

2 July 2026

Environmental Impact Management Services (Pty) Ltd (EIMS)
Qaphela Magaqa
Qaphela@eims.co.za

To whom it may concern:

FRESHWATER SPECIALIST INPUT FOR AN AMENDMENT TO AN ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED CONSTRUCTION OF TETRA4 132 kV AND 33 kV POWERLINE DEVIATION WITHIN THE MATJHABENG LOCAL MUNICIPALITY, LEJWELEPUTSWA DISTRICT MUNICIPALITY, FREE STATE PROVINCE.

Project Background

Tetra4 (Pty) Ltd proposes to amend the Environmental Authorisation (EA) for the 132 kV (300 m-wide transmission corridor) and 33 kV Powerlines. These powerlines were assessed as part of the Tetra4 Cluster 2 Gas Production Project but were authorised separately through a dedicated EA to facilitate the future transfer of the authorisation to Eskom, now the National Transmission Company South Africa (NTCSA), following completion of construction.

The EA authorises the following activities:

- A new 132kV dual Loop-In-Loop-Out (LILO) powerline of approximately 5.5km in length connecting to the Eskom Theseus-Oryx 132kV Line. The proposed powerline will feed into a new 40 MVA substation at the Liquid Natural Gas (LNG)/Liquid Helium (LHe) plant to provide the plant with operational power requirements.
- A new 33kV powerline to connect a gas compressor station to the existing 33kV Beatrix powerline. The 33kV powerline will be approximately 1km in length.

The amendment application to the Department of Forestry, Fisheries and Environment (DFFE) includes the request to amend the EA granted in 2023 as follows:

- Amendments to the approved powerline alignments (corridors) following the final design process and servitude agreements, resulting in deviations from the originally authorised corridors, including the inclusion of Portion 8 of Farm Alex Glen Ross No. 562 and the exclusion/avoidance of Portions 1 and 2 of the same farm;
- Amendments to the project layout and associated infrastructure positioning, informed by specialist Heritage walkdowns and micro-siting requirements in line with EA Condition 12;
- Amendments to the Generic Environmental Management Programme (EMPr) to incorporate site-specific mitigation measures identified during specialist Heritage walkdowns, as required by Conditions 13 to 17;

Freshwater studies were conducted for the Tetra4 Cluster 2 Project, including the Tetra4 132 kV and 33 kV Powerline project. These freshwater studies include the following:

- The Biodiversity Company. 2022. Wetland Baseline & Impact Assessment for the proposed Tetra4 Cluster 2 Project, Virginia, Free State.

Terms of Reference

The Biodiversity Company (TBC) was appointed to conduct a freshwater (wetland and watercourse) survey of the proposed Tetra4 132 kV and 33 kV Powerline Deviation project area. This project area was assessed during the previous studies listed above. The focus of this study was therefore to confirm or dispute the findings of the previous studies. Therefore, the Terms of Reference (ToR) for this assessment include the following:

- Review of existing information related to the development;
- Conduct a freshwater survey for the planned footprint areas;
- Compare findings in previous reports to that of the findings of this survey. Describe any changes to the environment, if applicable, since the previous studies were conducted;
- Review impact ratings and mitigation measures of previous reports and adjust, if necessary, to findings of this survey;
- Detail any freshwater constraints identified for the planned infrastructure; and
- Provide information to adequately inform any contractors, environmental officers and personnel pertaining to the freshwater sensitivity and significance for the area.

Tetra4 132 kV and 33 Kv Powerline Deviation Project Information

Tetra4 (Pty) Ltd is proposing to amend the Environmental Authorisation (EA) for the Tetra4 132 kV and 33 kV Powerline by deviating from portions of the originally approved corridor. This deviation triggers the requirement for a Part II Amendment process for which the DFFE requires confirmation that the environment and potential impacts associated with the project have not changed.

Environmental Impact Management Services (Pty) Ltd (EIMS) have been appointed to prepare the Application. The EA Amendment will be completed in terms of Regulation 30(1)(a) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, including additional specialist studies and public participation required by the DFFE. The proposed Tetra4 132 kV and 33 kV Powerline Deviation project is located within the approved Tetra4 Cluster 2 natural gas production right area in Virginia, Free State. It is located within the Matjhabeng Local Municipality and the Lejweleputswa District Municipality. The infrastructure associated with the proposed project includes a 132 kV transmission line with a 300 m-wide corridor, and a 33 kV transmission line with a 15 m-wide corridor. A 500 m buffer on either side of the proposed powerlines were applied and used as the Project Area of Influence (PAOI) (Figure 1 and Figure 2).

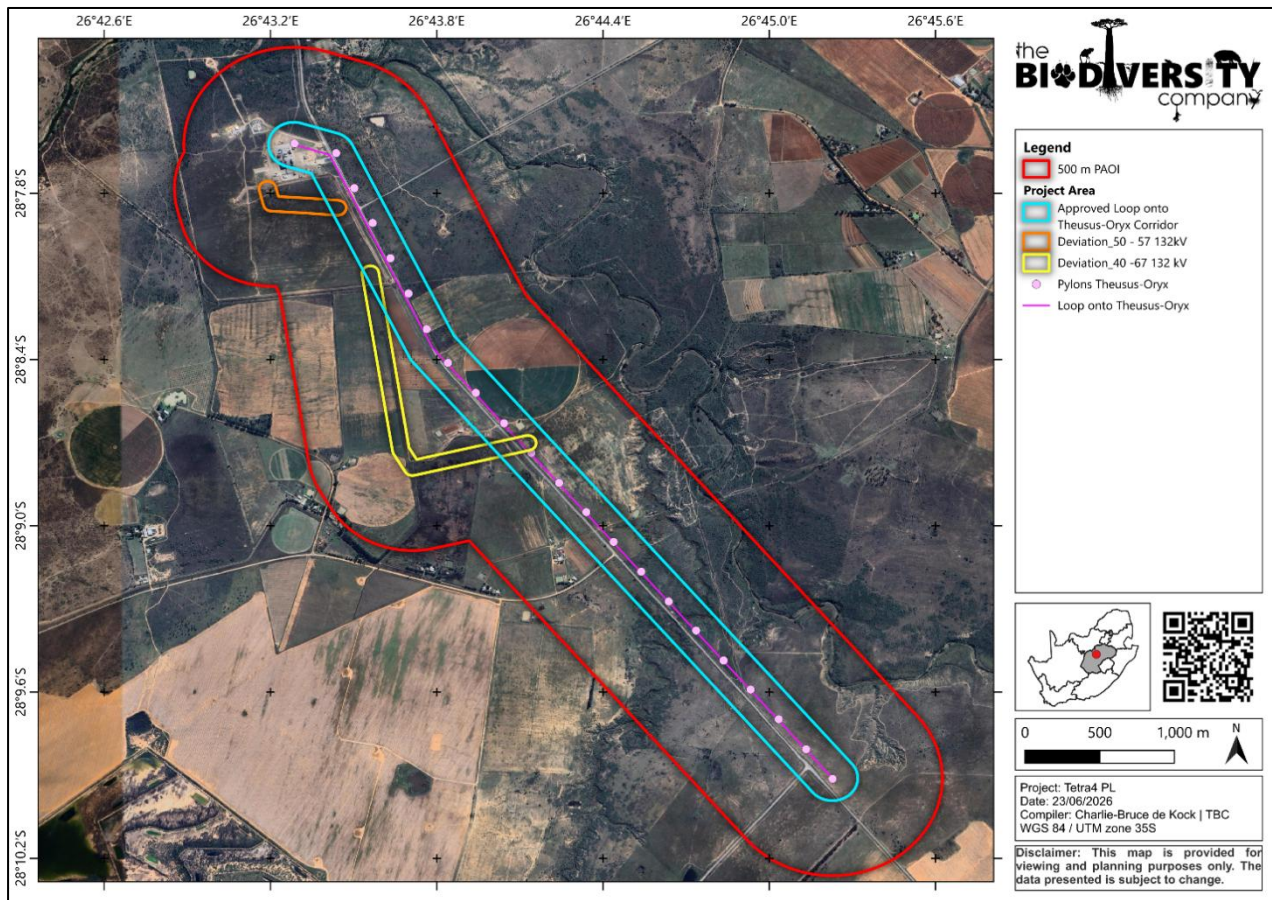


Figure 1 *The proposed layout and infrastructure associated with the 132 kV Powerline Deviations*

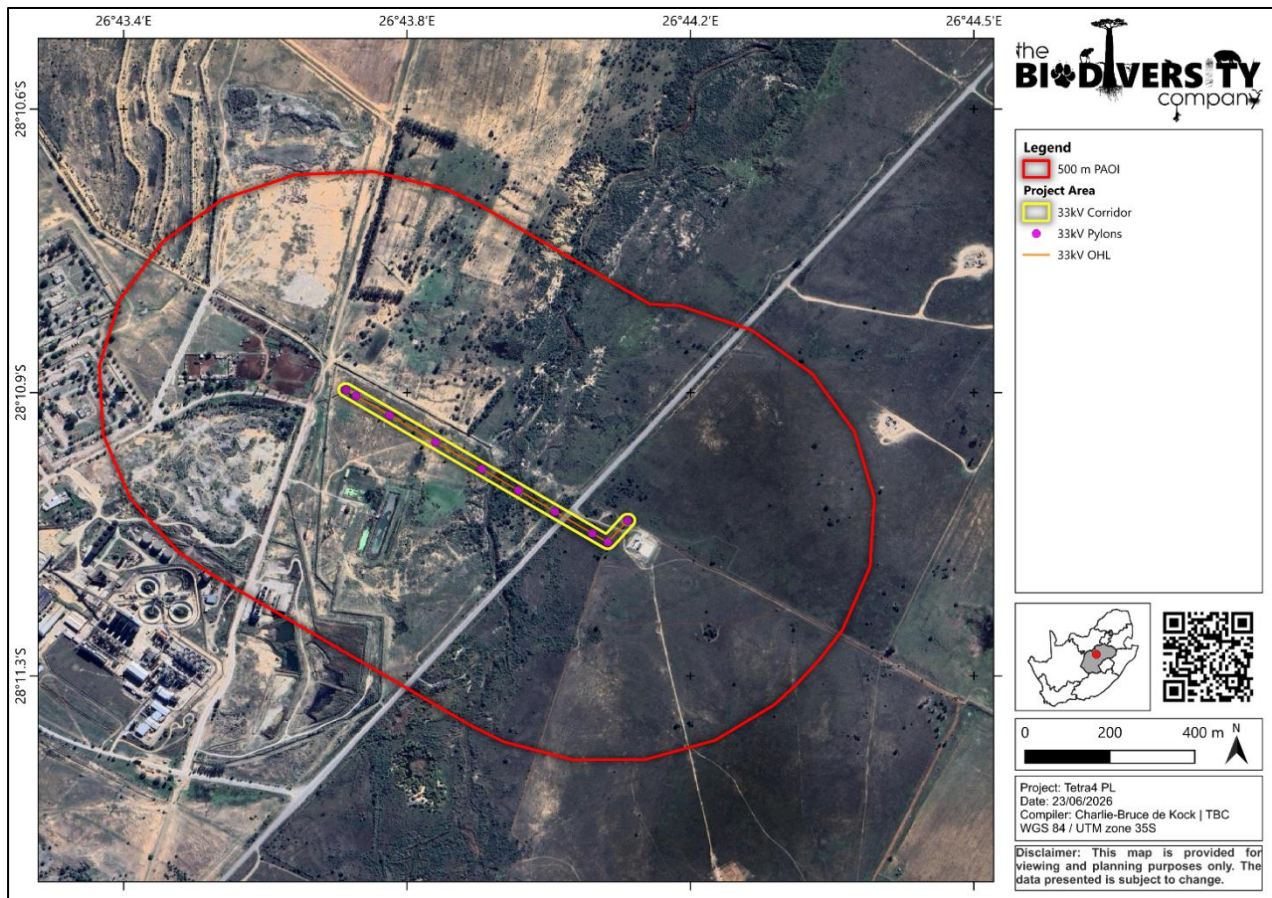


Figure 2 *The proposed layout and infrastructure associated with the 33 kV Powerline Alignment*

Freshwater Findings

A field survey for the area was undertaken from the 14 – 18 March 2022 (summer), which is a wet-season survey, and subsequently on the 22 June 2026. During the site visit, four natural wetland types were identified in the proposed PAOI (Project Area of Influence) which are classified as being multiple channelled valley-bottom wetlands (CVB), unchanneled valley-bottom wetlands (UVB), seeps, and a depression, along with a natural drainage line situated outside the project footprint. Furthermore, multiple artificial features, including dams, were also identified. The channelled valley-bottoms, unchanneled valley-bottoms, seeps and depression wetlands were given a “Moderate” to “Moderately High” sensitivity score for ecological importance and sensitivity, where the preservation of these wetlands must be prioritised. These findings are consistent with those reported by TBC (2022), with no material change in the identified freshwater features or their associated sensitivity ratings within the PAOI.

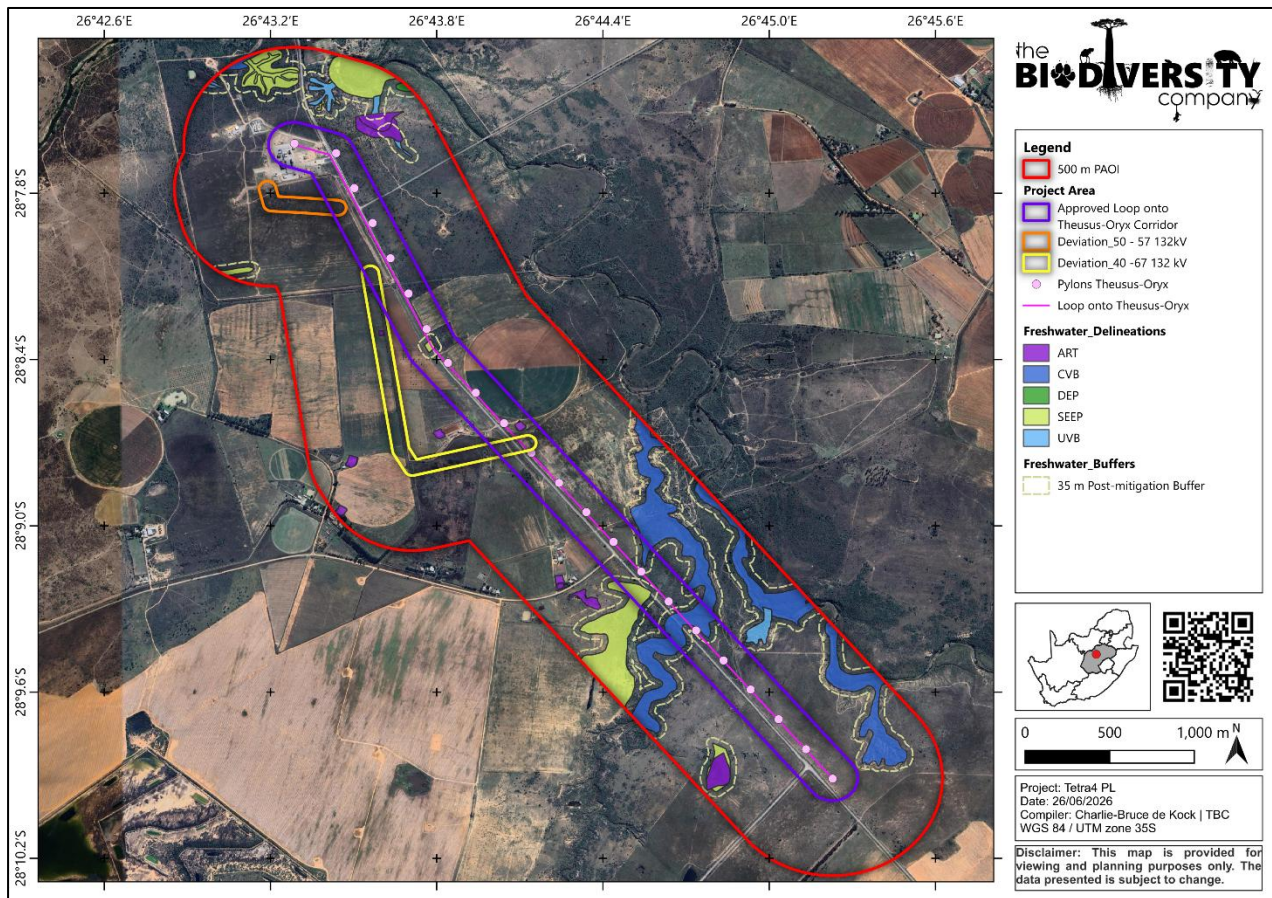


Figure 3 Delineated wetlands and non-perennial drainage features in the Tetra4 132 kV Powerline Deviation PAOI

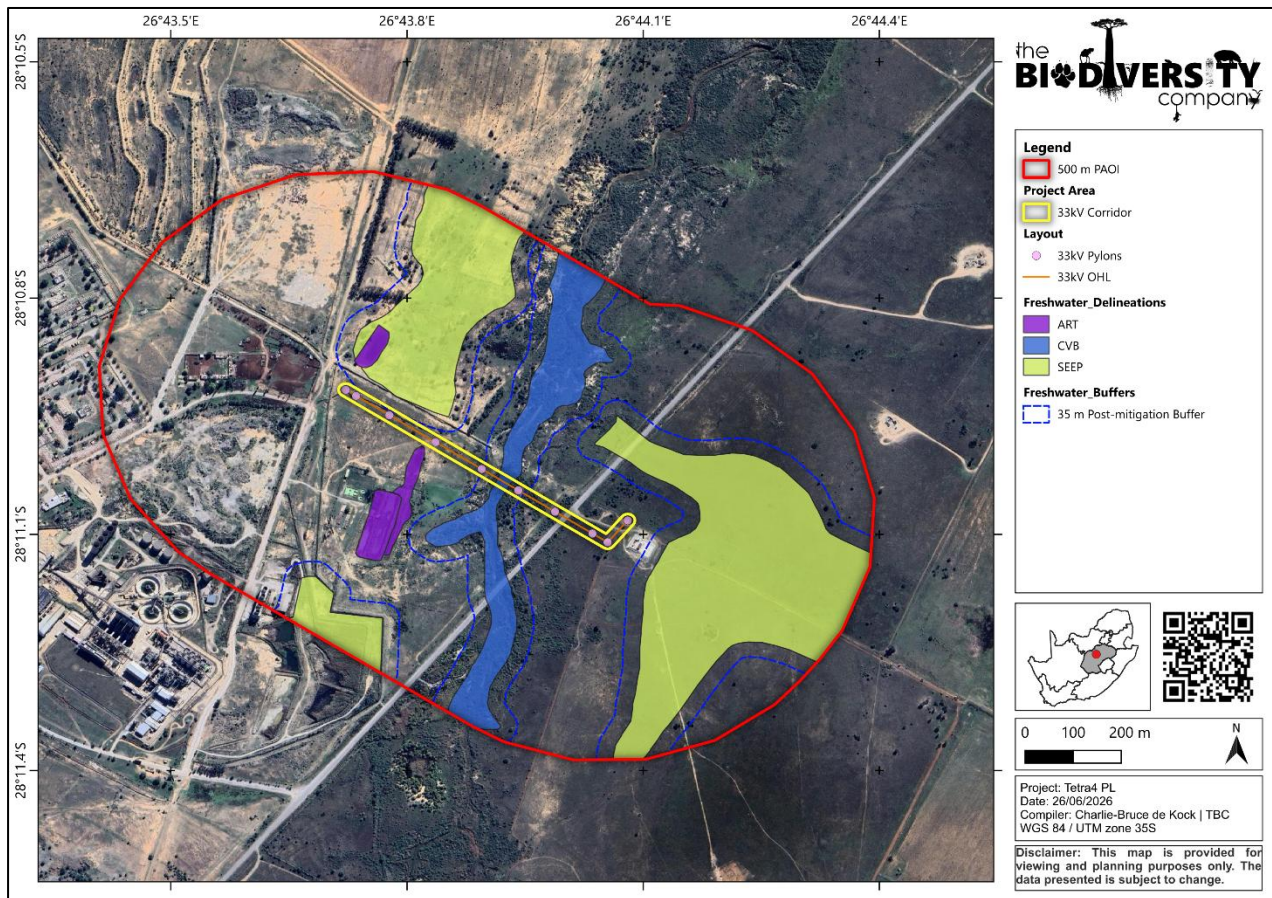


Figure 4

Delineated wetlands in the Tetra4 33 kV Powerline Deviation PAOI

The full wetland assessment undertaken in 2022 (TBC, 2022) recommended specific buffer zones for wetlands occurring within the proposed project area, including a 35 m post-mitigation buffer. These buffer recommendations apply to both the construction and operational phases of the development.

The proposed Tetra4 Powerline Deviation layout has been designed to comply with the recommended wetland buffer requirements. Based on the current layout, all powerline deviations can be positioned more than 35 m from natural wetlands classified as having “Moderate” and “Moderately High” sensitivity. Accordingly, complete avoidance of wetlands for the proposed 132 kV deviations and 33 kV alignment can be achieved at the infrastructure level, provided that pylons avoid delineated wetlands and associated wetland buffer areas.

In this regard, all pylons must be designed and positioned outside delineated wetland features and associated wetland buffer areas, including where the powerline alignment crosses freshwater features. At such crossings, wetlands and associated buffer areas can be spanned to avoid direct disturbance. Failure to maintain these avoidance measures during design or construction may result in wetland degradation. The recommended buffer requirements must therefore be implemented throughout the construction and operational phases.

Previous Study Comparison

The freshwater study listed in the Project Background was considered for background information. The initial freshwater study was conducted in 2022 (TBC, 2022), resulting in a Wetland Ecological and Impact Assessment report for the project area. Table 1 illustrates the freshwater findings for the two powerline corridors of the current study in relation to that of those conducted in 2022. The results of the current study support those of the previous studies, with no changes in the sensitivity ratings.

Table 1 Freshwater findings of the current study in relation to the previous studies (TBC, 2022)

Powerlines	Comments and Recommendations	
	Previous Studies (TBC, 2022)	Current study
132 kV Powerline	Findings: No specific ecological constraints were recorded. and impacts can be avoided with the mitigation provided. Location: Located in previously designated Low sensitivity area (TBC, 2022). Sensitivity area: Classified as Low sensitivity area and traversing Moderate to Moderately High sensitivity areas. Recommendation: No changes to placement area required.	Findings: No specific ecological constraints were recorded for the 132 kV deviations and completely avoid sensitive areas. Location: Located in previously designated Low sensitivity area (TBC, 2022). Sensitivity area: Classified as low sensitivity area. Recommendation: No changes to placement area required.
33 kV Powerline	Findings: It was noted that the transmission loop will encroach into the delineated wetland areas and buffer zones. Location: Located in previously designated Moderate to Moderately High sensitivity areas (TBC, 2022). Sensitivity area: Classified as Moderate to Moderately High sensitivity area. Recommendation: Amend placement of transmission loop to avoid encroachment into the delineated wetland areas and buffer zones.	Findings: No specific ecological constraints were recorded and located outside of wetland buffer. Location: Located in previously designated Low sensitivity area (TBC, 2022). Sensitivity area: Classified as Low sensitivity area. Recommendation: No changes to placement area required.

The proposed transmission loop lines for the Tetra4 Powerlines, as referenced in previous specialist studies, are currently located outside areas of moderate and moderately high wetland sensitivity, including associated

wetland buffers (TBC, 2022). The findings of the current assessment are consistent with those of the previous studies. It is recommended that the final design and positioning of all pylons be undertaken so as to avoid placement within delineated wetlands and their associated buffer areas, including at crossing points where the powerline spans freshwater features. Where wetland crossings are unavoidable, all infrastructure should be positioned outside the wetland boundary and buffer to the greatest extent practicable.

Impact Assessment

The quantitative impacts of the proposed project in isolation on freshwater biodiversity are anticipated to be “Low” provided that the suggested mitigation measures are implemented. This impact significance rating is consistent with the findings of TBC (2022), which similarly concluded that impacts on freshwater biodiversity would remain low, provided that the recommended mitigation measures are implemented.

It should be noted that pre-existing modifications to the wetland systems do exist to some degree and the sensitivity of these systems have been determined to be “Moderate” to “Moderately High”. Complete avoidance of the wetland areas can be achieved for the proposed project layout, however, the project is anticipated to have a certain degree of indirect impacts on sensitivity areas (wetlands). Therefore, all suggested mitigation measures must be implemented. Following this, wetland’s integrity and functionality conditions are not expected to majorly deteriorate as a result of the proposed development, and no nett loss of freshwater habitat and biodiversity is anticipated. This is consistent with TBC (2022), which similarly recognised the potential for limited indirect impacts, and concluded that no material deterioration in wetland integrity and functionality, nor any net loss of freshwater habitat and biodiversity, is anticipated where the recommended mitigation measures are implemented.

Mitigations

The mitigation measures recommended in TBC (2022) remain applicable and sufficient for the proposed amendment, as the current assessment identified no material change in freshwater sensitivity, impact pathways or anticipated impact significance. Accordingly, no additional mitigation measures beyond those already set out in TBC (2022) are considered necessary for the proposed amendment. As set out in TBC (2022), the key freshwater mitigation principles that remain applicable to the proposed amendment include avoiding delineated wetlands and associated wetland buffer areas, as far as practicable, through design; appropriately managing wetland and buffer crossings where required; minimising and clearly demarcating the construction footprint; using existing access routes where feasible; implementing erosion, sediment and pollution control measures; and progressively rehabilitating and monitoring disturbed areas.

Conclusion and Recommendations

The previous freshwater specialist studies undertaken for the approved Tetra4 Cluster 2 project (TBC, 2022) assessed the broader project area in its entirety. Since then, the Tetra4 Cluster 2 project area has been divided into two components, one of which includes the Tetra4 132 kV and 33 kV Powerline Deviation PAOI. The current amendment assessment therefore serves to confirm the continued applicability of the freshwater findings presented in TBC (2022) to the amended powerline layout.

The freshwater survey conducted in 2022 concluded that the sensitivity of the wetland features within the Tetra4 132 kV and 33 kV Powerline Deviation PAOI ranged from “Moderate” to “Moderately High”. The findings of the current assessment, undertaken in June 2026, are consistent with those of the previous study, with wetland sensitivities similarly ranging from “Moderate” to “Moderately High”. In addition, the wetland character and descriptions recorded for the Tetra4 132 kV and 33 kV Powerline Deviation PAOI are comparable between the 2022 and 2026 assessments. The freshwater features identified within the PAOI comprise channelled valley-bottom wetlands, unchanneled valley-bottom wetlands, seeps, depressions, and artificial features, including dams.

The majority of the proposed Tetra4 132 kV and 33 kV Powerline Deviation alignment does not overlap with the identified watercourse features. While certain portions of the proposed 33 kV corridor traverse areas of “Moderate” and “Moderately High” freshwater sensitivity, these areas can be avoided at an infrastructure level provided that pylons are designed and positioned outside delineated wetlands and associated wetland buffer areas, together with the spanning of wetlands and associated buffers where crossings are required. The proposed 132 kV corridor deviations do not overlap with any mapped freshwater sensitivity areas. As such, no further layout changes are considered necessary from a freshwater perspective, provided that sensitive areas are avoided through design and positioning of pylons outside delineated wetlands and associated wetland buffer areas. This is in agreement with TBC (2022), which similarly concluded that the powerline layout is acceptable from a freshwater perspective where wetlands and associated buffer areas are avoided at the infrastructure level.

Notwithstanding the above, precautionary mitigation and impact management measures should still be implemented where the powerline infrastructure traverses freshwater features, particularly during the construction and operational phases. This should be undertaken in accordance with the recommendations contained in the Wetland Assessment report (TBC, 2022), together with the mitigation measures prescribed therein. On this basis, indirect impacts to wetlands and associated watercourse features are anticipated to be of “Low” significance. Accordingly, the current assessment supports the continued applicability of the mitigation measures and “Low” post-mitigation freshwater impact significance identified in TBC (2022).

Overall, no significant impacts are expected from a freshwater perspective as a result of the proposed amendment, provided that the recommended mitigation measures are implemented and that all pylons are designed and positioned outside delineated wetlands and associated wetland buffer areas. The findings of the current amendment assessment are therefore in agreement with TBC (2022), and no revised freshwater impact ratings or additional mitigation measures are considered necessary.

Principle Scientist

Rian Pienaar

(Pr. Sci. Nat. 135544)



Technical Support

Charlie-Bruce de Kock

(*Can. Sci. Nat.* 145121)

de Kock

Appendix A: Site Photos

Table 2 illustrates photographs of the habitat units identified within the Tetra4 132 kV and 33 kV Powerlines PAOI.

Table 2 Photos of the watercourse features identified within the Tetra4 132 kV and 33 kV Powerline Deviation PAOI

Water course	Photos	Water course	Photos
Channelled valley bottom		Non-wetland (132 kV deviation corridor)	
Agricultural crop field; Non-wetland (132 kV deviation corridor)		Artificial wet area	