AQUATIC AND WETLAND COMPLIANCE STATEMENT:

THE PROPOSED ADDITION OF TWO SYNCHRONOUS CONDENSERS TO THE EXISTING GROMIS SUBSTATION AND ITS ASSOCIATED INFRASTRUCTURES WITHIN JURISDICTION OF NAMA KHOI LOCAL MUNICIPALITY OF NAMAKWA DISTRICT MUNICIPALITY IN NORTHERN CAPE PROVINCE.

PRODUCED BY:	INDEPENDENT EAP	PRODUCED FOR:
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MAY 2026

DECLARATION OF SPECIALIST 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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1. INTRODUCTION

Ntumbuluko Consulting (Pty) Ltd has been appointed by QEMS Management and Business Solutions cc on behalf of the National Transmission Company South Africa (NTCSA) conduct a wetland delineation and compile an aquatic compliance statement for installation of new synchronous condensers and associated infrastructure at the Gromis Substation, located within the Ubuntu Local Municipality of the Pixley Ka Seme District, Northern Cape Province. The study aims to determine the site's suitability for constructability from an aquatic biodiversity sensitivity perspective.

1.1 Environmental Screening Tool Output

According to the protocols specified in GN 1540 (Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when Applying for Environmental Authorisation), assessment and reporting requirements for aquatic biodiversity are associated with a level of environmental sensitivity identified by the national web-based environmental screening tool (screening tool). 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** sensitivity for aquatic biodiversity, must submit an Aquatic Biodiversity Specialist Assessment; or
- **Low** sensitivity for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement.

The screening tool classified the study area as being of Low aquatic biodiversity. According to the protocol, a site sensitivity verification must however be undertaken to confirm the sensitivity of the site as indicated by the screening tool. In terms of aquatic biodiversity, the sensitivity of a property is typically determined by the presence of a watercourse or the potential impacts to a watercourse located outside of the property boundaries.

1.2 Definition of a Watercourse

According to the National Environmental Management Act (NEMA) and the National Water Act (NWA) a watercourse means:

- A river or spring; • A natural channel in which water flows regularly or intermittently;
- A wetland, lake or dam into which, or from which, water flows; and

- Any collection of water which the Minister may, by notice in the Gazette, declare to be watercourse, and
- A reference to a watercourse includes, where relevant, its bed and banks.

For the purposes of this assessment, a wetland area is defined according to the NWA (Act No. 36 of 1998) as:

"Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil".

Wetlands must therefore have one or more of the following attributes to meet the NWA wetland definition (DWAF, 2005):

- A high water table that results in the saturation at or near the surface, leading to anaerobic conditions developing in the top 50 cm of the soil;
- Wetland or hydromorphic soils that display characteristics resulting from prolonged saturation, i.e. mottling or grey soils; and
- The presence of, at least occasionally, hydrophilic plants, i.e. hydrophytes (water loving plants).

1.3 OBJECTIVES

The objectives of this assessment include the following:

- To undertake a desktop analysis and site inspection to verify the sensitivity of aquatic biodiversity as Very High or Low; and (if applicable)
- Map aquatic features considered to be of Very High sensitivity.
- Determine the constructability of the proposed development onsite.

1.4 BACKGROUND

Eskom SOC Ltd, South Africa's state-owned power company, has historically relied on large coal-fired power stations and a few hydro plants for electricity generation. The national grid, primarily consisting of 400 kV and 765 kV overhead lines, transmits power across the country. To enhance grid reliability amid growing renewable energy adoption, the National Transmission Company South Africa (NTCSA), a subsidiary of Eskom, plans to implement Synchronous Condensers. These devices will provide auxiliary services, increase rotating inertia, and compensate for the decommissioning of coal power stations, improving grid stability. Currently, seven substations have been identified for this initiative. Gamma Substation is one of the identified. To achieve this Eskom intends to add

the Synchronous Condensers (SynCons) with the purpose to provide the stability to the transmission grid effectively allowing the utility to increase the amount of power to the existing Gromis Substation and its associated infrastructures.

At Gromis Substation, there is likely to be at least 2 SynCons which will cover a footprint of approximately 2.5 hectares. Quality Environmental Management Services (QEMS) was appointed by the NTCSA's Owner's Engineer, Asceng Thabile Engineering Joint Venture, as the Environmental Assessment Practitioner (EAP) for this assignment.

1.5 STUDY AREA

Gromis Substation is situated on portion 15 of Farm Dikgat No. 195. It is located within the jurisdiction of Nama Khoi Local Municipality of Namakwa District Municipality in Northern Cape Province (**Figure 1-1**). The approximate central coordinates of the site are 29°36'3.58"S 17°10'37.54"E.

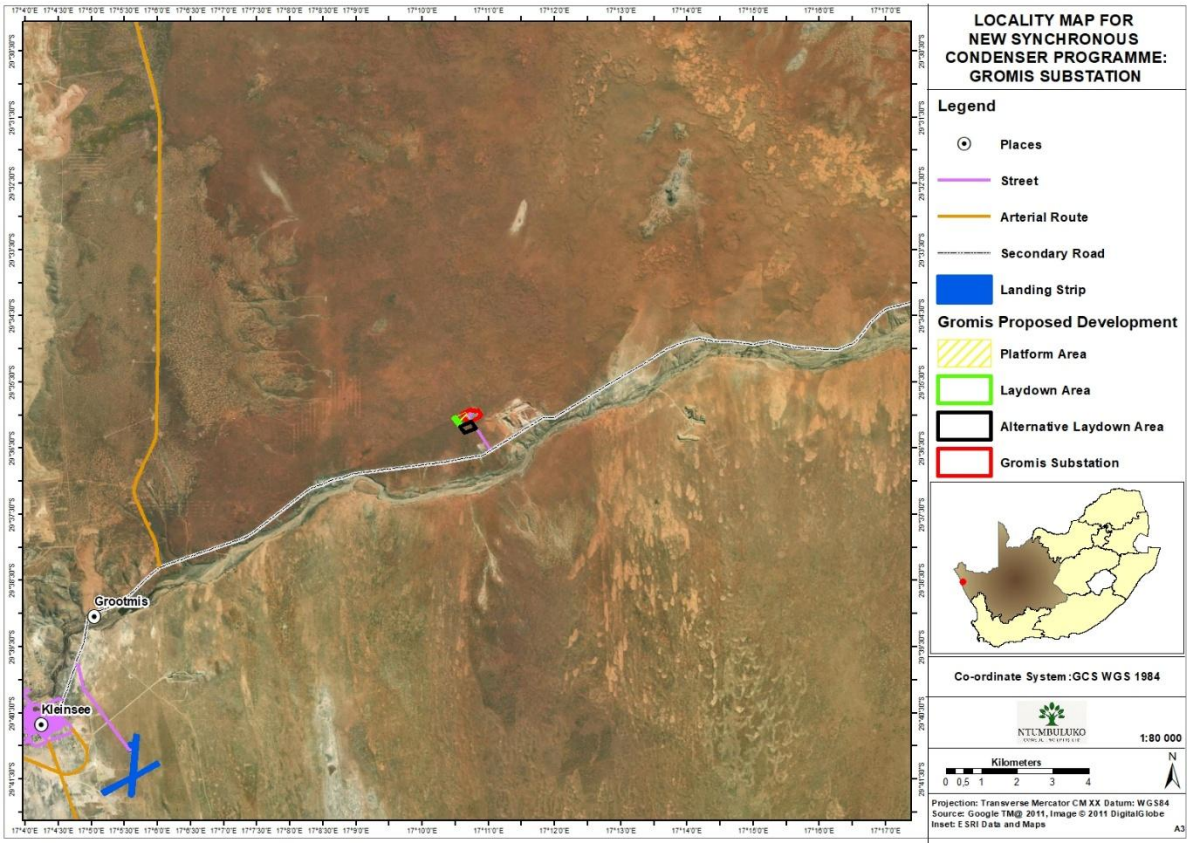

Figure 1-1:Locality Map.

2. LEGAL FRAMEWORK

2.1 National Environmental Management Act (Act No. 107 of 1998)

The EIA Regulations, promulgated under NEMA, focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith.

2.2 National Waste Act, 2008 (Act No. 59 of 2008)

The NEMWA aims at promoting sustainable waste management practices through the implementation of "Integrated Waste Management Planning", where "Integrated Waste Management Planning is viewed as a holistic approach of managing waste, aimed at optimising waste management practises to ensure that the implementation thereof yields practical solutions that are environmentally, economically and socially sustainable and acceptable to the public and all relevant spheres of government".

2.3 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in responsible ways. Of specific importance to this application is Section 19 of the NWA, which states that an owner of land, a person in control of land or a person who occupies or uses the land which thereby causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring and must therefore comply with any prescribed waste standard or management practices.

Regulations GN 704 dated June 1999 under the NWA, 1998 (Act 36 of 1998) stipulates that no development activities may take place within the 1:100 year floodline of a watercourse, or within 100 m of the watercourse, whichever is the furthest.

Regulations GN 509 dated August 2016 under the Section 21 c and i water uses of the NWA, 1998 (Act No 36 of 1998) stipulates the:

"Extent of a watercourse" as:

(a) The outer edge of the 1 in 100-year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam.

"Regulated area of a watercourse" for section 21(c) or (i) of the Act water uses in terms of this Notice means:

(a) The outer edge of the 1 in 100-year flood line and /or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam;
(b) In the absence of a determined 1 in 100-year flood line or riparian area the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or
(c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.

2.4 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

2.5 National Freshwater Ecosystem Priority Area (NFEPA) Status

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa's scarce water resources. This database provides guidance on how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998). This directly applies to the National Water Act, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring of resource quality objectives (Nel et al. 2011). The NFEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's biodiversity goals (NEM:BA) (Act 10 of 2004), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel et al., 2011).

3. ASSUMPTIONS AND LIMITATIONS

It is difficult to apply pure scientific methods within a natural environment without limitations, and consequential assumptions need to be made. The following constraints may have affected this assessment:

- The findings, results, observations, conclusions and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as available information regarding the perceived impacts on the watercourses and biodiversity;
- Data collection in this study relied heavily on data from representative, homogenous wetland sections, as well as general observations, analysis of satellite imagery from the past until the present, generic data and a desktop analysis.
- The specialist responsible for this study reserves the right to amend this report, recommendations and/or conclusions at any stage should any additional or otherwise significant information come to light.

4. METHODOLOGY

The following approach was adopted to determine the sensitivity of aquatic biodiversity of the property:

- Interrogation of available desktop resources including:
    - DWS spatial layers; o National Freshwater Ecosystem Priority Areas (NFEPA) spatial layers;
    - National Wetland Map 5 and Confidence Map (CSIR, 2018) – the latest national wetland inventory map for South Africa;
    - Northern Cape Biodiversity and Spatial Plan.
- A site visit was undertaken, during which time the following activities were undertaken:
    - Identification and classification of watercourses within the footprint of the site according to methods detailed in Ollis et al. (2013); and
    - Identification of hydrophilic plant species that may indicate the presence of wetland plant species (if applicable).

The presence of wetlands was verified in accordance with DWAF (2005) guidelines which considers the following four specific indicators:

- The Terrain Unit Indicator: Identifies those parts of the landscape where wetlands are more likely to occur; • The Soil Form Indicator: Identifies the soil forms, as defined by the Soil Classification Working Group (1991), which are associated with prolonged and frequent saturation; • The Soil Wetness Indicator: Identifies the morphological "signatures" developed in the soil profile as a result of prolonged and frequent saturation (i.e. mottling and gleying within 50 cm of the soil surface); and
- The Vegetation Indicator: Identifies hydrophilic vegetation associated with frequently saturated soils.

The following soil wetness indicators were used to identify/confrim zones of saturation in any suspected wetland areas:

- Temporary Zone: Short periods of saturation (less than three months per annum) characterised by few high chroma mottles and minimal grey matrix (< 10 %).
- Seasonal Zone: Significant periods of wetness (at least three months per annum) characterised by many low chroma mottles and a grey matrix.
- Permanent Zone: Wetness all year round characterised by a prominent grey matrix and few to no high chroma mottles.

5. DESKTOP SURVEY

5.1 GEOLOGY & SOILS

The area is underlain by Quaternary stabilised aeolian deposits, comprising deep red to yellowish-red sands forming stable dune systems overlying marine sediments and granite gneisses. In places, weakly developed and scattered heuweltjies occur, particularly further inland from the coast. Along the shoreline, unstable white sand dune plumes originate from river mouths and extend northwards and northeastwards for up to 25 km. Dune systems show increasing stability north of Kleinzee. The broader landscape represents a mosaic of Ah, Ae, Af, Ai and Ag land types, reflecting the interplay between aeolian processes, underlying geology, and coastal geomorphology.

5.2 CLIMATE

The project area falls within an arid, winter-rainfall region with a Mean Annual Precipitation (MAP) of approximately 112 mm. Rainfall is highly seasonal, occurring almost exclusively between May and August, with little to no rainfall recorded in December and February. Frost is rare, reflecting the moderating influence of the coastal climate. Winter minimum temperatures typically range between 8–10 °C, while summer maximum temperatures generally remain just below 30 °C.

2024 NORTHERN CAPE BIODIVERSITY SPATIAL PLAN

According to the Northern Cape Critical Biodiversity Areas (CBA) Map, the preferred site including the existing substation is situated within a Other Natural Areas (ONA) (**Figure 5-1**).Other Natural Areas (ONA) is a term commonly used in environmental planning, conservation assessments, and land-use classification systems to describe natural or semi-natural areas that do not fall under more formal conservation categories (like nature reserves, national parks, or protected wetlands) but still hold ecological value.

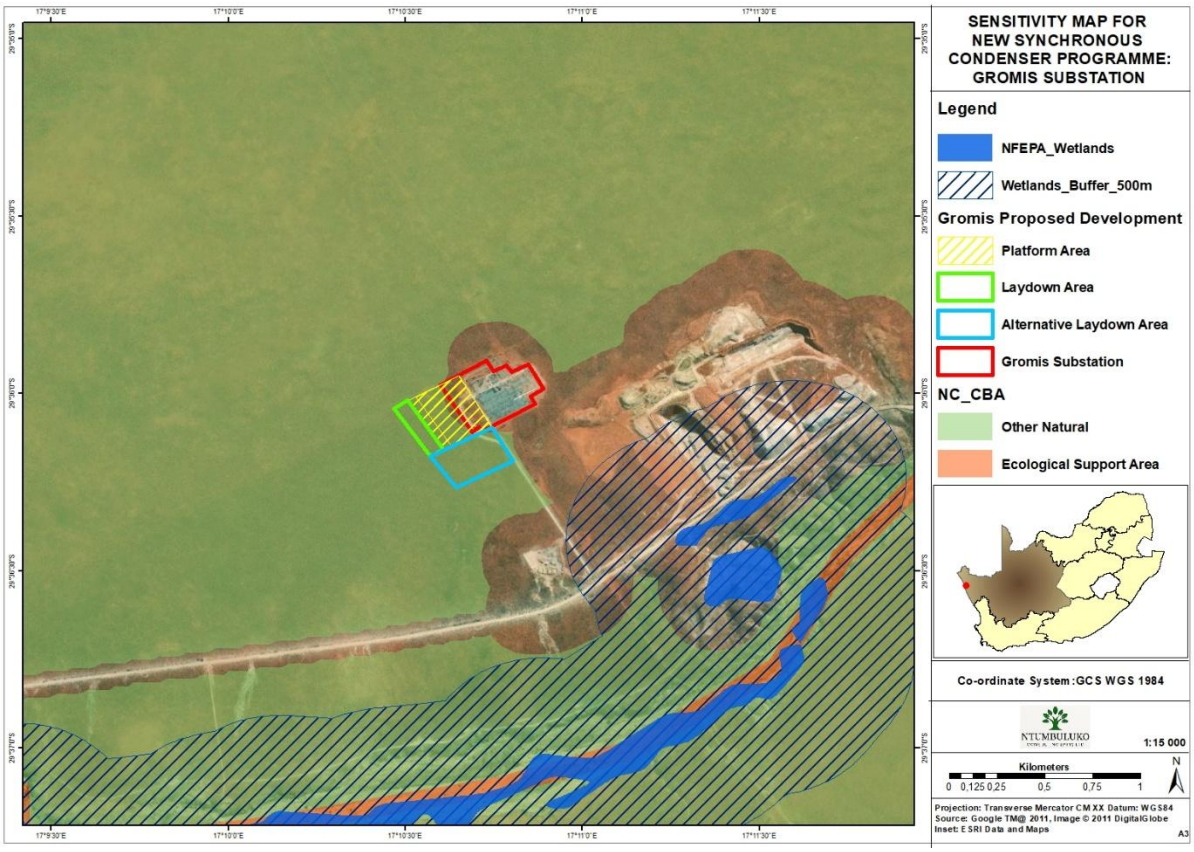

Figure 5-1: Sensitivity Map

5.3 SURFACE HYDROLOGY

The National Screening Report identifies the aquatic sensitivity of the proposed development site as Low, indicating that the immediate project footprint is unlikely to contain high-value freshwater features such as wetlands, riparian zones, or sensitive aquatic habitats. This classification suggests a reduced likelihood of direct ecological constraints; however, it still necessitates consideration of indirect hydrological impacts, stormwater dynamics, and cumulative effects within the broader catchment.

The site is located within the Lower Orange Water Management Area (WMA 6), under the Coastal Orange Sub-Water Management Area (SWMA 43) (**Figure 5-3**). This regional hydrological context provides the governance framework for water resource protection, allocation, and monitoring. Activities within this WMA contribute to the ecological functioning of downstream systems, including estuarine and coastal environments that are often sensitive to changes in flow, sedimentation, and water quality.

At a finer spatial scale, the site falls within Quaternary Catchment F30G, a hydrological unit used for detailed water resource planning and impact modelling. This delineation assists in understanding potential downstream pathways for stormwater runoff, sediment transport, and pollutant mobilisation during both construction and operational phases.

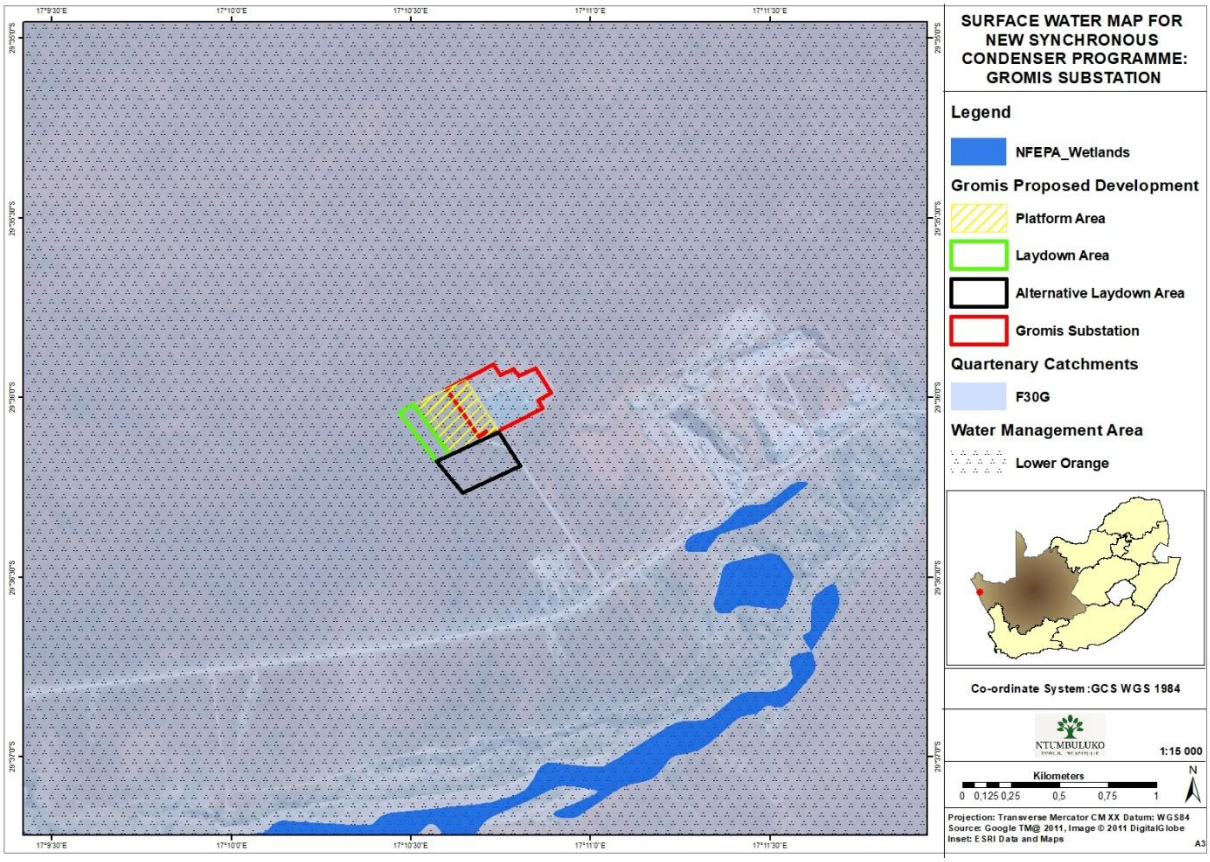

Figure 5-2: Surface Water Map.

According to the National Freshwater Ecosystem Priority Areas (NFEPA) framework, the study area is not located within 500 m of any NFEPA-listed river reach or wetland, and the nearest major river system occurs more than 1400m from the proposed development footprint. Although no priority freshwater features are mapped within or immediately adjacent to the site, the broader landscape remains hydrologically connected to regional drainage networks and downstream aquatic ecosystems. This connectivity means that development activities must still consider potential indirect impacts, including alterations to ecological linkages, changes in downstream water quality, and the integrity of nearby non-NFEPA wetlands or drainage features that may be sensitive to shifts in runoff, sedimentation, or pollution pathways.

6. RESULTS

6.1 FIELD SURVEY

A comprehensive field survey was conducted on 10 April 2026, during which the entire study site was systematically traversed on foot to ensure full spatial coverage and ecological observation (refer to **Figure *6-1***).

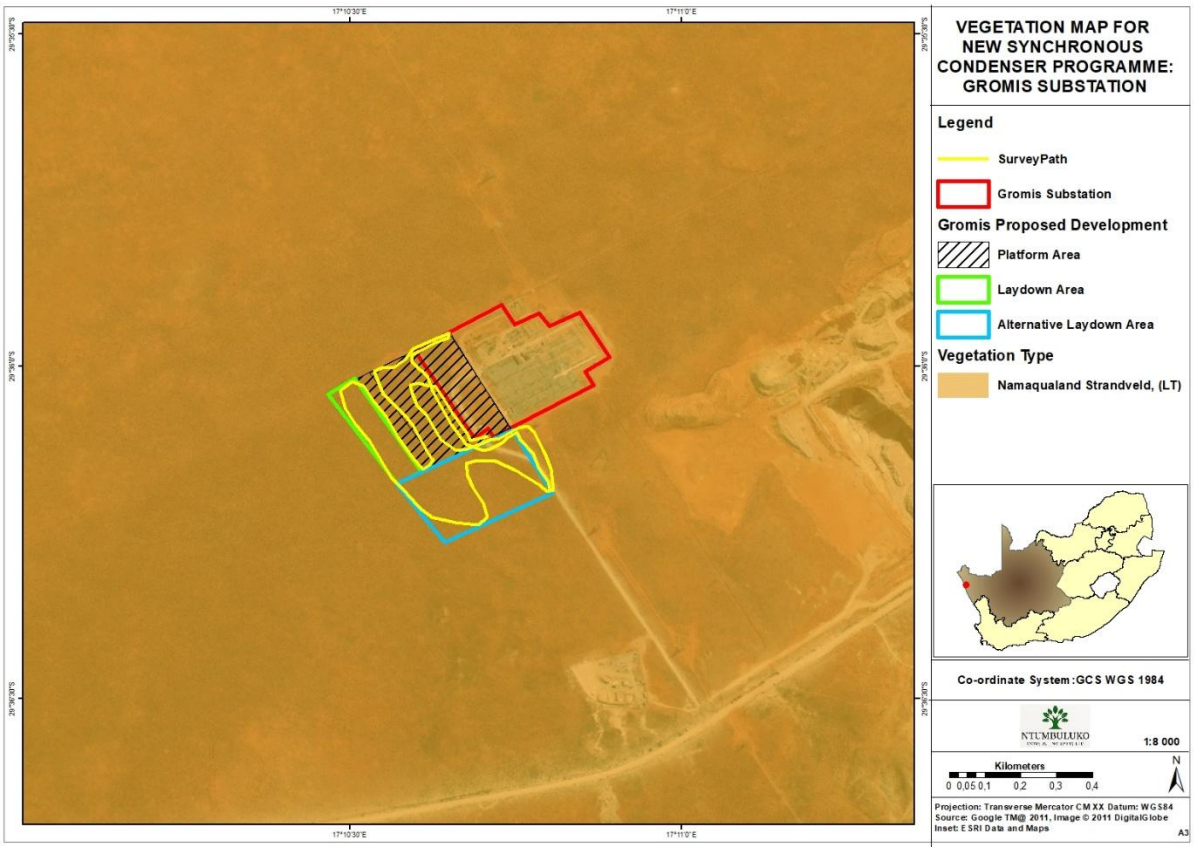

Figure 6-1: Survey Path.

6.1.1 Non-Perennial Drainage Line

The site inspection confirmed the absence of drainage lines, aquatic habitat, watercourses, and wetland indicators within the delineated project footprint (**Figure 6-2**). The nearest mapped watercourse is located more than 1 000 m from the proposed development area (**Figure 6-3**). The lack of hydrophilic vegetation, hydric soils, or evidence of sustained surface water supports the classification of the site as having **low aquatic sensitivity**. As a result, the proposed development is expected to pose minimal risk of direct hydrological disruption.

Figure 6-2: Overview of the project area.

Figure 6-3: Watercourse observed outside of the development footprint.

6.2 Terrain indicator

The topography of an area is generally a good practical indicator for identifying those parts in the landscape where wetlands are likely to occur. Generally, wetlands occur as a valley bottom unit however wetlands can also occur on steep to mid slopes where groundwater discharge is taking place through seeps (DWAF, 2005). In order to classify a wetland system, the localised landscape setting must be taken into consideration through ground-truthing of the study site after initial desktop investigations (Ollis et al., 2014). The study site is generally flat (**Figure 6-4**).

Figure 6-4:General Slope of the study area.

6.2.1 Soil wetness and soil form indicator

As previously noted, no wetlands or watercourses were identified within the boundaries of the proposed development site during the field survey. Wetland areas are typically delineated based on the presence of hydric soils, which are indicative of prolonged and repeated saturation. Hydric soils exhibit redoximorphic features distinctive characteristics formed under anaerobic conditions due to waterlogging. These features include:

- Mottling: the presence of bright, insoluble manganese (Mn) and iron (Fe) compounds dispersed within the soil matrix
- Gleyed matrix: a greyish-blue coloration resulting from reduced iron in saturated conditions
- Mn/Fe concretions: hardened nodules formed by the accumulation of manganese and iron oxides

Upon inspection, the soils observed on site do not exhibit any of these hydric indicators, and are therefore not characteristic of an aquatic or wetland environment. This supports the conclusion that the site does not meet the criteria for wetland delineation under current national guidelines. (**Figure *6-5***).

Figure 6-5:Soil Observed onsite.

6.2.2 Vegetation indicator

According to DWAF (2005), vegetation is regarded as a key component to be used in the delineation procedure for wetlands. Vegetation also forms a central part of the wetland definition in the National Water Act, Act 36 of 1998. However, using vegetation as a primary wetland indicator requires an undisturbed condition (DWAF, 2005).

During the site inspection, no aquatic or semi-aquatic vegetation was observed within the project area. This absence of hydrophytic plant species further supports the conclusion that the site does not exhibit characteristics typical of wetland or watercourse habitats. The lack of aquatic vegetation aligns with the observed soil conditions and confirms the site's low aquatic sensitivity (**Figure 6-6**).

Figure 6-6: Vegetation observed onsite.

7. FINAL COMMENTS

Based on the site inspection and supporting desktop analysis, the proposed development area demonstrates low aquatic ecological sensitivity, with no wetlands, hydrophytic vegetation, or regulated watercourses present within the project footprint. The site does not intersect any NFEPA-mapped priority freshwater features and lies outside the 500-metre regulatory buffer of nearby rivers, substantially reducing the likelihood of direct hydrological impacts. Although minor anthropogenic disturbances such as grazing were noted, these are limited, reversible, and do not compromise the ecological suitability of the site. With the application of standard environmental management measures to control runoff, sedimentation, and pollution risks, the site is considered suitable for development from an aquatic perspective, and no significant aquatic constraints are expected to influence the project's feasibility. From a constructability standpoint, the absence of saturated soils, wetlands, or hydrophytic vegetation indicates favourable ground conditions for construction activities, provided that stormwater is appropriately managed during earthworks to prevent erosion along the drainage feature.

8. MANAGEMENT RECOMMENDATIONS

8.1 Stormwater Management

A key consideration for the installation of Synchroniser condensers within an existing substation is the increase in stormwater runoff generated by additional impermeable surfaces such as concrete plinths, equipment bases, access routes, and associated hardstand areas. Elevated runoff volumes and higher flow velocities can concentrate stormwater within the substation platform and its discharge points. When this water is conveyed downslope into nearby drainage features, the resulting high-energy flows may accelerate erosion of the channel bed and banks. Given the steep slopes surrounding the substation, the non-perennial drainage line although located outside the development footprint, remains vulnerable to stormwater impacts arising from construction and operational activities. Effective stormwater attenuation, dispersion, and energy-dissipation measures will therefore be essential to prevent erosion and maintain the stability of the drainage feature. It is therefore important that stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles.

Erosion Management

- Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.
- Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.
- Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.

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