vertical mm	number	area m ²	height mm	multiplier	required shading projection	actual shd (design)	compliant 1= yes 0= no	U-value	required shgc-value T4,col 3&4	Enter shgc compliant 1=yes 0=no	Enter non-compliant shgc	ww area x required shgc
	W1	W,NW,N,NE,E		2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43
	W2	W,NW,N,NE,E		600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38
	W3	W,NW,N,NE,E		600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38
	W4	W,NW,N,NE,E		1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81
	W5	W,NW,N,NE,E		2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38
	W6	W,NW,N,NE,E		1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25
	W7	W,NW,N,NE,E		600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13
	W8	W,NW,N,NE,E		1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22
	W9	W,NW,N,NE,E		2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32
	W10	W,NW,N,NE,E		900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66
Total W,NW,N,NE,E orientated fenest'n area							12,51									12,51	3,96
	W11	SW,S,SE		3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a			n/a
	D2	SW,S,SE		3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a
	D3	SW,S,SE		3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a
	D4	SW,S,SE		3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a
Storey total fenestration area							38,97										
Storey net internal floor area							83,24										
Fenestration %: IF >20%, use this to enter Table 4							46,82										
Average weighted-by-area shgc																	0,32



Site Plan U4

1 : 500

Drawing No: 7

Municipal Stamp:

Drawing Index:

Portion 9 of Farm Osobosch 707
7155m²
1000071832/2011
Humansdorp
Resort Zone 2
Holiday Housing
N/A

Drawing Index:

SHEET 1
Unit 1
sheet 01

SHEET 2
Unit 1
sheet 02

SHEET 3
Unit 2
sheet 01

SHEET 4
Unit 2
sheet 02

SHEET 5
Unit 3
sheet 01

SHEET 6
Unit 3
sheet 02

SHEET 7
Unit 4
sheet 01

SHEET 8
Unit 4
sheet 02

SHEET 9
Unit 4
sheet 03

Client:
Economy Drive CC

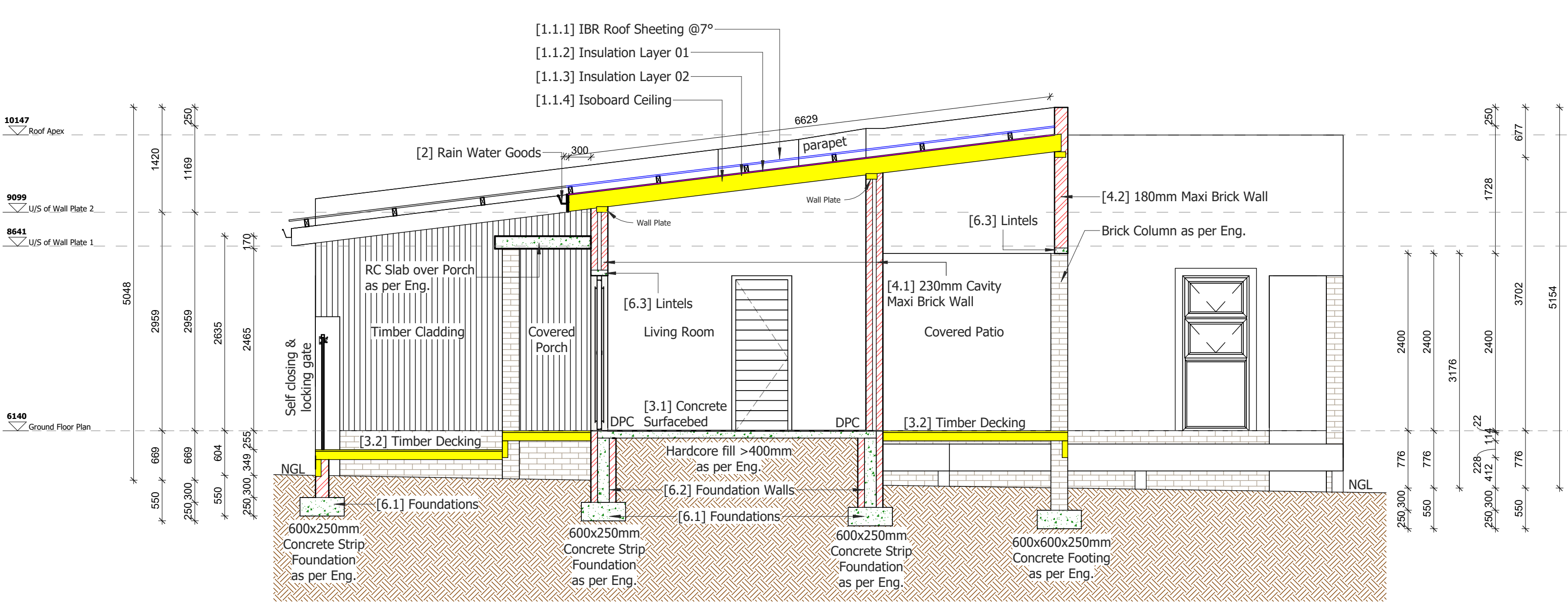
Diens / Service:
Portion 9 of Farm Osobosch 707
Humansdorp

Drawing Title:
"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting
Scale: As indicated
Date: June 2025
Client: Economy Drive CC
Project No: STB707-2025/06/01

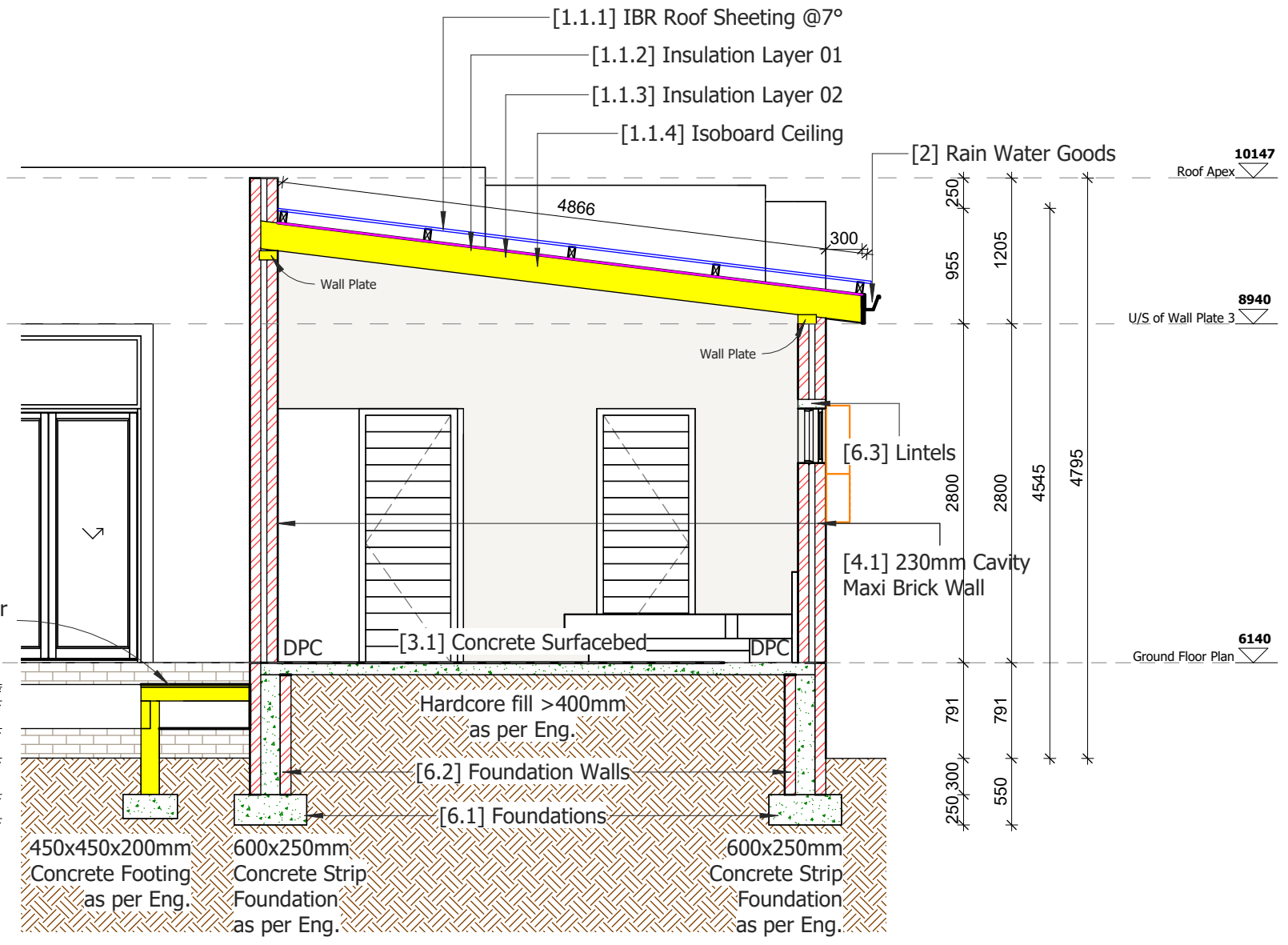
Designer: J. Oelofse
SACAP: PAD 29888866
Drawn: D.J. Oelofse
SACAP: APP 70613985

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024



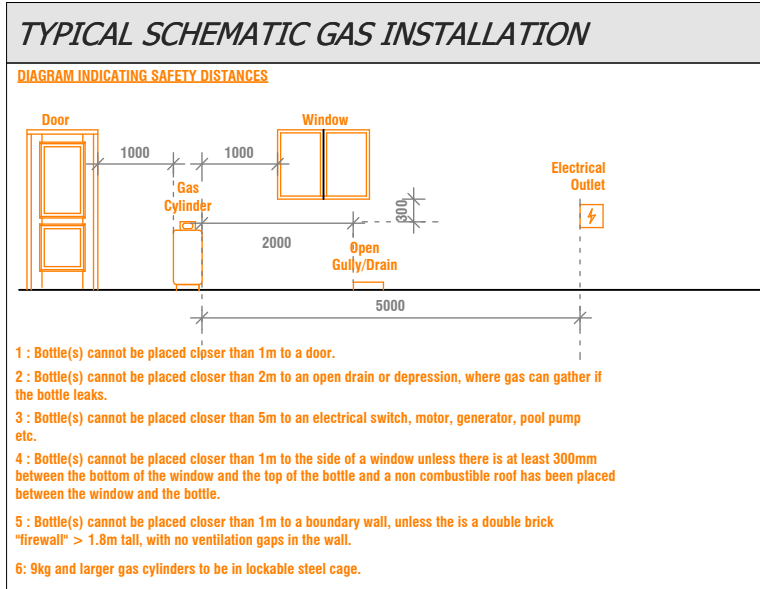
U4 Section 1
1 : 50

Composition of Roof Insulation (Insulation SANS XA)	
Metal Roof Sheet	
Envirobuff 201 75mm Isover "think pink"	R-value 1.89 R-value 1.88
Total achieved	
R-value 3.77	
Envirobuff 201 to be layered over rafters / trusses with min overlap of 150mm joints to be sealed both sides with aluminium tape, maintain min 38mm airgap between roof covering and Envirobuff. Isover "think pink" to be layered over branding on top of ceiling boards.	



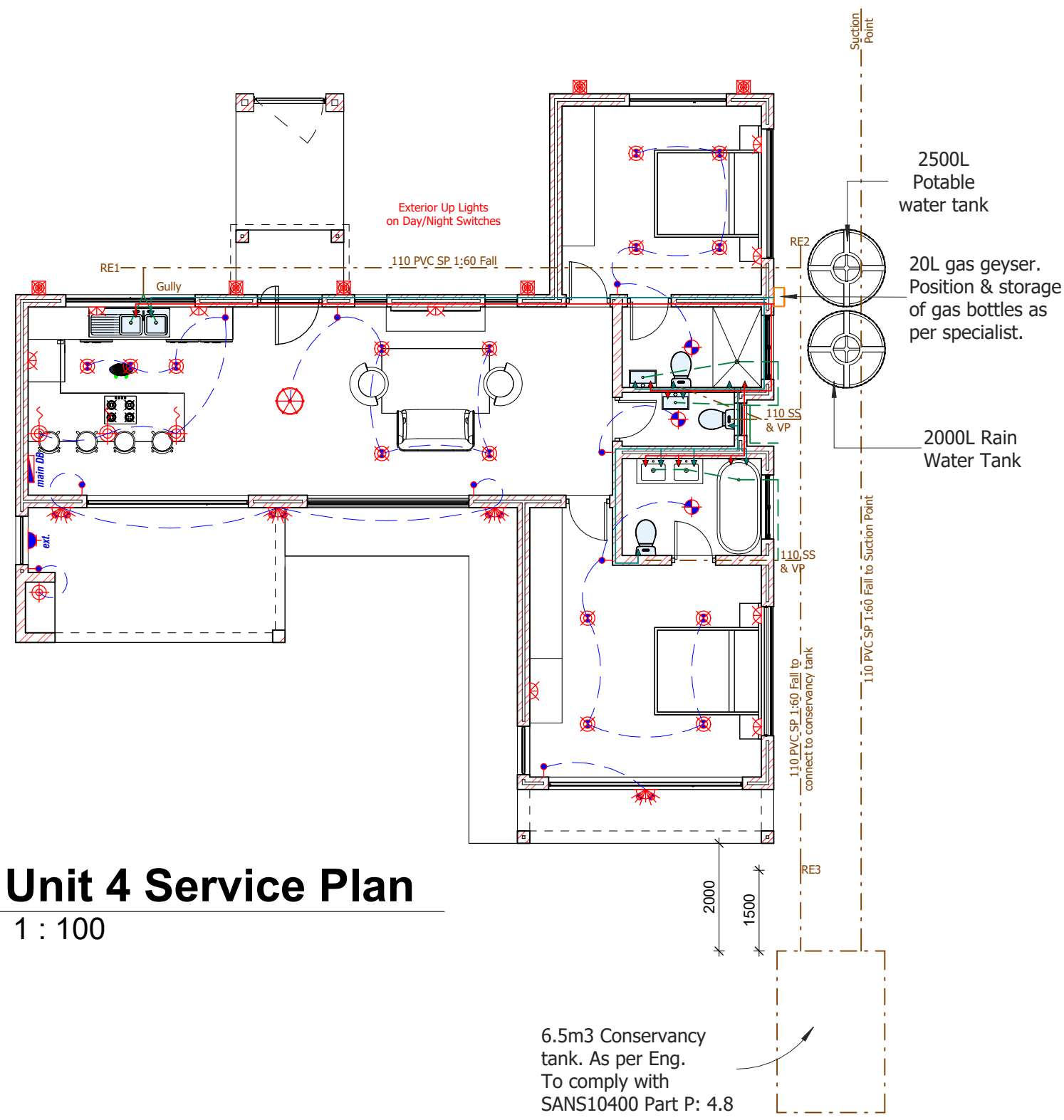
U4 Section 2
1 : 50

Lighting Energy Demand				
Ground Storey			Nett: 83.24m ²	
Maximum Energy Demand 4w/m ² (table 12) allowed			4w x 83.24m ² = 332.96w	
Proposed Energy Demand (per proposed lighting layout)				
Symbol	Fitting Description	watts	Quantity	Totals
	Single Down Light LED	5w	15	75w
	Standard Light Fitting	8w	3	24w
	Hanging Pendant Light	5w	3	15w
	Exterior Wall Light	10w	4	40w
	Exterior Wall Up Light (day night switch)	10w	6	60w
	LED Universal Tube	15w	1	15w
Allowable: 4w/m ² (table 12) 332.96w		Proposed	229w	Surplus +103.96w
Proposed demand acceptable				

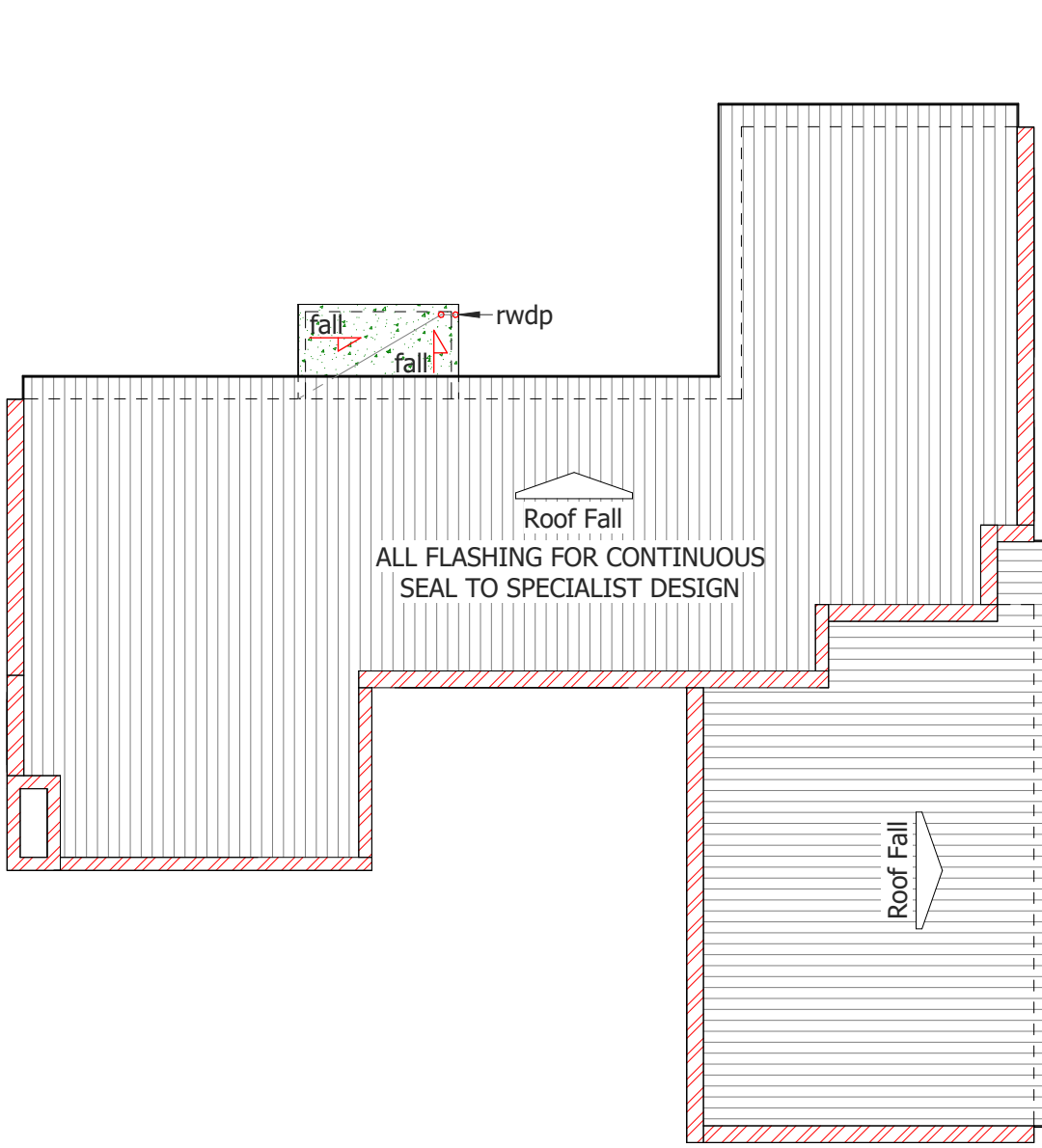


Reticulation Legend	
●	Hot Water Connection Point
●	Cold Water Connection Point
—	Proposed hot water piping
—	Proposed cold water piping

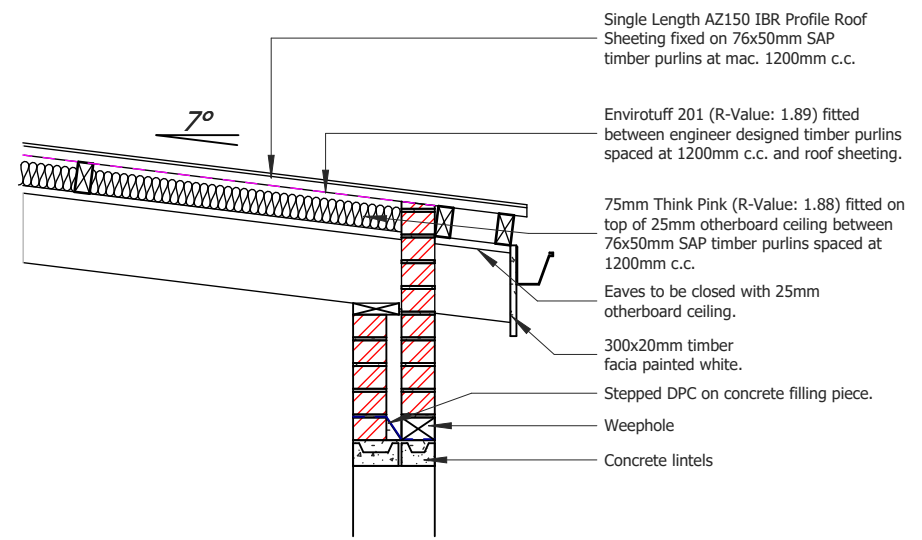
Electrical Legends	
Light Switches	
1	1 Lever Light Switch
2	2 Lever Light Switch
3	3 Lever Light Switch
4	4 Lever Light Switch
5	Single Exterior Waterproof Light Switch
Sockets and Outlets	
1	Double Electrical Socket @ 1100mm AFFL
2	Double Electrical Socket @ 300mm AFFL
3	Pull-up Tower Socket (top of counter / work tops)
4	Single Exterior Socket with Coverplate
5	Oven Connection Point
6	Shaver Connection
7	Main Distribution Board
Audio and Visual / Communication	
1	Satellite Dish Outlet
2	Telephone / ADSL Connection
3	High Power Ceiling Mount Wireless RF Range Extender / Access Point
Light Fittings	
1	Single Down Light LED
2	Boxed Down Lights LED (Directional)
3	Small/Medium Pendant Light
4	Large Pendant Light (Chandelier)
5	Recessed Foot Wall Light
6	Feature Exterior Uplight
7	Exterior Flood Light
8	Internal Wall Lights
9	Pool Lights
10	LED Tube TS 14W
11	LED Universal Tube
12	LED Double Tube G13 30W
13	LED Strip - 7w per meter
14	Heat Resistant Light
15	Standard Light Fitting
16	Ceiling Fan With Light 40w
ELECTRICAL NOTE	
All electrical work to be done by registered/approved professional electrician. There is no the owner to obtain DCP from electrician on completion of installation. Once electrician has signed off, the owner must obtain a certificate of compliance from the relevant authority. Obtain a copy of the installation with electrician and contractor.	



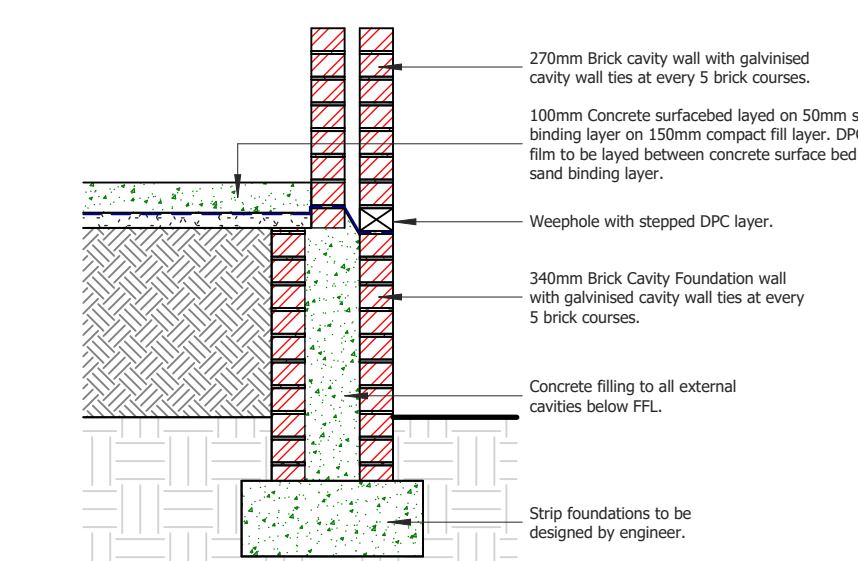
Unit 4 Service Plan
1 : 100



Unit 4 Roof Plan
1 : 100



Roof Detail
1 : 25



Foundation Detail
1 : 25

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 8

Municipal Stamp:

Drawing Index:

Portion	9 of Farm Oosbosch 707
Stand Size	715mm
Title Deed Address	T000071832/2011
	Portion 9 of Farm Oosbosch 707
	Humansdorp
	Resort Zone 2
	Holiday Housing
	N/A

Zoning Classification
P.A. Plan Number

Drawing Index:

SHEET 1	Unit 1 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 2	Unit 1 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 3	Unit 2 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 4	Unit 2 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 5	Unit 2 sheet 03	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
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Geskiede maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorgesou.

REV	DATE	DRAWN	DESCRIPTION

Client:

Economy Drive CC

Oelofse ArchDesigns (Pty) Ltd

Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412

MEMBERSHIP & DESIGN STUDIO 13 Morris Place, Paradise Beach, Jeffreys Bay
SACAP: PAD 2988866

Diens / Service:

Portion 9 of Farm Oosbosch 707 Humansdorp

Drawing Title:

"Proposed Holiday Housing" Drawings for Municipal Submission

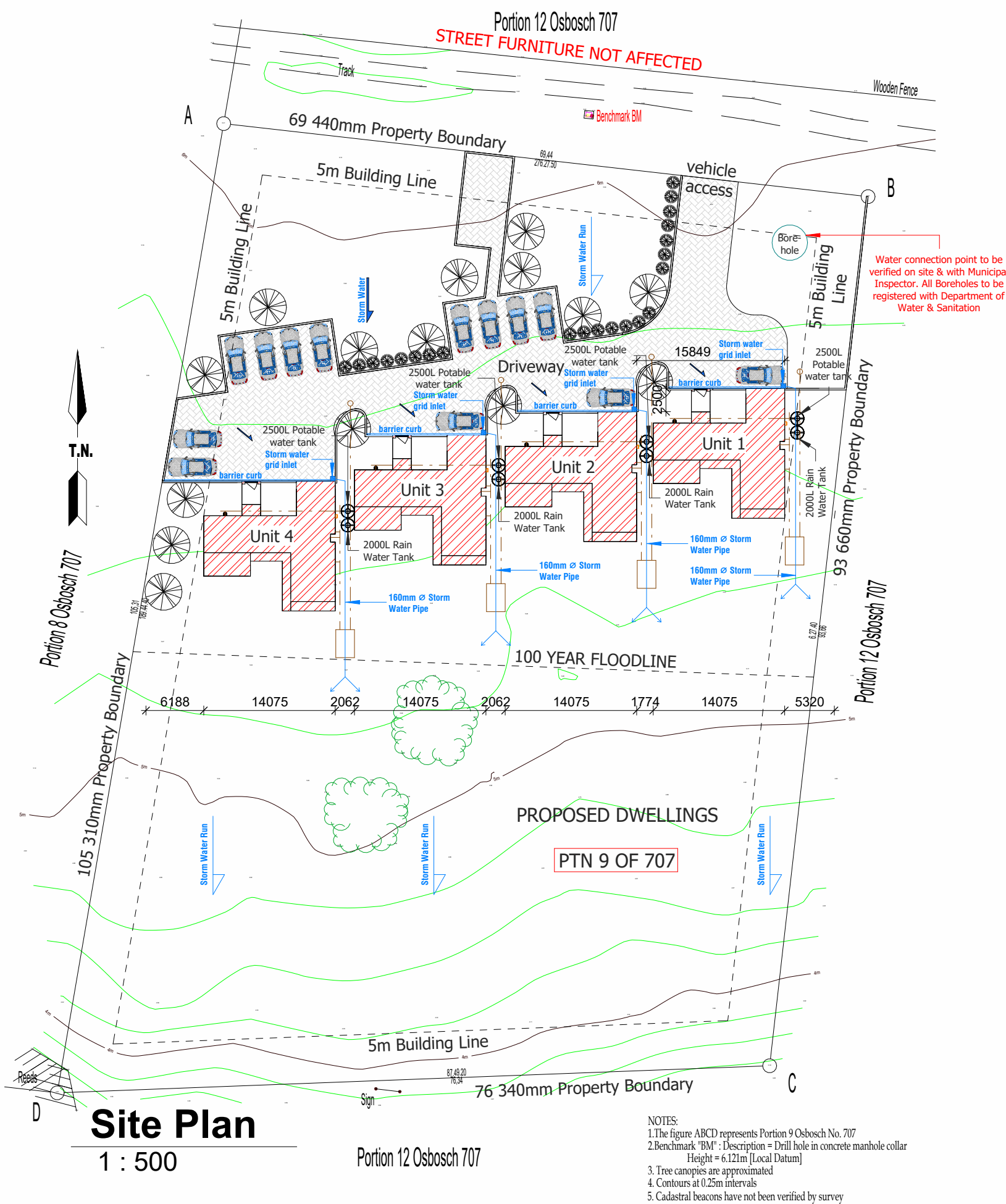
Engineer: Sigma Consulting	Designer: J. Oelofse
Scale: As indicated	SACAP: PAD 2988866
Date: June 2025	Drawn: D.J. Oelofse

Client: Economy Drive CC

SACAP: APP 70613985

Client Signature:

Project No: **STB707-2025/06/01**



Window Schedule : Unit 1, Unit 2, Unit 3 & Unit 4											
Type: Sliding Location: Kitchen Finish: Powder coated Aluminium Colour - Charcoal Quantity: 04	Type: Top Hung Location: Living Room Finish: Powder coated Aluminium Colour - Charcoal Quantity: 08	Type: Top Hung Location: Bedroom 2 Finish: Powder coated Aluminium Colour - Charcoal Quantity: 04	Type: Fixed Pane Location: Bedroom 2 & Master Bedroom Finish: Powder coated Aluminium Colour - Charcoal Quantity: 08	Type: Sliding Location: En-Suite 1 & En-Suite 2 Finish: Powder coated Aluminium Colour - Charcoal Quantity: 08	Type: Top Hung Location: Guest WC Finish: Powder coated Aluminium Colour - Charcoal Quantity: 04	Type: Top Hung Location: Master Bedroom Finish: Powder coated Aluminium Colour - Charcoal Quantity: 04	Type: Top Hung Location: Living Room Finish: Powder coated Aluminium Colour - Charcoal Quantity: 04	Type: Top Hung Location: Covered Deck 1 Finish: Powder coated Aluminium Colour - Charcoal Quantity: 04			
safety glazing			safety glazing			safety glazing					
2400 x 1500			1800 x 2100			2400 x 1650			1200 x 2100		
W01			W02 & W03			W04			W05 & W09		
2400 x 1500			1800 x 2100			2400 x 1650			1200 x 2100		
W06 & W08			W07			W10			W11		
2400 x 1500			1200 x 2100			900 x 2100			3000 x 2700		
W12											

Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.

Door Schedule : Unit 1, Unit 2, Unit 3 & Unit 4			
Type: Front Door (Pivot Door) Location: Covered Entrance / Foyer Finish: Solid Core Timber Colour - Painted White Quantity: 04	Type: Exterior Door Location: Living Room & Kitchen Finish: Hollow Core Timber Colour - Painted White Quantity: 08	Type: Exterior Door Location: Master Bedroom Finish: Hollow Core Timber Colour - Painted White Quantity: 04	Type: Internal Door Location: Master Bedroom, Bedroom 2, En-suite 1, En-suite 2, Guest WC Finish: Hollow Core Timber Colour - Painted White Quantity: 20
safety glazing			
1200 x 2100			
D01			
3000 x 2100			
D02 & D03			
3600 x 2100			
D04			
813 x 2100			
D05, D06, D07, D08, D09			



NORTH ELEVATION
1 : 100



SOUTH ELEVATION
1 : 100

[Signature]

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 9

Municipal Stamp:

Drawing Index:

Portion 9 of Farm Osobosch 707
7155m²
Title Deed Address
Portion 9 of Farm Osobosch 707
Humansdorp
Zoning
Classification
P.A. Plan Number
N/A

Drawing Index:

SHEET 1	Unit 1 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 2	Unit 1 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 3	Unit 2 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 4	Unit 2 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 5	Unit 2 sheet 03	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 6	Unit 3 sheet 01	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 7	Unit 4 sheet 01	• Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
SHEET 8	Unit 4 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 9	Unit 4 sheet 03	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.
Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.
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Alle vereistes van munisipaliteit en ander betrokke owerhede moet streng nageleem word. Bouaannemers en onderaannemers moet alle maters en vlakke op die terrein nagaan alvorens enige bouwerk n aanvang neem.
Geskiede maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorgehou.

REV	DATE	DRAWN	DESCRIPTION

Client:
Economy Drive CC



Diens / Service:
Portion 9 of Farm Osobosch 707 Humansdorp

Drawing Title:

"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting Designer: J. Oelofse

Scale: As indicated SACAP: PAD 29888866

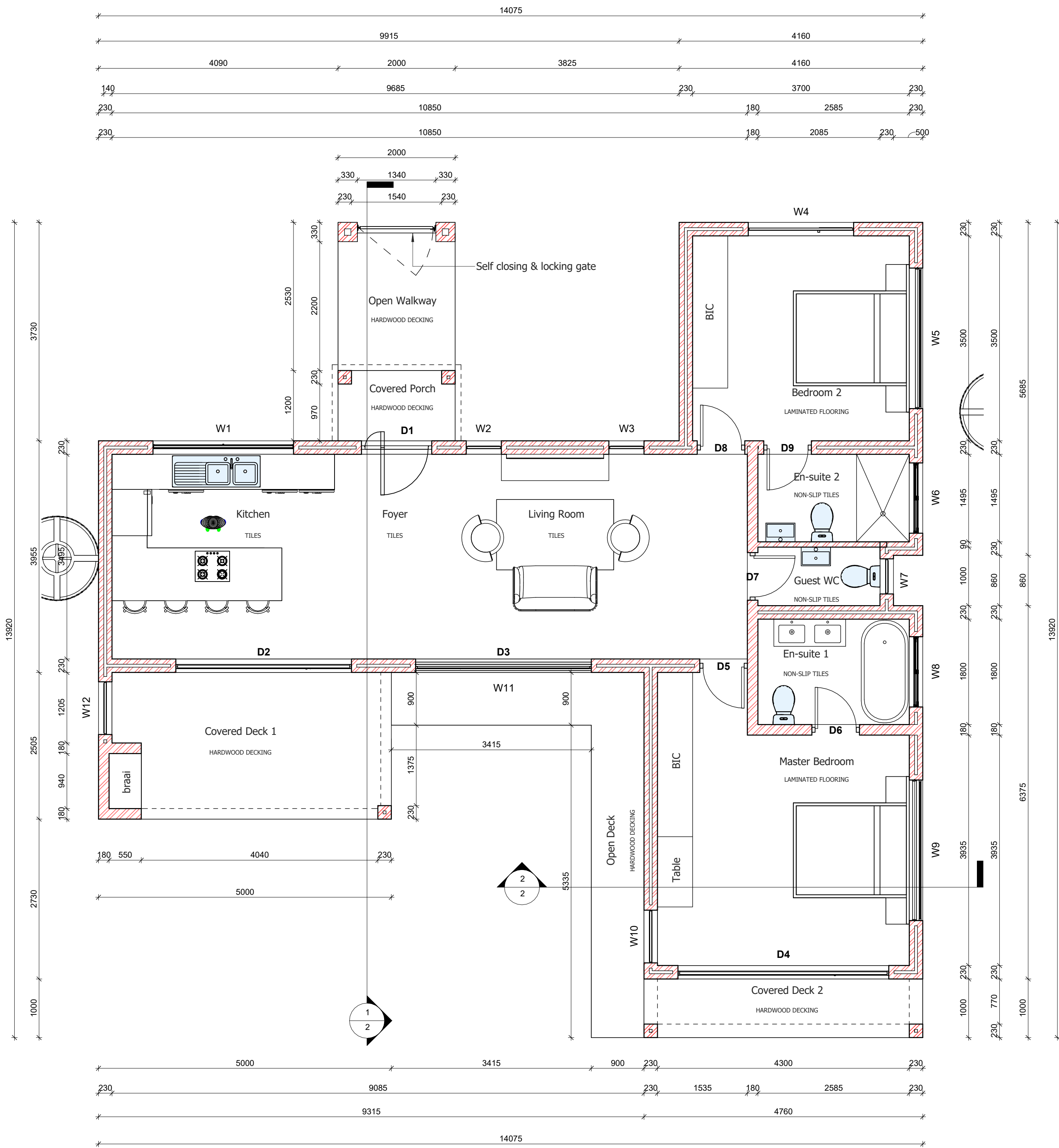
Date: June 2025 Drawn: D.J. Oelofse

Client: Economy Drive CC SACAP: APP 70613985

Client Signature:

Project No: **STB707-2025/06/01**

Appendix C3 – Alternative – Site Development Plan

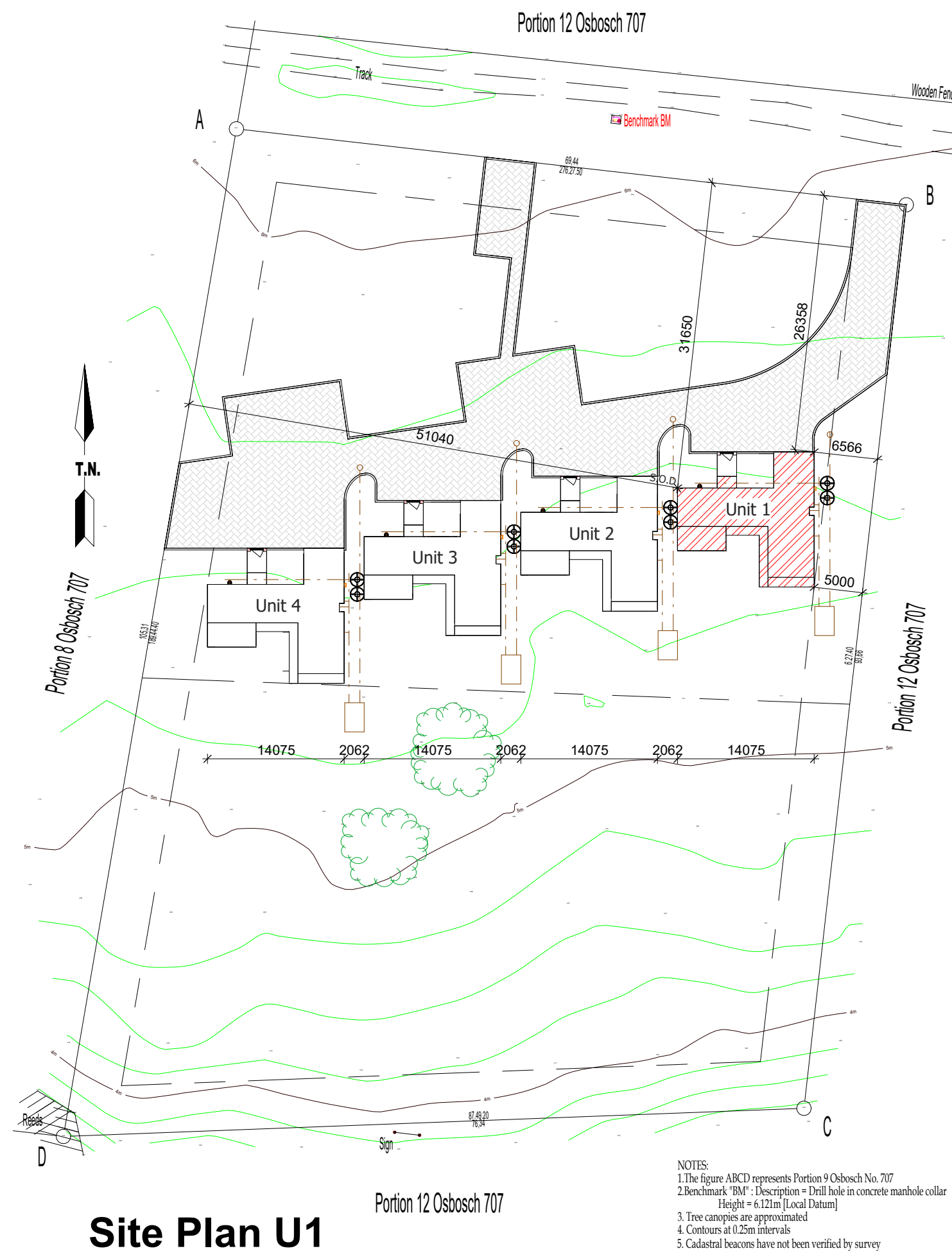


Unit 1 Floor Plan
1 : 50

Unit 1 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1200	600
W7	600	600
W8	1200	600
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 1 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3000	2100
D3	3000	2100
D4	3600	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

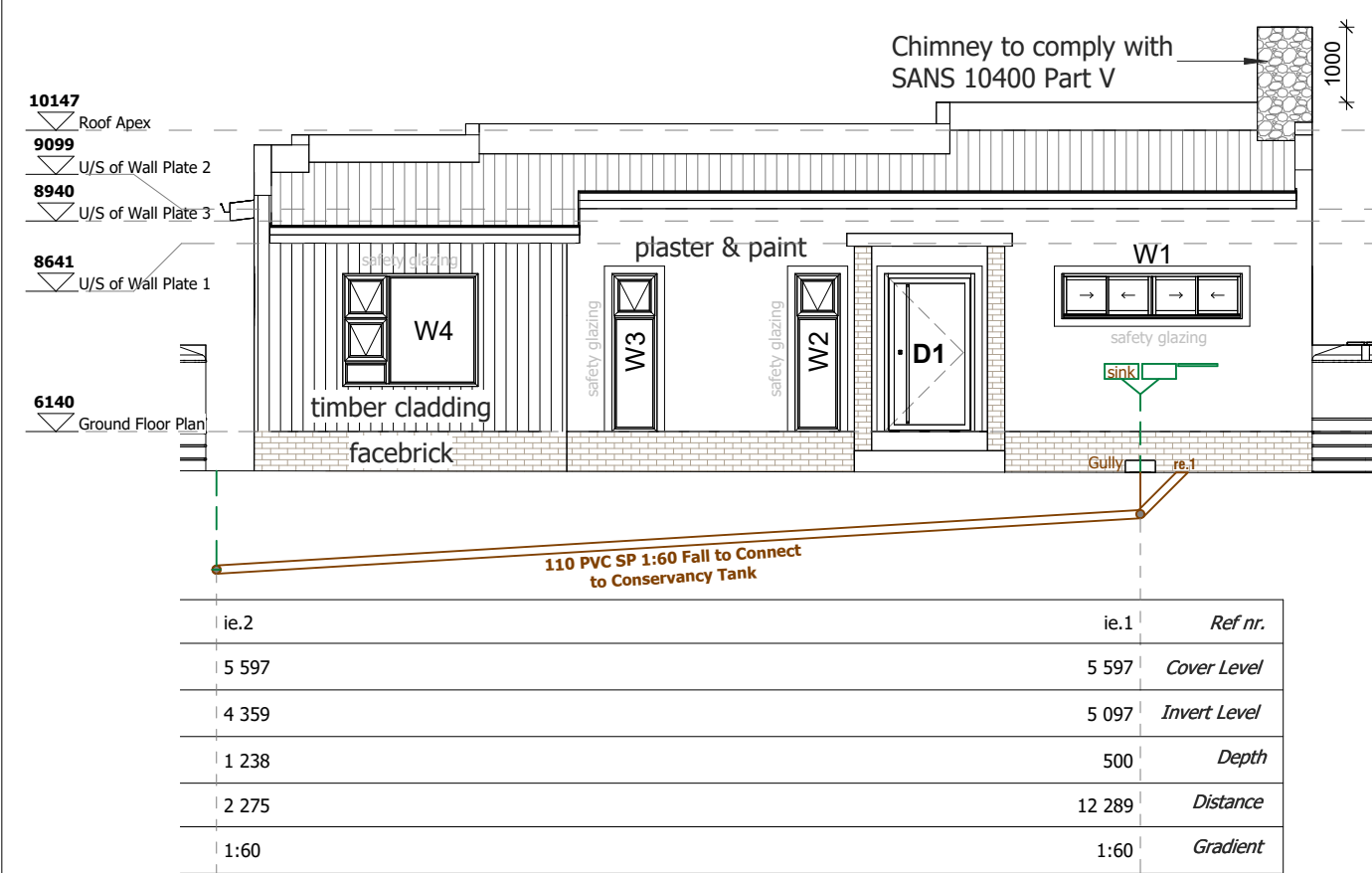
Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass. All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.



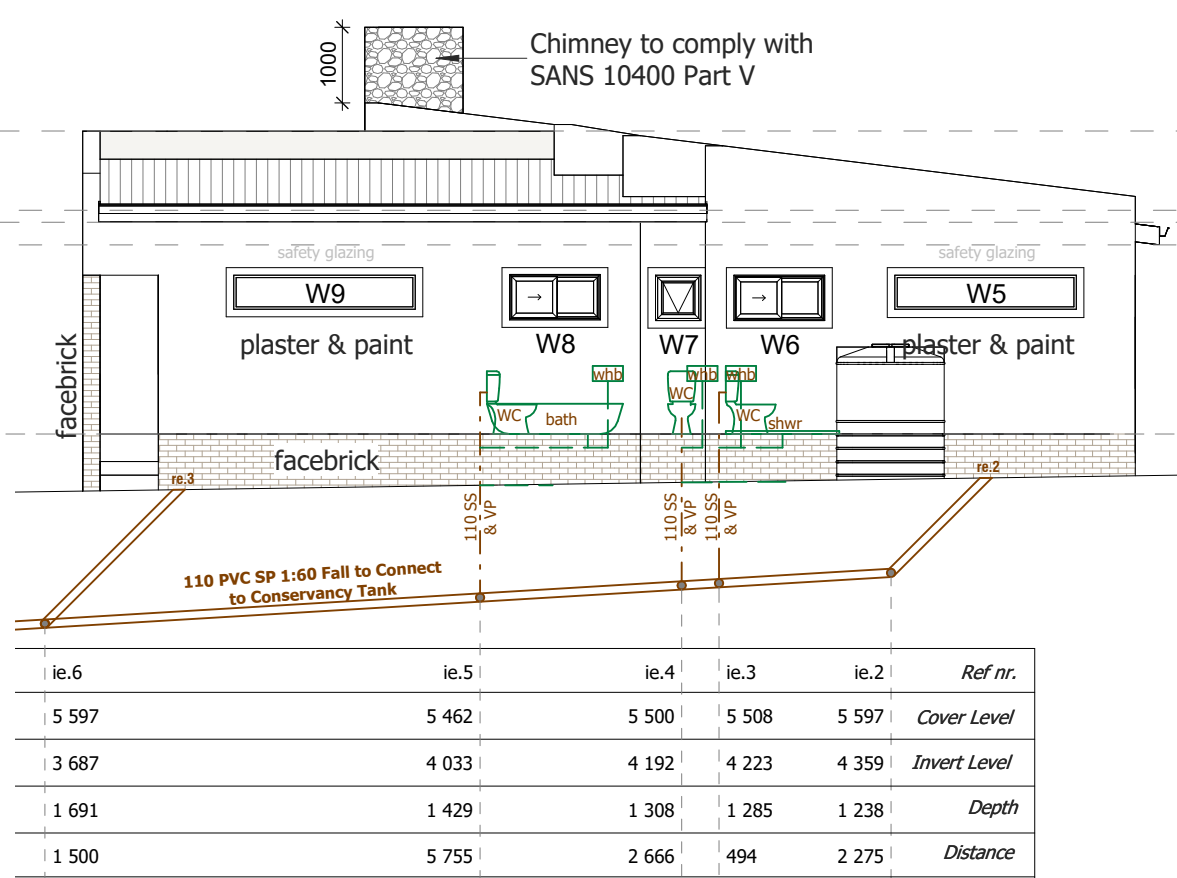
Site Plan U1
1 : 500

Unit 1 : Fenestration Calculations

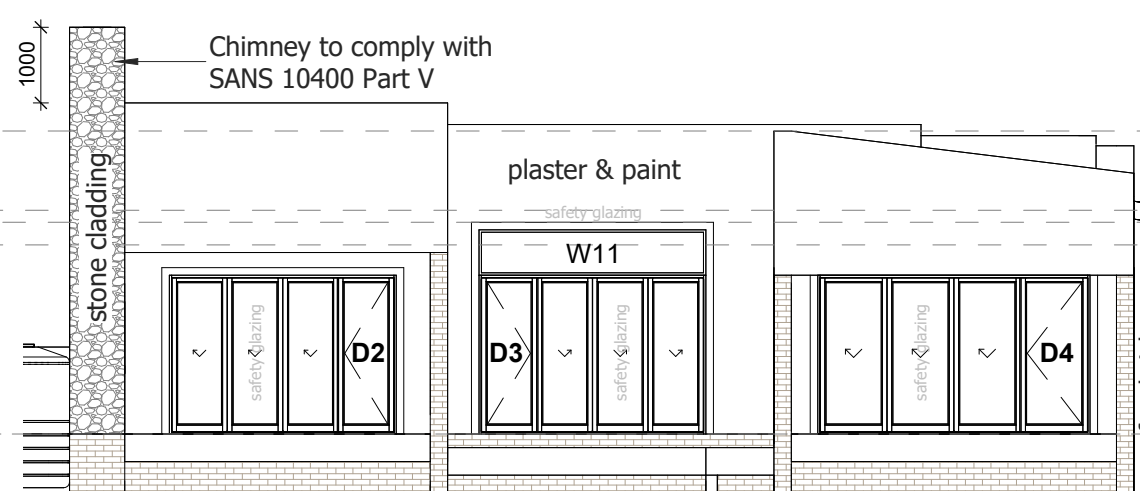
Fenest		ORIENTATION	FENESTRATION AREAS					SHADING - Clause 5.2					SPECIFICATION - Clause 5.2		ENTER shgc values		Averaging		
Catalogue reference	Window plan ref	Orientation sector	Window width mm	Window vertical mm	Number (quantity)	Window area m ²	Shading height mm	Multiplier Table 3	Required shading projection	Actual shading (design) projection	Compliant 1= yes 0= no	U-value	Required shgc-value T4,col 3&4	Enter shgc compliant 1=yes	Enter non-compliant shgc 0=no	ww area x required shgc			
	W1	W,NW,N,NE,E	2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43			
	W2	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38			
	W3	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38			
	W4	W,NW,N,NE,E	1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81			
	W5	W,NW,N,NE,E	2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38			
	W6	W,NW,N,NE,E	1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25			
	W7	W,NW,N,NE,E	600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13			
	W8	W,NW,N,NE,E	1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22			
	W9	W,NW,N,NE,E	2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32			
	W10	W,NW,N,NE,E	900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66			
Total W,NW,N,NE,E orientated fenest'n area						12,51											12,51	3,96	
	W11	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a			n/a			
	D2	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
	D3	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
	D4	SW,S,SE	3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
Storey total fenestration area						38,97													
Storey net internal floor area b						83,24											Average weighted-by-area shgc		0,32
Fenestration %: IF >20%, use this to enter Table 4						46,82													



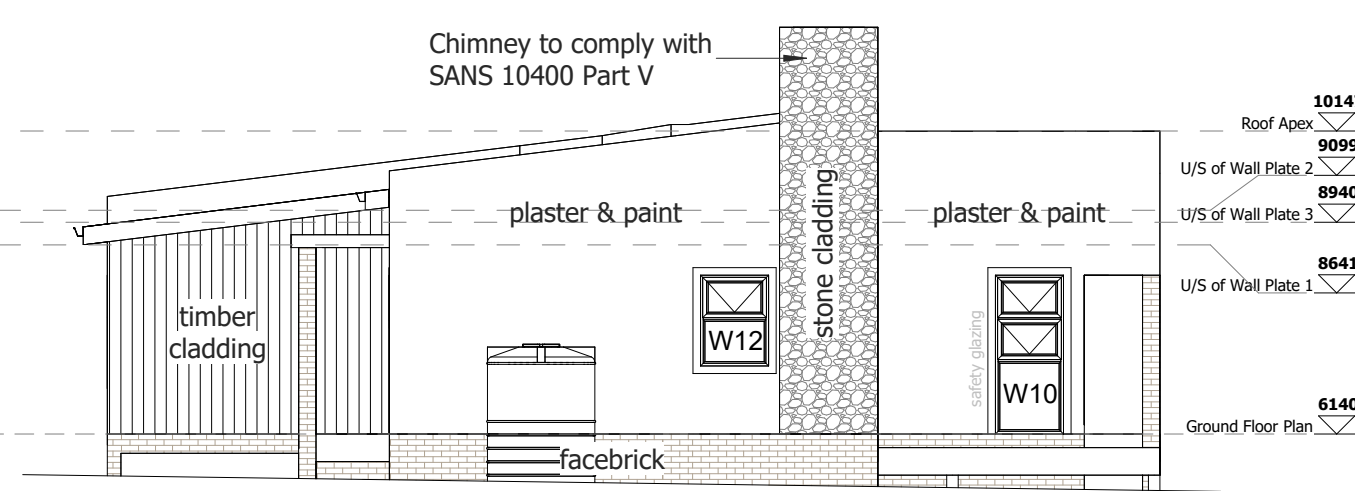
U1 North Elevation
1 : 100



U1 East Elevation
1 : 100



U1 South Elevation
1 : 100



U1 West Elevation
1 : 100

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 1

Municipal Stamp:

Drawing Index:

Portion	9 of Farm Oosbosch 707
Stand Size	7155m ²
Title Deed Address	T000071832/2011 Portion 9 of Farm Oosbosch 707 Humansdorp
Zoning Classification	Resort Zone 2
P.A. Plan Number	Holiday Housing N/A

Drawing Index:

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SHEET 8	Unit 4 sheet 02	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 9	sheet 03	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

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Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.
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Geskiede maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorbehou.

REV	DATE	DRAWN	DESCRIPTION

Client:
Economy Drive CC

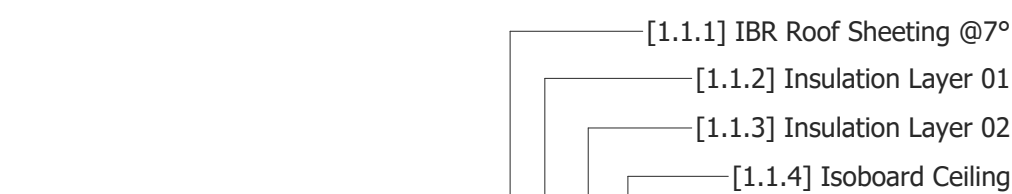
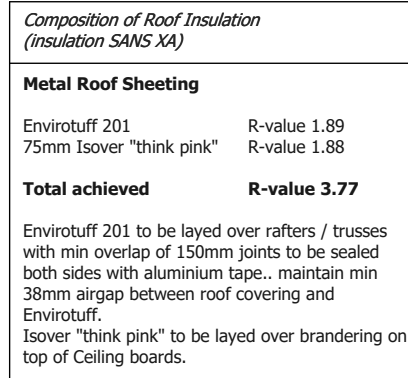
Oelofse ArchDesigns (Pty) Ltd
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412
SACAP: PAD 29888866

Diens / Service:
Portion 9 of Farm Oosbosch 707 Humansdorp

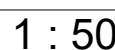
Drawing Title:
"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting
Scale: As indicated
Date: October 2024
Client: Economy Drive CC
Project No: STB707-2023/09/07

Designer: J.Oelofse
SACAP: PAD 29888866
Drawn: D.J. Oelofse
SACAP: APP 70613985



1 : 50



TYPICAL SCHEMATIC GAS INSTALLATION

DIAGRAM INDICATING SAFETY DISTANCES

1. Boilers cannot be placed closer than 1m to a door.

2. Boilers cannot be placed closer than 2m to an open drain or depression, where gas can gather if the boiler leaks.

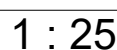
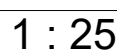
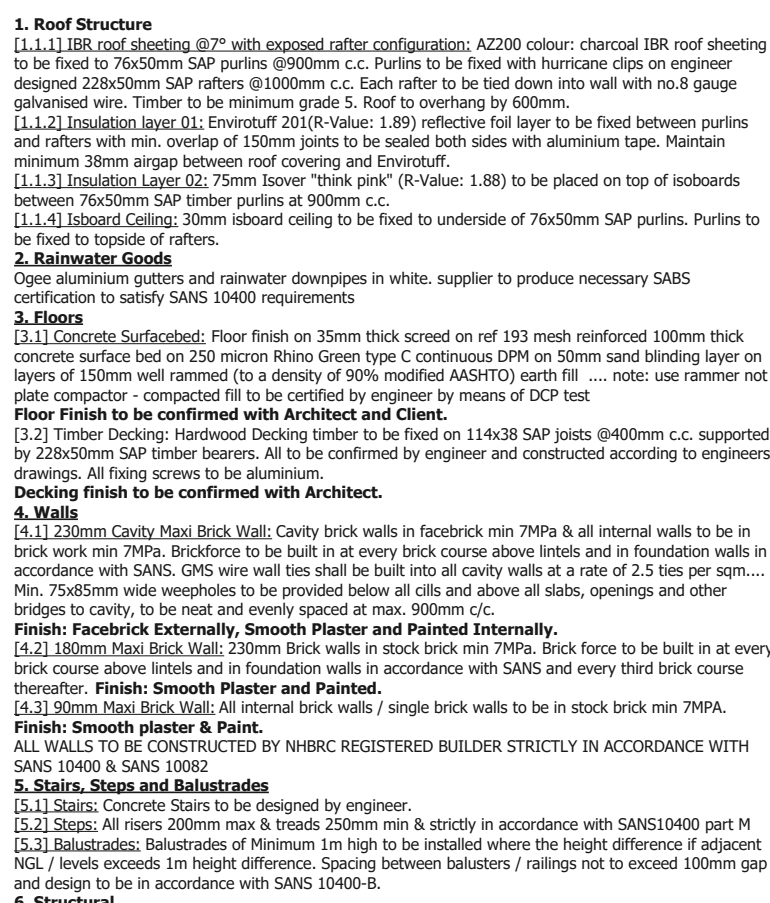
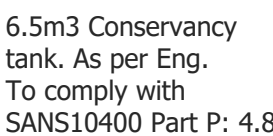
3. Boilers cannot be placed closer than 5m to an electrical switch, motor, generator, pool pump etc.

4. Boilers cannot be placed closer than 1m to the side of a window unless there is at least 200mm between the bottom of the window and the top of the boiler and a non-ventilatable roof has been provided between the window and the boiler.

5. Boilers cannot be placed closer than 1m to a secondary wall, unless the is a double brick "firewall" + 1.5m tall, with no ventilation gaps in the wall.

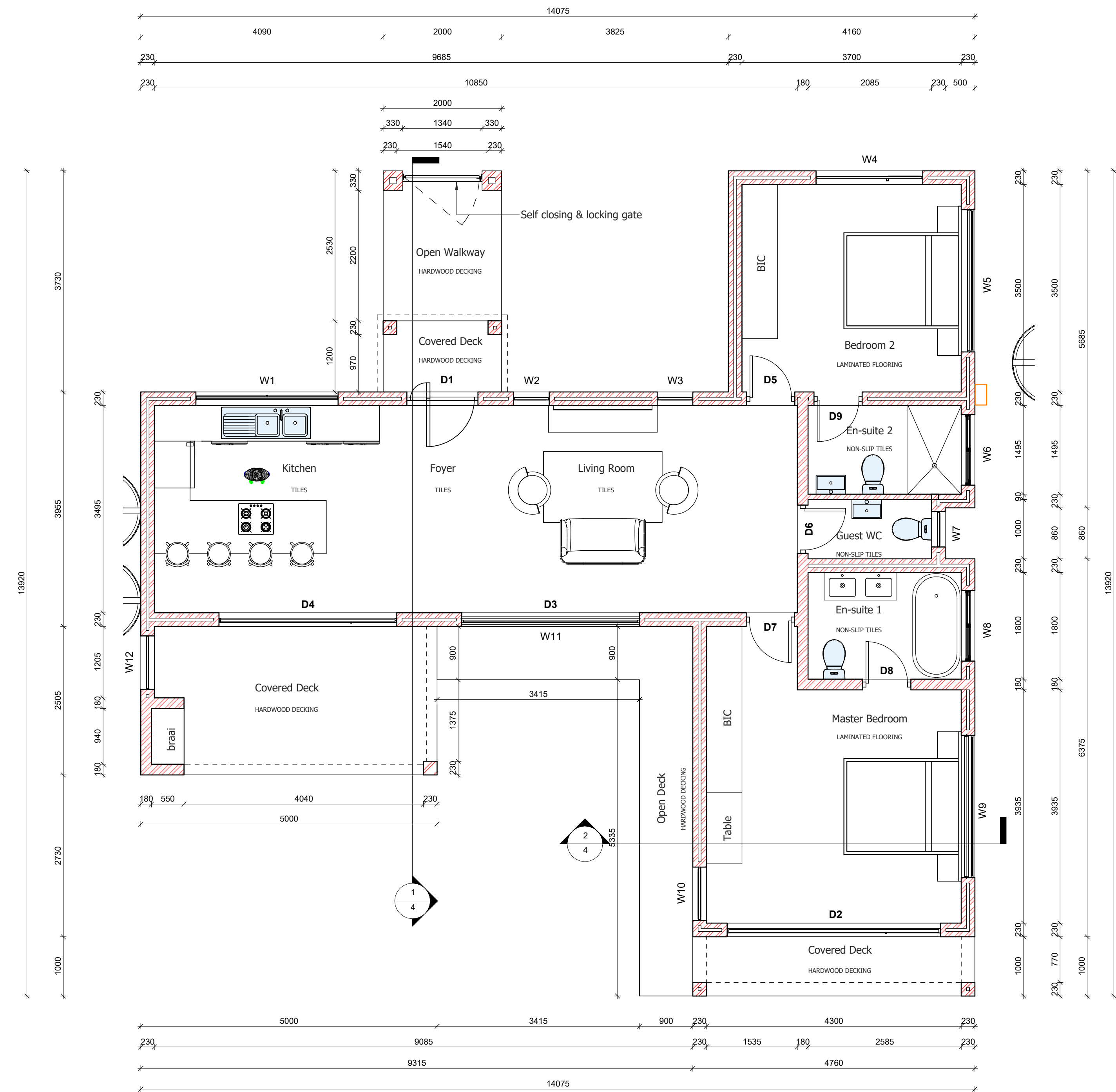
6. Any larger gas cylinders to be in lockable steel cage.

Electrical Legends	
Light Switches	
	1 Lever Light Switch
	2 Lever Light Switch
	3 Lever Light Switch
	4 Lever Light Switch
	Single Exterior Waterproof Light Switch
Sockets and Outlets	
	Double Electrical Socket @ 1100mm AFPL
	Double Electrical Socket @ 300mm AFPL
	Pull-up Tower Socket (top of counter / work tops)
	Single Exterior Socket with Coverplate
	Open Connection Point
	Shaver Connection
	Main Distribution Board
Audio and Visual / Communication	
	Satellite Dish Outlet
	Telephone / ADSL Connection
	High Power Ceiling Mount Wireless PoE Range Extender / Access Point
Light Fixings	
	Single Down Light LED
	Boxed Down Lights LED (Directional)
	Small/Medium Pendant Light
	Large Pendant Light (Chandelier)
	Recessed Foot Wall Light
	Feature Exterior Uplight
	Internal Flood Light
	Internal Wall Lights
	Pool Lights
	LED Tube TS 14W
	LED Universal Tube
	LED Double Tube G13 36W
	LED strip - 7w per meter
	Heat Resistant Light Fitting
	Standard Light Fitting
	Ceiling Fan With Light 40w



JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 2	
Municipal Stamp:	
Drawing Index:	
Portion Stand Size Title Deed Address Zoning Classification P.A. Plan Number	9 of Farm Oschbosch 707 7185m² T000071832/2011 Portion 9 of Farm Oschbosch 707 Humansdorp Resort Zone 2 Holiday Housing N/A
Drawing Index:	
<i>SHEET 1</i>	<i>Unit 1 sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
<i>SHEET 2</i>	<i>Unit 1 sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 3</i>	<i>Unit 2 sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
<i>SHEET 4</i>	<i>Unit 2 sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 5</i>	<i>Unit 3 sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
<i>SHEET 6</i>	<i>Unit 3 sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
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<i>SHEET 9</i>	<i>sheet 03</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work. Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings. The design of this drawing is the property of Oelofse ArchDesigns and copyright is reserved by him. Alle veroreites van munisipaliteit en ander betrokke owerhede moet streng nagekom word. Bouaannemers en onderaannemers moet alle matas en vlakke op die terrein nagaan alvorens enige bouwerk te aanvang neem. Geskreefde matas moet voorkeur geniet bo geskaalde matas en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorgesou.	
REV	DATE DRAWN DESCRIPTION
Client:	
Economy Drive CC	
 Jacque Oelofse info@oelofsearchdesigns.co.za 081 700 2412 7 RYBENTREIN • 4 SAGGIP STRIDE 13 Merrie Place, Paradise Beach Jeffreys Bay	
SACAP: PAD 29888866	
Diens / Service:	
Portion 9 of Farm Oschbosch 707 Humansdorp	
Drawing Title:	
"Proposed Holiday Housing" Drawings for Municipal Submission	
Engineer: Sigma Consulting	Designer: J. Oelofse
Scale: As indicated	SACAP: PAD 29888866
Date: October 2024	Drawn: D.J. Oelofse
Client: Economy Drive CC	SACAP: APP 70613905
Client Signature:	
Project No: STB707-2023/09/07	

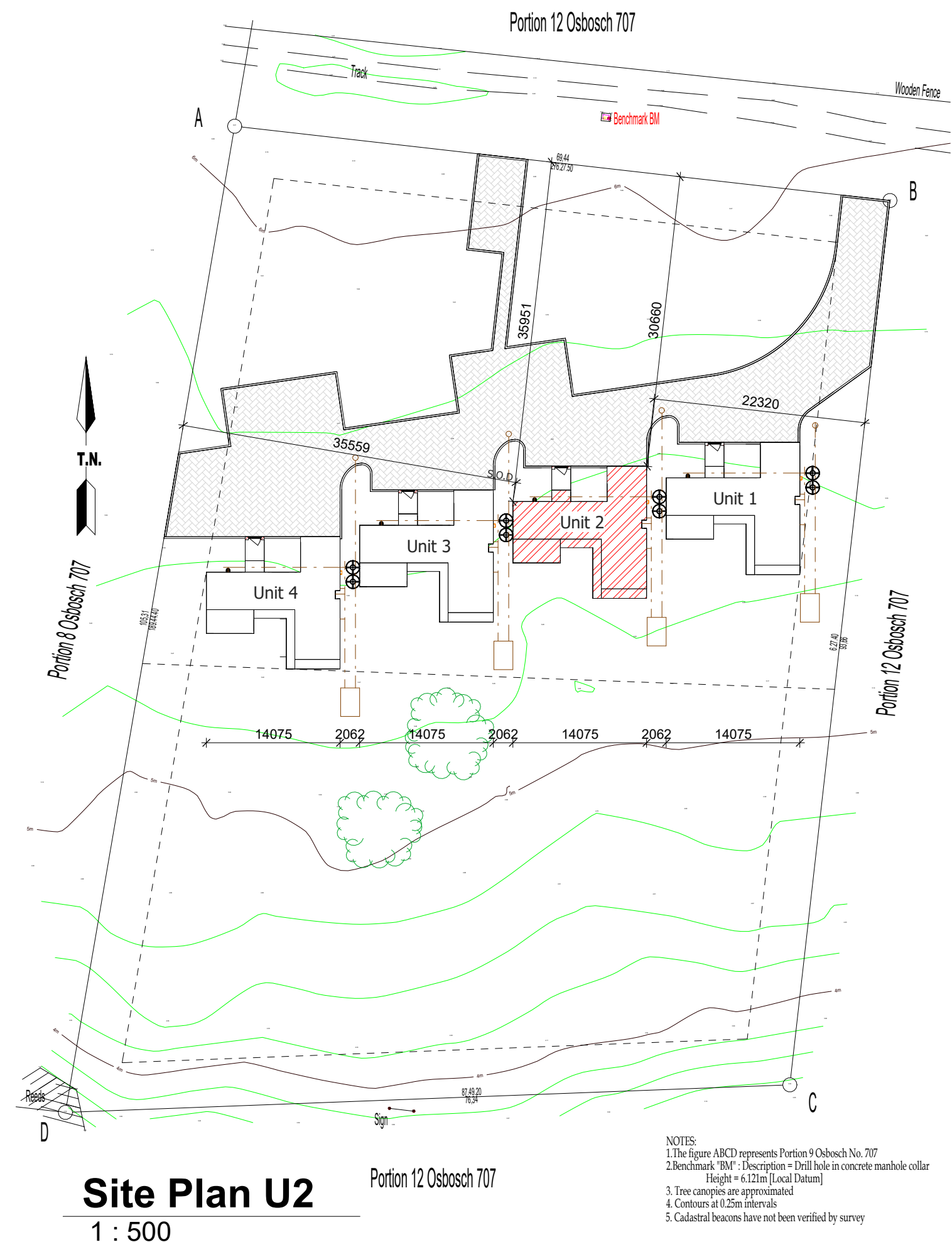


Unit 2 Floor Plan
1 : 50

Unit 2 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1190	590
W7	600	600
W8	1190	590
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 2 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3600	2100
D3	3000	2100
D4	3000	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

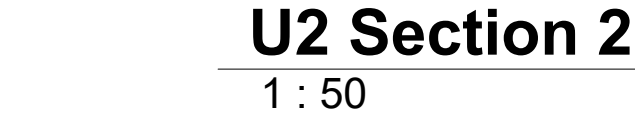
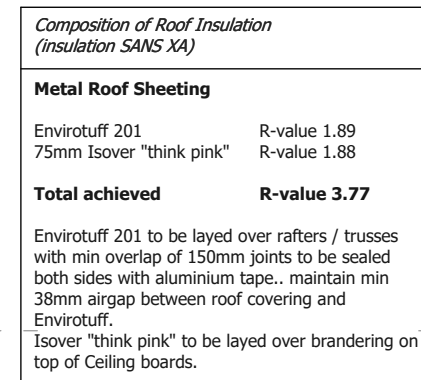
Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.



Site Plan U2
1 : 500

Unit 2 : Fenestration Calculations

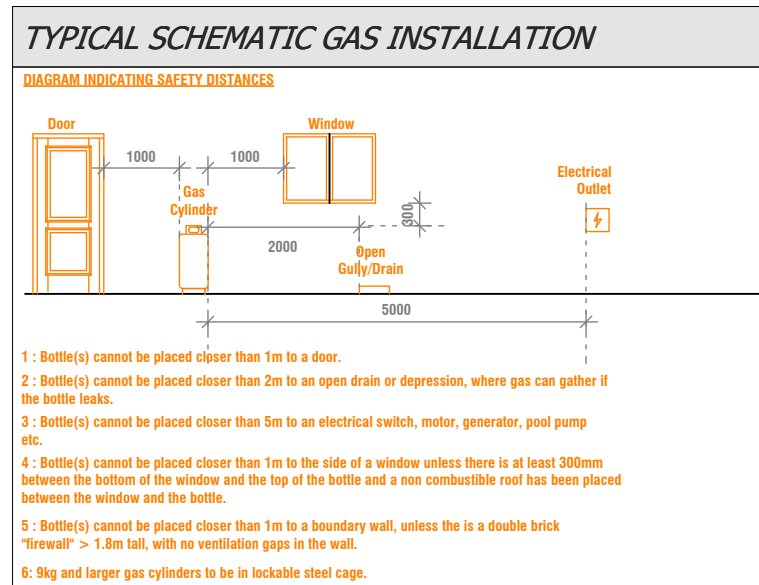
Fenest		ORIENTATION Cl		FENESTRATION AREAS				SHADING - Clause 5.2				SPECIFICATION - Clause 5.2				ENTER shgc values		Averaging	
Catalogue reference	Window plan ref	Orientation sector	Window width mm	Window vertical mm	Number (quantity)	Window area m ²	Shading height mm	Multiplier Table 3	Required shading projection	Actual shgc (design) projection	Compliant 1= yes 0= no	U-value	Required shgc-value T4, col 3&4	Enter shgc compliant 1=yes 0=no	Enter non-compliant shgc 0=no	ww area x required shgc			
	W1	W,NW,N,NE,E	2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43			
	W2	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38			
	W3	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38			
	W4	W,NW,N,NE,E	1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81			
	W5	W,NW,N,NE,E	2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38			
	W6	W,NW,N,NE,E	1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25			
	W7	W,NW,N,NE,E	600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13			
	W8	W,NW,N,NE,E	1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22			
	W9	W,NW,N,NE,E	2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32			
	W10	W,NW,N,NE,E	900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66			
Total W,NW,N,NE,E orientated fenest'n area						12,51	➡								12,51	➡ 3,96			
	W11	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a			n/a			
	D2	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
	D3	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
	D4	SW,S,SE	3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a			
Storey total fenestration area						38,97													
Storey net internal floor area b						83,24													
Fenestration %: IF >20%, use this to enter Table 4						46,82	%							Average weighted-by-area shgc		0,32			



U2 Section 1

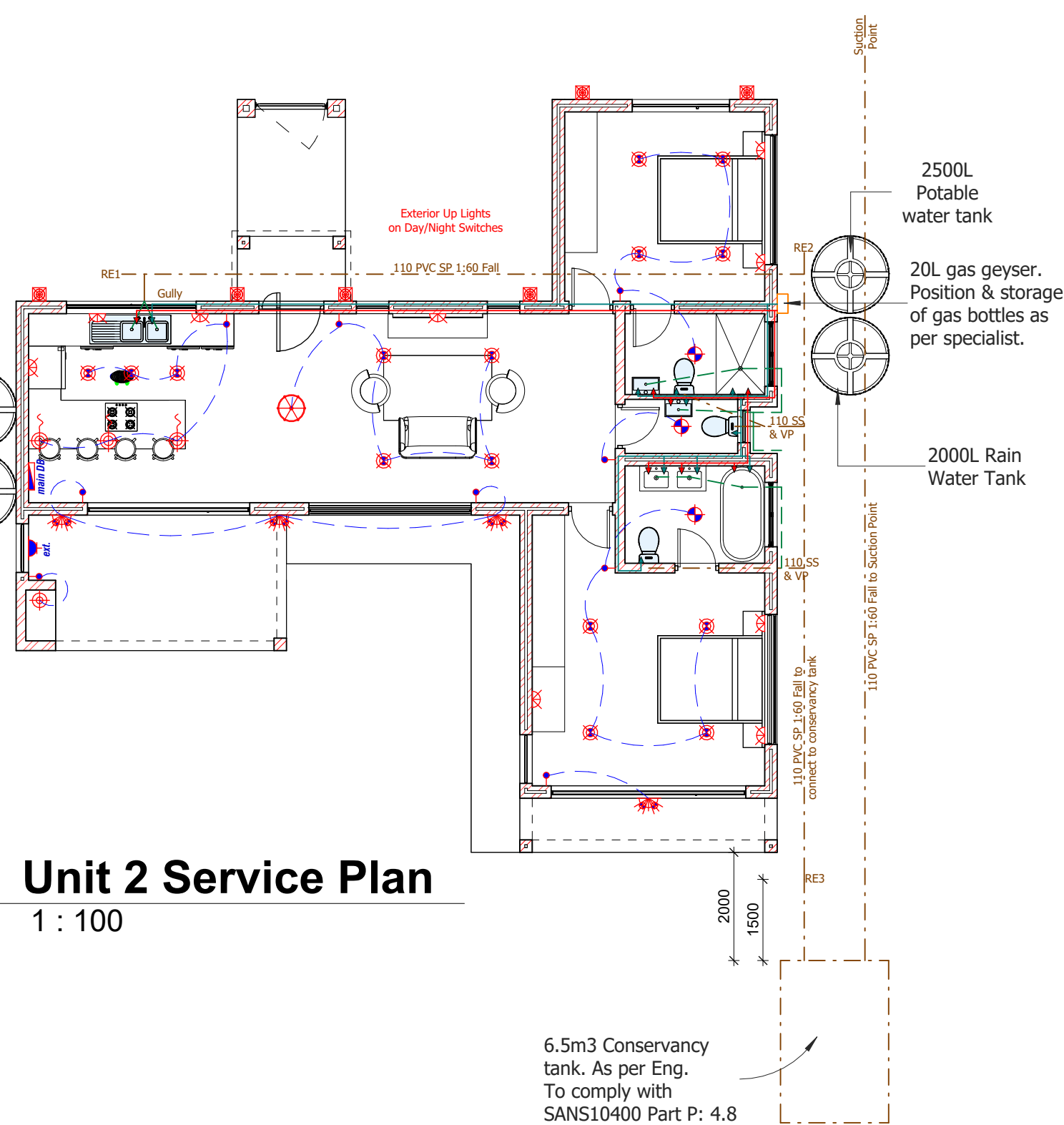
1 : 50

Lighting Energy Demand				
Ground Storey				Nett: 83.24m ²
Maximum Energy Demand 4w/m ² (table 12) allowed				4w x 83.24m ² = 332.96w
Proposed Energy Demand (per proposed lighting layout)				
Symbol	Fitting Description	matts	Quantity	Totals
	Single Down Light LED	5w	15	75w
	Standard Linear Fitting	8w	3	24w
	Hanging Pendant Light	5w	3	15w
	Exterior Wall Light	10w	4	40w
	Exterior Wall Up Light (day night switch)	10w	6	60w
	LED Universal Tube	15w	1	15w
Allowable 4w/m ² (table 12) 332.96w		Proposed	229w	Surplus +103.96w
Proposed demand acceptable				

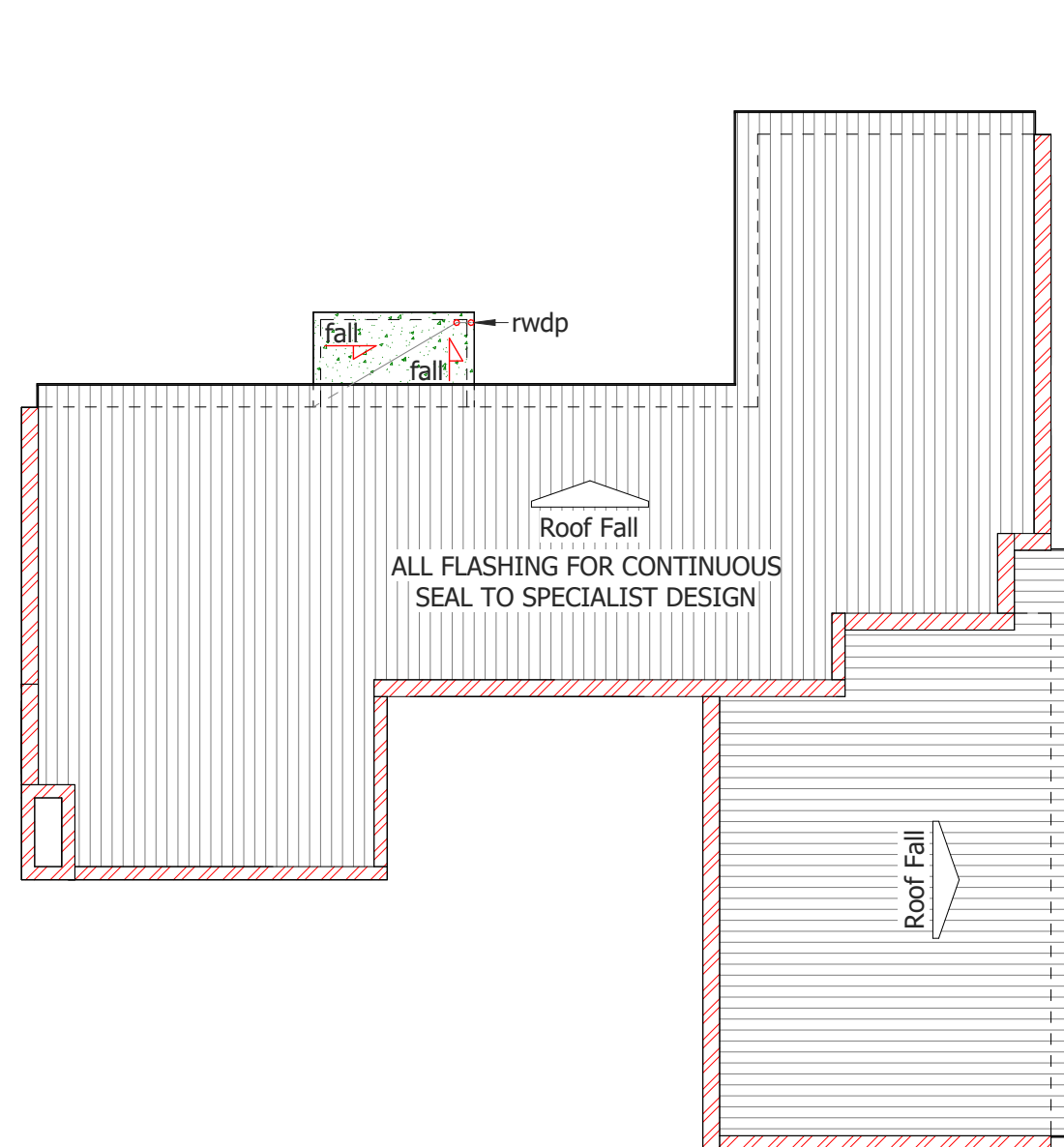


<i>Reticulation Legend</i>		HOT & COLD
	Hot Water Connection Point	
	Cold Water Connection Point	
	Proposed hot water piping	
	Proposed cold water piping	

Electrical Legends	
Light Switches	
	1 Lever Light Switch
	2 Lever Light Switch
	3 Lever Light Switch
	4 Lever Light Switch
	Single Exterior Waterproof Light Switch
Sockets and Outlets	
	Double Electrical Socket @ 1100mm AFPL
	Double Electrical Socket @ 300mm AFPL
	Pull-up Tower Socket (top of counter / work tops)
	Single Interior Socket with Coverplate
	Open Connection Point
	Shaver Connection
	Main Distribution Board
Audio and Visual / Communication	
	Satellite Dish Outlet
	Telephone / ADSL Connection
	High Power Ceiling Mount Wireless PoE Range Extender / Access Point
Light Fixtures	
	Single Down Light - LED
	Boxed Down Lights LED (Directional)
	Small/Medium Pendant Light
	Large Pendant Light (Chandelier)
	Recessed Foot Wall Light
	Feature Exterior Uplight
	External Floor Light
	Internal Wall Lights
	Pool Lights
	LED Tube T5 14W
	LED Universal Tube
	LED Double Tube G13 36W
	LED strip - 7w per meter
	Heat Resistant Light
	Standard Light Fitting
	Ceiling Fan With Light 40w

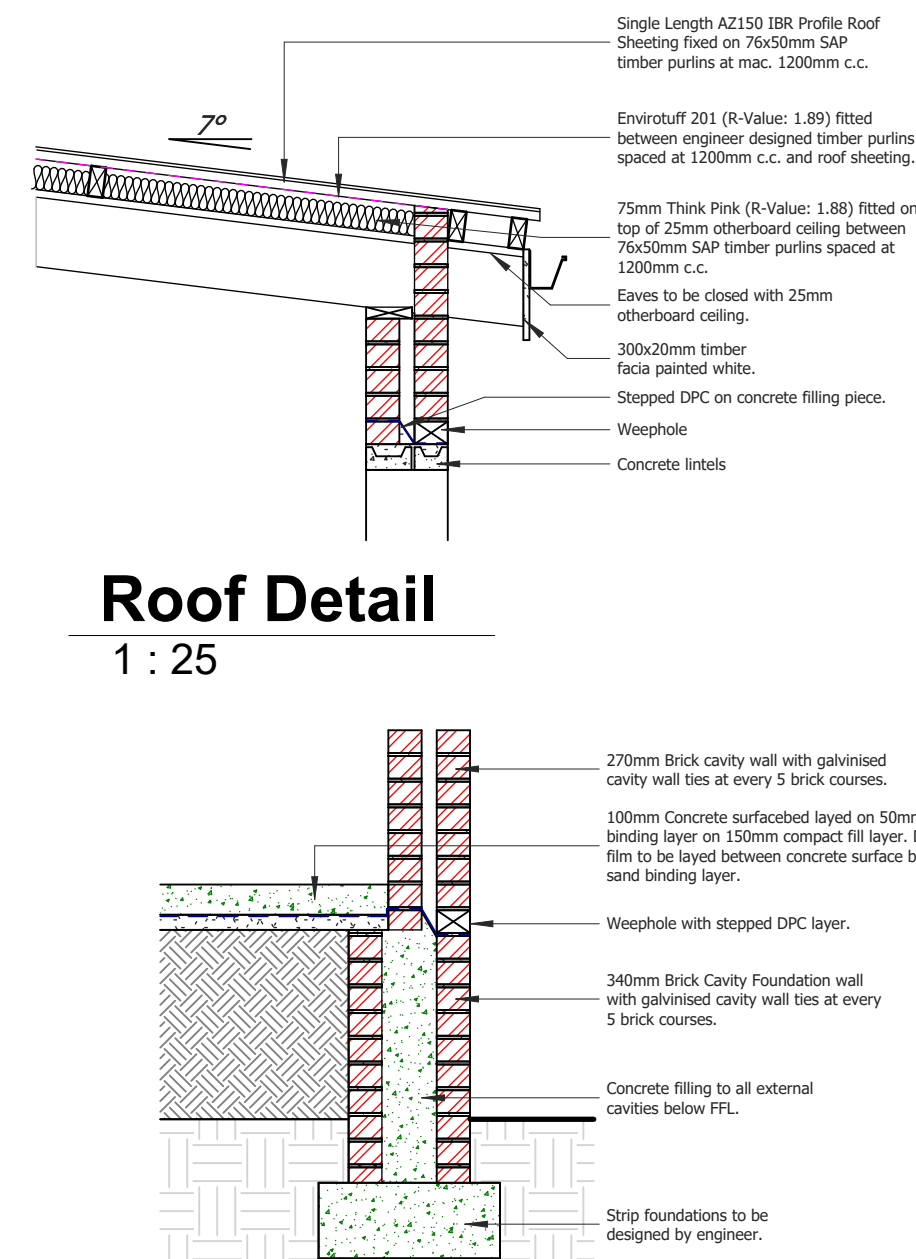


Unit 2 Service Plan

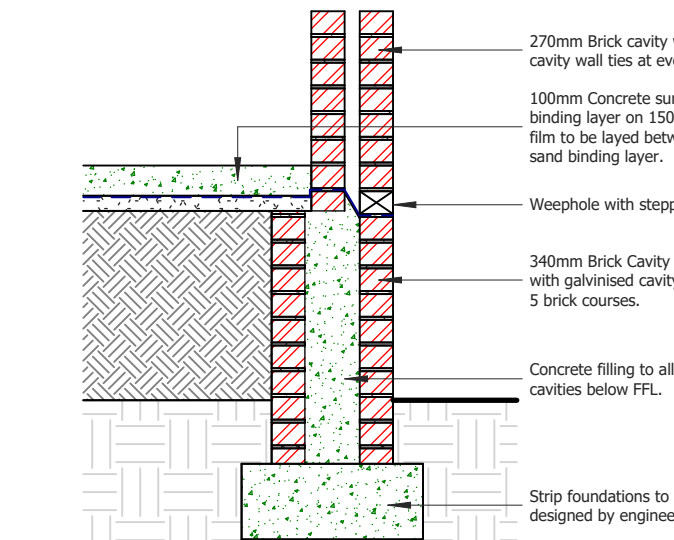


Unit 2 Roof Plan

1 : 100



Roof Detail



Foundation Detail

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 4	
Municipal Stamp:	
Drawing Index:	
Portion Stand Size Title Deed Address Zoning Classification P.A. Plan Number	9 of Farm Oschbesch 707 7185m² T000071832/2011 Portion 9 of Farm Oschbesch 707 Hummisdorp Resort Zone 2 Holiday Housing N/A
Drawing Index:	
<i>SHEET 1</i>	<i>Unit 1</i> <i>sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
<i>SHEET 2</i>	<i>Unit 1</i> <i>sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 3</i>	<i>Unit 2</i> <i>sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
<i>SHEET 4</i>	<i>Unit 2</i> <i>sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 5</i>	<i>Unit 3</i> <i>sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
<i>SHEET 6</i>	<i>Unit 3</i> <i>sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 7</i>	<i>Unit 4</i> <i>sheet 01</i> • Site Position Plan • Floor Plan • Window & Door Schedule • Fenestration Calculations • Elevations • Drainage Section
<i>SHEET 8</i>	<i>Unit 4</i> <i>sheet 02</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 9</i>	<i>sheet 03</i> • Sections • Service Plan • Energy Calculations • Roof Plan • Details

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.

Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.

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Geskrewe mates moet voorkeur geniet bo geskaalde mates en groot skaal tekenings bo klein-skaal tekenings.

Die ontwerp hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hulle kom voorgehou.

[illegible]

Client:

Economy Drive CC



Oelofse ArchDesigns (Pty) Ltd

OA

Jacque Oelofse
info@oelofsearchdesigns.co.za

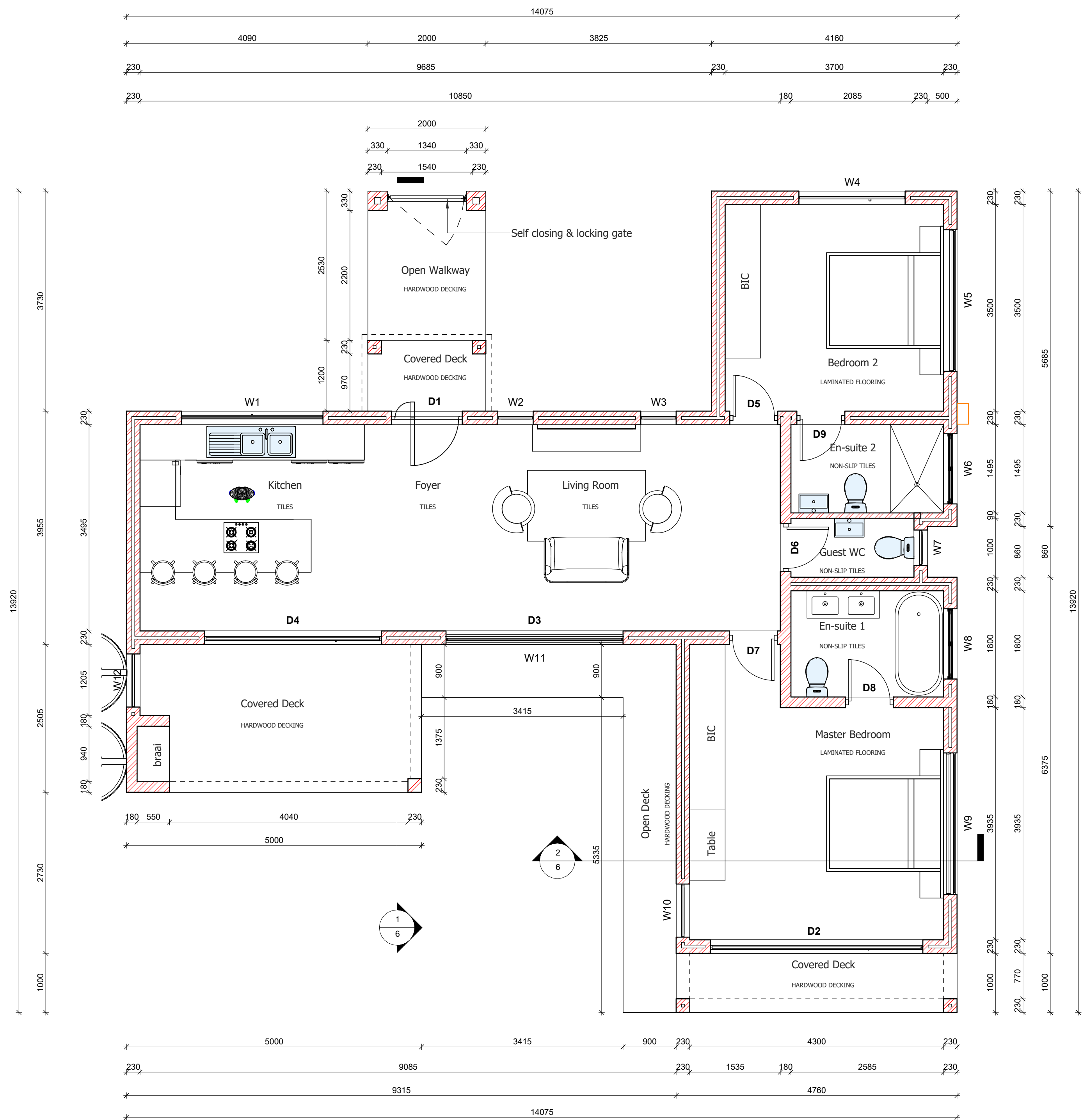
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ARCHITECTS • 4 Design Studio

SACAP: PAD 29888866

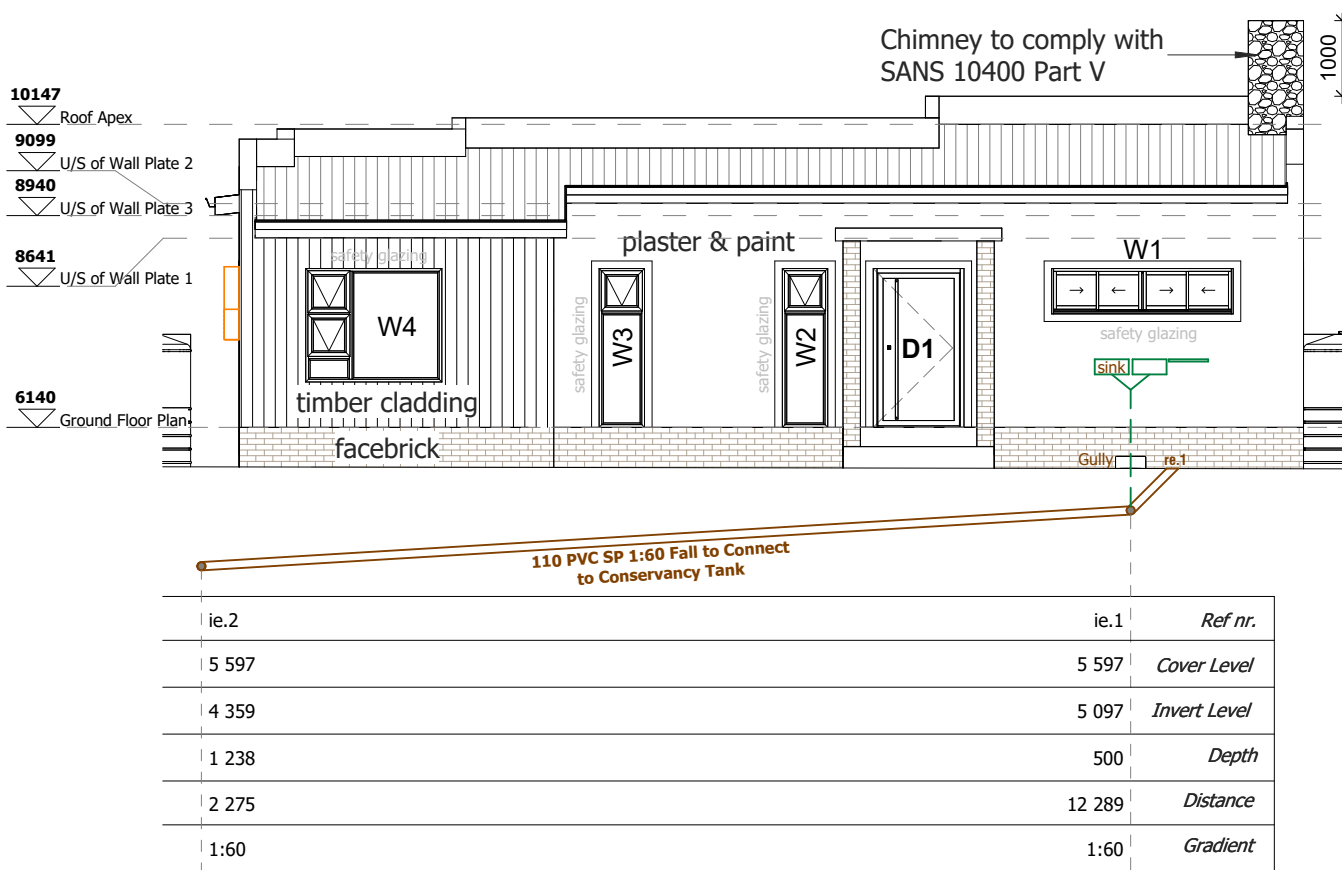
13 Merrie Place, Paradise Beach
Jeffreys Bay

Diens / Service:	
Portion 9 of Farm Ochsbach 707 Humansdorp	
Drawing Title:	
"Proposed Holiday Housing" Drawings for Municipal Submission	
Engineer: Sigma Consulting	Designer: J. Oelofse
Scale: As Indicated	SACAP: PAD 29888866
Date: October 2024	Drawn: D.J. Oelofse
Client: Economy Drive CC	SACAP: APP 70613985
Client Signature:	
Project No: STB/707-2023/09/07	



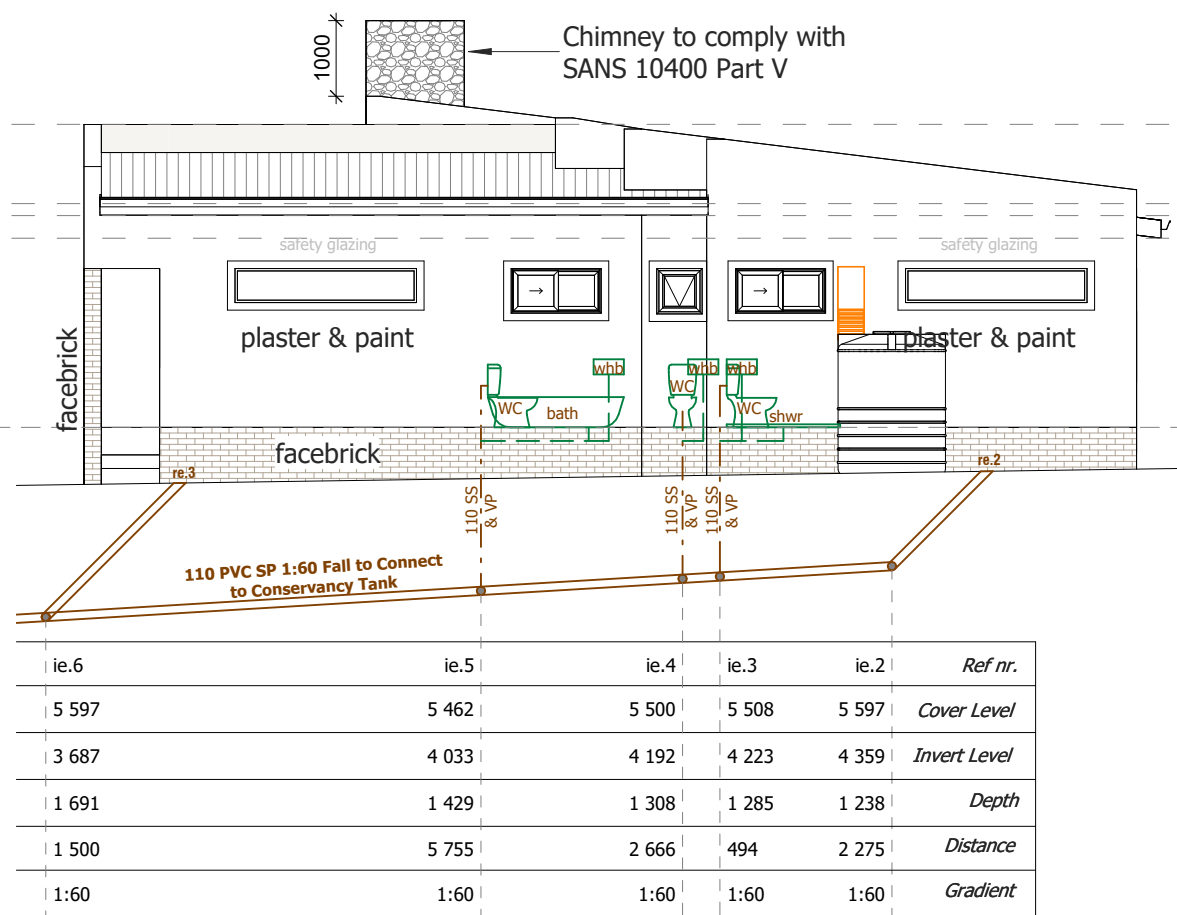
Unit 3 Floor Plan

1 : 50



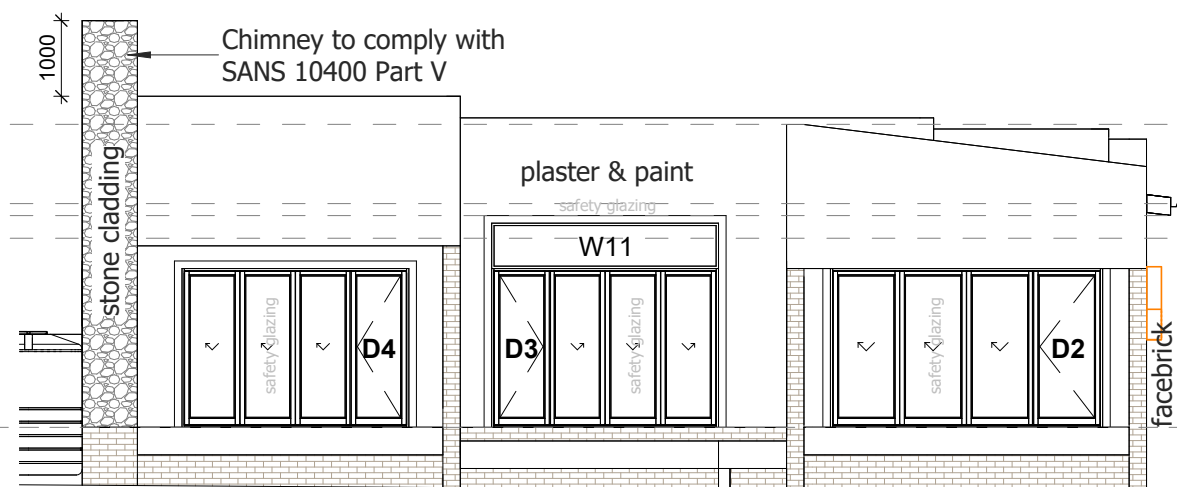
U3 North Elevation

1 : 100



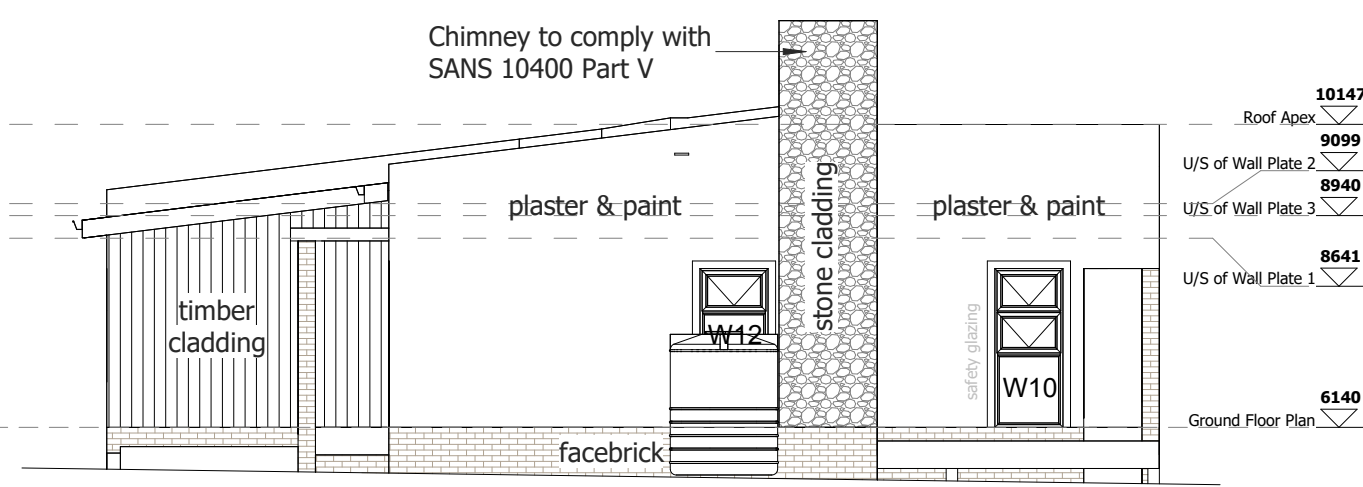
U3 East Elevation

1 : 100



U3 South Elevation

1 : 100



U3 West Elevation

1 : 100

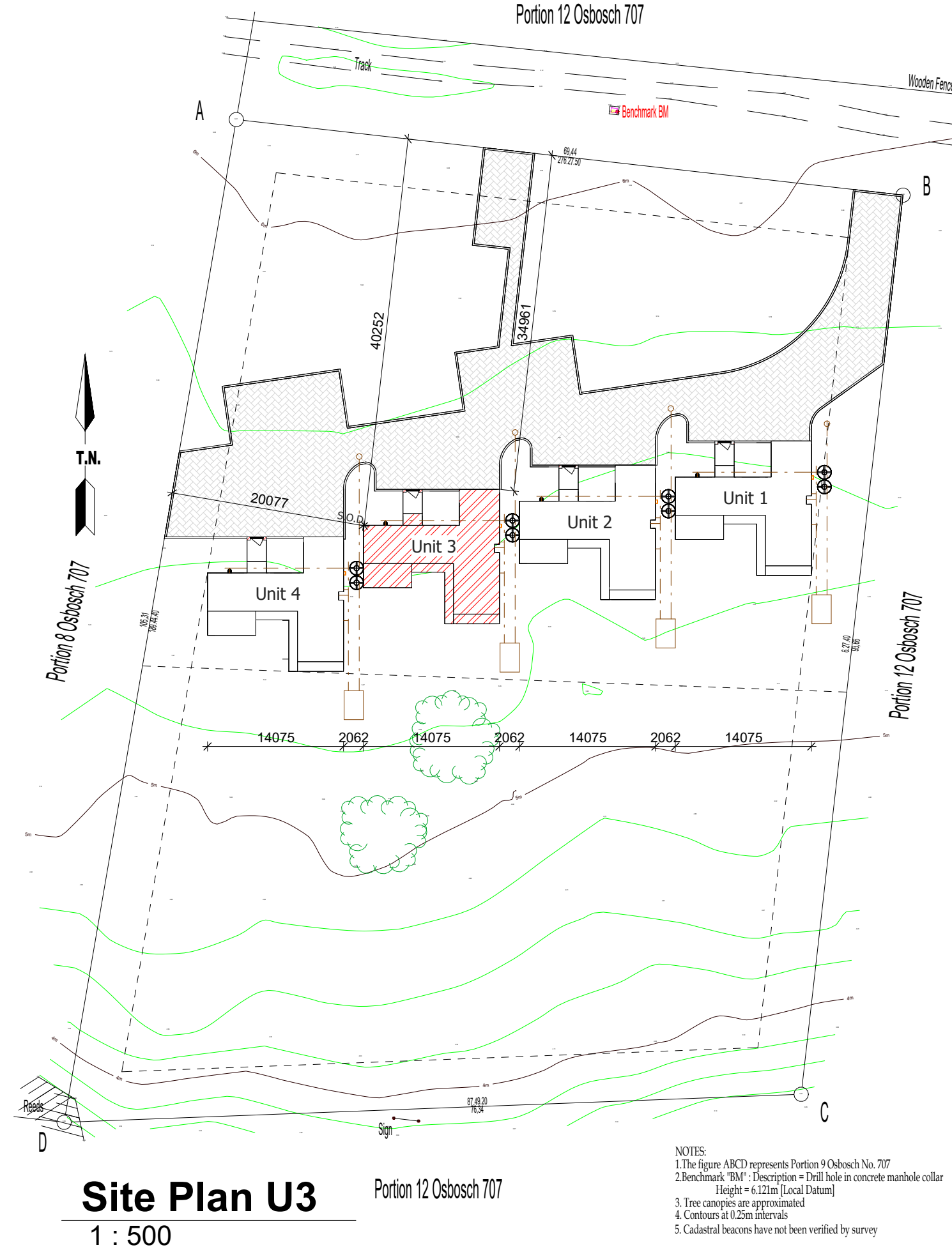
Unit 3 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1190	590
W7	600	600
W8	1190	590
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 3 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3600	2100
D3	3000	2100
D4	3000	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.

Unit 3 : Fenestration Calculations

Fenest	ORIENTATION CLASSIFICATION		FENESTRATION AREAS				SHADING - Clause 5.2					SPECIFICATION - Clause 5.2		ENTER shgc values		Averaging				
Catalogue reference	Window plan ref	Orientation sector	Window width mm	Window vertical mm	Number of units	Window area m ²	Shading height mm	Multiplier	Required shading (design) projection	Actual shading projection	Compliant 1= yes 0= no	U-value	Required shgc-value T4,col 3&4	Enter shgc compliant 1=yes 0=no	Enter non-compliant shgc 0=no	ww area x required shgc				
	W1	W,NW,N,NE,E	2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43				
	W2	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38				
	W3	W,NW,N,NE,E	600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38				
	W4	W,NW,N,NE,E	1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81				
	W5	W,NW,N,NE,E	2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38				
	W6	W,NW,N,NE,E	1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25				
	W7	W,NW,N,NE,E	600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13				
	W8	W,NW,N,NE,E	1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22				
	W9	W,NW,N,NE,E	2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32				
	W10	W,NW,N,NE,E	900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66				
	Total W,NW,N,NE,E orientated fenest'n area					12,51	➡								12,51	➡	3,96			
	W11	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a				n/a			
	D2	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a				n/a			
	D3	SW,S,SE	3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a				n/a			
	D4	SW,S,SE	3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a				n/a			
	Storey total fenestration area					38,97														
	Storey net internal floor area b					83,24														
Average weighted-by-area shgc																0,32				
Fenestration %: IF >20%, use this to enter Table 4																	46,82	%		



Site Plan U3

1 : 500

Drawing No: 5

Municipal Stamp:

Drawing Index:

Portion 9 of Farm Oschbosch 707
7155m²
100071832/2011
Humansdorp
Resort Zone 2
Holiday Housing
N/A

Drawing Index:

SHEET 1
Unit 1
sheet 01
• Site Position Plan
• Floor Plan
• Window & Door Schedule
• Fenestration Calculations
• Elevations
• Drainage Section

SHEET 2
Unit 1
sheet 02
• Sections
• Service Plan
• Energy Calculations
• Roof Plan
• Details

SHEET 3
Unit 2
sheet 01
• Site Position Plan
• Floor Plan
• Window & Door Schedule
• Fenestration Calculations
• Elevations
• Drainage Section

SHEET 4
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• Window & Door Schedule
• Fenestration Calculations
• Elevations
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SHEET 8
Unit 4
sheet 02
• Sections
• Service Plan
• Energy Calculations
• Roof Plan
• Details

SHEET 9
sheet 03
• Sections
• Service Plan
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Geskiede maters moet voorkuur geniet te geskaalde maters en groot skaal tekeninge het voorkuur te klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorgesou.

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Economy Drive CC

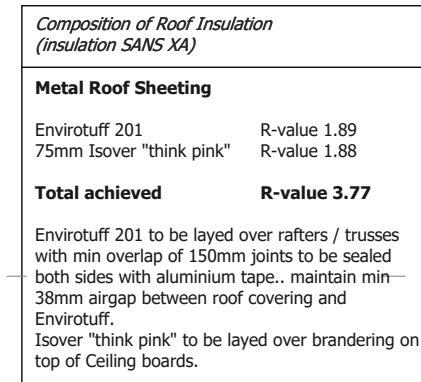
Oelofse ArchDesigns (Pty) Ltd
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412
SACAP: PAD 29888866

Diens / Service:
Portion 9 of Farm Oschbosch 707
Humansdorp

Drawing Title:
"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting
Designer: J. Oelofse
Scale: As indicated
SACAP: PAD 29888866
Date: October 2024
Drawn: D.J. Oelofse
Client: Economy Drive CC
SACAP: APP 70613985
Client Signature:
Project No: STB707-2023/09/07

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024



U3 Section 2

1 : 50

TYPICAL SCHEMATIC GAS INSTALLATION

DIAGRAM INDICATING SAFETY DISTANCES

The diagram illustrates the following safety distances:

- Door to Gas Cylinder: 1000
- Gas Cylinder to Window: 1000
- Window to Open Bath/Drain: 2000
- Open Bath/Drain to Boiler: 1000
- Boiler to Electrical Outlet: 500
- Total Clearance (Boiler to Wall): 1000

1. Boilers cannot be placed closer than 1m to a door.

2. Boilers cannot be placed closer than 2m to an open drain or depression, where gas can gather if the boiler leaks.

3. Boilers cannot be placed closer than 5m to an electrical switch, motor, generator, pool pump etc.

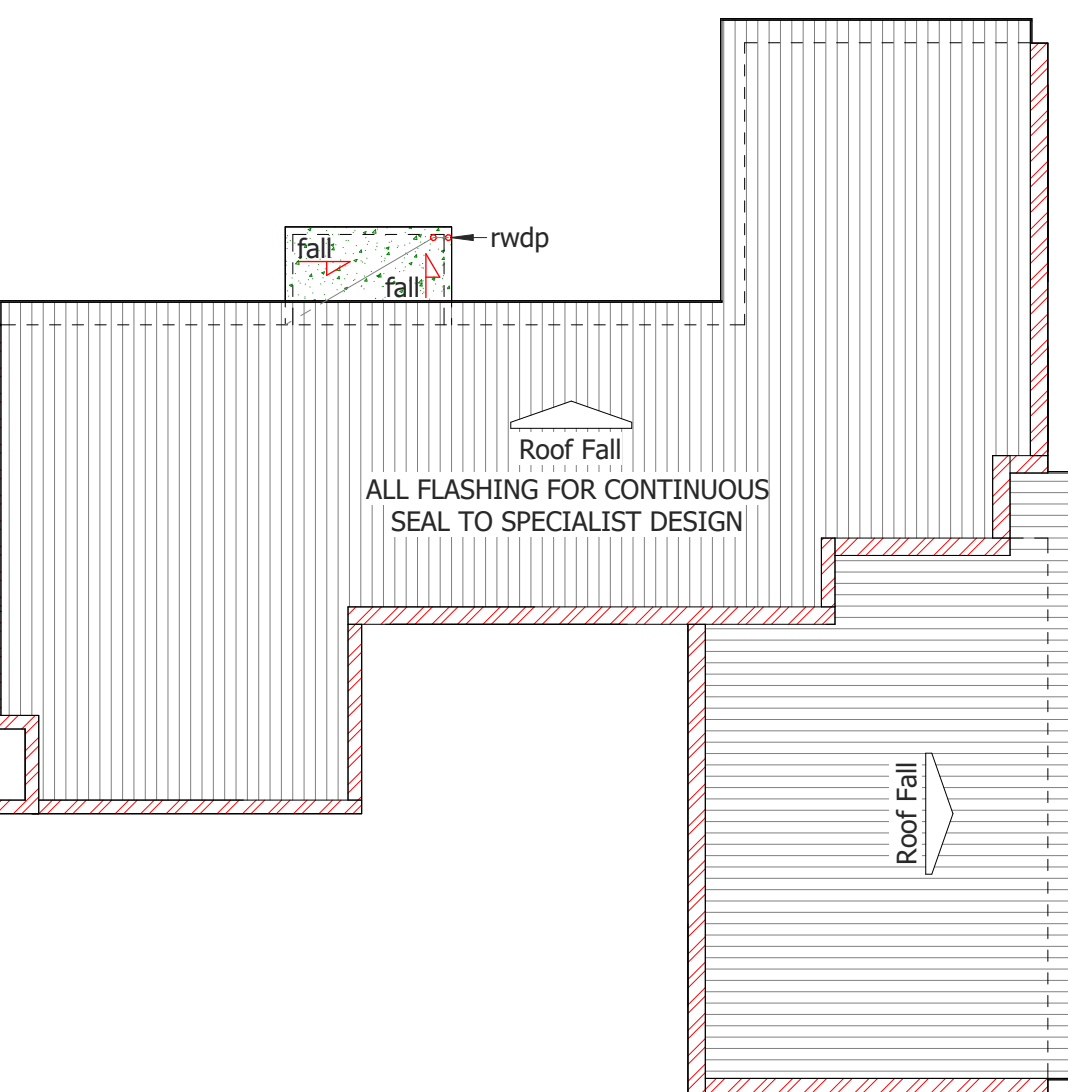
4. Boilers cannot be placed closer than 1m to the side of a window unless there is at least 2000mm between the bottom of the window and the top of the boiler and a non-ventilating roof has been provided between the window and the boiler.

5. Boilers cannot be placed closer than 1m to a secondary wall, unless the is a double brick "firewall" - i.e. 1.5m tall, with no ventilation gaps in the wall.

6. Any large gas cylinders to be in lockable steel cage.

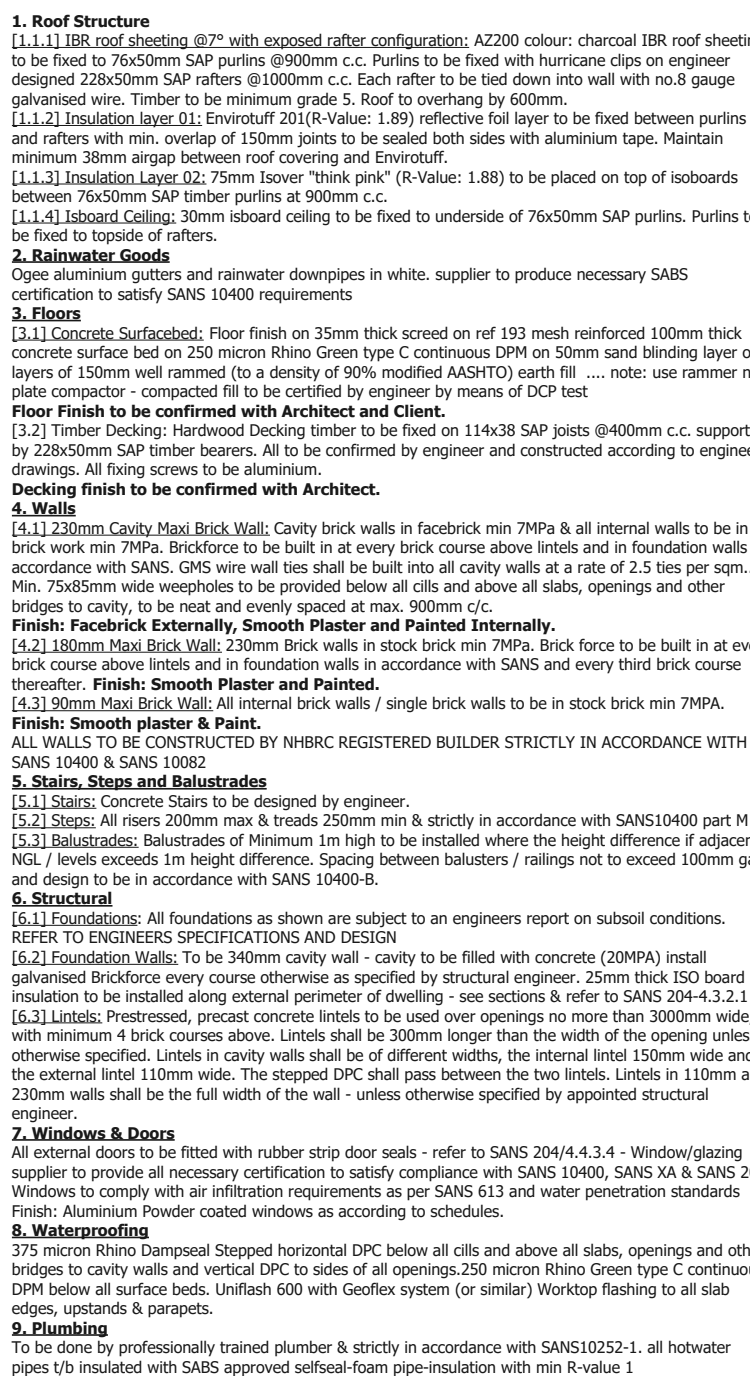
Electrical Legends

Light Switches	
	1 Lever Light Switch
	2 Lever Light Switch
	3 Lever Light Switch
	4 Lever Light Switch
	Single Exterior Waterproof Light Switch
Sockets and Outlets	
	Double Electrical Socket @ 1100mm AFPL
	Double Electrical Socket @ 300mm AFPL
	Pop-Up Tower Socket (top of counter / work tops)
	Single Exterior Socket with Coverplate
	Over Switch Connection
	Shaver Connection
	Main Distribution Board
Audio and Visual / Communication	
	Satellite Dish Outlet
	Telephone / ADSL Connection
	High Power Ceiling Mount Wireless Pole Range Extender / Access Point
Light Fixtures	
	Single Down Light LED
	Boxed Down Lights LED (Directional)
	Small/Medium Pendant Light
	Large Pendant Light (Chandelier)
	Recessed Foot Wall Light
	Feature Exterior Uplight
	Interior Flood Light
	Internal Wall Lights
	Pool Lights
	LED Tube T5 14W
	LED Universal Tube
	LED Double Tube G13 36W
	LED strip - 7w per meter
	Heat Resistant Light
	Standard Light Fitting
	Ceiling Fan With Light 40w



Unit 3 Roof Plan

1 : 100



Foundation Detail

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing Index:		
<i>SHEET 1</i>	<i>Unit 1 sheet 01</i>	• Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
<i>SHEET 2</i>	<i>Unit 1 sheet 02</i>	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 3</i>	<i>Unit 2 sheet 01</i>	• Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
<i>SHEET 4</i>	<i>Unit 2 sheet 02</i>	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
<i>SHEET 5</i>	<i>Unit 3 sheet 01</i>	• Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
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<i>SHEET 7</i>	<i>Unit 4 sheet 01</i>	• Site Position Plan • Floor Plan • Window & Door Schedule • Penetration Calculations • Elevations • Drainage Section
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Geskryfte maten moet voorkeur geniet bo geskaalde maten en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op skaal tekeninge is die eiendom van Gelfoef ArchDesigns en kopiereg word hierby gereserveer.

REV	DATE	DRAWN	DESCRIPTION

Client:

Economy Drive CO



Diens / Service:

**Portion 9 of
Farm Oschbosch 707
Humansdorp**

Drawing Title:

"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting

Scales:	As indicated	SACAP:	P.D. 20000056
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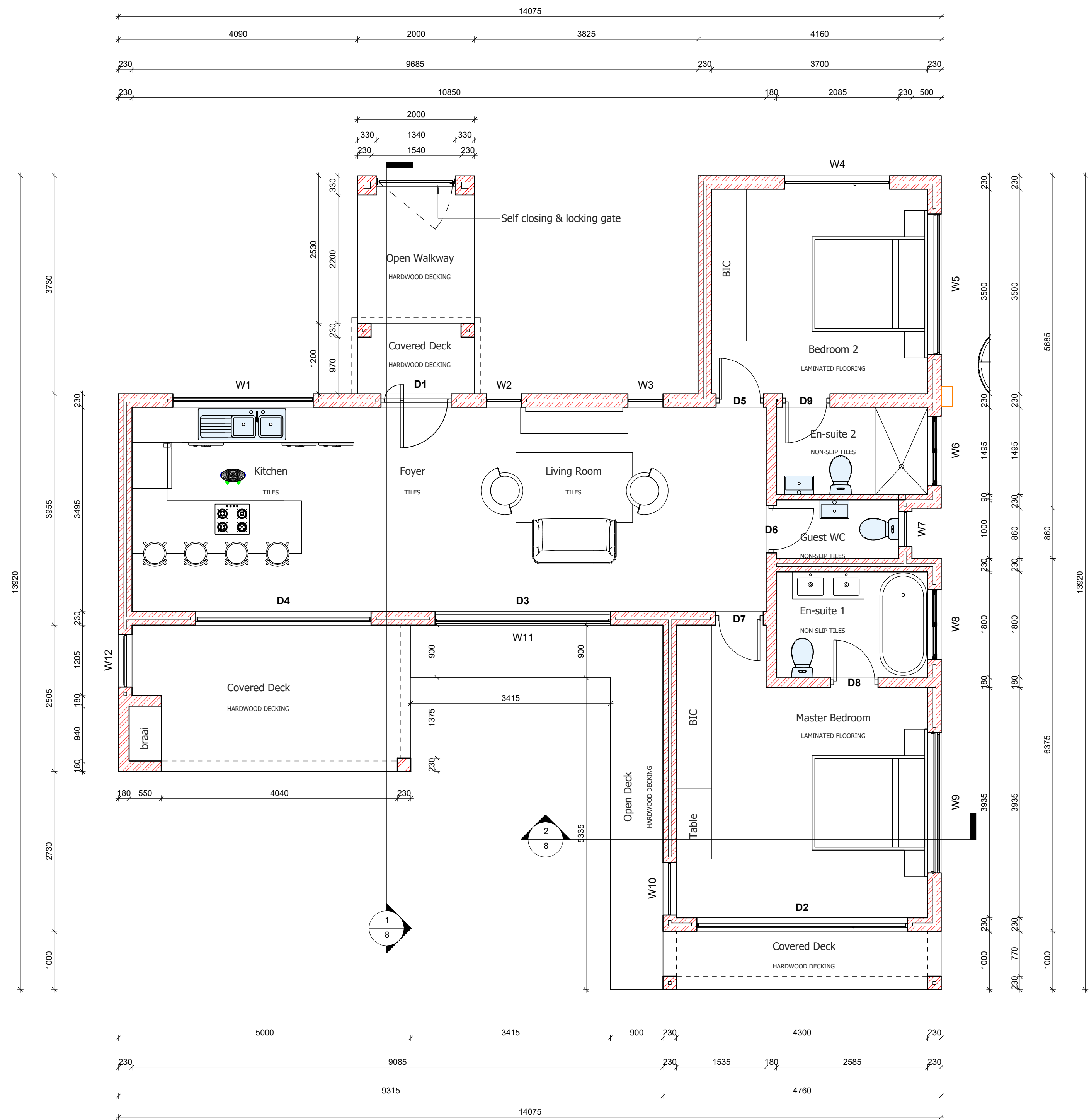
Score.	As indicated	SACAP.	PAID 25000000
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Date: October 2024 **Drawn:** D.J. Oelofse

Client: Economy Drive CC SACAP: APP 70613985

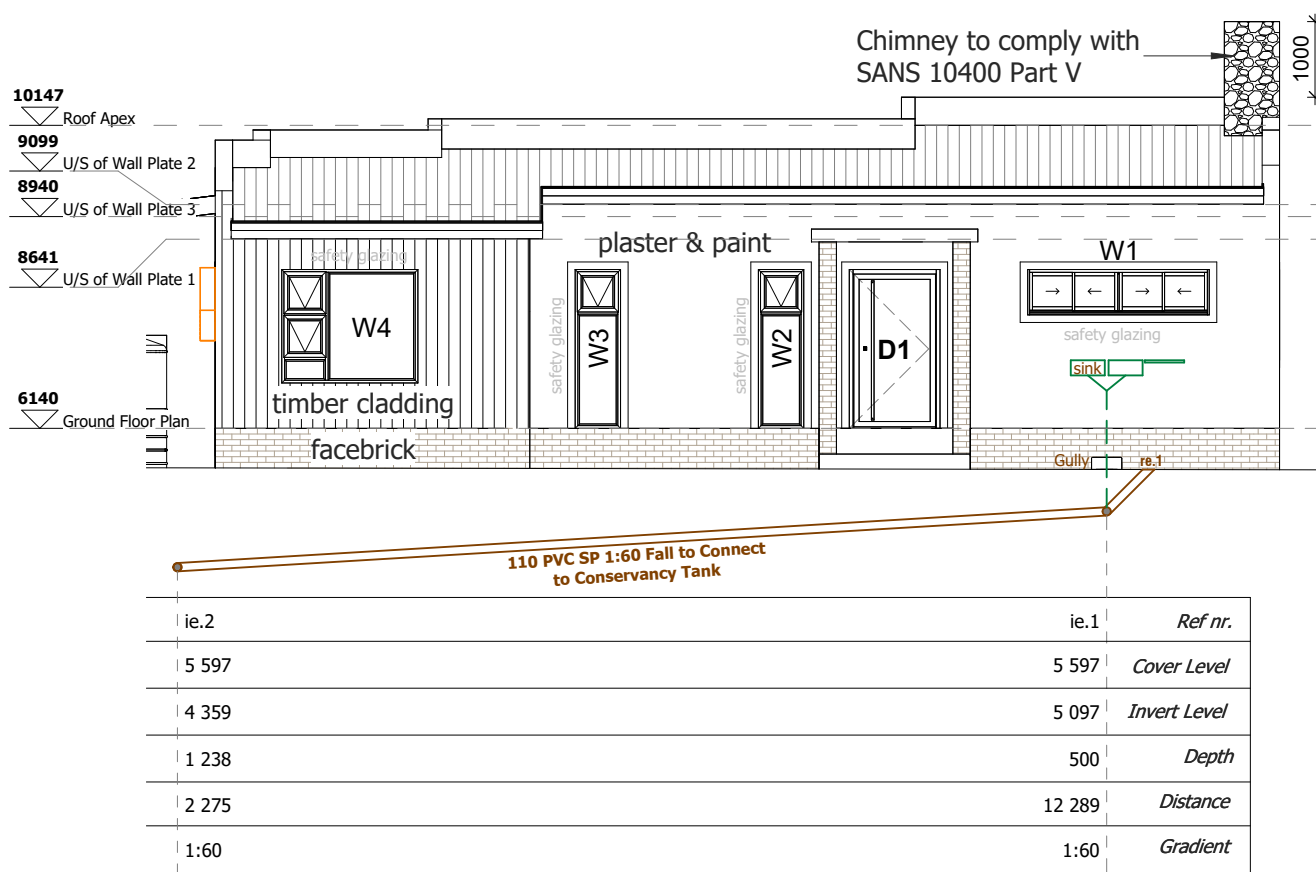
Client Signature: _____

Project No: STB707-2023/09/07



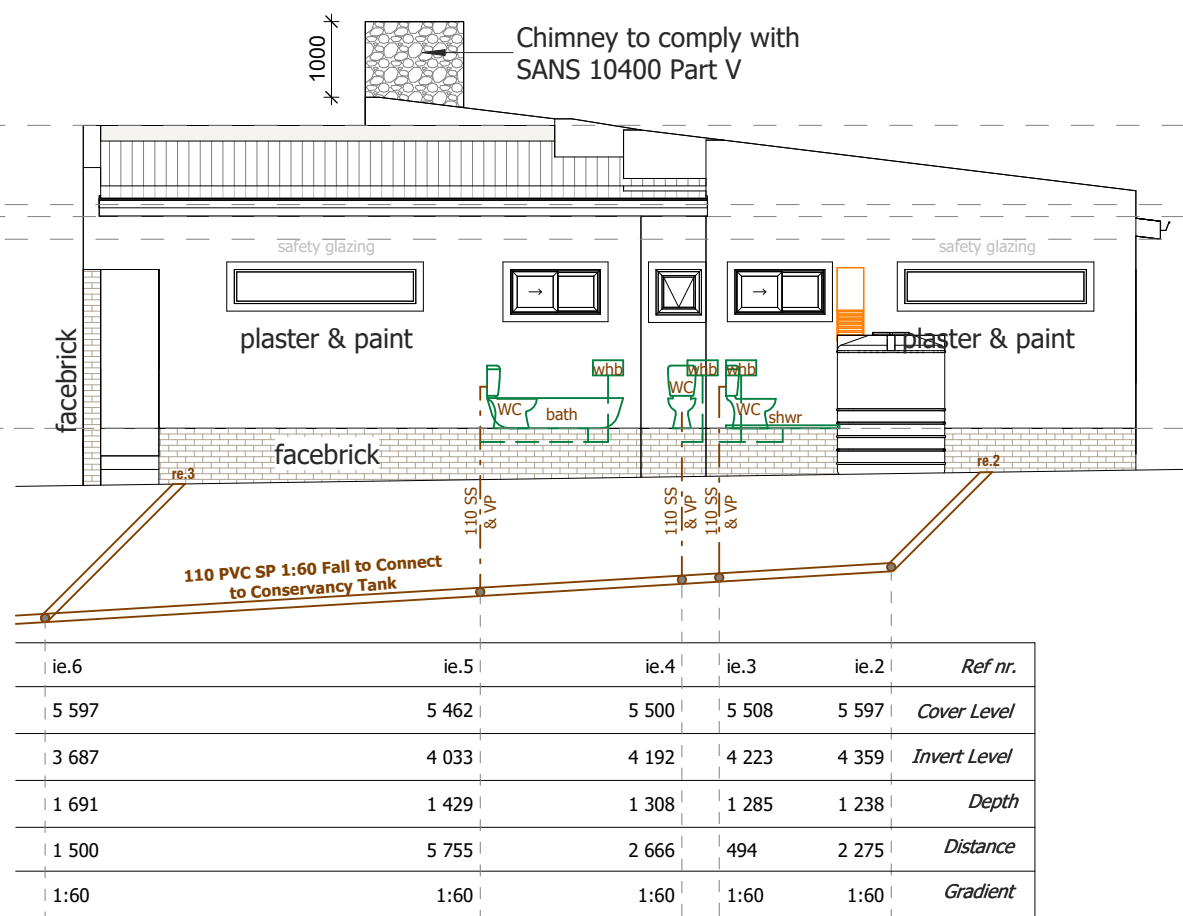
Unit 4 Floor Plan

1 : 50



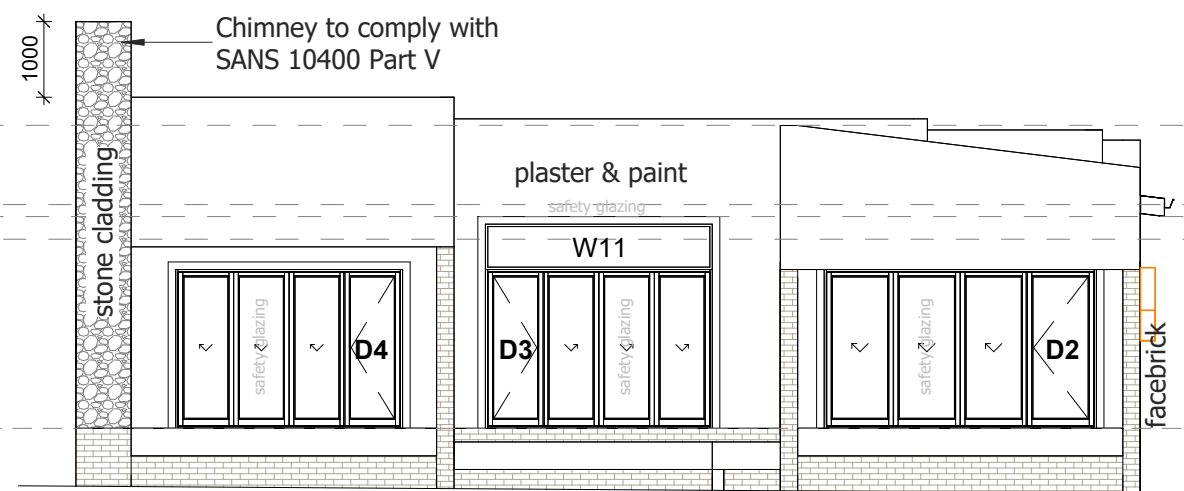
U4 North Elevation

1 : 100



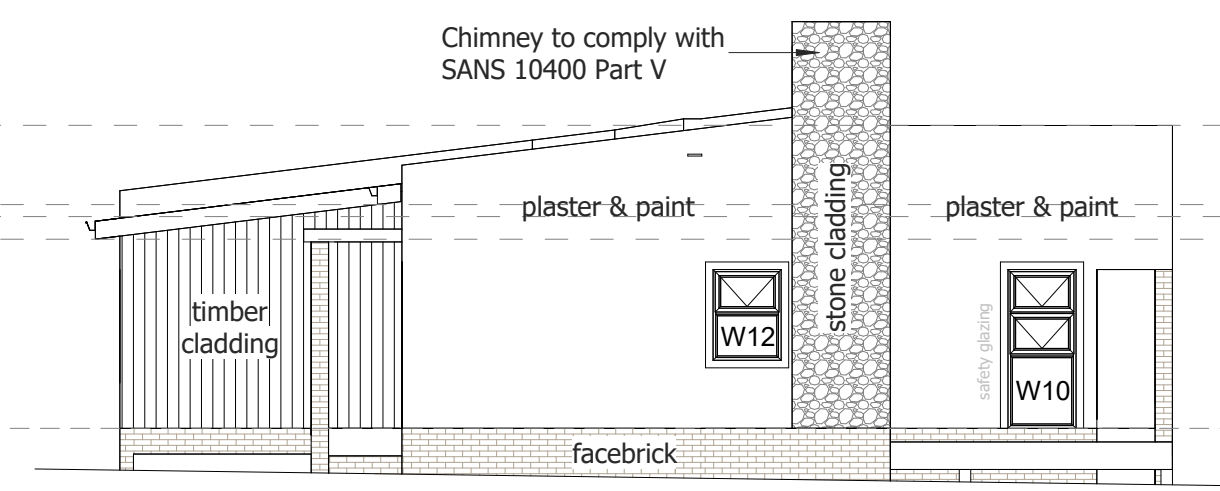
U4 East Elevation

1 : 100



U4 South Elevation

1 : 100



U4 West Elevation

1 : 100

Unit 4 Window Schedule		
Mark	Width	Height
W1	2400	600
W2	600	2100
W3	600	2100
W4	1800	1500
W5	2400	450
W6	1190	590
W7	600	600
W8	1190	590
W9	2400	450
W10	900	2100
W11	3000	600
W12	900	1200

Unit 4 Door Schedule		
Mark	Width	Height
D1	1200	2100
D2	3600	2100
D3	3000	2100
D4	3000	2100
D5	813	2100
D6	813	2100
D7	813	2100
D8	813	2100
D9	813	2100

Glass Note:
Glass of which the total area exceeds that of 1m²
&/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum
Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.

Unit 4 : Fenestration Calculations

Fenest		ORIENTATION	Clau	FENESTRATION AREAS				SHADING - Clause 5.2				SPECIFICATION - Clau		ENTER shgc values		Averaging	
Catalogue reference	window plan ref	Orientation sector		width mm	vertical mm	number	area m²	shading height mm	multiplier	required shading projection	actual shdc (design)	compliant 1= yes 0= no	U-value	required shgc-value T4,col 3&4	Enter shgc compliant 1=yes 0=no	Enter non-compliant shgc 0=no	ww area x required shgc
	W1	W,NW,N,NE,E		2400	600	1	1,44	1686	0,54	910,44	415	0	2,60	0,30	0,35	0,30	0,43
	W2	W,NW,N,NE,E		600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38
	W3	W,NW,N,NE,E		600	2100	1	1,26	3199	0,54	1727,5	415	0	2,60	0,30	0,35	0,30	0,38
	W4	W,NW,N,NE,E		1800	1500	1	2,70	2141	0,54	1156,1	415	0	2,60	0,30	0,35	0,30	0,81
	W5	W,NW,N,NE,E		2400	450	1	1,08	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,38
	W6	W,NW,N,NE,E		1200	600	1	0,72	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,25
	W7	W,NW,N,NE,E		600	600	1	0,36	1541	0,54	832,14	915	1	2,60	0,35	0,35	0,30	0,13
	W8	W,NW,N,NE,E		1200	600	1	0,72	1541	0,54	832,14	415	0	2,60	0,30	0,35	0,30	0,22
	W9	W,NW,N,NE,E		2400	450	1	1,08	1391	0,54	751,14	415	0	2,60	0,30	0,35	0,30	0,32
	W10	W,NW,N,NE,E		900	2100	1	1,89	0	0,54	0	0	1	2,60	0,35	0,35	0,30	0,66
Total W,NW,N,NE,E orientated fenest'n area							12,51									12,51	3,96
	W11	SW,S,SE		3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	value	n/a			n/a
	D2	SW,S,SE		3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a
	D3	SW,S,SE		3000	2100	1	6,30	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a
	D4	SW,S,SE		3600	2100	1	7,56	n/a	n/a	n/a	n/a	n/a	0,00	n/a			n/a
Storey total fenestration area							38,97										
Storey net internal floor area b							83,24										
Fenestration %: IF >20%, use this to enter Table 4							46,82										
Average weighted-by-area shgc																	0,32

Site Plan U4

1 : 500



Drawing No: 7

Municipal Stamp:

Drawing Index:

Portion	9 of Farm Oschbosch 707
Stand Size	7155m²
Title Deed Address	100071832/2011
Zoning	Portion 9 of Farm Oschbosch 707
Classification	Humansdorp
P.A. Plan Number	Resort Zone 2
	Holiday Housing
	N/A

Drawing Index:

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SHEET 9	sheet 03	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

Client:

Economy Drive CC

Diens / Service:

Portion 9 of Farm Oschbosch 707 Humansdorp

Drawing Title:

"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting Designer: J. Oelofse

Scale: As indicated SACP: PAD 29888866

Date: October 2024 Drawn: D.J. Oelofse

Client: Economy Drive CC SACP: APP 70613985

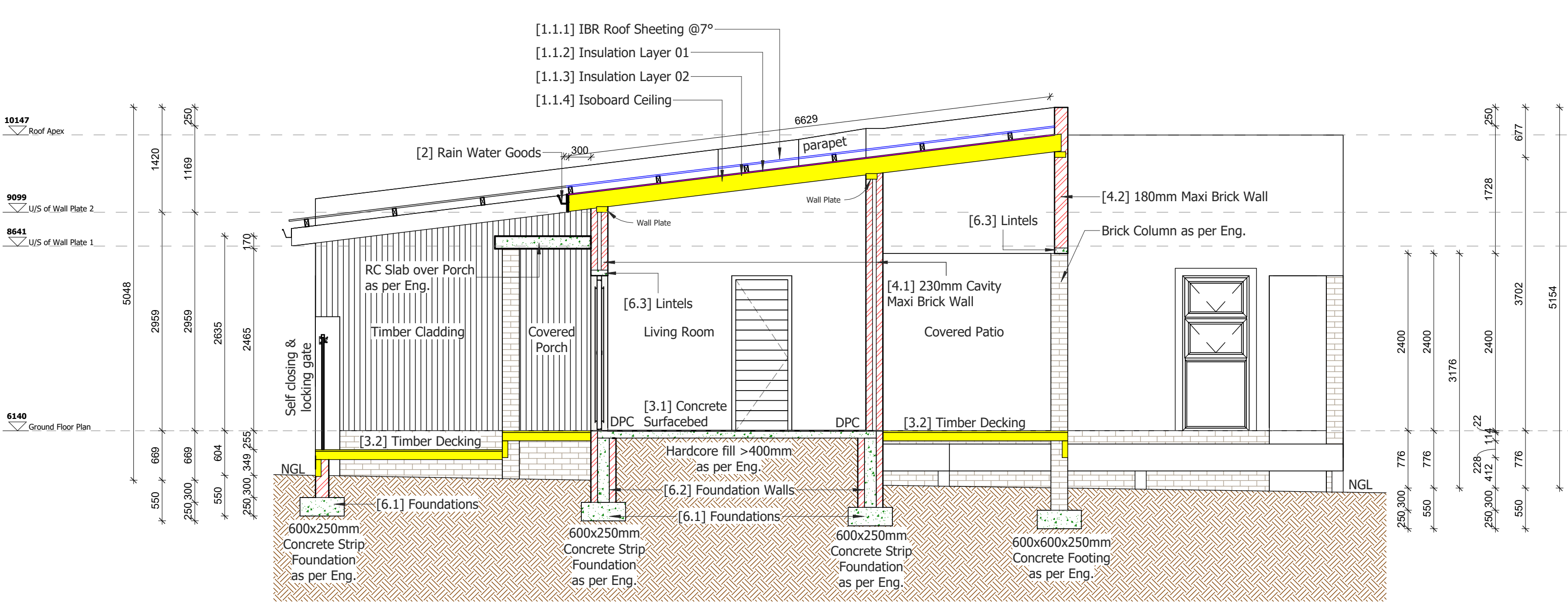
Client Signature:

Project No: STB707-2023/09/07

Oelofse ArchDesigns (Pty) Ltd

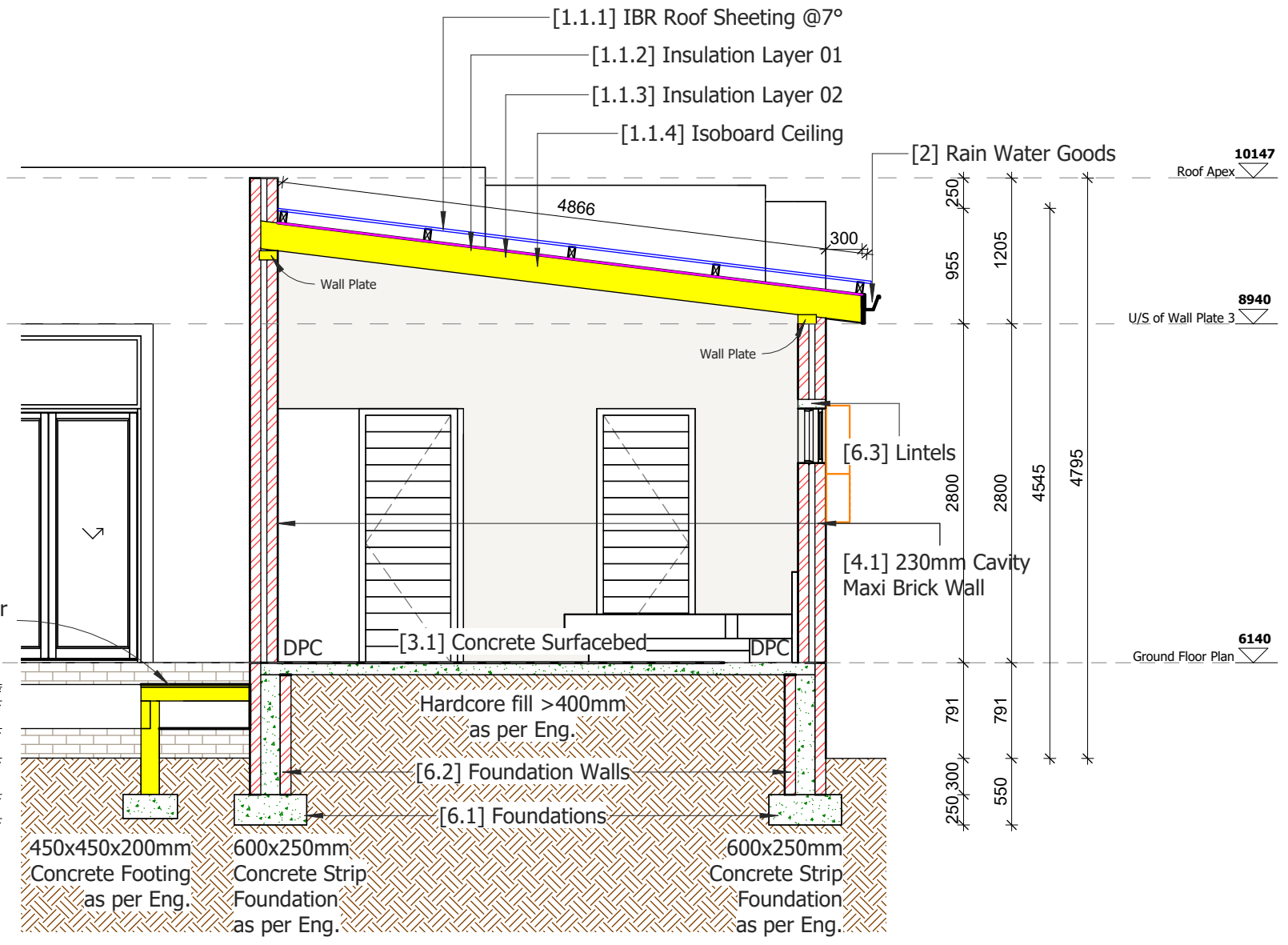
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412

SACP: PAD 29888866



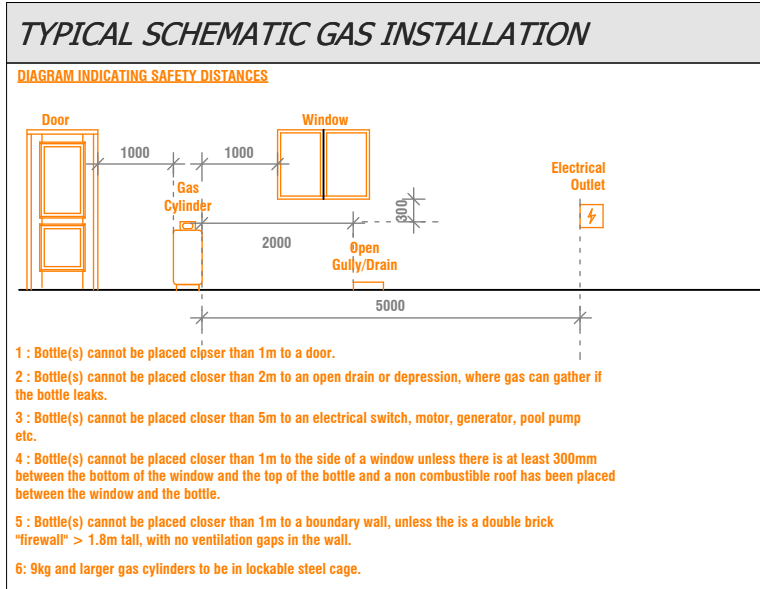
U4 Section 1
1 : 50

Composition of Roof Insulation (Insulation SANS XA)	
Metal Roof Sheet	
Envirobuff 201	R-value 1.89
75mm Isover "think pink"	R-value 1.88
Total achieved	R-value 3.77
Envirobuff 201 to be layered over rafters / trusses with min overlap of 150mm joints to be sealed both sides with aluminium tape, maintain min 38mm airgap between roof covering and Envirobuff.	
Isover "think pink" to be layered over branding on top of ceiling boards.	



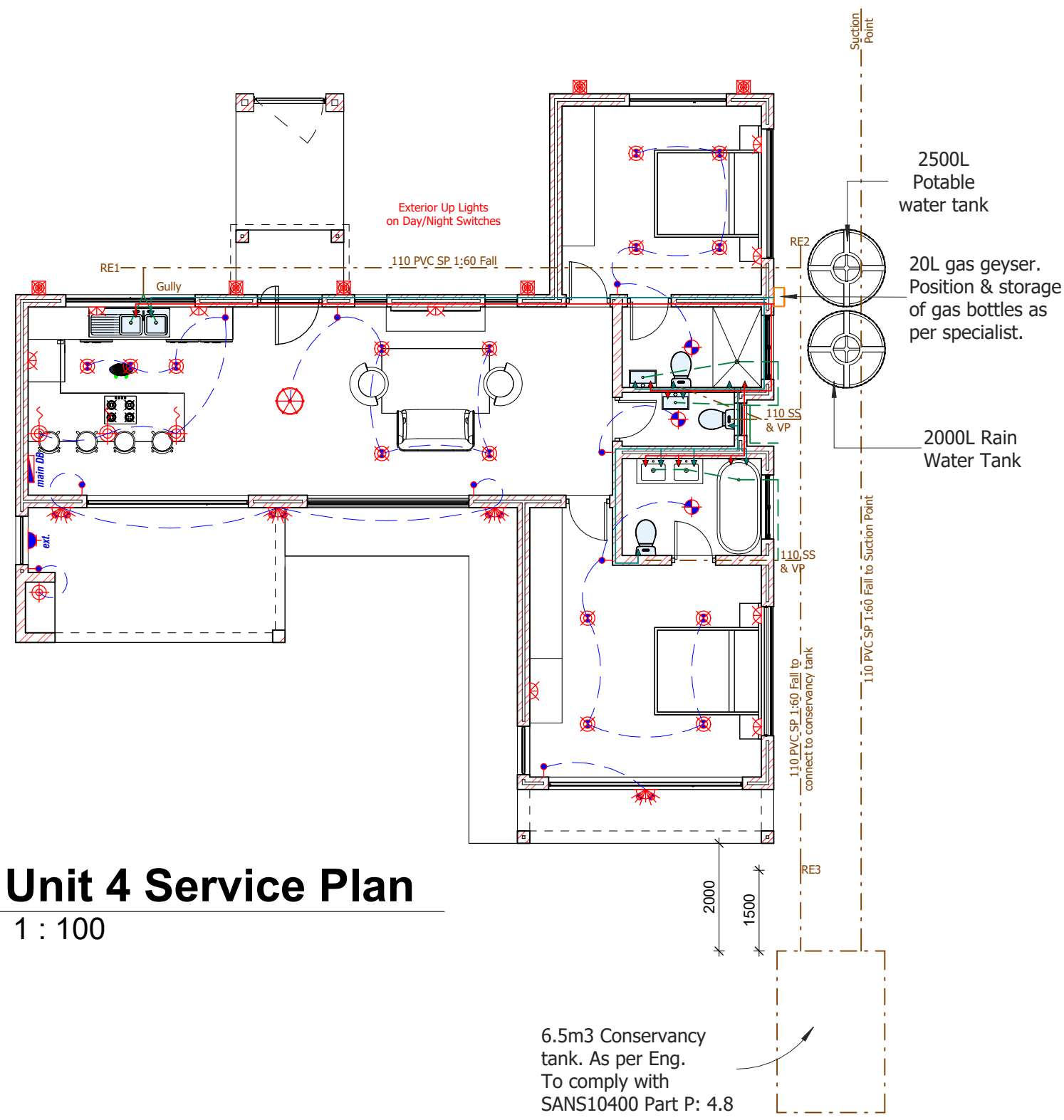
U4 Section 2
1 : 50

Lighting Energy Demand				
Ground Storey			Nett: 83.24m ²	
Maximum Energy Demand 4w/m ² (table 12) allowed			4w x 83.24m ² = 332.96w	
Proposed Energy Demand (per proposed lighting layout)				
Symbol	Fitting Description	watts	Quantity	Totals
	Single Down Light LED	5w	15	75w
	Standard Light Fitting	8w	3	24w
	Hanging Pendant Light	5w	3	15w
	Exterior Wall Light	10w	4	40w
	Exterior Wall Up Light (day night switch)	10w	6	60w
	LED Universal Tube	15w	1	15w
Allowable: 4w/m ² (table 12) 332.96w		Proposed 229w	Surplus +103.96w	
Proposed demand acceptable				

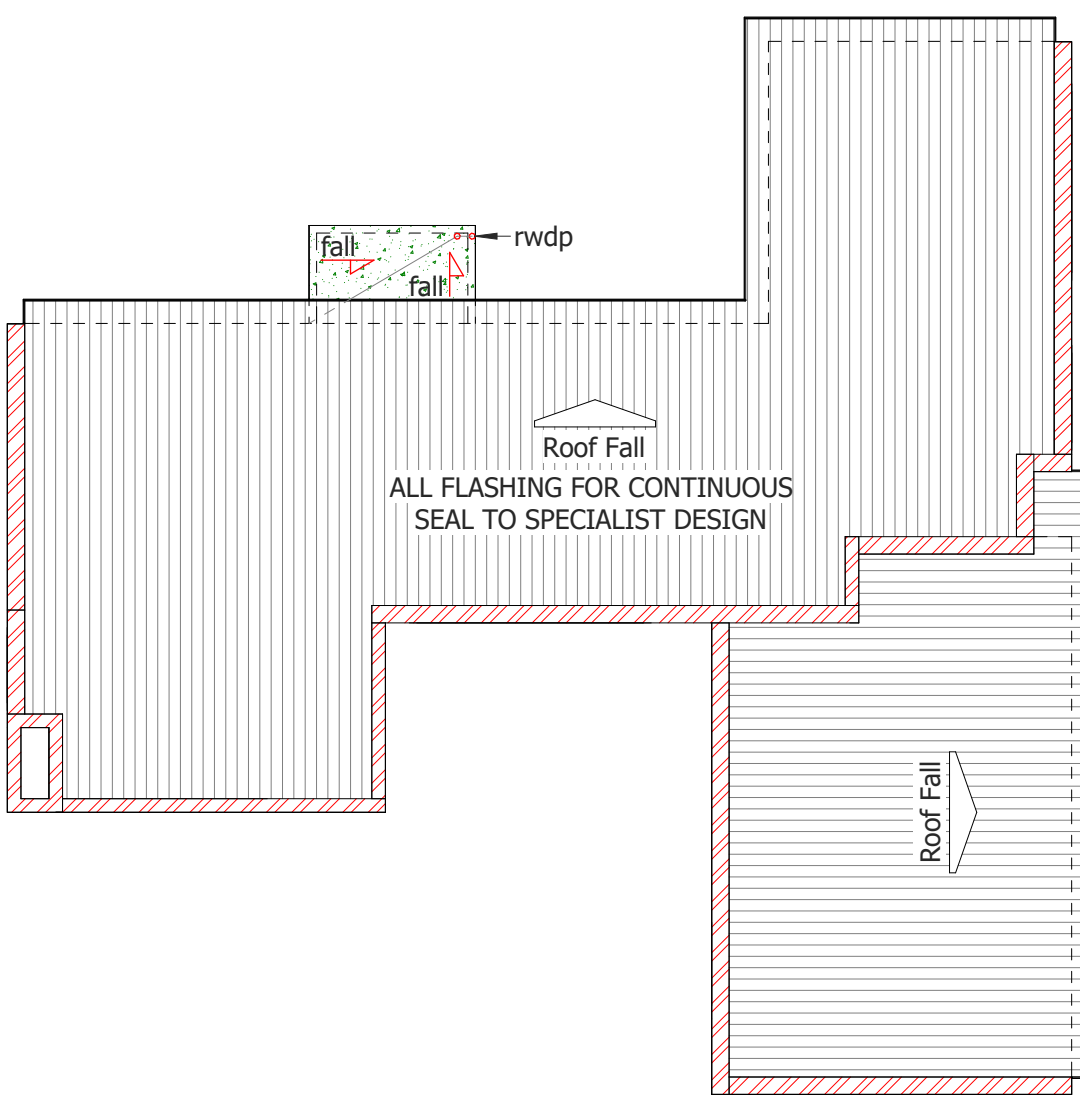


Reticulation Legend	
Hot	Cold
Hot Water Connection Point	Cold Water Connection Point
Proposed hot water piping	Proposed cold water piping

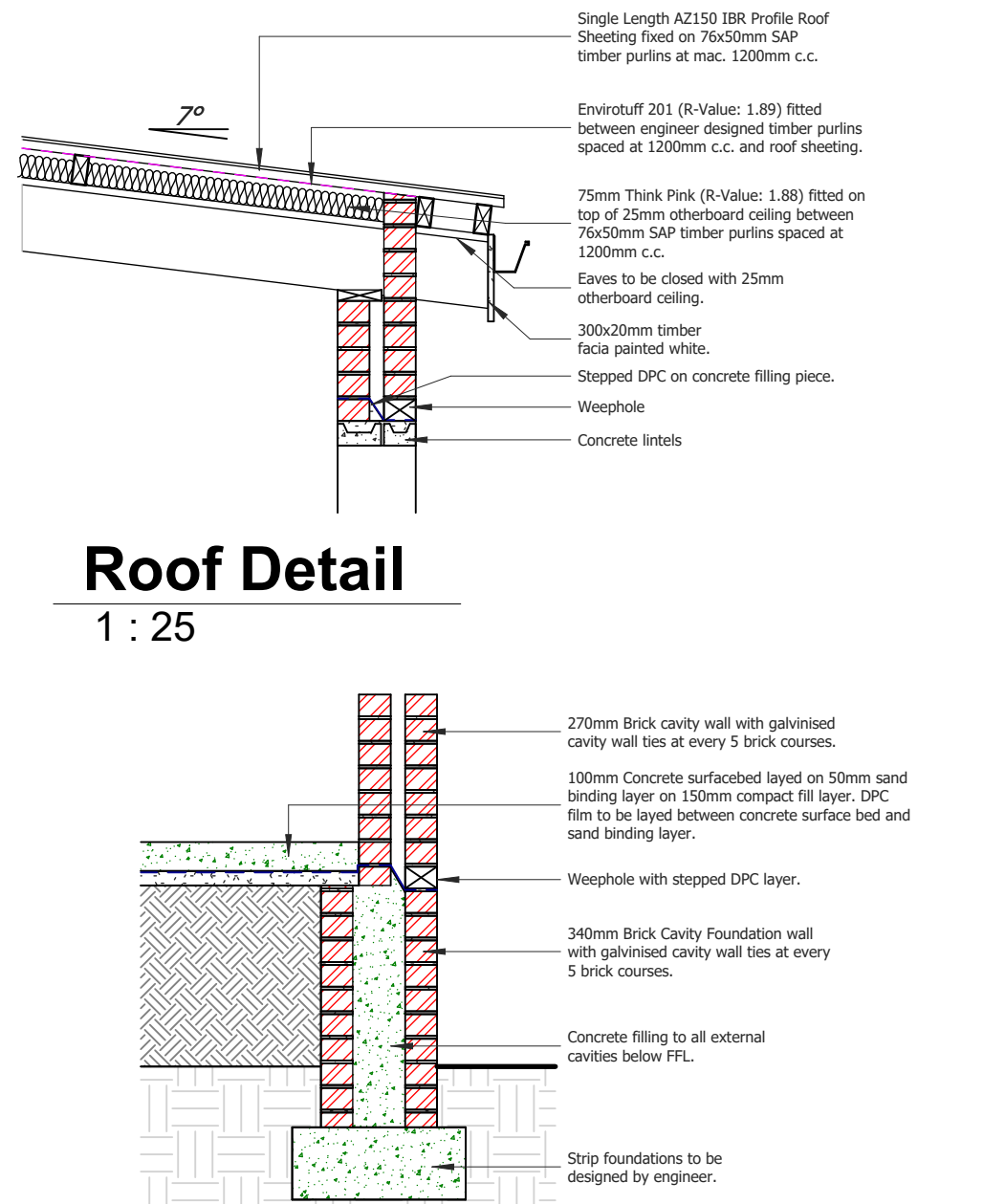
Electrical Legends	
Light Switches	
1	1 Lever Light Switch
2	2 Lever Light Switch
3	3 Lever Light Switch
4	4 Lever Light Switch
5	Single Exterior Waterproof Light Switch
Sockets and Outlets	
1	Double Electrical Socket @ 1100mm AFPL
2	Double Electrical Socket @ 300mm AFPL
3	Pull-up Tower Socket (top of counter / work tops)
4	Single Exterior Socket with Coverplate
5	Oven Connection Point
6	Shaver Connection
7	Main Distribution Board
Audio and Visual / Communication	
1	Satellite Dish Outlet
2	Telephone / ADSL Connection
3	High Power Ceiling Mount Wireless
4	LED Range Extender / Access Point
Light Fittings	
1	Single Down Light LED
2	Boxed Down Lights LED (Directional)
3	Small/Medium Pendant Light
4	Large Pendant Light (Chandelier)
5	Recessed Foot Wall Light
6	Feature Exterior Uplight
7	Exterior Flood Light
8	Internal Wall Lights
9	Pool Lights
10	LED Tube TS 14W
11	LED Universal Tube
12	LED Double Tube G13 30W
13	LED Strip - 7w per meter
14	Heat Resistant Light
15	Standard Light Fitting
16	Ceiling Fan With Light 40w
ELECTRICAL NOTE	
All electrical work to be done by registered/approved professional electrician. Once it is in the owner's interest to obtain DPC from electrician on completion of installation. Once installed the owner is to ensure that all electrical work is done in accordance with the relevant standards and regulations. Please refer to the relevant standards and regulations for further information.	



Unit 4 Service Plan
1 : 100



Unit 4 Roof Plan
1 : 100



Roof Detail
1 : 25

Foundation Detail
1 : 25

JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 8

Municipal Stamp:

Drawing Index:

Portion
Stand Size
Title Deed
Address
Zoning
Classification
P.A. Plan Number

9 of Farm Oosbosch 707
7155m
T000071832/2011
Portion 9 of Farm Oosbosch 707
Humansdorp
Resort Zone 2
Holiday Housing
N/A

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SHEET 8	• Sections • Service Plan • Energy Calculations • Roof Plan • Details
SHEET 9	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

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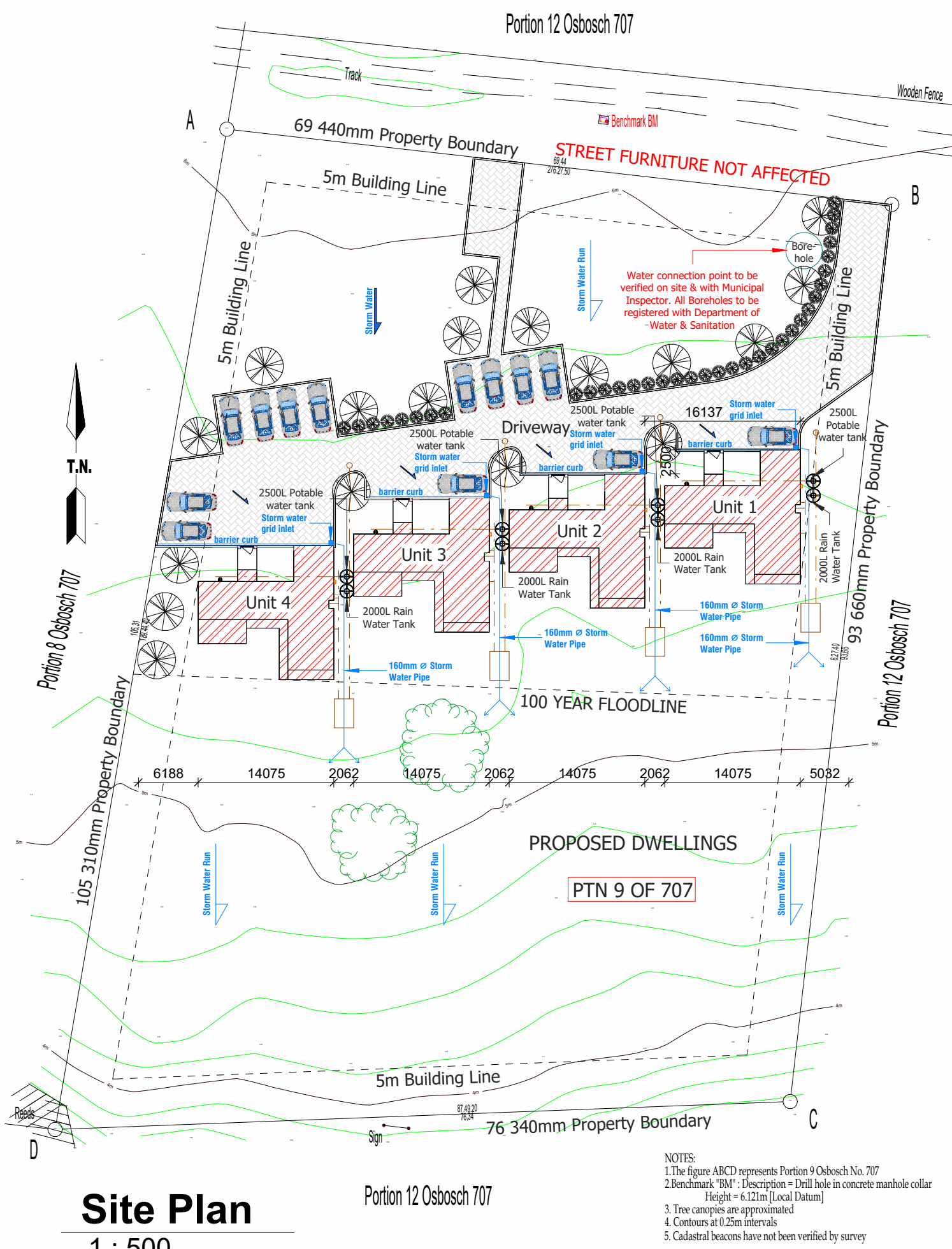
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Economy Drive CC

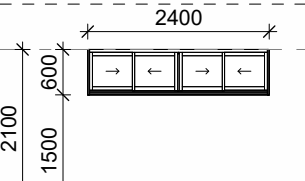
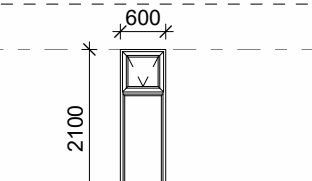
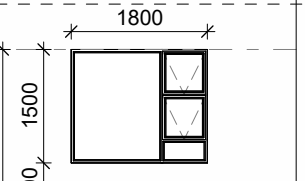
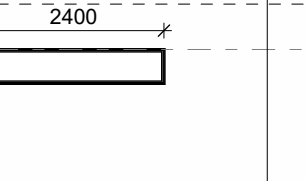
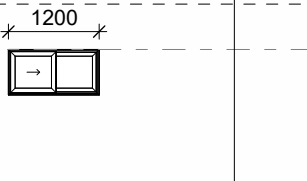
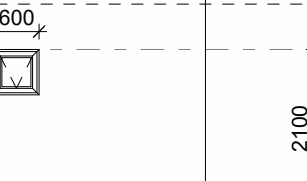
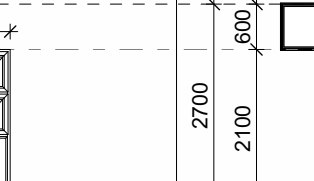
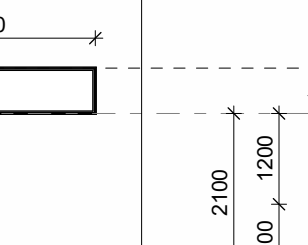
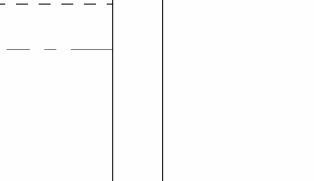
Oelofse ArchDesigns (Pty) Ltd
Jacque Oelofse
info@oelofsearchdesigns.co.za
081 700 2412
SACAP: PAD 2988866

Diens / Service:
Portion 9 of Farm Oosbosch 707
Humansdorp

Drawing Title:
"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting Designer: J. Oelofse
Scale: As indicated SACAP: PAD 2988866
Date: October 2024 DRAWN: D.J. Oelofse
Client: Economy Drive CC SACAP: APP 70613985
Client Signature:
Project No: STB707-2023/09/07



Window Schedule : Unit 1, Unit 2, Unit 3 & Unit 4									
Type: Sliding Location: Kitchen Finish: Powder coated Aluminium Colour - Charcoal Qs: 02	Type: Top Hung Location: Living Room Finish: Powder coated Aluminium Colour - Charcoal Qs: 08	Type: Top Hung Location: Bedroom 2 Finish: Powder coated Aluminium Colour - Charcoal Qs: 05	Type: Fixed Pane Location: Bedroom 2 & Master Bedroom Finish: Powder coated Aluminium Colour - Charcoal Qs: 08	Type: Sliding Location: En Suite 1 & En Suite 2 Finish: Powder coated Aluminium Colour - Charcoal Qs: 08	Type: Location: Top Hung Guest WC Finish: Powder coated Aluminium Colour - Charcoal Qs: 02	Type: Top Hung Location: Master Bedroom Finish: Powder coated Aluminium Colour - Charcoal Qs: 05	Type: Top Hung Location: Living Room Finish: Powder coated Aluminium Colour - Charcoal Qs: 05	Type: Top Hung Location: Covered Deck 1 Finish: Powder coated Aluminium Colour - Charcoal Qs: 05	
safety glazing									
									
W01	W02 & W03	W04	W05 & W09	W06 & W08	W07	W10	W11	W12	

Glass Note:
Glass of which the total area exceeds that of 1m² &/or which is at a height of less than 500mm from the level has to be fitted with safety glass.
All glass to comply with the minimum Cu value needed.
Glass/Aluminium as specified must comply with SANS 10400.

Door Schedule : Unit 1, Unit 2, Unit 3 & Unit 4			
Type: Front Door (Pivot Door) Location: Covered Entrance / Foyer Finish: Solid Core Timber Colour - Painted White Qs: 01	Type: Exterior Door Location: Living Room & Kitchen Finish: Hollow Core Timber Colour - Painted White Qs: 08	Type: Exterior Door Location: Master Bedroom Finish: Hollow Core Timber Colour - Painted White Qs: 05	Type: Internal Door Location: Master Bedroom, Bedroom 2 Finish: En-suite 1, En-suite 2, Guest WC Finish: Hollow Core Timber Colour - Painted White Qs: 20
safety glazing			
2100 1200 D01			
2100 3000 D02 & D03			
2100 3600 D04			
2100 813 D05, D06, D07, D08, D09			



NORTH ELEVATION
1 : 100



SOUTH ELEVATION
1 : 100

[Signature]
JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Drawing No: 9

Municipal Stamp:

Drawing Index:

Portion
Stand Size
Title Deed
Address
Zoning
Classification
P.A. Plan Number

9 of Farm Osobosch 707
7155m²
T000071832/2011
Portion 9 of Farm Osobosch 707
Humansdorp
Resort Zone 2
Holiday Housing
N/A

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SHEET 9	sheet 03	• Sections • Service Plan • Energy Calculations • Roof Plan • Details

All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.
Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.
The design of this drawing is the property of Oelofse ArchDesigns and copyright is reserved by him.

Alle vereistes van munisipaliteit en ander betrokke owerhede moet streng nagelees word. Bouaannemers en onderaannemers moet alle maters en vlakke op die terrein nagaan alvorens enige bouwerk n aanvang neem.
Geskiede maters moet voorkeur geniet bo geskaalde maters en groot skaal tekeninge het voorkeur bo klein-skaal tekeninge. Die ontwerp op hierdie tekening is die eiendom van Oelofse ArchDesigns en kopiereg word deur hom voorgehou.

REV	DATE	DRAWN	DESCRIPTION

Client:
Economy Drive CC



Diens / Service:
Portion 9 of Farm Osobosch 707 Humansdorp

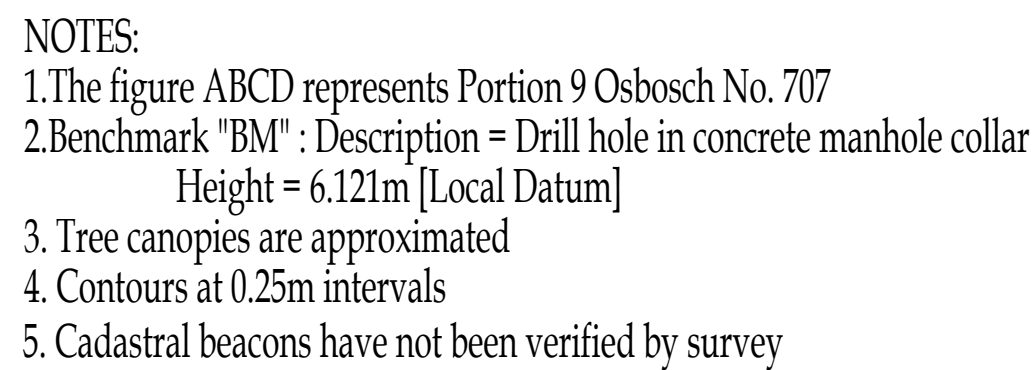
Drawing Title:

"Proposed Holiday Housing" Drawings for Municipal Submission

Engineer: Sigma Consulting
Scale: As indicated
Date: October 2024
Client: Economy Drive CC
Project No: STB707-2023/09/07

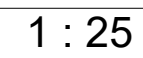
Designer: J. Oelofse
SACAP: PAD 2988866
Drawn: D.J. Oelofse
SACAP: APP 70613985

Appendix C4 – Alternative – Building Plans



1 : 200

<u>Total Site Coverage</u>	<u>8.68</u>	<u>%</u>
-----------------------------------	--------------------	-----------------



All requirements of municipal and other authorities concerned have to be adhered to. Contractors and Sub-Contractors are to check all dimensions and levels on building site before commencing with any work.

Figured dimensions to be taken in preference to scaled measurements and large scale details supersede small scale drawings.

The design and drawings are the property of Oedse Architect and copyright is reserved by him.

Alle vereisten van gemeentelijke en ander bevoegde overheden moet streng nagekomen word. Bouwmeesters en onderaannemers moet alle maten en vlakke op die terrein nagaan alvorens enige bouwwerk te aanvangen.

Getoonde maten moet voorrang geniet boven geskaalde maten en groot schaal tekeningen het voorkeur boven klein-schaal tekeningen. Die ontwerp en tekeningen is die eiendom van Oedse Architect en kopieën is verboden.

Client: Economy Drive CC	
Deloitte ArchDesigns (Pty) Ltd	
	Jacque Deloitte info@postnetshop703.com 081 700 2412
12 MONTAGUE PARK, JOHANNESBURG SACAP: PAD 26688805	12 MONTAGUE PARK, JOHANNESBURG SACAP: PAD 26688805
Dates / Services:	
Portion 9 of Farm Ochshoep 703 Humansdorp	
Drawing Title:	
"Proposed Holiday Housing" Drawings for Municipal Submission	
Drawing No: 10	Designer: J. Gekkebe
Scale: As indicated	Drawn: D.J. Gekkebe
Date: October 2024	Engineer: Signa Consulting
Client: Economy Drive CC	
Project Significance CC	
Client Name:	
STB70-2023-09/09	

 JHJ VLOK
Chairman
Tides of Kromme Home Owners Association
30-07-2024

Appendix D – SPECIALIST REPORTS AND SPECIALIST DECLARATIONS

Appendix D1 – Civil
Engineering Report
and Declaration



Nick van Rensburg
Consulting Civil Engineer
Pr. Eng, BSc(Civ)Eng, FIMESA,
NHBC

114 Lifestyle Estate
R102
Jeffreys Bay
6330

Cell 076 152 5159
nick.your.engineer@gmail.com

Ref. NVR/25/SFB/9 Osbosch

24 May 2025

ECONOMY DRIVE CC
Development of
Ptn 9 Osbosch 707, Humansdorp
REPORT ON CIVIL ENGINEERING SERVICES



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1. Disclaimer

This report and our findings contained therein are based on information and documentation supplied to us by the owners and obtained from the Kouga Municipality as well as the public domain. Such findings may change if information can be supplied that warrants such change.

2. Terms and Conditions

2.1 Professional services rendered.

Nick van Rensburg Consulting Engineer was appointed by the owners to:

- a) Investigate and report on the civil engineering services required for the development of Portion 9, Osbosch 707, north of St Francis Bay.
- b) Make relevant recommendations in this regard.

2.2 General

- a) This document replaces and supersedes all previous versions (if applicable).
- b) This document was prepared under the terms and conditions of the Rules of Conduct for Registered Persons: Engineering Profession Act, 2000 (Act No. 46 of 2000).
- c) This report is intended solely for the use of the Client. Any use which a third party makes of the work, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Decisions made or actions taken because of our work shall be the responsibility of the parties directly involved in the decisions or actions.
- d) This report may not be copied, reproduced, or distributed in any way or for any purpose whatsoever without our approval. The report is provided “as is” without any guarantee, representation, condition, or warranty of any kind either express, implied, or statutory. We assume no liability with respect to any reliance that is placed on this report. If any reliance that is placed on this report, it is done so at the user’s entire risk as to the truth, accuracy, currency, or completeness of the information contained in this report.
- e) In no event shall the Client or his representative(s) copy or use any portion of this work as produced by us for any purpose other than those as per our Terms of Appointment or in relation to any project without our prior written permission. We shall not unreasonably withhold or deny such consent but shall be entitled to receive additional equitable remuneration in connection with our granting of such consent.

3. Definitions

In this report the following applicable definitions are used in terms of the following:

- ✓ SANS10400,
- ✓ National Building Regulations (NBR),
- ✓ Kouga Municipality Land Use Scheme 2021,
- ✓ The Neighbourhood Planning and Design Guide, 2019, also known as the "Red Book",
- ✓ General engineering terminology.
- **AADD** – Annual Average Daily Demand (litres per day).
- **AMSL** – above mean sea level.
- **branch discharge pipe** - horizontal discharge pipe that conveys the discharge from one or more sanitary fixtures to a discharge stack.
- **branch drain** - drain which discharges into a main drain.
- **branch vent** - horizontal ventilating pipe connecting two or more trap vents to a vent stack or to a stack vent.
- **capacity** - volume of a storage tank between the operating level of the water contained in such tank and the invert of the outlet from the tank.
- **building** – This includes
 - a) any structure, whether of a temporary or permanent nature, and irrespective of the materials used in the erection thereof, erected or used in connection with:
 - i) the accommodation or convenience of human beings and animals.
 - ii) the manufacture, processing, storage, display or sale of goods.
 - iii) the rendering of a service.
 - iv) the destruction or treatment of refuse or other waste materials; and
 - v) the cultivation or growing of plants or crops.
 - b) a wall, swimming bath, swimming pool, reservoir or bridge or any structure connected therewith.
 - c) a fuel pump or tank used in connection therewith.
 - d) any part of a building, including a building as defined in (a), (b) or (c); and
 - e) any facilities or system, or portion thereof, within or outside but incidental to a building, for the provision of a water supply, drainage, sewerage, stormwater disposal, electricity supply or other similar service in respect of the building.
- **channel** - Any made-up profile in the road reserve, constructed to collect and convey run-off water.
- **CI** – Cast Iron.
- **CID** – Constant Internal Diameter.
- **COD** – Constant Outside Diameter.
- **cleaning eye** - access opening to the interior of a discharge pipe or trap provided for the purpose of internal cleaning, and which remains permanently accessible after completion of the drainage installation.
- **common drain** - that portion of a drain which conveys sewage other than or in addition to that sewage which emanates from the site through which such drain runs.

- **competent person** - person who is qualified by virtue of his education, training, experience and contextual knowledge to make a determination regarding the performance of a building or part thereof in relation to a functional regulation or to undertake such duties as may be assigned to him in terms of the National Building Regulations.
- **connecting sewer** - pipe that is vested in the local authority, and which connects a drain to a sewer.
- **discharge pipe** - pipe which conveys the discharge from a sanitary fixture to a drain, and includes a soil pipe, a waste pipe, a discharge stack, a branch discharge pipe or a fixture discharge pipe.
- **drainage installation** - installation vested in the owner of a site and which is situated on such site and is intended for the reception, conveyance, storage or treatment of sewage, and may include sanitary fixtures, traps, discharge pipes, drains, ventilating pipes, septic tanks, conservancy tanks, sewage treatment works, or mechanical appliances associated therewith.
- **dwelling house** – means a means a building containing only one dwelling unit.
- **dwelling unit** – means a self-containing interleading group of rooms used only for the living accommodation and housing of a single family together with such outbuildings as are ordinarily used therewith.
- **EE** – Equivalent erven (one EE has an annual average daily water demand of 1 000 litres).
- **FFL** – Final foundation level.
- **FGL** – Final ground level.
- **FH** – Fire hydrant.
- **Floor Space Index (FSI)** - means the gross floor area of all buildings on a lot divided by the lot area.
- **foundation** - that part of a building which is in direct contact with and is intended to transmit loads to the ground.
- **inspection chamber** - chamber not deeper than 1 200 mm and of such dimensions that access can be obtained to a drain without requiring a person to enter such a chamber.
- **inspection eye** - access opening to the interior of any pipe or pipe fitting in a drainage installation provided solely for the purposes of inspection and testing, and to which permanent access after completion of the drainage installation need not be provided.
- **local authority** – means-
 - a) any institution, council or body contemplated in section 84(1)(f) of the Provincial Government Act, 1961 (Act 32 of 1961).
 - b) any statutory body designated by the Minister, after consultation with the Administrator of the province in question, by notice in the Gazette as a local authority for the purposes of this Act or any provision thereof.
- **main drain** - longest run of drain from a building to a common drain, to a means of sewage disposal situated on the site concerned, or to a connecting sewer.
- **manhole (MH)** - chamber of a depth greater than 750 mm and of such dimensions that it allows entry of a person into such chamber for the purpose of providing access to a drain.
- **NBR** – The latest applicable **National Building Regulations** (in terms of the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977))
- **NGL** – Natural ground level.

- **owner** - in relation to a building or land, means the person in whose name the land on which such building was or is erected or such land, as the case may be, is registered in the deeds office in question: Provided that if-
 - a) such person, in the case of a natural person, is deceased or was declared by any court to be incapable of managing his own affairs or a prodigal or is a patient as defined in section 1 of the Mental Health Act, 1973 (Act 18 of 1973), or if his estate has been sequestrated, the executor or curator concerned, as the case may be.
 - b) such person, in the case of a juristic person, has been liquidated or placed under judicial management, the liquidator or judicial manager concerned, as the case may be.
 - c) such person is absent from the Republic or if his whereabouts are unknown, any person who, as agent or otherwise, undertakes the management, maintenance or collection of rentals or other moneys in respect of such building or land or who is responsible therefore.
 - d) the local authority in question is unable to determine the identity of such person, any person who is entitled to the benefit of the use of such building or land or who enjoys such benefit,
 shall be deemed to be the owner of such building or land.
- **permanent building** - structure in which people live, work or play or in which animals are accommodated or in which goods are preserved, manufactured, processed, stored or sold; as well as a bridge, cooling tower, water tank tower, watch tower, pylon, waterworks or similar structure.
- **rational assessment** - assessment by a competent person of the adequacy of the performance of a solution in relation to requirements including as necessary, a process of reasoning, calculation and consideration of accepted analytical principles, based on a combination of deductions from available information, research and data, appropriate testing and service experience
- **rational design** - design by a competent person involving a process of reasoning and calculation and which may include a design based on the use of a standard or other suitable document.
- **rodding eye** - access opening in a drainage installation provided for the purposes of gaining full-bore access to the interior of a drain for internal cleaning, and which remains permanently accessible after completion of the installation but does not include an inspection chamber or manhole.
- **SANS – South African National Standard.**
- **sewage** - waste water, soil water, industrial effluent and other liquid waste, either separately or in combination, but does not include stormwater.
- **sewer** - pipe or conduit which is the property of, or is vested in, the local authority and which is used or intended to be used for the conveyance of sewage.
- **SG – Surveyor General.**
- **site** - erf, lot, plot, stand or other piece of land on which a building has been, is being or is to be erected.
- **soil branch** - branch discharge pipe which conveys soil water.
- **soil pipe** - discharge pipe which conveys soil water.
- **soil water** - liquid containing excreta.
- **stop tap (stop valve)** - A shut-off device installed in a pipeline to control the flow of water.

- **stormwater** - water resulting from natural precipitation or accumulation and includes rainwater, surface water, subsoil water or spring water.
- **stormwater drain** - pipe, conduit or surface channel situated on a site, and which is used to convey stormwater to a suitable point of discharge.
- **stormwater sewer** - pipe, conduit or channel, owned by or vested in the local authority, which is used for the conveyance of stormwater.
- **the Act** - National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977);
- **uPVC** – Unplasticized Polyvinyl Chloride.
- **waste pipe** - discharge pipe which conveys wastewater only.
- **wastewater** - used water which is not contaminated by soil water or industrial effluent, and which does not include stormwater.

4. Prescriptive regulatory requirements

The following are the minimum regulatory requirements applicable to this project:

- a) The latest applicable National Building Regulations (NBR) in terms of the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977).
- b) The South African National Standards (SANS) which establishes general requirements and specific criteria that comply with the National Building Regulations.
- c) SANS 10400 – The application of the National Building Regulations.
- d) SANS 10400 A - General principles and requirements
- e) SANS 10400 P – Drainage (Sanitation).
- f) SANS 10400 R – Stormwater.
- g) SANS 10400 T – Fire Protection.
- h) SANS 10400 W – Fire Installation.
- i) SANS 10252 – Water supply and drainage for buildings Part 2: Drainage installations for buildings.
- j) The Neighbourhood Planning and Design Guide, 2019, also known as the “Red Book”.
- k) National Water Act 1998 (Act No. 36 of 1998).
- l) The NBR requires the appointment by the owner of representative professional persons to assist him in the construction or alterations of a building. Such persons will be a registered architect and registered professional civil, structural and electrical engineers. The appointment of these persons is done using the standard Form 1 (Architect), Form 2 (Engineer), Form 3 (Specialist) and Form 4 (Completion Certificate) available as per Annex A of SANS 10400-A, signed and submitted to the local municipality.

5. Introduction & Background

The subdivision of the Remainder of Portion 3 of the farm Osbosch 707 Humansdorp and rezoning of 5 Portions, including Portion 9, from Agriculture to Resort was originally approved by the Kouga Municipality on 31 January 2002.

Portion 9 is registered in the name of Economy Drive CC in terms of Title Deed T71832/2011, and the owners wish to now develop it in terms of the allowed zoning scheme parameters for a Resort. The property forms part of the development known as “Tides of Kromme”.

The site development plan (SDP) was submitted to the municipality on 22 June 2023. For approval of the SDP, an engineering services report was required, and this report meets that requirement.

6. General location and description of site

6.1 Site location

As shown in **Illustration 1** below, the property under discussion is located on the northern bank of the Kromme River north of St Francis Bay, in the Kouga Local Municipality. The co-ordinates of Ptn 9 Osbosch are 34° 08' 16" S and 24° 49' 32" E and it is situated at an average elevation of about 5.5m AMSL.

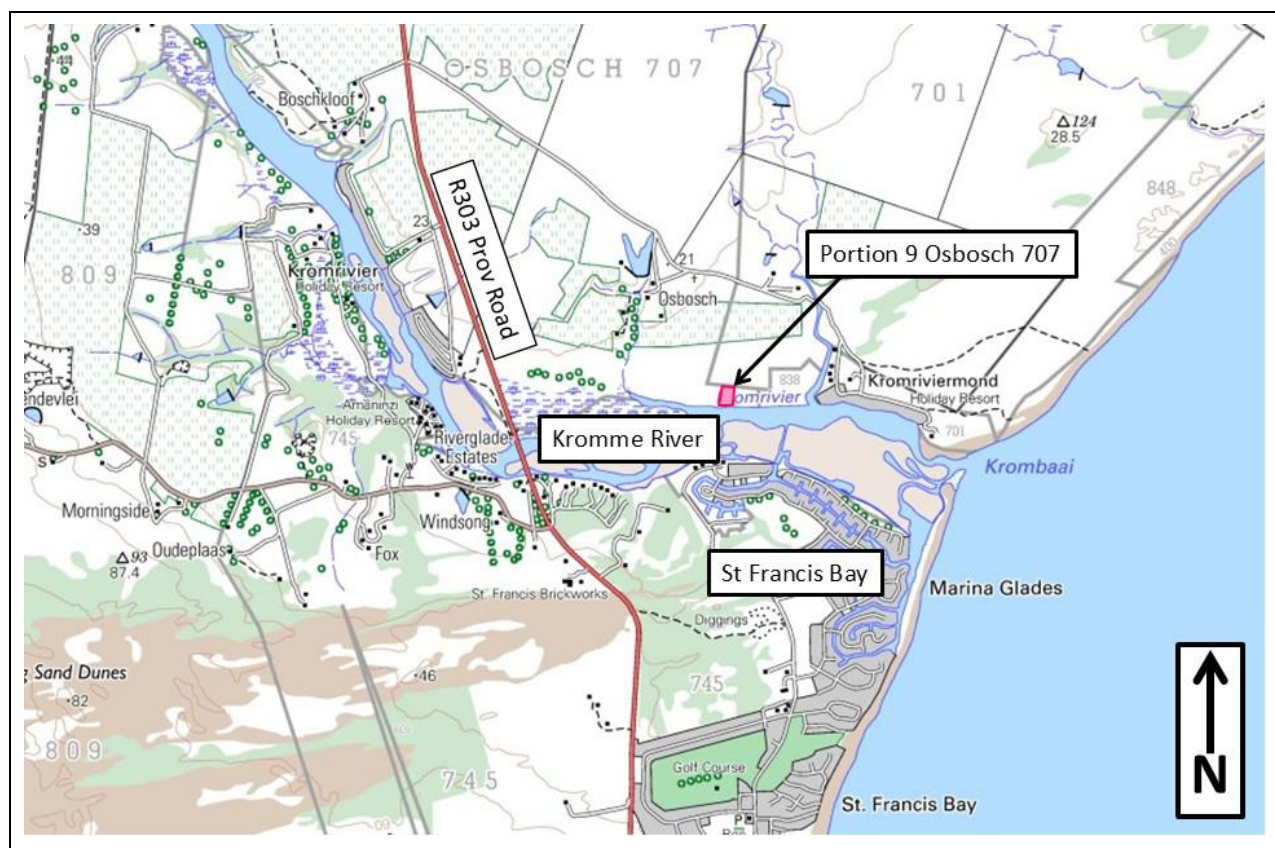


Illustration 1 – Locality of Ptn 9 Osbosch 707.

6.2 Site description

Ptn 9 Osbosch covers a total area of 7185m² and has an average slope of 2,0% in a southerly direction towards the Kromme river. It has a thick grass cover, and its geology consists mainly of loose sandy soil. **Illustration 2** below is a general view of the property.



Illustration 2 – General View of Ptn 9 Osbosch707.

6.3 Zoning

The current zoning of the property in terms of the Kouga Municipality Land Use Scheme 2021 is “Resort”, which allows “holiday accommodation” as primary use.

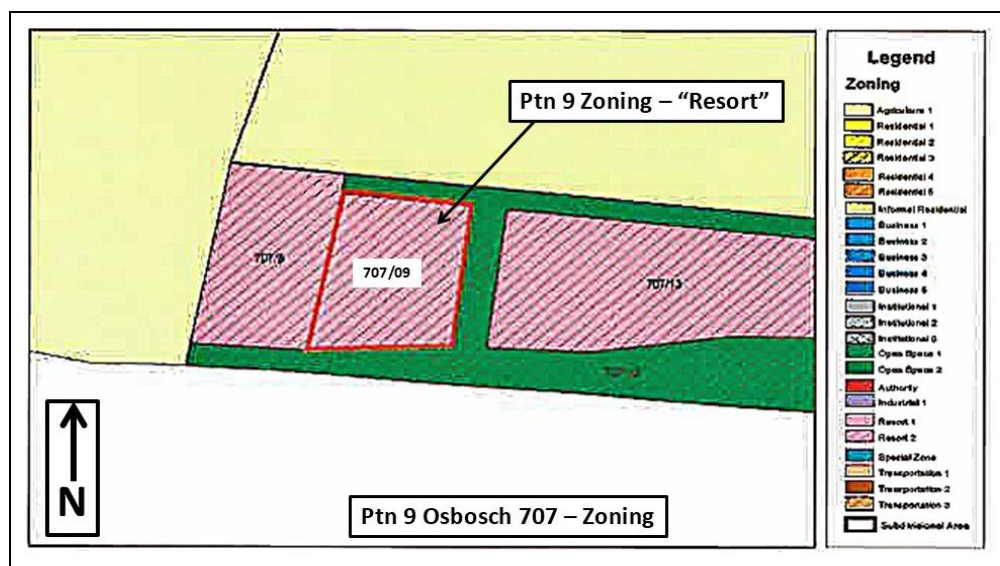


Illustration 3 – Zoning Map of Ptn 9 Osbosch.

6.4 Planned buildings

Four new residential units are planned to be constructed on the property. The gross floor areas of the proposed buildings are as follows:

- Unit 1 – 115m²
- Unit 2 – 115m²
- Unit 3 – 115m²
- Unit 4 – 115m²
- TOTAL GROSS FLOOR AREA – 460m²

6.5 Design Population

The occupancy of any building on a property is classified in terms of SANS 10400 A, Reg. A20 (Table 1), and in the case of Ptn 9 Osbosch, the following classification is applicable:

- ***H3 - Domestic residence - Occupancy consisting of two or more dwelling units on a single site - 2 persons/bedroom.***

The number of persons in the dwelling units above is determined according to the Design Population in terms of SANS 10400 A, Reg A21 – See **Table 1** below.

1	2
Class of occupancy of room or storey or portion thereof	Population
A1, A2, A4, A5	Number of fixed seats or 1 person per m ² if there are no fixed seats
E1, E3, H1, H3 , H4	2 persons per bedroom
E4	16 persons provided that the total number of persons per room is not more than 4
H5	16 persons per dwelling unit provided that the total number of persons per room is not more than 4
G1	1 person per 15 m ²
J1, J2, J3, J4	1 person per 50 m ²
C1, E2, F1, F2	1 person per 10 m ²
B1, B2, B3, D1, D2, D3	1 person per 15 m ²
C2, F3	1 person per 20 m ²
A3, H2	1 person per 5 m ²

Table 1 – Design population in terms of SANS 10400 A.

7. Services parameters and discussion

7.1 Water

7.1.1 Water design parameters

General	Service Standards	Design Parameter
1.1	Level of service	Level 4 – on-site reticulation
1.2	Fire Load	Low fire load
Design Parameter		
2.1	AADD Residential (Group / Cluster housing)	120ℓ /capita/day * (See Table 3 below)
2.2	Daily peak factor	2,4 (Only applicable to residential)
2.3	Summer peak factor	1,5
2.4	Total fire flow	3000 ℓ/min (50 ℓ/s)
2.5	Flow at fire hydrants	1500 ℓ/min (25 ℓ/s)
2.6	Duration of fire flow	4 hours
2.7	Minimum pressure head in network – peak flow	20 m (2,0 bar)
2.8	Minimum pressure head at a fire hose reel	30 m (3,0 bar)
2.9	Max pressure head - network	90 m (9,0 bar)
2.10	Max spacing of fire hydrants	180m apart max.
2.11	Fire Hose Reels	1 Hose Reel per 500m ² floor area **
2.12	Isolation valve spacing	To allow for isolation of sections of maximum 600m
Materials (Sizes and type)		
3.1	Minimum pipe diameter	25 mm
3.2	Pipe type and class	uPVC (class 9) and HDPE
3.3	Fire Hydrant	Woodlands Type HSP-80
3.4	Valve type	Waterworks, Clockwise closing
Construction Parameters		
4.1	Minimum cover to pipes	800 mm
4.2	Min cover - road crossings	1 000 mm
		* Red Book 2019 – Table J.3
		** Not applicable to domestic res.

Table 2 – Water Design Parameters.

7.1.2 Water demand parameters as per Red Book

The water demand parameters as per the Red Book 2019 applicable to Ptn 9 Osbosch are contained in **Table 3** below.

Table J.3: Residential AADD (per capita)				
Land use		Persons per unit	Typical AADD #1 L/c/d	AADD range #1 L/c/d
Standpipe		5	25	10 to 40
Yard connection	With dry sanitation	5	50	40 to 60
	With low-flow (LOFLOs) sanitation	5	60	50 to 70
	With full-flush sanitation	5	70	60 to 80
House connection	Low-income housing	5	90	60 to 120
	Residential	5	230	120 to 400
	Group/cluster housing	3 to 5	120	130 to 120
	Flats	1 to 4	150	250 to 110

#1 - per capita calculated on persons per unit

Table 3 – Red Book Water Demand Parameters - Table J.3.

7.1.3 Water demand calculations

Table 4 below is a summary of the water demand and design flow calculations for Ptn 9 Osbosch and shows that the Annual Average Daily Demand is 1.92kl/day.

Although the Equivalent Erven (EE) number of 1.92 is indicated in the table, it is not applicable to Portion 9, as no water will be supplied by the municipality. All water on-site will be sourced from a private borehole.

Ptn 9 Osbosch 707											
Civil Services Demand Calcs											
Water demand calculations											
Residential Unit	No. of Units	Bedrooms /unit	Persons / room	Total no. of bedrooms	Total no. of persons	AADD @ 120l/p/d - l/d *	Summer peak factor - 1,5	Daily peak factor - 2,4	Design flow l/s	Design flow l/min	Design flow l/day
Unit Type A	4	2	2	8	16	1920	2880	6912	0.080	4.80	6912
Totals	4			8	16	1920	2880	6912	0.08	4.80	6912
Total No. of new Equivalent Erven (EE) Water =						1.92	* As per Red Book 2019 - Table J.3				

Table 4 – Water demand calculations.

7.1.4 Proposed water source

The proposed water source for the development is an existing borehole, BH-1, situated in the north-eastern corner of the property. A yield test has confirmed that this borehole is capable of supplying the required water demand for all four dwelling units.

7.1.4.1 Borehole BH-1 Details

- | | |
|---------------------------------|--------------------------------|
| • Co-ordinates | 34° 08' 15"S
24° 49' 32,6"E |
| • Measured depth before pumping | 52m |
| • Casing internal diameter | 127mm |
| • Rest water level | 2,39m |

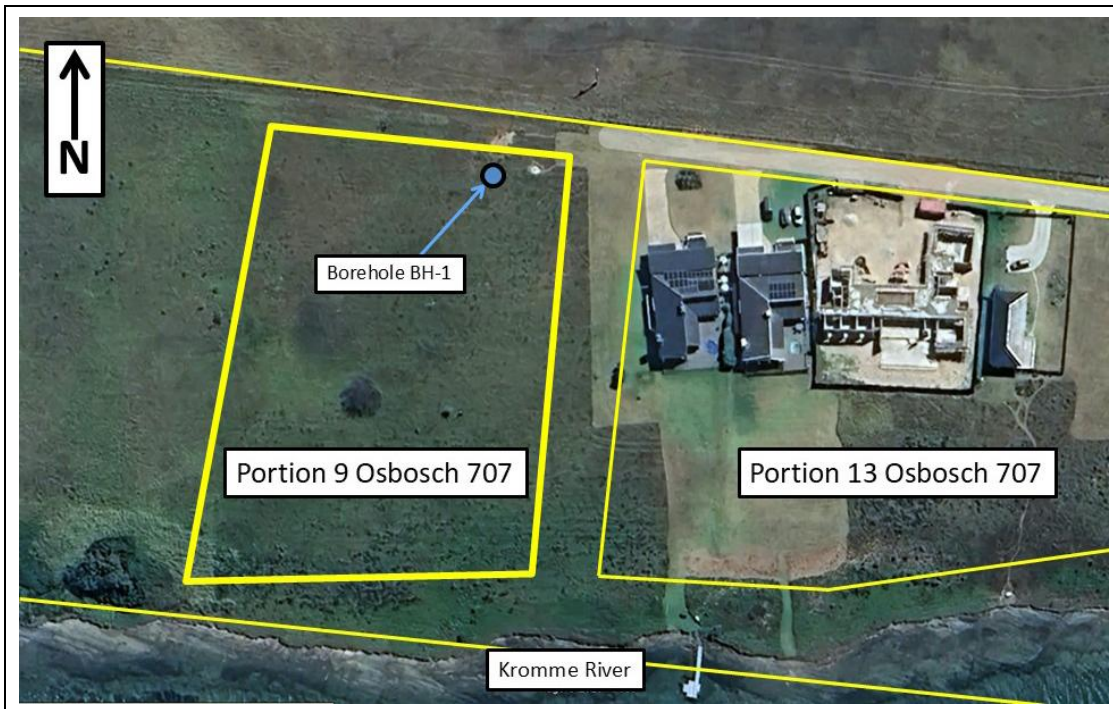


Illustration 4 – Borehole BH-1 Locality.

7.1.4.2 Borehole Yield

Testing was done during the week of 22 - 25 April 2025 to determine the yield of the borehole. This yield testing comprised of the 3 parts, namely:

- 4 x 1-hour Step Test
- 24-hour Constant Discharge Test
- 24-hour Recovery Test

The yield tests were conducted by *GlobiWell Borehole & Groundwater Specialists*, and their full report is available upon request.

The recommended maximum extraction rates for borehole BH-1 are presented in **Table 5** below. It is clear from this data that the borehole's capacity is more than sufficient to supply water to the development.

Borehole BH-1 Yield Recommendations	Recommended max yield	Units	Total Water Demand for the Development (incl summer peak factor)
Recommended rate (l/s) for 24 hours per day of pumping	0.9	l/s	0.08
Recommended rate (l/s) for 10 hours per day of pumping	1.6	l/s	0.08
Maximum amount of water allowed to be abstracted per month (m ³)	2332	m ³ /month	86

Table 5 – Maximum Yield recommendations.

7.1.4.3 Water Quality

The South African National Standard (SANS) 241 is the drinking water specification that states the minimum requirements for potable water to be considered safe for human consumption.

The limits and associated risks for domestic water as determined by the SANS 241 are as follows:

- Health risks: parameters falling outside these limits may cause acute or chronic health problems in individuals.
- Aesthetic risks: parameters falling outside these limits indicate that water is visually, aromatically or palatably unacceptable.
- Operational risks: parameters falling outside these limits may indicate that operational procedures to ensure water quality standards are met may have failed.

A sample of water from borehole BH-1 was tested by *Labco Water & Environmental Laboratory* on 7 May 2025 and the test results are attached as **Annexure B**. The “standard limits” referred to in the results table are the limits specified under SANS 241.

Several parameters exceed the recommended limits specified by SANS 241. Although these initial results may seem concerning, it is important to note that the water sample tested was untreated. A state-of-the-art water treatment facility is being installed on site, designed to effectively address and resolve all related issues. See ***Para. 7.1.4.4*** below.

Prior to the water being utilized for human consumption, it is recommended to conduct a further test on the treated water to ensure compliance with SANS 241 standards.

7.1.4.4 Water Treatment

The on-site water treatment system is designed for the purification of borehole water to meet potable water standards. The treatment process includes pre-sterilization with ozone disinfection, sediment and heavy metal removal filtration, anti-scalant dosing, cartridge filtration and reverse osmosis (RO) separation, calcite remineralization and product water sterilization using chlorine.

Illustrations 5 & 6 below show details of the water treatment system. The document containing the full details of the system is available upon request.



Illustration 5 – Proposed Water Treatment System.

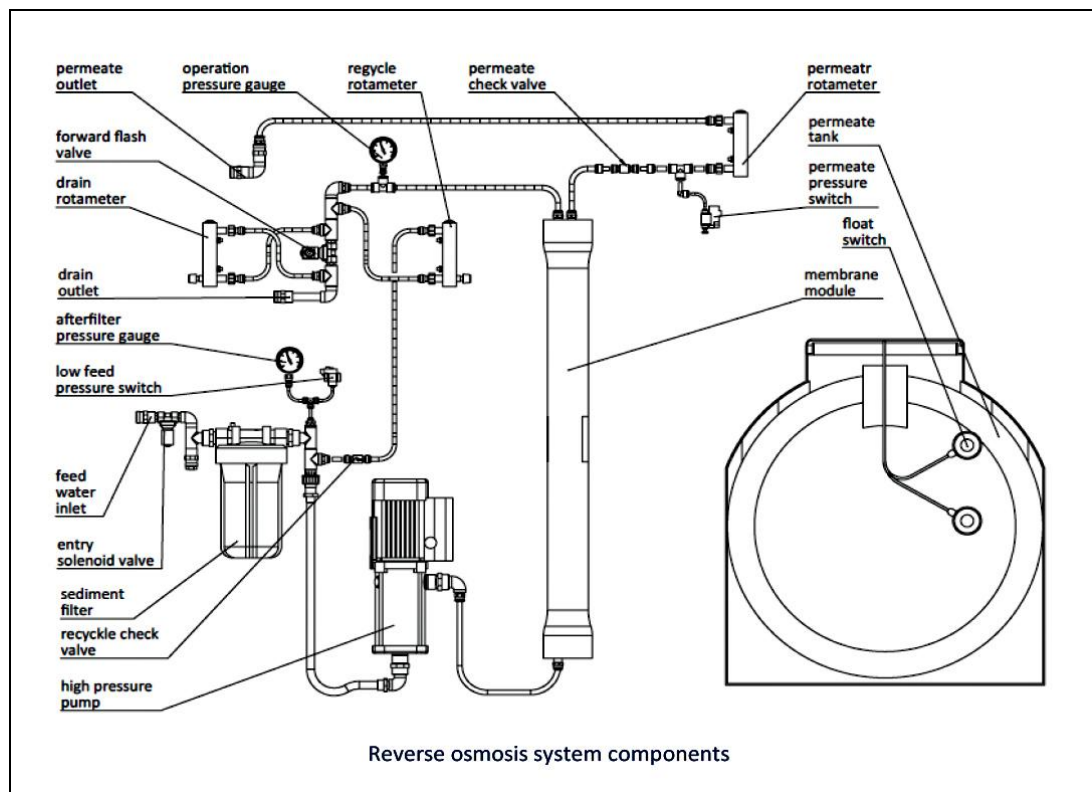


Illustration 6 – Schematic presentation of the reverse osmosis system.

7.1.4.5 Water Distribution

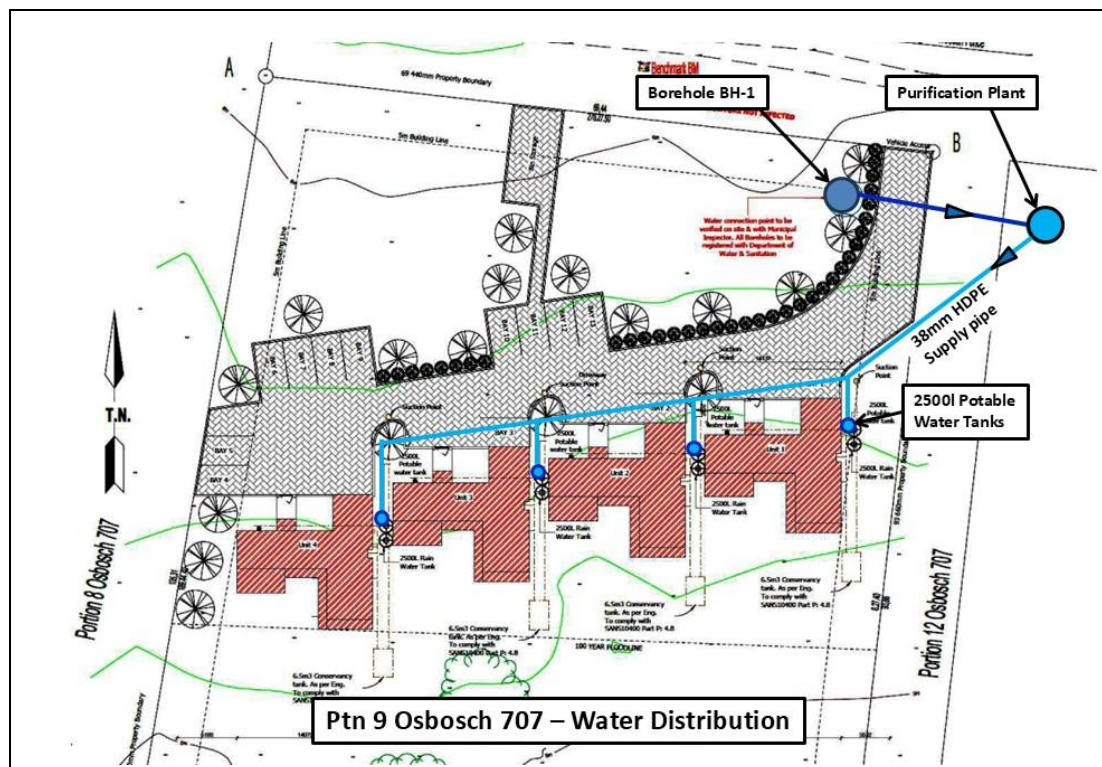


Illustration 7 – Proposed Water Distribution.

Untreated water will be pumped from the borehole to the water treatment facility. (Refer to **Illustration 7** above). After undergoing treatment, the water will be conveyed to four proposed 2500-litre potable water tanks, with one tank allocated to each dwelling. Each water tank will be equipped with a water pressure pump that will automatically activate whenever a tap is opened inside the dwelling.

7.1.5 Water Use Authorization

To determine whether borehole BH-1, which is intended for small-scale, low-impact domestic water use of 1900 litres per day (1.9 cubic meters per day) is exempt from registration at the Department of Water & Sanitation (DWS) for a **Water Use Licence (WUL)** under the **National Water Act (No. 36 of 1998)**, an evaluation of the requirements under the Act and local bylaws is required.

- **Schedule 1 Exemption (National Water Act):**

The water use of 1.9 m³/day for domestic purposes at Ptn 9 Osbosch qualifies for the **Schedule 1** exemption, as it is well below the 10 m³/day guideline and does not involve commercial activities or environmental harm.

Consequently, no Water Use Licence is required under the National Water Act for Schedule 1 use, provided that:

- The use remains domestic and non-commercial.
- The abstraction does not exceed reasonable domestic needs (1.9 m³/day is well within this requirement).
- There is no environmental harm (e.g., over-abstraction or contamination).

- **General Authorisation (GA):**

General Authorization limits for groundwater vary by quaternary catchment area. These limits were published in Government Gazette 40243, 2 September 2016. Ptn 9 Osbosch falls within the K90B catchment area, where limits have been set at 10–20 cubic meters per day or up to 40,000 cubic meters per annum.

- Since the water use for Ptn 9 Osbosch (1.9 m³/day) is below the GA threshold and qualifies for Schedule 1, the General Authorization does not apply, and no Department of Water & Sanitation registration is needed.

- **Kouga Local Municipality requirement:**

Kouga Local Municipality's **Water Supply and Sanitation Services Bylaw** (Clause 48) requires all boreholes in Kouga Local Municipality to be registered with the municipality, even if they qualify for Schedule 1 exemptions under the National Water Act and regardless of their use or volume.

Registration requires the submission of an application to the Civil & Water Services Directorate containing the following:

- Depth of water level in the borehole.
- Name of the borehole driller and the drilling log.
- Other relevant specifications e.g. depth, borehole yield, diameter, casing, etc.
- Owners must install a water meter to monitor usage and keep monthly records
- Water quality to be tested annually to ensure it is safe for domestic use.
- To ensure safety, the borehole must be properly covered to prevent injury or contamination.

An application form has been acquired from the municipality for this purpose, and the process to register the borehole on Ptn 9 Osbosch is underway.

7.2 Water conservation and demand management

Water conservation and demand management is the minimisation of loss or waste, care and protection of water resources and the efficient and effective use of water.

In terms of the National Water Act (no 36 of 1998) the Department of Water & Sanitation is the responsible body for the implementation of water conservation and water demand management strategies at a national level.

Although water conservation and demand management are generally seen as a requirement at national, provincial and local government level, the basic principles are equally appropriate and applicable at a community level – and it should be implemented in a small community like St Francis Bay in general and even within Ptn 9 Osbosch in particular.

Some of the strategies include the following:

- a) Available water is utilised efficiently.
- b) Prevention of excessive use or waste by one or more users to the detriment of other users.
- c) Protecting the quantity and quality of the available water.

Measures which could be implemented to achieve the above, are as follows:

- a) Leakage reduction by the implementation of active leakage control – adopt formalised procedures by which the occurrence of new visible leaks in a reticulation network are reported and quickly repaired.
- b) Passive leakage control (also known as physical losses) – reducing escapes of water from the infrastructure due to structural defects in tanks, overflows, leakage from trunk mains and in the reticulation network.
- c) Pressure management – too high residual pressures result in higher leakage rates, especially toilet facilities.
- d) Asset management, including good maintenance and rehabilitation of networks.
- e) Management of the consumer meter stock, e.g., testing of meter accuracies.
- f) Using water efficient appliances only.
- g) Promoting water conservation habits and practices with the users.
- h) Detection of unauthorized consumption/illegal connections.
- i) Installation of four x 2500-liter rainwater collection tanks for toilet and gardening purposes.

7.3 Fire water installation

7.3.1 Fire Load

The development falls within the “low fire load” category in terms of SANS10400 T – Fire Protection (Table 2).

7.3.2 Fire Hose Reels

Fire hose reels, in terms Regulation 4.34.1 of **SANS10400 T – Fire Protection** for the purposes of firefighting, *“shall be installed in any building of two or more storeys in height or in any single-storey building of more than 250 m² in floor area, at a rate of one hose reel for every 500 m² or part thereof of floor area in any storey, provided that such hose reels shall not be required in any building classified as H4 (residential dwelling) or in any dwelling unit in an occupancy classified as H3 (town houses and flats) where each unit is provided with independent access to ground level.”*

For Ptn 9 Osbosch, therefore, the installation of fire hose reels is not a requirement.

7.3.3 Fire Hydrants

The requirements for installation of fire hydrants are contained in Regulation 4.35 of **SANS10400 T – Fire Protection**.

“4.35.1 Hydrants, in positions subject to direction by the local authority, shall be provided:

- a) In any building that exceeds 12 m in height, and*
- b) In any building (excluding buildings classified as H4) of any height with a total floor area that exceeds 1 000 m².”*

Fire hydrants are therefore not required for this development.

7.4 Sanitation

7.4.1 Sewer Design parameters

The following sewer design parameters are applicable to this development:

General	Service Standards	Design Parameter
1.1	Average daily discharge – Residential (Low density – Resort – 5,6 units/Ha)	72ℓ/p/day (60% of water demand) *
1.2	Peak flow factor (residential)	2,5
	(Peak flow rates in sewers applicable only to residential and not to commercial units)	
1.3	Hydraulic design	Manning flow formula to determine the flow velocity and pipe capacity
1.4	n-value	0,011
1.5	Minimum grade	1:80
1.6	Minimum flow velocity	0,60m/s
1.7	Manholes to be provided	At all direction changes of the pipelines
1.8	Maximum direction changes at manholes	90°
1.9	Maximum distance between manholes	60m
1.10	Minimum cover (other than road reserve)	800mm
1.11	Minimum cover road reserves	1200mm below road level
1.12	Cover for house connections	300 – 800mm
1.13	Manhole size - depth ≤ 2,0m	1000mm diameter
1.14	Manhole size - depth > 2,0m	1500mm diameter
		* Red Book 2019 – Table K.4

Table 6 - Sanitation design parameters

7.4.2 Sewer discharge parameters

The sewer discharge parameters as per the **Red Book** are contained in **Table 7** below.

Table K.4: Demands and hydrographs for different land use categories									
Land use		Density #1 units/ha	Stand size #2 m ²	Unit of measure	Water demand (AADD)		Sewer flow (excl. infiltration) (Unit PDDWF) #4		
					kL/ha/d	kL/unit/d #3	% AADD	kL/unit/d #3	Unit Hydro-graph (UH)
Residential stands	High density, small sized	20 to 12	400 to 670	kL/unit	11	0.60 to 0.80	80% to 70%	0.48 to 0.56	UH5
	Medium density, medium sized	12 to 8	670 to 1 000	kL/unit	9	0.80 to 1.00	70% to 60%	0.56 to 0.60	UH3
	Low density, large sized	8 to 5	1 000 to 1 600	kL/unit	8	1.00 to 1.30	60% to 55%	0.60 to 0.72	UH2
	Very low density, extra-large sized	5 to 3	1 600 to 2 670	kL/unit	7	1.30 to 2.00	55% to 40%	0.72 to 0.80	UH1

Table 7 – Red Book Sewer Discharge Parameters.

7.4.3 Sewer discharge calculations

Table 8 below is a summary of the sewer discharge calculations for Ptn 9 Osbosch and shows that the **Sewer Resultant Equivalent Erven (EE) no. is 1,15.**

Ptn 9 Osbosch 707									
Civil Services Demand Calcs									
Sewage discharge calculations									
Residential Unit	No. of Units	Bedrooms /unit	Persons / bedroom	Total no. of bedrooms	Total no. of persons	Annual average daily discharge @ 60% of AADD - l/d	Plus 2,5 peak factor on residential component	Total discharge l/s	Total discharge l/day
Unit Type A	4	2	2	8	16	1152	2880	0.033	2880
Totals	4			8	16	1152	2880	0.03	2880
Total No. of Equivalent Erven (EE) Sewer =						1.15	* As per Red Book 2019 - Table K.4		

Table 8 – Sewage discharge and Equivalent Erven (Sewer) calculations.

7.4.4 Proposed Sanitation

See **Illustration 8** below, showing the proposed sanitation layout for the Portion 9 Osbosch development.

Each dwelling will be provided with its own sanitation system. The discharged sewer will be collected from the dwellings and conveyed by means of 110mm $\varnothing$ sewer pipes to 6,5m³ conservancy tanks installed on the lower (southern) side of the dwellings.

The pipes will be installed at a gradient of 1:40. Additionally, both the pipes and the conservancy tanks will be constructed in accordance with the specifications outlined in SANS 10400 Part P (Sewers).

The municipality offers a sewer removal service in the area, which will be applicable in this case. The conservancy tanks will be emptied regularly upon request by the property owner.

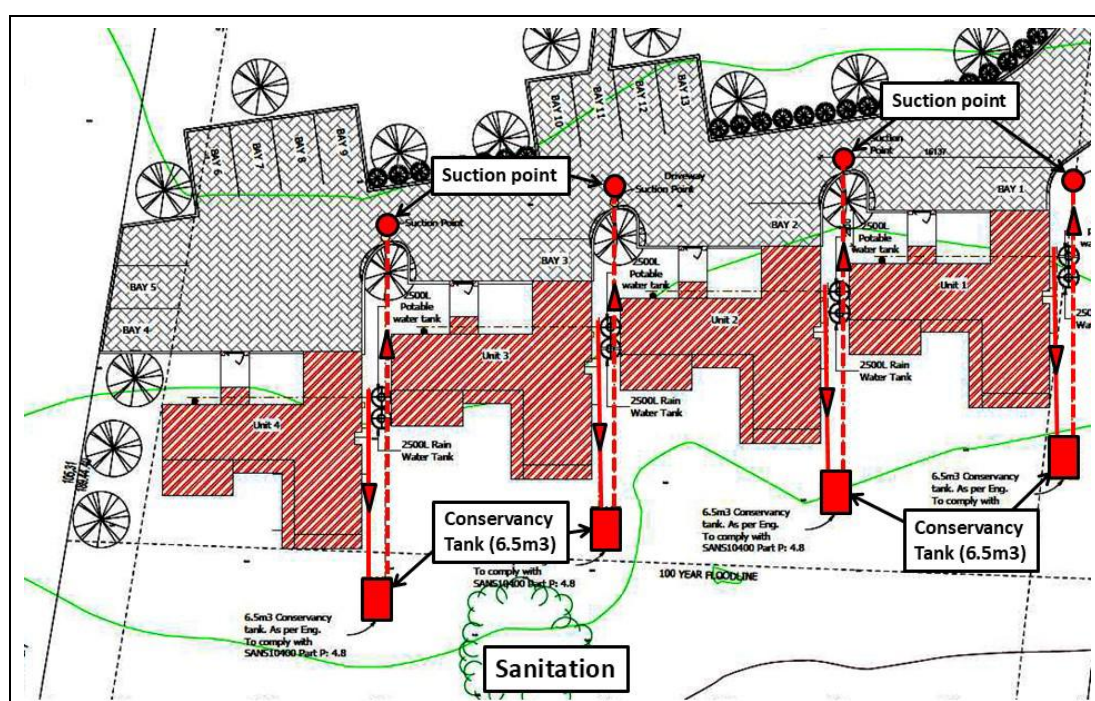


Illustration 8 – Proposed sewer lay-out as per SDP.

7.5 Stormwater

7.5.1 Definition

Stormwater is the accumulation of rain and other forms of precipitation after it has fallen and the consequential flow/runoff from higher to lower lying ground in the process of reaching streams and rivers.

7.5.2 Purpose of Stormwater Infrastructure

The purpose of providing stormwater infrastructure is to manage the volume, flow velocity and direction of flow of the accumulated stormwater. This run-off water must be controlled to acceptable levels in order to minimize the damaging effect that the stormwater may have on the environment, property and other forms of existing infrastructure.

7.5.3 Run-off

The purpose of providing stormwater infrastructure is to manage the volume, flow velocity
The water which constitutes streamflow, and which flows over the soil surface is described as surface runoff and happens soon after its occurrence as rainfall. Other water infiltrates through the soil surface and flows beneath the surface known as subsurface runoff. This flow is derived from water infiltrating the soil and flowing laterally in the upper soil strata. It reaches the receiving streams or bodies of water fairly soon after a rainfall event, without joining the main body of groundwater.

7.5.4 Stormwater Detention

Successful detention of runoff relies on several measures, including:

- detention ponds.
- rooftop detention (incl. installation of rainwater tanks).
- a preference for overland flow as opposed to engineering conduits.
- reducing impervious structures; and
- maintaining vegetation cover as far as possible to increase interception and evapotranspiration.

7.5.5 Design of Ptn 9 Osbosch Stormwater System

7.5.5.1 Design Flood Frequency

The volume of stormwater encountered is dependent on the rainfall. Due to the variances experienced in rainfall events, stormwater is expressed in terms of the recurrence or return period. Managing and controlling extreme cases becomes an expensive exercise and therefore good engineering judgment must be applied in selecting what the specific return period will be.

Table 9 below shows the minimum flood frequencies to be used for initial planning of **minor systems** per land use type (As per Red Book - Section L). This shows that for minor systems for a residential system a 1:5-year recurrence period should be used.

LAND USE	DESIGN FLOOD RECURRENCE INTERVAL
Residential	1 - 5 years
Institutional (e.g. schools)	2 - 5 years
General commercial and industrial	5 years
High value central business districts	5 - 10 years

Table 9 – Design flood frequencies for minor systems.

However, SANS 10400-R (Stormwater) (Section 4.2.2.2) prescribes that “**Major and minor stormwater systems shall be designed for flood recurrence intervals of 50 and 2 years, respectively**”.

It is therefore proposed that 1:50-year and 1:5-year storm frequencies be used for the design of the major and minor stormwater systems respectively for the conveyance system of Ptn 9 Osbosch.

7.5.5.2 Natural On-site Drainage

Ptn 9 Osbosch is located at an average elevation of approximately 5.5m AMSL, with the highest elevation of 6.0m at the northwestern corner of the property and the lowest elevation of 4.0m at the southeastern corner. The property has an average slope of about 2% in a south-easterly direction.

Drainage on the site occurs in the form of sheetwash and naturally drains towards the southern boundary of the property to the Kromme river.

7.5.5.3 Stormwater Evaluation of Ptn 9

The volume of stormwater encountered is dependent on the mean annual rainfall, time of concentration, point rainfall, point intensity, size of catchment area, gradient, soil type, vegetation, etc.

A comprehensive stormwater evaluation was done for Ptn 9 Osbosch with **Illustration 9** below showing the catchment areas in the vicinity of Ptn 9 Osbosch, used for the run-off calculations. **Table 10** below reflects the calculated maximum flow rates (in litres per second) for four different return periods (See also **para. 7.5.5** below for proposals on handling of the stormwater on this site):



Illustration 9 – Stormwater Catchment Areas in vicinity of Ptn 9 Osbosch.

Table 10 below presents the anticipated stormwater flows for return periods of 5, 20, 50, and 100 years, respectively. It indicates that the peak stormwater flow for a 1:100-year flood event is estimated to be approximately 67 litres per second. This figure is considered relatively low in the context of general stormwater flow rates and can be efficiently managed using a pipe with a diameter of 300mm.

The reasons for the low flows are as follows:

- A flat gradient of only 2.0%
- Highly permeable sandy soil
- Thick grass cover (See **Illustration 2** above)
- Small hard surfaces of the 4 dwellings (roofs) and paving, namely 6% and 8% respectively, while the remaining grass/lawn area covers 86%.

Maximum stormwater flows in litres per second				
	Return Period (Years)			
Qt (l/s)	5	20	50	100
Qt(Pre-developpmt)	11.00	23.17	41.82	53.45
Qt(Post-developpmt)	13.76	28.96	52.27	66.81
Proposed pipe size (mm)	160	200	250	300

Table 10 – Calculated maximum stormwater flow rates for Ptn 9 Osbosch (litres/s).

7.5.6 Handling of stormwater for the new development

The above analysis indicates that the pre-development stormwater flow, even during a 1:100 flood, is very low. Consequently, only minimal additional stormwater is expected once Ptn 9 Osbosch is developed. Therefore, it is deemed unnecessary to provide extensive stormwater systems, including any on-site detention facility.

We recommend the following with regards to the handling of stormwater on site:

- For the first protection, all stormwater collected from the paved areas will be guided by means of Figure 4 barrier kerbs on the southern edge of the paving towards grid inlets at four low points at each of the dwellings (See **Illustrations 10 & 11** below).
- From the grid inlets the stormwater will be conveyed in a piped stormwater system past the dwellings in a southerly direction, where it will be released on the grassed surface towards the river.
- A total of 4 x 160mm diameter stormwater pipes would be sufficient to deal with a 1:50 year recurrence maximum flood.

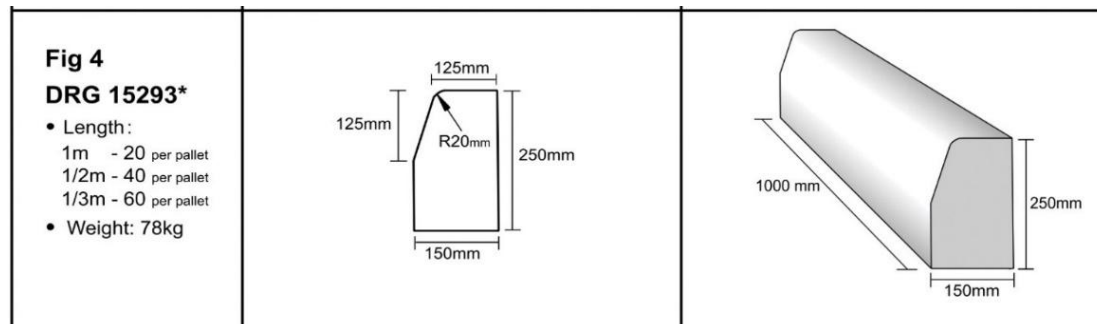


Illustration 10 – Figure 4 Barrier Kerb.

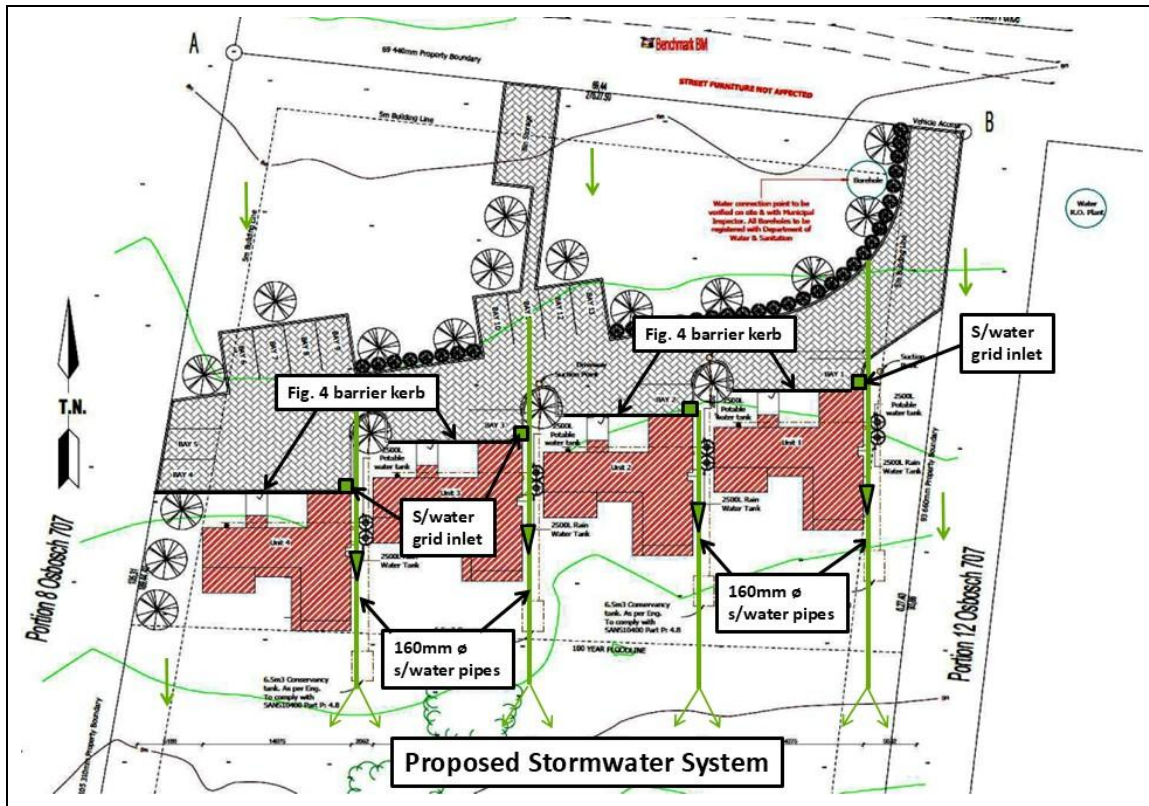


Illustration 11 – Proposed Stormwater System.

7.6 Roads

7.6.1 Definition/Description

A road can be described as an area or surface that has been disturbed from its natural condition by giving it specific treatment to make it suitable for use by a range of vehicles.

7.6.2 Purpose of Road Infrastructure

The purpose of a road is to provide access to a particular area or place in such a way that people and goods can be transported along the road in a safe and comfortable way.

7.6.3 Access to development and internal roads

The property is located on the northern bank of the Kromme river about halfway between the R330 provincial road and the Indian ocean. Access to the property is off the R330 via an existing farm dirt road of about 3,5km.

On site there will only be a short portion of paved access road and parking areas. Please refer to the **Site Development Plan** attached as **Annexure A**, which shows the on-site access road, as well as the proposed parking bays.

The internal roads and parking areas will consist of 60mm interlocking concrete paving bricks on a 150mm C-4 subbase with 150mm in-situ subgrade.

7.6.4 Road Design Parameters

The parameters that are proposed for the internal road and parking areas are as follows:

Roads Design Parameters	
Design Parameter:	
Category road	Class 5 (access road)
Design speed	30 km/h
Surface	60mm interlocking concrete paving bricks
Pavement design	150mm C-4 subbase, on 150mm in-situ subgrade (subgrade to be tested for suitability)
Maximum gradient	12%
Minimum gradient	0.6%
Horizontal curves:	
Maximum deflection	90°
Minimum radius	5,0m
Kerbing	Figures 4 & 12
Parking requirements	Residential Units – 2 per unit

7.7 Parking Requirements

Parking bay requirements in terms of the approved zoning, are as follows:

- Parking bays required = 2 bays per unit
- Required for 4 residential units = 8
- Total parking bays provided = Total 13 (8 plus 5 additional).

7.8 Electricity Supply

The provision of electricity to the Ptn 9 Osbosch development falls outside the scope of this report, however just basic information will be provided.

Electricity supply to the Osbosch area is being provided by ESKOM via a high voltage overhead line with a 2-phase transformer on the northern boundary of the development. See **Illustration 12** below.

Application has been made to ESKOM for the development and the owners are liaising with them on a continuous basis.

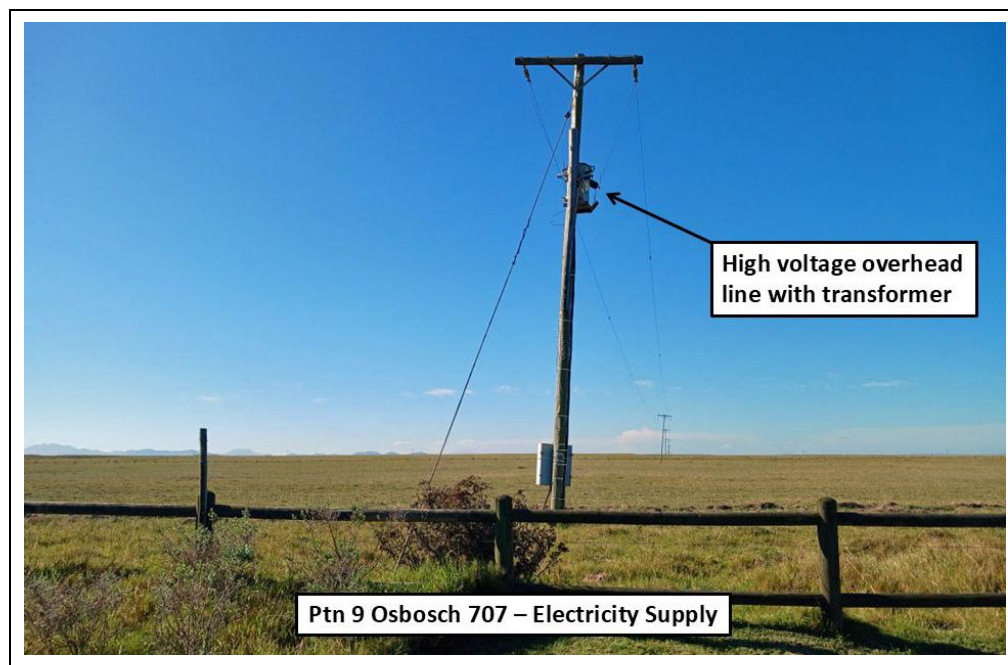


Illustration 12 – Electricity Supply.

8. Bulk Augmentation Fees

8.1 Augmentation Fees General

Bulk services augmentation fees are implemented on new developments by Kouga Municipality in terms of their Augmentation Policy approved on 13 December 2021.

Objectives - The objective of the policy is to implement measures by the Municipality to recover the costs incurred for the provision of bulk infrastructure and services to new developments.

Definition – Augmentation Fees are the amounts calculated by virtue of the cost for the provision and/or upgrading (present and future) of bulk infrastructure to accommodate new developments and the cost thereof to the Council.

8.2 Bulk Augmentation Fees for Ptn 9 Osbosch

Due to the fact that a new development will be taking place on Ptn 9 Osbosch, bulk augmentation fees become payable for services provided by the Kouga Municipality. In this case only two services will be provided, namely sanitation and refuse.

With reference to **Para 7.4.3** above an **EE of 1.15** is applicable for calculation of the augmentation fees. The result is that augmentation fees for civil engineering services, in the amount of **R38 235-20 (incl. VAT)**, would be payable for the development of Ptn 9 Osbosch (Refer **Table 11** below, which shows the 2024/5 bulk augmentation fees).

Kouga Municipality - Tariffs - 2024/25 (Incl VAT)			Ptn 9 Osbosch	
Augmentation Fees (New Developments) per EE	Vote No.	Tariff per EE	EE	Total Augm. Fees
Roads and Storm Water	720/90501	R6,110.00	0.00	R0.00
Refuse	730/90501	R2,975.00	1.15	R3,421.25
Sewerage	780/90501	R30,273.00	1.15	R34,813.95
Water	980/90501	R29,481.00	0.00	R0.00
Total Augmentation Fees (Civil Services only)		R68,839.00		R38,235.20

Table 11 - Kouga Municipality 2024/25 Budget – Ptn 9 Osbosch Augmentation Contributions.

Due to the low level of services provided by the municipality to this development, it is suggested that discussions be arranged between the property owners and the relevant municipal officials to consider waiving the bulk augmentation fees.

9. Service Level Agreement

Normally, during the commencement of any new development, a Service Level Agreement (SLA) is entered into between the developer and Kouga Municipality for the provision of services and to regulate other matters relating to the development.

In the case of Ptn 9 Osbosch, it is proposed that a formal Service Level Agreement (SLA) should not be mandated. This is due to the fact that, aside from sewage removal and access to a refuse site, no additional services are provided by the municipality.

10. Recommendations

It is recommended that:

- 1) The design criteria, materials and methods of construction as mentioned in the report above be accepted.
- 2) Please note that water services will not be provided by the municipality, and all water supply will be sourced from an existing borehole on the property.

- 3) Water conservation and demand management measures be implemented in accordance with **Para. 7.2** above, including the installation of 4 x 2500-liter rainwater collection tanks for toilet and gardening purposes.
- 4) In accordance with **Paras 7.3.2** and **7.3.3**, there is no requirement to install fire hose reels or fire hydrants.
- 5) The sanitation proposal outlined in **Para. 7.4.4**, which includes four conservation tanks along with municipal suction points, be accepted.
- 6) As outlined in **Para. 7.5.6**, stormwater be directed by Figure 4 barrier kerbs towards grid inlets at four low points before being piped past the dwellings southward, to discharge on the grassed surface towards the river.
- 7) The internal roads and parking areas will consist of 60mm interlocking concrete paving bricks, together with Figure 4 barrier kerbs and Figure 12 garden kerbs.
- 8) In terms of **Para. 7.7** above, a minimum of 8 parking bays will be required on site. (Please note that the SDP makes provision for a total of 13 parking bays).
- 9) A formal Service Level Agreement (SLA) should not be mandated, since, aside from sewage removal and access to a refuse site, no additional services are provided by the municipality.
- 10) With reference to **Para. 8.2** above, it is proposed that the requirement for payment of bulk augmentation fees be waived. This is due to the low level of services provided by the municipality to this development.

11. Verification

This amended report has been verified and confirmed on 24 May 2025.



NH Janse van Rensburg

Pr. Eng, BSc(Civ)Eng, ECSA Reg. No. 20050205, FIMESA, NHBRC Reg.

Annexure A – Site Development Plan
(Prepared by Oelofse ArchDesigns (Pty)Ltd)



Annexure B – Labco – Borehole BH-1 water test results



Water & Environmental Laboratory

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Port Elizabeth
6070
PO Box 10114
Linton Grange 6015
Email: enviro@labco.co.za
Phone: 041 450 2590

ENVIRONMENTAL TEST REPORT

Laboratory Number	W2687_1	Field Number:	Not Provided	Page No.:	2 of 2
Client:	Globiwell (PTY) Ltd	Project:	St. Francis		
Sample Description:	Borehole			Job No:	W2687
Sampling Method:	Sampled and Delivered by Customer				
Sampling Position:	Not Provided	Date and Time of Sampling:	24 04 2025 07:30		
Sample Containers Received:	2L Plastic bottle	Sample Condition \ Abnormalities:	Turbid with sediment		
Reference Standard/Guideline:	Short Analysis - Treated Water for Domestic Consumption (Partial Chemistry & Microbiologicals)				
DETERMINAND	RISK	UNIT	VALUE	STANDARD LIMITS	
PHYSICAL AND AESTHETIC					
Conductivity - Electrical @ 25°C	Aesthetic	mS/m	749.00	≤170	
Total Dissolved Solids @180°C	Aesthetic	mg/L	4892.00	≤1200	
pH @ 25°C	Operational	pH Units	6.49	≥5 to ≤9.7	
Turbidity	Operational	NTU	11.70	≤1	
	Aesthetic			≤5	
CHEMICALS					
Nitrate as NO ₃ - N	Acute Health	mg/L	<0.001	≤ 11	
Nitrite as NO ₂ - N	Acute Health	mg/L	<0.001	≤ 0.9	
Combined Nitrate plus Nitrite ratio	Acute Health		<0.001	≤ 1	
Sulphate as SO ₄ ²⁻	Acute Health	mg/L	284.66	≤ 500	
	Aesthetic	mg/L		≤ 250	
Fluoride as F ⁻	Chronic Health	mg/L	0.50	≤ 1.5	
Chloride as Cl ⁻	Aesthetic	mg/L	1515.89	≤ 300	
Calcium as Ca		mg/L	125.39		
Potassium as K		mg/L	5.55		
Magnesium as Mg		mg/L	167.15		
Sodium as Na	Aesthetic	mg/L	1220.58	≤ 200	
Copper as Cu	Chronic Health	µg/L	<1	≤ 2000	
Iron as Fe ⁺	Chronic Health	µg/L	428.00	≤ 2000	
	Aesthetic	µg/L		≤ 300	
Lead as Pb	Chronic Health	µg/L	2.00	≤ 10	
Manganese as Mn	Chronic Health	µg/L	627.00	≤ 400	
	Aesthetic	µg/L		≤ 100	
Alkalinity - Total		mg CaCO ₃ /L	198.27		
Total Hardness		mg CaCO ₃ /L	999.00		
LSI			-1.20		
MICROBIOLOGICAL					
Coliforms, E-coli	Acute Health	count per 100 ml	<1	Not detected	
Coliforms, Total	Operational	count per 100 ml	26000.00	≤ 10	
Heterotrophic Plate count	Operational	count per ml	1048.00	≤ 1000	
* Denotes that the test is accredited * Denotes that the test is sub-contracted					

*****END OF REPORT*****

Rev Date 02.10.2024

Rev No 3

Doc No.SF56S

Appendix D2 – Biodiversity Assessment Report and Declaration

Final Report

Biodiversity Assessment – Portion 9 of Osbosch 707, Eastern Cape Province

ACES Consulting CC

Client: ACES Consulting CC
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Tel: 082 309 5175



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EXECUTIVE SUMMARY

This assessment report will focus on the desktop assessment and field survey of the biodiversity and potential impacts on the aquatic resources, plant species and the terrestrial biodiversity at the site for the proposed development on **Portion 9 of Osbosch 707**, in the Eastern Cape Province.

The assessment focus on the status of the habitat and biodiversity and possible impacts on the receiving environment.

Terms of Reference

BioAssets CC was appointed by ACES Consulting CC to do an assessment of **Portion 9 of Osbosch 707** in the Eastern Cape Province where the proposed development (construction of a dwelling) will take place.

Objectives of the Survey

- To determine the current impacts on the proposed development site.
- To do a rapid biodiversity survey to determine the possible presence of any protected or red data plant species.
- To make recommendation and mitigation measures needed for the developer to ensure that minimal environmental risks are taken during the development activities (if the project is approved).
- To make some recommendations on rehabilitation needed at the site – to areas damaged and modified during the development
- No wetland delineations were conducted, as it was not included in the Terms of Reference.

Site Sensitivity Verification Statement – Aquatic Biodiversity Theme

- In the Screening Tool Report (DFFE, 2025), the sensitivity rating of the Aquatic Biodiversity for the site is listed as **very high**.
- This is related to the proximity of the site to the estuary. As noted in Section 1.7, the only potential impact from the proposed development on water resources is potential pollution (sewage, runoff from hard surfaces) to the marine environment.
- The impact if well monitored and managed, will be negligible. Therefore, the rating for the site is maintained at a **very high sensitivity rating for the aquatic biodiversity theme**.

Site Sensitivity Verification Statement - Plant Species Theme

- In the Screening Tool Report (DFFE, 2025) for the site, the sensitivity rating for the Plant Species is listed as **medium** because of two (2) species listed as Species of Conservation Concern (SCC). Only the Eelgrass was observed during the assessment, but a lack of suitable habitat excludes the second SCC from the area. No protected tree species present in the area was recorded on the site.
- The estuary is an important site for the Eelgrass and therefore the sensitivity rating is **maintained at a medium sensitivity rating for the plant species theme**. The proposed buffer between the development footprint and the property boundary can be a corridor for indigenous plants to reestablish and to ensure that the estuary bank is protected.

Site Sensitivity Verification Statement – Terrestrial Biodiversity Theme

- In the Screening Tool Report (DFFE, 2025) for the site, the sensitivity rating (Terrestrial Biodiversity) for the site is listed as **very high** with no aquatic resources on the site.
- The estuary and the endangered vegetation unit associated with the aquatic environment are listed as having a **very high** sensitivity rating (ESA and CBA listed). Therefore, the rating for the site is maintained at a **very high sensitivity rating for the terrestrial biodiversity theme**.

General comments and recommendations

- **General Habitat**
 - The habitat and natural vegetation on the site are modified because of historic activities that included cultivation, mowing and grazing. It was transformed to a secondary grassland (grass dominated) with a few shrubs that have grown after the mowing has been suspended.
 - Because of the sensitivity (CBA and endangered vegetation unit) it is recommended that a 40 m buffer is left between the southern edge of development (dwelling footprint) and the property boundary. This area will be a natural migration and foraging corridor for all animals in the region and ensure that the remaining Albany Alluvial Vegetation (Endangered) associated with the estuary is not directly impacted.
- **Plant Species Theme**
 - The area is not considered critical habitat for SSC 1252, but the estuary is important for the Cape Eelgrass.
 - The development of the dwelling will result in permanent loss of a small area of natural habitat (currently modified), but as no suitable habitat for SSC 1252 is present, the impact is very low.
 - No direct habitat impact is expected for the Eelgrass and the buffer zone between the dwelling and estuary will have a negligible impact on this species.
 - Limit the development footprint to the dwelling area only.
 - Ensure no activities e.g. driving, storing or dumping, occur outside this footprint.
 - It will be important to designate a storing area for material at the entrance to the property.
 - Clearly demarcate the construction area for clearance of vegetation.
 - Limited activities and storing of materials on site.
 - Rubble must be placed in bins and cleared regularly.
 - Use indigenous plants from the vegetation unit for landscaping and rehabilitation.
 - Monitor and remove alien plants.
 - Replant cleared areas to ensure no further alien infestations occur.
 - With mitigation implemented, residual impacts on vegetation modification and alien plant encroachment are expected to be low and acceptable.
 - The use of indigenous plants can improve the current low diversity on the site.
 - The use of indigenous shrubs and trees will attract birds, and this will increase the import of seeds from outside the site.

- **Aquatic Biodiversity Theme**

- Earthworks, excavation and building activities increase sediment runoff into watercourses, which can elevate turbidity in the estuary. Stormwater runoff from roofs, driveways and landscaped areas can carry pollutants (sediments, nutrients, oils, detergents, herbicides and pesticides) into the estuary.
 - It is important to keep vehicles and materials away from the estuary.
 - Inspect vehicles daily for oil or fuel leaks.
 - Any chemical or oil and fuel leaks must immediately be rehabilitated according to the protocol in the EMPr (e.g. spill kit onsite and appointed service provider to rehabilitate and remove polluted soil).
 - Improperly managed runoff can degrade water quality, harm aquatic plants and alter nutrient dynamics.
 - Avoid construction within the Estuary Functional Zone.
 - Manage erosion and sediment – use silt fences, swales or sediment traps and stable construction entrances.
 - Use permeable surfaces to promote water retention and localised penetration.
 - Dissipate runoff water over a larger area to promote infiltration and reduce erosion potential.
 - Ensure the excavations on site will allow subsurface flows where possible.
 - The sewage system must be in a concrete berm that can contain overflows and regular pumping of the system must be done to ensure that a buildup of sediment in the system is reduced.
- Poorly designed systems (sewage) can lead to leakage and contamination of groundwater that feeds estuarine flows.
 - The spread of pathogens and nutrients into the estuary, affecting water quality and human health.
 - Ensure all facilities are regularly inspected and maintained.
- Construction trenches and stockpiles can erode after rain events.
 - Plan construction for the dry period if possible and cover exposed soils and stockpiles with geotextiles and tarpaulins. Immediate erosion rehabilitation is needed after rain or wind events.
 - Loss of riparian plants reduces natural filtration leading to an increase in direct pollutant inputs. Silt trap and screens must be used to avoid sand movement (wind and water erosion).
 - Dust can settle on water surfaces, and it will impact light penetration and oxygen dynamics. Dust suppression is recommended with the use of screens, tarpaulins and geotextiles.

Declaration of Independence

The Environmental Impact Assessment Regulations (Regulation 17 of Government Notice No R354 of 2010), requires that certain information is included in specialist reports. The terms of reference, purpose of the report, methodologies, assumptions and limitations, impact assessment and mitigation (where relevant to the scope of work) and summaries of consultations (where applicable) are included within the main report. Other relevant information is set out below:

Expertise of author:

- Working in the field of ecology since 1996 and in specific vegetation related assessments since 2000.
- Worked in the field of freshwater ecology and wetlands since 2000.
- Involved with visual assessments since 2009.
- Is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (Reg. No. 400109/95).

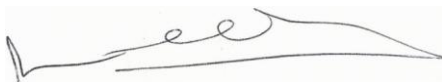
Declaration of independence:

BioAssets CC is an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by BioAssets CC is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

BioAssets CC undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to BioAssets CC by the client and in addition to information obtained during the course of this study, BioAssets CC present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



25 May 2026

Dr Wynand Vlok

Date

ASSUMPTIONS AND LIMITATIONS

Availability of baseline information

Baseline information for the study of the site was obtained from historic maps, photographs and reports. The desktop survey provided adequate baseline information for the area and therefore this was not a constraint.

Constraints

The survey was conducted during daytime only. All the different habitat types at the site were investigated and it was therefore possible to complete a rapid habitat and biodiversity survey and obtain information on the habitats that are present at the site, or that are likely to occur there.

Bio-physical constraints

Weather conditions during the period were warm with a strong wind blowing. A summer survey was conducted, and the region has received limited rainfall prior to the site visit and the the lack of good rains prior to the visit limits the plant species flushing and flowering.

There was no standing water in the veld during the time of the survey, and this will have no obvious implications on the plant biodiversity (not applicable for this study) that are likely to occur in the area. Nevertheless, the conditions during the survey were suitable for a survey of this nature.

Confidentially constraints

There were no confidentiality constraints.

Implications for the study

All the different habitat types were observed during the field survey. There is sufficient good quality data available in the literature that partially negates the negative effect that the type of survey had on the quality of the assessment.

It is unlikely that more surveys would alter the outcome of this study radically.

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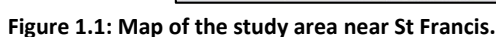
This assessment report will focus on the desktop study and field survey of the biodiversity and potential impacts on the aquatic resources, plant species and the terrestrial biodiversity at the site for the proposed development on **Portion 9 of Osbosch 707**, near St Francis in the Eastern Cape Province.

1.1 Terms of Reference

1.2 Objectives of the Survey

- To determine the current impacts on the proposed development site.
- To do a rapid biodiversity survey to determine the possible presence of any protected or red data plant species (Species of Conservation Concern).
- To access the aquatic resources and terrestrial habitat.
- To make recommendations and mitigation measures needed for the developer to ensure that minimal environmental risks are taken during the development activities (if the project is approved).
- To make some recommendations on rehabilitation needed at the site to areas damaged and modified during the development.
- No wetland delineations were conducted, as it was not included in the Terms of Reference.

The locality map for the study area is depicted in Figure 1.1 and Figure 1.2.



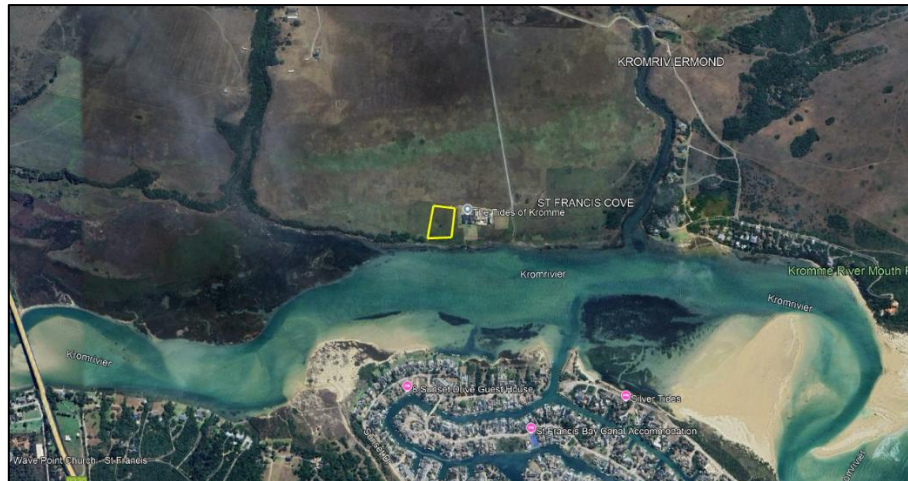


Figure 1.2: Aerial view of the proposed development area (yellow blocked area).

1.4 Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019)

The ECBCP map (Figure 1.3) indicate that the study area is associated with important conservation areas.

On the ECBCP map, the site is on the boundary of the marine environment to the south (CBA - green area) which is classified as a “natural coastal zone”. The dark yellow mapped areas represent the ESA areas which are classified as “important natural catchment zones”. The ESA on the study site represents a seep zone that gather water from the landscape, draining from the north towards the estuary. The water is transported to the estuary (subsurface) during the wet season, and it is important to note that runoff water from the site and the development will impact on the receiving environment. The light-yellow sections on site are mapped as “not natural” and is classified as previously cultivated fields (SNABI BGIS ECBCP, 2019).



Figure 1.3: The site is adjacent to the CBA (green zone) associated with the marine environment and the dark yellow mapped zone represent the ESA area, listed as important natural catchment zones. The light-yellow sections on site are mapped as “not natural” – fields (SANBI BGIS ECBCP, 2019).

1.5 Biota Biodiversity Assessment

With regards to the biodiversity and sensitivity assessment (Screening Protocol - Screening Report for an Environmental Authorisation as required by the 2014 EIA Regulations – Proposed Site Environmental Sensitivity - Department of Environmental Affairs), the **Aquatic Biodiversity Theme** is listed as “**Very High**”, the **Plant Species Theme** is listed as “**Medium**” and the **Terrestrial Biodiversity Theme** is listed as “**Very High**” (Table 1.1). Table 1.2 is a summary of the Species of Conservation Concern (SCC) plant species listed in the STR (DFFE, 2025).

Table 1.1: Summary of the “Site Sensitivity” as determined by the National Web-Based Environmental Screening Tool. This report focusses on the Aquatic Biodiversity Theme, Plant Species Theme and the Terrestrial Biodiversity Theme (shaded) (DFFE, 2025).

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Palaeontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Table 1.2: List of the SCC plant species in the STR for the site (DFFE, 2025).

PLANTS			
SCC Species	Sensitivity	Habitat preference	Probability of occurrence
Sensitive species 1252 (VU) – name withheld as per protocol to protect species against exploitation.	Medium	Plants grow in wooded and relatively mesic places, such as the moister bushveld areas, coastal bush and wooded mountain kloofs.	Very low
<i>Zostera capensis</i> (EN)	Medium	Cape Eelgrass is the dominant seagrass in South Africa, primarily found in sheltered, low-wave energy estuarine environments and shallow bays and lagoons. It thrives where it is anchored in soft sand or mud bottoms within the intertidal and subtidal zones.	Moderate to high (affected at the site by wave action – limited). Present in the estuary (historic and recent records).

As a measure to protect the threatened species, the DFFE regulations dictate that the “sensitive species” listed in the STR (SCC species) will not be identified in the report.

Table 1.3 and Table 1.4 gives the sensitive features listed in the STR for the Aquatic Biodiversity Theme and the Terrestrial Biodiversity Theme (DFFE, 2025).

Table 1.3: The features listed in the STR Report (DFFE, 2025) for the Aquatic Biodiversity Theme.

Sensitivity	Feature(s)
Very High	CBA 1
Very High	ESA 1
Very High	Kromme Estuary

Table 1.4: The features listed in the STR Report (DFFE, 2025) for the Terrestrial Biodiversity Theme.

Sensitivity	Feature(s)
Very High	CBA1
Very High	ESA2
Very High	Albany Alluvial Vegetation

1.6 Aquatic Biodiversity Theme

The aquatic resources for the site are listed as of “**very high**” sensitivity in the STR (Figure 1.4). The concerns with regard to this component on site is run-off from hard surfaces, modified subsurface flows

in the seep zone and pollution (sewage, chemicals, pesticides, oil and fuel) from the site. In Figure 1.5, the Freshwater Ecosystem Priority Areas (FEPA) layer (SANBI BGIS, 2025) is depicted. The site is near the estuary (downstream wetland) and a wetland seep area that drains the landscape from the north. The development will impact on the subsurface flows in the seep zone that drains water from the catchment into the estuary.

Figure 1.6 reflect the Strategic Water Sources Areas (SWSA) layer. On the map, there is no aquifer that will be impacted by the development (SANBI BGIS, 2025).

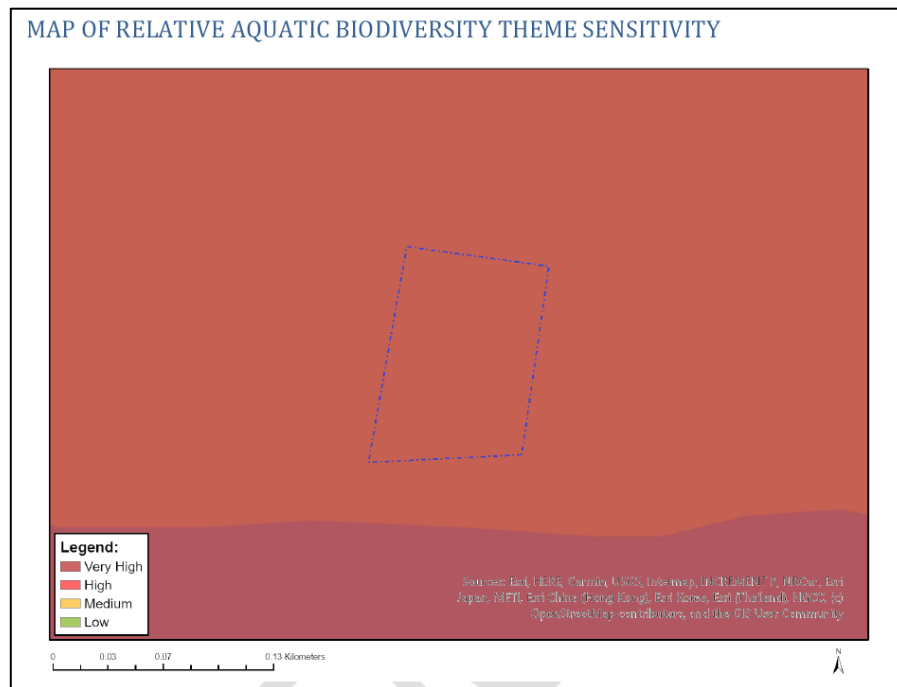


Figure 1.4: STR map (Aquatic Biodiversity Theme) of the site with the sensitivity rating as high (DFFE, 2025).



Figure 1.5: The Freshwater Ecosystem Priority Areas (FEPA) map of the site indicating aquatic resources downstream of the site, the estuary rated with a sensitivity of "very high". The estuary will be impacted by the development (very limited) (SANBI BGIS, 2025).



Figure 1.6: The Strategic Water Sources Areas (SWSA) map of the site indicating no aquifer that will be impacted by the development (SANBI BGIS, 2025).

1.6.1 Historic overview of the estuary

The estuary description (Marais, 1983) was conducted as part of a fish diversity and seasonal abundance study. The Krom River originates in the Tsitsikamma mountains, with sea water that penetrates well inland, to approximately 14 km from the estuarine mouth. It is reported that the Churchill Dam in the Dwars River was constructed between 1940 and 1943 and is approximately 55 km west of the estuary mouth. The Impofu Dam (previously known as the Elandsjacht) was constructed between 1972 to 1982 and is approximately 22 km from to the sea.

Marais (1983) described the system as having a narrow upper section ($\pm 2,5$ km) that is narrow with rocky cliffs on either side, but downstream from this section the estuary starts to broaden and the slopes on either side become less steep. Near the mouth, at the confluence with the Geelhoutboom River, the flood plain is wide. Hecht (1973) mentioned that the intertidal mudflats were wider than 20 m and it was covered by typical salt marsh vegetation (about 4,5 km from the mouth). Marais (1983) then described the changes in the rest of the estuary. It is changing constantly where “mudflats gave way to a small sandy area before changing to mud flats again and then the intertidal zone changes rather abruptly from a muddy substrate to shalestone with the intertidal area to the mouth consisting of a sandy substrate”. The rocky slope of the north bank in the lower reaches was covered by dense bush with a few areas interrupted by small muddy and sandy banks.

According to the South African Estuary Information System (SAEIS, 2026) the estuary is listed as a **predominantly open** system, with a **noticeable degree of ecological degradation** in the catchment and the estuary (moderate impact). The anthropogenic impacts is listed a system that is **severely impounded**, with the land use dominated by agricultural activities (29%) and natural areas (65%). Apart from the **severe abstraction** in the system, **water quality degradation, siltation and alien vegetation** are the main impacts associated with the degradation of the estuary.

Linked to the abstraction that resulted in reduced flows, Wooldridge (2007) noted that the system is an example where freshwater inflow is significantly attenuated after completion of the impoundments. This resulted in the increased total storage capacity of the impoundment to increase above the Mean Annual Runoff (MAR) from the catchment. During his study, it was mentioned that less than 2% of expected runoff reaches the estuary. This led to a drastic flow reduction in the system which is considered to be **marine dominated** with very little upstream variation in water salinity.

Linked to the changes in the flow volumes, the sediment dynamics have changed, specifically in the lower reaches where large sandbanks developed because of less frequent scouring of the system. Due to changes in the flow regime, only very large floods can remove some of the sandbanks. The system modification reduced the efficiency of tidal water exchange which resulted in the changes to natural patterns in the physico-chemical environment expected for the system. These changes impacted the floral and faunal characteristics, and the Eelgrass (*Zostera capensis*) has become more extensive (a four-fold increase). The change in the extent of the Eelgrass beds resulted in a change in the invertebrate species that favour vegetated areas and the shrimp (*Palaemon perengueyi*) currently dominate the benthic community while species that favour non-vegetated sediments have probably declined (e.g. the mudprawn, *Upogebia africana*) (Wooldridge, 2007).

1.7 Plant Species Theme

The STR map (Figure 1.7) shows the **low/medium sensitivity** for the site (DFFE, 2025) and the two regional vegetation types present are the **Elands Forest Thicket (AT 26)** and the **Albany Alluvial Vegetation (Aza 6)**. Other vegetation units present in the area are the Sundays Mesic Thicket (AT 50), the Humansdorp Shale Renosterveld (FRs 19) and the St Francis Dune Thicket (AT 57) (Mucina and Rutherford, 2018) (Figure 1.8).

Appendix 1 is a list of plants present in the larger geographic area associated with the study area (20 km radius) (SANBI BODATSA, 2016).

The two vegetation units directly associated with the study site have the following characteristics (Mucina and Rutherford, 2006; 2018):

Elands Forest Thicket (Least Concern) – low sensitivity

It is associated with the Eastern Cape Province, specially between St Francis Bay and Uitenhage and is present on the moderate slopes around the Elands River, Seekoei River and Kromme River. The vegetation and dominant landscape features occur on gentle to moderate slopes of river valleys where the medium-sized to tall (3 - 5 m) thicket with a canopy composed of trees (e.g. *Olea europaea subsp. cuspidata* and *Pittosporum viridiflorum* dominate) and emergent succulent trees like *Euphorbia tetragona* are found. Some of the thicket species present, are shared with the Sundays Valley Thicket (AT 51) and the arid forest elements i.e. *Diospyros dichrophylla* and *Euclea undulata* are common. Geology and soils associated with the vegetation are shallow, clayey soils derived from shales of the Gydo and Baviaanskloof Formations.

According to Mucina and Rutherford (2018) the more important taxa are:

- Small trees: *Olea europaea subsp. cuspidata*, *Pittosporum viridiflorum*, *Rapanea melanophloeos*, *Sideroxylon inerme* and *Schotia afra*
- Succulent shrub: *Gasteria bicolor*
- Succulent trees: *Aloe africana*, *Euphorbia grandidens*, *Euphorbia tetragona* and *Euphorbia triangularis*
- Geophytic herbs: *Diets iridioides* and *Sansevieria hyacinthoides*
- Graminoid: *Panicum deustum*

- Tall shrubs: *Diospyros dichrophylla*, *Euclea undulata*, *Cadaba aphylla*, *Carissa bispinosa*, *Scolopia zeyheri*, *Scutia myrtina* and *Searsia lucida*
- Woody succulent climber: *Cynanchum viminalis*

Albany Alluvial Vegetation (Endangered) – medium sensitivity

This vegetation unit is present in Eastern Cape Province between East London and Cape St Francis on the wide floodplains of the large rivers such as the Sundays, Zwartkops, Coega, Gamtoos, Baviaanskloof, Great Fish and is usually close to the coast where the topography becomes flatter. This alluvial unit is embedded within the Albany Thicket Biome (Mucina and Rutherford, 2006).

According to Mucina and Rutherford (2006) the vegetation and landscape features include two major types of vegetation patterns, i.e. the riverine thicket and thornveld (*Vachellia natalitia*) associated with the narrow floodplain zones close to the coast and further inland it is thornveld that occurs on the wide floodplains. Soils and geology are Jurassic-Cretaceous sediments of the Uitenhage Group. The alluvial zones, especially the recent alluvial deposits, are made up of materials of various textures, but usually a high clay content is present. It can become flooded following the west-east passage of frontal systems in autumn and winter or during intensive local storms in summer.

Important taxa present (with ^B indicating more brackish habitats) include (Mucina and Rutherford, 2006):

- **Riparian thicket** - Small Trees: *Vachellia natalitia*, *Salix mucronata* subsp. *mucronata*, *Schotia afra* var. *afra*, *Senegalia caffra*, *Searsia longispina*
- Succulent Trees: *Aloe africana*, *A. ferox*
- Tall Shrubs: *Azima tetraacantha*, *Cadaba aphylla*
- Low Shrubs: *Pentzia incana*, *Asparagus striatus*, *A. suaveolens*, *Carissa haematocarpa*
- Succulent Shrubs: *Amphiglossa callunoides*, *Lycium cinereum*
- Graminoids: *Sporobolus nitens*, *Digitaria eriantha*, *Eragrostis curvula*, *E. obtusa*
- **Reed beds** – Mega graminoids: *Cyperus papyrus*, *Phragmites australis*
- **Flooded grasslands and herblands** - Succulent Shrubs: *Cotyledon campanulata*^B, *Glottiphyllum longum*^B, *Malephora lutea*^B, *M. uitenhagensis*^B
- Semiparasitic Shrub: *Thesium junceum*^B
- Succulent Herbs: *Haworthia sordida* var. *sordida*^B, *Orbea pulchella*^B.
- Herb: *Rorippa fluviatilis* var. *fluviatilis*
- Graminoid: *Cynodon dactylon*^B

In Figure 1.9, maps are depicted of a 3 km radius from the site with all plants recorded and red data plants observed in iNaturalist (2025). In Table 1.5 all plants observed with its status is reflected and Table 1.6 is an extract of the red data plants recorded (iNaturalist, 2025).

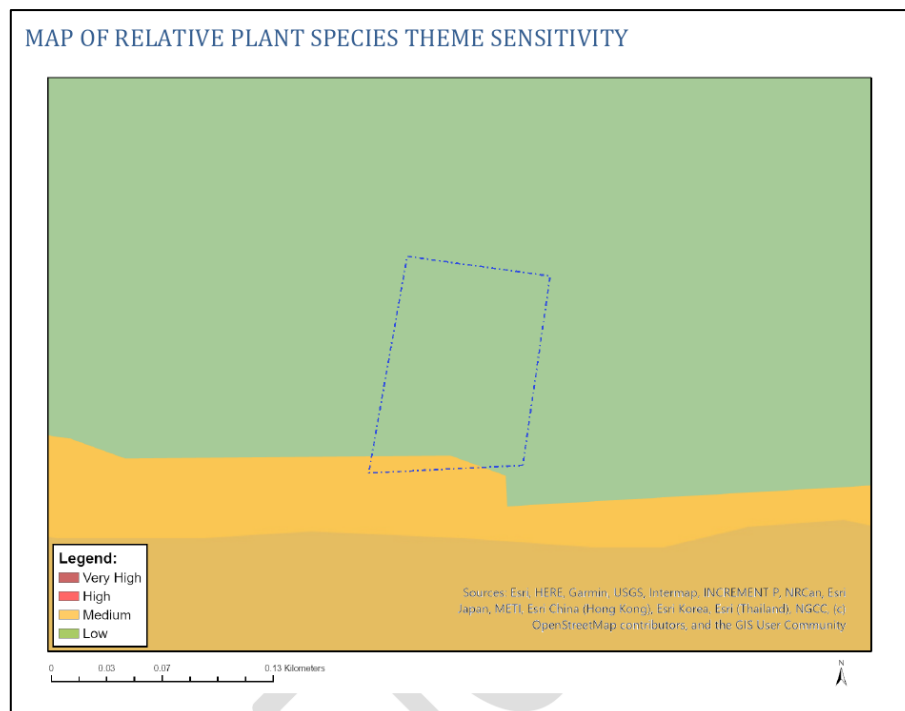


Figure 1.7: STR map of the Plant Species Theme for the study site (DFFE, 2025).



Figure 1.8: The site is associated with the Elands Forest Thicket (brown) and the Albany Alluvial Vegetation (yellow) with the Sundays Mesic Thicket (light green to the east), the Humansdorp Shale Renosterveld (dark blue to the north) and the St Francis Dune Thicket (dark green south of the estuary) (Mucina and Rutherford, 2018).



Figure 1.9: The map of a 3 km radius with “all plants” recorded on the left and “red data plants” recorded on the iNaturalist platform (2025).

Table 1.5: All plants recorded in a 3 km radius from the site (iNaturalist, 2025). Included are the conservation status and alien categories of the species.

<i>Acacia saligna</i> *	Port Jackson Wattle	Cat 2
<i>Agathosma apiculata</i>	Garlic Buchu	Least Concern
<i>Agathosma hirta</i>	Hairy Buchu	Near Threatened
<i>Allophylus natalensis</i>	Dune false currant	Least Concern
<i>Arctotheca populifolia</i>	Sea Pumpkin	Least Concern
<i>Arctotis elongata</i>	Albany Dune African Daisy	Data Deficient
<i>Aristea ecklonii</i>	Star Capeblue	Least Concern
<i>Boophone disticha</i>	Common Oxbane	Least Concern
<i>Briza maxima</i> *	Greater Quaking Grass	
<i>Brunsvigia litoralis</i>	Surfers Candelabra	Endangered
<i>Capparis sepiaria citrifolia</i>	Cape Capers	Least Concern
<i>Carex clavata</i>	Swamp Grass	Least Concern
<i>Cenchrus caudatus</i>	African River Grass	Least Concern
<i>Centella asiatica</i>	Asian Pennywort	Least Concern
<i>Chasmanthe aethiopica</i>	Cobra Lily	Least Concern
<i>Chenolea diffusa</i>	Beach Soutbos	Least Concern
<i>Chironia baccifera</i>	Christmas Berry	Least Concern
<i>Cladium mariscus</i>	Swamp Sawgrass	Least Concern
<i>Clutia alaternoides</i>	Broad-leaf Clutia	Least Concern
<i>Codium fragile</i> *	Dead Man's Fingers	
<i>Colpoön compressum</i>	Cape Sumach	Least Concern
<i>Cotyledon orbiculata</i>	Varkoor	Least Concern
<i>Crinum lineare</i>	Albany Grass Swamplily	Vulnerable
<i>Cyperus congestus</i>	Purple Umbrella Sedge	Least Concern
<i>Dais cotinifolia</i>	Pompom Tree	Least Concern
<i>Diospyros dichrophylla</i>	Poison Starapple	Least Concern
<i>Ehrharta calycina</i>	Perennial Veldtgrass	Least Concern
<i>Ehrharta villosa</i>	Pipe Grass	Least Concern
<i>Erythrina afra</i>	South African Coral Tree	Least Concern
<i>Eulophia speciosa</i>	Golden Harlequin	Least Concern
<i>Exomis microphylla</i>	Brakbos	Least Concern
<i>Felicia echinata</i>	Dune Felicia	Least Concern
<i>Ficinia nodosa</i>	Stembract Clubrush	Least Concern
<i>Gladiolus grandiflorus</i>	Grand Swordlily	Least Concern
<i>Haworthiopsis fasciata</i>	Fasciated Haworthia	Near Threatened
<i>Helichrysum cymosum</i>	Fume Everlasting	Least Concern
<i>Helichrysum nudifolium</i>	Icholocholo	Least Concern
<i>Indigofera disticha</i>	Grass Indigo	Least Concern
<i>Kedrostis nana</i>	Porcupine Potato	Least Concern

<i>Lagurus ovatus*</i>	Bunnytail Grass	
<i>Lichtensteinia interrupta</i>	Lichtenstein's Carrot	Least Concern
<i>Limonium scabrum</i>	Cape Sea-Lavender	Least Concern
<i>Lobelia erinus</i>	Common Lobelia	Least Concern
<i>Lobelia flaccida</i>	Floppy Lobelia	Least Concern
<i>Metalasia muricata</i>	Strandveld Blombush	Least Concern
<i>Nidorella ivifolia</i>	Ovenbush	Least Concern
<i>Oenothera lindheimeri*</i>	Clockweed	
<i>Opuntia monacantha*</i>	Thin-leaved Prickly Pear	Cat 1a
<i>Osteospermum moniliferum</i>	Bietou	Least Concern
<i>Passerina rigida</i>	Beach Gonna	Least Concern
<i>Pelargonium capitatum</i>	Common Storksbill	Least Concern
<i>Pelargonium graveolens</i>	Rose-scent Storksbill	Least Concern
<i>Pelargonium suburbanum suburbanum</i>	Dune Pelargonium	Vulnerable
<i>Pittosporum viridiflorum</i>	Kersuurboom	Protected
<i>Podalyria myrtillifolia</i>	Myrtle Capesweetpea	Least Concern
<i>Poecilolepis ficoidea</i>		Least Concern
<i>Rapanea gilliana</i>	Dwarf Cape Beech	Endangered
<i>Ricinus communis*</i>	Castor Bean	Cat 2
<i>Rumex acetosella*</i>	Sheep's sorrel	Cat 3
<i>Salicornia natalensis</i>	Common Glasswort	Least Concern
<i>Salicornia tegetaria</i>	Carpet Glasswort	Least Concern
<i>Schotia afra</i>	Karoo Boerbean	Least Concern
<i>Searsia laevigata</i>	Dune Curranthrus	Least Concern
<i>Searsia pallens</i>	Ribbed Kunirhus	Least Concern
<i>Searsia pterota</i>	Wing Curranthrus	Least Concern
<i>Senecio purpureus</i>	Purple Ragwort	Least Concern
<i>Seriphium plumosum</i>	Common Snakebush	Least Concern
<i>Sporobolus africanus</i>	Parramatta Grass	Least Concern
<i>Tarchonanthus littoralis</i>	Coastal Camphorbush	Least Concern
<i>Tephrosia capensis</i>	Cape Hoarypea	Least Concern
<i>Tetragonia decumbens</i>	Kinkelbossie	Least Concern
<i>Thamnochortus insignis</i>	True Thatchreed	Least Concern
<i>Triglochin bulbosa</i>	Bulb Arrowgrass	Least Concern
<i>Typha capensis</i>	Cape Bulrush	Least Concern
<i>Ursinia chrysanthemoides</i>	Creeping Paraseed	Least Concern
<i>Vachellia sieberiana</i>	Paperbark Thorn	Least Concern
<i>Zanthoxylum capense</i>	Small Knobwood	Least Concern

Table 1.6: All red data plants recorded in a 3 km radius from the site (iNaturalist, 2025). Included are the conservation status of the species.

<i>Agathosma hirta</i>	Hairy Buchu	Near Threatened
<i>Brunsvigia litoralis</i>	Surfers Candelabra	Endangered
<i>Crinum lineare</i>	Albany Grass Swamplily	Vulnerable
<i>Haworthiopsis fasciata</i>	Fasciated Haworthia	Near Threatened
<i>Pelargonium suburbanum suburbanum</i>	Dune Pelargonium	Vulnerable
<i>Rapanea gilliana</i>	Dwarf Cape Beech	Endangered

1.8 Terrestrial Biodiversity Theme

Figure 1.10 is a map depicting the terrestrial biodiversity theme as reflected in the STR (DFFE, 2025). The site falls within the area regarded as having a **low/high sensitivity rating** and is on the boundary of

the marine environment regarded as having a **very high sensitivity rating**. It is therefore important to ensure that no impacts e.g. pollution or erosion, will modify the receiving environment.

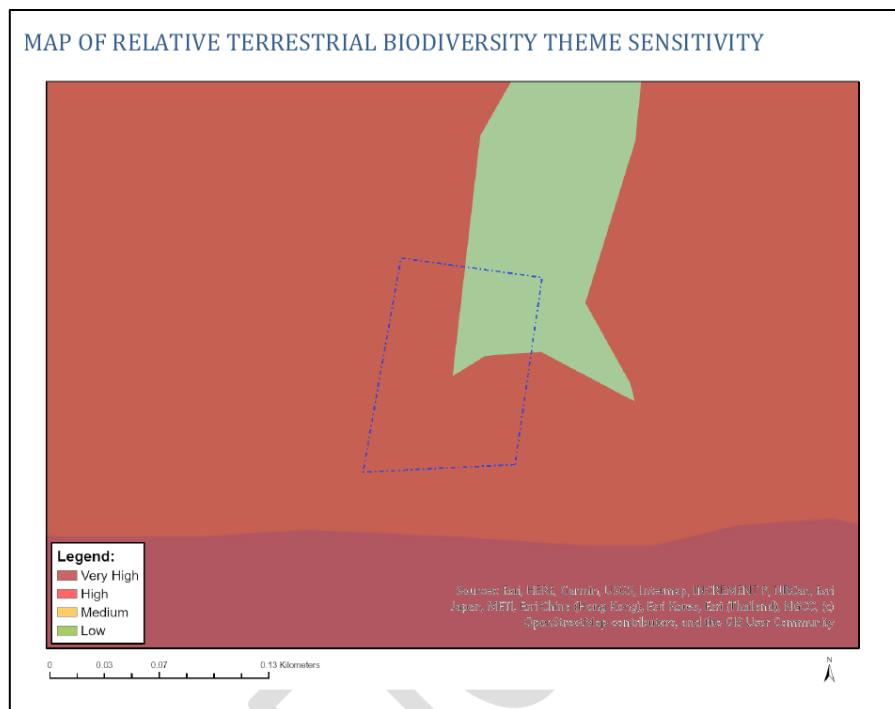


Figure 1.10: The STR map of the site for the Terrestrial Biodiversity Theme, reflecting the low/high sensitivity rating (DFFE, 2025).

2 METHODOLOGY

During the desktop assessment, the Screening Tool (DFFE) was used to determine the importance of the site in relation to the different ecological components. All relevant layers in the SANBI BGIS database were interrogated to determine any other additional sensitive zones or areas and include the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019). For general plant lists, the SANBI BODATSA (2016) was used to compile a plant list and iNaturalist was used for additional vegetation lists.

The field survey (20 November 2025) was carried out to evaluate the current ecological status of the study site. This included a habitat assessment and a rapid plant survey (including the presence/absence of any SANBI listed sensitive species) to determine if any red data species occur on site (related to the information from the desktop assessment). On site, a meander walkthrough was done to cover all habitat types noted during the desktop assessment and to confirm the areas of diversity.

3 RESULTS and DISCUSSION

3.1 General habitat description

The habitat and natural vegetation on the site are modified because of historic activities that included cultivation, mowing and grazing. It was transformed to a secondary grassland (grass dominated) with a few shrubs that have grown after the mowing has been suspended.

Because of the sensitivity (CBA and endangered vegetation unit) it is recommended that a 40 m buffer is left between the southern edge of development (dwelling footprint) and the property boundary. This area will be a natural migration and foraging corridor for all animals in the region and ensure that the remaining Albany Alluvial Vegetation (Endangered) associated with the estuary is not directly impacted.

3.2 Plants

As mentioned in Section 3.1, the site is modified with a grass and forb layer present with some *Tarchonanthus littoralis* and *Erythrina afra* emerging. The alien species are dominated by grasses and forbs with the *Yucca* (exotic succulent) present. Near the estuary, sedges are present with *Cyperus congestus* and *Imperata cylindrica* seen in some of the lower lying areas (indicating water accumulation in wet periods). Table 3.1 is the list of plant species observed on the site.

No protected or red data species were noted (terrestrial habitat) and the intensive historical mowing, ploughing and grazing will have impacted on sensitive species. *Zostera capensis* (Eelgrass) is present in the estuary with large areas on shallow sandbanks covered by the plants. These plants will not be directly affected by the development. The proposed development will have a negligible cumulative effect with the numerous other impacts in the catchment. The changes in the estuary to a “marine dominated” environment has resulted in the increase in siltation. When looking at the bathymetry data from the Estuary Hydrodynamic Modelling Study (Advisian, 2020), it was shown that the depth of the system varied between 0.5 to 2 m. The shallow nature is a result of the increased sandbanks (sedimentation), lack of scouring and salinity increases, and the changes are responsible for the expansion of the Eelgrass beds as reported by Wooldridge (2007).

Table 3.1: List of species observed on the site. Plants with (*) are alien species to South Africa.

<i>Aristea ecklonii</i>	Star Capeblue
<i>Briza maxima</i> *	Greater Quaking Grass
<i>Carex clavata</i>	Club-shaped Sedge
<i>Cenchrus caudatus</i>	African River Grass
<i>Cyperus congestus</i>	Purple Umbrella Sedge
<i>Ehrharta calycina</i>	Perennial Veldtgrass
<i>Ehrharta villosa</i>	Pipe Grass
<i>Erythrina afra</i>	South African Coral Tree
<i>Ficinia nodosa</i>	Stembract Clubrush
<i>Helichrysum spp.</i>	Everlastings
<i>Helichrysum cymosum</i>	Fume Everlasting
<i>Imperata cylindrica</i>	Cotton Wool Grass
<i>Kedrostis nana</i>	Porcupine Potato
<i>Lobelia flaccida</i>	Floppy Lobelia
<i>Metalsia muricata</i>	Strandveld Blombush
<i>Oenothera lindheimeri</i> *	Clockweed
<i>Pelargonium capitatum</i>	Common Storksbill

<i>Podalyria myrtillifolia</i>	Myrtle Cape Sweetpea
<i>Rumex acetosella</i> *	Sheep's sorrel
<i>Senecio purpureus</i>	Purple Ragwort
<i>Seriphium plumosum</i>	Common Snakebush
<i>Setaria spp.</i>	foxtails and bristlegrasses
<i>Sporobolus africanus</i>	Parramatta Grass
<i>Tarchonanthus littoralis</i>	Coastal Camphorbush
<i>Yucca gigantea</i> *	Spineless Yucca

3.2.1 Site Sensitivity Verification Statement - Plant Species Theme

In the Screening Tool Report (DFFE, 2025) for the site, the sensitivity rating for the Plant Species is listed as **medium** because of two (2) species listed as Species of Conservation Concern (SCC). Only the Eelgrass was observed during the assessment, but a lack of suitable habitat excludes the second SCC from the area (Table 1.2). No protected tree species present in the area was recorded on the site.

The estuary is an important site for the Eelgrass and therefore the sensitivity rating is maintained at a **medium sensitivity rating for the plant species theme**. The proposed buffer between the development footprint and the property boundary can be a corridor for indigenous plants to reestablish and to ensure that the estuary bank is protected.

3.2.2 Impact Assessment for the red data plant species associated with the project.

- Baseline Description – the receiving environment
 - The Kromme (Krom) River Estuary is located where the Kromme River meets the Indian Ocean and classified as a permanently open estuary that flows into St Francis Bay through a relatively narrow inlet. The estuary extends roughly 14 km inland from the mouth and covers about 3 km² with an average depth around <2 m.
 - The estuary supports a mosaic of habitats, including intertidal salt marshes, sandbanks, mudflats, submerged Eelgrass beds and reed and sedge beds.
 - The surrounding terrestrial vegetation features a complex fynbos–thicket mosaic and coastal scrub which contributes to the vegetation biodiversity around the estuary.
 - The diverse vegetation is the template for the animal community associated with the region.
- Based on desktop assessments (SANBI/IUCN data), field surveys and habitat suitability, the following plant species of conservation concern (SCC) may occur - Sensitive species 1252 (VU) and *Zostera capensis* (EN).

The area is not considered critical habitat for SSC 1252, but the estuary is important for the Cape Eelgrass.

Identified Impacts on Plants

- **Habitat Loss and Fragmentation**

Description:

The development of the dwelling will result in permanent loss of a small area of natural habitat (currently modified), but as no suitable habitat for SSC 1252 is present, the impact is very low.

No direct habitat impact is expected for the Eelgrass and the buffer zone between the dwelling and estuary will have a negligible impact on this species. There will be some flow modifications from the landscape into the estuary but is not regarded as significant. The cumulative impact with the existing upstream changes will not increase.

Extent: Local

Duration: Long-term

Intensity: Low

Probability: High

Pre-mitigation significance: Low-medium

- **Alien invasive species**

Description:

Construction and operational activities will cause loss of plant cover and will create areas where alien plant species can establish.

Extent: Local

Duration: Long-term

Intensity: Low–Moderate

Probability: Medium

Pre-mitigation significance: Medium

Mitigation Measures

- **Avoidance and Planning**

Limit the development footprint to the dwelling area only. Ensure no activities e.g. driving, storing or dumping, occur outside this footprint.

It will be important to designate a storing area for material at the entrance to the property.

- **Construction Phase**

Clearly demarcate the construction area for clearance of vegetation.

Limited activities and storing of materials on site.

Rubble must be placed in bins and cleared regularly.

- **Operational Phase**

Use indigenous plants from the vegetation unit for landscaping and rehabilitation.

Monitor and remove alien plants.

Replant cleared areas to ensure no further alien infestations occur.

- **Residual Impact Assessment (Post-Mitigation)**

- **Habitat loss:** Low

- **Disturbance:** Low

- **Alien vegetation:** Low

With mitigation implemented, residual impacts on vegetation modification and alien plant encroachment are expected to be low and acceptable. The use of indigenous plants can improve the current low diversity on the site. The use of indigenous shrubs and trees will attract birds, and this will increase the import of seeds from outside the site.

- Remove alien vegetation on a regular basis.
- Cover exposed soils with indigenous plants from the vegetation unit.

- Manage runoff water and use permeable products for paving around the dwelling and as access to the parking area (refer to Section 3.4).
 - Ensure that the runoff water is dissipated over a broad area into trenches filled with gravel or perforated pipes. This will ensure proper dispersal and lower flow velocity.

Conclusion

The terrestrial habitat of the study area doesn't have suitable habitat for the SSC listed terrestrial species. If no pollution (e.g. pesticides, herbicides and sewage) occurs, the impact to the Eelgrass in the estuary will be very low. It is recommended that no new walkways to the estuary are constructed (not included in this assessment).

3.3 Aquatic Biodiversity

During the terrestrial assessment the only freshwater resource noted was the seasonal seepage zone. This natural drainage system is reflected as part of the landscape drainage of water into the estuary. Water drains from the catchment through the sandy soil profile (subsurface) into the marine environment (Figure 1.3).

3.3.1 Water in the landscape

Water movement from the catchment to the sea occurs through catchment runoff, infiltration and subsurface groundwater flow. The process is shaped by the porosity of sandy soil profiles, which act as massive natural filters and reservoirs, eventually discharging freshwater into the marine environment through a dynamic mixing zone. Water enters the broader system via rainfall and the vegetation in the dunes slows the water velocity, preventing erosion and allowing it to soak in. The water infiltrates through the coarse soil particles, and because sand particles are large and lack the surface area of fine clay, they do not retain water tightly. The water then moves through the unsaturated sand zone to reach the water table, becoming part of the unconfined aquifer. The inland groundwater table slopes toward the ocean and through gravity forces freshwater towards the marine environment (DETSI, 2021; Fang et al., 2023; Geological Digressions, 2016; Silva et al., 2018).

During the field assessment, the vegetation composition on site indicated some wet conditions during the rainy season. The plants are present and is related to the shallow water table on site. This is the water accumulated in the catchment that moves through the soil profile south towards the estuary (seep area – Figure 1.3).

Pollution during the construction and the operational phase of the dwelling is probable. The proximity of the development near the estuary is a potential source of sediments, sewage, oils and fuel, solid waste, herbicides and pesticides.

3.3.2 Water quality changes in the estuary

Altered freshwater inflow into the Kromme River Estuary has caused major changes in water quality, mainly because upstream dams and water abstraction greatly reduced the amount of freshwater entering the estuary. These changes in water quality meant that the ecosystem shifted from a **naturally variable estuary to a highly saline, marine-dominated system**. Under the natural flow regime (without impoundments and abstraction) the reduced freshwater inflows diluted seawater and therefore a

salinity gradient existed from fresh upper reaches to salty lower reaches. The constant reduced freshwater inflows (after impoundment completion) meant that the salinity in the estuary became consistently high throughout most of the system and often behaves more like a coastal lagoon than a river estuary. Baird and Heymans (1996) noted the salinity levels in the system remain close to seawater values over the entire estuary length and these changes occurred for more extended periods in recent times.

The changes in the salinity profile ultimately reduces habitat diversity for freshwater and estuarine organisms. The decrease in the natural hydrological fluctuations (i.e. freshwater influxes) reduced the nutrient inputs as the freshwater inflow normally supplies nitrogen, phosphorus, organic matter and suspended sediments into the estuary. The reduced inflow resulted in a decline in the nutrient concentrations from river sources, decreased phytoplankton productivity and therefore the food web has shifted away from its important plankton-based production. This altered the estuary's ecological functioning and energy pathways (Scharler and Baird, 2003).

Because fewer floods entered the estuary, less sediment is transported downstream with a decrease in the suspended particles resulting in a significant increase in the water clarity. Clearer water allowed submerged aquatic vegetation such as Eelgrass (*Zostera capensis*) to expand extensively because more sunlight penetrates the water column. According to Woolridge (2007) less than 2% of MAR reaches the estuary and therefore the marine dominance is now persistent with little upstream variation in water salinity. Sediment dynamics have changed, particularly in the lower reaches where less frequent scouring enables disproportionately large sandbanks to develop. These sandbanks are only removed by very large floods and therefore the sediment accumulation in the lower estuary has reduced the efficiency of tidal exchange and this exacerbates high salinity in the upper reaches.

Because of changes to natural patterns in the physico-chemical environment, floral and faunal characteristics of the estuary have shifted. Eelgrass (*Zostera capensis*) particularly, has become more extensive (a four-fold increase in biomass compared to the natural state) due to less frequent floods. These Eelgrass beds constitute the most important habitat with respect to invertebrate production and as a result invertebrate species that favour vegetated areas i.e. *Palaemon perengueyi* currently dominate the benthic community while species that favour non-vegetated sediments have probably declined (e.g. *Upogebia africana*) (Woolridge, 2007).

Another response to the changes is the reduced oxygen fluctuations where, under natural conditions, floods mix the water column and transport oxygen-rich freshwater into the estuary. Because of the less mixing, longer water residence times and more stable water conditions these fluctuations are lower. The clearer water and Eelgrass (photosynthesis) can increase oxygen production during the day, but the stagnant conditions may result in localised low-oxygen conditions at night or in deeper sediments.

The increased water residence time means that the water remains in the estuary for longer periods with a resulting accumulation of pollutants and salts and a weakened natural cleansing process. Therefore, pollution threats from boats, septic systems, urban runoff and recreational activities continue to increase. Another impact is the reduced cool freshwater influxes during wet periods, and the increased marine influence dominates temperature conditions i.e. less fluctuations. As a result, the

balance between freshwater and marine chemical processes became heavily skewed toward seawater conditions.

The use of experimental freshwater releases to reverse the changes resulted in temporary improvements in the salinity balance and ecological functioning, but these effects disappeared quickly once releases were stopped (Woolridge, 2000).

3.3.3 Impacts on biota

In the Kromme Estuary, many **marine estuary-dependent fish species** have been affected by changes in the freshwater flow regime (seasonal variation, loss of food resources) and increasing salinity caused mainly by damming and abstraction of the river.

Important affected species include:

- White Steenbras (*Lithognathus lithognathus*): This is an endangered estuary-associated species and its survival depends on a unique, two-phase life cycle where the adults migrate to the Eastern Cape/Transkei coast in winter (July–August) to spawn, while tiny juveniles drift south, relying entirely on shallow, sheltered estuaries for their first 3 to 4 years to mature to adults.
- Spotted Grunter (*Pomadasys commersonnii*): Rely on a distinct two-stage life cycle involving the open ocean and nutrient-rich estuaries. The adults migrate to the ocean to spawn, while juveniles require sheltered, shallow estuarine habitats with soft, muddy/sandy bottoms and abundant benthic prey to survive.
- Leervis (*Lichia amia*): The species require highly specific habitats to support their complex migratory, breeding and nursery life cycles. Conservationists and marine scientists stress the importance of protecting these vulnerable habitats. Mature fish spawn in the warm near-shore currents whereafter the eggs and larvae are then passively carried southwards where the larvae settle into the protected, nutrient-rich estuaries of the Eastern and Western Cape, which are critical as nursery areas. Juveniles spend their first 3 to 4 years maturing in these estuarine habitats before migrating out to sea to join the adult breeding.
- Blacktail (*Diplodus capensis*): Adults aggregate and group-spawn in shallow, inshore marine waters. Fertilized eggs are then carried along the coastline by ocean currents where the juveniles utilise the highly sheltered and nutrient-rich waters of coastal estuaries, shallow littoral habitats and tidal pools. Here they utilise the food sources including amphipods, polychaetes and harpacticoid copepods.
- Cape Stumpnose (*Rhabdosargus holubi*): Another estuarine-dependent species that relies entirely on estuaries and shallow coastal waters as primary nursery areas.
- Mullet spp.: Adults must migrate to the ocean during autumn and winter to spawn in the marine environments when the eggs and larvae rely on the Agulhas Current and inshore ocean currents to transport them toward the coastline. Flathead Mullet (*Mugil cephalus*) and the Southern Mullet (*Chelon richardsonii*) larvae ride ocean currents into estuaries, relying on these sheltered, nutrient-rich and brackish environments for juvenile feeding, rapid growth and protection from predators.

Similarly, several **marine and estuarine invertebrate species** have been negatively affected by declining water quality, especially the loss of freshwater inflow, persistently high salinity, sediment changes and the altered nutrient conditions.

Key affected invertebrate species include:

- **Mud Prawn (*Upogebia africana*):** This species has probably declined because it prefers softer, non-vegetated muddy sediments and more natural salinity gradients and the expansion of Eelgrass beds and altered sediment conditions reduced suitable habitat.
- **Estuarine Shrimp (*Palaemon peringueyi*):** This shrimp increased in dominance because expanded Eelgrass (*Zostera capensis*) beds favour vegetated-habitat species. However, changes in salinity and nutrient balance still alter its distribution and breeding ecology.
- **Cape Eelgrass (*Zostera capensis*):** Resident zooplankton communities are affected by salinity stress and reduced freshwater pulses, which disrupt breeding and larval development patterns with a negative impact from the expanding Eelgrass fields.
- **Estuarine Bivalves:** Bivalve communities are affected by increased salinity, reduced flushing of the estuary and sediment accumulation which influence their feeding and reproduction.
- **Macrobenthic Worms:** Worm communities living in mud and sand flats have experienced shifts in abundance and zonation because stable marine-like salinity conditions replaced the natural estuarine gradient.

As reported by Wooldridge (2007) the change in the extent of the Eelgrass beds resulted in a change in the invertebrate species that favour vegetated areas and the shrimp (*Palaemon peringueyi*) currently dominate the benthic community while species that favour non-vegetated sediments have probably declined (e.g. the mudprawn *Upogebia africana*).

3.3.4 Site Sensitivity Verification Statement – Aquatic Biodiversity Theme

In the Screening Tool Report (DFFE, 2025), the sensitivity rating of the Aquatic Biodiversity for the site is listed as **very high**. This is related to the proximity of the site to the estuary. As noted in Section 1.7, the only potential impact from the proposed development on water resources is potential pollution (sewage, runoff from hard surfaces) to the marine environment. The impact if well monitored and managed, will be negligible. Therefore, the **rating for the site is maintained at a very high sensitivity rating for the aquatic biodiversity theme**.

3.3.5 Impact assessment related to the Aquatic Resources

The Kromme Estuary on the southeast coast of South Africa is highly modified and is now predominantly marine-dominated due to significant reduction in freshwater inflow. Impoundments reduced the natural flows resulting in a modification of the estuarine function. The result is that the salinity in the estuary is almost equivalent to seawater.

Despite this, it remains a sensitive ecological resource with high biodiversity value and considerable recreational and social importance. Current pressures include the marina development, recreational use, high fishing pressure and water quality issues in the lower reaches.

Impacts related to the project

- **Surface Water Quality and Runoff Pollution**

Construction and operational phase impacts

Earthworks, excavation and building activities increase sediment runoff into watercourses, which can elevate turbidity in the estuary.

Stormwater runoff from roofs, driveways and landscaped areas can carry pollutants (sediments, nutrients, oils, detergents, herbicides and pesticides) into the estuary.

It is important to keep vehicles and materials away from the estuary.

Inspect vehicles daily for oil or fuel leaks.

Any chemical or oil and fuel leaks must immediately be rehabilitated according to the protocol in the EMPr (e.g. spill kit onsite and appointed service provider to rehabilitate and remove polluted soil).

Improperly managed runoff can degrade water quality, harm aquatic plants and alter nutrient dynamics.

Extent: Local

Duration: Long-term

Intensity: Low

Probability: Moderate

Pre-mitigation significance: Low-Medium

- **Hydrological Regime Changes**

Construction and operational phase impacts

Will include altered local drainage patterns into the estuary.

Impervious surfaces (paving/roofing) increase peak flows and reduce infiltration.

Higher short-term flows can cause erosion of banks and sediment transfer downstream into the estuary.

Disruption of flow patterns may affect microhabitats for fish and invertebrates.

Extent: Local

Duration: Long-term

Intensity: Low

Probability: Low-Moderate

Pre-mitigation significance: Medium

- **Ecosystem and Habitat Loss**

Construction and operational phase impacts

Land clearing and earthworks can remove riparian vegetation, fragile estuary vegetation and salt marsh fringe zones that buffer runoff and provide habitat.

Even seemingly isolated housing can disrupt intertidal fringe zones and wetland edges, which are important for biotic productivity.

Habitat fragmentation that serves as breeding or nursery grounds can result in a loss of plant and animal communities.

Modified habitat can result in a loss of the buffering capacity that helps filter runoff into the estuary.

Therefore, it is important to:

Avoid construction within the Estuary Functional Zone.

Manage erosion and sediment – use silt fences, swales or sediment traps and stable construction entrances.

Use permeable surfaces to promote water retention and localised penetration.

Dissipate runoff water over a larger area to promote infiltration and reduce erosion potential.

Ensure the excavations on site will allow subsurface flows where possible.

The sewage system must be in a concrete berm that can contain overflows and regular pumping of the system must be done to ensure that a buildup of sediment in the system is reduced.

Extent: Local

Duration: Long-term

Intensity: Low

Probability: Low-Moderate

Pre-mitigation significance: Medium

- **Groundwater and Soils**

Construction impacts

The digging of foundations or installing septic systems can alter groundwater flow near the estuary (limited). Subsurface water can be diverted around the structure if very wet circumstances are present.

Poorly designed systems (sewage) can lead to leakage and contamination of groundwater that feeds estuarine flows.

This will result in:

The spread of pathogens and nutrients into the estuary, affecting water quality and human health. Ensure all facilities are regularly inspected and maintained.

Construction trenches and stockpiles can erode after rain events. Plan construction for the dry period if possible and cover exposed soils and stockpiles with geotextiles and tarpaulins. Immediate erosion rehabilitation is needed after rain or wind events.

Loss of riparian plants reduces natural filtration leading to an increase in direct pollutant inputs. Silt trap and screens must be used to avoid sand movement (wind and water erosion).

Dust can settle on water surfaces, and it will impact light penetration and oxygen dynamics. Dust suppression is recommended by using screens, tarpaulins and geotextiles.

Extent: Local

Duration: Long-term

Intensity: Low

Probability: Moderate

Pre-mitigation significance: Medium

- **Salinity and Estuarine Function Dynamics**

The Kromme Estuary is already extremely saline due to upstream flow attenuation from impoundment regulation, receiving almost no freshwater inflow in most years.

Construction of a dwelling won't change this large-scale hydrological system but can increase local salinity and pollution stresses by reducing riparian buffers and adding runoff loads.

Extent: Local
Duration: Long-term
Intensity: Low
Probability: Low-Moderate
Pre-mitigation significance: Medium

Conclusion

It is important to note that single dwelling near the Kromme Estuary can have measurable impacts on water resources, especially through stormwater runoff, erosion, wastewater discharge and loss of natural buffers (cumulative effect in the area). While the estuary is already a hydrologically altered system due to impoundments and regional water use, site-specific impacts from construction and habitation can further degrade water quality and adjacent habitat without adequate controls.

The impacts will be negligible if all precautions to lower impacts, spills and pollution are managed, rehabilitated and monitored.

3.4 Terrestrial Biodiversity

In the Screening Tool Report (DFFE, 2025) the sensitivity rating for the Terrestrial Biodiversity for the site is listed as **very high** with no aquatic resources on the site. The estuary and the endangered vegetation unit associated with the aquatic environment are the components listed as having a **very high** sensitivity rating (ESA and CBA listed).

3.4.1 Site Sensitivity Verification Statement – Terrestrial Biodiversity Theme

Therefore, the rating for the site is maintained at a **very high sensitivity rating for the terrestrial biodiversity theme**.

3.4.2 Impact assessment related to the Terrestrial Biodiversity Resources

The impacts listed and discussed in section 3.3.2 to 3.3.5 apply here and is not repeated.

3.5 Garden Route Biodiversity Sector Plan

- The planned development falls inside the CBA mapped near the site.
 - It borders onto the CBA area to the south designated as a natural marine and coastal sensitive zone.
 - The potential impacts to the zone are a loss of natural habitat, runoff from hard surfaces and pollution (e.g. sewage, solid waste, chemicals, pesticides and herbicides).
 - If the recommended buffer zone is applied, the dwelling will not encroach into the CBA.
 - The buffer zone must be managed as a “green belt” where the natural vegetation is protected and alien vegetation removed on a regular basis.
- Associated with the site is the ESA zone mapped, which is the seep zone draining water from the landscape north of the property towards the estuary.
 - The proposed development site encroaches into the seep zone mapped on the ECBCP (2019) layer.

- It is recommended that the dwelling footprint must be placed to the west of the seep zone.
 - Subsurface flow can be diverted around the building if the water table is shallow.
 - This will allow the free flow of subsurface water to the estuary.
- The footprint of the dwelling will have a limited impact on the natural vegetation.
 - The natural vegetation is modified with a secondary grass and forb layer present.
 - A number of the grasses and forbs present on the site is alien species.
 - It is recommended that indigenous vegetation from the region is used for landscaping.
 - As the diversity of indigenous vegetation on site increase, it will attract animals and birds. These animals can bring in seeds from the area which can improve the plant diversity. On the contrary, seeds of alien species can be imported and these must be eradicated as part of the management plan to eradicate exotic plants from the site.
- After clearing the area for the dwelling, erosion and alien invasive plants are a threat to the habitat.
 - It will be important to manage alien vegetation and it is recommended that only indigenous plants from the area is used for landscaping.
- Only the size of the footprint of the dwelling must be cleared for construction.
 - Once completed, other alien plants must be removed as it is a fire risk and will smother indigenous species in future.
- It is important to ensure no high velocity runoff occur from the site.
 - The landscaping can be used to lower flow velocities that will promote infiltration on the site.
 - Runoff water from the dwelling and paved areas must be dissipated through trenches filled with gravel or perforated pipes into the receiving environment.
 - It is recommended that rainwater is harvested and can be used with treated grey water to irrigate landscaped areas.
- The runoff from the site will have no negligible impact (if well controlled) on the water resources in the receiving environment (i.e. the marine zone).

Figure 3.1 – 3.8 is some general images of the activities and vegetation on the study site.



Figure 3.10: View of the study site – northern boundary of the site looking to the west.



Figure 3.2: View towards the estuary – north to south view.



Figure 3.11: View of the area adjacent to the estuary (easterly direction) – the CBA south of the property boundary to be protected from any impacts.



Figure 3.12: View of the area adjacent to the estuary (westerly direction) – the CBA south of the property boundary to be protected from any impacts.



Figure 3.5: A small *Erythrina afra* on site.



Figure 3.13: *Pelargonium capitatum* observed on the site.



Figure3.14: Area with vegetation indicating the wetter areas during the wet season – no surface water present.



Figure3.15: *Tarchonanthus littoralis* recorded on the site.

4 GENERAL COMMENTS and RECOMMENDATIONS

- **General Habitat**

- The habitat and natural vegetation on the site are modified because of historic activities that included cultivation, mowing and grazing. It was transformed to a secondary grassland (grass dominated) with a few shrubs that have grown after the mowing has been suspended.
- Because of the sensitivity (CBA and endangered vegetation unit) it is recommended that a 40 m buffer is left between the southern edge of development (dwelling footprint) and the property boundary. This area will be a natural migration and foraging corridor for all animals in the region and ensure that the remaining Albany Alluvial Vegetation (Endangered) associated with the estuary is not directly impacted.

- **Plant Species Theme**

- The area is not considered critical habitat for SSC 1252, but the estuary is important for the Cape Eelgrass.
- The development of the dwelling will result in permanent loss of a small area of natural habitat (currently modified), but as no suitable habitat for SSC 1252 is present, the impact is very low.
 - No direct habitat impact is expected for the Eelgrass and the buffer zone between the dwelling and estuary will have a negligible impact on this species.
 - Limit the development footprint to the dwelling area only.
 - Ensure no activities e.g. driving, storing or dumping, occur outside this footprint.
 - It will be important to designate a storing area for material at the entrance to the property.
 - Clearly demarcate the construction area for clearance of vegetation.
 - Limited activities and storing of materials on site.
 - Rubble must be placed in bins and cleared regularly.
 - Use indigenous plants from the vegetation unit for landscaping and rehabilitation.
 - Monitor and remove alien plants.
 - Replant cleared areas to ensure no further alien infestations occur.
- With mitigation implemented, residual impacts on vegetation modification and alien plant encroachment are expected to be low and acceptable.
- The use of indigenous plants can improve the current low diversity on the site.
 - The use of indigenous shrubs and trees will attract birds, and this will increase the import of seeds from outside the site.

- **Aquatic Biodiversity Theme**

- Earthworks, excavation and building activities increase sediment runoff into watercourses, which can elevate turbidity in the estuary. Stormwater runoff from roofs, driveways and landscaped areas can carry pollutants (sediments, nutrients, oils, detergents, herbicides and pesticides) into the estuary.
 - It is important to keep vehicles and materials away from the estuary.

- Inspect vehicles daily for oil or fuel leaks.
- Any chemical or oil and fuel leaks must immediately be rehabilitated according to the protocol in the EMPr (e.g. spill kit onsite and appointed service provider to rehabilitate and remove polluted soil).
- Improperly managed runoff can degrade water quality, harm aquatic plants and alter nutrient dynamics.
- Avoid construction within the Estuary Functional Zone.
- Manage erosion and sediment – use silt fences, swales or sediment traps and stable construction entrances.
- Use permeable surfaces to promote water retention and localised penetration.
- Dissipate runoff water over a larger area to promote infiltration and reduce erosion potential.
- Ensure the excavations on site will allow subsurface flows where possible.
- The sewage system must be in a concrete berm that can contain overflows and regular pumping of the system must be done to ensure that a buildup of sediment in the system is reduced.
- Poorly designed systems (sewage) can lead to leakage and contamination of groundwater that feeds estuarine flows.
 - The spread of pathogens and nutrients into the estuary, affecting water quality and human health.
 - Ensure all facilities are regularly inspected and maintained.
- Construction trenches and stockpiles can erode after rain events.
 - Plan construction for the dry period if possible and cover exposed soils and stockpiles with geotextiles and tarpaulins. Immediate erosion rehabilitation is needed after rain or wind events.
 - Loss of riparian plants reduces natural filtration leading to an increase in direct pollutant inputs. Silt trap and screens must be used to avoid sand movement (wind and water erosion).
 - Dust can settle on water surfaces, and it will impact light penetration and oxygen dynamics. Dust suppression is recommended with the use of screens, tarpaulins and geotextiles.

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Appendix 1: List of plants present in the larger geographic area (SANBI BODATSA, 2016).

Family	Genus and species
Acanthaceae	<i>Blepharis procumbens</i>
Acanthaceae	<i>Hypoestes aristata</i> var. <i>aristata</i>
Acanthaceae	<i>Hypoestes forskalii</i>
Agapanthaceae	<i>Agapanthus praecox</i> ssp. <i>praecox</i>
Agavaceae	<i>Chlorophytum comosum</i>
Aizoaceae	<i>Aizoon canariense</i>
Aizoaceae	<i>Aizoon glinoides</i>
Aizoaceae	<i>Aizoon rigidum</i>
Aizoaceae	<i>Bergeranthus</i> sp.
Aizoaceae	<i>Carpobrotus deliciosus</i>
Aizoaceae	<i>Conicosia pugioniformis</i> ssp. <i>pugioniformis</i>
Aizoaceae	<i>Delosperma patersoniae</i>
Aizoaceae	<i>Disphyma crassifolium</i>
Aizoaceae	<i>Drosanthemum candens</i>
Aizoaceae	<i>Drosanthemum intermedium</i>
Aizoaceae	<i>Aizoon pubescens</i>
Aizoaceae	<i>Lampranthus coralliflorus</i>
Aizoaceae	<i>Lampranthus dilutus</i>
Aizoaceae	<i>Lampranthus zeyheri</i>
Aizoaceae	<i>Mesembryanthemum cordifolium</i>
Aizoaceae	<i>Mesembryanthemum canaliculatum</i>
Aizoaceae	<i>Ruschia tenella</i>
Alliaceae	<i>Tulbaghia maritima</i>
Alliaceae	<i>Tulbaghia violacea</i> ssp. <i>violacea</i>
Amaranthaceae	<i>Achyranthes aspera</i> var. <i>aspera</i>
Amaranthaceae	<i>Amaranthus hybridus</i> ssp. <i>hybridus</i>
Amaranthaceae	<i>Atriplex patula</i> ssp. <i>patula</i>
Amaranthaceae	<i>Atriplex semibaccata</i>
Amaranthaceae	<i>Chenolea diffusa</i>
Amaranthaceae	<i>Dysphania ambrosioides</i>
Amaranthaceae	<i>Salicornia meyeriana</i>
Amaranthaceae	<i>Sarcocornia decumbens</i>
Amaranthaceae	<i>Sarcocornia littorea</i>
Amaranthaceae	<i>Sarcocornia natalensis</i> var. <i>natalensis</i>
Amaranthaceae	<i>Sarcocornia perennis</i> var. <i>perennis</i>
Amaranthaceae	<i>Sarcocornia pillansii</i> var. <i>pillansii</i>
Amaryllidaceae	<i>Boophone disticha</i>
Amaryllidaceae	<i>Brunsvigia gregaria</i>
Amaryllidaceae	<i>Brunsvigia litoralis</i>
Amaryllidaceae	<i>Brunsvigia striata</i>
Amaryllidaceae	<i>Cyrtanthus clavatus</i>
Amaryllidaceae	<i>Cyrtanthus loddigesianus</i>
Amaryllidaceae	<i>Haemanthus albiflos</i>
Amaryllidaceae	<i>Nerine humilis</i>
Amaryllidaceae	<i>Nerine peersii</i>
Anacardiaceae	<i>Laurophyllus capensis</i>
Anacardiaceae	<i>Searsia crenata</i>
Anacardiaceae	<i>Searsia dentata</i>
Anacardiaceae	<i>Searsia incisa</i> var. <i>incisa</i>
Anacardiaceae	<i>Searsia laevigata</i> var. <i>laevigata</i>
Anacardiaceae	<i>Searsia lucida</i> f. <i>lucida</i>
Anacardiaceae	<i>Searsia pallens</i>
Anacardiaceae	<i>Searsia rehmanniana</i> var. <i>rehmanniana</i>

Anacardiaceae	<i>Searsia tomentosa</i>
Anemiaceae	<i>Mohria caffrorum</i>
Apiaceae	<i>Alepidea capensis</i>
Apiaceae	<i>Apium graveolens</i>
Apiaceae	<i>Bupleurum mundtii</i>
Apiaceae	<i>Centella asiatica</i>
Apiaceae	<i>Centella glabrata</i> var. <i>glabrata</i>
Apiaceae	<i>Centella hermanniifolia</i>
Apiaceae	<i>Centella tridentata</i> var. <i>tridentata</i>
Apiaceae	<i>Centella virgata</i>
Apiaceae	<i>Chamarea capensis</i>
Apiaceae	<i>Conium chaerophylloides</i>
Apiaceae	<i>Dasispermum suffruticosum</i>
Apiaceae	<i>Daucus carota</i>
Apiaceae	<i>Heteromorpha arborescens</i> var. <i>arborescens</i>
Apiaceae	<i>Itasina filifolia</i>
Apiaceae	<i>Lichtensteinia interrupta</i>
Apiaceae	<i>Nanobubon capillaceum</i>
Apiaceae	<i>Notobubon ferulaceum</i>
Apiaceae	<i>Notobubon gummiferum</i>
Apiaceae	<i>Notobubon laevigatum</i>
Apiaceae	<i>Sanicula elata</i>
Apocynaceae	<i>Asclepias crispa</i> var. <i>crispa</i>
Apocynaceae	<i>Asclepias fulva</i>
Apocynaceae	<i>Carissa macrocarpa</i>
Apocynaceae	<i>Cynanchum ellipticum</i>
Apocynaceae	<i>Cynanchum obtusifolium</i>
Apocynaceae	<i>Gomphocarpus fruticosus</i> ssp. <i>fruticosus</i>
Apocynaceae	<i>Gomphocarpus physocarpus</i>
Apocynaceae	<i>Microlooma tenuifolium</i>
Apocynaceae	<i>Pachycarpus dealbatus</i>
Apocynaceae	<i>Rauvolfia afra</i>
Apocynaceae	<i>Secamone</i> sp.
Araceae	<i>Lemna minor</i>
Araliaceae	<i>Cussonia thyrsiflora</i>
Araliaceae	<i>Schefflera umbellifera</i>
Asparagaceae	<i>Asparagus aethiopicus</i>
Asparagaceae	<i>Asparagus asparagoides</i>
Asparagaceae	<i>Asparagus densiflorus</i>
Asparagaceae	<i>Asparagus multiflorus</i>
Asparagaceae	<i>Asparagus rubicundus</i>
Asparagaceae	<i>Asparagus striatus</i>
Asparagaceae	<i>Asparagus subulatus</i>
Asphodelaceae	<i>Aloe africana</i>
Asphodelaceae	<i>Aloe arborescens</i>
Asphodelaceae	<i>Aloe lineata</i> var. <i>lineata</i>
Asphodelaceae	<i>Bulbine erectipilosa</i>
Asphodelaceae	<i>Bulbine longifolia</i>
Asphodelaceae	<i>Gasteria bicolor</i> var. <i>bicolor</i>
Asphodelaceae	<i>Gasteria pulchra</i>
Asphodelaceae	<i>Haworthia cooperi</i> var. <i>cooperi</i>
Asphodelaceae	<i>Kniphofia uvaria</i>
Asphodelaceae	<i>Trachyandra ciliata</i>
Asphodelaceae	<i>Trachyandra revoluta</i>
Aspleniaceae	<i>Asplenium rutifolium</i>
Asteraceae	<i>Achyranthemum sordescens</i>

Asteraceae	<i>Achyranthemum striatum</i>
Asteraceae	<i>Afroaster hispidus</i>
Asteraceae	<i>Amellus strigosus</i> ssp. <i>strigosus</i>
Asteraceae	<i>Anthemis cotula</i>
Asteraceae	<i>Arctotheca calendula</i>
Asteraceae	<i>Arctotis arctotoides</i>
Asteraceae	<i>Arctotis argentea</i>
Asteraceae	<i>Arctotis hispidula</i>
Asteraceae	<i>Arctotis petiolata</i>
Asteraceae	<i>Arctotis pinnatifida</i>
Asteraceae	<i>Aster squamatus</i>
Asteraceae	<i>Athanasia dentata</i>
Asteraceae	<i>Athanasia linifolia</i>
Asteraceae	<i>Athanasia trifurcata</i>
Asteraceae	<i>Athrixia capensis</i>
Asteraceae	<i>Berkheya heterophylla</i> var. <i>heterophylla</i>
Asteraceae	<i>Berkheya rigida</i>
Asteraceae	<i>Brachylaena glabra</i>
Asteraceae	<i>Brachylaena neriifolia</i>
Asteraceae	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>
Asteraceae	<i>Chrysocoma ciliata</i>
Asteraceae	<i>Cineraria erodioides</i> var. <i>erodioides</i>
Asteraceae	<i>Cineraria geifolia</i>
Asteraceae	<i>Cineraria lobata</i>
Asteraceae	<i>Cineraria platycarpa</i>
Asteraceae	<i>Conyza bonariensis</i>
Asteraceae	<i>Conyza canadensis</i>
Asteraceae	<i>Conyza pinnatifida</i>
Asteraceae	<i>Conyza scabrida</i>
Asteraceae	<i>Conyza ulmifolia</i>
Asteraceae	<i>Corymbium africanum</i> ssp. <i>africanum</i>
Asteraceae	<i>Corymbium glabrum</i> var. <i>glabrum</i>
Asteraceae	<i>Cotula coronopifolia</i>
Asteraceae	<i>Cotula discolor</i>
Asteraceae	<i>Cotula sororia</i>
Asteraceae	<i>Cotula turbinata</i>
Asteraceae	<i>Cotula vulgaris</i>
Asteraceae	<i>Cullumia decurrens</i>
Asteraceae	<i>Dicerotheramnus rhinocerotis</i>
Asteraceae	<i>Dimorphotheca</i> sp.
Asteraceae	<i>Disparago tortilis</i>
Asteraceae	<i>Distephanus anisochaetoides</i>
Asteraceae	<i>Elytropappus rhinocerotis</i>
Asteraceae	<i>Eriocephalus</i> sp.
Asteraceae	<i>Euryops algoensis</i>
Asteraceae	<i>Euryops euryopoides</i>
Asteraceae	<i>Euryops munitus</i>
Asteraceae	<i>Euryops pinnatipartitus</i>
Asteraceae	<i>Felicia amelloides</i>
Asteraceae	<i>Felicia echinata</i>
Asteraceae	<i>Felicia erigeroides</i>
Asteraceae	<i>Felicia westae</i>
Asteraceae	<i>Gamochoeta subfalcata</i>
Asteraceae	<i>Gazania krebsiana</i> ssp. <i>krebsiana</i>
Asteraceae	<i>Gazania linearis</i> var. <i>linearis</i>
Asteraceae	<i>Gnaphalium vestitum</i>

Asteraceae	<i>Gongyloglossa tortilis</i>
Asteraceae	<i>Haplocarpha lyrata</i>
Asteraceae	<i>Helichrysum anomalum</i>
Asteraceae	<i>Helichrysum appendiculatum</i>
Asteraceae	<i>Helichrysum aureum</i> var. <i>aureum</i>
Asteraceae	<i>Helichrysum cylindriflorum</i>
Asteraceae	<i>Helichrysum cymosum</i> ssp. <i>cymosum</i>
Asteraceae	<i>Helichrysum dasyanthum</i>
Asteraceae	<i>Helichrysum felinum</i>
Asteraceae	<i>Helichrysum foetidum</i> var. <i>foetidum</i>
Asteraceae	<i>Helichrysum gymnocomum</i>
Asteraceae	<i>Helichrysum herbaceum</i>
Asteraceae	<i>Helichrysum litorale</i>
Asteraceae	<i>Helichrysum odoratissimum</i> var. <i>odoratissimum</i>
Asteraceae	<i>Helichrysum petiolare</i>
Asteraceae	<i>Helichrysum rosum</i> var. <i>rosum</i>
Asteraceae	<i>Helichrysum rutilans</i>
Asteraceae	<i>Helichrysum teretifolium</i>
Asteraceae	<i>Helichrysum versicolor</i>
Asteraceae	<i>Helichrysum zeyheri</i>
Asteraceae	<i>Hilliardiella pinifolia</i>
Asteraceae	<i>Hippia frutescens</i>
Asteraceae	<i>Ifloga glomerata</i>
Asteraceae	<i>Mairia crenata</i>
Asteraceae	<i>Metalsia aurea</i>
Asteraceae	<i>Metalsia brevifolia</i>
Asteraceae	<i>Metalsia densa</i>
Asteraceae	<i>Metalsia inversa</i>
Asteraceae	<i>Metalsia pallida</i>
Asteraceae	<i>Metalsia pungens</i>
Asteraceae	<i>Metalsia trivialis</i>
Asteraceae	<i>Mikania capensis</i>
Asteraceae	<i>Nidorella pinnatifida</i>
Asteraceae	<i>Oedera genistifolia</i>
Asteraceae	<i>Oedera pungens</i> ssp. <i>pungens</i>
Asteraceae	<i>Osteospermum glabrum</i>
Asteraceae	<i>Osteospermum herbaceum</i>
Asteraceae	<i>Osteospermum imbricatum</i> ssp. <i>imbricatum</i>
Asteraceae	<i>Osteospermum junceum</i>
Asteraceae	<i>Osteospermum moniliferum</i> ssp. <i>moniliferum</i>
Asteraceae	<i>Othonna parviflora</i>
Asteraceae	<i>Picris echioides</i>
Asteraceae	<i>Platycarpha glomerata</i>
Asteraceae	<i>Plecostachys serpyllifolia</i>
Asteraceae	<i>Poecilolepis ficoidea</i>
Asteraceae	<i>Printzia polifolia</i>
Asteraceae	<i>Pseudognaphalium luteoalbum</i>
Asteraceae	<i>Pteronia hirsuta</i>
Asteraceae	<i>Pteronia incana</i>
Asteraceae	<i>Pteronia teretifolia</i>
Asteraceae	<i>Pteronia trigona</i>
Asteraceae	<i>Relhania pungens</i> ssp. <i>pungens</i>
Asteraceae	<i>Schistostephium umbellatum</i>
Asteraceae	<i>Senecio anapetes</i>
Asteraceae	<i>Senecio carnosus</i>
Asteraceae	<i>Senecio chrysocoma</i>

Asteraceae	<i>Senecio deltoideus</i>
Asteraceae	<i>Senecio glutinosus</i>
Asteraceae	<i>Senecio hastatus</i>
Asteraceae	<i>Senecio ilicifolius</i>
Asteraceae	<i>Senecio lanceus</i>
Asteraceae	<i>Senecio oederiifolius</i>
Asteraceae	<i>Senecio pseudolongifolius</i>
Asteraceae	<i>Senecio robertiifolius</i>
Asteraceae	<i>Senecio rosmarinifolius</i>
Asteraceae	<i>Soliva sessilis</i>
Asteraceae	<i>Sonchus oleraceus</i>
Asteraceae	<i>Stoebe alopecuroides</i>
Asteraceae	<i>Stoebe capitata</i>
Asteraceae	<i>Stoebe plumosa</i>
Asteraceae	<i>Syncarpha argentea</i>
Asteraceae	<i>Syncarpha eximia</i>
Asteraceae	<i>Syncarpha milleflora</i>
Asteraceae	<i>Syncarpha striata</i>
Asteraceae	<i>Tarchonanthus littoralis</i>
Asteraceae	<i>Tolpis capensis</i>
Asteraceae	<i>Ursinia anethoides</i>
Asteraceae	<i>Ursinia chrysanthemoides</i>
Asteraceae	<i>Ursinia discolor</i>
Asteraceae	<i>Ursinia nana ssp. nana</i>
Asteraceae	<i>Ursinia scariosa ssp. scariosa</i>
Balsaminaceae	<i>Impatiens hochstetteri ssp. hochstetteri</i>
Blechnaceae	<i>Blechnum capense</i>
Blechnaceae	<i>Blechnum punctulatum var. punctulatum</i>
Boraginaceae	<i>Anchusa capensis</i>
Boraginaceae	<i>Anchusa riparia</i>
Boraginaceae	<i>Echium plantagineum</i>
Boraginaceae	<i>Lobostemon argenteus</i>
Boraginaceae	<i>Lobostemon trigonus</i>
Brassicaceae	<i>Cardamine africana</i>
Brassicaceae	<i>Diplotaxis muralis</i>
Brassicaceae	<i>Heliophila linearis var. linearis</i>
Brassicaceae	<i>Heliophila subulata ssp. subulata</i>
Brassicaceae	<i>Rapistrum rugosum</i>
Brassicaceae	<i>Sinapis alba</i>
Bruniaceae	<i>Berzelia commutata</i>
Bruniaceae	<i>Berzelia intermedia</i>
Bruniaceae	<i>Berzelia lanuginosa</i>
Campanulaceae	<i>Prismatocarpus campanuloides</i>
Campanulaceae	<i>Roella spicata var. spicata</i>
Campanulaceae	<i>Wahlenbergia capillacea ssp. capillacea</i>
Campanulaceae	<i>Wahlenbergia desmantha</i>
Campanulaceae	<i>Wahlenbergia grandiflora</i>
Campanulaceae	<i>Wahlenbergia nodosa</i>
Campanulaceae	<i>Wahlenbergia procumbens</i>
Campanulaceae	<i>Wahlenbergia thunbergii var. thunbergii</i>
Campanulaceae	<i>Wahlenbergia uitenhagensis</i>
Campanulaceae	<i>Wahlenbergia undulata</i>
Campanulaceae	<i>Wahlenbergia unidentata</i>
Cannabaceae	<i>Celtis africana</i>
Caryophyllaceae	<i>Cerastium capense</i>
Caryophyllaceae	<i>Dianthus thunbergii f. thunbergii</i>

Caryophyllaceae	<i>Polycarpon tetraphyllum</i>
Caryophyllaceae	<i>Silene bellidioides</i>
Caryophyllaceae	<i>Silene gallica</i> var. <i>gallica</i>
Caryophyllaceae	<i>Silene undulata</i>
Caryophyllaceae	<i>Spergularia media</i>
Caryophyllaceae	<i>Stellaria pallida</i>
Celastraceae	<i>Cassine peragua</i> ssp. <i>peragua</i>
Celastraceae	<i>Gymnosporia buxifolia</i>
Celastraceae	<i>Gymnosporia nemorosa</i>
Celastraceae	<i>Lauridia reticulata</i>
Celastraceae	<i>Lauridia tetragona</i>
Celastraceae	<i>Maytenus acuminata</i> var. <i>acuminata</i>
Celastraceae	<i>Maytenus oleoides</i>
Celastraceae	<i>Maytenus procumbens</i>
Celastraceae	<i>Mystroxydon aethiopicum</i> ssp. <i>aethiopicum</i>
Celastraceae	<i>Pterocelastrus tricuspidatus</i>
Celastraceae	<i>Putterlickia pyracantha</i>
Celastraceae	<i>Robsonodendron eucleiforme</i>
Celastraceae	<i>Robsonodendron maritimum</i>
Colchicaceae	<i>Colchicum albanense</i>
Colchicaceae	<i>Colchicum austrocapense</i>
Colchicaceae	<i>Colchicum capense</i> ssp. <i>capense</i>
Colchicaceae	<i>Gloriosa superba</i>
Colchicaceae	<i>Wurmbea stricta</i>
Convolvulaceae	<i>Cuscuta africana</i>
Convolvulaceae	<i>Cuscuta campestris</i>
Convolvulaceae	<i>Dichondra micrantha</i>
Convolvulaceae	<i>Falkia repens</i>
Convolvulaceae	<i>Ipomoea cairica</i> var. <i>cairica</i>
Crassulaceae	<i>Crassula ciliata</i>
Crassulaceae	<i>Crassula ericoides</i> ssp. <i>ericoides</i>
Crassulaceae	<i>Crassula expansa</i> ssp. <i>expansa</i>
Crassulaceae	<i>Crassula pellucida</i> ssp. <i>pellucida</i>
Crassulaceae	<i>Crassula pubescens</i> ssp. <i>pubescens</i>
Crassulaceae	<i>Crassula subulata</i> var. <i>subulata</i>
Cucurbitaceae	<i>Kedrostis nana</i> var. <i>nana</i>
Cucurbitaceae	<i>Zehneria scabra</i>
Cunoniaceae	<i>Cunonia capensis</i>
Cupressaceae	<i>Widdringtonia nodiflora</i>
Curtisiaceae	<i>Curtisia dentata</i>
Cyatheaceae	<i>Alsophila capensis</i>
Cyperaceae	<i>Carex clavata</i>
Cyperaceae	<i>Carex spartea</i>
Cyperaceae	<i>Carpha glomerata</i>
Cyperaceae	<i>Chrysitrix capensis</i> var. <i>capensis</i>
Cyperaceae	<i>Cladium mariscus</i> ssp. <i>mariscus</i>
Cyperaceae	<i>Cyperus durus</i>
Cyperaceae	<i>Cyperus thunbergii</i>
Cyperaceae	<i>Epischoenus quadrangularis</i>
Cyperaceae	<i>Ficinia arenicola</i> var. <i>arenicola</i>
Cyperaceae	<i>Ficinia bulbosa</i>
Cyperaceae	<i>Ficinia dunensis</i>
Cyperaceae	<i>Ficinia gracilis</i>
Cyperaceae	<i>Ficinia lateralis</i>
Cyperaceae	<i>Ficinia nigrescens</i>
Cyperaceae	<i>Ficinia nodosa</i>

Cyperaceae	<i>Ficinia tristachya</i>
Cyperaceae	<i>Fuirena hirsuta</i>
Cyperaceae	<i>Isolepis diabolica</i>
Cyperaceae	<i>Isolepis levynsiana</i>
Cyperaceae	<i>Isolepis setacea</i>
Cyperaceae	<i>Isolepis striata</i>
Cyperaceae	<i>Schoenus loreus</i>
Cyperaceae	<i>Schoenus nigricans</i>
Cyperaceae	<i>Schoenus rigidus</i>
Cyperaceae	<i>Scirpoides thunbergii</i>
Cyperaceae	<i>Tetraria secans</i>
Dioscoreaceae	<i>Dioscorea rupicola</i>
Dipsacaceae	<i>Cephalaria humilis</i>
Dipsacaceae	<i>Scabiosa columbaria</i>
Dryopteridaceae	<i>Elaphoglossum angustatum</i>
Dryopteridaceae	<i>Polystichum incongruum</i>
Dryopteridaceae	<i>Rumohra adiantiformis</i>
Ebenaceae	<i>Diospyros dichrophylla</i>
Ebenaceae	<i>Euclea natalensis</i>
Ebenaceae	<i>Euclea polyandra</i>
Ebenaceae	<i>Euclea racemosa ssp. racemosa</i>
Ericaceae	<i>Erica ardens</i>
Ericaceae	<i>Erica articularis var. articularis</i>
Ericaceae	<i>Erica astroites</i>
Ericaceae	<i>Erica bolusanthus</i>
Ericaceae	<i>Erica canaliculata</i>
Ericaceae	<i>Erica chloroloma</i>
Ericaceae	<i>Erica copiosa var. copiosa</i>
Ericaceae	<i>Erica cordata var. cordata</i>
Ericaceae	<i>Erica cubica var. cubica</i>
Ericaceae	<i>Erica curviflora</i>
Ericaceae	<i>Erica deliciosa</i>
Ericaceae	<i>Erica demissa var. demissa</i>
Ericaceae	<i>Erica diaphana</i>
Ericaceae	<i>Erica formosa</i>
Ericaceae	<i>Erica glandulosa ssp. glandulosa</i>
Ericaceae	<i>Erica glumiflora</i>
Ericaceae	<i>Erica gracilis</i>
Ericaceae	<i>Erica leucopelta var. leucopelta</i>
Ericaceae	<i>Erica maesta var. maesta</i>
Ericaceae	<i>Erica nabea</i>
Ericaceae	<i>Erica newdigateae</i>
Ericaceae	<i>Erica nutans</i>
Ericaceae	<i>Erica opulenta</i>
Ericaceae	<i>Erica pectinifolia var. pectinifolia</i>
Ericaceae	<i>Erica peltata</i>
Ericaceae	<i>Erica pulchella var. pulchella</i>
Ericaceae	<i>Erica rosacea ssp. rosacea</i>
Ericaceae	<i>Erica scabriuscula</i>
Ericaceae	<i>Erica simulans var. simulans</i>
Ericaceae	<i>Erica sparrmannii</i>
Ericaceae	<i>Erica sparsa var. sparsa</i>
Ericaceae	<i>Erica tetragona</i>
Ericaceae	<i>Erica thamnoides</i>
Ericaceae	<i>Erica uberiflora</i>
Ericaceae	<i>Erica umbelliflora</i>

Ericaceae	<i>Erica unilateralis</i>
Ericaceae	<i>Erica wendlandiana</i>
Euphorbiaceae	<i>Acalypha capensis</i>
Euphorbiaceae	<i>Adenocline pauciflora</i>
Euphorbiaceae	<i>Euphorbia mauritanica</i>
Euphorbiaceae	<i>Euphorbia rhombifolia</i>
Euphorbiaceae	<i>Euphorbia silenifolia</i>
Euphorbiaceae	<i>Leidesia procumbens</i>
Fabaceae	<i>Acacia cyclops</i>
Fabaceae	<i>Argyrolobium crassifolium</i>
Fabaceae	<i>Argyrolobium incanum</i>
Fabaceae	<i>Argyrolobium pauciflorum</i>
Fabaceae	<i>Argyrolobium pumilum</i>
Fabaceae	<i>Aspalathus angustifolia ssp. angustifolia</i>
Fabaceae	<i>Aspalathus asparagoides ssp. asparagoides</i>
Fabaceae	<i>Aspalathus biflora ssp. biflora</i>
Fabaceae	<i>Aspalathus cerrhantha</i>
Fabaceae	<i>Aspalathus chortophila</i>
Fabaceae	<i>Aspalathus collina ssp. collina</i>
Fabaceae	<i>Aspalathus flexuosa</i>
Fabaceae	<i>Aspalathus hispida ssp. hispida</i>
Fabaceae	<i>Aspalathus kougaensis</i>
Fabaceae	<i>Aspalathus laricifolia ssp. laricifolia</i>
Fabaceae	<i>Aspalathus nivea</i>
Fabaceae	<i>Aspalathus opaca ssp. opaca</i>
Fabaceae	<i>Aspalathus pinguis ssp. pinguis</i>
Fabaceae	<i>Aspalathus rubens</i>
Fabaceae	<i>Aspalathus setacea</i>
Fabaceae	<i>Aspalathus spinosa ssp. spinosa</i>
Fabaceae	<i>Aspalathus subtingens</i>
Fabaceae	<i>Aspalathus tenuissima</i>
Fabaceae	<i>Cyclopia subternata</i>
Fabaceae	<i>Dipogon lignosus</i>
Fabaceae	<i>Eriosema squarrosus</i>
Fabaceae	<i>Hypocalyptus coluteoides</i>
Fabaceae	<i>Hypocalyptus oxalidifolius</i>
Fabaceae	<i>Indigofera brachystachya</i>
Fabaceae	<i>Indigofera denudata</i>
Fabaceae	<i>Indigofera flabellata</i>
Fabaceae	<i>Indigofera glaucescens</i>
Fabaceae	<i>Indigofera heterophylla</i>
Fabaceae	<i>Indigofera incana</i>
Fabaceae	<i>Indigofera leptocarpa</i>
Fabaceae	<i>Indigofera meyeriana</i>
Fabaceae	<i>Indigofera pappei</i>
Fabaceae	<i>Indigofera porrecta</i>
Fabaceae	<i>Indigofera stricta</i>
Fabaceae	<i>Indigofera sulcata</i>
Fabaceae	<i>Indigofera tomentosa</i>
Fabaceae	<i>Indigofera verrucosa</i>
Fabaceae	<i>Indigofera zeyheri</i>
Fabaceae	<i>Lessertia kensitii</i>
Fabaceae	<i>Lessertia stenoloba</i>
Fabaceae	<i>Liparia hirsuta</i>
Fabaceae	<i>Lotononis azurea</i>
Fabaceae	<i>Melilotus indicus</i>

Fabaceae	<i>Melolobium candicans</i>
Fabaceae	<i>Otholobium stachyerum</i>
Fabaceae	<i>Otholobium virgatum</i>
Fabaceae	<i>Paraserianthes lophantha</i> ssp. <i>lophantha</i>
Fabaceae	<i>Podalyria burchellii</i>
Fabaceae	<i>Podalyria buxifolia</i>
Fabaceae	<i>Podalyria cordata</i>
Fabaceae	<i>Podalyria myrtillifolia</i>
Fabaceae	<i>Psoralea affinis</i>
Fabaceae	<i>Psoralea sericea</i>
Fabaceae	<i>Psoralea triflora</i>
Fabaceae	<i>Rhynchosia caribaea</i>
Fabaceae	<i>Rhynchosia ciliata</i>
Fabaceae	<i>Rhynchosia totta</i> var. <i>totta</i>
Fabaceae	<i>Schotia afra</i> var. <i>afra</i>
Fabaceae	<i>Tephrosia capensis</i> var. <i>capensis</i>
Fabaceae	<i>Tephrosia cordata</i>
Fabaceae	<i>Tephrosia grandiflora</i>
Fabaceae	<i>Trifolium repens</i>
Fabaceae	<i>Vachellia karroo</i>
Fabaceae	<i>Vicia sativa</i> ssp. <i>sativa</i>
Fabaceae	<i>Vigna vexillata</i>
Fabaceae	<i>Virgilia oroboides</i> ssp. <i>oroboides</i>
Fabaceae	<i>Wiborgiella mucronata</i>
Funariaceae	<i>Funaria</i> sp.
Gentianaceae	<i>Chironia baccifera</i>
Gentianaceae	<i>Chironia melampyrifolia</i>
Gentianaceae	<i>Chironia peduncularis</i>
Gentianaceae	<i>Chironia tetragona</i>
Gentianaceae	<i>Sebaea aurea</i>
Gentianaceae	<i>Sebaea zeyheri</i> ssp. <i>zeyheri</i>
Geraniaceae	<i>Erodium malacoides</i> ssp. <i>malacoides</i>
Geraniaceae	<i>Geranium flanaganii</i>
Geraniaceae	<i>Geranium incanum</i> var. <i>incanum</i>
Geraniaceae	<i>Geranium ornithopodum</i>
Geraniaceae	<i>Monsonia emarginata</i>
Geraniaceae	<i>Pelargonium alchemilloides</i>
Geraniaceae	<i>Pelargonium auritum</i> var. <i>auritum</i>
Geraniaceae	<i>Pelargonium capitatum</i>
Geraniaceae	<i>Pelargonium carneum</i>
Geraniaceae	<i>Pelargonium cordifolium</i>
Geraniaceae	<i>Pelargonium elegans</i>
Geraniaceae	<i>Pelargonium grossularioides</i>
Geraniaceae	<i>Pelargonium multicaule</i> ssp. <i>multicaule</i>
Geraniaceae	<i>Pelargonium ovale</i> ssp. <i>ovale</i>
Geraniaceae	<i>Pelargonium panduriforme</i>
Geraniaceae	<i>Pelargonium peltatum</i>
Geraniaceae	<i>Pelargonium proliferum</i>
Geraniaceae	<i>Pelargonium radulifolium</i>
Geraniaceae	<i>Pelargonium ribifolium</i>
Geraniaceae	<i>Pelargonium suburbanum</i> ssp. <i>suburbanum</i>
Gleicheniaceae	<i>Gleichenia polypodioides</i>
Goodeniaceae	<i>Scaevola plumieri</i>
Grubbiaceae	<i>Grubbia rosmarinifolia</i>
Haemodoraceae	<i>Wachendorfia thyrsiflora</i>
Haloragaceae	<i>Laurembergia</i> sp.

Hemerocallidaceae	<i>Caesia contorta</i>
Hyacinthaceae	<i>Albuca batteniana</i>
Hyacinthaceae	<i>Albuca bracteata</i>
Hyacinthaceae	<i>Albuca collina</i>
Hyacinthaceae	<i>Dipcadi papillatum</i>
Hyacinthaceae	<i>Drimia elata</i>
Hyacinthaceae	<i>Drimia haworthioides</i>
Hyacinthaceae	<i>Lachenalia algoensis</i>
Hyacinthaceae	<i>Lachenalia ensifolia</i>
Hyacinthaceae	<i>Lachenalia youngii</i>
Hyacinthaceae	<i>Massonia pustulata</i>
Hyacinthaceae	<i>Ornithogalum dubium</i>
Hyacinthaceae	<i>Ornithogalum flavissimum</i>
Hyacinthaceae	<i>Ornithogalum juncifolium</i> var. <i>juncifolium</i>
Hyacinthaceae	<i>Veltheimia bracteata</i>
Hypericaceae	<i>Hypericum aethiopicum</i> ssp. <i>aethiopicum</i>
Hypoxidaceae	<i>Empodium gloriosum</i>
Hypoxidaceae	<i>Hypoxis argentea</i> var. <i>argentea</i>
Hypoxidaceae	<i>Hypoxis longifolia</i>
Hypoxidaceae	<i>Hypoxis ludwigii</i>
Hypoxidaceae	<i>Hypoxis villosa</i> var. <i>villosa</i>
Hypoxidaceae	<i>Pauridia minuta</i>
Hypoxidaceae	<i>Pauridia trifurcillata</i>
Hypoxidaceae	<i>Spiloxene capensis</i>
Hypoxidaceae	<i>Spiloxene trifurcillata</i>
Iridaceae	<i>Aristea bakeri</i>
Iridaceae	<i>Aristea ecklonii</i>
Iridaceae	<i>Aristea pusilla</i>
Iridaceae	<i>Babiana fourcadei</i>
Iridaceae	<i>Babiana patersoniae</i>
Iridaceae	<i>Bobartia orientalis</i> ssp. <i>orientalis</i>
Iridaceae	<i>Chasmanthe aethiopica</i>
Iridaceae	<i>Dierama pendulum</i>
Iridaceae	<i>Dierama pulcherrimum</i>
Iridaceae	<i>Dietes iridioides</i>
Iridaceae	<i>Geissorhiza heterostyla</i> ssp. <i>heterostyla</i>
Iridaceae	<i>Gladiolus dalenii</i> ssp. <i>dalenii</i>
Iridaceae	<i>Gladiolus grandiflorus</i>
Iridaceae	<i>Gladiolus gueinzii</i>
Iridaceae	<i>Gladiolus involutus</i>
Iridaceae	<i>Gladiolus liliaceus</i>
Iridaceae	<i>Gladiolus maculatus</i>
Iridaceae	<i>Gladiolus mutabilis</i>
Iridaceae	<i>Gladiolus permeabilis</i> ssp. <i>permeabilis</i>
Iridaceae	<i>Gladiolus stellatus</i>
Iridaceae	<i>Hesperantha falcata</i>
Iridaceae	<i>Ixia orientalis</i>
Iridaceae	<i>Micranthus alopecuroides</i>
Iridaceae	<i>Micranthus junceus</i>
Iridaceae	<i>Moraea algoensis</i>
Iridaceae	<i>Moraea australis</i>
Iridaceae	<i>Moraea gawleri</i>
Iridaceae	<i>Moraea spathulata</i>
Iridaceae	<i>Moraea tricuspidata</i> ssp. <i>tricuspidata</i>
Iridaceae	<i>Romulea dichotoma</i>
Iridaceae	<i>Romulea rosea</i> var. <i>rosea</i>

Iridaceae	<i>Tritonia dubia</i>
Iridaceae	<i>Tritonia gladiolaris</i>
Iridaceae	<i>Watsonia pillansii</i>
Juncaceae	<i>Juncus acutus ssp. acutus</i>
Juncaceae	<i>Juncus capensis</i>
Juncaceae	<i>Juncus dregeanus ssp. dregeanus</i>
Juncaceae	<i>Juncus effusus</i>
Juncaginaceae	<i>Triglochin elongata</i>
Juncaginaceae	<i>Triglochin striata</i>
Lamiaceae	<i>Leonotis leonurus</i>
Lamiaceae	<i>Leonotis ocymifolia</i>
Lamiaceae	<i>Plectranthus fruticosus</i>
Lamiaceae	<i>Salvia africana-lutea</i>
Lamiaceae	<i>Salvia repens var. repens</i>
Lamiaceae	<i>Salvia stenophylla</i>
Lamiaceae	<i>Stachys graciliflora</i>
Lamiaceae	<i>Stachys thunbergii</i>
Lamiaceae	<i>Stachys tubulosa</i>
Lamiaceae	<i>Teucrium africanum</i>
Lamiaceae	<i>Teucrium tridum</i>
Lanariaceae	<i>Lanaria lanata</i>
Lauraceae	<i>Cassytha filiformis</i>
Lauraceae	<i>Ocotea bullata</i>
Lentibulariaceae	<i>Utricularia bisquamata</i>
Lepicoleaceae	<i>Lepicolea ochroleuca</i>
Leucobryaceae	<i>Leucobryum acutifolium</i>
Limeaceae	<i>Limeum aethiopicum var. aethiopicum</i>
Linaceae	<i>Linum aethiopicum</i>
Linaceae	<i>Linum africanum</i>
Linaceae	<i>Linum thunbergii</i>
Linderniaceae	<i>Lindernia parviflora</i>
Lobeliaceae	<i>Cyphia heterophylla</i>
Lobeliaceae	<i>Cyphia triphylla</i>
Lobeliaceae	<i>Lobelia anceps</i>
Lobeliaceae	<i>Lobelia coronopifolia</i>
Lobeliaceae	<i>Lobelia cuneifolia var. cuneifolia</i>
Lobeliaceae	<i>Lobelia erinus</i>
Lobeliaceae	<i>Lobelia tomentosa</i>
Lobeliaceae	<i>Monopsis unidentata ssp. unidentata</i>
Lobeliaceae	<i>Wimmerella arabidea</i>
Lythraceae	<i>Lythrum hyssopifolia</i>
Malvaceae	<i>Abutilon sonneratianum</i>
Malvaceae	<i>Hermannia flammea</i>
Malvaceae	<i>Hermannia hyssopifolia</i>
Malvaceae	<i>Hermannia mucronulata</i>
Malvaceae	<i>Hermannia saccifera</i>
Malvaceae	<i>Hermannia salviifolia var. salviifolia</i>
Malvaceae	<i>Hermannia stipulacea</i>
Malvaceae	<i>Hermannia sulcata</i>
Malvaceae	<i>Hermannia velutina</i>
Malvaceae	<i>Hibiscus aethiopicus var. aethiopicus</i>
Malvaceae	<i>Hibiscus diversifolius ssp. diversifolius</i>
Malvaceae	<i>Hibiscus trionum</i>
Malvaceae	<i>Pavonia praemorsa</i>
Menispermaceae	<i>Cissampelos capensis</i>
Menyanthaceae	<i>Nymphoides indica ssp. indica</i>

Menyanthaceae	<i>Nymphoides thunbergiana</i>
Menyanthaceae	<i>Villarsia capensis</i>
Molluginaceae	<i>Pharnaceum detonsum</i>
Molluginaceae	<i>Pharnaceum thunbergii</i>
Montiniaceae	<i>Montinia caryophyllacea</i>
Myricaceae	<i>Morella cordifolia</i>
Myricaceae	<i>Morella humilis</i>
Myricaceae	<i>Morella serrata</i>
Myrsinaceae	<i>Anagallis arvensis ssp. arvensis</i>
Myrsinaceae	<i>Rapanea gilliana</i>
Myrsinaceae	<i>Rapanea melanophloeos</i>
Myrtaceae	<i>Eugenia zeyheri</i>
Oleaceae	<i>Jasminum sp.</i>
Oleaceae	<i>Olea capensis ssp. capensis</i>
Oleaceae	<i>Olea woodiana ssp. woodiana</i>
Orchidaceae	<i>Acrolophia capensis</i>
Orchidaceae	<i>Ceratandra grandiflora</i>
Orchidaceae	<i>Disa chrysostachya</i>
Orchidaceae	<i>Disa cylindrica</i>
Orchidaceae	<i>Disa graminifolia</i>
Orchidaceae	<i>Disa hians</i>
Orchidaceae	<i>Disa racemosa</i>
Orchidaceae	<i>Disa sagittalis</i>
Orchidaceae	<i>Eulophia hians var. hians</i>
Orchidaceae	<i>Eulophia speciosa</i>
Orchidaceae	<i>Satyrium longicolle</i>
Orchidaceae	<i>Satyrium membranaceum</i>
Orchidaceae	<i>Satyrium parviflorum</i>
Orchidaceae	<i>Satyrium stenopetalum ssp. stenopetalum</i>
Orobanchaceae	<i>Graderia scabra</i>
Orobanchaceae	<i>Harveya purpurea ssp. purpurea</i>
Orobanchaceae	<i>Hyobanche sanguinea</i>
Orthotrichaceae	<i>Cardotiella secunda</i>
Oxalidaceae	<i>Oxalis purpurea</i>
Oxalidaceae	<i>Oxalis smithiana</i>
Penaeaceae	<i>Penaea cneorum ssp. cneorum</i>
Peraceae	<i>Clutia affinis</i>
Peraceae	<i>Clutia alaternoides var. alaternoides</i>
Peraceae	<i>Clutia brevifolia</i>
Peraceae	<i>Clutia daphnoides</i>
Peraceae	<i>Clutia laxa</i>
Peraceae	<i>Clutia rubricaulis var. rubricaulis</i>
Phyllanthaceae	<i>Lachnostylis hirta</i>
Piperaceae	<i>Peperomia retusa var. retusa</i>
Piperaceae	<i>Piper capense var. capense</i>
Plumbaginaceae	<i>Limonium depauperatum</i>
Plumbaginaceae	<i>Limonium scabrum var. scabrum</i>
Poaceae	<i>Agrostis avenacea</i>
Poaceae	<i>Aira cupaniana</i>
Poaceae	<i>Brachiaria serrata</i>
Poaceae	<i>Briza maxima</i>
Poaceae	<i>Briza minor</i>
Poaceae	<i>Bromus catharticus</i>
Poaceae	<i>Bromus diandrus</i>
Poaceae	<i>Capeochloa cincta ssp. cincta</i>
Poaceae	<i>Cortaderia selloana</i>

Poaceae	<i>Cymbopogon marginatus</i>
Poaceae	<i>Cynodon dactylon</i>
Poaceae	<i>Digitaria eriantha</i>
Poaceae	<i>Ehrharta calycina</i>
Poaceae	<i>Ehrharta erecta</i> var. <i>erecta</i>
Poaceae	<i>Ehrharta villosa</i> var. <i>villosa</i>
Poaceae	<i>Eleusine coracana</i> ssp. <i>coracana</i>
Poaceae	<i>Elionurus muticus</i>
Poaceae	<i>Eragrostis capensis</i>
Poaceae	<i>Eragrostis curvula</i>
Poaceae	<i>Eulalia villosa</i>
Poaceae	<i>Festuca scabra</i>
Poaceae	<i>Hainardia cylindrica</i>
Poaceae	<i>Helictotrichon hirtulum</i>
Poaceae	<i>Heteropogon contortus</i>
Poaceae	<i>Hordeum capense</i>
Poaceae	<i>Hordeum murinum</i> ssp. <i>murinum</i>
Poaceae	<i>Hyparrhenia hirta</i>
Poaceae	<i>Karroochloa curva</i>
Poaceae	<i>Koeleria capensis</i>
Poaceae	<i>Lagurus ovatus</i>
Poaceae	<i>Leptochloa fusca</i>
Poaceae	<i>Lolium rigidum</i>
Poaceae	<i>Lophochloa cristata</i>
Poaceae	<i>Melica racemosa</i>
Poaceae	<i>Melinis nerviglumis</i>
Poaceae	<i>Merxmüllera disticha</i>
Poaceae	<i>Miscanthus ecklonii</i>
Poaceae	<i>Panicum coloratum</i>
Poaceae	<i>Panicum deustum</i>
Poaceae	<i>Parapholis incurva</i>
Poaceae	<i>Pennisetum macrourum</i>
Poaceae	<i>Pentameris curvifolia</i>
Poaceae	<i>Pentameris heptameris</i>
Poaceae	<i>Pentameris longipes</i>
Poaceae	<i>Pentameris pallida</i>
Poaceae	<i>Pentaschistis curvifolia</i>
Poaceae	<i>Pentaschistis holciformis</i>
Poaceae	<i>Pentaschistis pallida</i>
Poaceae	<i>Phalaris aquatica</i>
Poaceae	<i>Phragmites australis</i>
Poaceae	<i>Poa annua</i>
Poaceae	<i>Polypogon monspeliensis</i>
Poaceae	<i>Polypogon strictus</i>
Poaceae	<i>Polypogon viridis</i>
Poaceae	<i>Puccinellia angusta</i>
Poaceae	<i>Setaria sphacelata</i> var. <i>sphacelata</i>
Poaceae	<i>Spartina maritima</i>
Poaceae	<i>Sporobolus africanus</i>
Poaceae	<i>Sporobolus virginicus</i>
Poaceae	<i>Stenotaphrum secundatum</i>
Poaceae	<i>Stipa dregeana</i> var. <i>dregeana</i>
Poaceae	<i>Stipagrostis zeyheri</i> ssp. <i>zeyheri</i>
Poaceae	<i>Themeda triandra</i>
Poaceae	<i>Thinopyrum distichum</i>
Poaceae	<i>Trachypogon spicatus</i>

Poaceae	<i>Tragus berteronianus</i>
Poaceae	<i>Tribolium curvum</i>
Poaceae	<i>Tribolium hispidum</i>
Poaceae	<i>Tribolium uniola</i>
Poaceae	<i>Trisetopsis dodii</i>
Poaceae	<i>Tristachya leucothrix</i>
Podocarpaceae	<i>Podocarpus latifolius</i>
Polygalaceae	<i>Muraltia alopecuroides</i>
Polygalaceae	<i>Muraltia ericaefolia</i>
Polygalaceae	<i>Muraltia spinosa</i>
Polygalaceae	<i>Muraltia squarrosa</i>
Polygalaceae	<i>Polygala fruticosa</i>
Polygalaceae	<i>Polygala levynsiana</i>
Polygalaceae	<i>Polygala microlopha</i> var. <i>microlopha</i>
Polygalaceae	<i>Polygala pottebergensis</i>
Polygalaceae	<i>Polygala refracta</i>
Polygalaceae	<i>Polygala umbellata</i>
Polygalaceae	<i>Polygala wittebergensis</i>
Polygonaceae	<i>Fallopia convolvulus</i>
Polygonaceae	<i>Persicaria decipiens</i>
Polygonaceae	<i>Rumex acetosella</i> ssp. <i>acetosella</i>
Polygonaceae	<i>Rumex crispus</i>
Polypodies	<i>Polypodium ensiforme</i>
Polypodiaceae	<i>Polypodium polypodioides</i> ssp. <i>polypodioides</i>
Proteaceae	<i>Leucadendron conicum</i>
Proteaceae	<i>Leucadendron nobile</i>
Proteaceae	<i>Leucadendron rubrum</i>
Proteaceae	<i>Leucadendron salignum</i>
Proteaceae	<i>Leucadendron spissifolium</i> ssp. <i>spissifolium</i>
Proteaceae	<i>Leucospermum cuneiforme</i>
Proteaceae	<i>Leucospermum truncatum</i>
Proteaceae	<i>Paranomus reflexus</i>
Proteaceae	<i>Protea coronata</i>
Proteaceae	<i>Protea cynaroides</i>
Proteaceae	<i>Protea eximia</i>
Proteaceae	<i>Protea mundii</i>
Proteaceae	<i>Protea neriifolia</i>
Proteaceae	<i>Protea tenax</i>
Ranunculaceae	<i>Anemone vesicatoria</i> ssp. <i>vesicatoria</i>
Ranunculaceae	<i>Knowltonia vesicatoria</i> ssp. <i>vesicatoria</i>
Restionaceae	<i>Cannomois virgata</i>
Restionaceae	<i>Elegia equisetacea</i>
Restionaceae	<i>Elegia fistulosa</i>
Restionaceae	<i>Elegia juncea</i>
Restionaceae	<i>Elegia microcarpa</i>
Restionaceae	<i>Platycaulos callistachyus</i>
Restionaceae	<i>Restio capensis</i>
Restionaceae	<i>Restio eleocharis</i>
Restionaceae	<i>Restio gaudichaudianus</i>
Restionaceae	<i>Restio multiflorus</i>
Restionaceae	<i>Restio tetragonus</i>
Restionaceae	<i>Rhodocoma gigantea</i>
Restionaceae	<i>Thamnochortus cinereus</i>
Restionaceae	<i>Thamnochortus fruticosus</i>
Restionaceae	<i>Thamnochortus glaber</i>
Restionaceae	<i>Thamnochortus insignis</i>

Rhamnaceae	<i>Phylica axillaris</i> var. <i>axillaris</i>
Rhamnaceae	<i>Phylica callosa</i>
Rhamnaceae	<i>Phylica ericoides</i>
Rhamnaceae	<i>Phylica gnidioides</i>
Rhamnaceae	<i>Phylica litoralis</i>
Rhamnaceae	<i>Phylica paniculata</i>
Rhamnaceae	<i>Phylica pinea</i>
Rhamnaceae	<i>Scutia myrtina</i>
Rosaceae	<i>Alchemilla capensis</i>
Rosaceae	<i>Cliffortia burchellii</i>
Rosaceae	<i>Cliffortia ferruginea</i>
Rosaceae	<i>Cliffortia ilicifolia</i> var. <i>ilicifolia</i>
Rosaceae	<i>Cliffortia linearifolia</i>
Rosaceae	<i>Cliffortia odorata</i>
Rosaceae	<i>Cliffortia ramosissima</i>
Rosaceae	<i>Cliffortia stricta</i>
Rosaceae	<i>Cliffortia strobilifera</i>
Rubiaceae	<i>Anthospermum aethiopicum</i>
Rubiaceae	<i>Anthospermum galioides</i> ssp. <i>galioides</i>
Rubiaceae	<i>Carpacoce spermacoce</i> ssp. <i>spermacoce</i>
Rubiaceae	<i>Carpacoce vaginellata</i>
Rubiaceae	<i>Galopina circaeoides</i>
Rubiaceae	<i>Phylodrachys carnosus</i>
Rubiaceae	<i>Psyrax obovata</i> ssp. <i>obovata</i>
Rubiaceae	<i>Rubia petiolaris</i>
Ruppiaceae	<i>Ruppia cirrhosa</i>
Ruscaceae	<i>Eriospermum dielsianum</i> ssp. <i>dielsianum</i>
Rutaceae	<i>Agathosma apiculata</i>
Rutaceae	<i>Agathosma bifida</i>
Rutaceae	<i>Agathosma ericoides</i>
Rutaceae	<i>Agathosma martiana</i>
Rutaceae	<i>Agathosma nivenii</i>
Rutaceae	<i>Agathosma ovata</i>
Rutaceae	<i>Agathosma peglerae</i>
Rutaceae	<i>Agathosma stenopetala</i>
Rutaceae	<i>Agathosma venusta</i>
Rutaceae	<i>Calodendrum capense</i>
Rutaceae	<i>Clausena anisata</i> var. <i>anisata</i>
Rutaceae	<i>Coleonema aspalathoides</i>
Rutaceae	<i>Diosma hirsuta</i>
Rutaceae	<i>Empleurum unguiculatum</i>
Salicaceae	<i>Dovyalis rhamnoides</i>
Salicaceae	<i>Dovyalis rotundifolia</i>
Salicaceae	<i>Trimeria trinervis</i>
Santalaceae	<i>Colpoosia compressa</i>
Santalaceae	<i>Osyris compressa</i>
Santalaceae	<i>Rhoiacarpos capensis</i>
Santalaceae	<i>Thesidium microcarpum</i>
Santalaceae	<i>Thesium aggregatum</i>
Santalaceae	<i>Thesium capitatum</i>
Santalaceae	<i>Thesium foliosum</i>
Santalaceae	<i>Thesium fragile</i>
Santalaceae	<i>Thesium funale</i>
Santalaceae	<i>Thesium junceum</i> var. <i>junceum</i>
Santalaceae	<i>Thesium strictum</i>
Santalaceae	<i>Thesium subnudum</i> var. <i>subnudum</i>

Santalaceae	<i>Thesium triflorum</i>
Sapindaceae	<i>Hippobromus pauciflorus</i>
Schizaeaceae	<i>Schizaea pectinata</i>
Scrophulariaceae	<i>Chaenostoma campanulatum</i>
Scrophulariaceae	<i>Chaenostoma halimifolium</i>
Scrophulariaceae	<i>Chaenostoma integrifolium</i>
Scrophulariaceae	<i>Diclis reptans</i>
Scrophulariaceae	<i>Hebenstretia integrifolia</i>
Scrophulariaceae	<i>Jamesbrittenia argentea</i>
Scrophulariaceae	<i>Jamesbrittenia aspalathoides</i>
Scrophulariaceae	<i>Jamesbrittenia foliolosa</i>
Scrophulariaceae	<i>Jamesbrittenia microphylla</i>
Scrophulariaceae	<i>Manulea obovata</i>
Scrophulariaceae	<i>Nemesia sp.</i>
Scrophulariaceae	<i>Pseudoselago gracilis</i>
Scrophulariaceae	<i>Selago canescens</i>
Scrophulariaceae	<i>Selago dolosa</i>
Scrophulariaceae	<i>Selago glomerata</i>
Scrophulariaceae	<i>Selago linearis</i>
Scrophulariaceae	<i>Selago luxurians</i>
Scrophulariaceae	<i>Selago myrtifolia</i>
Scrophulariaceae	<i>Selago rotundifolia</i>
Scrophulariaceae	<i>Teedia lucida</i>
Selaginellaceae	<i>Selaginella kraussiana</i>
Solanaceae	<i>Solanum americanum</i>
Solanaceae	<i>Solanum chenopodioides</i>
Solanaceae	<i>Solanum geniculatum</i>
Solanaceae	<i>Solanum giganteum</i>
Solanaceae	<i>Solanum nigrum</i>
Solanaceae	<i>Solanum retroflexum</i>
Solanaceae	<i>Solanum sodomium var. sodomium</i>
Solanaceae	<i>Withania somnifera</i>
Sphagnaceae	<i>Sphagnum truncatum</i>
Stilbaceae	<i>Halleria lucida</i>
Stilbaceae	<i>Nuxia floribunda</i>
Theophrastaceae	<i>Samolus porosus</i>
Thymelaeaceae	<i>Gnidia denudata</i>
Thymelaeaceae	<i>Gnidia quadrifaria</i>
Thymelaeaceae	<i>Gnidia styphelioides</i>
Thymelaeaceae	<i>Gnidia subulata</i>
Thymelaeaceae	<i>Lasiosiphon anthylloides</i>
Thymelaeaceae	<i>Passerina corymbosa</i>
Thymelaeaceae	<i>Passerina falcifolia</i>
Thymelaeaceae	<i>Passerina filiformis</i>
Thymelaeaceae	<i>Passerina pendula</i>
Thymelaeaceae	<i>Passerina rigida</i>
Thymelaeaceae	<i>Passerina rubra</i>
Thymelaeaceae	<i>Struthiola hirsuta</i>
Thymelaeaceae	<i>Struthiola macowanii</i>
Thymelaeaceae	<i>Struthiola martiana</i>
Thymelaeaceae	<i>Struthiola parviflora</i>
Typhaceae	<i>Typha capensis</i>
Verbenaceae	<i>Verbena bonariensis</i>
Vitaceae	<i>Cyphostemma cirrhosum ssp. cirrhosum</i>
Vitaceae	<i>Rhoicissus digitata</i>
Vitaceae	<i>Rhoicissus tridentata ssp. tridentata</i>

Zamiaceae	<i>Encephalartos longifolius</i>
Zosteraceae	<i>Zostera capensis</i>
Zygophyllaceae	<i>Roepera foetida</i>
Zygophyllaceae	<i>Roepera fulva</i>
Zygophyllaceae	<i>Roepera morgsana</i>

Appendix D3 – Geotechnical Assessment Report and Declaration

GEOTECHNICAL SOIL TEST REPORT

Client: Mr Moller c/o Sigma Consulting

Project: Portion 9 of Farm 707, Kromme River, St Francis, Kouga Municipality

Date of test: 16.11.2022

Geotechnical Constraint	Risk			NHBC Classification
	Low	Medium	High	
Active clay	X			
Compressible soil		X		S1
Collapsible soil	X			
Imported/uncontrolled fill	X			
Chemically aggressive soils	X			
Saturated soils/ groundwater seepage		X		
Shallow hard rock/ difficult excavations	X			
Slope stability problems	X			
Flood potential	X			
Seismicity	X			
Dolomitic land	X			

Disclaimer: The above classification is provided as a guideline and is true for the specific locations that were tested and may not be true for the entire site.

Site description:

The site was located on the banks of the Kromme River approximately 2.8km north of the town of St Francis Bay. The site was vacant at the time of the investigation and positioned on a very gentle slope (see Fig1), which drained in a southerly direction towards the river approximately 20m from the boundary on the southern side of the property. Access to the site was gained from a gravel road off the R330 north of St Francis Bay. At the time of the investigation, the ground conditions on the site were generally dry, well drained and macro-stable with no signs of any severe drainage problems or features such as marshes, streams or springs on the site.

Methods of investigation:

A total of five test pits were excavated using a TLB to a maximum depth of ~NGL-2.55m at the positions TP1-4 & TP7, as indicated on the attached plan. DCP tests were conducted from ground level to assess soil consistency at test positions TP1-TP8. A soil sample of insitu material was collected from TP2 for lab tests (Foundation Indicator).

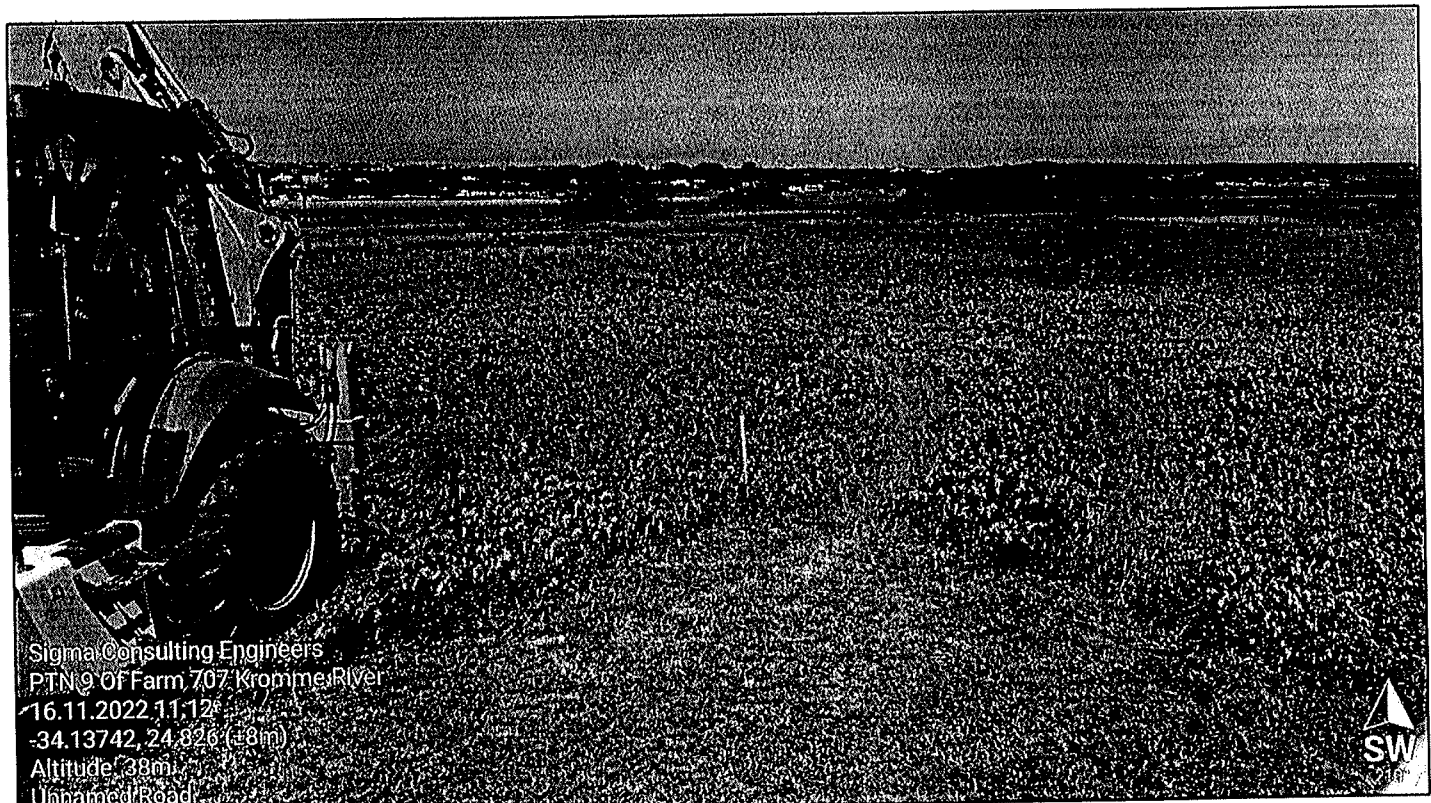


Figure 1: Photo of site looking southwest from the entrance

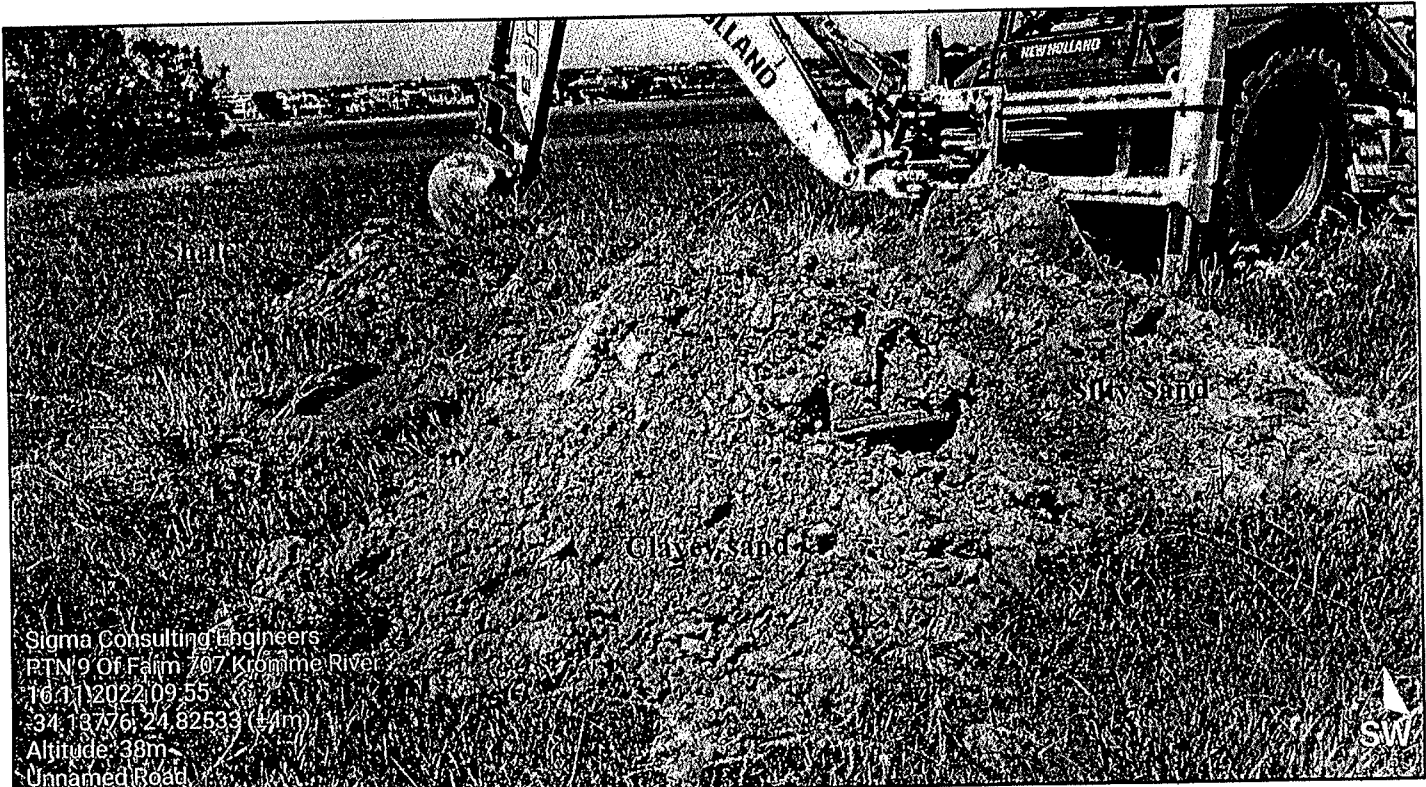


Figure 2: Photo of typical soil & shale rock excavated from test pits

Results:

The site geology consisted of thick deposits of alluvium which overlies shale of the Bokkeveld Group.

The general soil profile exposed in test pits concurred with this mapping and consisted of the following horizons:

- 0-0.4m: Moist, dark brown, loose, intact, SILTY SAND & ROOTLETS, alluvium
- 0.4-1.2m: Moist, dark brown, loose, SILTY SAND, alluvium
- 1.2-1.7m: Moist, dark yellow orange, stiff/dense, intact, GRAVELLY CLAYEY SAND, alluvium (Lab tests indicated low clay content and low (6) plasticity Index).
- 1.7-2.0m: Moist, light grey, very dense, intact, CLAYEY SANDY GRAVEL, residual (completely weathered shale)
- >2.0m: Dark grey, highly weathered, highly fractured, very soft rock, SHALE

Test pits indicated that the profile was dominated by clayey/silty sand of alluvial origin and underlain by shale rock at a depth of approximately 2m (see Figure 2).

A perched groundwater table was encountered on the shale rock towards the base of the test holes at depths ranging from 1.9m to 2.1m below ground level.

DCP tests indicated soil consistency as follows:

- 0-1.2m: Loose, $\phi \sim 28-30^\circ$, Estimated Allowable Safe BP < 50kPa.
- 1.2-1.7m: Medium dense-dense/stiff, $\phi \sim 32-34^\circ$, Estimated Allowable Safe BP ~ 150kPa.
- 1.7-2.0m: Dense-very dense, $\phi \sim 36^\circ$. Estimated Allowable Safe BP ~ 200kPa.

Recommendations:

Earthworks: Some minor earthworks were anticipated to clear, level and compact the site in preparation of construction. Earthworks could be accomplished with light machinery and all excavations to a depth of at least 1.9m were provisionally classified as per SABS1200D as "soft". The insitu sandy soils in the upper 1.2m of the profile were fine-grained but were deemed to be generally suitable for backfilling and compaction on platforms, under floors, behind retaining walls and below foundations at the optimum moisture content. Organic matter, such as roots and humus/topsoil, and any wet or very clayey soil should be removed from potential fill material and stockpiled separately for landscaping purposes. Sidewalls of temporary excavations (trenches) may be highly unstable at angles steeper than 45° and battering of sidewalls was recommended. Dewatering of excavations will be required for deep excavations below the water table expected at NGL-1.9m.

Foundations and floors: The recommended foundation system for single/double storey masonry structures is lightly reinforced concrete strip/pad foundations, founded at a recommended depth of 1m below ground level on well compacted insitu soil with a maximum safe bearing pressure of 150kPa. As a guideline to achieve adequate compaction to avoid settlement, the foundation trenches should be excavated to the recommended minimum founding depth, lightly wetted and compacted with several passes of a mechanical trench rammer (Wacker) such that a DCP penetrates at less than 20mm/blow. The structural engineer should inspect foundation trenches and ensure adequate compaction testing of before casting foundation concrete. Filling under reinforced surface bed concrete floors can consist of suitable insitu soil, compacted at the optimum moisture content (10-12%) to 100% of maximum dry density.

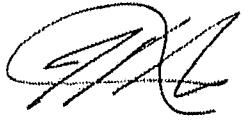
Roads: The insitu roadbed material consists of very fine sandy soil, which is loose and prone to deep rutting when wet. It is recommended that the driveway subgrade is cut to a depth of GL-0.15m to remove topsoil and roots, shaped with adequate side drainage, and compacted to 93%MDD.

Following compaction of the roadbed, the recommended minimum layerworks include 150mm of G5 subbase, compacted to 95%MDD, and 60mm interlocking concrete pavers on 20mm bedding sand.

Drainage: Stormwater management systems are recommended to collect, handle and discharge stormwater off hard surfaces, such as roofs, concrete hardstands, etc in a controlled manner to prevent erosion or excessive ingress into the soil surrounding the buildings which may cause settlement of foundations.

Conclusions:

The site is considered suitable for the proposed development with conventional construction methods but there are some geotechnical constraints requiring consideration in the engineering design. Some preliminary recommendations have been provided, but all information should be verified on site during construction.

A handwritten signature in black ink, appearing to read 'Iain Paton', with a stylized, cursive script.

Iain Paton Pr Sci Nat Pr Tech Eng



Legend

● Test positions

Project: New dwelling for owner
Site: Portion 9 of Kromme 707
Area: St Francis Bay

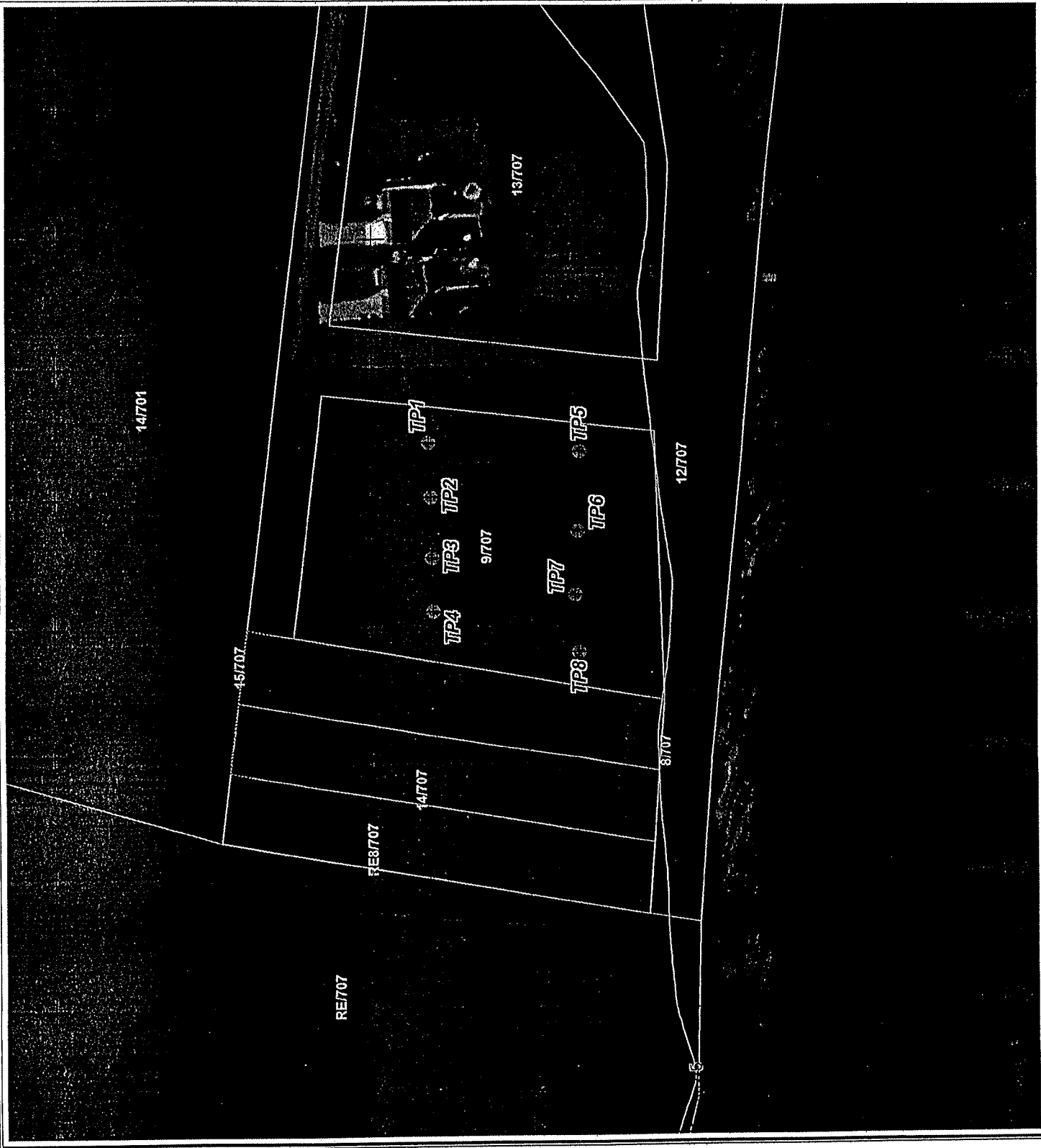
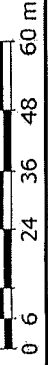
Dwg Name: Geotechnical tests
Date: November 2022
Rev no: 1
Drawn: IP

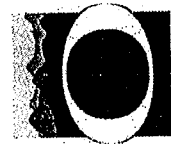
Client: Mr Moller
Structural/Civil Eng: Sigma Consulting
Architect:



18 Clyde St
Knysna
6571
South Africa
+27443820502
info@outeniqua.co.za

Scale 1:1500



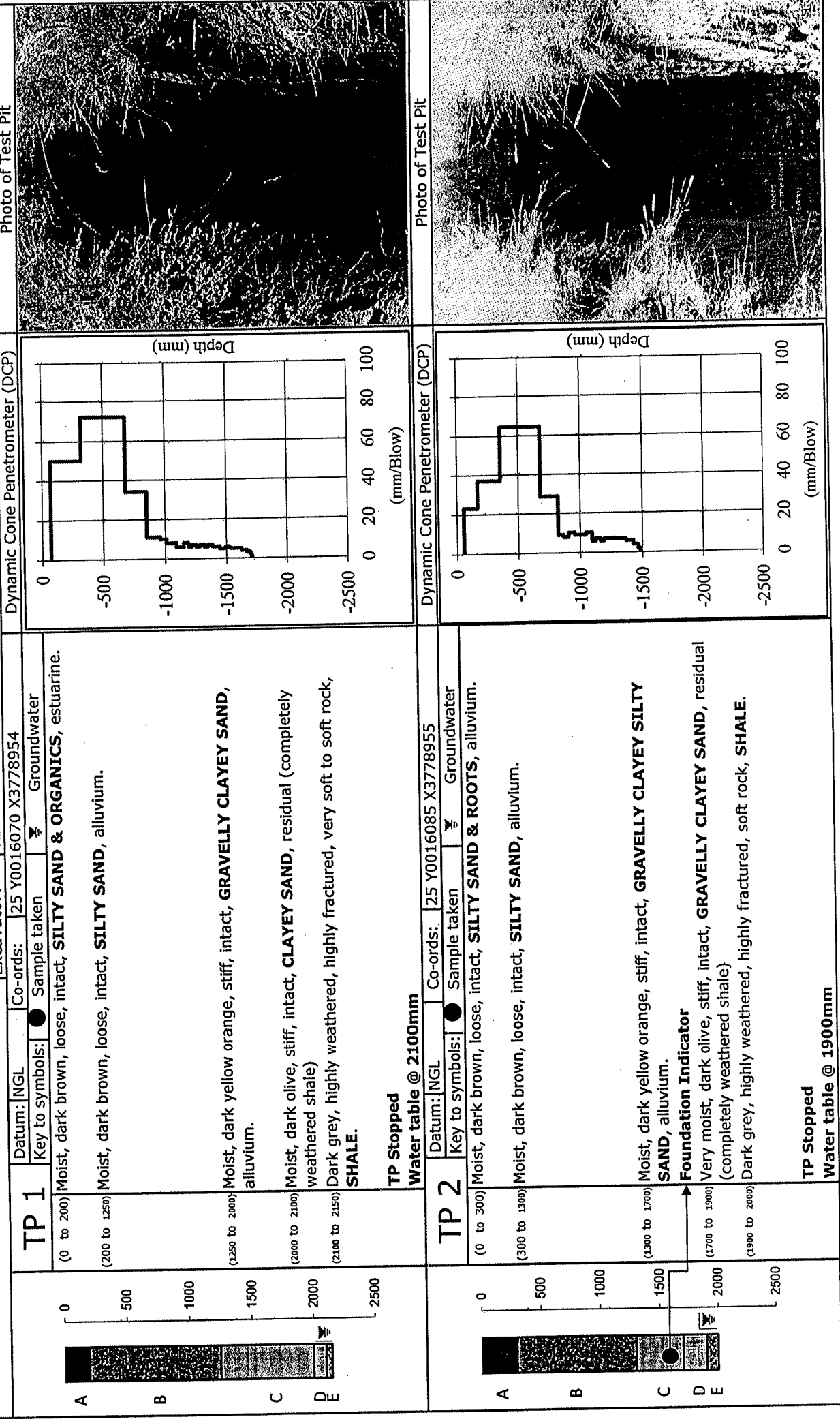


OUTENIQUA

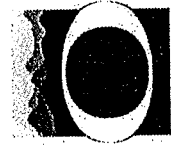
GEOTECHNICAL SERVICES

Geotechnical Soil Profile

Client: Sigma Consulting
Project: Portion 9 of Kromme River 707
Area: St Francis Bay
Date: 16.11.2022
Excavator: TLB



OUTENIQUA GEOTECHNICAL SERVICES					Geotechnical Soil Profile				
Client: Sigma Consulting					Project: Portion 9 of Kromme River 707				
Area: St Francis Bay					Date: 16.11.2022				
Excavator: TLB					Co-ords: 25 Y0016103 X3778955				
TP 3		Datum: NGL	Key to symbols: ● Sample taken	☒ Groundwater	Dynamic Cone Penetrometer (DCP)		Photo of Test Pit		
(0 to 500)		Moist, dark brown, loose, intact, SILTY SAND & ROOTLETS , alluvium.							
(500 to 1100)		Moist, dark brown, loose, intact, SILTY SAND , alluvium.							
(1100 to 1400)		Moist, dark yellow orange, stiff, intact, GRAVELLY CLAYEY SAND , alluvium.							
(1400 to 1700)		Moist, dark grey, very dense, intact, CLAYEY SANDY GRAVEL , residual (completely weathered shale)							
(1700 to 1800)		Dark grey, highly weathered, highly fractured, soft rock, SHALE .							
		TP Stopped No Water							
TP 4		Datum: NGL	Key to symbols: ● Sample taken	☒ Groundwater	Dynamic Cone Penetrometer (DCP)		Photo of Test Pit		
(0 to 400)		Moist, dark brown, loose, intact, SILTY SAND & ROOTLETS , alluvium.							
(400 to 1200)		Moist, dark brown, loose, intact, SILTY SAND , alluvium.							
(1200 to 1600)		Moist, dark yellow orange, stiff, intact, GRAVELLY CLAYEY SAND , alluvium.							
(1600 to 2000)		Very moist to wet, dark grey, very dense, intact, CLAYEY SANDY GRAVEL , residual (completely weathered shale)							
(2000 to 2200)		Dark grey, highly weathered, highly fractured, soft rock, SHALE .							
		TP Stopped Water table @ 2000mm							



OUTENIQUA

GEOTECHNICAL SERVICES

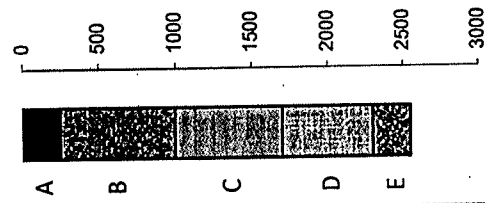
Geotechnical Soil Profile

Client: Sigma Consulting
Project: Portion 9 of Kromme River 707
Area: St Francis Bay
Date: 16.11.2022
Excavator: TLB

Co-ords: 25 Y00161113 X3778995

Datum: NGL
Key to symbols: Sample taken Groundwater

TP 7



TP Stopped
No Water

Dynamic Cone Penetrometer (DCP)

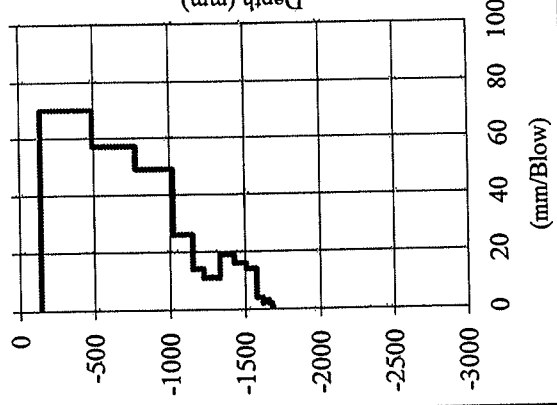


Photo of Test Pit





Outeniqua Lab EC cc.

Materials Testing Laboratory

Registration No. 2009/230653/23

170 Sidwell Avenue, Sidwell, Port Elizabeth : PO Box 3186, George Industria, 6536

Tel: 041 4512464 : Fax: 041 4534959 : e-mail: luwayne@outeniqua.co.za / agovender@outeniqua.co.za

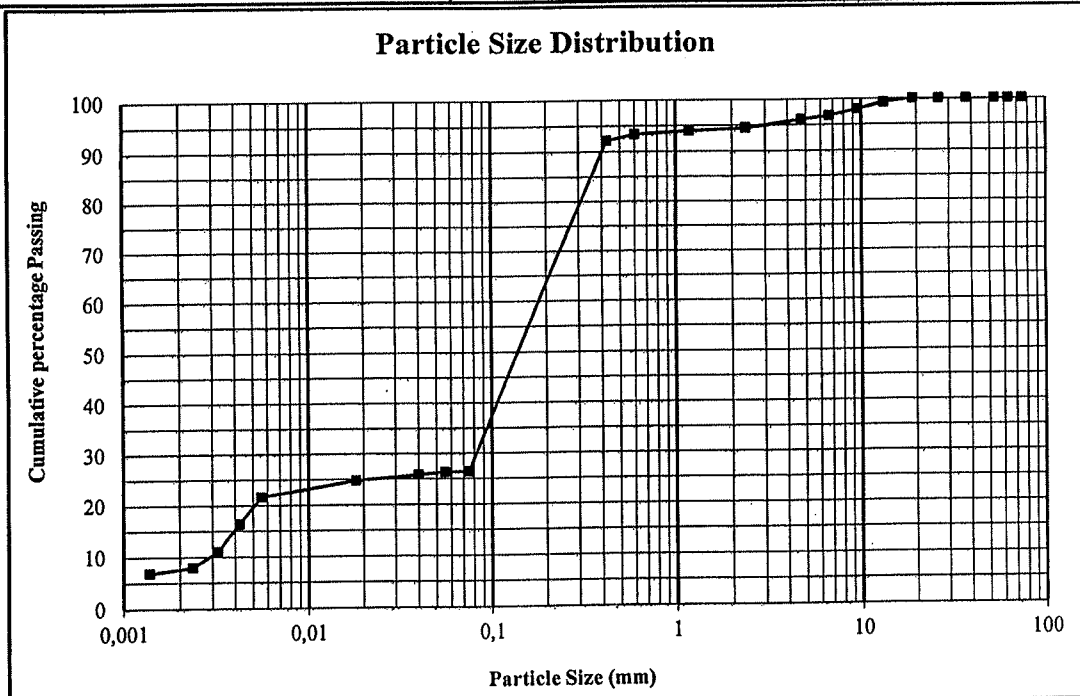
Customer :	Outeniqua Geotechnical Services cc	Project :	Sigma Consulting Engineers - PTN 9 of Farm 707 Kromme Riv		
	Po Box 964	Date Received :	16/11/22		
	Knysna	Date Reported :	23/11/22		
	6570	Req. Number :	1933/22		
Attention :	I Paton - 0827827793	No. of Pages :	1/1		

TEST REPORT

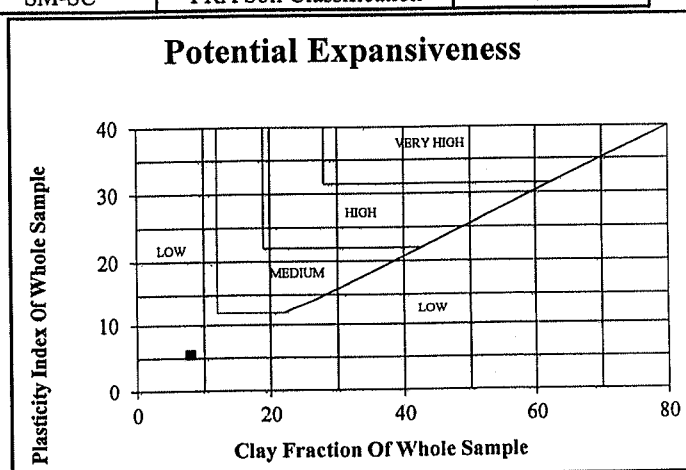
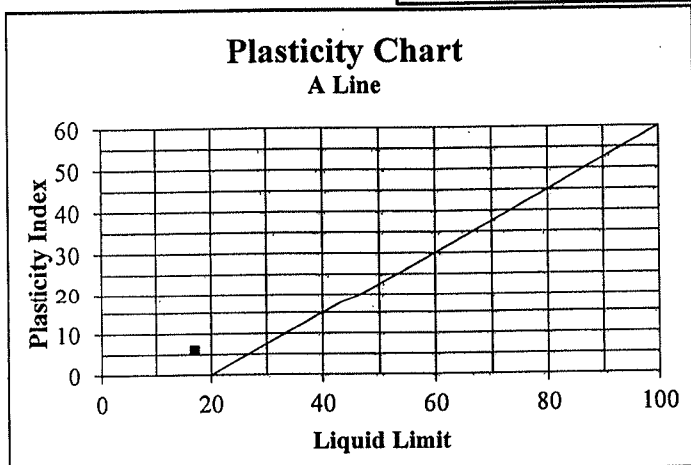
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

Material Description:	Dark Yellowish Orange - Gravelly Clayey Sand	Sample Number:	16521		
Position:	TP 2	Liquid Limit	17	Linear Shrinkage	3
Depth:	1300-1700	Plasticity Index	6	Insitu M/C%	13,8

Sieve Size(mm)	% Passing
75,0	100
63,0	100
53,0	100
37,5	100
26,5	100
19,0	100
13,2	99
9,5	98
6,7	97
4,75	96
2,36	95
1,18	94
0,600	93
0,425	92
0,075	26
0,0558	26
0,0399	26
0,0182	25
0,0055	22
0,0042	16
0,0032	11
0,0024	8
0,0014	7



% Clay	8	% Silt	18	% Sand	68	% Gravel	6
Unified Soil Classification		SM-SC		PRA Soil Classification		A-2-4	



Notes:

- Specimens delivered to Outeniqua Lab in good order.

Luwayne Malgraff
For Outeniqua Lab EC cc.

- The test results are reported with an approximate 95% level of confidence.
- This report (with attachments) is the correct record of all measurements made, and may not be reproduced other than with full written approval from the Technical Director of Outeniqua Lab.
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Geotechnical Engineering Consultants

Registration No. 1999/062743/23

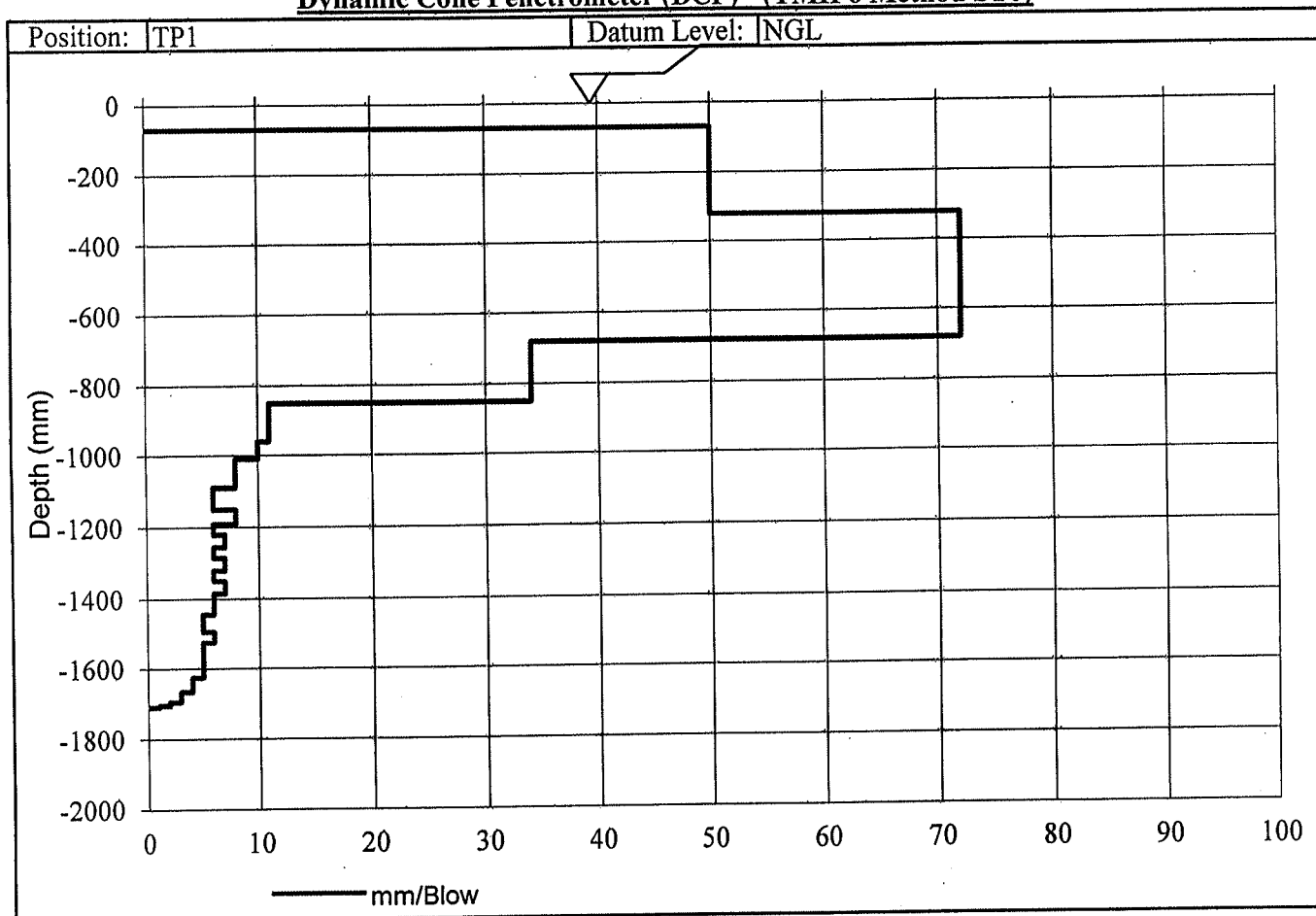
18 Clyde Street, Knysna : PO Box 964, Knysna, 6570

Tel: 044 3820502 : Fax: 044 3820503 : e-mail: iain@outeniqua.co.za

Customer :	Sigma Consulting Engineers P.O. Box 34808 Newton Park, Port Elizabeth 6055	Project :	Portion 9 of Kromme River 707 St Francis Bay
		Date Received :	08.11.2022
		Date Reported :	16.11.2022
		Req. Number :	
Attention :	Heindrich Albertyn	No. of Pages :	1 of 8

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)



I Paton (Member)
For Outeniqua Geotech. Services cc.
Technical Signatory

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Members: Iain Paton BSc Hons MEng Pr Sci Nat MSAIEG MSAICE



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Geotechnical Engineering Consultants

Registration No. 1999/062743/23

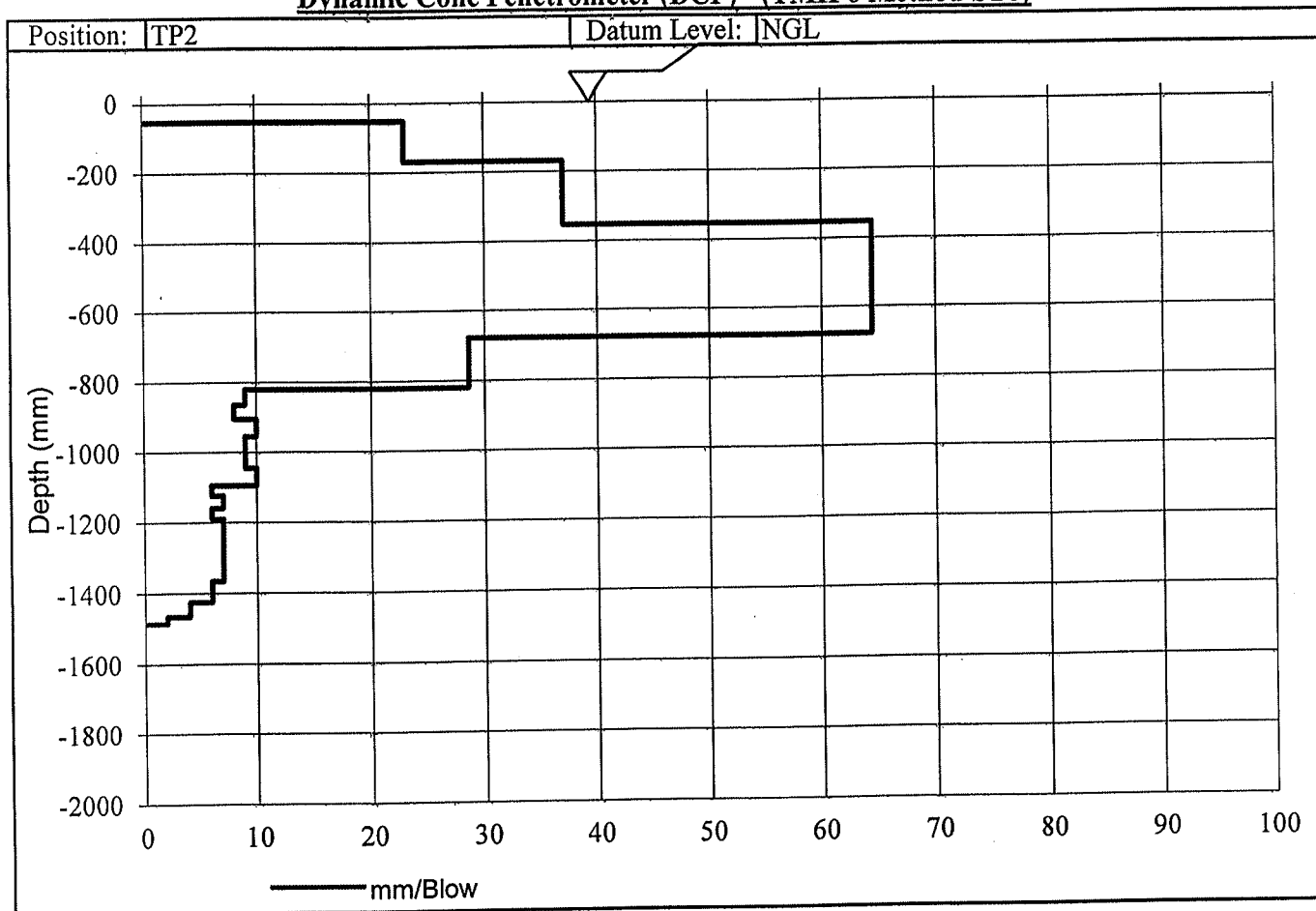
18 Clyde Street, Knysna : PO Box 964, Knysna, 6570

Tel: 044 3820502 : Fax: 044 3820503 : e-mail: iain@outeniqualab.co.za

Customer :	Sigma Consulting Engineers P.O. Box 34808 Newton Park, Port Elizabeth 6055	Project :	Portion 9 of Kromme River 707 St Francis Bay
		Date Received :	08.11.2022
		Date Reported :	16.11.2022
		Req. Number :	
Attention :	Heindrich Albertyn	No. of Pages :	2 of 8

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)



I Paton (Member)
For Outeniqua Geotech. Services cc.
Technical Signatory

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Members: Iain Paton BSc Hons MEng Pr Sci Nat MSAIEG MSAICE



Outeniqua Geotechnical Services cc.

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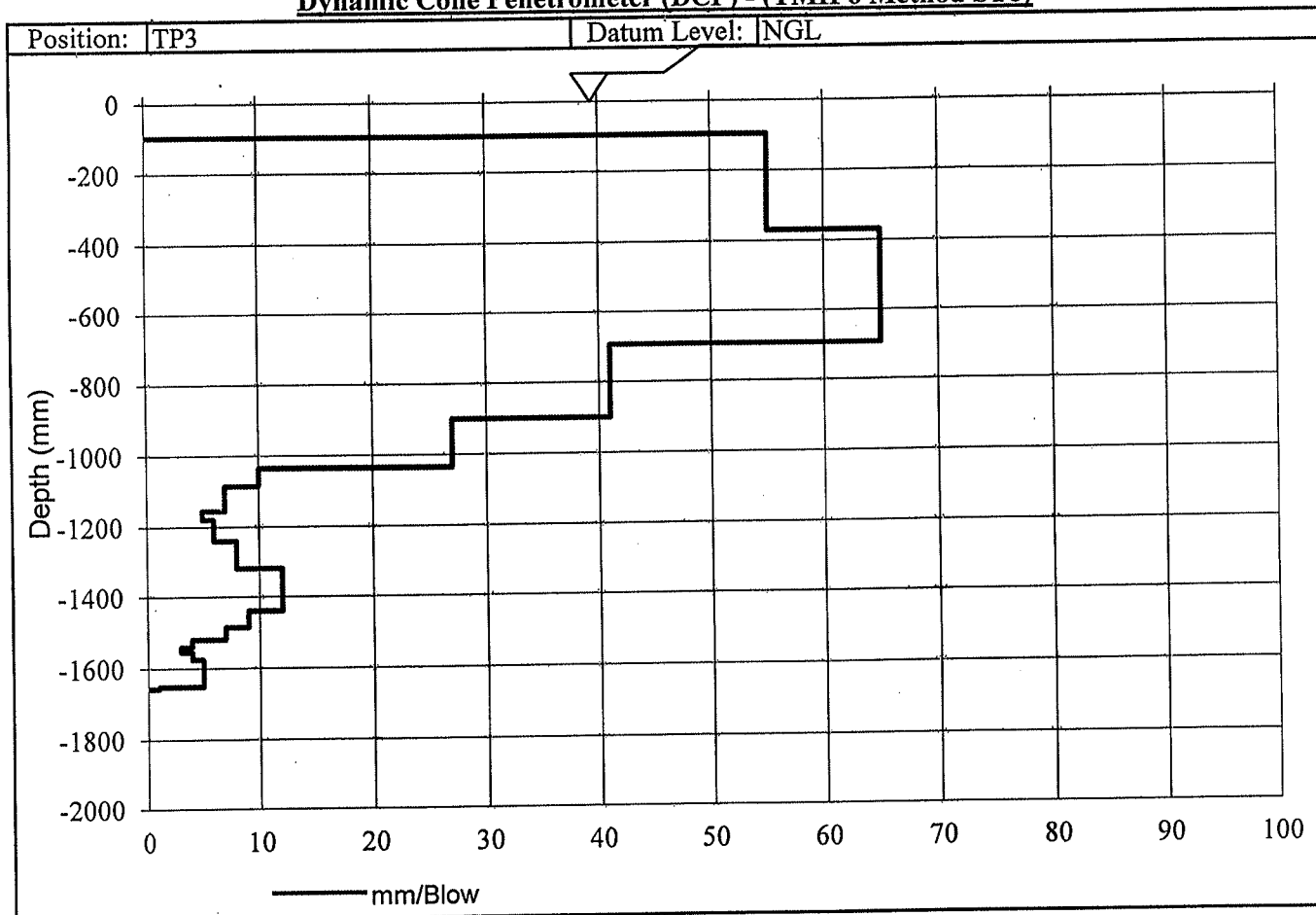
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Customer :	Sigma Consulting Engineers P.O. Box 34808 Newton Park, Port Elizabeth 6055	Project :	Portion 9 of Kromme River 707 St Francis Bay
		Date Received :	08.11.2022
		Date Reported :	16.11.2022
		Req. Number :	
Attention :	Heindrich Albertyn	No. of Pages :	3 of 8

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)



I Paton (Member)
For Outeniqua Geotech. Services cc.
Technical Signatory

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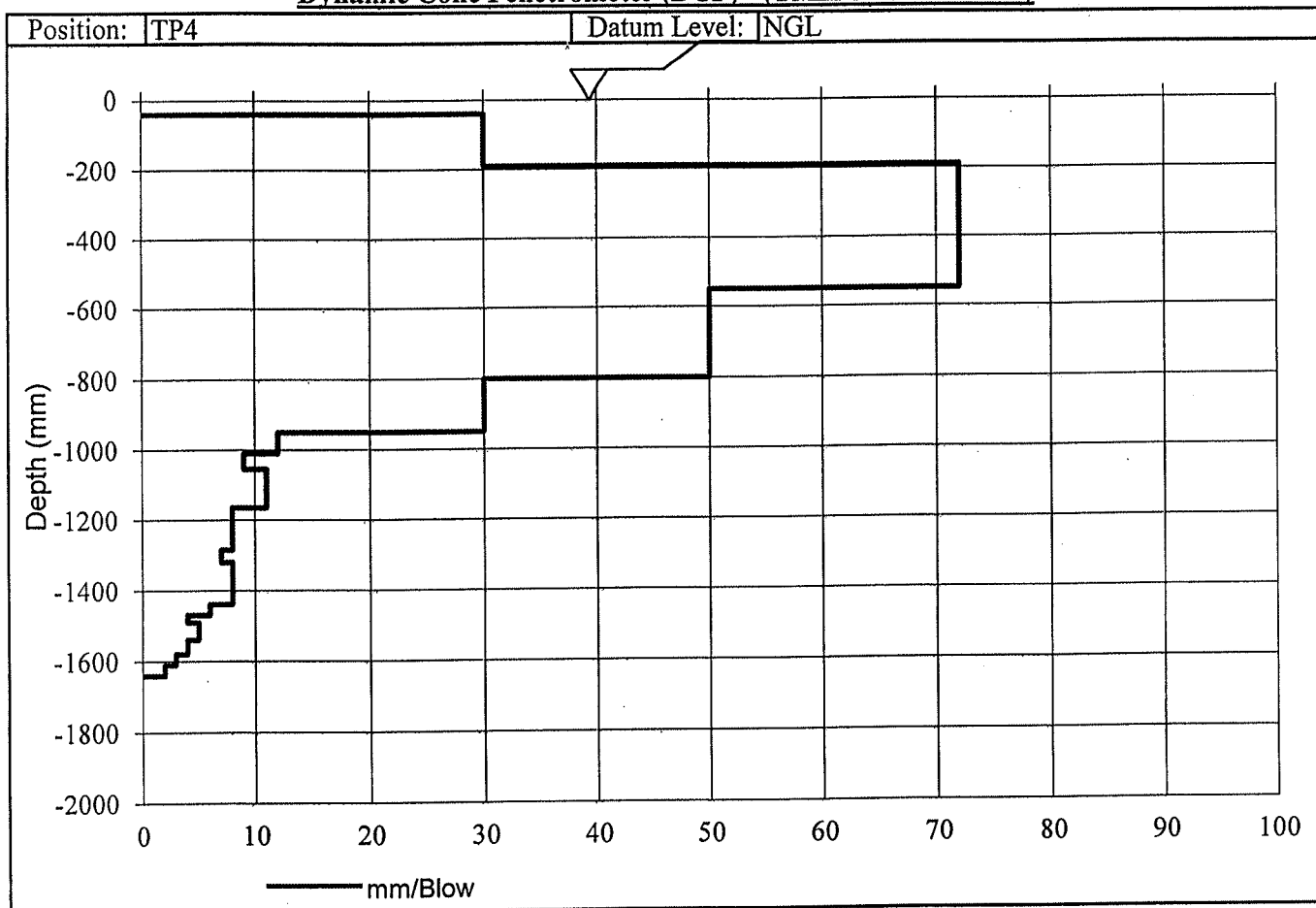
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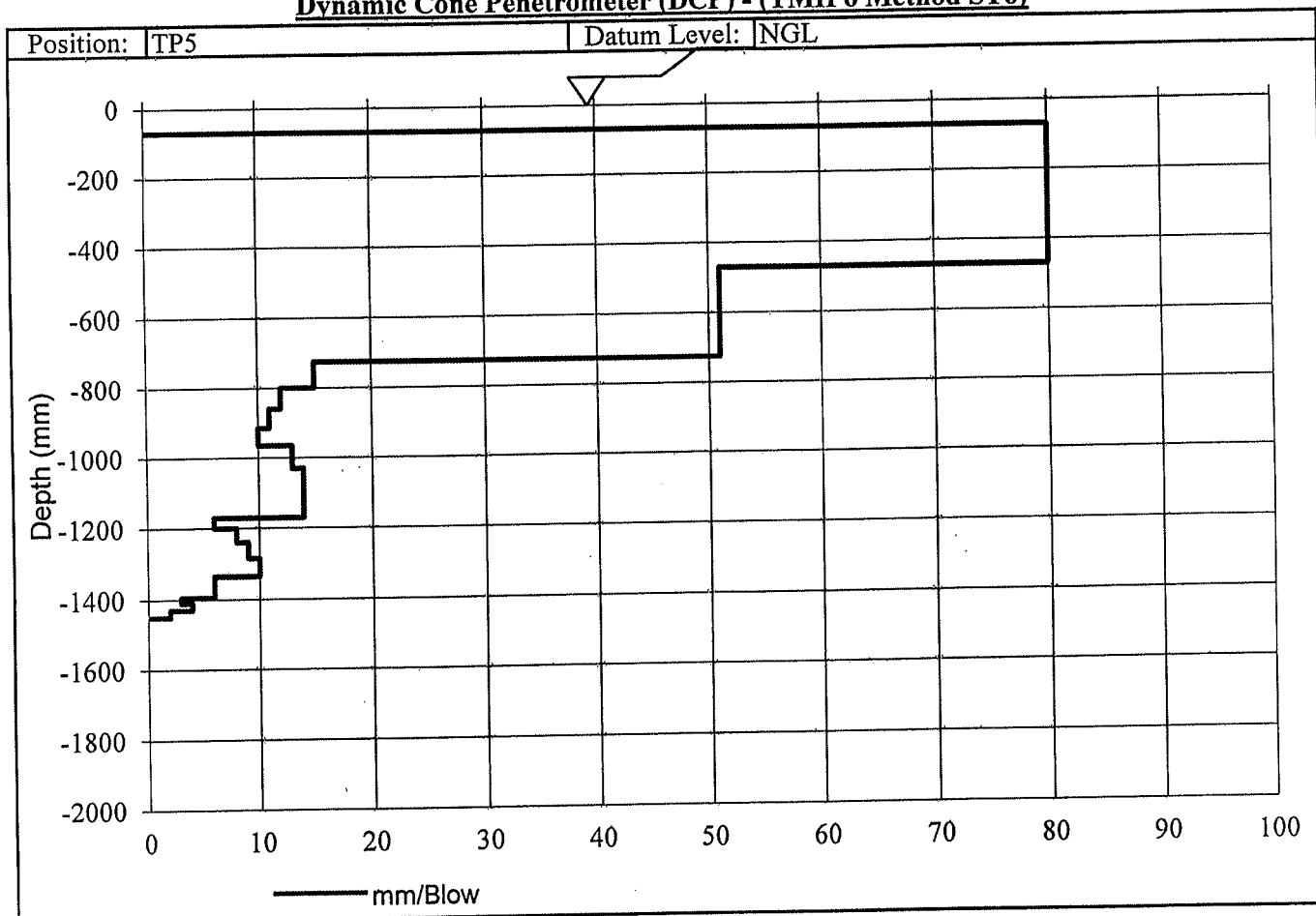
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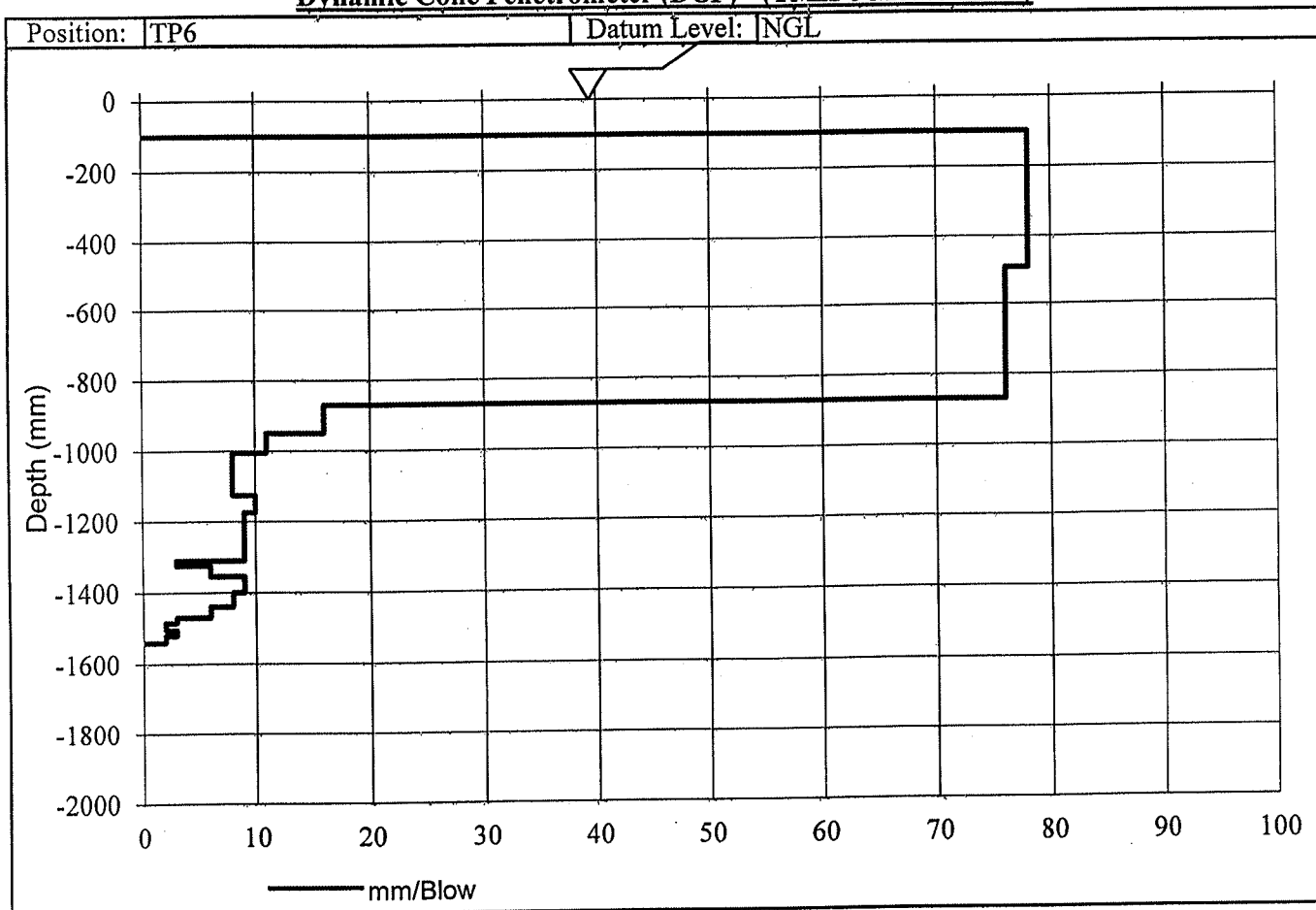
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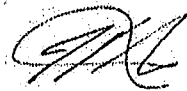
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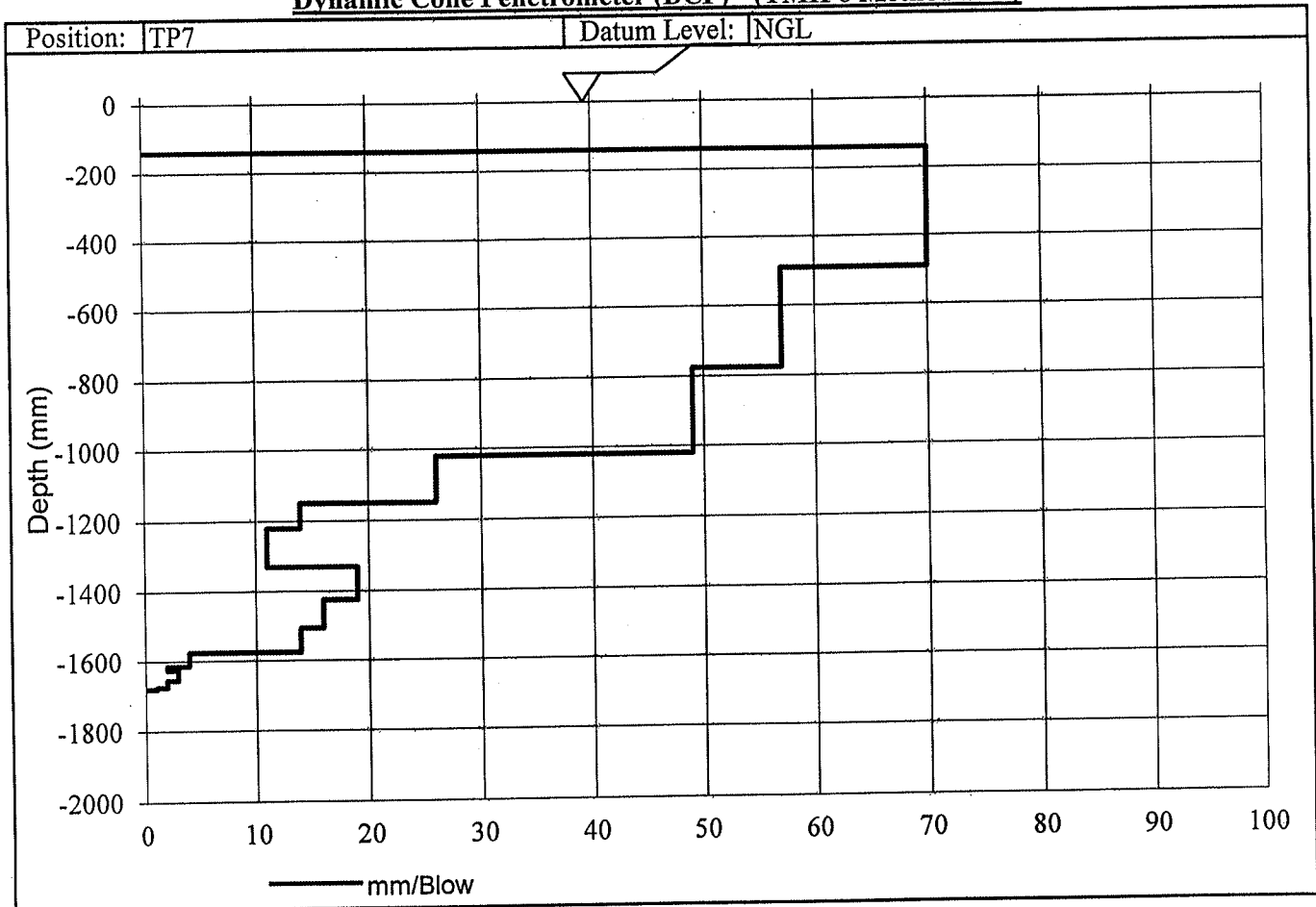
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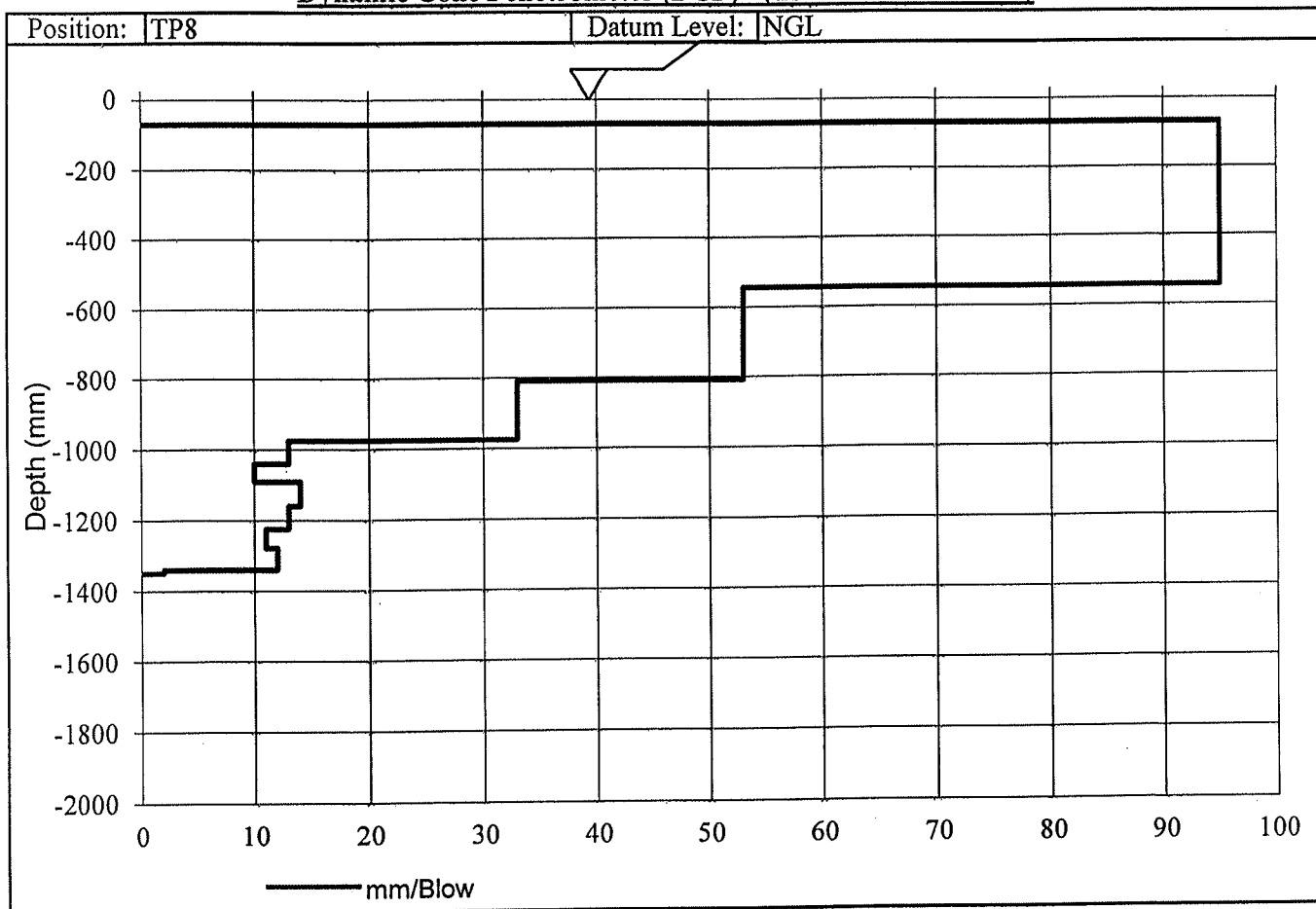
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Members: Iain Paton BSc Hons MEng Pr Sci Nat MSAIEG MSAICE

Appendix D4 – Animal Assessment Report and Declaration



TERRESTRIAL ANIMAL SPECIES SPECIALIST ASSESSMENT REPORT

Proposed four (4) two-bedroom self-catering tourist accommodation units on Portion 9 of Farm 707 Osbosch, Kouga Local Municipality, Humansdorp Registration Division, Eastern Cape Province.

PREPARED FOR:
**ACES Environmental
Consultants**

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20 January 2026

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Acronyms

- | | |
|---|--|
| 1. ACES Adakite Consortium of Environmental Consultants | 12. CR Critically Endangered (IUCN) |
| 2. ADU VM Animal Demography Unit Virtual Museum | 13. DD Data Deficient (IUCN) |
| 3. AMSL Above Mean Sea Level | 14. DEDEAT Department of Economic Development, Environment Affairs and Tourism |
| 4. BAR Basic Assessment Report | 15. DEFF Department of Environment, Forestry and Fisheries |
| 5. BI Biodiversity Importance | 16. DWS Department of Water and Sanitation |
| 6. BGIS Biodiversity Geographic Information System (SANBI) | 17. EIA Environmental Impact Assessment |
| 7. BMP Biodiversity Management Plan | 18. EMF Environmental Management Framework |
| 8. CBA Critical Biodiversity Area | 19. EN Endangered (IUCN) |
| 9. CFR Cape Floristic Region | 20. EMPr Environmental Management Programme |
| 10. CI Conservation Importance | 21. EA Environmental Authorisation |
| 11. CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora | 22. EAP Environmental Assessment Practitioner |
| | 23. ECBCP Eastern Cape Biodiversity Conservation Plan |

24. EIA Environmental Impact Assessment
25. EMP Environmental Management Plan
26. ESA Ecological Support Area
27. EW Extinct in the Wild
28. FEPA Freshwater Ecosystem Priority Area
29. FI Functional Integrity
30. GIS Geographic Information System
31. GPS Global Positioning System
32. HWM High Water Mark
33. IAP Invasive and Alien Plants
34. IBA Important Bird and Biodiversity Areas
35. IUCN International Union for Conservation of Nature
36. KBA Key Biodiversity Area
37. LAZ Littoral Active Zone
38. LC Least Concern (IUCN)
39. LDP Low Detection Probability
40. NEMA National Environmental Management Act (Act no 107 of 1998)
41. NFEPA National Freshwater Ecosystem Priority Areas
42. NEMPA National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
43. NT Near Threatened (IUCN)
44. PAOI Project Area of Influence
45. PE Protected Environment
46. PES Present Ecological State
47. RE Regionally Extinct (IUCN)
48. RR Receptor Resilience (IUCN)
49. SABAA South African Bat Assessment Association
50. SABAP South African Bird Atlas Project
51. SACNASP South African Council for Natural Scientific Professions
52. SANBI South African National Biodiversity Institute
53. SBDM CMPr Sarah Baartman District Municipality Coastal Management Programme
54. S&EIR Scoping and Environmental Impact Report
55. SDF Spatial Development Framework
56. SSC Species of Special Concern
57. SSVR Site Sensitivity Verification Report
58. SWSA Strategic Surface Water Area
59. TOPS Threatened or Protected Species
60. Vu Vulnerable (IUCN)

Specialist Details & Declaration

Name of Specialist	Francette Jerling
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Highest Qualification	M.Sc. Zoology
SACNASP Registration no.	151825 Zoological Science Conservation Science
Experience (no. of years)	15 (Please see attached Annexure A for full CV)
This report has been prepared following the guidelines outlined in the "Protocol for the Specialist assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity," as promulgated under Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as published in GN. No. 320 on March 20, 2020. Statement of Independence: I, Francette Jerling, as the appointed terrestrial animal specialist, hereby declare/affirm the correctness of the information provided in this compliance statement, and that I: • Meet the general requirement to be independent and have no business or financial interest, apart from compensation for services rendered in accordance with the National Environmental Management Act, 1998 (Act 107 of 1998), • Have no personal or other interest in the proposed development and that no circumstances have occurred that may have compromised my objectivity; and • I am aware that a false declaration is an offence in terms of regulation 48 of the EIA Regulations (2014). • The remuneration for services provided by me as the specialist is not contingent upon or influenced by the approval of the proposed project by the relevant authorities responsible for its authorization. Disclosure: I, Francette Jerling, hereby declare my commitment to transparency and integrity in the preparation of this terrestrial animal species statement. I pledge to disclose any material information that may influence the decision-making process of the competent authority or compromise the objectivity of any report, plan, or document required under the National Environmental Management Act, 1998 (Act 107 of 1998).	

Furthermore, I guarantee the competent authority full access to all information within my possession related to the application, regardless of its implications for the applicant.

The results and conclusions presented in this compliance report are based on a thorough analysis of information provided by the client and supplemented by data gathered during the course of this study. I assure that these findings are presented to the best of my professional judgment and in accordance with industry best practices.

Signed:



_____, 15 January 2026_____
Francette Jerling Date

Executive Summary

Project Overview

Adakite Consortium of Environmental Consultants (ACES) was appointed to support the application for Environmental Authorisation for the proposed development of four (4) two-bedroom self-catering tourist accommodation units on Portion 9 of Farm Osbosch 707, located on the left bank of the Kromme River Estuary within the Kouga Local Municipality, Eastern Cape Province.

Purpose of the Assessment

The National Web-based Environmental Screening Tool (DFFE) identified the site as having High Sensitivity for terrestrial animal species. In accordance with the *Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species* (GN 1150 of 2020), this terrestrial animal species specialist assessment was undertaken to verify the site sensitivity rating, assess habitat suitability, evaluate the likelihood of occurrence of Species of Conservation Concern (SCC), and inform appropriate mitigation measures.

Methodology

The assessment was undertaken by a SACNASP-registered zoologist and comprised a detailed desktop review of available biodiversity datasets (including SANBI, iNaturalist and SABAP2), followed by a site inspection conducted in October 2025. The survey was undertaken during early summer, coinciding with the primary breeding period for many fauna species. Strong wind conditions were noted during the site visit and were recorded as a limitation with respect to the detectability of some fauna, particularly avifauna.

Site Sensitivity Verification – Key Findings

The Site Sensitivity Verification confirmed that, while the site itself is characterised by open, grass-dominated vegetation with evidence of historical disturbance and no confirmed on-site presence of SCC, the broader ecological context remains highly sensitive. The site is located in close proximity to the Kromme River Estuary, an ecologically important system that supports numerous avifaunal SCC, including waterbirds (such as the Caspian Tern), large grassland birds (such as the Blue Crane), and wide-ranging raptors (such as the African Crowned Eagle).

Although suitable nesting habitat for SCC is largely absent from the site itself, the property falls within the broader foraging, movement and dispersal ranges of several SCC recorded in the surrounding

landscape. In addition, the presence of small mammals and open grassland habitat provides potential feeding opportunities for birds of prey, further reinforcing the ecological connectivity of the area.

Based on these considerations, the High Sensitivity rating assigned by the DFFE Screening Tool is confirmed, not due to on-site habitat quality alone, but due to the site's location within a sensitive ecological matrix, its proximity to the river corridor, and its potential to be used intermittently by SCC associated with adjacent habitats.

Faunal Observations

No terrestrial animal SCC were observed on site during the survey. Evidence of common and widespread fauna was recorded, including burrows and soil mounds indicative of Hottentot Mole-rat (*Cryptomys hottentotus*), rodent runways and droppings, and larger grass runways consistent with hare species, possibly the Cape Hare (*Lepus capensis*), all of which are listed as Least Concern. Numerous grass funnel-web spider (family Agelenidae) webs were recorded, indicating intact grassland microhabitats for invertebrates.

Impact Assessment and Mitigation

The proposed development footprint is confined to the northern portion of the site, furthest from the southern boundary and the 100 m high-water mark of the Kromme River. As a result, anticipated faunal impacts are expected to be localised, short-term, and reversible, primarily associated with vegetation clearance and construction disturbance. Extensive surrounding open space provides alternative habitat for mobile fauna.

Appropriate mitigation and management measures have been identified and are recommended for inclusion in the Environmental Management Programme (EMPr) to minimise disturbance, prevent unnecessary fauna mortality, and ensure compliance with best practice.

Conclusion

The terrestrial animal species assessment confirms that the site is appropriately classified as having High Faunal Sensitivity, based on its broader ecological context and proximity to sensitive aquatic and grassland systems, despite the absence of SCC on site. Provided that the recommended mitigation measures are implemented, the proposed development is not expected to result in significant impacts on terrestrial animal SCC or faunal communities. From a faunal perspective, the development may proceed, subject to strict adherence to the EMPr.

Terms of Reference

- This report adheres to the guidelines outlined in the "Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species."
- This assessment aligns with the Environmental Impact Assessment Regulations, as specified under Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020 for Terrestrial Biodiversity, and in GN. No. 1150 dated 30 October 2020 for Terrestrial Plant Species and Terrestrial Animal Species.
- In accordance with these regulations, the methodology for assessing sensitivity concerning Terrestrial Animal Species conforms to the guidelines outlined in the most recent edition of the "Species Environmental Assessment Guideline," (<https://bgis.sanbi.org/>)

- This terrestrial animal species compliance statement and the minimum reporting requirements outlined in these protocols are associated with the environmental sensitivity level identified by the DFFE national web-based environmental screening tool.

According to the Screening Tool Report (STR) (DFFE, 2025), the proposed development area is classified as having **High** Animal Species Sensitivity (Figure 1). In terms of the applicable protocol, this classification requires the preparation of either a Terrestrial Animal Species Specialist Assessment Report where any Species of Conservation Concern (SCC) are recorded on site or are confirmed as likely to occur, or a Terrestrial Animal Species Compliance Statement where no SCC are identified on site and their presence is considered unlikely.

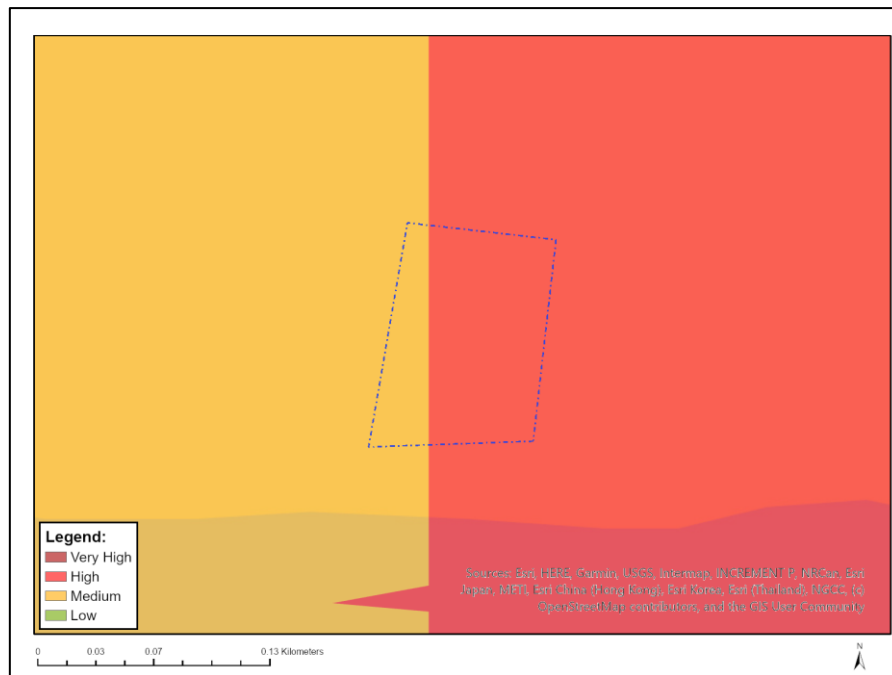


Figure 1 Map of Animal Species Theme Sensitivity for the proposed site generated by the National Screening Tool Report

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL SPECIES. (GN. 1150, OCTOBER 2020).

Table 1 Specialist Assessment and Minimum Report Content Requirements: Terrestrial Animal Species

1. General information	
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “very high” or “high” sensitivity for terrestrial animal species, must submit a Terrestrial Animal Species Specialist Assessment Report.
1.2	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “medium sensitivity” for terrestrial animal species, must submit either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.
1.3	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “low” sensitivity for terrestrial animal species, must submit a Terrestrial Animal Species Compliance Statement.
1.4	Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” or “high” for terrestrial animal species sensitivity on the screening tool, and it is found to be of a “low” sensitivity, then a Terrestrial Animal Species Compliance Statement must be submitted.

1.5	<i>Where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” terrestrial animal species sensitivity and it is found to be of a “very high” or “high” terrestrial animal species sensitivity, a Terrestrial Animal Species Specialist Assessment must be conducted.</i>
1.6	<i>If any part of the development falls within an area of confirmed “very high” or “high” sensitivity, the assessment and reporting requirements prescribed for the “very high” or “high” sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol, means the area on which the proposed development will take place and includes the area that will be disturbed or impacted.</i>
1.7	<i>The Terrestrial Animal Species Specialist Assessment and the Terrestrial Animal Species Compliance Statement must be undertaken within the study area.</i>
1.8	<i>Where the nature of the activity is not expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.</i>
1.9	<i>Where the nature of the activity is expected to have an impact on SCC beyond boundary of the preferred site, the project areas of influence (PAOI) must be determined by the specialist in accordance with Species Environmental Assessment Guideline, and the study area must include the PAOI, as determined.</i>

Table 2 Protocol for Terrestrial Animal Species Compliance Statement

5.1	<i>The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Zoological Science or Ecological Science).</i>
5.2	<i>The compliance statement must:</i> 5.2.1 <i>be applicable to the study area;</i> 5.2.2 <i>confirm that the study area, is of “low” sensitivity for terrestrial animal species; and</i> 5.2.3 <i>indicate whether or not the proposed development will have any impact on SCC.</i>
5.3	<i>The compliance statement must contain, as a minimum, the following information:</i> 5.3.1 <i>contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;</i> 5.3.2 <i>a signed statement of independence by the specialist;</i> 5.3.3 <i>a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;</i> 5.3.4 <i>a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;</i> 5.3.5 <i>the mean density of observations/ number of samples sites per unit area¹⁵.</i> 5.3.6 <i>where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;</i> 5.3.7 <i>a description of the assumptions made and any uncertainties or gaps in knowledge or data; and</i> 5.3.8 <i>any conditions to which the compliance statement is subjected.</i>

The findings of the assessment will determine whether the sensitivity of the site in terms of faunal SCC and communities correlates with that from the National Screening Report (STR) thus requiring the full Terrestrial Animal Species Specialist Assessment Report, or if the condition of the site is found to be of low sensitivity, then a Terrestrial Animal Species Compliance Statement is to be compiled. The outcome of this assessment must be integrated into the Basic Assessment Report (BAR) and Environmental Impact Report for the amendment, inclusive of identified mitigation and monitoring measures, which should be incorporated into the Environmental Management Programme (EMPr) where applicable.

1. Introduction

1.1. Project Background and Description of the Activity

Adakite Consortium of Environmental Consultants (ACES) is the appointed EAP to apply for Environmental Authorisation on behalf of the landowner, for the proposed four (4) two-bedroom self-catering tourist accommodation units on Portion 9 of Farm Osbosch, Humansdorp, Kouga Local Municipality, Eastern Cape Province. According to the National Screening Report (DFFE, 2025), the site is identified as '**High**' sensitivity for terrestrial animal species, necessitating a Faunal Assessment.

The objective of this assessment is to evaluate the current condition of terrestrial faunal habitats and communities prior to vegetation clearing, with the aim of identifying, preventing or reducing the potential impacts on faunal communities that may occur on the proposed site. This assessment additionally aims to inform the rectification process, offer suggestions to mitigate or prevent additional impacts to terrestrial animal species populations on the site or the project area of influence (PAOI), as identified.

The proposal involves the establishment of four (4) self-catering holiday units, each designed as single storey with two bedrooms and 2.5 bathrooms on a site located within 100m of the highwater mark of the Kromme River estuary. The development is proposed for the northern half of the site, above the 100 year floodline, with an anticipated footprint of each unit being 115m², including covered decking and porches (623.9m² total, inclusive of 13 parking bays). The property measures 7 185m² and the proposed total coverage of all four units, including parking bays is estimated at approximately ±8.7%.

1.2. Site Locality and Area Description

The proposed development is located approximately 8.8 km north of St Francis Bay and 20 km south of Humansdorp, within the Kouga Local Municipality, Humansdorp Registration Division, Eastern Cape Province. The property lies within the 100m highwater mark on the left bank of the Kromme River, adjacent to the estuarine zone and directly west of The Tides of Kromme private residential estate. Access to the site is obtained from the R330 via an unpaved road approaching the site from the north. The area forms part of the coastal hinterland that transitions between the St Francis Bay estuarine system and the inland agricultural landscape, characterised by low-density rural development and natural vegetation along the riverbanks. (Figure 3).

The site is located within 100m of the highwater mark of the Kromme River and approximately 20m from the riverbank, and a 100-year floodline runs across the site.



Figure 2 Site locality map and surrounding areas pertinent to site



Figure 3 Google Earth aerial image showing the aerial view of the proposed site: Ptn 9 Osbosch (n.t.s)



View over the site from the northeastern corner of the erf looking south.



View overlooking the site into the eastern direction from the northwestern corner of the erf.



View from the western boundary looking over the site in an easterly direction.



View overlooking the site in a northeasterly direction from the southwestern corner.



View overlooking the site in a northwestern direction from the southeastern corner.



View looking west from the southeastern corner of the site.



View of the Kromme riverbank south of the site, looking in an easterly direction.



View from the riverbank looking up towards the site in a northerly direction.

1.3. Objectives

Based on the requirements set out in the Specialist Protocol as listed in the Screening Report, the following highlights the main objectives of this assessment.

- Describe both the current state of the area, focusing on its faunal characteristics and the general sensitivity of these elements to changes.
- Determine if there are any significant impacts from a faunal perspective that would make the proposed location unsuitable.
- Create maps showing the current faunal sensitivity of all areas that will be directly affected by the proposals.
- Identify and map all areas where development is prohibited.
- If the site is deemed as 'high' or 'very high' sensitivity, then explanation will be given regarding the potential scope, scale, and significance of the impacts (both positive and negative) on the area's fauna due to the construction of the proposed development.
- Confirm or dispute the sensitivity rating provided by the National Screening Tool Report (DFFE).
- Provide recommendations on mitigation measures that could be implemented during and after construction to minimize the significance of the identified impacts.
- Highlight any rehabilitation measures that can be practically implemented after the completion of construction work.
- Provide an overall assessment of the cumulative faunal impacts (positive or negative), if any, associated with both the construction and operation of the proposals.

1.4. Initial Site Sensitivity Verification

The sensitivity themes identified in the STR (DFFE, 2025) for this proposed development are listed below (Table 3). Highlighted in blue, the Animal Species Theme was identified as High Sensitivity, with *four* (4) species of conservation concern (SCC) listed (

Table 4). This assessment is to confirm or dispute the rating given.

Table 3 Environmental Sensitivity Themes as identified by the National Screening Tool Report (DFFE)

Theme	Very High Sensitivity	High Sensitivity	Medium sensitivity	Low sensitivity
Agricultural Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Palaeontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Table 4 SCC as identified by the National Screening Tool Report

Sensitivity	Feature(s)
High	Aves-Stephanoaetus coronatus
High	Aves-Hydroprogne caspia
Medium	Sensitive species 8
Medium	Invertebrate-Aneuryphymus montanus

2. Assessment Methodology

To assess the faunal sensitivity of the area and identify potential Species of Conservation Concern (SCC) that may inhabit the present ecosystem, a two-phased approach was employed to evaluate the study site and its surroundings.

Firstly, a desktop assessment was conducted, reviewing current faunal management plans and consulting spatial information made available through the Biodiversity GIS website (SANBI: <https://bgis.sanbi.org>) and other resources.

Secondly, a site visit was conducted in October 2025 to evaluate the potential impacts of the proposed project on the surrounding terrestrial faunal environment.

2.1. Desktop Assessment

A comprehensive desktop survey was conducted, encompassing a review of the DFFE National Screening Report, listings of sensitive species, historical aerial and satellite imagery, and other noteworthy resources. The sensitivities and current land use were identified by the Screening Report which were then confirmed or disputed by means of a Site Sensitivity Verification (SSV).

Based on the findings of the SSV, this Terrestrial Animal Species Specialist Assessment Report is compiled in accordance with the Protocols for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Section 24(5)(a) and (h) and 44 of NEMA (GNR 1150 of 2020) – Protocol for the specialist assessment and minimum report content requirements for environmental impacts on animal species.

2.1.1. Baseline Faunal Context and Species Screening Framework

The Screening Tool Report provides information regarding landscape-level context of the proposed development footprint, however, to gain an understanding of the broader context, it is important to consider the location of the project in relation to the following, as stated in the Species Environmental Assessment Guidelines (2022):

- Protected areas (proclaimed and private)
- Threatened ecosystems
- Bioregional plans
- Important Bird and Biodiversity Areas (IBA; Marnewick *et al*, 2015)
- Ramsar Wetlands of International Importance
- Provincial and local plans
- Environmental Management Frameworks (EMFs)

This was achieved by consulting various spatial and online datasets, published literature and other similar specialist research based on similar areas.

To identify the faunal species that may naturally occur in the proposed project area, it was first necessary to gain an understanding the broader faunal habitats present. These habitats were classified based on various biological and environmental characteristics, including vegetation type (according to SANBI VegMap, 2018), the degree of vegetation transformation, geology, soil type, and topography. The potential presence of vertebrate fauna (amphibians, reptiles, mammals, and birds) and invertebrates within the project area was determined by evaluating the area's habitat characteristics and the specific habitat requirements of each species. Published literature and online resources, which are regularly updated with new species observations, were consulted to compile lists of fauna.

Literature and tools used to describe the site and SCC identified include the following:

- Google Earth Map Aerial Imagery (1984-present)
- Chief General Surveyor Map (<http://csg.drdlr.gov.za/>)
- SANBI National Vegetation Map (2018)
- The draft 2019 Eastern Cape Biodiversity Conservation Plan (ECBCP; Eastern Cape Department: Economic Development, Environmental Affairs and Tourism, 2020)
- The 2010 Garden Route Biodiversity Sector Plan (GRBSP; Vromans et al., 2010)
- The latest versions of the South African Protected Areas Database (SAPAD 2023 Q2) and the South African Conservation Areas Database (SACAD 2023 Q2) (https://egis.environment.gov.za/protected_and_conservation_areas_database)
- The 2017 National Protected Areas Expansion Strategy (NPAES; Government of South Africa, 2016)
- iNaturalist (www.inaturalist.org) list of species observations
- SANBI (South African National Biodiversity Institute) Red List of South African Animals (www.redlist.sanbi.org)
- DFFE Screening Tool Report
- CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) (www.cities.org)
- IUCN (International Union for Conservation of Nature) Red List of threatened Species (www.iucnredlist.org)
- NEMBA Threatened or Protected Species Regulations (ToPS) (Notice 255 of 2015 of NEMBA)
- Global Biodiversity Information Facility (GBIF)
- Southern African Bird Atlas Project 2 (SABAP2) for birds (Harrison et al., 1997)
- Frog Atlas of Southern Africa (FrogMap) for amphibians (Du Preez & Carruthers, 2017)
- Reptile Atlas of Southern Africa (ReptileMap1) for reptiles (Alexander & Marais, 2007)
- Mammal Atlas of Southern Africa (MammalMap1) for mammals (Skinner & Chimimba, 2005)

When referring to Species of Conservation Concern (SCC), special focus is placed on species listed as threatened as well as endemic fauna. The following list highlights those species referred to as SCC:

- Endemic - Fauna with distribution ranges confined to the Eastern Cape Province.
- Species listed as Red Data species on the IUCN Red List of Threatened Species.
- Species listed on the Red List of South African Species, encompassing all species assessed using IUCN Red List Criteria as Critically Endangered, Endangered, Vulnerable, Near Threatened, Rare, Extremely Rare, or Data Deficient. This information was verified using conservation assessments for South African amphibians (Measey 2011), reptiles (Bates et al. 2013), mammals (Child et al. 2016), and birds (Taylor et al. 2015).
- Species listed under Section 56 of the National Environmental Management: Biodiversity Act, 2004 (NEMBA) (Act 10 of 2004, as amended), regulated by the Threatened or Protected Species (TOPS) Regulations, 2007, which includes species categorized as Critically Endangered, Endangered, Vulnerable, and Protected.
- Species listed on the Endangered Wildlife Trust.

In addition to SCC, the following fauna were also identified:

- Fauna protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Fauna listed under the Nature and Environmental Conservation Ordinance (NECO) (No 19 of 1974).

Inclusion on CITES Appendices (I-III) and NECO Schedules (1-2) does not necessarily reflect a species' conservation status. Many common species are included on these lists for practical reasons, regardless

of their conservation status. However, a permit is required for the removal of species listed under CITES and NECO.

2.1.2. Project Area of Influence (PAOI)

The Project Area of Influence (PAOI) for fauna communities refers to the area within which fauna may be affected by the proposed development during construction and operation. The development is restricted to the northern portion of the site, furthest from the southern boundary where the 100 m high-water mark occurs and set back from the Kromme River.

Faunal impacts are therefore expected to be largely confined to the development footprint and its immediate surrounds, and may include temporary habitat disturbance, construction-related noise and vibration, and short-term increases in human activity. Minor indirect effects, such as temporary avoidance behaviour and short-term displacement of mobile fauna, may occur slightly beyond the site boundary but are expected to be localised and reversible. The separation from the riparian zone limits the spatial extent of potential impacts, and the PAOI is considered restricted and site-specific, with no anticipated broader landscape-scale effects.

Figure 4 below illustrates the anticipated PAOI.



Figure 4 Project Area of Influence (PAOI)

2.2. Site Inspection

A single visit was conducted on the 31st of October 2025 during late afternoon. The duration of the site visit was approximately 4.5 hours in duration which entailed walking the full extent of the site. The assessment was undertaken in October, early summer, which falls within the primary breeding season for many fauna and avifauna species in South Africa.

Any sightings, presence of dung, spoor, nesting material and burrow systems were all digitally photographed, and if any SCC were observed, they were immediately uploaded to an online database such as iNaturalist. GPS coordinates are to be taken if any SCC were observed. All legal considerations of Section 2.2.2 of the Terrestrial Animal Species Protocol relating to the sharing of information are adhered to. However, special precaution is made not to identify species with omitted names in the DFFE Screening Tool Report that may be subjected to illegal harvesting and must therefore be protected.

Walking transects 1-3 m apart were conducted to determine the extent of the land portion to identify any sightings and signs of fauna, and potential areas of concern including those identified as "potential sensitive areas" during the desktop assessment. Please refer to Figure 5 below.



Figure 5 Visual of the transect walked, observing potential SCC or signs thereof.

3. Results & Discussion

3.1. Assumptions and Limitations

Several assumptions and limitations were recognized to be inherent in the study:

- The Specialist conducted a thorough site visit, covering all potential habitat areas to provide a comprehensive site overview. Despite its thoroughness, this survey was categorized as rapid, as it consisted of a single visit.
- The site inspection was limited to the early summer season. The timing is considered adequate for assessing suitability of habitat for species potentially occurring on this particular site and for assessing probability of presence, however, limiting the survey to one season may limit the results.
- Strong wind conditions were experienced during the survey, which may have influenced fauna activity levels and reduced the likelihood of detecting some species, especially avifauna.
- The research databases utilized may lack recent updates.
- Work conducted in previous studies is assumed to be unbiased and their methods employed are correctly adhered to.
- Compiling a comprehensive list of species potentially present on-site is limited by the lack of collection records for the area. Consequently, the list of potential animal species is sourced from a broader region and literature, possibly including species not found on-site and overlooking those that are. Achieving a thorough, site-specific biota list would necessitate studies spanning multiple seasons, with extensive sampling. However, due to time constraints imposed by environmental authorization processes, this is unfeasible.
- Rare and threatened plant and animal species are inherently challenging to locate and are often overlooked.
- The site visit lasted approximately 4.5 hours in total. While more intensive surveying could potentially uncover additional species, the Specialist is confident that, given the site's limited size, the survey effort undertaken suffices for the purpose of this assessment.

Despite the assumptions and limitations, the author maintains that the information gathered during both components of this assessment is sufficient to evaluate the sensitivity of the site for terrestrial animal species.

3.2. Habitat Description and Biodiversity Plans

3.2.1. Vegetation & Topography

The site is mapped on the SANBI BGIS National Vegetation Map (Veg Map, 2018) (Figure 6) as:

- Primarily **Elands Forest Thicket** (AT 25) (**Least Concern**), within the Albany Thicket Bioregion.
- Along the southern boundary is identified as **Albany Alluvial Vegetation** (Aza6) (**Endangered**) within the Alluvial Vegetation Bioregion.
- The area north of the site is identified as Humansdorp Shale Renosterveld, within the Eastern Fynbos-Renosterveld Bioregion (FRs 19) (Endangered).
- Approximately 700m east of the site one can find Sundays Mesic Thicket (Least Threatened).

Elands Forest Thicket (LC)- This vegetation type is confined to the Eastern Cape Province, occurring predominantly in the region between St Francis Bay and Uitenhage, and is typically found on gentle to moderately sloping terrain associated with the Elands, Seekoei, and Kromme river valleys. It is characteristically developed on river valley slopes, where a medium- to tall-growing thicket (approximately 3–5 m in height) occurs. The canopy is dominated by tree species such as *Olea europaea* subsp. *cuspidata* and *Pittosporum viridiflorum*, with emergent succulent trees, including *Euphorbia tetragona*, forming a prominent component of the vegetation structure. Several floristic elements are shared with Sundays Valley Thicket (AT51), while species with arid forest affinities, such as *Diospyros dichrophylla* and *Euclea undulata*, are commonly present. The vegetation is typically associated with shallow, clay-rich soils derived from shales of the Gydo and Baviaanskloof geological formations. (Vlok, 2025)

According to **Mucina and Rutherford (2018)**, the vegetation is characterised by the presence of the following key taxa: small tree species including *Olea europaea* subsp. *cuspidata*, *Pittosporum viridiflorum*, *Rapanea melanophloeos*, *Sideroxylon inerme* and *Schotia afra*; succulent shrubs such as *Gasteria bicolor*; succulent tree species including *Aloe africana*, *Euphorbia grandident*, *Euphorbia tetragona* and *Euphorbia triangularis*; geophytic herbs such as *Dietes iridioides* and *Sansevieria hyacinthoides*; graminoids including *Panicum deustum*; tall shrub species such as *Diospyros dichrophylla*, *Euclea undulata*, *Cadaba aphylla*, *Carissa bispinosa*, *Scolopia zeyheri*, *Scutia myrtina* and *Searsia lucida*; and woody succulent climbers such as *Cynanchum viminale*.

Albany Alluvial Vegetation (EN) – This type of vegetation, embedded in the Albany Thicket Biome, is found in the Eastern Cape from East London to Cape St Francis on wide floodplains, close to the coast. It is commonly associated with two maun types of vegetation patterns, namely riverine thicket and thornveld *Acacia natalita*.

Field observations indicate that the site does not exhibit the structural or floristic characteristics of intact Elands Forest Thicket or Albany Alluvial Vegetation. Instead, the on-site vegetation is open and grass-dominated, with a sparse forb layer and a notable absence of woody thicket. This suggests that the site represents a localised deviation from the mapped vegetation types, potentially reflecting historical disturbance including livestock grazing and grass mowing. As such, the mapped vegetation types are considered to reflect potential or regional vegetation patterns, rather than the current on-site ecological condition.

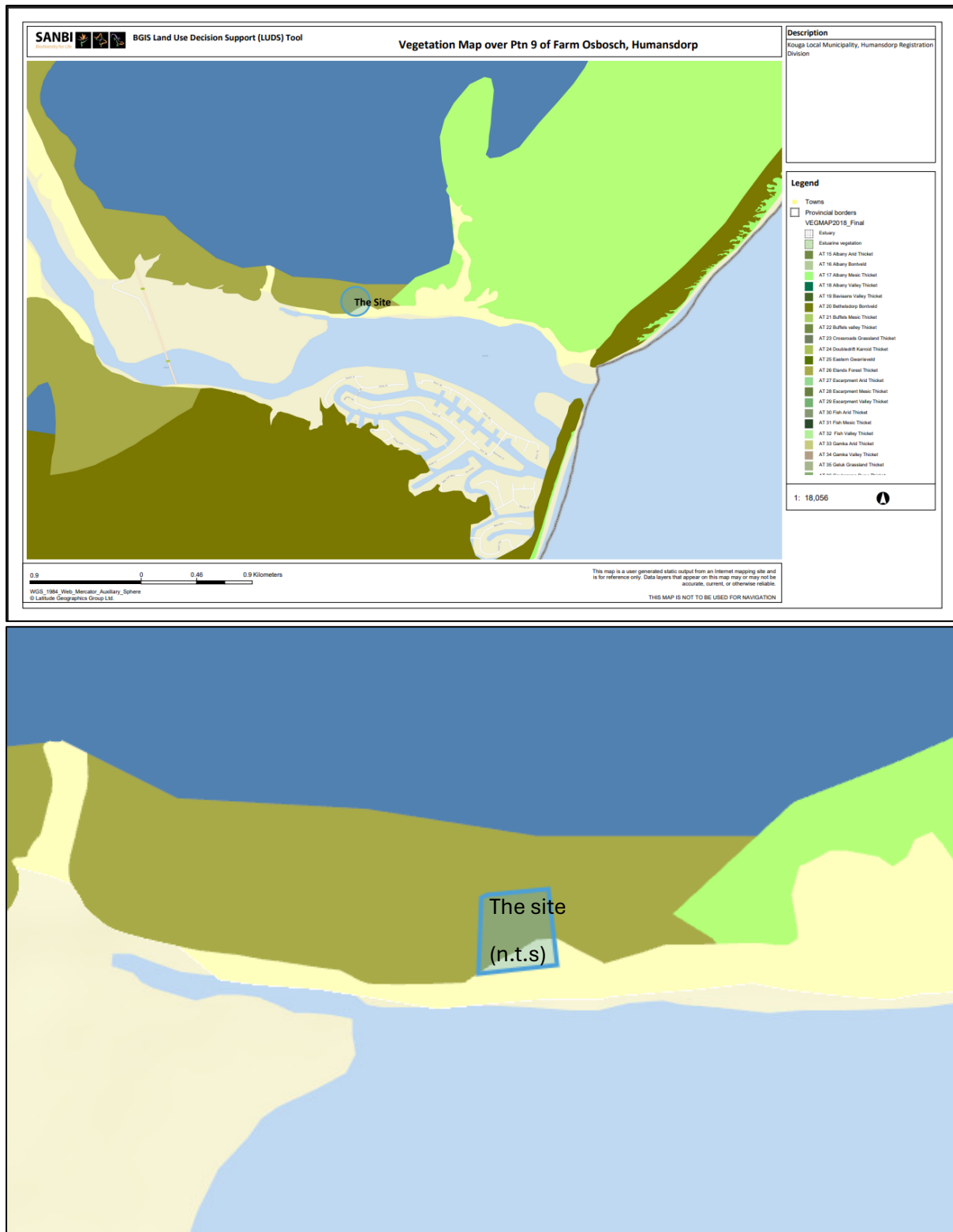


Figure 6 Vegetation Map (SANBI 2018) of Ptn 9 of Farm Osbosch 707 – Brown: Elands Forest Thicket; Yellow: Albany Alluvial Vegetation; Green: Sundays Mesic Thicket

The site comprises a gently undulating, low-gradient landscape, with subtle elevation changes. Elevation generally decreases from the northern portion of the site towards the southern boundary, in the direction of the Kromme River. The highest elevation is approximately 6.21 m amsl in the northern area, while the lowest elevation is approximately 3.10 m amsl along the southern portion of

the site. The northern section is relatively flatter and higher lying, with shallow swales and gentle slopes developing towards the south. No steep gradients or abrupt changes in slope are present, and the overall topography reflects a low-relief valley-side setting adjacent to the river corridor. See Figure 7 for a map of the site's contours.

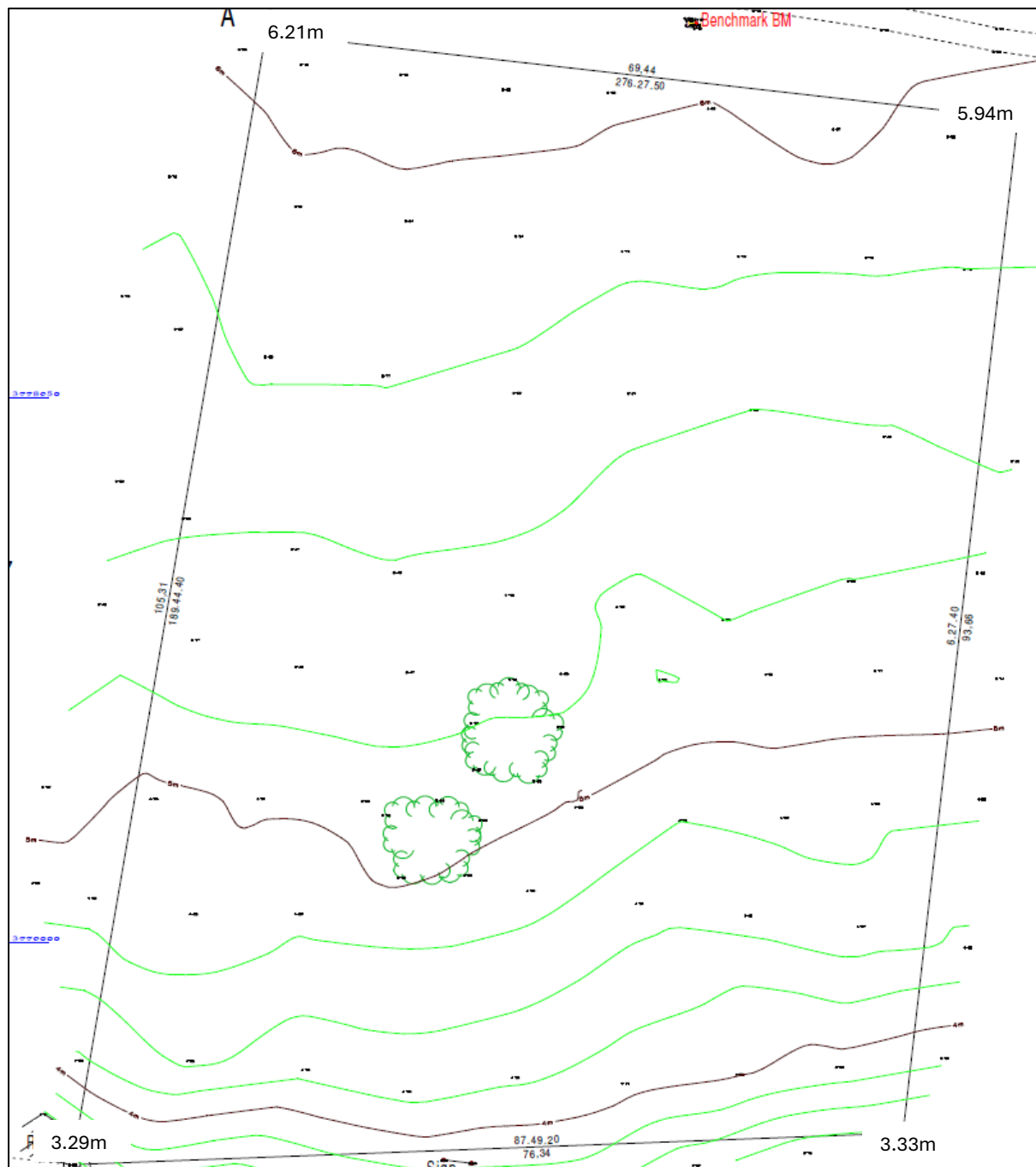


Figure 7 Map showing the site's contours overlain by a preliminary design concept

3.2.2. Protected Areas and Biodiversity Plans

According to the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019), the site falls within the terrestrial ESA 1 and ESA 2, with a small section along the southern boundary within the CBA1. The site also falls within the Freshwater ESA 1 and borders the Freshwater CBA 1 on the southern boundary. (See Figure 9 and Figure 8).

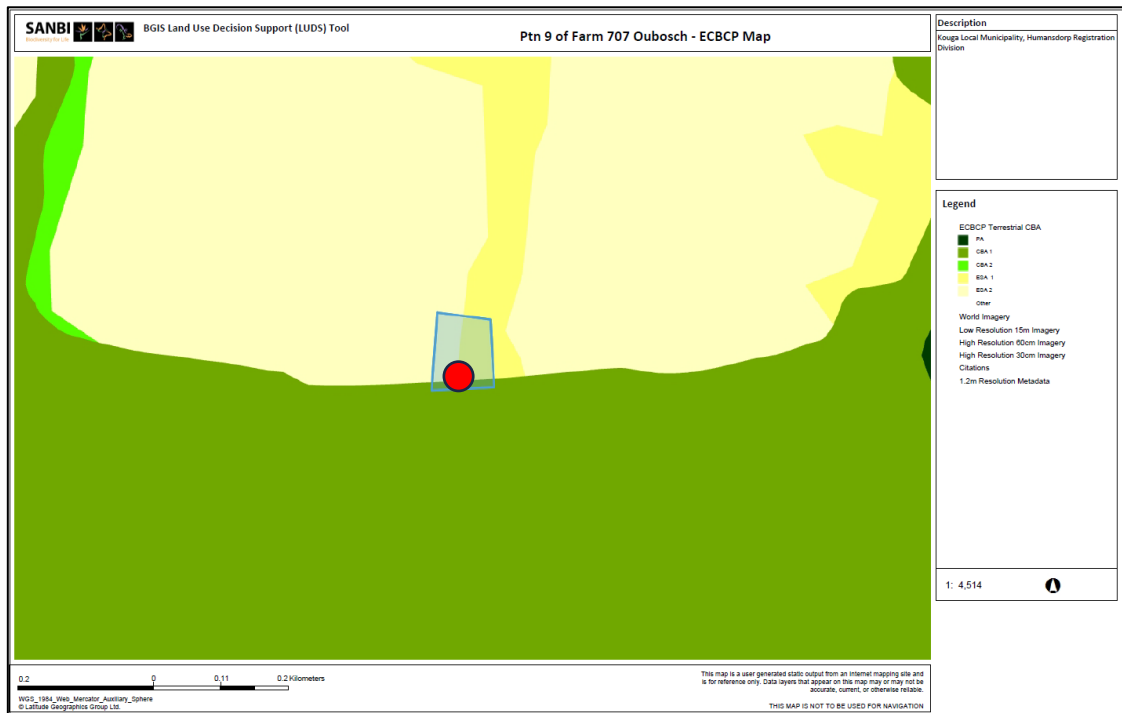


Figure 8 Map showing Terrestrial Ecological Support / Critical Biodiversity Areas in proximity to the site

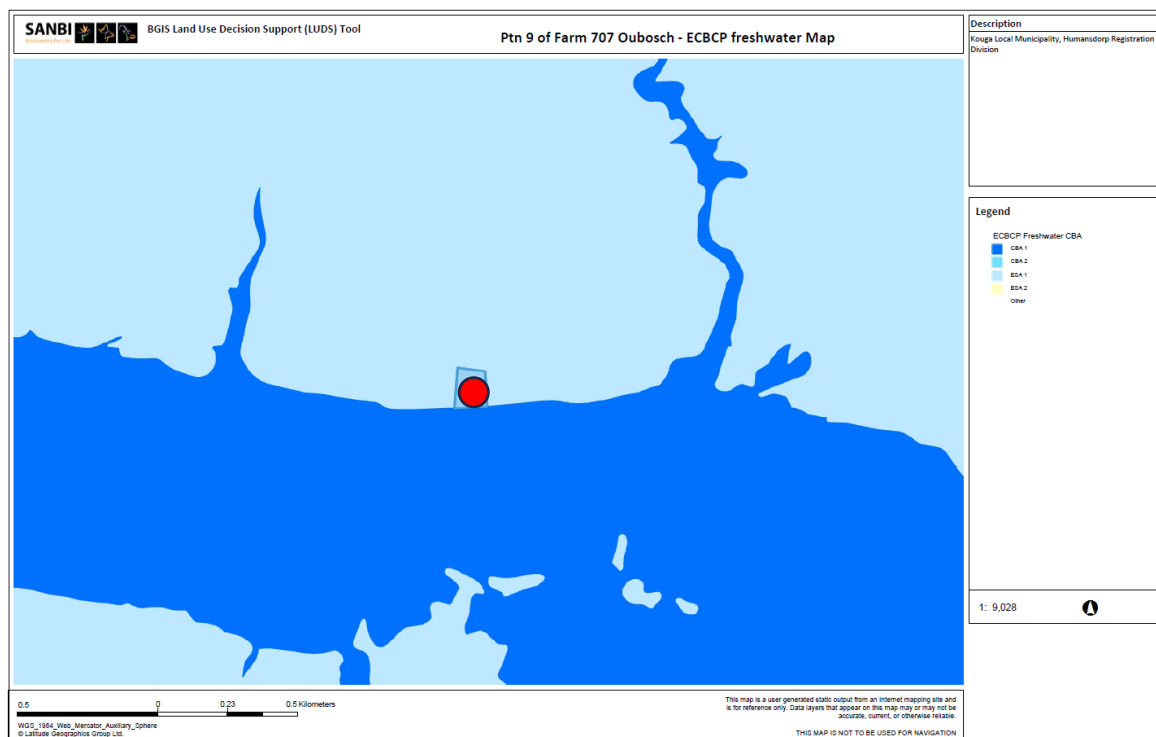


Figure 9 Eastern Cape Biodiversity Conservation Plan Map showing the site forming part of freshwater ESA1

The site falls within the Garden Route Biosphere Reserve which is a SACAD Protected Area. The nearest protected area is the listed informal protected area known as the Kromme River Mouth Nature Reserve approximately 700m east of the site.

According to the National Protected Areas Map (SANBI BGIS), the site does not form part of any National Protected Expansion Strategy Area, however, it is located within 100m south of an area identified as *Endangered* Threatened Ecosystem as illustrated in orange (Humansdorp Shale Renosterveld). See Figure 10 below.

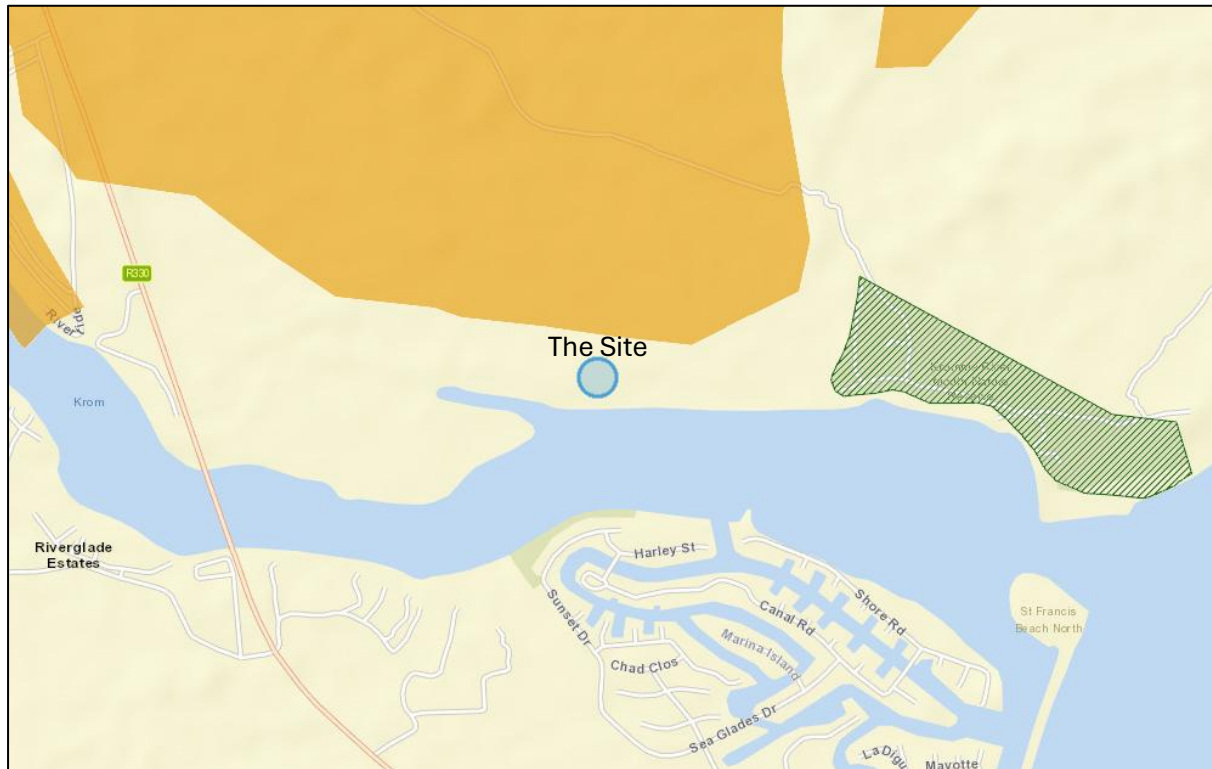


Figure 10 National Protected Areas Map (SANBI BGIS) – orange shows the Humansdorp Shale Renosterveld (EN) and 700m east is the informal Protected Area – Kromme River Mouth Nature Reserve

3.3. Faunal SCC Flagged for the Site

3.3.1. National Screening Tool Report

According to the National Screening Tool, there are *four* (4) species of conservation concern listed that are described in more detail in Table 5 below.

Table 5 List of SCC identified by the STR describing their conservation status, habitat and probability of occurrence

Species Scientific Name	Common Name	Conservation status	Habitat and Probability of occurrence
Aves – <i>Hydroprogne caspia</i> (previously known as <i>Sterna caspia</i>)	Caspian Tern	According to the IUCN Red List of Threatened Species (2018), <i>Hydroprogne caspia</i> is listed as Least Concern, with their population trend increasing. In South Africa, the conservation status is “ Vulnerable ” (SANBI Red List	According to BirdMap Africa, the Caspian Tern nests in the ground on offshore islands and on islands in waterbodies. In southern Africa it feeds mainly in coastal embayment’s, estuaries, rivers, pans, lakes and artificial dams that contain food fish of suitable size (RJM Crawford).

		Assessments, 2015) – “ <i>estimated to be less than 1 000 mature individuals. In addition, the species has a restricted number of breeding locations leaving it prone to the effects of human activities or stochastic events within a short time period. Accordingly, the species is assessed as regionally Vulnerable.</i> ”	In South Africa, they tend to nest between September to and January, the nest being a scrape on the ground, lined with scraps of vegetation, gravel, sand or pebbles, and containing two rough-textured greenish eggs marked with a few dark purple splotches. There have been sightings of the Caspian Tern in the Kromme River Estuary (iNaturalist), however, no nests or roosting birds were visible on or near the site.
Aves – <i>Stephanoaetus coronatus</i>	Crowned Eagle	According to the IUCN Red List of Threatened Species (2018), <i>Stephanoaetus coronatus</i> is listed as Near Threatened, with their population trend decreasing. The Crowned Eagle (<i>Stephanoaetus coronatus</i>) regional population meets the thresholds for Vulnerable status under D1 due to a small population size (<1 000 mature individuals) and is further expected to experience a continuing population decline (>10%) over three generations in terms of criterion C1.	The Crowned Eagle is a forest-dependent raptor that primarily inhabits dense indigenous forests, including Afrotropical forest, riverine forest, and well-wooded ravines, where tall, mature trees provide suitable nesting and perch sites. The species requires extensive areas of intact forest and adjacent woodland or mosaic habitats that support sufficient prey availability, particularly medium-sized mammals. While the broader landscape associated with the Kromme River may provide regional foraging habitat, the project site itself does not contain large tracts of closed-canopy indigenous forest or mature trees suitable for nesting. As such, the probability of the Crowned Eagle occurring on the site is considered low, with any potential presence likely limited to occasional overflight or transient foraging rather than regular use or breeding within the project area.
Invertebrate – <i>Aneuryphymus montanus</i>	Yellow-winged Agile Grasshopper	Red List of South African Species – Vulnerable - <i>endemic to the Cape region of South Africa. Its area of occupancy (AOO) is between 100 and 1,000 km² and there is a continuing decline in the quality of habitat, from which a continuing decline in the number of mature individuals is inferred. The number of locations (based upon the threat of invasions of non-native plant species) is between six and ten. Therefore, the species is assessed as Vulnerable.</i>	This species is associated with fynbos vegetation, where it has been collected "amongst partly burnt stands of evergreen Sclerophyll in rocky foothills" (Brown 1960). It prefers south-facing cool slopes (Kinvig 2005). Probability of presence is low. There lacks adequate fynbos species on site.
Sensitive Species 8	N/A	IUCN – Least Concern Red List of South African Species – Vulnerable CITES – Appendix II TOPS - Listed as Protected Game	This species is well-suited to a diverse array of forested and wooded environments, encompassing primary and secondary forests, gallery forests, dry forest patches, coastal scrub, and farmlands. In South Africa, this species demonstrates a preference for coastal forests, dense coastal bushes, and thicket, providing ample opportunities for concealment from predators. Permanent concealment is a necessity for this species. Chances of its presence is low, as the site is sparsely vegetated, offering no concealment from danger.

3.3.2. Additional Faunal Species Records (iNaturalist and SABAP2)

3.3.2.1. iNaturalist

Below are the lists of observed species recorded on iNaturalist (2026) within a **20km radius** (Figure 11), inclusive of Humansdorp, Kromme River, Oyster Bay, St Francis Bay, Cape St Francis, Seekoei River, Kabeljous River and Jeffreys Bay. The species lists are intended to provide a contextual overview of regional fauna diversity and were compiled to support the desktop component of the animal assessment. Records reflect confirmed observations within the broader landscape rather than site-specific occurrences. The likelihood of each species occurring on the site is dependent on habitat suitability, availability of resources, disturbance levels, and species-specific ecological requirements. Consequently, not all species listed are expected to occur on site, and the lists should be interpreted as indicative rather than exhaustive, with actual occurrence informed by field observations and habitat assessment findings.

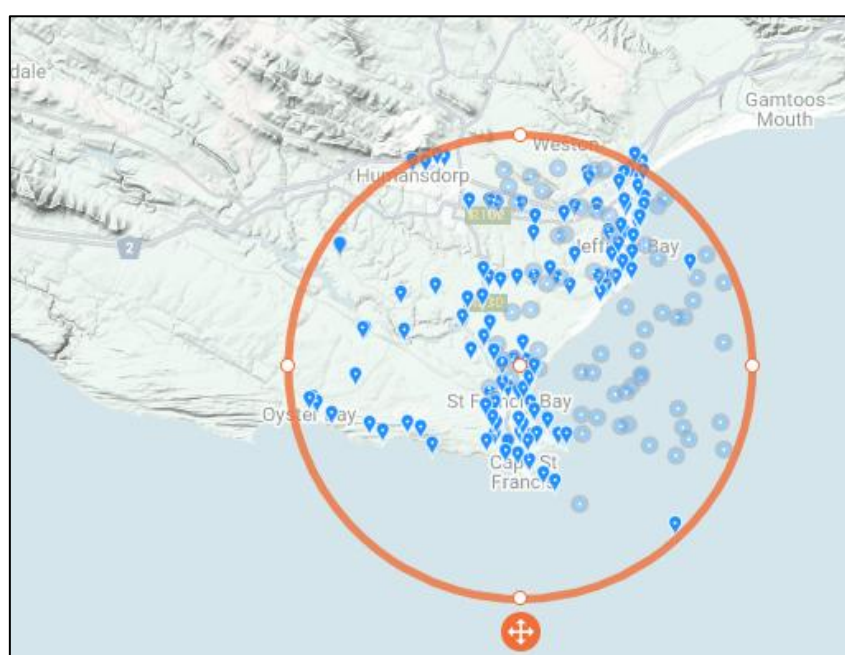


Figure 11 Map showing 20km radius to identify recorded fauna species on iNaturalist (2026)

Table 6 Arachnida species possibly associated with the study area (iNaturalist, 2026)

ARACHNIDA			
	Scientific Name	Common Name	Status
1	<i>Anyphops atomarius</i>	Wall crab Spider / Flatty	Least Concern
2	<i>Arachnura scorpionoides</i>	Scorpion-tailed Orb-web spider	Least Concern
3	<i>Araneus apricus</i>	Green Pea Spider	Least Concern
4	<i>Argiope australis</i>	Common Garden Orbweb Spider	Least Concern
5	<i>Badumna longinqua</i>	Australian Grey House Spider	Least Concern
6	<i>Baryphas ahenus</i>	Baryphas Jumping Spider	Least Concern
7	<i>Caerostris sexcuspidata</i>	Common Bark Spider	Least Concern
8	<i>Cyclosa oculata</i>	Oculate Garbage-line Web Spider	Least Concern
9	<i>Erigone spp.</i>	Dwarf Spiders	Least Concern
10	<i>Euprosthenopsis pulchella</i>	Dark Sheetwebber	Least Concern

11	<i>Hyllus argyrotoxis</i>	Silver-bowed jumping spider	Least Concern
12	<i>Hyllus treleaveni</i>	Big hairy jumping spider	Least Concern
13	<i>Isoxya tabulata</i>	Biscuit Boxkite	Least Concern
14	<i>Latrodectus geometricus</i>	Brown Buttonspider	Least Concern
15	<i>Leucauge festiva</i>	Masked Vlei Spider	Least Concern
16	<i>Myrmarachne</i> sp.	Ant-mimicking jumping Spiders	Least Concern
17	<i>Neoscona</i> spp.	Spotted Orb-weavers	Least Concern
18	<i>Opisthacanthus capensis</i>	Cape Docile Scorpion	Least Concern
19	<i>Oxyopes singularis</i>	Grass Lynx Spider	Least Concern
20	<i>Oxytate argenteooculata</i>	Green Tree Crab Spider	Least Concern
21	<i>Palystes castaneus</i>	Cape Rainspider	Least Concern
22	<i>Palystes superciliosus</i>	Common Rain Spider	Least Concern
23	<i>Pholcus phalangioides</i>	Long-bodied Cellar Spider	Least Concern
24	<i>Platyoides walteri</i>	Common Scorpion Spider	Least Concern
25	<i>Stasimopus</i> spp.	Horned Trap-door Spiders	Data Deficient
26	<i>Synema imitatrix</i>	African Mask spider	Least Concern
27	<i>Thomisus australis</i>	Flower crab Spider	Least Concern
28	<i>Thomisus blandus</i>	Masked Crab Spider	Least Concern
29	<i>Thomisus daradioides</i>	Two-spotted Flower Crab Spider	Least Concern
30	<i>Trichonephila fenestrata</i>	Hairy Golden Orb-weaving Spider	Least Concern
31	<i>Uroplectes formosus</i>	Painted Lesser-Thicktail Scorpion	Least Concern

Table 7 Mammalia species possibly associated with the study area (iNaturalist, 2026)

MAMMALS			
	Scientific Name	Common Name	Status
1	<i>Aepyceros melampus melampus</i>	Common Impala	Least Concern
2	<i>Antidorcas marsupialis marsupialis</i>	Karoo Springbok	Least Concern
3	<i>Arctocephalus pusillus pusillus</i>	Cape Fur Seal	Least Concern
4	<i>Atilax paludinosus</i>	Marsh Mongoose	Least Concern
5	<i>Balaenoptera brydei</i>	Bryde's Whale	Least Concern
6	<i>Bathyergidae</i>	African Molerats	Least Concern
7	<i>Caracal caracal caracal</i>	Cape Caracal	Least Concern
8	<i>Ceratotherium simum</i>	Southern White Rhinoceros	Near threatened
9	<i>Chlorocebus pygerythrus pygerythrus</i>	Southern Vervet	Least Concern
10	<i>Cynictis penicillata</i>	Yellow Mongoose	Least Concern
11	<i>Damaliscus pygargus phillipsi</i>	Blesbok	Least Concern
12	<i>Dendrohyrax arboreus</i>	Southern Tree Dassie	Least Concern
13	<i>Epomophorus wahlbergi</i>	Wahlberg's Epauletted Fruit Bat	Least Concern
14	<i>Equus quagga burchellii</i>	Burchell's Zebra	Least Concern
15	<i>Eubalaena australis</i>	Southern Right Whale	Least Concern
16	<i>Genetta tigrina</i>	Cape Genet	Least Concern
17	<i>Giraffa giraffa giraffa</i>	South African Giraffe	Least Concern
18	<i>Graphiurus murinus</i>	Woodland Dormouse	Least Concern

19	<i>Herpestes pulverulentus</i>	Cape Grey Mongoose	Least Concern
20	<i>Hippotragus niger</i>	Sable Antelope	Least Concern
21	<i>Hystrix africaeaustralis africaeaustralis</i>	Southern Porcupine	Least Concern
22	<i>Lutra capensis capensis</i>	Cape Clawless Otter	Least Concern
23	<i>Megaptera novaeangliae</i>	Humpback Whale	Least Concern
24	<i>Orcinus orca</i>	Orca	Least Concern
25	<i>Otomys irroratus</i>	Southern Vlei Rat	Least Concern
26	<i>Papio ursinus</i>	Chacma Baboon	Least Concern
27	<i>Philantomba monticola</i>	Blue Duiker	Vulnerable
28	<i>Procavia capensis</i>	Cape Dassie	Least Concern
29	<i>Raphicerus melanotis</i>	Grysbok	Least Concern
30	<i>Redunca fulvorufula fulvorufula</i>	Mountain Reedbuck	Endangered
31	<i>Rhabdomys pumilio</i>	Cape Striped Fieldmouse	Least Concern
32	<i>Sousa plumbea</i>	Humpback Dolphin	Least Concern
33	<i>Sylvicapra grimmia grimmia</i>	Cape Duiker	Least Concern
34	<i>Syncerus caffer caffer</i>	Cape Buffalo	Least Concern
35	<i>Tragelaphus angasii</i>	Nyala	Least Concern
36	<i>Tragelaphus sylvaticus sylvaticus</i>	Cape Bushbuck	Least Concern
37	<i>Tursiops aduncus</i>	Bottle-nose Dolphin	Least Concern
38	<i>Tursiops truncatus</i>	Common Bottlenose Dolphin	Least Concern

The **White Rhinoceros (*Ceratotherium simum*)** is a large grazing species naturally associated with open grassland and savanna habitats, where short grazing lawns, access to permanent water, and expansive, relatively flat areas are available. In South Africa, SANBI lists the species as Near Threatened, with the primary threat being poaching for horn, resulting in most populations being intensively managed within protected areas and fenced reserves. The species is not expected to occur on the site, as the site does not provide the extensive open grassland habitat, large spatial requirements, or formal conservation management necessary to support white rhinoceros populations.

The **Blue Duiker (*Philantomba monticola*)** is a small, forest-dependent antelope typically associated with dense coastal and riverine forests, thick understorey vegetation, and areas with substantial cover that provide protection from predators. In South Africa, it is regarded as Near Threatened, with key threats including habitat loss and fragmentation, snaring, and pressure from expanding human activities. Although the Kromme River supports riparian vegetation, the site at Portion 9 of Farm Osbosch lacks the continuous, closed-canopy forest and dense undergrowth required by this species, and is therefore considered unsuitable habitat, making the presence of Blue Duiker on the site unlikely.

The **Southern Mountain Reedbuck (*Redunca fulvorufula*, southern subspecies)** is an Endangered antelope in South Africa, typically associated with high-altitude montane grasslands, steep rocky slopes, and well-drained hillsides where open grass cover occurs near rugged escape terrain. Major threats identified by SANBI include habitat loss and fragmentation, agricultural expansion, inappropriate fire regimes, and increasing human disturbance. The species is not expected to occur on Portion 9 of Farm Osbosch near the Kromme River, as the site is situated within a lowland riparian environment and lacks the elevated, rocky montane grassland habitat and topographic conditions required to support Southern Mountain Reedbuck populations.

Table 8 Reptile species possibly associated with the study area (iNaturalist, 2026)

REPTILES			
	Scientific Name	Common Name	Status
1	<i>Acontias lineicauda</i>	Algoa Legless Skink	Least Concern
2	<i>Acontias orientalis</i>	Linnaeus' Legless Skink	Least Concern
3	<i>Afrogecko porphyreus</i>	Marbled Leaf-toed Gecko	Least Concern
4	<i>Bitis arietans arietans</i>	Puffadder	Least Concern
5	<i>Bitis atropos</i>	Berg Adder	Least Concern
6	<i>Boaedon capensis</i>	Cape House Snake	Least Concern
7	<i>Bradypodion ventrale</i>	Eastern Cape Dwarf Chameleon	Least Concern
8	<i>Causus rhombeatus</i>	Rhombic Night Adder	Least Concern
9	<i>Chelonia mydas</i>	Green Sea Turtle	Least Concern
10	<i>Chersina angulata</i>	Angulate Tortoise	Least Concern
11	<i>Cordylus cordylus</i>	Cape Girdled Lizard	Least Concern
12	<i>Crotaphopeltis hotamboeia</i>	Red-lipped Herald	Least Concern
13	<i>Cryptactites peringueyi</i>	Coastal Leaf-toed Gecko	Least Concern
14	<i>Dasypeltis scabra</i>	Egg-eating Snake	Least Concern
15	<i>Dispholidus typus</i>	Boomslang	Least Concern
16	<i>Duberria lutrix lutrix</i>	Southern Slugeater	Least Concern
17	<i>Elaiophis inornatus</i>	Olive House Snake	Least Concern
18	<i>Hemachatus haemachatus</i>	Ringhals	Least Concern
19	<i>Hemidactylus mabouia</i>	Tropical House Gecko	Least Concern
20	<i>Homopus areolatus</i>	Parrotbeak Padloper	Least Concern
21	<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	Least Concern
22	<i>Leptotyphlops nigricans</i>	Black Thread Snake	Least Concern
23	<i>Lycodonomorphus rufulus</i>	Common Brown Water Snake	Least Concern
24	<i>Lycophidion capense</i>	Cape Wolf Snake	Least Concern
25	<i>Lygodactylus capensis</i>	Common Dwarf Gecko	Least Concern
26	<i>Nucras taeniolata</i>	Striped Scrub Lizzard	Least Concern
27	<i>Pachydactylus maculatus</i>	Spotted Thick-toed Gecko	Least Concern
28	<i>Pelomedusa galeata</i>	Cape Terrapin	Least Concern
29	<i>Philothamnus hoplogaster</i>	Green Water Snake	Least Concern
30	<i>Philothamnus occidentalis</i>	Western Natal Green Snake	Least Concern
31	<i>Psammophis crucifer</i>	Cross-marked Sand Snake	Least Concern
32	<i>Psammophylax rhombeatus</i>	Rhombic Skaapsteker	Least Concern
33	<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake	Least Concern
34	<i>Scelotes anguinus</i>	Algoa Dwarf Burrowing Skink	Least Concern
35	<i>Stigmochelys pardalis</i>	Leopard Tortoise	Least Concern
36	<i>Tetradactylus fitzsimonsi</i>	Fitzsimons' Long-tailed Seps	Least Concern
37	<i>Trachylepis capensis</i>	Cape Skink	Least Concern
38	<i>Trachylepis homalocephala</i>	Red-sided Skink	Least Concern
39	<i>Varanus niloticus</i>	Nile Monitor	Least Concern

Table 9 Amphibian species possibly associated with the study area (iNaturalist, 2026)

AMPHIBIA			
	Scientific Name	Common Name	Status
1	<i>Amietia delalandii</i>	Common River Frog	Least Concern
2	<i>Amietia fuscigula</i>	Cape River Frog	Least Concern
3	<i>Cacosternum boettgeri</i>	Boettger's dainty frog	Least Concern
4	<i>Cacosternum nanum</i>	Bronze Caco	Least Concern
5	<i>Hyperolius marmoratus</i>	Painted Reed Frog	Least Concern
6	<i>Hyperolius marmoratus verrucosus</i>	Spotted Painted Reedfrog	Least Concern
7	<i>Sclerophrys capensis</i>	Raucous toad	Least Concern
8	<i>Sclerophrys pardalis</i>	Eastern Leopard Toad	Least Concern
9	<i>Semnodactylus wealii</i>	Weale's Running Frog	Least Concern
10	<i>Strongylopus fasciatus</i>	Striped stream frog	Least Concern
11	<i>Strongylopus grayii</i>	Clicking Stream Frog	Least Concern
12	<i>Tomopterna delalandii</i>	Cape sand frog	Least Concern
13	<i>Xenopus laevis</i>	Common Platanna	Least Concern

Table 10 SCC Avifauna species possibly associated with the study area (iNaturalist, 2026)

SCC AVIFAUNA (iNATURALIST)			
	Scientific Name	Common Name	Status
1	<i>Neotis denhami</i>	Bustard Denham's	Vulnerable
2	<i>Alcedo semitorquata</i>	Kingfisher Half-collared	Vulnerable
3	<i>Anarhynchus pecuarius</i>	Plover Kittlitz's	Near Threatened
4	<i>Anas erythrorhyncha</i>	Teal Red-billed	Near Threatened
5	<i>Anas undulata</i>	Duck Yellow-billed	Near Threatened
6	<i>Anhinga rufa</i>	Darter African	Near Threatened
7	<i>Ardea alba</i>	Egret Great	Near Threatened
8	<i>Ardenna grisea</i>	Shearwater Sooty	Near Threatened
9	<i>Arenaria interpres</i>	Turnstone Ruddy	Near Threatened
10	<i>Bradypterus sylvaticus</i>	Warbler Knysna	Near Threatened
11	<i>Calidris alba</i>	Sanderling	Near Threatened
12	<i>Calidris canutus</i>	Knot Red	Near Threatened
13	<i>Calidris ferruginea</i>	Sandpiper Curlew	Vulnerable
14	<i>Chroicocephalus hartlaubii</i>	Gull Hartlaub's	Vulnerable
15	<i>Circus ranivorus</i>	Harrier African Marsh	Vulnerable
16	<i>Coracias garrulus</i>	Roller European	Near Threatened
17	<i>Elanus caeruleus</i>	Kite Black-winged	Near Threatened
18	<i>Falco biarmicus</i>	Falcon Lanner	Near Threatened
19	<i>Grus paradisea</i>	Crane Blue	Vulnerable
20	<i>Hydroprogne caspia</i>	Tern Caspian	Vulnerable
21	<i>Morus capensis</i>	Gannet Cape	Vulnerable
22	<i>Netta erythrophthalma</i>	Pochard Southern	Near Threatened
23	<i>Oxyura maccoa</i>	Duck Maccoa	Vulnerable

24	<i>Phalacrocorax capensis</i>	Cormorant Cape	Endangered
25	<i>Phoeniconaias minor</i>	Flamingo Lesser	Vulnerable
26	<i>Phoenicopterus roseus</i>	Flamingo Greater	Near Threatened
27	<i>Pluvialis squatarola</i>	Plover Grey	Near Threatened
28	<i>Procellaria aequinoctialis</i>	Petrel White-chinned	Vulnerable
29	<i>Pterodroma macroptera</i>	Petrel Great-winged	Near Threatened
30	<i>Sagittarius serpentarius</i>	Secretary bird	Vulnerable
31	<i>Scopus umbretta</i>	Hamerkop	Near Threatened
32	<i>Spatula smithii</i>	Shoveler Cape	Near Threatened
33	<i>Spheniscus demersus</i>	Penguin African	Endangered
34	<i>Sterna dougallii</i>	Tern Roseate	Vulnerable
35	<i>Sternula balaenarum</i>	Tern Damara	Endangered

3.3.2.2. BirdlifeSA (SABAP2)

The following list is a total Species of Conservation Concern of the **combined data** from iNaturalist (2026) and the species list obtained from Birdlife SA (2026), based on the Pentad no. 3405_2445. See below pentad range (Figure 12). For the full list of species recorded in this Pentad, please refer to Annexure B.



Figure 12 Pentad 3405_2445 (SABAP2, BirdlifeSA, 2026)

SCC AVIFAUNA iNATURALIST & SABAP2 - JAN 2026			
	Scientific Name	Common Name	Status
1	<i>Neotis denhami</i>	Bustard Denham's	Vulnerable
2	<i>Alcedo semitorquata</i>	Kingfisher Half-collared	Vulnerable
3	<i>Alcedo semitorquata</i>	Kingfisher Half-collared	Vulnerable
4	<i>Anarhynchus pecuarius</i>	Plover Kittlitz's	Near Threatened
5	<i>Anarhynchus pecuarius</i>	Plover Kittlitz's	Near Threatened
6	<i>Anas erythrorhyncha</i>	Teal Red-billed	Near Threatened

7	<i>Anas erythrorhyncha</i>	Teal Red-billed	Near Threatened
8	<i>Anas undulata</i>	Duck Yellow-billed	Near Threatened
9	<i>Anhinga rufa</i>	Darter African	Near Threatened
10	<i>Aquila verreauxii</i>	Eagle Verreaux's	Vulnerable
11	<i>Ardea alba</i>	Egret Great	Near Threatened
12	<i>Ardea alba</i>	Egret Great	Near Threatened
13	<i>Ardenna grisea</i>	Shearwater Sooty	Near Threatened
14	<i>Arenaria interpres</i>	Turnstone Ruddy	Near Threatened
15	<i>Arenaria interpres</i>	Turnstone Ruddy	Near Threatened
16	<i>Bradypterus sylvaticus</i>	Warbler Knysna	Near Threatened
17	<i>Bradypterus sylvaticus</i>	Warbler Knysna	Near Threatened
18	<i>Buteo trizonatus</i>	Buzzard Forest	Near Threatened
19	<i>Calidris alba</i>	Sanderling	Near Threatened
20	<i>Calidris alba</i>	Sanderling	Near Threatened
21	<i>Calidris canutus</i>	Knot Red	Near Threatened
22	<i>Calidris canutus</i>	Knot Red	Near Threatened
23	<i>Calidris ferruginea</i>	Sandpiper Curlew	Vulnerable
24	<i>Calidris ferruginea</i>	Sandpiper Curlew	Vulnerable
25	<i>Chroicocephalus hartlaubii</i>	Gull Hartlaub's	Vulnerable
26	<i>Chroicocephalus hartlaubii</i>	Gull Hartlaub's	Vulnerable
27	<i>Ciconia nigra</i>	Stork Black	Endangered
28	<i>Circus maurus</i>	Harrier Black	Endangered
29	<i>Circus ranivorus</i>	Harrier African Marsh	Vulnerable
30	<i>Circus ranivorus</i>	Harrier African Marsh	Vulnerable
31	<i>Coracias garrulus</i>	Roller European	Near Threatened
32	<i>Coracias garrulus</i>	Roller European	Near Threatened
33	<i>Elanus caeruleus</i>	Kite Black-winged	Near Threatened
34	<i>Elanus caeruleus</i>	Kite Black-winged	Near Threatened
35	<i>Falco biarmicus</i>	Falcon Lanner	Near Threatened
36	<i>Falco biarmicus</i>	Falcon Lanner	Near Threatened
37	<i>Falco naumanni</i>	Kestrel Lesser	Vulnerable
38	<i>Grus paradisea</i>	Crane Blue	Vulnerable
39	<i>Hydroprogne caspia</i>	Tern Caspian	Vulnerable
40	<i>Hydroprogne caspia</i>	Tern Caspian	Vulnerable
41	<i>Morus capensis</i>	Gannet Cape	Vulnerable
42	<i>Morus capensis</i>	Gannet Cape	Vulnerable
43	<i>Netta erythrophthalma</i>	Pochard Southern	Near Threatened
44	<i>Netta erythrophthalma</i>	Pochard Southern	Near Threatened
45	<i>Oxyura maccoa</i>	Duck Maccoa	Vulnerable
46	<i>Phalacrocorax capensis</i>	Cormorant Cape	Endangered
47	<i>Phoeniconaias minor</i>	Flamingo Lesser	Vulnerable
48	<i>Phoeniconaias minor</i>	Flamingo Lesser	Vulnerable
49	<i>Phoenicopiterus roseus</i>	Flamingo Greater	Near Threatened
50	<i>Phoenicopiterus roseus</i>	Flamingo Greater	Near Threatened
51	<i>Pluvialis squatarola</i>	Plover Grey	Near Threatened

52	<i>Pluvialis squatarola</i>	Plover Grey	Near Threatened
53	<i>Podiceps cristatus</i>	Grebe Great Crested	Vulnerable
54	<i>Polemaetus bellicosus</i>	Eagle Martial	Endangered
55	<i>Procellaria aequinoctialis</i>	Petrel White-chinned	Vulnerable
56	<i>Pterodroma macroptera</i>	Petrel Great-winged	Near Threatened
57	<i>Sagittarius serpentarius</i>	Secretarybird	Vulnerable
58	<i>Sagittarius serpentarius</i>	Secretarybird	Vulnerable
59	<i>Sarothrura affinis</i>	Flufftail Striped	Vulnerable
60	<i>Scopus umbretta</i>	Hamerkop	Near Threatened
61	<i>Scopus umbretta</i>	Hamerkop	Near Threatened
62	<i>Spatula smithii</i>	Shoveler Cape	Near Threatened
63	<i>Spatula smithii</i>	Shoveler Cape	Near Threatened
64	<i>Spheniscus demersus</i>	Penguin African	Endangered
65	<i>Stephanoaetus coronatus</i>	Eagle Crowned	Vulnerable
66	<i>Stephanoaetus coronatus</i>	Eagle Crowned	Vulnerable
67	<i>Sterna dougallii</i>	Tern Roseate	Vulnerable
68	<i>Sterna dougallii</i>	Tern Roseate	Vulnerable
69	<i>Sternula balaenarum</i>	Tern Damara	Endangered
70	<i>Sternula balaenarum</i>	Tern Damara	Endangered
71	<i>Thalassornis leuconotus</i>	Duck White-backed	Near Threatened
72	<i>Zapornia pusilla</i>	Crake Baillon's	Near Threatened

None of these avifauna SCC were observed during the site visit, nor were there signs thereof.

Coastal and Marine-Associated Species

Coastal and marine SCC bird species (e.g. African Penguin, Cape Gannet, Cape Cormorant, Damara Tern, Caspian Tern, Roseate Tern, White-chinned Petrel, Great-winged Petrel, Sooty Shearwater, Greater and Lesser Flamingos, Sanderling, Red Knot, Grey Plover and Ruddy Turnstone) are typically associated with offshore islands, rocky coastlines, sandy beaches, estuaries, and open ocean systems. Nesting occurs on coastal islands, cliff ledges, flat sandy beaches, or in burrows (petrels and shearwaters), often in large colonies requiring minimal disturbance. No nesting was observed on or near to the site, suggesting any occurrence limited to occasional aerial movement.

Wetland and Riparian-Associated Species

Wetland-dependent SCC species (including African Marsh Harrier, African Darter, Great Egret, Hamerkop, Half-collared Kingfisher, Southern Pochard, Maccoa Duck, Yellow-billed Duck, Cape Shoveler and Red-billed Teal) rely on large, permanent wetlands, dams, marshes, and slow-flowing rivers with emergent vegetation. Nesting typically occurs in reedbeds, dense riparian vegetation, trees adjacent to water, or burrows in riverbanks (e.g. Half-collared Kingfisher). Despite the site being in such close proximity to the Kromme River, the site itself lacks reedbeds and undisturbed riparian vegetation required for nesting and sustained occupancy, making regular presence unlikely.

Grassland and Open-Habitat Species

Grassland-associated SCC species such as the Blue Crane, Secretary bird and Denham's Bustard are dependent on large, open, continuous grassland ecosystems with low human disturbance. These species are ground-nesters, laying eggs directly on open grassland substrates, which makes them particularly sensitive to habitat fragmentation, fencing, agricultural activity and human presence.

These species have been recorded within a 20 km radius of the site. Given that the site may fall within their broader foraging and, in some cases, nesting ranges, there is a potential for these species to occasionally utilise the site or its immediate surroundings for foraging purposes.

Forest and Dense Vegetation-Associated Species

Forest-dependent SCC species, including the Knysna Warbler, require dense indigenous forest, thick understorey vegetation, and continuous canopy cover. Nesting occurs low in dense shrub layers or near the forest floor, often well concealed within thick vegetation. Such habitat is absent from the site, which lacks mature forest structure and undergrowth, rendering the area unsuitable for nesting or supporting forest-dependent species.

Aerial Foragers and Wide-Ranging Species

Wide-ranging species such as the Lanner Falcon, Black-winged Kite and European Roller utilise broad landscapes for foraging but require specific nesting substrates, including cliff ledges, large trees, or abandoned nests of other bird species. While these species may occasionally overfly the area, the site does not provide suitable nesting habitat or core foraging resources, and any presence would be temporary and incidental.

3.3.3. Species present on site

Mammals

During the walking transects, there were no mammal, reptile, or amphibian species observed, however, signs of small mammals were present in the form of mole rat mounds, rodent runways in the dense grass, rodent burrows and droppings, but none were indicative of SCC. Photographs were taken of the droppings to assist with the identification of these small mammals which were likely to be nocturnal. Since the site survey was done during the day, chances of sightings were low.

Numerous soil mounds were recorded across the site. When loose soil was displaced, a distinct subsurface burrow entrance approximately 4–5 cm in diameter was evident beneath several mounds. The size, structure, and distribution of these features are indicative of mole rat activity, most likely the Hottentot Mole-rat (*Cryptomys hottentotus*), a species commonly associated with moist grassland and riverine soils in the region. In addition, numerous small rodent runways were observed within dense grass cover, indicating regular movement of small mammals. Scattered faecal pellets, approximately 5–8 mm in length, were also recorded across the site and are consistent with rodent presence. Larger, more pronounced runways, reaching approximately 20 cm in height, were further observed in the grassland and are likely attributable to a hare species, indicating use of the site by larger small mammals. Overall, the observations confirm active and diverse small mammal utilisation of the site.

Avifauna

No birds' nests were visible. One bird species was observed flying over the river, most likely the Black Egret (*Egretta ardesiaca*). No other bird species were observed on site.

Amphibians

No amphibians were observed during the site visit.

Arachnids

Numerous funnel-web spider webs were recorded throughout the grassland on site. These webs are characteristic of Grass Funnel-web Spiders (family Agelenidae), which are common and widespread in

South African grassland habitats. The spiders construct large, flat, horizontal sheet webs within dense grass or low vegetation, with a distinctive funnel-shaped retreat leading into the vegetation or soil at one end. The abundance of these webs indicates a well-developed grass layer and suitable microhabitat conditions for ground- and vegetation-dwelling invertebrates, forming an important component of the local food web.

Insects

Little to no insects were visible on site on the day of assessment. The *Aneuryphymus montanus* was not found on site nor any signs indicating their presence to be likely.

Aquatic Invertebrate

Along the riverbank, outside of the site boundaries, several burrows were observed positioned low on a gently sloping estuarine bank. The burrows occur within soft sediment and beneath vegetated root mats, consistent with activity by estuarine aquatic invertebrates. Based on their low elevation, shallow horizontal morphology, and location within the estuarine fringe zone, the burrows are considered most likely to have been created by estuarine decapod crustaceans, specifically sesarmid crabs (e.g. *Parasesarma catenatum*), which are commonly associated with saline and brackish estuarine margins. No individuals were directly observed, and species identification is therefore based on habitat characteristics and burrow morphology.

Table 11 Signs of faunal species on site

		
		Multiple soil mounds were observed across the entire site indicative of a species of Molerat, most likely the Hottentot Mole Rat (<i>Cryptomus hottentotus</i>).
		



When loose soil was displaced from the mound, a clear burrow approximately 4-5cm wide was observed, indicative of molerats.



The burrow opening after loose soil was displaced from the soil mound.

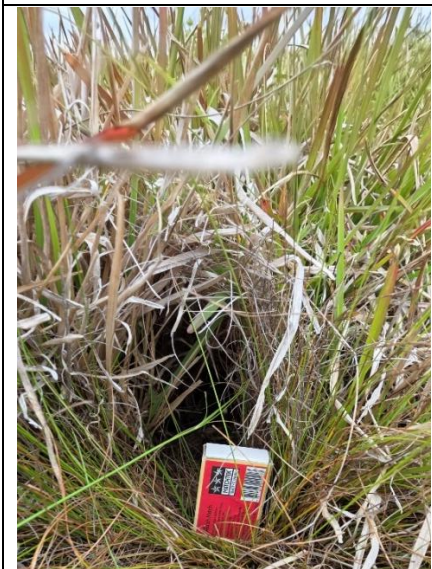


Rodent runways were visible in dense grass.

		Rodent runway.
		Fecal pellets approximately 5-8mm were found throughout the site, indicative of moles.
		Fecal pellets and rodent runway.



Fecal pellets likely from the Hottentot Molerat.



Larger runways observed within the grassland are likely attributable to Cape Hare (*Lepus capensis*), a common species in coastal grassland and riverine environments of the Eastern Cape.



Funnel webs were noted made by spiders most likely from the Agelenidae family.



What seems to be the black heron (*Egretta ardesiaca*) was observed flying over the Kromme River.



Outside of the southern boundary along the water's edge, there were numerous crustacean burrows along the edge.



Crustacean burrows, likely made by the Furry Marsh Crab (*Parasesarma catenatum*) (LC).



Low crustacean burrows observed along the banks of the Kromme River.

3.3.4. Final Site Sensitivity Verification

The site supports a range of common small mammal and invertebrate species, as evidenced by extensive burrowing activity, runways, and invertebrate structures. The dominant mammal species inferred from on-site signs is the Hottentot Mole-rat (*Cryptomys hottentotus*), a species listed as Least Concern at a national level. This species is widespread in the Eastern Cape and is well adapted to grassland and riverine environments, where it occupies subterranean burrow systems. Although localised disturbance and displacement of individuals may occur within the development footprint, the extensive surrounding open grassland and undeveloped areas provide ample opportunity for individuals to relocate. As such, the proposed development is not expected to result in population-level impacts, with effects limited to short-term, site-specific disturbance.

Evidence of hare activity, most likely attributable to the Cape Hare (*Lepus capensis*), was also recorded in the form of larger grass runways. The Cape Hare is likewise listed as Least Concern and is a highly mobile species capable of moving freely across open landscapes. The surrounding habitat matrix offers extensive alternative foraging and refuge areas, and the development is therefore unlikely to result in any meaningful impact on the local hare population.

Numerous grass funnel-web spider (Agelenidae) webs were observed throughout the grassland, indicating suitable habitat conditions for invertebrates. These spiders are common and widespread, with no conservation concern status, and are resilient to moderate habitat disturbance. While some localised loss of individuals may occur within the development footprint, the surrounding grassland will continue to provide suitable habitat, and no long-term impacts on invertebrate populations are anticipated.

According to the DFFE Screening Tool Report, the sensitivity of the area for faunal species is rated as **High**. This sensitivity rating is supported by the presence of a wide range of avifaunal Species of Conservation Concern (SCC) recorded in the surrounding landscape, such as the Blue Crane, although this species was not confirmed on site during the survey. The proximity of the site to the Kromme River, which supports numerous SCC waterbird species, further elevates the ecological importance of the area, as these species may intermittently utilise the site or its immediate surroundings for foraging, movement, or roosting, with suitable nesting habitat occurring nearby. In addition, the presence of small mammals and open grassland provides potential foraging opportunities for birds of prey, which may use the area opportunistically, such as the African Crowned Eagle (*Stephanoaetus coronatus*). On this basis, and considering the broader ecological context, the faunal sensitivity of the site is confirmed as High.

4. Identified Impacts on Animals

Impact	Description	Extent	Duration	Intensity	Probability	Pre-mitigation Significance
Habitat Loss & Disturbance	Permanent loss of a limited area of already modified terrestrial habitat. Disturbance of small mammals, ground-dwelling bird species, and birds utilising the estuary and adjacent banks for foraging.	Local	Long-term	Low	Moderate	Medium
Noise & Visual Disturbance	Noise, movement of machinery, and increased human activity during construction may cause short-term displacement of sensitive bird species and small mammals. Fauna are expected to return following completion of construction activities and to habituate to the presence of the dwellings during the operational phase, continuing to utilise surrounding areas for movement and foraging.	Site and surrounding local area	Long-term (primarily operational phase)	Low to moderate	Medium	Medium

5. Proposed Impact Management Actions

The designation of "High Sensitivity" for the area given by the National Screening Tool Report (DFFE) is supported and remains "**High sensitivity**". Vegetation clearance for the construction of the dwelling is anticipated to have minimal impact on site-specific wildlife, although, certain impact management actions must be implemented, including:

- Maintain an appropriate buffer zone from the estuary particularly in area for feeding or nesting by avifauna.
- The development footprint shall be clearly demarcated, and all construction activities shall be confined to the approved footprint. Retain surrounding natural and semi-natural vegetation where possible.
- Limit construction activities to daylight hours only.
- Where feasible, avoid construction activities during peak avifaunal breeding periods.
- Fit bird flight diverters to any overhead power lines to improve visibility to flying birds.
- All personnel shall receive an environmental induction including fauna awareness.
- Vegetation clearance and earthworks shall be undertaken in a **phased, controlled manner** to allow fauna, such as the mole rats to move away naturally, and where practicable, outside of peak breeding periods.
- Prior to and during construction, the site shall be checked for active burrows, runways, or nests, and disturbance avoided where possible.
- Earthworks shall proceed slowly, machinery movement shall be limited to designated routes, and excavations shall not be left open overnight (escape ramps to be provided where required).
- No trapping, poisoning, or intentional harm to fauna shall be permitted.
- No disturbance shall occur within the riverbanks, cliff faces, and avifaunal and crustacean nesting burrows shall be avoided.
- Ground disturbance shall be limited to areas strictly necessary for construction, and the use of pesticides or insecticides shall be avoided unless approved.
- Appropriate erosion, stormwater, and pollution control measures shall be implemented, with all waste removed to a licensed facility and hazardous substances stored in bunded areas.
- During operation, lighting shall be low-intensity and downward-directed, and vehicle speeds shall be controlled to reduce fauna mortality.
- Minimise unnecessary external night lighting to reduce disturbance to nocturnal fauna.
- Manage domestic animals to prevent disturbance of nesting or feeding birds associated with the estuarine environment.
- Compliance with fauna-related mitigation measures shall be monitored by the ECO, and any injured or displaced fauna shall be reported and managed by a suitably qualified person.
- Ensuring the 40m buffer between the development footprint and the southern property boundary is maintained.

Conclusion

The terrestrial animal species assessment confirms that the site designated for the proposed holiday accommodation is appropriately classified as having **High Faunal Sensitivity**, primarily due to its location within a broader ecologically sensitive landscape and its proximity to the Kromme River, which supports a number of avifaunal Species of Conservation Concern (SCC). Although the site itself comprises largely transformed grass-dominated habitat and no SCC were recorded during the site inspection, the surrounding environment provides potential for occasional use by SCC, particularly avifauna, including waterbirds, large terrestrial birds, and birds of prey.

Based on the findings of the assessment, the proposed development is not expected to result in significant impacts on terrestrial animal SCC, provided that the recommended mitigation and management measures are implemented.

All proposed mitigation and impact management measures must be incorporated into and implemented through the Environmental Management Programme (EMPr) to ensure that potential impacts on fauna are effectively avoided, minimised, and managed throughout the construction and operational phases of the development.

*****END*****

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Annexure A: Curriculum Vitae

Francette Jerling Work Experience								
Personal Details FRANCETTE JERLING DOB: 12 November 1987 ID number: 8711120190180 Address: Lot 510 Eilandshoogte, Witelsbos, Tsitsikamma, Easter Cape Cell: 0662388094 Email: francette@aces-con.co.za	Speciality Conservation & Biodiversity Studies	Relevant Experience 10 years of conservation related experience. Currently undergoing EAPASA Mentorship Programme, under the mentorship of Leander Potgieter (ACES)						
	Professional Registration Registered Candidate EAP (EAPASA - 2023/6932) Professional Zoologist & Professional Conservationist (SACNASP – 151825) IAIASA Membership number: 7435	Tertiary Qualifications • Master of Science (M.Sc.) – Zoology - Northwest University Potchefstroom, South Africa. 2011 • B.Sc. (Hons.) Biodiversity and Conservation Biology - Northwest University Potchefstroom, South Africa. 2009 • B.Sc. - Zoology & Geography - Northwest University Potchefstroom, South Africa. 2008 • Certificate (NQF 8): An Introduction to the Environmental Impact Assessment – NMU – Nelson Mandela University. 2023 • Certificate in Wellness Counselling (NQF 5) - Da Vinci Institute, South Africa, 2018						
Professional Experience <table border="0"> <tr> <td>June 2023 – Current</td> <td>EAPASA Mentorship Program – Leander Potgieter, ACES Environmental Consulting</td> </tr> <tr> <td>2019 - Current:</td> <td>The Tsitsikamma Wolf Sanctuary, Eastern Cape, South Africa Resident Zoologist and Director</td> </tr> <tr> <td>2016-2018:</td> <td>Liedani, Synergetica Academy, Cullinan, Gauteng, South Africa Lecturer & Laboratory Manager</td> </tr> </table>			June 2023 – Current	EAPASA Mentorship Program – Leander Potgieter, ACES Environmental Consulting	2019 - Current:	The Tsitsikamma Wolf Sanctuary, Eastern Cape, South Africa Resident Zoologist and Director	2016-2018:	Liedani, Synergetica Academy, Cullinan, Gauteng, South Africa Lecturer & Laboratory Manager
June 2023 – Current	EAPASA Mentorship Program – Leander Potgieter, ACES Environmental Consulting							
2019 - Current:	The Tsitsikamma Wolf Sanctuary, Eastern Cape, South Africa Resident Zoologist and Director							
2016-2018:	Liedani, Synergetica Academy, Cullinan, Gauteng, South Africa Lecturer & Laboratory Manager							

2017-2018:	ASCHP (Association for Supportive Counsellor and Holistic Practitioners) - Cullinan, South Africa Lecturer / Administrator / RPL Evaluator
2015-2016:	Dr. Rodger Savory – Bowen, Queensland Australia Holistic Grassland Research Manager
2014-2015:	NHFU (Natural History Film Unit), Maun, Botswana Researcher / Logistics Manager / Assistant Editor
2013-2014:	Cheetah Conservation Botswana, Ghanzi, Botswana Researcher
2013:	Krokovango Crocodile Farm and Research Center – Shakawe, Botswana Researcher
2010-2012:	Mabula Ground Hornbill Project, Bela Bela, Limpopo, South Africa Researcher
2009-2012:	Northwest University – Potchefstroom, South Africa Researcher / Student Facilitator / Assistant Lecturer / Translator / Field Assistant
Projects:	
➤ Ref no: EA – 14/12/16/3/3/1/2794 - Basic Assessment for the Construction of 5 geodesic Domes, Tsitsikamma Section GRNP. ➤ Ref no: EC08/C/LN1&3/M/36-2019 - Basic Assessment for the Construction of a Residential Warehousing on Erf 414, Oyster Bay, Kouga Local Municipality. ➤ Ref no: - Gaut 002/24-25/E4048 - Basic Assessment for the proposed residential township on Farm Zandfontein 154/317JR, City of Tshwane Municipality, Gauteng Province. ➤ Ref. no. EC08/C/LN1&3/M/31-2024 - Basic Assessment for the proposed residential development on Erf 1286 Jeffreys Bay, Kouga Local Municipality, Eastern Cape. ➤ Ref no: EC08/C/LN1&3/M/50-2024 - Basic Assessment for the proposed residential development on Erf 650 Jeffreys Bay, Kouga Local Municipality, Eastern Cape (ongoing). ➤ Ref no: EC08/C/LN1&3/M/10-2025 – Construction of a residential building on Erf 155 Paradise Beach, Kouga Local Municipality, Eastern Cape. ➤ Ref no: EC08/C/LN1&3/M/24-2025 – Basic Assessment for the Construction of a residential building on Erf 275/276 Aston Bay, Kouga Local Municipality, Eastern Cape. ➤ Ref no: EC08/C/LN1/M/36-2025 – Basic Assessment for the Proposed warehouse and storage facility on remainder of Erf 2091 Humansdorp, Humansdorp Registration Division, Kouga Local Municipality, Sarah Baartman District Municipality, Eastern Cape. ➤ Ref no: 12/1/9/1-M348 – Basic Assessment for the Proposed Development of a Filling Station and Shopping Complex on a Part Of Portion 0, Mohlabas Location 567lt, Dan Village, Greater Tzaneen Municipality. ➤ Ref no: 12/1/9/1-W315 – Basic Assessment for the Proposed development of a Diesel Depot at	

Tshamahansi Village, Stand no. 737, on Portion of the Farm Turfspruit 241 KR within Mogalakwena Local Municipality of Waterberg District.

- Terrestrial Animal Assessment for Erf 1286 Jeffreys Bay, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 650 Paradise Beach, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 155 Paradise Beach, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 275/276 Aston Bay, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 2091 Humansdorp, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 1023 Paradysstrand, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 1824 Paradysstrand, Kouga Local Municipality, Eastern Cape.

Annexure B: List of all Avifauna recorded on Pentad 3405_2445

	SCC Birds (SABAP2 - Jan 2026)		
	Scientific Name	Common Name	Status
1	<i>Apalis thoracica</i>	Apalis Bar-throated	Least Concern
2	<i>Accipiter melanoleucus</i>	Sparrowhawk Black	Least Concern
3	<i>Accipiter minullus</i>	Sparrowhawk Little	Least Concern
4	<i>Accipiter tachiro</i>	Goshawk African	Least Concern
5	<i>Acrocephalus arundinaceus</i>	Warbler Great Reed	Least Concern
6	<i>Acrocephalus baeticatus</i>	Warbler African Reed [x]	Least Concern
7	<i>Acrocephalus gracilirostris</i>	Warbler Lesser Swamp	Least Concern
8	<i>Acrocephalus palustris</i>	Warbler Marsh	Least Concern
9	<i>Acrocephalus scirpaceus</i>	Warbler Common Reed	Least Concern
10	<i>Actitis hypoleucos</i>	Sandpiper Common	Least Concern
11	<i>Actophilornis africanus</i>	Jacana African	Least Concern
12	<i>Agapornis hybrid</i>	Lovebird Hybrid	Least Concern
13	<i>Agapornis nigrigenis</i>	Lovebird Black-cheeked	Least Concern
14	<i>Agapornis personatus</i>	Lovebird Yellow-collared	Least Concern
15	<i>Agapornis roseicollis</i>	Lovebird Rosy-faced	Least Concern
16	<i>Alcedo semitorquata</i>	Kingfisher Half-collared	Vulnerable
17	<i>Alopochen aegyptiaca</i>	Goose Egyptian	Least Concern
18	<i>Amblyospiza albifrons</i>	Weaver Thick-billed	Least Concern
19	<i>Anarhynchus pecuarius</i>	Plover Kittlitz's	Near Threatened
20	<i>Anas capensis</i>	Teal Cape	Least Concern
21	<i>Anas erythrorhyncha</i>	Teal Red-billed	Near Threatened
22	<i>Anas hottentota</i>	Teal Blue-billed	Least Concern
23	<i>Anas platyrhynchos</i>	Mallard	Least Concern
24	<i>Anas sparsa</i>	Duck African Black	Least Concern
25	<i>Anas undulata</i>	Duck Yellow-billed	Near Threatened
26	<i>Anastomus lamelligerus</i>	Openbill African	Least Concern
27	<i>Andropadus importunus</i>	Greenbul Sombre	Least Concern
28	<i>Anhinga rufa</i>	Darter African	Near Threatened
29	<i>Anser anser domesticus</i>	Goose Domestic	Least Concern
30	<i>Anthobaphes violacea</i>	Sunbird Orange-breasted	Least Concern
31	<i>Anthus cinnamomeus</i>	Pipit African	Least Concern
32	<i>Anthus leucophrys</i>	Pipit Plain-backed	Least Concern
33	<i>Anthus nicholsoni</i>	Pipit Nicholson's	Least Concern
34	<i>Anthus vaalensis</i>	Pipit Buffy	Least Concern
35	<i>Apalis flavida</i>	Apalis Yellow-breasted	Least Concern
36	<i>Apus affinis</i>	Swift Little	Least Concern
37	<i>Apus apus</i>	Swift Common	Least Concern
38	<i>Apus barbatus</i>	Swift African Black	Least Concern
39	<i>Apus caffer</i>	Swift White-rumped	Least Concern

40	<i>Apus horus</i>	Swift Horus	Least Concern
41	<i>Aquila verreauxii</i>	Eagle Verreaux's	Vulnerable
42	<i>Ardea alba</i>	Egret Great	Near Threatened
43	<i>Ardea cinerea</i>	Heron Grey	Least Concern
44	<i>Ardea goliath</i>	Heron Goliath	Least Concern
45	<i>Ardea intermedia</i>	Egret Intermediate [x]	Least Concern
46	<i>Ardea melanocephala</i>	Heron Black-headed	Least Concern
47	<i>Ardea purpurea</i>	Heron Purple	Least Concern
48	<i>Ardeola ralloides</i>	Heron Squacco	Least Concern
49	<i>Arenaria interpres</i>	Turnstone Ruddy	Near Threatened
50	<i>Batis capensis</i>	Batis Cape	Least Concern
51	<i>Bostrychia hagedash</i>	Ibis Hadada	Least Concern
52	<i>Bradypterus baboecala</i>	Warbler Little Rush	Least Concern
53	<i>Bradypterus sylvaticus</i>	Warbler Knysna	Near Threatened
54	<i>Bubo africanus</i>	Eagle-Owl Spotted	Least Concern
55	<i>Bubulcus ibis</i>	Egret Western Cattle	Least Concern
56	<i>Burhinus capensis</i>	Thick-knee Spotted	Least Concern
57	<i>Burhinus vermiculatus</i>	Thick-knee Water	Least Concern
58	<i>Buteo buteo</i>	Buzzard Common	Least Concern
59	<i>Buteo rufofuscus</i>	Buzzard Jackal	Least Concern
60	<i>Buteo trizonatus</i>	Buzzard Forest	Near Threatened
61	<i>Calandrella cinerea</i>	Lark Red-capped	Least Concern
62	<i>Calidris alba</i>	Sanderling	Near Threatened
63	<i>Calidris canutus</i>	Knot Red	Near Threatened
64	<i>Calidris ferruginea</i>	Sandpiper Curlew	Vulnerable
65	<i>Calidris melanotos</i>	Sandpiper Pectoral	Least Concern
66	<i>Calidris minuta</i>	Stint Little	Least Concern
67	<i>Calidris pugnax</i>	Ruff	Least Concern
68	<i>Camaroptera brachyura brachyura</i>	Camaroptera Green-backed	Least Concern
69	<i>Campephaga flava</i>	Cuckooshrike Black	Least Concern
70	<i>Campethera notata</i>	Woodpecker Knysna	Least Concern
71	<i>Caprimulgus pectoralis</i>	Nightjar Fiery-necked	Least Concern
72	<i>Cecropis abyssinica</i>	Swallow Lesser Striped	Least Concern
73	<i>Cecropis cucullata</i>	Swallow Greater Striped	Least Concern
74	<i>Centropus burchellii</i>	Coucal Burchell's	Least Concern
75	<i>Cercotrichas coryphoeus</i>	Scrub Robin Karoo	Least Concern
76	<i>Cercotrichas leucophrys</i>	Scrub Robin White-browed	Least Concern
77	<i>Certhilauda semitorquata</i>	Lark Eastern Long-billed	Least Concern
78	<i>Ceryle rudis</i>	Kingfisher Pied	Least Concern
79	<i>Chalcomitra amethystina</i>	Sunbird Amethyst	Least Concern
80	<i>Charadrius hiaticula</i>	Plover Common Ringed	Least Concern
81	<i>Charadrius leschenaultii</i>	Plover Greater Sand	Least Concern
82	<i>Charadrius marginatus</i>	Plover White-fronted	Least Concern
83	<i>Charadrius mongolus</i>	Plover Siberian Sand	Least Concern
84	<i>Charadrius tricollaris</i>	Plover Three-banded	Least Concern

85	<i>Chlidonias hybrida</i>	Tern Whiskered	Least Concern
86	<i>Chlidonias leucopterus</i>	Tern White-winged	Least Concern
87	<i>Chlorophoneus olivaceus</i>	Bushshrike Olive	Least Concern
88	<i>Chroicocephalus cirrocephalus</i>	Gull Grey-headed	Least Concern
89	<i>Chroicocephalus hartlaubii</i>	Gull Hartlaub's	Vulnerable
90	<i>Chrysococcyx caprius</i>	Cuckoo Diederik	Least Concern
91	<i>Chrysococcyx klaas</i>	Cuckoo Klaas's	Least Concern
92	<i>Ciconia abdimii</i>	Stork Abdim's	Least Concern
93	<i>Ciconia ciconia</i>	Stork White	Least Concern
94	<i>Ciconia nigra</i>	Stork Black	Endangered
95	<i>Cinnyris afer</i>	Sunbird Greater Double-collared	Least Concern
96	<i>Cinnyris chalybeus</i>	Sunbird Southern Double-collared	Least Concern
97	<i>Circus macrourus</i>	Harrier Pallid	Least Concern
98	<i>Circus maurus</i>	Harrier Black	Endangered
99	<i>Circus pygargus</i>	Harrier Montagu's	Least Concern
100	<i>Circus ranivorus</i>	Harrier African Marsh	Vulnerable
101	<i>Cisticola aberrans</i>	Cisticola Lazy	Least Concern
102	<i>Cisticola fulvicapilla</i>	Neddicky	Least Concern
103	<i>Cisticola juncidis</i>	Cisticola Zitting	Least Concern
104	<i>Cisticola lais</i>	Cisticola Wailing	Least Concern
105	<i>Cisticola subruficapilla</i>	Cisticola Grey-backed	Least Concern
106	<i>Cisticola textrix</i>	Cisticola Cloud	Least Concern
107	<i>Cisticola tinniens</i>	Cisticola Levillant's	Least Concern
108	<i>Clamator jacobinus</i>	Cuckoo Jacobin	Least Concern
109	<i>Coccygus melanotis</i>	Waxbill Swee	Least Concern
110	<i>Colius striatus</i>	Mousebird Speckled	Least Concern
111	<i>Columba arquatrix</i>	Pigeon African Olive	Least Concern
112	<i>Columba guinea</i>	Pigeon Speckled	Least Concern
113	<i>Columba livia</i>	Dove Rock	Least Concern
114	<i>Coracias garrulus</i>	Roller European	Near Threatened
115	<i>Coracina caesia</i>	Cuckooshrike Grey	Least Concern
116	<i>Corvus albicollis</i>	Raven White-necked	Least Concern
117	<i>Corvus albus</i>	Crow Pied	Least Concern
118	<i>Corvus capensis</i>	Crow Cape	Least Concern
119	<i>Corythornis cristatus</i>	Kingfisher Malachite	Least Concern
120	<i>Cossypha caffra</i>	Robin-Chat Cape	Least Concern
121	<i>Coturnix coturnix</i>	Quail Common	Least Concern
122	<i>Creophora cinerea</i>	Starling Wattled	Least Concern
123	<i>Crithagra flaviventris</i>	Canary Yellow	Least Concern
124	<i>Crithagra gularis</i>	Seed-eater Streaky-headed	Least Concern
125	<i>Crithagra mozambica</i>	Canary Yellow-fronted	Least Concern
126	<i>Crithagra scotops</i>	Canary Forest	Least Concern
127	<i>Crithagra sulphurata</i>	Canary Brimstone	Least Concern
128	<i>Cuculus canorus</i>	Cuckoo Common	Least Concern

129	<i>Cuculus clamosus</i>	Cuckoo Black	Least Concern
130	<i>Cuculus solitarius</i>	Cuckoo Red-chested	Least Concern
131	<i>Cursorius temminckii</i>	Courser Temminck's	Least Concern
132	<i>Cyanomitra veroxii</i>	Sunbird Grey	Least Concern
133	<i>Cypsiurus parvus</i>	Swift African Palm	Least Concern
134	<i>Delichon urbicum</i>	House Martin Common	Least Concern
135	<i>Dendrocygna viduata</i>	Duck White-faced Whistling	Least Concern
136	<i>Dendropicos fuscescens</i>	Woodpecker Cardinal	Least Concern
137	<i>Dendropicos griseocephalus</i>	Woodpecker Olive	Least Concern
138	<i>Dicrurus adsimilis</i>	Drongo Fork-tailed	Least Concern
139	<i>Dryoscopus cubla</i>	Puffback Black-backed	Least Concern
140	<i>Egretta garzetta</i>	Egret Little	Least Concern
141	<i>Elanus caeruleus</i>	Kite Black-winged	Near Threatened
142	<i>Emberiza capensis</i>	Bunting Cape	Least Concern
143	<i>Estrilda astrild</i>	Waxbill Common	Least Concern
144	<i>Euplectes capensis</i>	Bishop Yellow	Least Concern
145	<i>Euplectes orix</i>	Red Bishop Southern	Least Concern
146	<i>Euplectes progne</i>	Widowbird Long-tailed	Least Concern
147	<i>Eupodotis senegalensis</i>	Bustard White-bellied	Least Concern
148	<i>Falco amurensis</i>	Falcon Amur	Least Concern
149	<i>Falco biarmicus</i>	Falcon Lanner	Near Threatened
150	<i>Falco naumanni</i>	Kestrel Lesser	Vulnerable
151	<i>Falco peregrinus</i>	Falcon Peregrine	Least Concern
152	<i>Falco rupicolus</i>	Kestrel Rock	Least Concern
153	<i>Fulica cristata</i>	Coot Red-knobbed	Least Concern
154	<i>Galerida magnirostris</i>	Lark Large-billed	Least Concern
155	<i>Gallinago nigripennis</i>	Snipe African	Least Concern
156	<i>Gallinula chloropus</i>	Moorhen Common	Least Concern
157	<i>Grus paradisea</i>	Crane Blue	Vulnerable
158	<i>Gymnoris supercilialis</i>	Sparrow Yellow-throated Bush	Least Concern
159	<i>Haematopus moquini</i>	Oystercatcher African	Least Concern
160	<i>Haematopus ostralegus</i>	Oystercatcher Eurasian	Least Concern
161	<i>Halcyon albiventris</i>	Kingfisher Brown-hooded	Least Concern
162	<i>Haliaeetus vocifer</i>	Fish Eagle African	Least Concern
163	<i>Hedydipna collaris</i>	Sunbird Collared	Least Concern
164	<i>Hieraaetus pennatus</i>	Eagle Booted	Least Concern
165	<i>Himantopus himantopus</i>	Stilt Black-winged	Least Concern
166	<i>Hirundo albigularis</i>	Swallow White-throated	Least Concern
167	<i>Hirundo dimidiata</i>	Swallow Pearl-breasted	Least Concern
168	<i>Hirundo rustica</i>	Swallow Barn	Least Concern
169	<i>Hydroprogne caspia</i>	Tern Caspian	Vulnerable
170	<i>Indicator indicator</i>	Honeyguide Greater	Least Concern
171	<i>Indicator minor</i>	Honeyguide Lesser	Least Concern
172	<i>Ixobrychus minutus</i>	Bittern Little	Least Concern

173	<i>Jynx ruficollis</i>	Wryneck Red-throated	Least Concern
174	<i>Lagonosticta rubricata</i>	Firefinch African	Least Concern
175	<i>Lamprolornis bicolor</i>	Starling Pied	Least Concern
176	<i>Lamprolornis nitens</i>	Starling Cape	Least Concern
177	<i>Laniarius ferrugineus</i>	Boubou Southern	Least Concern
178	<i>Lanius collaris</i>	Fiscal Southern	Least Concern
179	<i>Larus dominicanus</i>	Gull Kelp	Least Concern
180	<i>Limosa haemastica</i>	Godwit Hudsonian	Least Concern
181	<i>Limosa lapponica</i>	Godwit Bar-tailed	Least Concern
182	<i>Limosa limosa</i>	Godwit Black-tailed	Least Concern
183	<i>Lonchura cucullata</i>	Mannikin Bronze	Least Concern
184	<i>Lophaetus occipitalis</i>	Eagle Long-crested	Least Concern
185	<i>Lybius torquatus</i>	Barbet Black-collared	Least Concern
186	<i>Macronyx capensis</i>	Longclaw Cape	Least Concern
187	<i>Megaceryle maxima</i>	Kingfisher Giant	Least Concern
188	<i>Melaenornis silens</i>	Flycatcher Fiscal	Least Concern
189	<i>Melierax canorus</i>	Goshawk Pale Chanting	Least Concern
190	<i>Merops apiaster</i>	Bee-eater European	Least Concern
191	<i>Merops persicus</i>	Bee-eater Blue-cheeked	Least Concern
192	<i>Microcarbo africanus</i>	Cormorant Reed	Least Concern
193	<i>Milvus aegyptius</i>	Kite Yellow-billed	Least Concern
194	<i>Mirafr africana</i>	Lark Rufous-naped	Least Concern
195	<i>Mirafr apiata</i>	Lark Cape Clapper	Least Concern
196	<i>Morus capensis</i>	Gannet Cape	Vulnerable
197	<i>Motacilla aguimp</i>	Wagtail African Pied	Least Concern
198	<i>Motacilla capensis</i>	Wagtail Cape	Least Concern
199	<i>Muscicapa adusta</i>	Flycatcher African Dusky	Least Concern
200	<i>Myrmecocichla formicivora</i>	Chat Ant-eating	Least Concern
201	<i>Nectarinia famosa</i>	Sunbird Malachite	Least Concern
202	<i>Neophedina cincta</i>	Martin Banded	Least Concern
203	<i>Neotis denhami</i>	Bustard Denham's	Vulnerable
204	<i>Netta erythrophthalma</i>	Pochard Southern	Near Threatened
205	<i>Notopholia corrusca</i>	Starling Black-bellied	Least Concern
206	<i>Numenius arquata</i>	Curlew Eurasian	Least Concern
207	<i>Numenius phaeopus</i>	Whimbrel Eurasian	Least Concern
208	<i>Numida meleagris</i>	Guineafowl Helmeted	Least Concern
209	<i>Nycticorax nycticorax</i>	Night Heron Black-crowned	Least Concern
210	<i>Oena capensis</i>	Dove Namaqua	Least Concern
211	<i>Oenanthe familiaris</i>	Chat Familiar	Least Concern
212	<i>Oenanthe pileata</i>	Wheatear Capped	Least Concern
213	<i>Onychognathus morio</i>	Starling Red-winged	Least Concern
214	<i>Oriolus larvatus</i>	Oriole Black-headed	Least Concern
215	<i>Oriolus oriolus</i>	Oriole Eurasian Golden	Least Concern
216	<i>Ortygospiza atricollis</i>	Quailfinch	Least Concern

217	<i>Oxyura maccoa</i>	Duck Maccoa	Vulnerable
218	<i>Pandion haliaetus</i>	Osprey Western	Least Concern
219	<i>Passer diffusus</i>	Sparrow Southern Grey-headed	Least Concern
220	<i>Passer domesticus</i>	Sparrow House	Least Concern
221	<i>Passer melanurus</i>	Sparrow Cape	Least Concern
222	<i>Pavo cristatus</i>	Peafowl Indian	Least Concern
223	<i>Pernis apivorus</i>	Buzzard European Honey	Least Concern
224	<i>Phaethon rubricauda</i>	Tropicbird Red-tailed	Least Concern
225	<i>Phalacrocorax capensis</i>	Cormorant Cape	Endangered
226	<i>Phalacrocorax lucidus</i>	Cormorant White-breasted	Least Concern
227	<i>Phoeniconaias minor</i>	Flamingo Lesser	Vulnerable
228	<i>Phoenicopus roseus</i>	Flamingo Greater	Near Threatened
229	<i>Phoeniculus purpureus</i>	Wood Hoopoe Green	Least Concern
230	<i>Phyllastrephus terrestris</i>	Brownbul Terrestrial	Least Concern
231	<i>Phylloscopus ruficapilla</i>	Warbler Yellow-throated Woodland	Least Concern
232	<i>Phylloscopus trochilus</i>	Warbler Willow	Least Concern
233	<i>Platalea alba</i>	Spoonbill African	Least Concern
234	<i>Plectropterus gambensis</i>	Goose Spur-winged	Least Concern
235	<i>Plegadis falcinellus</i>	Ibis Glossy	Least Concern
236	<i>Ploceus bicolor</i>	Weaver Dark-backed	Least Concern
237	<i>Ploceus capensis</i>	Weaver Cape	Least Concern
238	<i>Ploceus cucullatus</i>	Weaver Village	Least Concern
239	<i>Ploceus ocularis</i>	Weaver Spectacled	Least Concern
240	<i>Ploceus velatus</i>	Weaver Southern Masked	Least Concern
241	<i>Pluvialis dominica</i>	Plover American Golden	Least Concern
242	<i>Pluvialis squatarola</i>	Plover Grey	Near Threatened
243	<i>Podiceps cristatus</i>	Grebe Great Crested	Vulnerable
244	<i>Pogonius pusillus</i>	Tinkerbird Red-fronted	Least Concern
245	<i>Polemaetus bellicosus</i>	Eagle Martial	Endangered
246	<i>Polyboroides typus</i>	Harrier-Hawk African	Least Concern
247	<i>Porphyrio madagascariensis</i>	Swamphen African	Least Concern
248	<i>Prinia maculosa</i>	Prinia Karoo	Least Concern
249	<i>Prodotiscus regulus</i>	Honeybird Brown-backed	Least Concern
250	<i>Promerops cafer</i>	Sugarbird Cape	Least Concern
251	<i>Psaldiprocne pristoptera</i>	Saw-wing Black	Least Concern
252	<i>Pternistis afer</i>	Spurfowl Red-necked	Least Concern
253	<i>Ptyonoprogne fuligula</i>	Martin Rock	Least Concern
254	<i>Pycnonotus capensis</i>	Bulbul Cape	Least Concern
255	<i>Pycnonotus tricolor</i>	Bulbul Dark-capped [x]	Least Concern
256	<i>Quelea quelea</i>	Quelea Red-billed	Least Concern
257	<i>Rallus caerulescens</i>	Rail African	Least Concern
258	<i>Recurvirostra avosetta</i>	Avocet Pied	Least Concern
259	<i>Riparia paludicola</i>	Martin Brown-throated	Least Concern
260	<i>Riparia riparia</i>	Martin Sand	Least Concern

261	<i>Rostratula benghalensis</i>	Painted-snipe Greater	Least Concern
262	<i>Sagittarius serpentarius</i>	Secretarybird	Vulnerable
263	<i>Sarothrura affinis</i>	Flufftail Striped	Vulnerable
264	<i>Sarothrura elegans</i>	Flufftail Buff-spotted	Least Concern
265	<i>Sarothrura rufa</i>	Flufftail Red-chested	Least Concern
266	<i>Saxicola torquatus</i>	Stonechat African	Least Concern
267	<i>Scleroptila levaillantii</i>	Francois Red-winged	Least Concern
268	<i>Scopus umbretta</i>	Hamerkop	Near Threatened
269	<i>Serinus canicollis</i>	Canary Cape	Least Concern
270	<i>Spatula smithii</i>	Shoveler Cape	Near Threatened
271	<i>Sphenoeacus afer</i>	Grassbird Cape	Least Concern
272	<i>Spilopelia senegalensis</i>	Dove Laughing	Least Concern
273	<i>Stephanoaetus coronatus</i>	Eagle Crowned	Vulnerable
274	<i>Stercorarius antarcticus</i>	Skua Subantarctic	Least Concern
275	<i>Sterna dougallii</i>	Tern Roseate	Vulnerable
276	<i>Sterna hirundo</i>	Tern Common	Least Concern
277	<i>Sterna paradisaea</i>	Tern Arctic	Least Concern
278	<i>Sterna vittata</i>	Tern Antarctic	Least Concern
279	<i>Sternula albifrons</i>	Tern Little	Least Concern
280	<i>Sternula balaenarum</i>	Tern Damara	Endangered
281	<i>Streptopelia capicola</i>	Dove Ring-necked	Least Concern
282	<i>Streptopelia semitorquata</i>	Dove Red-eyed	Least Concern
283	<i>Strix woodfordii</i>	Owl African Wood	Least Concern
284	<i>Struthio camelus</i>	Ostrich Common	Least Concern
285	<i>Sturnus vulgaris</i>	Starling Common	Least Concern
286	<i>Tachybaptus ruficollis</i>	Grebe Little	Least Concern
287	<i>Tachymarptis melba</i>	Swift Alpine	Least Concern
288	<i>Tadorna cana</i>	Shelduck South African	Least Concern
289	<i>Tauraco corythaix</i>	Turaco Knysna	Least Concern
290	<i>Tchagra tchagra</i>	Tchagra Southern	Least Concern
291	<i>Telophorus zeylonus</i>	Bokmakierie	Least Concern
292	<i>Terpsiphone viridis</i>	Flycatcher African Paradise	Least Concern
293	<i>Thalasseus bergii</i>	Tern Greater Crested	Least Concern
294	<i>Thalasseus sandvicensis</i>	Tern Sandwich	Least Concern
295	<i>Thalassornis leuconotus</i>	Duck White-backed	Near Threatened
296	<i>Threskiornis aethiopicus</i>	Ibis African Sacred	Least Concern
297	<i>Treron calvus</i>	Pigeon African Green	Least Concern
298	<i>Tricholaema leucomelas</i>	Barbet Acacia Pied	Least Concern
299	<i>Tringa glareola</i>	Sandpiper Wood	Least Concern
300	<i>Tringa nebularia</i>	Greenshank Common	Least Concern
301	<i>Tringa stagnatilis</i>	Sandpiper Marsh	Least Concern
302	<i>Trochocercus cyanomelas</i>	Flycatcher Blue-mantled Crested	Least Concern
303	<i>Turdus olivaceus</i>	Thrush Olive	Least Concern
304	<i>Turtur chalcospilos</i>	Wood-Dove Emerald-spotted	Least Concern

305	<i>Turtur tympanistria</i>	Dove Tambourine	Least Concern
306	<i>Tyto alba</i>	Owl Western Barn	Least Concern
307	<i>Upupa africana</i>	Hoopoe African	Least Concern
308	<i>Urocolius indicus</i>	Mousebird Red-faced	Least Concern
309	<i>Vanellus armatus</i>	Lapwing Blacksmith	Least Concern
310	<i>Vanellus coronatus</i>	Lapwing Crowned	Least Concern
311	<i>Vanellus melanopterus</i>	Lapwing Black-winged	Least Concern
312	<i>Vidua macroura</i>	Whydah Pin-tailed	Least Concern
313	<i>Xenus cinereus</i>	Sandpiper Terek	Least Concern
314	<i>Zaporina flavirostra</i>	Crake Black	Least Concern
315	<i>Zapornia pusilla</i>	Crake Baillon's	Near Threatened
316	<i>Zosterops virens</i>	White-eye Cape	Least Concern

Appendix F - ENVIRONMENTAL MANAGEMENT PROGRAMME



ENVIRONMENTAL MANAGEMENT PROGRAMME

**PROPOSED FOUR (4) TWO-BEDROOM SELF-CATERING
TOURIST ACCOMMODATION UNITS ON PORTION 9 OF FARM
707 OSBOSCH, KOUGA LOCAL MUNICIPALITY, EASTERN
CAPE PROVINCE**



ACES

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JUNE 2026

Report Details

Report Title	Environmental Management Programme: Proposed four (4) two-bedroom self-catering tourist accommodation units on Portion 9 of Farm 707 Osbosch, Kouga Local Municipality, Eastern Cape
Report Status	DRAFT Report
Report Date	16 July 2026
DEDEAT Ref no.	TBC
Purpose of Report	The Environmental Management Programme (EMPr) forms part of the Basic Assessment process for the proposed construction of four (4) two-bedroom self-catering tourist accommodation units on Portion 9 of Farm 707 Osbosch, within the Kouga Local Municipality, Eastern Cape. The report is prepared in accordance with the 2014 EIA Regulations (as amended in 2017), "an EMPr must contain the information set out in Appendix 4 to these Regulations." The main purpose of this report is to provide mitigation, monitoring and institutional measures to be taken during the Planning and Design, Construction and Operational Phases of the proposed development to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The programme also includes the necessary steps to put these mitigation measures in place.
Lead Author	Francette Jerling (Candidate EAP 2023/6932 - EAPASA) and Pr. Sci. Nat. (SACNASP reg. 151825)
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Prepared For	Economy Drive CC
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List of Abbreviations

- | | |
|---|---|
| 1. ACES Adekite Consortium Environmental Specialists | 16. FEPA Freshwater Ecosystem Priority Area |
| 2. BAR Basic Assessment Report | 17. IAP Invasive and Alien Plants |
| 3. CA Competent Authority | 18. I&AP Interested and Affected Party |
| 4. CBA Critical Biodiversity Area | 19. LUS Land Use Scheme |
| 5. CFR Cape Floristic Region | 20. NEMA National Environmental Management Act (Act no 107 of 1998) |
| 6. DEDEAT Department of Economic Development, Environment Affairs and Tourism | 21. NEMPAA National Environmental Management: Protected Areas Act |
| 7. DWS Department of Water and Sanitation | 22. NEMBA National Environmental Management Biodiversity Act |
| 8. EA Environmental Authorisation | 23. NFEPA National Freshwater Ecosystem Priority Areas |
| 9. EAP Environmental Assessment Practitioner | 24. PE Protected Environment |
| 10. EFZ Estuarine Functional Zone | 25. PES Present Ecological State |
| 11. ECO Environmental Control Officer | 26. PPP Public Participation Process |
| 12. Ecological Support Area | |
| 13. EIA Environmental Impact Assessment | |
| 14. EMP Environmental Management Plan | |
| 15. EMPr Environmental Management Programme | |

27. SACNASP South African Council for Natural Scientific Professions
28. SANBI South African National Biodiversity Institute
29. SDF Spatial Development Framework

30. SSC Species of Special Concern
31. SSVR Site Sensitivity Verification Report
32. SWSA Strategic Surface Water Are

Appendix 4 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Management Programme (EMPr). The checklist below serves as a summary of these requirements:

(1) An EMPr must comply with section 24N of the Act and include -	
(a) details of - (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	1.6; 7.1
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	2.3
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Figure 4
(d) a description of the impact management [objectives] outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including— (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	3.1; 3.2
(f) a description of proposed impact management actions, identifying the manner in which the impact management [objectives and] outcomes contemplated in paragraph (d) [and e] will be achieved, and must, where applicable, include actions to — (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	4
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Table 5; Table 6; Table 7
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Table 5; Table 6; Table 7
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Table 5; Table 6; Table 7
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Table 5; Table 6; Table 7 & 4.3
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Table 5; Table 6; Table 7
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	5
(m) an environmental awareness plan describing the manner in which— (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	6

1. INTRODUCTION

1.1. Background

Economy Drive CC has appointed Adekite Consortium of Environmental Specialists (ACES) as the independent Environmental Assessment Practitioner (EAP) to undertake a Basic Assessment process for the proposed development of tourism accommodation on Portion 9 (a Portion of Portion 3) of Farm 707 Osbosch, located within the Kouga Local Municipality, Humansdorp Registration Division, Sarah Baartman District Municipality, Eastern Cape Province.

The proposed project entails the development of four (4) two-bedroom self-catering tourist accommodation units on the property. The development is intended as a low-density tourism accommodation facility that is compatible with the zoning of the property and the surrounding rural-coastal environment (Resort II).

The property is situated on the left bank of the Kromme River estuary, within close proximity to a sensitive estuarine environment. Due to the site's location within 100 m of the high-water mark of the estuary, and the associated earthworks and vegetation clearance required for development, the proposed activity triggers listed activities in terms of the National Environmental Management Act (NEMA), Act 107 of 1998, and the Environmental Impact Assessment Regulations, 2014 (as amended).

This Environmental Management Programme (EMPr) has been prepared as part of the Basic Assessment process to provide a framework for the management and mitigation of potential environmental impacts associated with the planning, construction and operational phases of the proposed development.

The EMPr has been compiled in accordance with Appendix 4 of the Environmental Impact Assessment Regulations, 2014 (GN R326), as amended, promulgated under the National Environmental Management Act (NEMA), Act 107 of 1998. The programme outlines the proposed activity, the environmental context of the site, the identification and assessment of potential environmental impacts, and the avoidance, minimisation, management and mitigation measures required to ensure responsible environmental management.

The EMPr will be binding on the developer, contractors and all personnel involved in the implementation of the project and must be implemented throughout the construction and operational phases. Compliance with this EMPr and the conditions of the Environmental Authorisation issued by the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) is mandatory. Failure to comply may constitute an offence in terms of NEMA and may result in enforcement action by the competent authority.

1.2. Purpose of the Environmental Management Programme (EMPr)

The purpose of this Environmental Management Programme (EMPr) is to provide a structured framework for managing and mitigating potential environmental impacts associated with the proposed development.

The EMPr outlines specific environmental management measures, responsibilities, and monitoring requirements to ensure that the development is implemented in an environmentally responsible manner and in compliance with relevant environmental legislation and authorisation conditions.

The objectives of the EMPr are to:

- Ensure compliance with the Environmental Authorisation issued in terms of NEMA.
- Prevent, minimise, and manage potential environmental impacts associated with the development.
- Provide clear environmental management procedures for the planning, construction, and operational phases of the project.
- Protect the ecological integrity of the surrounding environment, particularly the Kromme River estuarine system.
- Ensure that all contractors, workers, and operational staff are aware of their environmental responsibilities during the implementation of the project.

The EMPr forms an integral component of the environmental authorisation process and must be implemented throughout the lifespan of the development.

1.3. Applicable Legislation

The proposed development is subject to various national environmental legislation and regulations aimed at protecting environmental resources and ensuring sustainable development.

The primary legislation governing the proposed activity is the National Environmental Management Act (NEMA), Act 107 of 1998, together with the Environmental Impact Assessment Regulations, 2014 (as amended).

In terms of these regulations, listed activities identified in Government Notices R.324, R.325 and R.327 may not commence without obtaining Environmental Authorisation from the competent authority.

Other legislation relevant to the project includes:

- National Water Act (Act 36 of 1998)
- National Environmental Management: Biodiversity Act (Act 10 of 2004)
- National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008)
- National Environmental Management: Protected Areas Act (Act 57 of 2003)
- Spatial Planning and Land Use Management Act (Act 16 of 2013)
- Applicable Kouga Local Municipality Land Use Scheme regulations

These legislative frameworks guide the environmental management measures outlined in this EMPr.

1.4. Project Overview

The proposed development involves the construction of four (4) self-catering holiday accommodation units on Portion 9 of Farm 707 Osbosch.

Each unit will consist of a two-bedroom, two-and-a-half-bathroom configuration, with a total footprint of approximately 115 m² per unit, including covered decking and porch areas. The combined structural footprint of the development is approximately 461 m², representing approximately 6.42% of the total site area.

The development layout includes thirteen (13) on-site parking bays, consisting of two bays per unit and additional visitor parking. The total site coverage including parking areas is approximately 8.7% of the property.

The development footprint has been carefully positioned on the northern section of the property outside the Estuarine Functional Zone (EFZ), with the southern portion of the site remaining largely undeveloped to maintain a buffer to the Kromme River estuarine environment. A 40m buffer is recommended between the southern boundary and the development footprint.

Supporting infrastructure associated with the development includes:

- On-site borehole water supply, supplemented by rainwater harvesting systems.
- Individual conservancy tanks (approximately 6.5 m³ per unit) for sanitation.
- Grid electricity supply supplemented by solar photovoltaic systems.
- Internal access roads and parking areas surfaced with interlocking paving.
- Stormwater management systems designed to promote natural infiltration and prevent runoff toward the estuary.

The development is designed as a low-density tourism facility, consistent with the Resort Zone II zoning of the property and intended to minimise environmental disturbance while making use of the tourism potential of the surrounding area.

1.5. Scope of the Report

This Environmental Management Programme applies to all phases of the proposed development, including:

- Planning and Design phase
- Construction phase
- Operational phase

The EMPr identifies environmental management measures required to minimise environmental impacts associated with the development and outlines the responsibilities of the developer, contractors, and environmental control personnel.

The EMPr also provides guidelines for environmental monitoring, reporting, and compliance to ensure that all project activities are undertaken in accordance with applicable environmental legislation and the conditions of Environmental Authorisation.

1.6. Details of Environmental Assessment Practitioner (EAP) and expertise to conduct the Basic Assessment

ACES was appointed as the independent environmental consultants to undertake the Environmental Basic Assessment Process for the proposed project. ACES is not a subsidiary or affiliated with the landowner. Furthermore, ACES do not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

- ❖ The primary EAP responsible for this project is: Mr Leander Potgieter, a registered Environmental Assessment Practitioner (Reg EAP 286/2019 EAPASA). He holds an Honours degree in agriculture and has 16 years of experience within the field of environmental management. His fields of specialisation are environmental assessment and land use advice, project management and coordination of environmental projects. The above includes integration of specialist scientific studies and assessment of developments ranging from feasibility studies, Basic Assessments and full EIAs. Mr Potgieter offers peer review and due diligence inspections of high professional standards and evaluates solutions and mitigation/risk minimising measures in terms of Environmentally Best Practice. Mr Potgieter is responsible for project management of BA's and EIA's for townships, pipelines and various other projects in Limpopo and the Eastern Cape, roads and stormwater projects in the provinces of Gauteng and the Free State and has experience of coastal projects due diligence investigations.
- ❖ Francette Jerling, a mentee of Mr Leander Potgieter as part of the EAPASA Mentorship Programme since 2023, assisted in the compilation of the EMP under strict guidance. Francette is a registered Candidate Environmental Assessment Practitioner (Reg. Candidate EAP 2023/6932) and registered scientist (Pr. Sci. Nat. - SACNASP reg. 151825) Francette holds a MSc degree in Environmental Sciences with over ten years of experience in conservation and biodiversity studies. Francette has been involved in a number of EIA's within the Eastern Cape, Gauteng and Limpopo Province since the start of her three-year mentorship period.

Please refer to [Appendix A](#) for their CV's.

2. PROJECT LOCALITY AND DESCRIPTION

2.1. Project Locality

The proposed development is located on Portion 9 of Farm 707 Osbosch, within the Kouga Local Municipality in the Eastern Cape Province. The property lies in close proximity to the Kromme River estuary, which forms part of an important estuarine ecosystem within the region.

The southern boundary of the property lies approximately 18.04 m from the left bank of the Kromme River estuary. Due to this proximity, portions of the development area fall within 100 m of the high-water mark of the estuary. The site is therefore situated within a sensitive environmental context where development activities have the potential to influence estuarine and riparian processes if not appropriately managed.

The property measures approximately 7 185 m² in extent and is currently zoned Resort Zone II in terms of the Kouga Local Municipality Land Use Scheme. This zoning allows for holiday accommodation and tourism-related land uses.

The surrounding land uses consist primarily of residential and tourism-related properties associated with the Paradise Beach and St Francis Bay area. The Kromme River estuary forms a significant ecological and recreational feature within the area and supports a range of estuarine habitats and biodiversity.

Access to the property is obtained from the R330 linking Humansdorp and St Francis Bay via a 3.5km gravel road, entering the site from the northeastern boundary. The development is located within an established settlement area and will make use of existing municipal services where available.

The approximate GPS coordinates of the site are: 34° 8'16.15"S; 24°49'31.73"E.

A locality map indicating the position of the site within the Kouga Municipal area is included in Figure 1, Figure 2 & Figure 3.

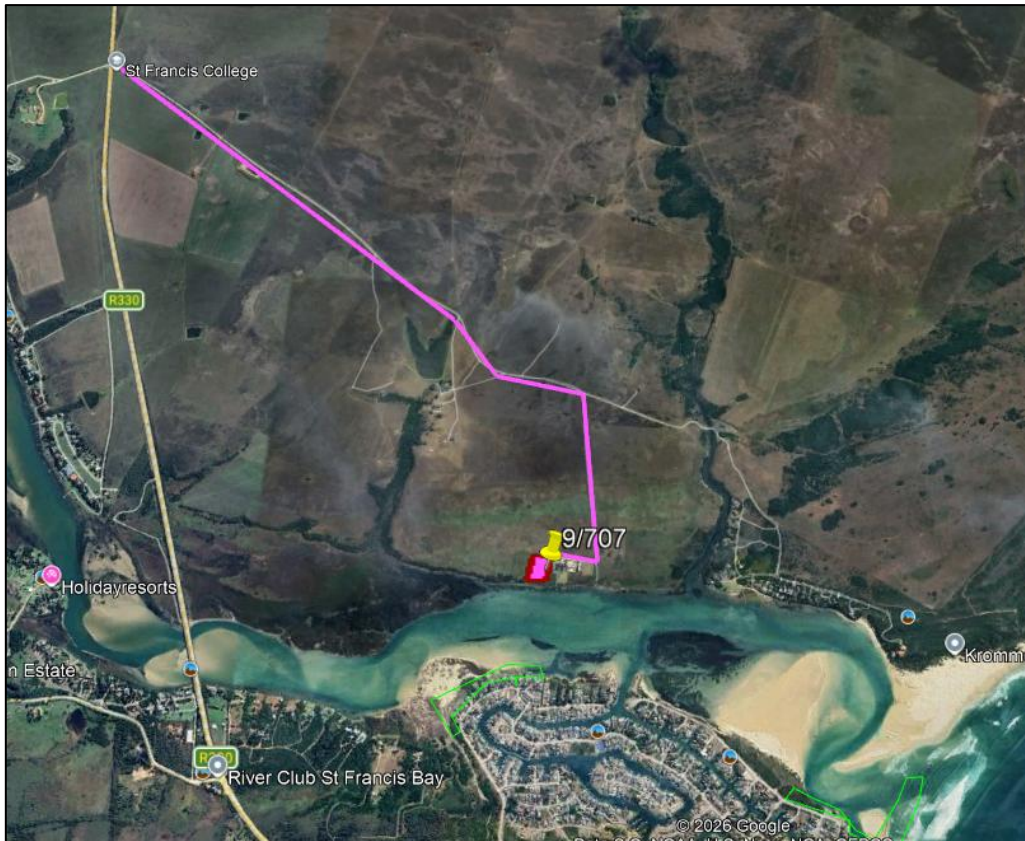


Figure 1 Locality Map of Ptn 9/707 Osbosch



Figure 2 Aerial locality Map of the site with coordinates

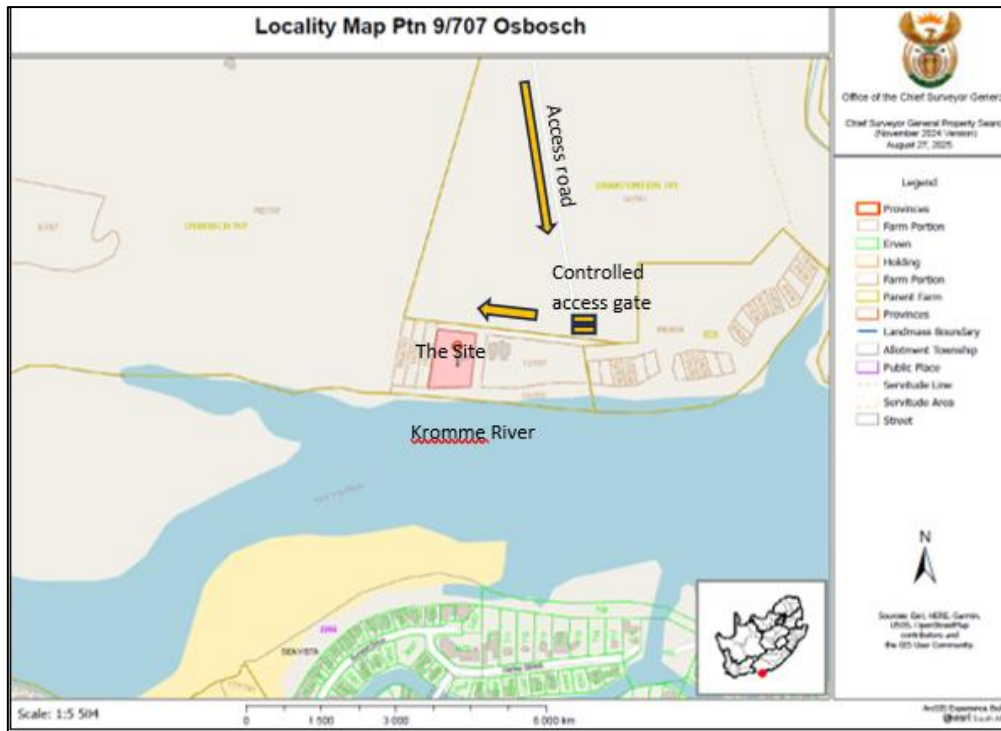


Figure 3 Locality map showing site in proximity to Kromme River and access points

2.2. Environmental Context and Sensitivities

The site occurs within a coastal–estuarine landscape associated with the Kromme River estuary, which represents an ecologically important system providing habitat for aquatic organisms, bird species and estuarine biodiversity.

The property is located on the left bank of the Kromme River estuary, with the southern boundary situated approximately 18.04 m from the estuarine bank. Due to the tidal nature of the estuary, portions of the site fall within the 100 m high-water mark buffer and EFZ (NBA 2018). The development footprint is proposed on the northern section of the site, outside of the EFZ and above the 5m topographical contour.

Environmental sensitivity within the area is largely associated with the presence of the Kromme River estuarine system, which plays an important ecological role within the region. According to the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019), the broader area forms part of a landscape containing Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA) associated with the riverine corridor and estuarine ecosystem.

Vegetation mapping indicates that the broader area falls within the Albany Thicket Biome, with vegetation types including Elands Forest Thicket and Albany Alluvial Vegetation (EN) occurring within the surrounding landscape. While the surrounding environment is considered ecologically sensitive due to the estuarine system, site inspections confirmed that the development footprint itself has been historically disturbed through agricultural activities and is currently characterised by dense grass cover and sandy soils typical of river-adjacent landscapes.

The sensitivity of the site is therefore primarily related to the proximity to the estuary, flood risk areas, and the ecological importance of the surrounding landscape, rather than highly sensitive features located directly within the proposed development footprint. Appropriate environmental management measures must therefore be implemented to ensure that potential impacts on the surrounding estuarine environment are avoided or minimised.



Figure 4 Map illustrating 100m HWM and 100yr floodline on the site

2.3. Description of the Proposed Development

2.3.1. Development Overview

The proposed development entails the establishment of four (4) self-catering holiday accommodation units on Portion 9 of Farm 707 Osbosch. The development is intended to function as a low-density tourism accommodation facility, consistent with the Resort Zone II zoning of the property in terms of the Kouga Local Municipality Land Use Scheme.

Each accommodation unit will consist of two bedrooms and two-and-a-half bathrooms, together with internal living areas and associated outdoor spaces including covered decking and porch areas. The total footprint of each unit will be approximately 115 m², resulting in a combined building footprint of approximately 461 m² across the site.

The proposed development has been designed to maintain a low building coverage and limited site disturbance, ensuring compatibility with the surrounding rural-coastal environment and minimising potential impacts on the nearby estuarine ecosystem.

2.3.2. Development Layout and Infrastructure

The development footprint has been positioned on the northern portion of the property, outside of the EFZ and above the 5m topographical contour, and as far as practicably possible from the estuarine edge. This design approach allows the southern

The proposed development layout includes:

- Four (4) holiday accommodation units
- Thirteen (13) on-site parking bays (two per unit and additional visitor parking)
- Internal access roads and parking areas surfaced with interlocking paving
- Rainwater harvesting tanks associated with each unit
- On-site conservancy tanks for sanitation
- Stormwater management infrastructure designed to promote natural infiltration.
- A 40m setback from the southern boundary, where no development activities are to take place. See Figure 4 above.

The total building coverage of the development represents approximately 6.42% of the site area, while the total site coverage including parking areas is approximately 8.7%, remaining well within the development parameters permitted by the applicable zoning scheme.



Figure 5 Proposed SDP of the development

2.3.3. Project Phases

The proposed development will be implemented in three main phases:

Planning and Design Phase

This phase includes all planning activities required prior to construction, including obtaining the necessary environmental authorisation, municipal approvals, engineering design, and finalisation of architectural plans.

Construction Phase

The construction phase will involve site preparation, earthworks, foundation construction, building works, and installation of associated services and infrastructure. Vegetation clearance and earthworks will be limited to the approved development footprint.

This phase is expected to generate the greatest potential environmental impacts, including temporary disturbance to soils, vegetation, and surrounding areas. Environmental management measures contained in this EMPr will therefore be implemented to minimise potential impacts during this phase.

Operational Phase

The operational phase will commence once construction is completed and the accommodation units become functional. Activities during this phase will include tourist accommodation operations, property maintenance, and servicing of infrastructure. Environmental impacts during this phase are expected to be limited and associated primarily with routine operational activities.

2.3.4. Services and Infrastructure

The proposed development will utilise a combination of on-site and external services to support the operation of the accommodation units.

Water Supply

Potable water for the development will be sourced from an existing on-site borehole, supplemented by rainwater harvesting systems. Water will be treated where necessary to ensure compliance with SANS 241 drinking water standards.

Sanitation

Each accommodation unit will be serviced by an individual conservancy tank with a capacity of approximately 6.5 m³, located outside of the 100-year floodline. The tanks will be periodically emptied by the Kouga Local Municipality conservancy tank service.

Energy Supply

Electricity will be supplied through a combination of Eskom grid electricity and renewable energy systems, including roof-mounted solar photovoltaic panels and battery storage. Hot water will be supplied via gas geysers, reducing electricity demand.

Stormwater Management

Stormwater will be managed through a combination of natural infiltration, overland flow and limited stormwater infrastructure, directing runoff toward vegetated infiltration areas. Rainwater harvesting systems will further reduce stormwater runoff volumes.

Access and Parking

Access to the site will be obtained from the R330 provincial road via an existing unpaved access road approaching the property from the north. Internal access and parking areas will be surfaced using interlocking paving suitable for low traffic volumes.

2.4. NEMA Listed Activities Identified and Triggered

The proposed development triggers listed activities in terms of the Environmental Impact Assessment Regulations, 2014 (as amended) promulgated under the National Environmental Management Act (NEMA), Act 107 of 1998. See Table 1.

The listed activities are triggered primarily due to the location of the proposed development within 100 m of the high-water mark of the Kromme River estuary, as well as the associated earthworks and vegetation clearance required for the development.

These activities require environmental authorisation through a Basic Assessment process, which is being undertaken in accordance with the applicable EIA Regulations. The listed activities and associated regulatory requirements are assessed in detail in the Basic Assessment Report submitted to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT).

The Environmental Management Programme forms part of this application and provides the environmental management framework required to ensure that the proposed development is implemented in compliance with the conditions of Environmental Authorisation.

Table 1 Listing Notice Activities Triggered

Listing Notice 1 – GNR. 983 of 2014 (as amended by GNR. 327 of 07 April 2017)	
Activity 17 – Development within 100 m of the high-water mark, including structures or infrastructure exceeding 50 m² such as stabilising walls or rock revetments.	The proposed development entails the construction of buildings and associated infrastructure exceeding 50 m² within 100 m of the high-water mark of the Kromme River estuary, a watercourse. The activity relates specifically to development in close proximity to the estuarine environment, where such structures have the potential to influence aquatic and riparian systems if not appropriately managed.
Activity 19A – Infilling, excavation, or movement of material exceeding 5 m³ within 100 m of the high-water mark, associated with the proposed foundation and site preparation works.	The proposed development will involve excavation and movement of material exceeding 5 m³ within 100m of the high-water mark of the Kromme River estuary, associated with site preparation, foundation excavations, and installation of services. No infilling of the estuary or direct modification of the watercourse is proposed.
Listing Notice 3 – GNR. 985 of 2014 (as amended by GNR. 324 of 07 April 2017)	
Activity 5 – Development of tourism or hospitality facilities accommodating fewer than 15 people, located outside urban areas within or near protected areas, critical biodiversity areas, watercourses, or estuarine zones in the Eastern Cape.	The proposed development comprises low-density self-catering tourism accommodation for fewer than 15 persons, located outside an urban area and in close proximity to a watercourse and estuarine environment. The activity relates to the establishment of small-scale tourism facilities within a sensitive environmental context.
Activity 12.a. Clearance of 300 m² or more of indigenous vegetation within 100 m of the high-water mark in the Eastern Cape.	The proposed development will require the clearance of more than 300 m² of indigenous vegetation within 100 m of the high-water mark of the Kromme River estuary, associated with the building footprint and associated infrastructure. Vegetation clearance will be limited to the minimum area required for development.

3. IMPACT IDENTIFICATION AND ENVIRONMENTAL OBJECTIVES

3.1. Summary of Identified Impacts

The potential environmental impacts associated with the proposed development were identified through a combination of desktop analysis, specialist input, and site inspections undertaken as part of the Basic Assessment process.

Due to the site's proximity to the Kromme River estuary, environmental sensitivities are primarily related to the surrounding estuarine ecosystem and associated ecological processes. The main environmental risks associated with the proposed development relate to activities that may occur during the planning, construction and operational phases.

Several potential environmental impacts have been identified for each of the three phases, as summarized below.

Table 2 Summary of the potential impacts and significance before and after mitigation – Design & Planning Phase

DESIGN & PLANNING PHASE		
Impact	Significance (before mitigation)	Significance (after mitigation)
1. Legal and policy compliance	Low Negative	Negligible
2. Training and permitting	Low Negative	Negligible
3. Project Design & Site Planning	Low Negative	Negligible

Table 3 Summary of the potential impacts and significance before and after mitigation – Construction and Construction Closure Phase

CONSTRUCTION PHASE			
Impact	Type of Impact	Significance (before mitigation)	Significance (after mitigation)
1. Legal and policy compliance	Direct	Moderate Negative	Low Negative
	Indirect		
	Cumulative		
2. Infrastructure / Development Footprint	Direct	High Negative	Low Negative
	Indirect		
	Indirect		
3. Stormwater Runoff	Direct	High Negative	Low Negative
	Cumulative		
4. Construction Waste	Direct	Moderate Negative	Negligible
	Indirect		
	Cumulative		
5. Site Management	Direct	Low Negative	Negligible
	Indirect		
	Cumulative		
6. General Handling and Storage of Materials	Direct	Low Negative	Negligible
	Indirect		
	Cumulative		
7. Ablution Facilities	Direct	Low Negative	Negligible
8. Loss of Vegetation and Associated Habitat	Direct	High Negative	Moderate Negative
	Cumulative		
9. Biodiversity – Terrestrial and Aquatic	Direct	Very High Negative	Low Negative
	Cumulative		
10. Fire	Direct	High Negative	Moderate Negative
11. Soil & Geology	Direct	Moderate Negative	Low Negative
12. Air Quality	Direct	Low Negative	Negligible
13. Water Use	Direct	High Negative	Low Negative
14. Noise	Direct	Low Negative	Low Negative
15. Traffic	Direct	Low Negative	Low Negative
16. Employment Opportunities	Direct	High Positive	High Positive

17. Safety & Security	Direct	Low Negative	Negligible
	Indirect		
18. Heritage, Cultural & Palaeontological	Direct	Negligible	Negligible
CONSTRUCTION CLOSURE PHASE			
1. Decommissioning of Construction Site	Direct	Negligible	Negligible
	Cumulative		
2. Site Rehabilitation	Indirect	Low Negative	Negligible
	Cumulative		

Table 4 Summary of the potential impacts and significance before and after mitigation – Operational Phase

OPERATIONAL PHASE			
Impact		Significance (before mitigation)	Significance (after mitigation)
1.	Solid Waste	Low Negative	Negligible
2.	Stormwater	Moderate Negative	Negligible
3.	Water & Sewage	Moderate Negative	Negligible
4.	Energy Usage	Low Negative	Negligible
5.	Impact of Indigenous Vegetation (Dune Encroachment)	Very High Negative	Low Negative
6.	Job creation and Economic impact	High Positive	High Positive
7.	Noise	Negligible	Negligible
8.	Fire	High Negative	Low Negative
9.	Estuarine and Riparian Environments	High Negative	Low Negative

3.2. Environmental Management Objectives

The following objectives provide the framework for the environmental management principles of the project:

The Environmental Management Programme aims to ensure that the proposed development is implemented in an environmentally responsible manner and in accordance with applicable environmental legislation.

The key environmental management objectives include:

- Preventing or minimizing negative environmental impacts associated with the development
- Protecting the ecological integrity of the Kromme River estuarine environment
- Ensuring compliance with the Environmental Authorization issued by DEDEAT
- Ensuring that all contractors and workers comply with environmental management requirements
- Preventing pollution of soil, groundwater, estuarine and other surface water resources
- Promoting responsible waste management practices
- Ensuring rehabilitation of disturbed areas where required
- Maintaining environmental awareness and accountability throughout the project lifecycle.

4. IMPACT MANAGEMENT ACTIONS AND MONITORING

4.1. Roles & Responsibilities

During the Design and Planning (pre-construction), Construction, and Operational Phases, there are a number of role players with their specific responsibilities.

Authorities – Provincial and Local

Prior to any construction activities taking place, all necessary authorization is to be achieved in the form of an Environmental Authorization granted by the provincial authorities (DEDEAT), and any other relevant municipal permits/licenses. During the Design & Planning, and the Construction Phases for this project, DEDEAT will be responsible for Environmental Authorization compliance issues. The EA granted is to be strictly adhered to by the Proponent, project manager and contractor. If any development takes place that is not granted in the EA, additional authorization is to be applied for through the Provincial Department, in this case, DEDEAT.

The Local authorities, in this case Kouga Local Municipality, is responsible for granting licenses or permits associated with the project. Both these two main authorities bear the responsibility of overseeing adherence to the stipulations outlined in this Environmental Management Programme and the terms of approval in accordance with the applicable legislation.

The Proponent / Landowner

The Proponent holds the main responsibility for the implementation of the EMPr during the Construction Phase. However, the responsibility is delegated by the Proponent to the project manager, ECO and health and safety representatives.

The Proponent is responsible for ensuring that all legal and policy requirements are fulfilled.

Project Manager

The Project Manager may be the Proponent himself, or an appointed engineer, or manager of the appointed contractor. The project manager is responsible from the start to finish of the project, ensuring that the contractor complies with the environmental specification of the EMPr as stipulated in the contract between the contractor and project manager. Regular inspections of the site and installations during construction must be taken into account at least weekly, and a monitoring checklist is to be kept on file. Construction staff are to be trained and monitored in compliance with the EMPr, and all incidents of spillage, injuries, complaints etc. are to be recorded in a register. The project manager is also responsible for issuing environmental audit recommendations and issuing penalties for non-compliance.

Consulting Engineer/Architect

The consulting engineer is contracted by the Proponent or Project manager and has the role of integrating engineering expertise with the specific demands and risks posed by the environment, creating a safe, durable, and environmentally conscious warehousing facility that is well-suited to the unique challenges of the environment. The appointed engineer is responsible for:

- Site assessment and analysis, taking into account geological, geotechnical and hydrological characteristics of the site.
- Structural design, taking into consideration the environment conditions such as winds, exposure, and other environmental stresses.
- Foundation design taking into account shifting soil conditions and potential erosion risks.
- Stormwater management and an effective drainage system draining water away from the development, preventing water damage and erosion.
- Evaluate the suitability of materials used for the construction of the units.
- Ensure that the EMPr is adhered to during engineering decision-making.
- Communicate with the project manager, proponent, architect and environmental management.
- Construction oversight and quality control.
- Climate resilience due to climate change.

Construction Contractor

- Responsible for compliance with the provisions for duty of care and remediation of damage in accordance with section 28 of the National Environmental Management Act (NEMA) (No. 107 of 1998) as amended by NEMLAA (Act 2 of 2022) and its obligations regarding the control of emergency incidents in terms of section 30 NEMA.
- Be responsible to have the EMPr available on site at all times and discussing implementation of the EMPr with construction staff during routine meetings.
- Provide the applicant with a 'Method Statement' which will indicate the procedures that will be applied in order to meet the requirements of any aspect of the EMPr.
- Daily monitoring of environmental performance and conformance during site inspections.
- Keep a record of non-conformance and daily checks.
- Report progress to the Project Manager.
- Ensure that all problems identified during environmental inspections are addressed and rectified as soon as reasonably possible.
- Notify the Project Manager, ECO and DEDEAT of any incident as defined in subsection 30(1) (a) of NEMA and keep a record of actions taken.
- Include management and mitigation measures proposed in the final BA report within the EMPr.
- Ensure adherence to the DEDEAT conditions of Environmental Authorization and any other relevant legislation, standards, and policies.
- Ensure all facets of the work undertaken are properly and competently directed, guided, and executed.
- Responsible for the day-to-day operation and compliance with required Health and Safety requirements and all

required legislation.

- Keep a record of all accidents and incidents resulting in injury or death.
- Ensure all facets of the work undertaken are properly and competently directed, guided, and executed.
- Set aside a budget for maintenance.
- Maintain all facilities and infrastructure in good working order to effectively fulfill its intended purpose and to prevent negative environmental impacts.
- No additional buildings, expansion, or infrastructure, etc. contrary to the Environmental Authorization, without performing an environmental impact assessment where listed activities of the 2017 NEMA EIA Regulations (as amended, 2021) are triggered.
- To immediately remedy any aspects that contribute to negative environmental impacts.

Environmental Officer

The individual responsible for executing and overseeing the Environmental Management Programme (EMPr) within the project is the Environmental Officer. This role encompasses supervising environmental aspects spanning across the Construction and Operational Phases. The Environmental Officer needs to be equipped with appropriate qualifications and experience. This officer needs to possess sound environmental knowledge, qualifications, and practical experience to effectively interpret and put the EMPr into action.

Endowed with the authority, the Environmental Officer is authorized to halt work activities if there is a perceived substantial threat or direct environmental impact emerging from construction, operation, or decommissioning endeavors. In such circumstances, the Environmental Officer is guided by the Environmental Control Officer (ECO) in terms of environmental management practices. Moreover, the Environmental Officer ensures contractors' adherence to the ECO's stipulations and the resolution of issues in line with the ECO's recommendations.

Further duties of the Environmental Officer include:

- Regularly completing the environmental incident log and complaints record sheet, ensuring accessibility for inspection.
- Weekly submission of the environmental incident log and complaints record sheet to the ECO.
- Promptly notifying the ECO about any substantial instances of non-compliance.

For compliance and reference, both the ECO and Environmental Officer, along with the contractor(s), are required to have a copy of the EMPr available on-site. Additionally, the ECO and Environmental Officer must maintain records of any instructions or recommendations issued to the contractor, with instances of EMPr violations being documented in the environmental incident log.

Independent Environmental Control Officer (ECO)

- The proponent must appoint an independent ECO who understands the contents and implications of the BA and monitors the implementation of the findings using the EMPr.
- Regular site visits to undertake site evaluation and monitoring.
- Liaise with the proponent and contractor on environmental issues related to the construction.
- Continuous auditing, identification of problem areas and provide action plans to avoid environmental damage.
- Determination of the conformance of the site with the EMPr criteria and compliance with the conditions.
- Overall responsibility and accountability for the site during the construction phase to ensure environmental compliance.
- Identification of possible areas of improvement.
- Assessment of the suitability or effectiveness of the EMPr.
- Advise Contractor on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters.
- Ensure that the conditions stipulated in the Environmental Authorization (EA) granted by DEDEAT and any other laws and standards relevant to the operation are being complied with.
- Update EMPr where necessary and notify relevant parties of changes made.
- Take photographs during site visits in to keep record of any compliance or non-conformance to EMPr.
- Take all complaints and concerns from I&AP's and public into consideration.
- All environmental incidents are to be reported to relevant authorities.
- Advise the contractor in finding solutions to environmental issues arising during construction.
- Ensure rehabilitation of the site is a priority.

Construction Health and Safety Officer (CHSO)

- Provide support to the ECO in monitoring the execution of the Construction and Operational EMP by maintaining a permanent presence on the site.
- Update the relevant site Health and Safety policies.
- Undertake routine site inspections and provide information to ECO as required.
- Liaise with construction staff when required and keep staff informed of any changes and developments in the site safety, security, environmental aspects, and avoidance protocols.
- Monitor activities as specified by ECO.
- Advise the contractor on health and safety for the safety of his staff and the public near the site.
- Maintain an incident register and report regularly to meetings as called by the contractor, construction, and site engineers.

4.2. Documentation and Record-Keeping

Method Statements

Method Statements constitute written submissions provided by the Contractor to the Project Manager or Consulting Engineer, typically in response to a request from the Environmental Control Officer (ECO), Project Manager, and/or Contract Engineer (CE). These statements detail various aspects, including the layout plan, procedures for handling and storing materials, utilization of labor, and the proposed approach for conducting specific activities. The comprehensive content of a Method Statement enables the ECO and CE to evaluate whether the Contractor's proposed approach aligns with the EMP requirements and conforms to sound environmental and engineering practices.

For formal approval of these documents, the Contractor, ECO, Project Manager, and/or CE are required to affix their signatures to each Method Statement. This endorsement solidifies the approval process. Every Method Statement, including those necessary for unforeseen emergency decommissioning scenarios, must undergo approval prior to the initiation of any activity. In the event of modifications to the working methodology, any amendments to the original approved Method Statement must be documented. Such changes necessitate the sanction of the ECO, CE, and/or Project Manager, under the stipulation that the proposed alterations remain environmentally viable, adhere to established engineering best practices, and are congruent with the standards set forth in the EMP.

Record-Keeping

The contractor is obligated to have a full record-keeping system of all the aspects involved during the construction of the dwelling. All these documents are to be readily accessible to the ECO, contract engineer, project manager, and any other relevant regulatory authority conducting site inspections.

Below is a list of record-keeping documents to have available on site:

- Documentation validating the completion of environmental induction training.
- Records of environmental toolbox discussions.
- A day-to-day site journal or instruction manual.
- Duplicates of the ECO's checklist and/or audit assessments.
- Archives detailing the full extent of remediation and rehabilitation endeavors prompted by site directives issued by the ECO.
- The Construction Environmental Management Programme (CEMP).
- Environmental Authorizations and relevant licenses.
- Complaints register.
- Environmental incidences register.
- Environmental Preparedness Procedure
- Certificates for waste disposal.
- Compilation of Health and Safety records
- Documentation of construction method statements.

Complaint and Incident Register

The Contractor bears the responsibility of providing written responses to the Environmental Control Officer (ECO) concerning inquiries and/or complaints arising from construction activities. Additionally, it is the duty of the Contractor to promptly inform the ECO of any complaints registered by external parties (such as members of the public, registered Interested and Affected Parties (I&APs), adjacent landowners, etc.). As part of their obligations, the Contractor must meticulously maintain complaints

register, documenting all complaints and the corresponding measures undertaken. This register must be readily accessible upon request by the Project Manager, Contract Engineer (CE), ECO, or Environmental Site Officer (ESO). To ensure accessibility, the complaints register should be located on site and remain perpetually available to the ECO, ESO, or relevant authorized personnel.

Each received complaint necessitates a comprehensive investigation, and a response addressing the concern must be dispatched to the complainant within a seven-day timeframe. The response should encompass the following:

- Name, date, time, location, and lodged incident/complaint.
- Date and method employed to notify the ECO/ESO about the incident/complaint in question.
- A detailed description of the measures executed to mitigate the reported incident/complaint, inclusive of the dates on which these actions were taken and the responsible party.

It is imperative that the Contractor is vigilant in adhering to these protocols to uphold transparency and effective management of complaints and concerns during the course of construction.

Emergency Preparedness Procedure

Before initiating any activities, it is the Contractor's responsibility to establish an on-site emergency preparedness procedure. The Contractor is required to ensure that the site staff are well-acquainted with all stipulated emergency protocols. Additionally, the Contractor must maintain an updated roster of emergency contact numbers and personnel, with these details prominently displayed within the site office at all times.

To uphold safety standards and regulatory compliance, the Contractor is obligated to designate a Safety, Health, and Environmental (SHE) Officer. This officer's role encompasses conducting periodic audits of environmental and health & safety aspects, ensuring adherence to prescribed guidelines.

In the event of any environmental, health, or safety incidents arising on-site, meticulous documentation is essential. All such incidents must be meticulously documented within an environmental, health, and safety incidents report. This report should encompass, at a minimum, the following key details:

- Identity, date, time, location, and description of the incident.
- Identity, date, and time of the individual contacted to report the incident(s).
- Description of the measures taken in response, whether corrective or emergency based.
- Specifics concerning the timing and individuals responsible for the implementation of corrective or emergency actions.

The Contractor's vigilant observance of these provisions not only fortifies site safety but also ensures a structured approach to emergencies and the effective management of environmental, health, and safety incidents.

Non-Conformance Report

A Non-Conformance Report (NCR) will be provided to the Applicant as the final step in rectifying a failure to meet an EMP requirement. The issuance of the NCR will be done in written form by the ECO. Prior to the issuance of an NCR, the Applicant must be given an opportunity to address the identified issue.

In the event that the ECO evaluates an incident or matter and determines its significance (such as irreparable environmental damage), it will be reported to the relevant authorities and promptly elevated to the status of an NCR. The NCR will include the following particulars.

- Specifics about the non-conformance.
- Equipment or machinery involved.
- Involvement of any hazardous substances or chemicals.
- Instances of disregarded work procedures.
- Other relevant physical aspects.
- Nature of risk.
- Agreed-upon actions resulting from consultations among all parties to effectively tackle non-conformance, with consideration for the hierarchy of controls.
- Agreed timeframe stipulating when the actions outlined in the NCR need to be executed.
- ECO's responsibility to verify the implementation of agreed actions by the designated completion date; upon satisfactory completion, both the ECO and the Applicant are to sign the "Close-Out" section of the Non-Conformance Form and include it within the contractual documentation.

4.3. Monitoring and Compliance

The Contractor is responsible for ensuring that their personnel adhere to the CEMPr and follow the approval conditions outlined in the EA, as well as any applicable licenses or permits. Moreover, it is imperative that the construction operations remain in accordance with any other relevant legislation. The Contractor is obligated to address instances of non-compliance or intentional harm to the environment caused by any of their staff members.

Failure to fulfil this responsibility will grant the Project Manager the authority to officially impose a penalty as described below. The Contractor's compliance status will be compromised if:

- There is verifiable proof of violation of the CEMPr or the conditions stipulated in the EA.
- Negligent construction activities result in environmental damage on the site.
- The Contractor does not adhere to instructions promptly issued by the ECO or by authorities within specified timeframes.
- Inadequate or delayed responses are given by the Contractor to public complaints raised by the consulting engineer or the ECO.
- Inadequate or delayed responses are given by the Contractor to public complaints raised by the consulting engineer or the ECO.

Government representatives shall have the right to enter the site at reasonable times to assess and monitor environmental compliance, and all accessible records related to monitoring and auditing shall be open for their inspection. Furthermore, copies of the Environmental Authorization, relevant permits/licenses, and this CEMPr must be readily available on the premises at all times.

A suitably qualified **Environmental Control Officer (ECO)** must be appointed by the Applicant (Proponent) to monitor all construction and operational phase activities:

Construction Phase

- The implementation of the construction phase mitigation measures described in this EMPr.
- The conditions of authorization as described in the Environmental Authorization.
- Undertake weekly / monthly site visits during the construction phase.
- Report to the Proponent/Contractor only.
- Present an environmental site induction/awareness training session to all personnel before work on site commences.
- The ECO can recommend the stopping of works if in his/her opinion there is a serious threat to, or impact on the environment and to inform the Engineer and Proponent of the reasons for the stoppage as soon as possible.
- Site inspection reports must be submitted to the Applicant, within five (5) days of the ECO site inspection and must be made available to the construction Contractor.

Operational Phase

The independent ECO must undertake a visual inspection of the site to monitor the operations management programme and determine if the mitigation measures and conditions of the EA as well as the EMPr are effectively implemented. This inspection must be done on a six-monthly basis for 3 years and the Audit must be submitted to DEDEAT, and the Operator.

Should any of the recommendations and mitigation measures not be effective or should the Operator not comply to the stipulations, adaptations to the EMPr must be submitted in the prescribed manner to the Competent Authority for approval. However, the Operator must be given an opportunity to adapt to the issues within a period of 30 days and to prove effective compliance and adherence to the EMPr and EA.

Auditing Process

Appendix 7 of the Regulations (2014) as amended prescribes the requirements of an Environmental Audit Report. The Environmental Control Officer (ECO) is endowed with the authority to direct the Proponent to halt any specific operation that is causing, or could potentially cause, noteworthy harm to the environment. Additionally, the ECO possesses the right to impose fines or penalties for instances where the EMPr is not being adhered to as required. This authority ensures that operations align with environmental standards and compliance.

To ensure the ongoing assessment of environmental practices, an Environmental Control Officer (ECO) is mandated to conduct site audits on a weekly basis until the process of rehabilitation achieves its objectives. Through these regular audits, potential deviations from the established environmental management protocols can be identified and rectified promptly. This

proactive approach serves to minimize negative environmental impacts and contribute to the overall success of the rehabilitation efforts.

The responsibility for maintaining compliance with environmental regulations lies with the holder of the environmental authorization, who is the Proponent in this context. This obligation extends to the submission of periodic environmental audit reports to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT). The timing for submitting these reports is stipulated within the guidelines of the Environmental Authorization (EA). This practice ensures that the regulatory body remains informed about the ongoing environmental status of the project, facilitating transparency and accountability in environmental management practices.

Monitoring mechanisms

The ECO site inspection reports will contain the following within the report structure:

- compliance of the construction phase mitigation measures contained in the EMPr,
- conditions of approval as per the Environmental Authorization.
- contract meeting minutes reflecting environmental queries.
- agreed actions and target dates and dates of eventual compliance.
- Photographic records are taken of the site prior to, during and immediately after construction as a visual reference.
- Photographs prove clearance of all materials and surplus materials.
- The report must be submitted within five (5) working days of the ECO site inspection and must be made available to the construction Contractor and Proponent.
- Copies of the inspection reports must be kept on site.
- Operational maintenance records containing
 - dates of inspection of infrastructure
 - sewerage pump services
 - spills and cleanup records
 - structural integrity
- Spills and pollution checks
- Monitoring of vegetation regrowth and erosion measures after rainy events.

4.4. Method Statements

Method Statements serve as written submissions by the Contractor, developed in collaboration with the Environmental Site Officer. These submissions are in response to requests made by the Environmental Officer and/or the Project Manager. These statements outline the proposed approach by the Contractor, including the equipment, materials, labour, and methodology they intend to employ for a specific activity, as identified by the Environmental Officer and/or the Project Manager. These documents are comprehensive enough to allow the Environmental Officer and the Project Manager to evaluate whether the Contractor's plan aligns with the EMPr requirements. Each Method Statement must be endorsed by the Contractor, the Environmental Officer, and the Project Manager to formalize its approval.

Before commencing an activity, the Contractor is required to submit Method Statements and/or Management Plans to the Project Manager and the Environmental Officer for approval. If any alterations are made to the working methodology, these changes must be reflected through amendments to the originally approved Method Statement. Such modifications need endorsement from the Environmental Officer and the Project Manager, provided they meet environmental standards and EMPr guidelines.

The minimum essential content for Method Statements includes various elements such as the construction site layout plans, the site management plan, energy requirements, stormwater management strategies, erosion management techniques, waste management practices (including hazardous substances), traffic management protocols, dust control measures, procedures for sourcing, transporting, and disposing of fill and spoil materials, guidelines for site maintenance and equipment cleaning, spill contingency strategies, topsoil management, fire prevention strategies, plans for rehabilitating construction site and disturbed zones, Alien Invasive Plant Management Plan, and protocols for emergency responses.

The Method Statements should address the following components:

- What – a brief description of the work to be undertaken.
- How – a detailed description of the processes, methods, and materials to be employed.
- Where – location description
- When – sequence of actions with estimated start and completion dates

Throughout both the construction and operation phases of the project, the Environmental Officer is responsible for monitoring the Method Statements' implementation along with activity-specific management plans.

4.5. Design & Planning Environmental Management Programme

Table 5 Environmental management conditions and monitoring requirements – Design & Planning Phase

ACTIVITY	MITIGATION MEASURES	MONITORING METHOD	MONITORING FREQUENCY	RESPONSIBLE PERSON/S	MONITORING & MANAGEMENT MECHANISM
Legal & Policy Compliance	• The EA and EMPr must be consulted during planning and design phase. • Copies of the EA and EMPr must always be available to all parties involved with the design and planning of the development. • Environmental Awareness Training must be conducted in site meetings and talks with workers. • Kouga spatial planning and land use management by-laws must be adhered to. • A structural engineer (Pr.Eng) must be appointed. • Should the proposed structures exceed Kouga Land Use Scheme restrictions, the necessary departure approval must be obtained from the Kouga Local Municipality. • Building plans must be approved by the Kouga Municipality Building Department	• Documentation Inspections	• Once-Off	• Proponent • DEDEAT • Engineer • Contractor • Project Manager	• Obtaining of Environmental Authorization and required permits must be undertaken during the EIA process from DEDEAT. • Site layout 2 weeks prior to establishment.
Training and Permitting	• The Contractor must sign and agree to the EMPr along with the EA conditions. • Before commencing construction, it is imperative to acquire and put into effect worker health and safety measures along with the necessary personal protective equipment (PPE) requirements. • It is essential for all staff members to possess knowledge of emergency and contingency plans, ensuring a comprehensive understanding of potential hazards and the necessary protocols to follow in case of an emergency.	• Documentation Inspections	• Once-Off	• Contractor • ECO • Construction Health & Safety Officer	• Toolbox talks • Personnel contracts • Eco checklist • Health & Safety Report • Specialist Assessment Reports submitted as part of EA application. • DFFE SCC removal permits, if required. • Kouga Local Municipality authorization. • Builder needs to be NHBRC registered. • Public liability
Project Design and Site Planning	• At least one month prior to construction, the contractor and/or proponent needs to appoint an independent ECO. • The final designs and layouts need to be approved by all relevant parties and Competent Authorities prior to construction. • ECO is to approve construction method statement and check whether final building plans have been stamped and approved by municipality. • Site clearing must be kept to the development footprint. • Appropriate foundations are to be designed and approved by a structural engineer. • Laydown areas, aggregate stockpiles and storage/equipment containers must be placed in areas that are not susceptible to erosion and storm water runoff. • Containment berms must be placed around aggregate stockpile and cement bags.	• Documentation Inspections	• Once-Off	• Proponent • ECO • Project Manager • Engineer	• Site layout approval & demarcation at least 2 weeks prior to construction. • Method statement to be developed by contractor / project manager. • Final architectural design plans must be available for submission as a condition of issue of EA. • Plans must be signed off by registered structural engineer. • Road signs are to be placed on roadside near site to warn public and neighbors of moving heavy vehicles and construction to take place. • Pre-construction checklist

4.6. Construction Environmental Management Programme

Table 6 Environmental management conditions and monitoring requirements – Construction Phase

ACTIVITY	MITIGATION MEASURES	MONITORING METHOD	MONITORING FREQUENCY	RESPONSIBLE PERSON/S	MONITORING & MANAGEMENT MECHANISM
Legal & Policy Compliance	• Obtain Environmental Authorisation prior to construction. • The EA and EMPr must at all times be adhered to during construction. • Copies of the EA and EMPr must always be available on site. • Environmental Awareness Training must be conducted in site meetings and talks with workers. • The Contractor must be registered by the NHBRC. • Appointment of independent ECO to conduct regular compliance inspections. • Application for authorisations to be in line with proposed land use. • Clearly demarcate development footprint and 40m setback area. No persons or personnel permitted within this area. • Peg 100-year floodline prior to construction. • Comply with Kouga building plan conditions. • Implement alien invasive species control programme.	• Visual inspections • Documentation Inspections • Site meetings • Regular reviewing • Incident reporting and management	• Daily • Weekly • Monthly	• Proponent • DEDEAT • Engineer • Contractor • Project Manager • HSO • ECO	• Contractor site layout plans • Contractor method statement • Construction progress reports • Daily Construction Checklist • Continuous impact monitoring • ECO Weekly Audit Checklist • ECO site inspection • Environmental awareness training • Incident report and response system • Environmental complaints register
Infrastructure / Development Footprint	• Development area and no-go zones to be taped or clearly demarcated • Vegetation clearance should strictly be limited to the development footprint. • Maintain 40m setback area. • Avoid construction within seepage concentration zones. • Implement rehabilitation using indigenous species after construction. • No vehicle parking, machinery or equipment to encroach beyond where the development footprint is demarcated. • Use permeable surfaces where possible. • Maintain natural vegetation buffer zones. • Material laydown area to be kept within development footprint, and not within the private open spaces. • Minimise exposed soil areas and stabilise disturbed soils as soon as possible. • Implement construction sequencing to minimize exposed soil areas and ensure stabilisation before moving to new areas. • Avoid construction during heavy rainfall events. • No concrete work is to be done on rainy days to prevent cementitious water from running into sensitive areas. • Implement erosion control measures, (e.g. geotextiles, and/or berms.) • Retention ponds are to be in place to prevent rubble, concrete, and cementitious movement. • Maintain natural drainage pathways for natural seepage movement. • Avoid obstruction of seep zones. • Implement appropriate stormwater management measures. • Building plans will be assessed and passed by the Kouga LM which will determine the allowable building parameters. • The buildings are to be used according to the LUS zoning of Resort II.	• Visual on-site Inspections • Documentation inspections • Regular reporting • Internal compliance audits	• Continuous implementing and monitoring	• Contractor • Proponent • Project Manager • ECO	• Construction screen on 40m setback. • Weekly Checklist • Monthly Report • ECO checklist • Demarcation of development areas • Ensure proper infrastructure layout plan • Construction method statement

	• Spoil is to be reused where possible such as in levelling, landscaping; where not feasible to be reused, spoil must be removed to a licensed landfill, such as the Humansdorp landfill. • Application to be made to the Kouga for permission for laydown area as well as siting of container for tools, material and building supply storage is required, if not on site.				
Stormwater Runoff	• The civil engineering assessment confirms that pre-development stormwater flow on Portion 9 Osbosch is very low, even during a 1:100-year flood event, and the proposed development will therefore generate only minimal additional runoff. • Rainwater harvesting tanks will be installed to reduce runoff volumes and support sustainable water management. • Stormwater generated from paved and impermeable areas to be controlled through the installation of barrier kerbs along the southern edge of paved areas to prevent uncontrolled runoff and erosion. • Stormwater to be collected at grid inlets positioned at low points adjacent to each dwelling, thereby preventing surface flow concentration and reducing erosion potential. • Collected stormwater to be conveyed via a piped stormwater system consisting of four 160 mm diameter stormwater pipes, which are designed to safely accommodate stormwater flows associated with at least a 1:50-year flood event. • Stormwater discharge is to be directed onto grassed surfaces downslope of the development, allowing infiltration and natural dissipation prior to reaching the estuarine environment, thereby reducing erosion and sediment transport. • Natural drainage patterns and seepage flow paths to be maintained, and no obstruction or concentration of stormwater flow will be permitted outside the engineered system. • Disturbed areas are to be stabilised and rehabilitated as soon as possible to prevent erosion and sediment transport. • No stormwater will be discharged directly into the Kromme River estuary via pipes or channels. • Construction materials, spoil, and waste will be stored away from drainage pathways to prevent contamination of stormwater. • Sequence the land disturbing activities. • Disturbed areas must be permanently stabilised after construction. • Maintain natural grass and vegetation cover in the 40m setback area.	• Visual Inspections • Site inspections for erosion control • Rainfall gauges • Sediment trap maintenance records • Post-storm inspections	• Continuous implementing and checking • Post construction audit and rehabilitation • Post storms	• Contractor • Proponent • Project Manager • ECO • Engineer	• Daily checklist • Weekly Checklist • Monthly Report • ECO checklist & audits • Stormwater management plan • Spill prevention and response plan
Construction Waste	• Waste management plan must be put in place outlining specific measures for managing construction waste. • General waste should be placed in lidded skips and disposed of on a regular basis at the Municipal landfill site such as Humansdorp landfill site, or by an accredited waste contractor. • Where possible, construction waste should be reused or recycled. Contacting the local community Ward Councillor to identify entrepreneur and supply with waste materials. • Building rubble must be reused where possible. Otherwise, the rubble will be disposed of through means of hiring a skip and driven away to a Municipal landfill. • Surplus aggregate used as backfill under floor platforms/slabs. • Burning of waste material will not be permitted.	• Visual Inspections • Site meetings • Waste inventory management • Record keeping systems • On-site waste audits • Monitoring of waste containers	• Daily • Weekly • Monthly	• Contractor • Proponent • Project Manager • HSO • ECO	• Construction waste management plan • Contractor site layout plans • Waste segregation on site • Contractor method statement • Daily Construction Checklist • ECO Weekly Audit Checklist • ECO site inspection • Waste removal certificates • Waste register disposal records • Hazardous waste management • Recycling program

	- The ECO must conduct a site closure inspection and issue a compliance statement at the end of the construction period that all the equipment, sheds, temporary offices, and surplus material has been removed before the retention is paid out. - No mechanism exists nor authority exists that can administer a guarantee of completion. The Municipality does not have any requirements that guarantees of completion must be given. Bank guarantees in a case such as this will only be issued to the estate of the developer. No insolvency can be covered. Should a property remain abandoned, the municipality will lay claim to the property and sell on auction to the highest bidder, who will then have responsibility of completing/scrapping and rehabilitating the erf for a new project.				- Waste skip management - Final waste audit
Site Management	- Contractor may not permit any staff to take lodging or camp out on site. - Contractor must ensure that there are adequate temporary shaded areas for construction staff to take their breaks and eat their food. - General waste produced by construction staff is to be discarded in the skip or designated general waste areas. - No cooking / boiling water on fires permitted on site or surrounding areas. - No food to be left on site. - Restrict access routes. - Provide site supervision. - Regular ECO inspections. - Environmental awareness training. - Maintain site control at all times. - No poaching. - No snares. - Sufficient chemical toilets to be placed on site and serviced regularly. - No fishing, netting, sucking for prawn or bait collection is permitted during the construction period by any personnel. - No power boats may be launched, jetties constructed (without EA application) or mechanised access to the estuary permitted.	- Visual Inspections - Servicing records - Site meetings - Daily log maintenance - Incident reporting systems	- Daily awareness - Weekly - Monthly	- Contractor - Project manager - ECO - Health & Safety Officer	- Daily inspection - Contractor site layout plans - Site access and Traffic management plan - Boundary and setback management - Contractor method statement - Contractor compliance report - ECO Audit Report - weekly - Toolbox talks - daily - Health & Safety Report – monthly - Site security and access control - Demarcate laydown area
General Handling & Storage of Materials	- All storage areas must be visibly demarcated and fenced off. - All materials kept on site must be fenced off or placed in a rental container with no unauthorised access permitted. - All relevant Health and Safety legislation as required in South Africa should be strictly adhered to, including but not limited to the Occupational Health and Safety Act, 1993 (No. 85 of 1993). - Laydown areas to be carefully planned for duration of contract. - Loose aggregate prone to wind forces to be covered or dampened. - Fuel must be stored in bunded areas. - Drip trays are to be placed under machinery and vehicles. - Spill kits are to be readily accessible on site. - Immediate spill clean-up. - No refuelling near seep zones.	- Visual Inspections - Servicing records - Site meetings - Inventory tracking systems - Regular inventory audits - SOP's - Receiving and inspection records - Maintenance records	- Daily awareness - Weekly - Monthly	- Contractor - Project manager - ECO - Health & Safety Officer	- Material storage plan - Proper labelling and signage - Daily inspection - Contractor site layout plans - Contractor method statement - ECO Audit Report - weekly - Toolbox talks - daily - Health & Safety Report – monthly - Inventory management system - Weather protection - Material handling procedures - Fire safety precautions - Spill prevention and response plan - Material storage audits
Ablution Facilities	Contractor is responsible - must ensure that ablution facilities are available on site.	Visual Inspections	- Daily - Weekly - Monthly	- Contractor - ECO	- Daily and weekly Checklist - ECO Audit Report - Ablution rental services

	• Ablution facilities may not be placed on natural vegetation, but rather temporary platforms, away from the site construction area and away from the 40m setback area and seep areas. • All ablutions are to be maintained and kept clean under the supervision of the contractor. • One toilet per 10 workers must be secured in place to prevent it from filling over. • Spilling of any ablution facility related chemicals or waste are prohibited. • The Contractor shall be responsible to remove any accumulations of chemicals and waste from the ablution site and dispose of such waste at an approved hazardous waste disposal site or sewage plant at his/her own expense. • Construction staff may not ablute anywhere else but in the toilets. • Toilets must be emptied regularly with proof of servicing provided on a regular basis to the ECO. •	• Documentation inspections • Cleaning schedules • Maintenance logs • Supplies inventory systems • Health & Safety audits			• Ablution servicing records • Wastewater management plan • Emergency preparedness for waste spills • Waste disposal procedures
Loss of Vegetation and Associated Habitat	• Construction must be limited to the precise footprint therefore minimising secondary disturbance and minimising the size of the area that needs revegetation. • Protect surrounding vegetation. • No threatened plant species were found on site, but the vegetation cover must be treated as sensitive with steps taken to prevent disturbance and to encourage habitation of endemic species. • Rehabilitate disturbed areas with site-appropriate indigenous species. • An ongoing alien invasive management programme should take place on site, protecting surrounding habitats from degradation. • Audit reporting by the Environmental Control Officer during construction is recommended. • Suitable stormwater management measures must be implemented in response to the vegetation clearing to mitigate the risk of excessive stormwater runoff and potential erosion into the estuary and neighbouring development. • Landscaping, if any, must incorporate indigenous species and indigenous trees, with a preference to those native to the study area and its immediate vicinity. The chosen species should aim to emulate habitat type characteristic to the ecological landscape before construction takes place. • Construction activities must take place outside of fauna and avifauna breeding season.	• Visual Inspections • Ongoing vegetation surveys • Erosion control checks • Compliance documentation	• Continuous implementing and checking • Post construction audit and rehabilitation	• Contractor • Proponent • Project Manager • ECO	• Construction screen on setback line • Weekly Checklist • Monthly Report • ECO checklist • ECO Site completion and clearance certificate • Clearance controls • Tree protection measures • Habitat restoration plan • Site inspections • Monitoring of invasive species
Biodiversity – Terrestrial & Aquatic	• Impacts on the environment as defined were assessed by the undertaking of Animal assessment and Biodiversity Assessment by SACNASP specialists registered. Please refer to Appendices D2 & D4. • It is recommended to keep a 40 m setback between the dwelling footprint and the southern boundary of the property, as this will ensure limited intrusion into the estuary zone and lower disturbance of birds feeding or breeding in the estuary margin. • The area will be a zone where water can penetrate and lower the potential of accelerated flows into the estuary (lower erosion potential and siltation). • The proposed buffer zone will ensure that the development doesn't compromise the protected vegetation unit (Albany Alluvial Vegetation) associated with the estuary on the southern side of the property (CBA and EFZ).	• Visual Inspections • Photographic Monitoring	• Continuous implementing	• Contractor • Proponent • Project Manager • HSO • ECO	• Daily Inspection • Monthly Checklist • Invasive species management • Regular site inspections • ECO checklist and reporting

	• Manage runoff water to the south to ensure no erosion (low probability) occur. Rainwater can be harvested to water landscaped areas or for grey water use in the dwelling. • There was no evidence of protected animal species found on site. Any species of SCC found during construction must be reported and if necessary for relocation, then a specialist must be consulted, and the appropriate permits must be applied for from DFFE. • No developments or alteration of the environment is allowed beyond the development line. • Vegetation clearance and earthworks shall be undertaken in a phased, controlled manner to allow fauna, such as the mole rats to move away naturally, and where practicable, outside of peak breeding periods. • Any excavations or trenches must be checked on a regular basis in case animals may have fallen in or occupied the area. • All temporary stockpile areas including litter and rubble must be removed when construction is complete. • Planting of tall indigenous trees may encourage certain birds to nest on site. • Limit construction to daylight hours only. • Fit bird flight diverters to any overhead power lines to improve visibility to flying birds. • All personnel shall receive an environmental induction including fauna awareness. • Prior to and during construction, the site shall be checked for active burrows, runways, or nests, and disturbance avoided where possible. • Earthworks shall proceed slowly, machinery movement shall be limited to designated routes, and excavations shall not be left open overnight (escape ramps to be provided where required). • No trapping, poisoning, or intentional harm to fauna shall be permitted. • No disturbance shall occur within the riverbanks, and avifaunal and crustacean nesting burrows shall be avoided. • Ground disturbance shall be limited to areas strictly necessary for construction, and the use of pesticides or insecticides shall be avoided unless approved. • Minimise unnecessary external night lighting to reduce disturbance to nocturnal fauna. • Compliance with fauna-related mitigation measures shall be monitored by the ECO, and any injured or displaced fauna shall be reported and managed by a suitably qualified person. • Ensuring the 40m buffer between the development footprint and the southern property boundary is maintained.				
Fire	• Implement a Fire Management Plan. • No cooking fires allowed on or near the site. • Duty of care must be taken with blow torches, grinding equipment and any heat generating procedures. • Avoid high-risk activities such as welding or grinding during hot, dry and windy conditions. • Firefighting equipment to be in place on site including water bowser with an attached water pump and generator. • Personnel to be made aware of fire hazard at Toolbox Talk in the mornings and be trained on fire prevention and emergency response procedures.	• Visual Inspections and servicing records • Fire safety plans • Emergency evacuation plans • Equipment checks • Vegetation management	• Daily awareness • Weekly • Monthly	• Contractor • ECO • Health & Safety Officer	• Daily inspection • ECO Audit Report - weekly • Toolbox talks – daily • Health & Safety Report – monthly • Fire risk assessment • Fire prevention plan • Emergency response plan • Vegetation management • Monitor weather patterns

	• Local fire brigade numbers to be on speed dial of building foreman. • Temporary firebreaks where necessary. • Rehabilitate and disturbed or burnt area with indigenous vegetation following construction. • Store construction materials in designated cleared areas away from dense vegetation.	• Weather tracking • Incident reporting procedures			
Soil & Geology	• Limit all excavation, clearing, and earthworks strictly to the approved development footprint and by light machinery only. • Remove and stockpile topsoil separately for reuse during rehabilitation and landscaping. • Stabilise exposed soil surfaces as soon as possible after excavation to prevent erosion. • Avoid construction activities during periods of heavy rainfall where feasible. • Implement erosion control measures such as temporary berms, contouring, and vegetation cover. • Ensure all foundations and excavations comply with geotechnical recommendations, including founding on competent material and using engineered fill where required. • Trenched sidewall must be battered to prevent collapse. • Compact all backfill and fill material to appropriate engineering specifications to prevent settlement. • Maintain natural drainage patterns and avoid obstruction of seepage pathways. • Restrict movement of construction vehicles to designated areas to prevent unnecessary soil compaction. • Store excavated spoil in designated areas away from drainage pathways and seepage zones. • Remove excess spoil material and dispose of it at a licensed waste disposal facility. • Prevent illegal dumping of spoil material on site or surrounding areas. • Store fuels, cement, and hazardous materials in designated areas with spill containment measures. • Provide spill kits on site and ensure immediate cleanup of any spills. • Install and maintain properly serviced chemical toilets for construction workers. • Ensure conservancy tanks are properly installed and sealed to prevent leakage. • Rehabilitate all disturbed areas immediately after construction using indigenous vegetation and stockpiled topsoil. • Conduct regular site inspections to identify and address erosion, instability, or contamination. • Ensure all earthworks comply with approved engineering and environmental specifications.	• Visual Site Inspections • Photographic records • Design specifications • Erosion monitoring • Remediation plans • Stabilisation techniques	• Continuous implementation • Fluctuating circumstances • Lifespan of occupation	• Contractor • Engineer/Architect • ECO • HSO • Foreman • Occupant	• Design drawings • Monitoring after rain events • ECO Audit Report – bi-weekly • Weather reports • Erosion and sediment control plan • Site inspections • Indigenous vegetation protection
Air Quality	• Limit vegetation clearing and earthworks to the minimum area required for construction. • Stabilise exposed soil surfaces as soon as possible after excavation.	• Visual Inspections • Weather reports	• Site clearance • Excessive wind conditions	• Contractor • Health & Safety Officer	• Daily monitoring • ECO Audit Report – bi-weekly • Daily Toolbox talks

	• Stockpile excavated soil in designated areas and minimise stockpile height and duration. • Cover or stabilise stockpiled soil where exposed for extended periods. • Restrict vehicle movement to designated access routes and minimise unnecessary vehicle trips. • Implement dust suppression measures such as wetting exposed surfaces during dry and windy conditions where necessary. • Avoid construction activities during periods of strong winds where feasible. • Cover construction materials such as sand and cement during storage and transport. • Handle and transfer construction materials carefully to minimise dust generation. • Ensure all construction vehicles and machinery are properly maintained to minimise exhaust emissions. • Switch off idling vehicles and machinery when not in use. • Locate construction material storage areas away from sensitive receptors and drainage pathways. • Rehabilitate disturbed areas promptly after construction to prevent long-term dust generation. • Ensure compliance with National Environmental Management: Air Quality Act requirements. • Conduct regular site inspections to monitor dust generation and implement corrective measures where necessary.	• Dust suppression measures • Visible dust monitoring	• Continuous monitoring		• Vehicle / machinery servicing records • Health & Safety Report • Signage warning of dust • Dust control plan • Vehicle emission control • Construction schedule management • Site inspections • Community communication and engagement
Water Use	• Minimise potable water use during construction by implementing efficient water management practices. • Use water sparingly for dust suppression and only when necessary to control dust. • Prioritise the use of stored rainwater, where available, rather than groundwater. • Avoid excessive use of water that may result in runoff, erosion, or pooling. • Inspect water storage tanks, hoses, and connections regularly for leaks and repair immediately if detected. • Ensure proper supervision of water use by construction personnel. • Avoid unnecessary discharge of water onto exposed soil surfaces. • Prevent contamination of surface water, seepage areas, and the estuary through proper water handling practices. • Educate construction personnel on responsible and efficient water use. • Ensure compliance with National Water Act requirements and municipal water use regulations. • Use water-efficient construction methods where feasible. • Rehabilitate disturbed areas promptly to reduce ongoing water requirements for dust control. • Ensure rainwater harvesting systems are installed as early as possible to support water supply during later construction phases.	• Visual Inspections • Water meter installations • Water management plan • Water use reports	• Continuous implementation	• Contractor • HSO • ECO	• Daily construction checklist • ECO Audit Report- bi-weekly • Ablution servicing records • Toolbox talks • Water management plan • Regular site inspections • Incident reporting and response system
Noise	• Restrict construction activities to normal daylight working hours (typically between 07:00 and 17:00 on weekdays), with no construction during night-time, weekends, or public holidays unless authorised.	• Visual Inspections • Servicing records	• Daily awareness	• Contractor • ECO • Health & Safety Officer	• Daily inspection • ECO Audit Report - weekly • Toolbox talks – daily

	• Ensure all construction equipment and machinery are properly maintained and fitted with appropriate silencers or mufflers. • Avoid unnecessary idling of construction vehicles and machinery. • Locate stationary noise-generating equipment, such as generators, as far as practicable from sensitive receptors. • Limit simultaneous operation of multiple high-noise generating equipment where feasible. • Inform nearby property owners of construction schedules where appropriate. • Minimise duration of high-noise activities where possible. • Restrict construction activities to the approved development footprint to minimise disturbance to surrounding areas. • Ensure construction personnel are trained to minimise unnecessary noise. • Comply with applicable municipal noise control regulations and standards. • Monitor noise levels if complaints are received and implement corrective measures where required. • Maintain the ecological buffer between the development and estuary to reduce disturbance to estuarine fauna.				• Health & Safety Report – monthly • Noise management plan • Equipment selection and maintenance • Work schedule management • Public notification of noisy activities • Regular site inspections
Traffic	• Use existing approved access routes to the site and avoid creation of new access tracks. • Restrict construction vehicle access to designated access roads only. • Limit delivery times to normal working hours to avoid peak traffic periods where applicable. • Ensure construction vehicles do not obstruct access to neighbouring properties. • Maintain access roads in a safe and usable condition throughout the construction period. • Repair any damage caused to access roads as a result of construction activities. • Ensure construction vehicles are roadworthy and comply with traffic regulations. • Enforce low vehicle speeds on access roads to reduce dust generation and improve safety. • Implement dust suppression measures on access roads if excessive dust generation occurs. • Ensure loads transported to and from the site are properly secured to prevent spillage. • Provide clear signage where necessary to warn of construction traffic. • Minimise the number of vehicle trips by coordinating deliveries where possible. • Ensure construction personnel park within designated areas on site and not on public or access roads. • Avoid unnecessary vehicle movement outside the defined construction footprint.	• Visual Inspections • Signage	• Continuous implementation	• Contractor • HSO • ECO	• Daily construction checklist • ECO Audit Report • Traffic management plan • Construction schedule coordination • Signage and communication • Traffic control personnel • Adaptive traffic management approach • Pedestrian and cyclist safety measures
Safety & Security	• Secure the construction site with temporary fencing or controlled access barriers to prevent unauthorised entry. • Clearly demarcate the construction footprint and hazardous areas such as excavations and trenches. • Install appropriate warning signage indicating construction hazards and restricted access areas.	• Visual Inspections • Risk assessments • Access control measures	• Continuous implementation	• Contractor • Health & Safety Officer • ECO	• Daily Construction checklist • Health & Safety Report • Toolbox talks daily • ECO audit report – weekly • Sire safety plan • PPE compliance

	• Restrict access to authorised personnel only. • Provide appropriate personal protective equipment (PPE) to all construction workers and ensure proper use. • Ensure all machinery and equipment are operated by trained and competent personnel. • Store construction materials, fuels, and hazardous substances in designated, secure areas. • Ensure safe storage and handling of flammable materials and gas cylinders. • Provide fire extinguishers and firefighting equipment on site. • Maintain good housekeeping practices to prevent accidents. • Ensure safe access routes are maintained within the site. • Cover or secure excavations when not in use. • Supervise construction activities at all times. • Ensure construction personnel are trained in site safety procedures. • Implement emergency response procedures. • Ensure construction vehicles operate at safe speeds and follow designated routes. • Ensure compliance with Occupational Health and Safety Act requirements. • Prevent unauthorised parking or access by construction personnel outside designated areas.	• Surveillance systems • Emergency response plans • Occupational health assessments			• Site inspections and audits • Incident and reporting • Emergent preparedness and response plan • Access control • Site security measures
Heritage, Cultural & Paleontological	• Chance finds must be reported to a heritage practitioner of relevant Heritage Authority. • The National Screening Tool did not flag any cultural historical features over the site and a chance find procedure has been specified in the EMP. • There is no palaeontological sensitivity expected due to the geology of the area. Chance find procedures are to be followed should anything be found during construction.	• Visual Inspections • Photographic Monitoring • Incident monitoring	• Continuous implementing	• Contractor • Proponent • Project Manager • ECO	• Daily Inspection • Monthly Checklist • Chance-find procedures
Decommissioning of Construction Site	• The entire site and neighbouring properties are to be checked for spills and all contaminated materials properly disposed of. • All alien vegetation resulting from disturbed areas from construction activities are to be removed. • Hardened surfaced due to concrete and other material spillage are to be removed. Construction rubble is to be disposed of at a registered landfill site, ideally through a skip rental company. • All litter is to be picked up and disposed of in skips and removed from site and taken to landfill. • Any damage caused to neighbouring properties or road must be repaired by contractor.	• Visual Inspections • Closure checklist • Waste disposal checklist • Restoration plans • Decommissioning reports	• Once-Off	• Contractor • ECO	• Construction Closure Report • Post-Construction ECO Compliance Report • Decommissioning plan • Final inspection and compliance checks • Environmental compliance audit
Site Rehabilitation	• The ECO must ensure all disturbed areas be covered by topsoil and revegetated where necessary and that all hard paved surfaces are level. • All stormwater outlets to be fitted with retarding bollards or sumps to catch debris and oil spills. • Rehabilitation and revegetation must take place immediate after construction ends. • Areas that have been revegetated need to be watered until re-established. • Indigenous vegetation needs to be planted.	• Visual Inspections • Documentation inspections	• Once-Off	• Proponent • Contractor • ECO	• Construction Closure Report • Post-Construction Audit Report • Indigenous vegetation planting

4.7. Operational Environmental Management Programme

Table 7 Environmental management conditions and monitoring requirements –Operational Phase

ACTIVITY	MITIGATION MEASURES	MONITORING METHOD	MONITORING FREQUENCY	RESPONSIBLE PERSON/S	MONITORING & MANAGEMENT MECHANISM
Solid Waste	• Provide adequate solid waste storage facilities within each accommodation unit. • Provide a designated central solid waste storage area on site. • Ensure all waste containers are covered, sealed, and animal-proof to prevent scavenging and wind dispersal. • Ensure waste storage containers are located away from drainage pathways, seepage zones, and environmentally sensitive areas. • Ensure waste is stored in durable containers that prevent leakage or spillage. • Arrange for regular removal of solid waste by the Kouga Local Municipality or a licensed private waste contractor. • Dispose of all waste at a licensed municipal waste disposal facility. • Implement waste separation practices where feasible to encourage recycling. • Provide labelled bins for recyclable materials such as plastic, glass, and metal. • Educate guests on proper waste disposal practices. • Prohibit dumping or burning of solid waste on site. • Maintain good housekeeping practices at all times. • Conduct regular inspections to ensure waste storage areas remain clean and functional. • Immediately clean up any waste spills. • Ensure compliance with the National Environmental Management: Waste Act and Kouga Local Municipality waste management by-laws.	• Visual Inspections	• Continuous implementation	• Proponent • Site Manager • Maintenance Personnel	• Municipality services agreement • Municipal account • Recycling programs
Stormwater	• Implement the engineered stormwater management system as recommended in the civil engineering report. • Install barrier kerbs to guide stormwater toward designated collection points. • Install grid inlets at designated low points adjacent to each dwelling to capture stormwater. • Install and maintain stormwater pipes (160 mm diameter) to convey stormwater safely away from structures. • Maintain rainwater harvesting tanks and gutters to ensure adequate collection of rainwater. • Discharge stormwater onto natural grassed areas to allow natural infiltration and dissipation prior to reaching the estuary. • Ensure no direct discharge of stormwater into the Kromme River estuary. • Maintain natural drainage pathways and avoid obstruction of seepage areas. • Install and maintain rainwater harvesting tanks to reduce stormwater runoff volumes. • Maintain stormwater infrastructure regularly to ensure proper functioning. • Ensure paved areas are limited to the minimum required footprint. • Use permeable surfaces where feasible to promote infiltration. • Prevent accumulation of pollutants on paved surfaces. • Maintain vegetation buffers to promote natural filtration of runoff.	• Visual Inspections • Evaluate flow patterns • Maintenance inspections	• Continuous implementation during lifespan	• Proponent • Site Manager	• Municipal services account • Stormwater management plan • Stormwater quality monitoring • Post storm event assessments

	• Inspect stormwater infrastructure regularly for blockages or damage. • Repair damaged stormwater infrastructure promptly. • Ensure compliance with civil engineering and environmental specifications. • Maintain vegetation cover on surrounding areas. • No footpaths through the buffer area to the estuarine banks allowed. Access must be through the current available areas that have been historically formed within the private open space.				
Water & Sewage	• Install rainwater harvesting tanks to supply potable water and reduce reliance on municipal water supply. • Implement water conservation measures, including water-efficient fixtures and fittings. • Regularly inspect water supply systems for leaks and repair immediately if detected. • Maintain conservancy tanks in accordance with approved engineering specifications. • Ensure conservancy tanks are watertight and properly sealed to prevent leakage. • Arrange for regular emptying of conservancy tanks by a licensed waste contractor. • Dispose of sewage at a licensed municipal wastewater treatment facility. • Inspect conservancy tanks regularly for structural integrity and leakage. • Repair or replace damaged tanks immediately. • Ensure no untreated sewage is discharged into the environment. • Prohibit use of soakaways, French drains, or other infiltration-based sewage disposal systems. • Use environmentally friendly cleaning products where possible. • Prevent disposal of hazardous chemicals into sewage systems. • Ensure compliance with National Water Act and municipal wastewater regulations. • Ensure proper supervision and maintenance of water and sewage systems. • Maintain environmental buffer zones between sewage infrastructure and the estuary.	• Visual Inspections	• Continuous implementation during lifespan	• Proponent • Site Manager • Maintenance Personnel	• Municipal services account • Routine conservancy tank inspections
Energy Usage	• Install solar photovoltaic (PV) panels to supply renewable energy to the accommodation units. • Install battery storage systems to store solar energy and reduce reliance on grid electricity. • Connect to the Eskom grid only as a backup power supply. • Use energy-efficient appliances within all accommodation units. • Install energy-efficient LED lighting throughout the development. • Use gas geysers to reduce electricity demand associated with water heating. • Design buildings to maximise natural lighting and ventilation to reduce energy demand. • Install appropriate insulation in roofs and walls to improve thermal efficiency. • Regularly inspect and maintain solar energy systems to ensure efficient operation. • Educate occupants on energy-efficient practices. • Ensure proper installation and maintenance of all electrical infrastructure. • Use low-voltage electrical systems where feasible. • Switch off unused electrical appliances and lighting when not in use. • Ensure compliance with relevant electrical and building regulations. • Minimise unnecessary outdoor lighting to reduce energy consumption and ecological disturbance.	• Visual Inspections • Architectural design • Documentation inspections • Smart meters	• Continuous implementation during lifespan	• Proponent • Site Manager	• Electrical certificates • Municipal services – power source • Real-time energy monitoring systems • Energy conservation measures

Impact on Indigenous Vegetation	• Limit all operational activities strictly to the approved development footprint. • Maintain the minimum 40 m ecological buffer between the development footprint and the estuarine boundary. • Protect surrounding indigenous vegetation and prohibit unnecessary clearing. • Demarcate ecological buffer areas as no-go zones where appropriate. • Rehabilitate disturbed areas using locally indigenous plant species. • Implement an alien invasive plant monitoring and removal programme. • Prevent dumping of garden waste or vegetation material in natural areas. • Avoid landscaping with invasive or non-indigenous plant species. • Encourage use of indigenous vegetation in landscaping to maintain ecological integrity. • Control access to sensitive areas, particularly seepage zones and buffer areas. • Educate occupants regarding the ecological sensitivity of the site and surrounding vegetation. • Maintain vegetation buffers to protect against erosion and runoff. • Monitor vegetation condition periodically and implement corrective measures where degradation is observed. • Avoid disturbance of seepage zones and natural drainage pathways. • Ensure stormwater management measures prevent erosion or vegetation damage. • Ensure compliance with NEMBA Alien and Invasive Species Regulations. • Maintain overall ecological functioning of the site as part of the estuarine support environment.	• Visual Inspections • Private property signage in buffer area • Invasive species monitoring and control program	• Continuous implementation during lifespan • Awareness of public movement in area.	• Proponent • Site Manager • Maintenance Personnel	• Continuous visual monitoring • Possible usage of landscaper/local conservation group • Invasive species management • Compliance with environmental regulations
Noise	• Encourage guests to keep noise levels low. • Enforce a noise curfew. • Discourage loud music and parties. • Encourage wildlife viewing. • Put up speed limit signs.	• Visual Inspections • Servicing records	• Daily awareness	• Contractor • ECO • Health & Safety Officer	• Daily inspection • ECO Audit Report - weekly • Toolbox talks – daily • Health & Safety Report – monthly • Noise management plan • Equipment selection and maintenance • Work schedule management • Public notification of noisy activities • Regular site inspections • Complaints register on site
Fire	• Implement a fire safety and emergency response plan for the development. • Prohibit open fires in natural vegetation areas. • Provide designated braai or cooking areas that are properly controlled and located away from vegetation. • Install and maintain fire extinguishers and firefighting equipment within buildings. • Educate residents and visitors on fire safety practices. • Establish and maintain firebreaks around the development where required in accordance with the National Veld and Forest Fire Act (Act 101 of 1998). • Maintain defensible space around buildings by clearing excessive vegetation or dry plant material. • Remove invasive alien plant species, which often increase fire intensity and spread. • Conduct regular vegetation maintenance within the property. • Use fire-resistant or fire-retardant building materials where possible. • Ensure adequate access roads and turning areas for emergency vehicles.	• Visual inspections of buildings and surrounding vegetation • Inspection of fire prevention and firefighting equipment • Review of fire incident records • Inspection of designated smoking areas	• Monthly inspections • Prior to high fire-risk seasons • After any fire incident	• Site Manager • Environmental Control Officer (ECO) • Health & Safety Officer • Staff / Maintenance Personnel	• Implementation of a fire management plan • Maintenance of firefighting equipment (fire extinguishers, hoses) • Clearing of dry vegetation around infrastructure where necessary • Staff awareness and fire safety training • Emergency response procedures in place • Fire incident register maintained on site

	• Provide reliable water supply points for firefighting purposes (e.g., tanks, hydrants). • Maintain clear emergency access routes at all times. • Implement ongoing environmental awareness for residents and staff regarding fire risks. • Monitor surrounding vegetation and control invasive alien species that may increase fire intensity. • Rapidly rehabilitate burned or disturbed areas with indigenous vegetation. • Implement stormwater management measures to control runoff. • Stabilise exposed soils through vegetation re-establishment or erosion control measures.				
Estuarine and Riparian Environments	• Boats may not be launched from the riverbank below the southern boundary of the property. • All motorised boats must make use of existing public launching facilities within the estuary area. • Public launching typically occurs at the following sites: -R330 bridge launch area (informal public access) -St Francis Canals Small Boat Harbour slipway (formal slipway) -Tietesbaai / canal entrance slipway (limited use) • Only non-motorised vessels such as canoes and kayaks may be launched from the designated Private Open Space area, and not directly from the natural riverbank. • All boating activities must comply with Kouga Municipal boating regulations, including adherence to no-wake zones and vessel safety requirements. • Access to the estuary should be restricted to designated access points only, specifically from the private open space. • Signage should be installed informing visitors that access to the riverbank below the southern boundary is prohibited. • Riparian vegetation should be protected and retained wherever possible, and disturbed areas should be rehabilitated with indigenous species. • Maintain vegetated buffer areas along the riverbank to stabilise soils. • Limit access to designated areas to prevent repeated disturbance. • Recreational activities should be limited to designated areas to reduce disturbance to natural habitats. • Adequate waste disposal facilities must be provided within the development. • Visitors and residents should be educated regarding responsible waste management practices. • No refuelling or servicing of boats should occur near the estuarine environment or riverbank. • Signage should be installed to discourage littering and pollution of the estuary. • Implement appropriate stormwater management systems to control runoff. • Ensure stormwater is dissipated through natural vegetation areas where possible before entering the estuary. • Avoid direct discharge of untreated stormwater into the estuarine system. • Maintain vegetated buffer areas along the riverbank to filter runoff and reduce sedimentation.	• Visual inspections of estuarine and riparian buffer areas • Inspection for erosion, vegetation disturbance, or illegal dumping • Monitoring of stormwater outlets and drainage areas.	• Monthly site inspections • After heavy rainfall events • ECO compliance inspections (quarterly or as required)	• Site Manager • Environmental Control Officer (ECO) • Maintenance Personnel	• Maintenance of designated buffer areas along the estuary and riparian zones • Monitoring and maintenance of stormwater management infrastructure • Rehabilitation of disturbed riparian vegetation where required • Environmental awareness for staff and visitors • Regular ECO compliance audits • Complaints register maintained on site

4.8. Timing and Implementation of EMPr

The Design and Planning EMPr is to be effective prior to the construction phase and will remain in effect until the entire design and layout, policies, legislation, training, etc. has been completed. The CEMPr becomes applicable upon receiving Environmental Authorisation from the Competent Authority for the proposed development. It remains in effect throughout the construction phase and ceases once all construction, including site rehabilitation, concludes. On the other hand, the OEMPr takes effect as soon as any element of the development becomes operational. Its implementation persists for the entire duration of the development, either indefinitely or until the property is decommissioned.

4.9. Recommendations of the EAP

Design & Planning Phase

- Mitigation measures recommended by the Specialists should be strictly implemented.
- All permits and authorization, and specialist assessments are to be obtained prior to any activities commencing.
- All materials must be available prior to commencement of construction.
- The site must be demarcated and the area where materials are to be stored needs to be made available, for example a rented container.
- Environmental sensitivities must be taken into consideration prior to the finalization of the layout of the project.
- The final footprint layout must be approved by DEDEAT.
- A registered engineer must sign off on the platform, foundations and pylons design plans.
- All parties must be in agreement before any construction activities commence.
- Mitigation measures recommended by the Specialists and the EAP should strictly be implemented.
- Alternative energy and water sources must form part of a mixed bulk services design.
- Prior to initiating any work on site, appoint a qualified and independent ECO (Environmental Control Officer).

Construction Phase

- Management Plans / method statement must be developed prior to any activity relating to the construction and operations of the project. These plans include the following:
 - Stormwater & Contingency Management Plan
 - Erosion Action Plan
 - Rehabilitation Management Plan
 - Alien Vegetation Management Plan
- The development area must be clearly marked out.
- The 40m setback must be clearly demarcated.
- Establish a laydown area before commencing any activities and demarcate the construction site area.
- A permit must be acquired by the relevant authorities if any SCC must be relocated or removed.
- During construction activities, rehabilitation of the site must be a continuous process.
- The ECO must be present during construction initiation, thereafter weekly or monthly inspection for the duration of construction.
- No material to be stockpiled, stored, nor any machinery, excavators and trucks to encroach on the Private Open space, neighbouring portions, beyond the 40m setback or anywhere near the estuary.
- Prior to initiating any work on site, appoint a qualified and independent ECO (Environmental Control Officer).
- No divergence from the final layout and design plans.
- All concrete batching to be done on sealed surface.
- Should the building lines need to be encroached, appropriate municipal applications must be submitted.
- No fires and no cooking on site allowed.
- Disturbed areas should be mitigated immediately before continuing onto the next phase.
- All mitigation measures recommended by the Specialists should be strictly implemented.
- Proper signage to be erected during construction to warn the public of construction activities.
- Any chance findings of archaeological, paleontological significance must be reported to ECPHRA.
- Disturbed areas should be rehabilitated as soon as possible after the construction period.
- Any plans drawn up that exceed the Kouga Municipal By-laws height restriction must first be applied for and subjected to a public participation procedure.

Operational Phase

- A maintenance plan is to be developed and given to the proponent to follow, guided by an ECO.

- Constant alien invasive control programme is to be followed by tenants, landowners for the site, as well as adjacent areas.
- Waste is to be disposed of correctly and frequently, by the proponent due to lack of municipal services in the area.
- Conservancy tanks need to be emptied either by municipal or private services, and effluent to be taken to the appropriate wastewater treatment plant.
- A 40m setback must be maintained throughout the operational phase of the development.
- No recreational activities, such as launching of boats are to occur on the left bank south of the site. All boat launching to take place at the public launch site near the R330 or private launch sites.

5. ENVIRONMENTAL COMPLIANCE REPORTING

Environmental Auditing involves comparing the anticipated impacts of a project with the actual impacts observed during its execution, as indicated by an ECO Checklist or audit report. It entails evaluating practices and procedures that, if failure to comply, could lead to environmental impacts or risks. At different stages of a development project's life cycle, diverse concerns will be monitored. The environmental audit guarantees accurate environmental monitoring and adherence to regulations.

To ensure proper oversight, the ECO is responsible for creating ECO Checklists, which will be shared with all relevant stakeholders involved in the project's construction and operational phases. Subsequently, periodic ECO audits will be conducted bi-weekly during construction, thereafter every 6 months for two years. The objectives of the Environmental Audit include:

- Assessing ECO checklists for compliance with the Environmental Authorization (EA) and Environmental Management Program (EMPr).
- Confirming the accuracy of on-site monitoring results.
- Evaluating the efficacy of environmental management actions in achieving responsible environmental practices.
- Identifying any additional mitigation measures required for the project.

During the Construction Phase, compliance monitoring records for the development must be maintained on-site and available for authorities upon request. While construction phase monitoring occurs at regular intervals, operational phase monitoring is less stringent and may occur at intervals agreed upon with environmental authorities. Throughout the Operational Phase, compliance monitoring continues but at reduced frequency.

The ECO assumes overall responsibility for site monitoring and auditing. However, the developer must establish environmental control and audit measures, integrating them into their Environmental Management Systems.

6. ENVIRONMENTAL AWARENESS PLAN

Prior to initiating construction activities, all construction staff present on-site are required to undergo an environmental orientation. This orientation will be conducted by either the Site Manager or the Construction Manager. Participation in the environmental orientation training is mandatory for anyone intending to work on-site. The environmental orientation training must encompass essential details and obligations outlined in the BAR, EMPr, and EA. The fundamental components of the environmental training should include, at a minimum:

- Explanation of the specific details of this Environmental Management Program (EMPr),
- Adoption of proper waste separation and disposal practices, as well as appropriate sanitation measures.
- Prevention strategies for soil and water contamination.
- Application of effective measures for controlling dust and noise.
- Procedures to follow when encountering fauna or faunal specimen, such as nests.
- Recognition of the advantages of upholding a "duty of care" for the environment.
- Clarification of employees' roles, responsibilities, and emergency readiness (e.g., responding to fires, chemical spills, etc.).
- Understanding the necessity for implementing mitigation measures that may be required during work activities.
- Insight into the organizational structure responsible for EMPr-related matters.
- Basics of on-site safety protocols.
- Discussion of potential risks to employees stemming from the upcoming tasks.

The orientation session must detail actions to safeguard the environment, encompassing flora, fauna, water resources, soil resources, and the atmosphere. The training information could also be duplicated in written materials, such as handouts or brochures, to provide each workforce member with a reference. If needed, a translator should be present to facilitate communication during the orientation.

The contractor, proponent and supervisory staff members are expected to thoroughly acquaint themselves with the entire content of the EMPr and comprehend the specifications outlined therein. This familiarity enables them to assist other team members with environmental matters. Before initiating any construction work, newly onboarded staff members must receive a comprehensive briefing regarding the EMPr and pertinent occupational health and safety concerns.

7. APPENDIX A – CV'S

The EMPr was prepared by Francette Jerling (Reg Candidate EAP - 2023/6932; Reg Pro. Sci. Nat. 151825 – SACNASP) and reviewed by the registered EAP Leander Potgieter (Reg EAP 2019/286 EAPASA).

7.1. EAP CV

7.1.1. Leander Potgieter

The following details of the EAP are of importance to the developer, contractor, operator and other responsible parties and authorities.

CONTACT DETAILS

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EXPERTISE:

QUALIFICATIONS: BSc Agric (Hons)

AFFILIATIONS: (Reg EAP 2019/286, EAPASA) IAIA (sa)

EXPERIENCE: 15 years

1. REF: 12/1/9-6/18-V6 – EA FOR PROPOSED SUBDIVISION OF LAND TO ALLOW FOR DEMARCATION OF 200 RESIDENTIAL SITES AT TSHITAVHA VILLAGE WITHING THULAMELA LOCAL MUNICIPALITY OF CHEMBE DISTRICT – LEDET 2009
2. REF: 12/1/9-6/16b-C46 – EA FOR THE ESTABLISHMENT OF MAKGOKA SCHOOL ON THE FARM LAASTEHOOP, 1054 LS, MOUNTAIN VIEW VILLAGE, POLOKWANE LOCAL MUNICIPALITY, CAPRICORN DISTRICT – LEDET 2009
3. REF: 12/1/9-6/18-V5 – EA FOR THE SUBDIVISION OF LAND TO ALLOW FOR THE DEMARCATION OF 200 RESIDENTIAL SITES DIMANI VILLAGE WITHIN THULAMELA LOCAL MUNICIPALITY OF VHEMBE DISTRICT – LEDET 2009 4
4. REF: 12/1/9-6/18-V7 – EA FOR SUBDIVISION OF LAND TO ALLOW FOR DEMARCATION OF 100 RESIDENTIAL SITES AT DZINGEHE VILLAGE WITHIN THULAMELA LOCAL MUNICIPALITY OF VHEMBE DISTRICT – LEDET 2009
5. REF: 12/1/9-6/16(b) – EA NEW ACADEMIA REFORMIA SCHOOL ON THE REMAINDER OF PTN 166 (PORTION OF PORTION 142) OF THE FARM TWEEFFONTEIN 915, POLOKWANE -LEDET 2010.
6. REF: 12/1/9-6/(h)(v) - C11_EA EXPANSION OF RAMASHOANA POULTRY PROJECT ON A PORTION OF THE FARM VULCANUS 584 LS WITHIN AGANANG LOCAL MUNICIPALITY - LEDET 2010.
7. REF: 12/1/9-6/14-GS67 – EA FOR PROPOSED ERECTION OF A 25M LATTICE MAST WITH A CONTAINER HOUSING THE ELECTRONIC EQUIPMENT ON PTN OF THE FARM LEEUFONTEIN 297 KT, IN THE VILLAGE OF GA-MOTHOMANE WITHING THE GREATER TUBATSE LOCAL MUNCIPALITY: GREATER SEKHUKHUNE DISTRICT – LEDET 2010
8. REF: 12/1/9-7/2-V34 – EA FOR PROPOSED DEMARCATION OF 500 RESIDENTIAL ERVEN AND OTHER RELATED USES AT MUILA VILLAGE LOCATED ON PTN 6 AND THE REM OF FARM KLIPBANK 406 LS WITHIN THE JURISDICTION OF MAKHADO LOCAL MUNICIPALITY OF THE VHEMBE DISTRICT – LEDET 2011
9. REF: 12/12/20/2112 – EA IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998: GN R 543/544: PROPOSED REFURBISHMENT OF THE OLIFANTSPOORT TO SPECON RESERVOIR RISING MAIN PIPELINE ON BEHALF OF LEPELLE NOTHERN WATER, LEPELLE NKUMPI LOCAL MUNICIPALITY – LEDET 2011
10. REF: 12/1/9-7/2-GS46 – EA FOR PROPOSED DEMARCATION OF 300 RESIDENTIAL SITES ON THE FARM WINNAARSHOEK 250 KT AT SEUWE VILLAGE WITHIN GREATER TUBATSE LOCAL MUNICIPALITY OF GREATER SEKHUKHUNE DISTRICT – LEDET 2011
11. REF: 12/1/9-7-M53 – EA FOR DEMARCATION OF 250 RESIDENTIAL STANDS & TOWNSHIP ESTABLISHMENT AT BENFARM C VILLAGE LOCATED ON THE REM OF THE FARM BEN 26 LU AND ERF 39 BEN C WITHIN BA-PHALABORWA LOCAL MUNICIPALITY OF THE MOPANI DISCTRICT – LEDET 2012
12. REF: 12/1/9/1-C31 – EA FOR PROPOSED PARTIAL OR FULL DESALINATION OF BOREHOLE WATER USED FOR IRRIGATION ON PTN 2 AND 5 OF THE FARM FRAAIFONTEIN 447 MS LS WITHING BLOUBERG LOCAL MUNICIPALITY OF CAPRICORN DISTRICT – LEDET 2013
13. REF: 12/1/9/1-M65 – PROPOSED DEVELOPMENT OF A HOTEL, LODGE AND ASSOCIATED INFRASTRUCTURE ON PTN 42 OF THE FARM LAASTE 24 LU WITHIN BA-PHALABORWA LOCAL MUNICIPALITY OF MOPANI DISTRICT – LEDET 2013

14. REF: 12/1/9/1-M85 – EA FOR DEVELOPMENT OF A HOTEL/LODGE/INFRASTRUCTURE ON PTN 42 OF THE FARM LASSTE 24 LU WITHIN BA-PHALABORWA LOCAL MUNICIPALITY OF MOPANI DISTRICT – LEDET 2014
15. REF: 12/1/9/2-C28 – EA FOR DEMARCATION OF 419 RESIDENTIAL SITES ADJACENT TO AN EXISTING VILLAGE OF GA-RAMOKADI-KADI VILLAGE LOCATED ON THE FARM VLAKFONTEIN 588 LS WITHIN AGANANG LOCAL MUNICIPALITY OF THE CAPRICORN DISTRICT – LEDET 2014
16. REF: 12/1/9/1-V81 – EA FOR THE PROPOSED DEMARCATION OF RESIDENTIAL STANDS ON THE FARM RAMBUDA, 438 MT, GUYUNI VILLAGE WITHIN MUTALE LOCAL MUNICIPALITY OF VHEMBE DISTRICT – LEDET 2014
17. REF: 12/1/13/ORD-C419 – PROPOSED BENDOR EXT 125, FORMALISATION OF EXISTING BOLIVIA LODGE SITUATED ON PART OF THE REMAINING EXTENT OF PTN 162 (PTN OF PTN 141) OF THE FARM TWEEFONTEIN 915 LS WITHIN THE POLOKWANE LOCAL MUNICIPAL AREA OF JURISDICTION IN THE CAPRICORN DISTRICT – LEDET 2015
18. REF: 12/1/12/ORD-C419 FORMALISATION OF EXISTING BOLIVIA LODGE ON REMAINDER OF PTN 162, TWEEFONTEIN 915 LS – DUE DILIGENCE REPORT - 2015
19. REF: Gaut 002/14-15/0208 – EA GRANTED-BAR: PROPOSED CONSTRUCTION OF REMEDIAL EROSION PROTECTION MEASURES ALONG BRAAMFONTEIN SPRUIT AT CARLOW ROAD, MELVILLE ON PTN 167 OF THE FARM BRAAMFONTEIN 53 IR, CITY OF JHB METROPOLITAN MUNICIPALITY – DEPT OF AGRICULTURE 2015
20. REF: Gaut 002/16-17/E0006 – EA GRANTED-BAR: THE PROPOSED WIDENING OF BALLYCLARE ROAD AND CONSTRUCTION OF A NEW BRIDGE, CITY OF JHB METROPOLITAN MUNICIPALITY - GDARD 2016
21. REF: Gaut 002/15-16/E0220 – EA GRANTED: PROPOSED CONSTRUCTION AND UPGRADE OF STORMWATER INFRASTRUCTURE ON THE REM OF PTN 58, 60 AND 73 OF THE FARM OLIFANTFONTEIN 410 JR WITHIN IVORY PARK EXTENSIONS 8, 10 AND 13, CITY OF JHB METROPOLITAN MUNICIPALITY – GDARD 2016
22. REF: Gaut 002/15-16/E0079 – EA GRANTED: PROPOSED REMEDIAL EROSION PROTECTION MEASURES ALONG PRESIDENT WAY BETWEEN SOUTHWAY ROAD AND MARLBORO DRIVE IN KELVIN: CITY OF JHB METROPOLITAN MUNICIPALITY – GDARD 2016
23. REF: 12/1/9/3-W39 – EA FOR PROPOSED EXPANSION OF UNDERGROUND FUEL TANKS BY 69 000 LITERS ON ERF 4660 AND ERF 4661, EXT 13 PIET POTGIETERSRUS, MOKOPANE WITHIN MOGALAKWENA LOCAL MUNICIPALITY OF WATERBERG DISTRICT – LEDET 2016
24. REF: 12/1/9/1-C129 – EA FOR ESTABLISHMENT OF A LIGHT INDUSTRIAL TOWNSHIP TO BE KNOWN AS POLOKWANE EXT 128 ON PTN 15 OF THE FARM TWEEFONTEIN 915 LS WITHIN THE POLOKWANE MUNICIPALITY – LEDET 2016
25. GA-MAMABOLO CONSERVANCY SOCIAL FACILITATION (GIBB) - 2017
26. REF: 12/1/9/1-M164 – EA FOR PROPOSED EXPANSION OF AN EXISTING ABOVE GROUND FUEL STORAGE TANKS BY 276 CUBIC METERS AT MOOKETSI ON PTN 4 OF THE FARM WAGENDRIFT 383 LT WITHIN GREATER LETABA LOCAL MUNICIPALITY OF MOPANIG DISTRICT – LEDET 2018
27. REF: EMB/12(ii),19,28(ii),12/18/54 HARRISMITH LOGISTICS HUB – DESTEA (2019)

28. SAND HAWKS MINING LICENCES HOUT RIVER, MATJIESKRAAL (DMR, LIMPOPO) – 2017/18/19
29. DUE DILIGENCE INVESTIGATION AND LAND USES FOR 27 PROPERTIES for PUBLIC INVESTMENT CORPORATION, (GIBB) - 2017
30. SESHEGO PLAZA ENVIRONMENTAL DUE DILIGENCE FOR PUBLIC INVESTMENT CORPORATION (GIBB) - 2017
31. ISAGO N12 TOWNSHIP ENVIRONMENTAL DUE DILIGENCE FOR PUBLIC INVESTMENT CORPORATION (GIBB) – 2017
32. REF NO: WU 12807 REGISTRATION OF WATER USE IN TERMS OF SECTION 39 OF THE NATIONAL WATER ACT, NO 36 OF 1998: POLOKWANE MUNICIPALITY URBAN COMPLEX GROUNDWATER DEVELOPMENT AND DISTRIBUTION COMPLEX IN QUAT CATCHMENT A714A, LIMPOPO (GA) - 2019
33. REF: (EMB/14/20/21) ENVIRONMENTAL AUTHORISATION HARRISMITH DIESEL DEPOT -DESTE A 2021
34. REF. NO: WU15701 REGISTRATION OF WATER USE IN TERMS OF SECTION 39 OF THE NATIONAL WATER ACT, NO 36 OF 1998: FOR SECTION 21(c) AND (i) WATER USES IN QUATERNARY CATCHMENT A61F, LPNW – DWS, POLOKWANE BRANCH, LIMPOPO - 2020
35. REF. NO: WU17552 REGISTRATION OF WATER USE IN TERMS OF SECTION 39 OF THE NATIONAL WATER ACT, NO 36 OF 1998: FOR FOR UPGRADE OF RITAVI II REGIONAL WATER SCHEME SUB-SCHEME 1 PHASE 1, B81D, OLIFANTS – DWS, TZANEEN BRANCH, LIMPOPO - 2020
36. LICENCE NO: 06/B81B/A/9891: BARAPARTNERS WATER ABSTRACTION FOR 200 HA MACADAMIA PLANTATION, DUIWELSKLOOF (WUL) – DWS - 2020
37. REF NO: 12/1/9/1-C281 MARLO SHOPPING CENTRE: EA FOR THE PROPOSED CONSTRUCTION OF A FILLING STATION, SHOPPING COMPLEX AND ASSOCIATED INFRASTRUCTURE ON A PORTION OF THE FARM DE PUT 621 LS AND PORTION 6 PALMIETFONTEIN 620 LS, CAPRICORN DISTRICT – LEDET 2021
38. REF: (EMB/14/20/21) ENVIRONMENTAL AUTHORISATION HARRISMITH DIESEL DEPOT -DESTE A 2021
39. TZANEEN DIESEL DEPOT EXPANSION (ABANDONED)
40. DAN VILLAGE PETROL STATION, BASIC ASSESSMENT REPORT (CURRENT AUG 2022)
41. WU20462, 20463, 20526: UITENHAGE TRUST FARMS, UPPER ORANGE CATCHMENT, BETHULIE (WUL) – 2022 (RECEIVED)
42. BASIC ASSESSMENT PTN 181 TWEEFONTEIN 915 LS: TOWNSHIP AND PRIVATE HOSPITAL DEVELOPMENT, POLOKWANE, CAPRICORN DISTRICT – LEDET (EA RECEIVED)
43. BASIC ASSESSMENT REPORT PTN 98 OF THE FARM DOORKRAAL 680 LS: TOWNSHIP ESTABLISHMENT FOR SOCIAL HOUSING UNITS (CURRENT FEB 2023)
44. ZEEKOE RETIREMENT LIFESTYLE ESTATE, JEFFREYS BAY (SCANNING)
45. BASIC ASSESSMENT FOR THE CONSTRUCTION OF 5 GEODETIC DOMES, TSITSIKAMMA SECTION GRNP (CURRENT FEB 2023)
- 46 VARIOUS ENVIRONMENTAL AUTHORISATION AMENDMENT APPLICATIONS (CURRENT JAN 2023)

7.1.2. Francette Jerling

Francette Jerling Work Experience		
Personal Details FRANCETTE JERLING DOB: 12 November 1987 ID number: 8711120190180 Address: Lot 510 Eilandshoogte, Witelsbos, Tsitsikamma, Easter Cape Cell: 0662388094 Email: francette@aces-con.co.za	Speciality Conservation & Biodiversity Studies	Relevant Experience 10 years of conservation related experience. Currently undergoing EAPASA Mentorship Programme, under the mentorship of Leander Potgieter (ACES)
	Professional Registration Registered Candidate EAP (EAPASA - 2023/6932) Professional Zoologist & Professional Conservationist (SACNASP – 151825) IAIASA Membership number: 7435	Tertiary Qualifications • Master of Science (M.Sc.) – Zoology - Northwest University Potchefstroom, South Africa. 2011 • B.Sc. (Hons.) Biodiversity and Conservation Biology - Northwest University Potchefstroom, South Africa. 2009 • B.Sc. - Zoology & Geography - Northwest University Potchefstroom, South Africa. 2008 • Certificate (NQF 8): An Introduction to the Environmental Impact Assessment – NMU – Nelson Mandela University. 2023 • Certificate in Wellness Counselling (NQF 5) - Da Vinci Institute, South Africa, 2018
Professional Experience June 2023 – Current EAPASA Mentorship Program – Leander Potgieter, ACES Environmental Consulting 2019 - Current: The Tsitsikamma Wolf Sanctuary, Eastern Cape, South Africa Resident Zoologist and Director 2016-2018: Liedani, Synergetica Academy, Cullinan, Gauteng, South Africa Lecturer & Laboratory Manager 2017-2018: ASCHP (Association for Supportive Counsellor and Holistic Practitioners) - Cullinan, South Africa Lecturer / Administrator / RPL Evaluator 2015-2016: Dr. Rodger Savory – Bowen, Queensland Australia Holistic Grassland Research Manager 2014-2015: NHFU (Natural History Film Unit), Maun, Botswana Researcher / Logistics Manager / Assistant Editor 2013-2014: Cheetah Conservation Botswana, Ghanzi, Botswana Researcher 2013: Krokovango Crocodile Farm and Research Center – Shakawe, Botswana Researcher 2010-2012: Mabula Ground Hornbill Project, Bela Bela, Limpopo, South Africa Researcher		

2009-2012:

Northwest University – Potchefstroom, South Africa
Researcher / Student Facilitator / Assistant Lecturer /
Translator / Field Assistant

Projects:

- Ref no: EA – 14/12/16/3/3/1/2794 - Basic Assessment for the Construction of 5 geodesic Domes, Tsitsikamma Section GRNP.
- Ref no: EC08/C/LN1&3/M/36-2019 - Basic Assessment for the Construction of a Residential Warehousing on Erf 414, Oyster Bay, Kouga Local Municipality.
- Ref no: - Gaut 002/24-25/E4048 - Basic Assessment for the proposed residential township on Farm Zandfontein 154/317JR, City of Tshwane Municipality, Gauteng Province.
- Ref. no. EC08/C/LN1&3/M/31-2024 - Basic Assessment for the proposed residential development on Erf 1286 Jeffreys Bay, Kouga Local Municipality, Eastern Cape.
- Ref no: EC08/C/LN1&3/M/50-2024 - Basic Assessment for the proposed residential development on Erf 650 Jeffreys Bay, Kouga Local Municipality, Eastern Cape (ongoing).
- Ref no: EC08/C/LN1&3/M/10-2025 – Construction of a residential building on Erf 155 Paradise Beach, Kouga Local Municipality, Eastern Cape.
- Ref no: EC08/C/LN1&3/M/24-2025 – Basic Assessment for the Construction of a residential building on Erf 275/276 Aston Bay, Kouga Local Municipality, Eastern Cape.
- Ref no: EC08/C/LN1/M/36-2025 – Basic Assessment for the Proposed warehouse and storage facility on remainder of Erf 2091 Humansdorp, Humansdorp Registration Division, Kouga Local Municipality, Sarah Baartman District Municipality, Eastern Cape.
- Ref no: 12/1/9/1-M348 – Basic Assessment for the Proposed Development of a Filling Station and Shopping Complex on a Part Of Portion 0, Mohlabas Location 567It, Dan Village, Greater Tzaneen Municipality.
- Ref no: 12/1/9/1-W315 – Basic Assessment for the Proposed development of a Diesel Depot at Tshamahansi Village, Stand no. 737, on Portion of the Farm Turfspruit 241 KR within Mogalakwena Local Municipality of Waterberg District.

- Terrestrial Animal Assessment for Erf 1286 Jeffreys Bay, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 650 Paradise Beach, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 155 Paradise Beach, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 275/276 Aston Bay, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 2091 Humansdorp, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 1023 Paradysstrand, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 1824 Paradysstrand, Kouga Local Municipality, Eastern Cape.
- Terrestrial Animal Assessment for Erf 731 Paradysstrand, Kouga Local Municipality, Eastern Cape

7.2. REPORTING DOCUMENTATION

14.4 EMERGENCY INCIDENT SUMMARY INFORMATION					
Mark the appropriate boxes					
Fire:		Spill:		Explosion:	
Injuries		Reportable		Hospitalisation:	
Open water		Ground water		Atmospheric impacts:	
Own emergency response involved		Fire prevention services involved		Government hazardous materials emergency response involved	
Emission of non-toxic substances at low		Emission of non-toxic substances at high concentrations		Emission of toxic substances at low concentrations	
No evacuation required		Immediate area evacuated		Immediate surrounds evacuated	
Others					

14.4.1 INITIAL EMERGENCY INCIDENT REPORT				
In terms of section 30(3) of NEMA, the responsible person or, where the incident occurred in the course of that person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available: (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or by-products released by the incident; and (d) any steps that must be taken in order to avoid or minimise the effects of the incident on public health and the environment to: (i) the Director General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.				
1 Description	2 Date:	3 Time:	4 Medium:	5. Name and contact details:
Relevant fire prevention service: (in case of fire)	[submission date]	[submission time]	[Fax, phone, SMS, letter, etc.]	[Who was the report made to?]
LOCAL :				
PROVINCIAL:				
(Those deal with				
DIRECTOR GENERAL: (Department of Environmental Affairs)				
Any other Director General of National Department, E.g. Department of Water Affairs				

14.4.2 INCIDENT DETAILS			
In terms of NEMA section 30(5)(a) and (d), the responsible person must report on the nature of the incident as well as the causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure			
1	Location of the incident	[Provide physical address of the location where the incident happened including the GPS co-ordinates]	
2	Incident start date and time:		Incident duration:
4	Duration of exposure:		
5.	Incident description:		
<u>Background of the incident:</u> <u>Operation:</u> <u>Incident type:</u> <u>Root Cause of the incident:</u> <u>Contributory Factors to the incident:</u> <u>Conclusion:</u>			
Wind speed and direction			Ambient air temperature
Weather conditions			Other relevant meteorological conditions

14.4.3 POLLUTANTS RELEASED DURING INCIDENT					
In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity.					
List all the pollutants directly released during the incident (i.e. exclude those pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.)					
Substance or mixture of substances	reference Number	Phase eg solid, liquid or gas	Total Quantity emitted/ released	Units e.g. Kg, L etc.	Nature of emission/ release
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[Emitted from truck, underground pipe, stack, etc.]

14.4.4 SECONDARY POLLUTANTS RESULTING FROM INCIDENT					
In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.					
List all the pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.					
1. Substance or mixture of substances	2. Reference Number	3. Phase	4. Total Quantity emitted/released	5. Unit	6. Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[Emitted from truck, underground pipe, stack, etc.]

14.4.5 POLLUTANT CONCENTRATIONS					
List all the pollutants detailed in previous section:					
1. Substance or mixture of substances	2. Reference Number	3. Estimated pollutant concentration on different radius			
		10m	100m	500m	>2000m

[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally Recognized chemical referencing system]	[estimate the concentration of the pollutant in water, soil and/or air within a 10m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]	[estimate the concentration of the pollutant in water, soil and/or air within a 100m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]	[estimate the concentration of the pollutant in water, soil and/or air within a 500m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration (e.g. ppm)]	[estimate the concentration of the pollutant in water, soil and/or air within a > 2000 m radius of the epicentre of the incident] [provide the units used in a case of estimating concentration]

14.4.6 INCIDENT IMPACT	
1. Minor injuries	[Describe the number and types of any minor injuries that resulted from the incident or efforts to manage the incident or the impacts thereof]
2. Reportable injuries	[Describe the number and types of any injuries requiring statutory reporting that resulted from the incident or efforts to manage the incident or the impacts thereof]
3. Hospitalisation	[Describe the number and types of any injuries that required professional medical care that resulted from the incident or efforts to manage the incident or the impacts thereof]
4. Fatalities	[Describe the number and cause of any fatalities that resulted from the incident or efforts to manage the incident or the impacts thereof]
5. Biological impacts	[Describe any impacts on biological life, other than human life, e.g. fish kills, plant mortality, etc.]
6. Impact area	[Describe the area possibly affected by the incident or the impacts thereof including: (i) size of the area; (ii) socio-economic context; (iii) population density; (iv) sensitive environments (if any), etc.]
7. Data	Attach relevant impact reports, medical reports, death certificates, post mortem reports,

14.4.7 EXISTING PREVENTION PROCEDURES AND/OR SYSTEMS	
1. Foresight	[Briefly describe whether the incident could have, or had, been foreseen, e.g. was it included in any environmental impact assessment, risk assessment, health and safety plan, etc.]
2. Procedures and/or systems	Attach any relevant safety, health, and environmental plans (including any statutory planning requirements) that detail what actions must be taken in the event of the incident that is the subject of this report
3. Procedure and/or systems failures	[Describe any failures or shortfalls in procedures and/or systems that may have contributed to the incident] All procedures and checklist in place and signed off.
4. Technical measures	[Describe any technical measures, equipment, 'fail-safe' devices, etc. that are in place to
5. Technical failure	[Describe any failures of technical measures, equipment, 'fail-safe' devices, etc. that are in

14.4.7 EXISTING PREVENTION PROCEDURES AND/OR SYSTEMS	
1. Foresight	[Briefly describe whether the incident could have, or had, been foreseen, e.g. was it included in any environmental impact assessment, risk assessment, health and safety plan, etc.]
2. Procedures and/or systems	Attach any relevant safety, health, and environmental plans (including any statutory planning requirements) that detail what actions must be taken in the event of the incident that is the subject of this report
3. Procedure and/or systems failures	[Describe any failures or shortfalls in procedures and/or systems that may have contributed to the incident] All procedures and checklist in place and signed off.
4. Technical measures	[Describe any technical measures, equipment, 'fail-safe' devices, etc. that are in place to
5. Technical failure	[Describe any failures of technical measures, equipment, 'fail-safe' devices, etc. that are in

14.4.8 INITIAL INCIDENT MANAGEMENT	
1. Evacuation	[Describe any evacuation activities including information on the number of people evacuated and whether these people were staff or otherwise]
2. Technical measures	[Describe all technical measures taken to address the incident]
3. Mitigation measures	[Describe all measures taken to minimize the impact]
4. Emergency Services	[Describe any governmental emergency services involvement]

14.4.9 CLEANUP AND/OR DECONTAMINATION			
1. Cleanup and/or decontamination		<i>[Report on initial cleanup and or decontamination (remediation) measures taken to minimise the impact of the incident on human health and the environment. Provide copy of safe disposal certificate (if any) and details of the company that undertook the cleanup]</i>	
2. Permissions and Instructions			
Provide details of any permission and/or instructions received from any organ of state during initial incident management, cleanup and/or decontamination			
3. Type	4. Statute	5. Issued By	6. Name and contact details
[Describe the nature or type of permission or instruction]	[Provide a reference to the legal mandate for the permission or instruction]	[Provide contact details for the permitting or instructing authority]	[provide a summary of the activities carried out in terms of the permission or instruction]

14.4.10 MITIGATION MEASURES			
1. Measure	2. Objective	3. Cost	4. Timing
[Briefly describe each of the measures taken, and to be taken, to avoid a recurrence of such incident]	[Briefly describe the objective of the measure, i.e. the desired outcome of the measure]	[Estimate the cost of the measure in terms of capital costs and/or recurrent costs]	[Provide information on the timing for the full implementation of the measure]

14.4.11 AUTHORISATIONS			
Provide details on all authorisations (including permits, licenses, certificates, etc.) in respect of the activity to which this incident relates.			
1. Type	2. Statute	3. Issued By	4. Issue & Expiry Date
[Describe the nature or type of authorisation, e.g. Registration Certificate]	[Provide the reference for the authorisation, e.g. section X of the National Environmental Management Act (Act No. 107 of 1989)]	[Provide contact details for the issuing authority]	[provide the date of issue and expiry]

14.4.12 HISTORY			
Provide details of all similar incidents involving the responsible person in the past (i.e. from 1998). Similar incidents include those that: (i) involved similar circumstances; (ii) involved similar emissions; (iii) involved similar personnel; and/or (iv) involved similar impacts.			
14.1. Incident title	14.2. Report reference	14.3. Date of incident	14.4. Summary of event
[Provide the title used in the relevant emergency incident report]	[Provide the reference in respect of the relevant emergency incident report]	[Date of incident]	[Provide a summary of the event]

Signed by, or as a mandated signatory for, the responsible person:		Date:	
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APPENDIX 1				
List of affected People as results of the incident				
NAME	ADDRESS	PHONE	FAULT	REMARKS

*****END*****

Appendix G – OTHER

Appendix G1 – Zoning Certificate

11 April 2019

ZONING CERTIFICATE

TO WHOM IT MAY CONCERN

This is to confirm that PORTION 9 OF THE FARM OSBOSCH NO 707, HUMANSDORP RD has been zoned as "**RESORT ZONE II**" in compliance with Section 3.3 of the applicable Zoning Scheme Regulations. Property and buildings may be utilized as stipulated below:

Primary Uses

Indicates the purposes for which land may be used and or buildings may be erected and used.

- Holiday Housing

Definition of Holiday Housing

"Holiday Housing" means a harmoniously designed and built holiday development with an informal clustered layout which may include the provision of a camping site, mobile homes or dwelling units, and where the housing may be rented out or may be separately alienated by means of time sharing, sectional title division, the selling of block shares or the subdivision of the property on condition that a home owners' association be established, but does not include a hotel or motel.

J.M. MARAIS

MANAGER: PLANNING & DEVELOPMENT

