Proposed Housing Development on Erf 2841 Called Seegenot, Tergniet

Aquatic Biodiversity Compliance Statement

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DECLARATION OF CONSULTANTS INDEPENDANCE

I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);

- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;
- I do not have any influence over decisions made by the governing authorities;
- I undertake to disclose all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by a competent authority to such a relevant authority and the applicant;
- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity;
- This document and all information contained herein is and will remain the intellectual property of Confluent Environmental. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigators.
- All the particulars furnished by me in this document are true and correct.

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Expertise: > 10 years' experience working on aquatic ecosystems across South Africa, with a focus on the Southern Cape in the last 3 years. Includes research and consulting expertise, having published > 10 water-related research articles and compiled > 80 aquatic specialist reports. Research and consulting have been in a range of sectors including agriculture, urban developments, linear structures, renewable energy, conservation, and mining.

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1. INTRODUCTION

Confluent Environmental was appointed by Cape EAPrac to undertake a wetland verification for a housing development proposed for Erf 2841 in Tergniet, Mossel Bay (

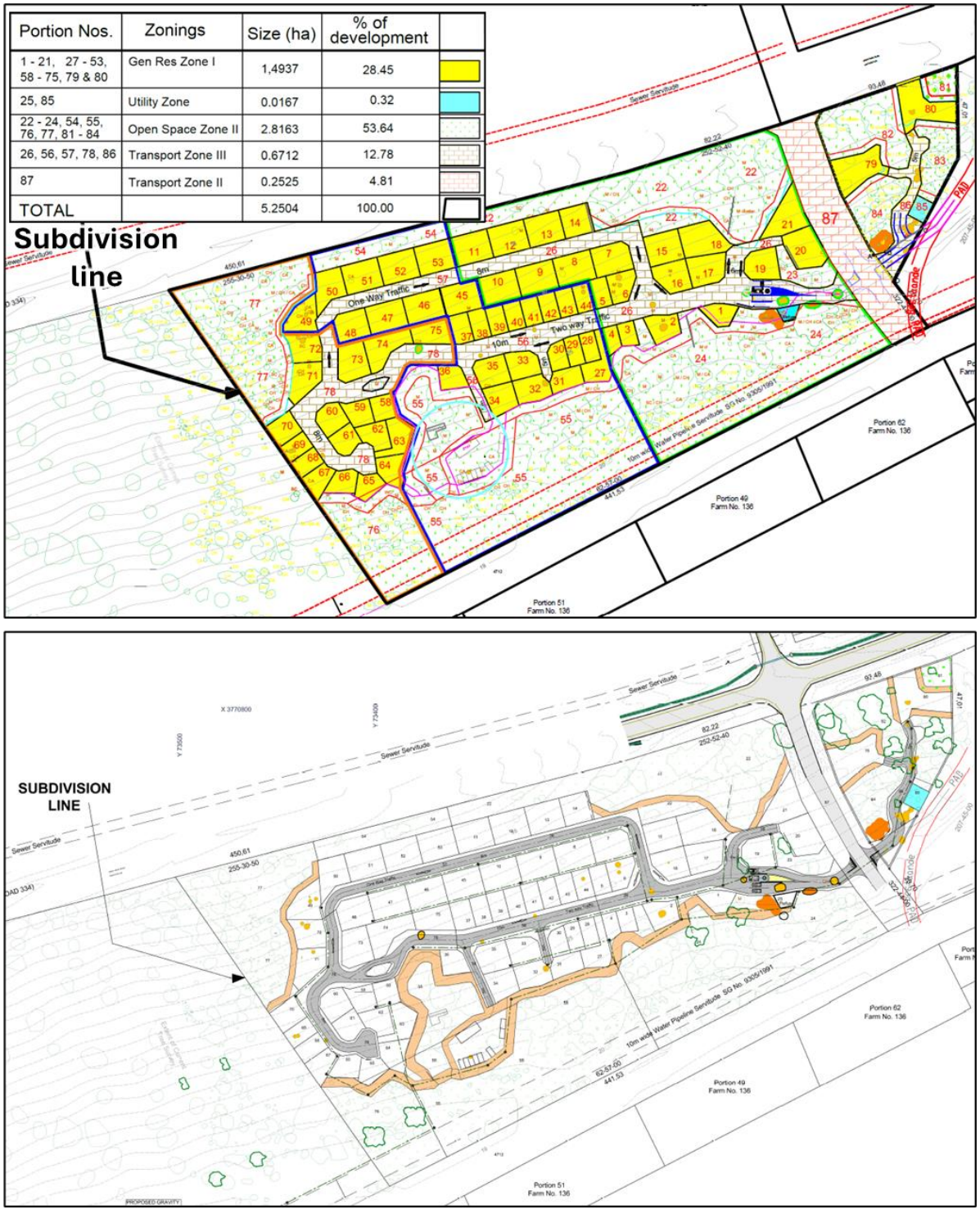

Figure 1: The site development plan of Erf 2841. The top plan indicates the planned layout, while the bottom map is for the proposed sewer lines and connections over the development area.

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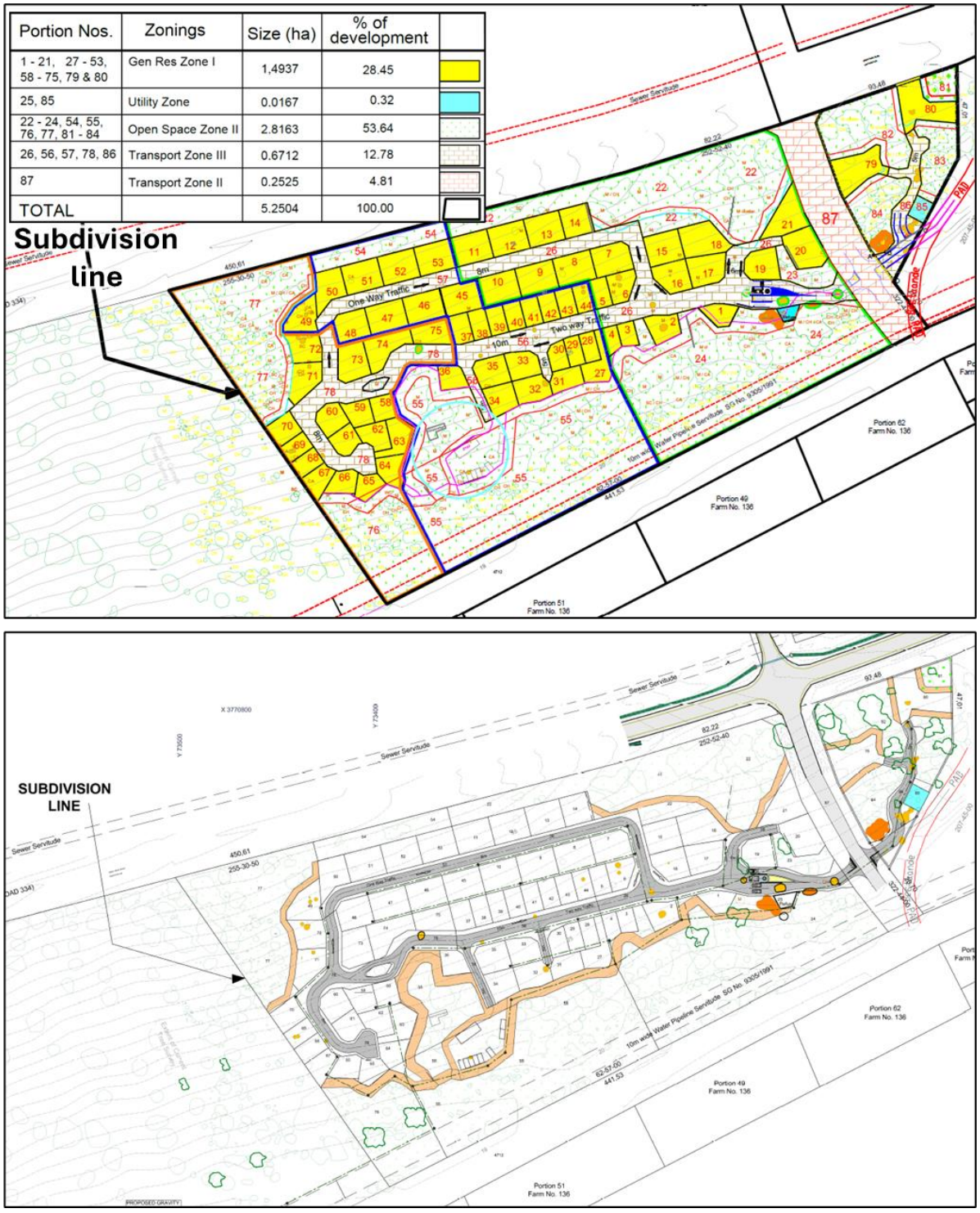

Figure 1: The site development plan of Erf 2841. The top plan indicates the planned layout, while the bottom map is for the proposed sewer lines and connections over the development area.

In a botanical specialist assessment of the site, the specialist indicated seasonal wetland habitat in the dune slack area towards the southern boundary of Erf 2841 (Figure 2). The purpose of this assessment was to provide aquatic specialist inputs to confirm the presence of the wetland, and if present, to provide a delineation and recommended setback area for the development (buffer zone).

Figure 2: Wetland area identified in the botanical specialist report (Jan Vlok, March 2019)

The wetland area indicated by the botanical specialist is also indicated as a wetland according to the National Freshwater Ecosystem Priority Atlas (Nel *et al*., 2011; Figure 3). The Western Cape Biodiversity Spatial Plan (WCBSP) relied on wetlands identified in NFEPA and therefore indicates an Ecological Support Area 1: Wetland at the same location. However, the more recently developed National Wetland Map 5 (NWM5) does not indicate any wetland at this site.

Figure 3. Wetlands mapped according to national spatial layers on Erf 2841. No wetland is mapped at the site in NWM5.

1.1 Scope of Work

The objectives of this assessment included the following:

- To undertake a desktop assessment of the site including mapping of national spatial layers and historical imagery;
- To conduct a site visit to assess the wetland area indicated and to verify if a wetland is present at this location;
- Should a wetland be present at this location, it will be verified, classified, delineated and buffered in an aquatic specialist report.

2. SITE VISIT

The site was visited on 2 June 2022. Wetland indicators described for the use of delineation in DWAF (2008) were applied for this assessment. These involve soil augering to identify the presence of redoxymorphic features such as mottling and gleying. Plant species adapted to life in permanently or periodically saturated soil are also identified as wetland indicators.

2.1 Soil Augering

The mapped soil type is grey regic sands with the geology type listed as fixed dunes, dune rock and aeolian sand. Soil augering at the site confirmed that the site is overlain by deep sandy soil. Augering was conducted to a depth of at least 1 m to determine whether sub-soils

may be present with a textural change that would promote saturation of upper soil layers. However, no such textural change was detected, and uniform sand with no mottling or gleying was present for at least a metre in all samples from the site.

A leaking pipe connection and manhole was observed towards the east of the mapped wetland (Figure 6), and soil augering was done directly adjacent to the leak to determine whether redoximorphic features were present in the soil where water was known to be discharging. Even at this point, there were no redoximorphic features present (Figure 4). Water discharged was infiltrating the soil at a fast rate reflecting the deep, well drained soil at the site.

The lack of mottling or gleying in sandy soils can be a confounding factor in the delineation of wetland areas with this soil type, as the required elements for redoximorphic features (iron and manganese) are naturally deficient in sandy soils. Therefore, the presence of other features such as the landscape location, historical imagery, and vegetation on site increase in importance.

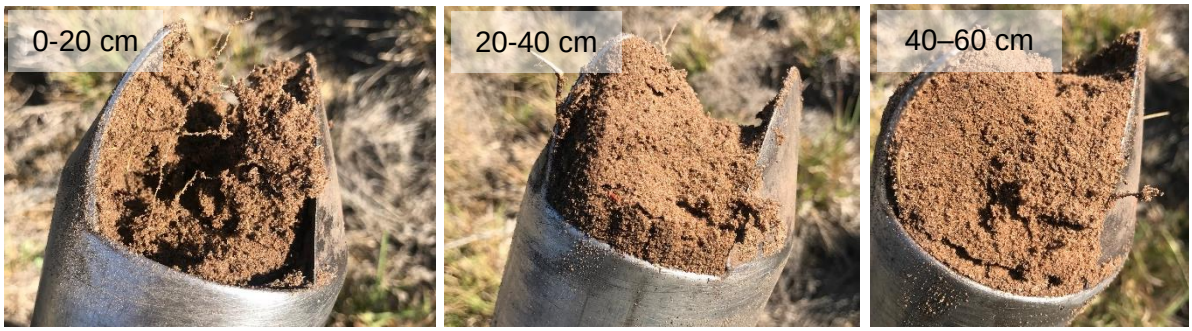

Figure 4. Soil auger samples taken below the leaking pipe.

2.2 Vegetation

Vegetation in the mapped wetland area, or that indicated by the botanical specialist, was not dominated by typical wetland plant species. In the immediate vicinity of the water leak is an area with extensive growth of *Stenotaphrum secundatum* (Buffalo Grass) which is considered a facultative wetland plant species. This species can also tolerate unsaturated conditions and is a popular lawn or turf species. In this location, it is likely growing in response to the water leak, as there is a distinct zone where it becomes the dominant grass proximal to the leak (Figure 6).

Figure 5. Typical vegetation in the dune slack area indicated as wetland (left) and a small pool of water at the point of the water leak (right).

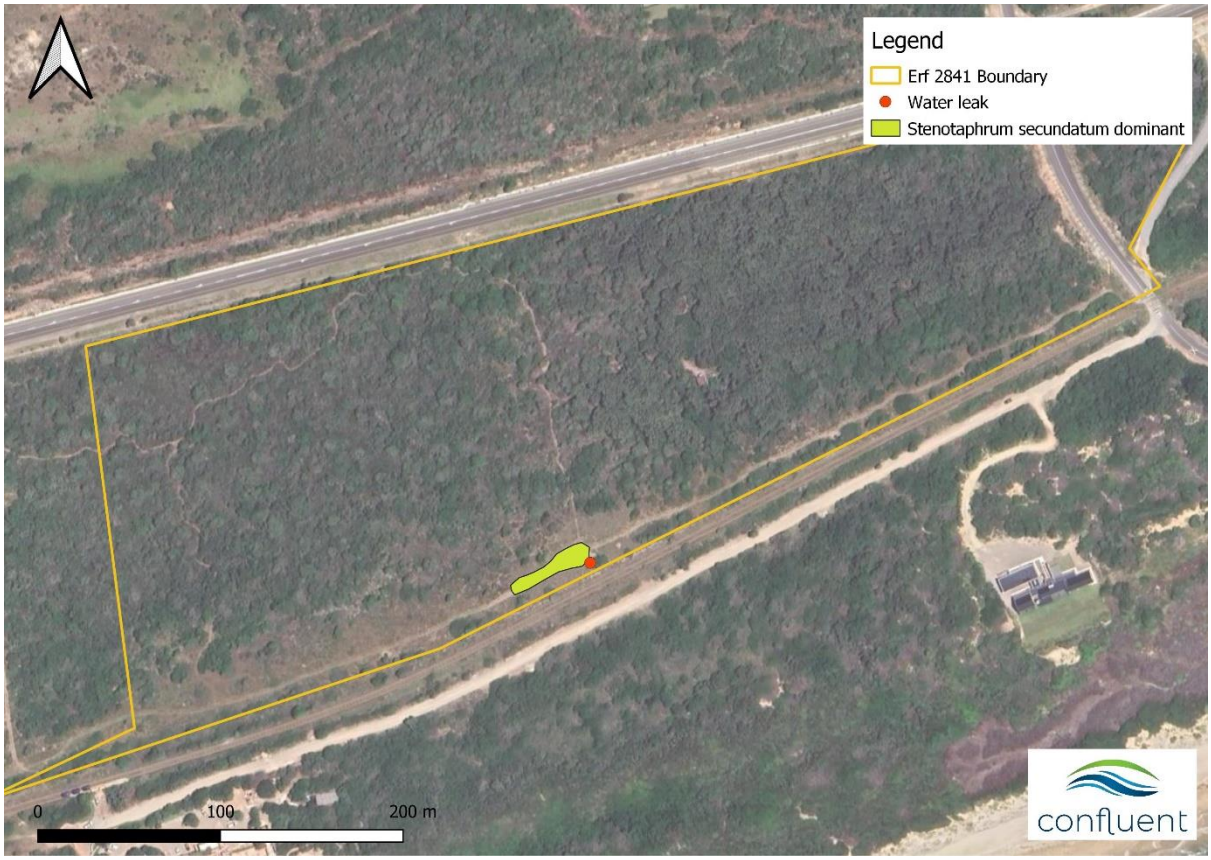

Figure 6: Photographs indicating dominant vegetation at the site.

The remaining vegetation at the site is not typically associated with wetlands, and dominant plants are described in Table 1. The wetland grass species, Imperata cylindrica, that was identified as present at the site in the botanical specialist study, was not observed during the site visit. However, the locally abundant area of *Stenotaphrum secundatum* (Buffalo grass) had reddish coloured tips which could result in confusion with this species (Table 1). However, the leaf tips are sharp, while those of the *S. secundatum* are distinctly blunt. Inflorescences of *S. secundatum* were also present on many of the plants.

Table 1. Dominant vegetation in the area mapped as a wetland (NFEPA)

Species	Common names	
Chrysocoma ciliata	Bitterbush (Green shrubs)	

Carprobrotus edulis *Stenotaphrum secundatum*	Sour fig (Green succulents) Buffalo grass (grass)	
Stenotaphrum secundatum	Buffalo grass (grass)	
Ehrharta villosa	Pipe grass	
Haemanthus sanguineus	Veldskoenblaar (Tongue-like leaves)	
Cynodon dactylon	Bermuda grass	

2.3 Historical images

A number of historical images of the site are presented in Figure 7. In certain images the slight difference in vegetation in this area (less shrubs and trees) is evident such as 2006 and 1989. In 1957 there appeared to be a lot more woody vegetation at the site, and prior to that in 1939 the vegetation was once again more sparse in this area. The difference in vegetation is not consistent and may also have been influenced by construction of the railway line and subsequent installation of the large pipeline and associated service road.

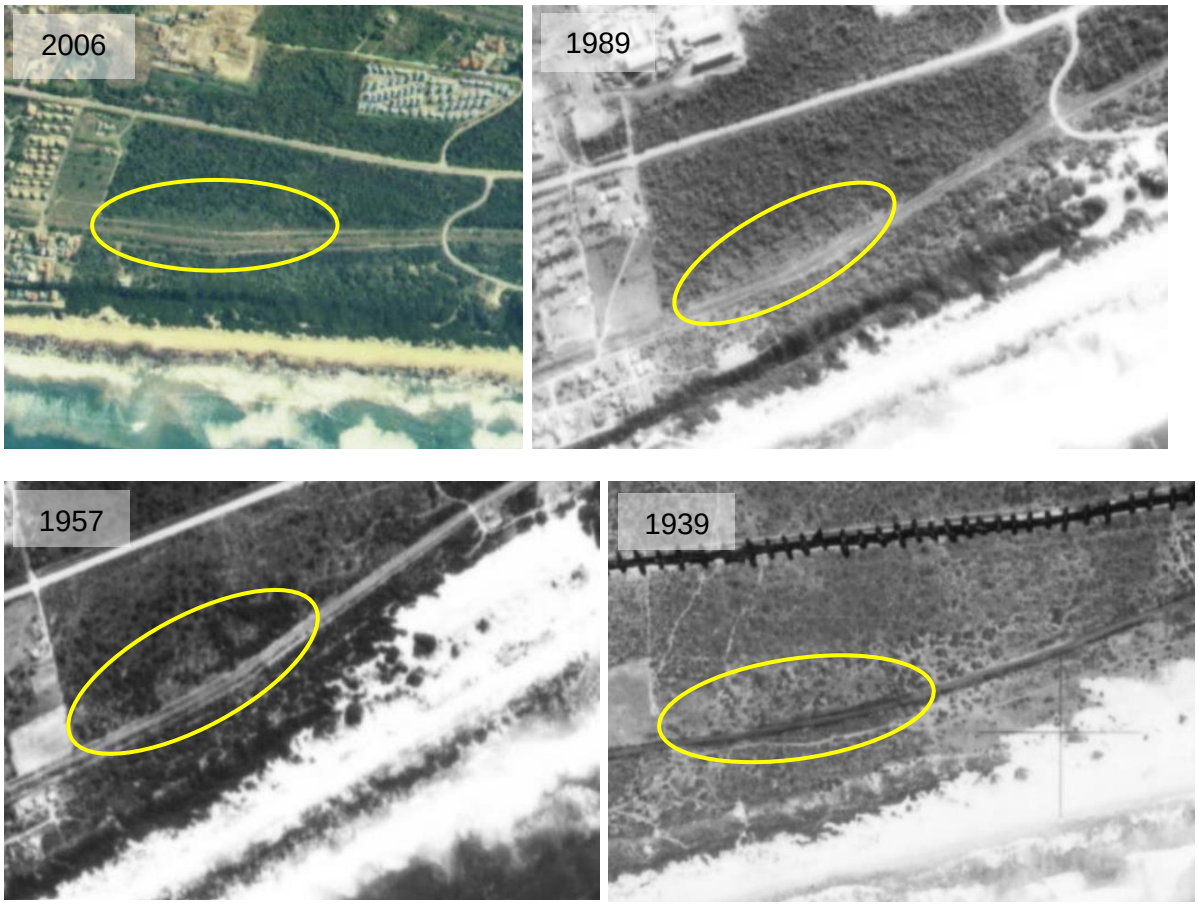

Figure 7. Historical images of the mapped wetland area on Erf 2841.

2.4 Topographical location

Dune slacks are interdune depressions which are often damp. The location of the mapped wetland as a depression between dunes is not inconsistent with what can be expected from these areas. Mapped 0.5m contours of the site demonstrate clearly that the location of the possible wetland area coincides with a localise depression surrounded by higher ground on all sides. Groundwater may be closer to the surface during different seasons as it flows towards the sea (Mucina *et al.*, 2006). While the topography may predispose the site to development of a wetland, neither the soil nor vegetation features strongly indicate the presence of a wetland at this location. However, the distinct vegetation in this area, and topographic predisposition to draining surrounding slopes require careful management of this area, which should ideally not be developed with any hard infrastructure.

Figure 8. Project area overlaid with 0.5m contours (Lidar survey, Western Cape Government)

3. CONCLUSIONS

Based on the results of the desktop study and site visit and taking all information from other specialist reports into consideration, it is not possible to confirm that a natural wetland is present at the location indicated by the NFEPA layer, or in the botanical specialist report. This is consistent with the revised National Wetland Map 5 which does not indicate a wetland at this site.

While there is presently a distinct difference in vegetation in the area indicated as wetland, the driver of this change is unclear. It may be related to disturbance associated with the railway line, pipeline and service road. However, dune slack vegetation can form a distinct unit based on differential deposits of sand and nutrients over time (Mucina *et al.,* 2006).

The area dominated by *Stenotaphrum secundatum* (Buffalo Grass) may be more characteristic of a wetland. However, this is a small area, and likely results from the leaking pipe at this location. It is therefore unlikely to function as a wetland if the leaking pipe is repaired. Deep, well-drained soil at the site also ensures that the water drains away very quickly in close proximity to the pipeline.

While there may not be any aquatic sensitivities at the site, the vegetation is in good condition, and other sensitivities indicated by the botanical specialist must be considered as part of the proposed development.

Given the topographical position of the site, it will receive runoff and drainage from surrounding slopes, and hard infrastructure in this area would be flood prone. It is therefore recommended that no hard infrastructure (roads, buildings, parking areas) be planned for this area.

As this area is not defined as a watercourse as per the definitions in the National Water Act (Act No. 36 of 1998; NWA) any development at this site does not require authorisation in terms of the NWA.

3.1 Aquatic Biodiversity Compliance Statement

Based on the results of this assessment no aquatic features are located in the position indicated, therefore the sensitivity of aquatic biodiversity on Erf 2841 may be considered '**Low**'.

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