DRAFT ENVIRONMENTAL SCREENING REPORT

PROPOSED ESKOM HLAZIYA 400-132 KV POWERLINE PROJECT (THE MTS INTEGRATION PROJECT) FROM CLOSE TO JEFFREY'S BAY TO GRASSRIDGE, NEAR THE COEGA SEZ, EASTERN CAPE PROVINCE

MARCH 2022

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1 PROJECT OVERVIEW AND DESCRIPTION OF OPTIONS

1.1 PROJECT OVERVIEW

Eskom proposes to construct, sometime in the next 5 to 10 years, a large powerline, referred to as the Hlaziya 400-132 kV MTS Integration Project, from Thyspunt near Jeffrey's Bay to the Grassridge substation and the Dedisa substation close to the Coega SEZ (Figure 1.1). This project is part of Eskom's program for improving electrical transmission in the area, and the need for this arises from the anticipated increase in renewable power generation in the area (700 MW wind generation capacity has been forecasted). The majority of the project falls within the promulgated Strategic Transmission Corridors, as per the Government Notice No. 113 dated 16 February 2018.

The project is likely to consist of the following infrastructure:

- New 400/132 kV substation in the Thyspunt/ Jeffreys Bay area (named Hlaziya Substation). The new 400/132 kV Main Transmission Substation to be equipped as needed and designed to accommodate:
  - 3 x 400 kV feeder bays;
  - 4 x 500 MVA 400/132 kV transformers and associated bays; and
  - 10 x 132 kV feeder bays.
- Grassridge Substation:
  - 2 x 400 kV feeder bays.
- Dedisa Substation:
  - 1 x 400 kV feeder bay.
- 2 x 400 kV lines from Grassridge Substation to the new Substation.
- 1 x 400 kV line from Dedisa Substation to the new Substation.

Two (2) alternative route corridors have been assessed as part of the Environmental Screening Process (Figure 1.1). Each alternative route corridor has been assessed at a desktop level in terms the following sensitivities: agriculture, avifaunal, terrestrial ecology, heritage, geotechnical, aquatic ecology, traffic, town planning, visual, and social. The findings of these studies have been integrated and incorporated into this report in order to establish the most environmentally and sociably acceptable alternative for the proposed development.

1.2 DESCRIPTION OF OPTIONS

To facilitate an analysis of the various route alignment options, the overall route from the Thyspunt area to the Coega area was divided into six (6) sections as follows (Figure 1.2):

- **Section A**: Section A consists of two (2) separate route corridors, a northern and southern alternative which overlap slightly in some areas. Section A runs from Portion 2 of Welgelegen Farm Nr. 735 (2/735) and the Remaining Extent of Farm 826 (RE/826) near the Thyspunt area to the Remaining Extent of Kruisfontein Farm Nr. 2 (RE/2) the near Humandsdorp.
- **Section B**: The northern and southern corridor alternative for Section B largely overlap, forming one route alternative which runs from the Remaining Extent of Kruisfontein Farm Nr. 2 (RE/2) near Humandsdorp to the Remaining Extent of Spitz Bak Estate Farm Nr. 310 (RE/310), Remaining Extent of Zuurbrons Kloof Farm Nr. 307 (RE/307), Remaining Extent of Boschbok Hoek Farm Nr. 182 (RE/182), and Portion 4 of Boschbok Hoek Farm Nr. 182 (RE/182) along the Gamtoos River.

- **Section C**: The route corridor splits forming two separate defined route corridor alternatives: a northern and southern route corridor alternative. Section C runs from the Remaining Extent of Spitz Bak Estate Farm Nr. 310 (RE/310), Remaining Extent of Zuurbrons Kloof Farm Nr. 307 (RE/307), Remaining Extent of Boschbok Hoek Farm Nr. 182 (RE/182), and Portion 4 of Boschbok Hoek Farm Nr. 182 (RE/182) along the Gamtoos River to Portion 12 of Boschfontein Farm Nr. 390 (12/390), Portion 23 of Boschfontein Farm Nr. 390 (23/390), Farm 660, and Portion 8 of Boschfontein Farm Nr. 390 (8/390) near Rocklands.
- **Section D**: The northern and southern corridor alternative for Section D largely overlap, forming one route alternative which runs from Portion 12 of Boschfontein Farm Nr. 390 (12/390), Portion 23 of Boschfontein Farm Nr. 390 (23/390), Farm 660, and Portion 8 of Boschfontein Farm Nr. 390 (8/390) near Rocklands to the boundary of Kwa Nobuhle township where it intersects a number of farm portions.
- **Section E**: The route corridor splits forming two separate defined route corridor alternatives: a northern and southern route corridor alternative. Section E runs from the boundary of Kwa Nobuhle township where it intersects a number of farm portions to the Remaining Extent of Welbedachtsfontein Farm Nr. 300 (RE/300), Papenkuils Vley Farm Nr. 299, and the Remaining Extent of Rietheuvel Farm Nr. 296 (RE/296) along the boundary of the Coega River.
- **Section F**: The northern and southern corridor alternative for Section F overlap, forming one route alternative which runs from the Coega River to the Eskom Grassridge Substation.

The proposed route corridor alternatives were divided into the six (6) sections described above. This was done to allow the team to analyse the route corridors in more detail, and to break the study area into smaller, more workable sections. The following was considered when dividing the route corridors into six sections:

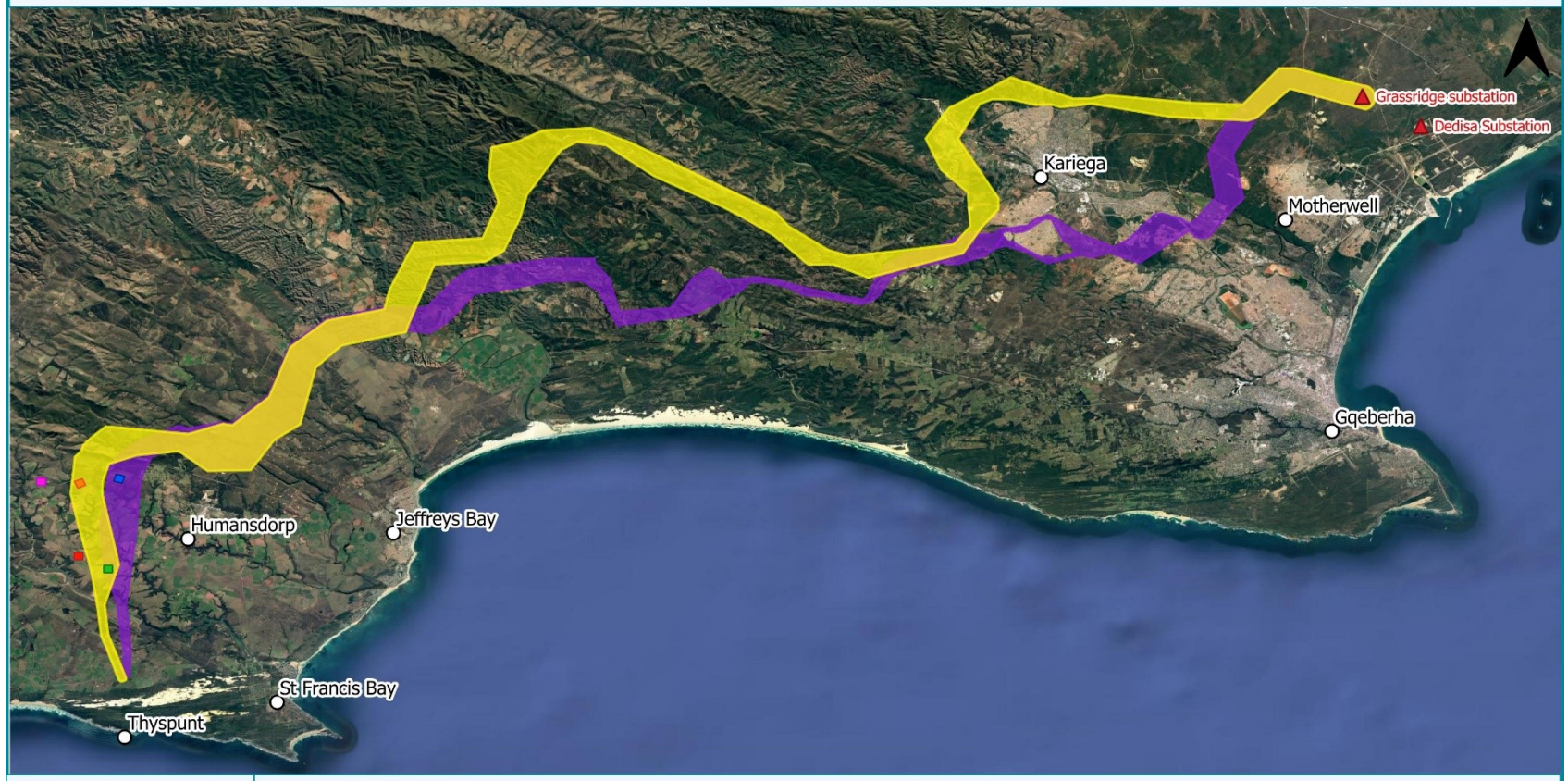
- The alignment of the route corridor alternatives presented to CES by the Client.
- Sections where only one option exists.
- The existing cadastral boundaries.
- Landscape features such as rivers and mountains.
- Biological features such as natural extensive natural areas.
- Social and planning features such as cadastral boundaries and urban areas.

This was also done to facilitate engagement with separate groups of interested and affected parties (I&APs) who will be affected differently along the different sections of the route. It was also undertaken to provide a more detailed and definitive analysis of various alternatives. These alignments and divisions were discussed and refined at an internal workshop between CES, Eskom and the various specialist appointed for this project.

In addition to the two (2) route corridor alternatives, five (5) alternative locations were assessed for the proposed Hlaziya 400/132 kV substation in the Thyspunt area. The alternative locations of the Hlaziya Substation were dictated by the proximity of existing and planned infrastructure, as well as the availability of vacant land, and were provided by the client.

PROJECT NAME: ENVIRONMENTAL SCREENING ASSESSMENT FOR THE ESTABLISHMENT OF THE PROPOSED HLAYIZA 400-132 KV MTS INTEGRATION IN THE JEFFEREYS BAY AREA, EASTERN CAPE PROVINCE

MAP TITLE: LOCALITY MAP

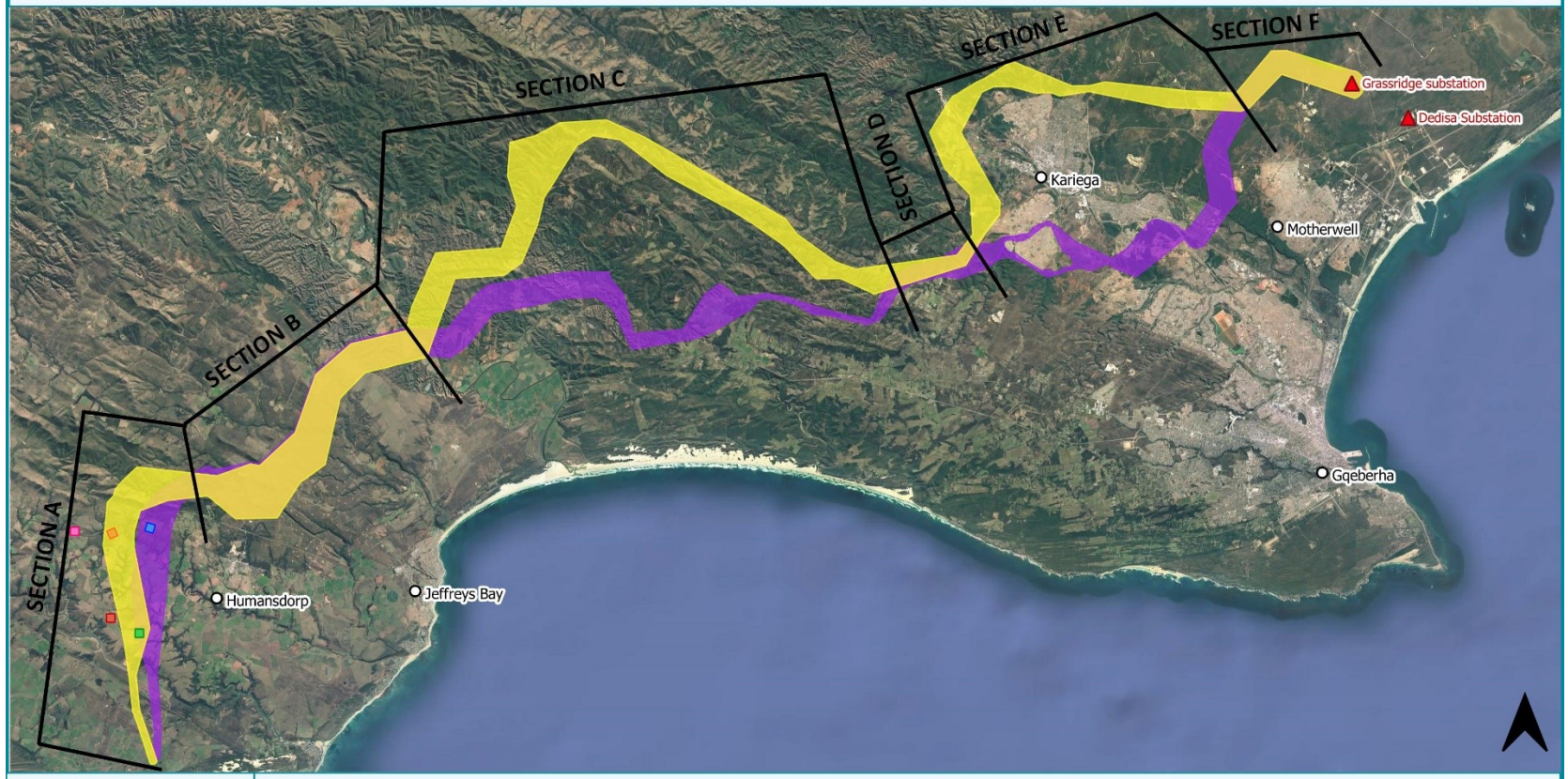


MAP DETAILS:	LEGEND:	
Drawn by: Nicole Wienand	Existing Substations	Hlayiza Site D
Date: JULY 2O21	Places	Hlayiza Site E
Datum:WGS 84	**400/132 kV Substation Site Alternatives**	**Transmission Corridor Alternatives**
	Hlayiza Site A	Hlayiza Northern Corridor Alternative
	Hlayiza Site B	Hlayiza Southern Corridor Alternative
SCALE: 1:270 000	Hlayiza Site C	

Figure 1.1: Locality map indicating the two (2) alternative corridors for the proposed Hlaziya 400-132 kV Powerline Project.

PROJECT NAME: ENVIRONMENTAL SCREENING ASSESSMENT FOR THE ESTABLISHMENT OF THE PROPOSED HLAYIZA 400-132 KV MTS INTEGRATION IN THE JEFFEREYS BAY AREA, EASTERN CAPE PROVINCE

MAP TITLE: ROUTE CORRIDOR SECTION DELINEATION



MAP DETAILS:	LEGEND:	
Drawn by: Nicole Wienand	Towns	400/132 kV Substation Site Alternatives
Date: September 2021	Section Delineation	Hlayiza Site A
Datum:WGS 84	Existing Substations	Hlayiza Site B
	Route Corridor Alternatives	Hlayiza Site C
	Hlayiza Northern Transmission Corridor	Hlayiza Site D
SCALE: 1:450 000	Hlayiza Southern Transmission Corridor	Hlayiza Site E

Figure 1.2: The two route corridors, including a southern and northern alternative, divided into six (6) route sections.

2 METHODOLOGY

2.1 INTRODUCTION

The two proposed route corridors provided to CES by Eskom, and the six route sections (refer to Section 1.2) were assessed separately in order to determine its viability, using a two-phased approach.

The following terminology was used:

- Route corridor – These are the two broad corridors provided by, and preferred by, Eskom shown in mustard and purple on Figure 1.1.
- Route sections – These are the CES divisions of the broad corridor into six route sections, based on the considerations described above (Figure 1.2). Two of the sections are the same, where the two route corridor alternatives overlap (Section B and F, and to some extent Section D). Here a comparison between the two corridors is not possible. However, in the other four sections (Section A, C, D, and E) a comparison between the two corridors was undertaken.
- Route alignment options - as and when the comparison of the route corridor alternatives is completed it became necessary to look within the broader corridor, and in some instances outside the defined route corridor to define specific route options or route alignments that mitigated, as far as possible, the environmental and social impacts and constraints identified in the various studies.

Phase I entailed the comparison of the two route corridors where the alignments differed, and to screen-out any potential fatal flaws within the identified corridors. CES classified an impact as a fatal flaw if it cannot be mitigated, or if the mitigation is extremely difficult or costly (see Section 2.2.3 below). The outcome of Phase 1 might have led to the determination of a single viable corridor that would have the lowest impact on both the environmental and social attributes of the project. However, as fatal flaws were only identified in limited sections of the route corridors further analysis of both corridors was required.

Phase II entailed a more detailed investigation of specific route alignment options within the preferred route corridor sections. This required developing and then assessing specific route alignments within the broader corridors and assessing the environmental and social impacts that would take place during the construction and operation of the powerline, and weighing these options up from an environmental, social and land use perspective using a multicriteria analysis approach. This required drawing on information collected by the specialists on agriculture, avifaunal, terrestrial ecology, heritage, geotechnical, aquatic ecology, traffic, town planning, visual and social sensitivities.

2.2 IMPACT ASSESSMENT METHODOLOGY

The methodology used to determine both the preferred corridor as well as the preferred route alignment within that corridor is based on previous sustainability appraisals and risk assessments that have been conducted by CES. The first step was to identify and assess the environmental and social significance of key issues associated with each alternative (corridor) and option (route alignment). Following this, the technical and financial feasibility of these route alignment options

were assessed with input from the Eskom engineers, to assist with the determination of the potential to mitigate key issues through technical or routing options. Technical and financial feasibility is essentially the degree of difficulty to mitigate impacts, bearing in mind that mitigation must be effective, practical and cost effective.

For this reason, both “Impact Significance” and “Degree of Difficulty to Mitigate” scales were used to identify significant environmental impacts and arrive at a rating for each alternative or routing. The rationale is that more serious/significant impacts require more effort or expenditure to mitigate to acceptable levels. This approach was based on information gathered by individual specialists together with technical considerations provided by the project engineers.

In phase I this information was synthesised by the core environmental team at a workshop, and then presented to all team members so that they understood the various viable options, and where necessary further discussion were held with them. In Phase II impacts either common to all options or specific only to some options were identified, and the environmental significance and difficulty to mitigate ratings applied. This resulted in a series of working tables summarising the environmental impacts and difficulty to mitigate.

2.2.1 Environmental Significance

Environmental significance was used to evaluate the importance of each issue. This evaluation relies heavily on the values of the person making the judgement, and for this reason a workshop approach was used. A four-point impact significance scale was applied to the impacts (Table 2.1).

Table 2.1: Environmental significance rating scale.

SIGNIFICANCE RATING	DESCRIPTION	EXAMPLES
Very High	These issues would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment, and usually result in severe or very severe effects.	The loss of a species of conservation concern would be viewed by informed society as being of very high significance.
High	These issues will usually result in long term effects on the social and/or natural environment. Impacts rated as high will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.	A change to landform and access will impact the natural system, and on the affected parties living on or using that land.
Moderate	These issues will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as moderate will need to be considered by society as constituting a fairly important and usually medium-term change to the (natural and/or social) environment. These impacts are real but not substantial	The loss of a sparse, open vegetation type of low diversity or a small change to the visual quality of a landscape may be regarded as moderately significant.

SIGNIFICANCE RATING	DESCRIPTION	EXAMPLES
Low	These issues will usually result in short- to medium-term effects on the social and/or natural environment. Impacts rated as low will need to be considered by the public and/or the specialist as constituting an unimportant and usually short-term change to the (natural and/or social) environment. These issues are not substantial and are likely to have little real effect.	The temporary change in the landform during construction, provided such landform is rehabilitated.

2.2.2 Degree of Mitigation Difficulty

The ***degree of difficulty of mitigating*** the various identified impacts ranged from very difficult to easily achievable. The four categories used are listed and explained in Table 2.2 below. The technical and financial feasibility and the practicality of the measures and their potential effectiveness must be taken into consideration in deciding on the appropriate degree of difficulty. It may be determined that mitigation is not possible, as the option itself could cause certain effects that could only be mitigated by not proceeding with the option. In these cases, the mitigation is categorised as very difficult.

Table 2.2: Degree of mitigation difficulty rating scale.

DEGREE OF DIFFICULTY	DESCRIPTION
Very difficult	The issue could be mitigated through an alternative technology or alignment, but it would be very difficult, very costly or technically challenging to ensure effective mitigation.
Difficult	The issue could be mitigated but it would be both technically difficult and costly to ensure effective mitigation.
Achievable	The issue can be effectively mitigated (technically feasible at acceptable cost).
Easily achievable	The issue can be easily and effectively mitigated.

2.2.3 Options Analysis Assessment Methodology

Option not viable – All options that have impacts of Very High significance after mitigation are fatally flawed. Options that have impacts of high significance after Very Difficult or Difficult mitigation are also considered to be “Not Viable” options for the project. This means that the option is probably technically not feasible and too costly. Only one impact needs to fall into these categories to result in the option being “not viable”.

Option possibly viable – Options with impacts of moderate or low significance are “possibly viable”, even if the mitigation is very difficult or difficult to achieve. In these cases, the costs and technical challenges to mitigate could possibly be justified and the option could be taken forward to the EIA phase, depending on the number of impacts that fall into these categories. Options that result in moderately significant impacts after difficult mitigation are “possibly viable”, again depending on the number of impacts for the option that fall into this category. Options with residual impacts of high significance, but for which mitigation is “Easily Achievable” to “Achievable” are rated as “possibly viable”. This means that these options still represent a major risk to the project (in terms of cost or technical difficulty), and whether these options are taken forward depends on the number of impacts falling into these categories.

Option preferred - Impacts of Low to Moderate significance for which mitigation is Achievable to Easily Achievable are preferred. Impacts of low significance are also preferred, even if the mitigation is "Difficult" to achieve (Table 2.3).

Table 2.3: Options analysis matrix derived from the pairing of the significance of the impact and the technical difficulty or cost of mitigation.

MITIGATION POTENTIAL	POST MITIGATION IMPACT SIGNIFICANCE			
	LOW	MODERATE	HIGH	VERY HIGH
Very difficult	Option possibly viable	Option possibly viable	Option not viable	Option not viable
Difficult	Option preferred	Option possibly viable	Option not viable	Option not viable
Achievable	Option preferred	Option preferred	Option possibly viable	Option not viable
Easily achievable	Option preferred	Option preferred	Option possibly viable	Option not viable

The implications of the three categories within which options can potentially fall are explained in Table 5.

Table 2.4: Options categories defined.

Risk	Description
Option not viable	Even after significant mitigation some impacts are likely to remain of very high or high significance. For some impacts it may be possible to reduce the significance, but there will still be some impacts of very high or high significance, meaning they prevent the option from being used (raised as red flags in this assessment).
Option possibly viable	These options might be viable for residual impacts of high significance and for which the mitigation is achievable or easily achievable, with a maximum of two impacts falling into the "high and achievable or easily achievable" category are permissible. Options that result in impacts of low or moderate significance are also possibly viable, even though the impacts could be difficult or very difficult to achieve. There must not be more than three impacts that are difficult or very difficult to mitigate for the option to be explored further.
Option preferred	These options are all viable as impacts are acceptable (low or moderate significance) and in most cases mitigation is "achievable or easily achievable".

2.3 STAKEHOLDER INPUTS

All potential landowners will be notified of the proposed development and provided with an opportunity to provide their comments and/or concerns to the EAP. In addition, this Screening Report will be made available to all registered I&APs and affected landowners for a period of 30 days, prior to finalisation. Input from stakeholders will be used to modify impacts and technical ratings, including landowner opinions, new information that has come to light and I&AP preferences. Additional options will also be explored.

3 OPTIONS ANALYSIS

3.1 SECTION A

Section A consists of two (2) separate route corridors, a northern and southern alternative which overlap slightly in some areas. Section A runs from Portion 2 of Welgelegen Farm Nr. 735 (2/735) and the Remaining Extent of Farm 826 (RE/826) near the Thyspunt area to the Remaining Extent of Kruisfontein Farm Nr. 2 (RE/2) near Humandsdorp (Figure 3.1).

3.1.1 Major Constraints identified within Section A

The major constraints identified within Section A relate to avifauna and terrestrial ecology (Table 2.1). In terms of avifaunal sensitivity, much of Section A traverses high risk areas due to the high concentration of three (3) regionally Red Listed bird species: Blue Crane *Grus paradisea* (Near-threatened); Denham's Bustard *Neotis denhamii* (Vulnerable); and White-bellied Korhaan *Eupodotis senegalensis* (Vulnerable). These three species forage in crop and pasture lands (a major land use within Section A) and are highly susceptible to collisions with overhead powerlines. Based on previous studies, current available line marking devices have proven ineffective in mitigating powerline collisions.

Of particular significance is the Denham's Bustard lek (an area where male birds congregate to display for females prior to breeding) identified to the south of Section A which spans both the northern and southern corridor alternative. These areas are extremely important to Denham's Bustard ecology and this is a significant lek with large numbers of bustards congregating in the breeding season. This area would need to be bypassed either to the east or west. However, the Kouga Wind Farm in the east and the Oyster Bay Wind Farm in the west will make it difficult to find space in these areas. Moving too far east would also bring the power line close to a large Blue Crane roost, whilst moving west would mean it has to cross the Impofu Dam (undesirable for water birds) and be closer to an identified Martial Eagle nest. Two (2) large Blue Crane roost sites are known outside of the corridors, the closest being 4.5km east of the corridor. Additional relevant species which occur within Section A include the White Stork *Ciconia Ciconia* (present in large numbers in summer months), Black Harrier *Circus maurus* (occasionally present, at least one nest site known), African Marsh-Harrier *Circus ranivorus* (resident in wetlands), Martial Eagle *Polemaetus bellicosus* (resident in area, at least one nest known 5km west of corridors).

Two (2) terrestrial ecological constraints were identified for both the northern and southern route corridor alternative, namely the loss of Humansdorp Shale Renosterveld (VU) and Eastern Coastal Shale Band Vegetation (EN). However, an analysis of the remaining extent of these threatened ecosystems indicates that the route alignment within the alternative corridors can be adjusted to ensure that the majority of the pylons and temporary construction and permanent maintenance roads are situated within previously transformed/disturbed areas. The extent of transformation is greater in the southern corridor than the northern corridor. As such, it is assumed that the pylons and access roads within the southern corridor can be positioned within previously disturbed areas, thus reducing the further loss of this vegetation type in comparison to the northern corridor alternative.

Based on the high post-mitigation impact significance and the 'difficult' mitigation potential, the northern corridor alternative has been deemed 'not viable' in terms of terrestrial ecology, while both

the northern and southern corridor alternatives have been deemed 'not viable' in terms of avifaunal sensitivities. The remainder of the sensitivity constraints identified by the various specialists within Section A can be mitigated to some degree which has resulted in the classification of the alternatives as either 'option preferred' or 'option possibly viable' (refer to Table 3.1).

3.1.1 Preferred Route Alignment identified within Section A

Due to the large Denham's Bustard lek as well as the Kouga Wind Farm in the east and the Oyster Bay Wind Farm in the west, a large portion of both the northern and southern corridor alternative have been excluded from Section A. Consultation with Eskom engineers confirmed that the preferred route corridor need not extend further south than the preferred substation alternative (substation site C – refer to section 3.2 below). As such, the preferred route alignment within Section A runs from the eastern boundary of Substation Site B, towards the northern extent of the southern corridor to the edge of Section B, where the northern most extent of the northern and southern corridor overlap.

Table 3.1: Summary of preferred route corridors for Section A in terms of specialist constraints identified.

Section A			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Traffic	Option Possibly Viable	Option Preferred	Section A of the northern corridor crosses mountainous terrain where accessibility could be an issue which poses a development constraint.
Town Planning	Option Preferred	Option Possibly Viable	Both the southern and northern corridor alternative have an impact on northern settlement and 'built-up' areas which can possibly be totally mitigated by the appropriate alignment of the servitude. However, visually the southern corridor alternative traverses more agricultural land uses in comparison to the northern corridor.
Geotech	Option Possibly Viable	Option Preferred	Both the southern and northern corridor alternative are underlain by the same geological formations of the Cape Supergroup. There is no geological/ geotechnical differentiation between the two options. The slope, topography, and estimated soil thickness conditions are relatively identical with slightly lower clay content and variation in elevations expected for the southern corridor.
Soils and Agriculture	Option Preferred	Option Preferred	There are no fatally flawed route corridors/ sections in terms of agriculture as agricultural land uses can be mitigated. Both the northern and southern corridor alternative have the same general land capability. The majority of the land is medium capability.
Avifauna	Option not viable south of substations D & E.		• Section A falls within the Kouga Sensitive Area that is very important for Blue Crane, Denham's Bustard, and White-Bellied Korhaan. • High concentration of three (3) regionally Red Listed bird species namely Blue Crane *Grus paradisea* (Near-threatened); Denham's Bustard *Neotis denhamii* (Vulnerable); and White-bellied Korhaan *Eupodotis senegalensis* (Vulnerable). • A Denham's Bustard lek identified within the southern portion of Section A. • Additional relevant species include White Stork *Ciconia Ciconia* (present in large numbers in summer months), Black Harrier *Circus maurus* (occasionally present, at least one nest site known), African Marsh-Harrier *Circus ranivorus* (resident in wetlands), Martial Eagle *Polemaetus bellicosus* (resident in area, at least one nest known 5km west of corridors).
	Both options preferred north of substations D & E		
Freshwater	Option Preferred	Option Preferred	Given the extent of the watercourses located within Section A (in both the northern and southern corridor alternatives) avoidance of the watercourses and their respective ZoRs is not feasible. Both corridor alternatives host watercourses that are extensive in size: • The delineated wetland feature in the southern portion of the northern corridor (approximately 1 km wide); and

Section A			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
			• Seekoei River located in the central portion of the southern corridor (approximately more than 500 m wide).
Ecological	Option Not Viable	Option Preferred	Two (2) terrestrial ecological constraints were identified for both the northern and southern route corridor alternative, namely the loss of Humansdorp Shale Renosterveld (VU) and Eastern Coastal Shale Band Vegetation (EN). The Remaining Extent of Eastern Coastal Shale Band vegetation is less in the southern corridor than the northern corridor. Additionally, the extent of transformation within the southern corridor is greater than within the northern corridor. As such, it is assumed that the pylons and access roads within the southern corridor can be positioned within previously disturbed areas to prevent the further loss of this vegetation type.
Visual	Option Possibly Viable	Option Possibly Viable	Both the Northern and Southern Corridors have areas of potentially high impact significance within Sections A and B. The Southern Corridor less so, and it has the highest potential for achievable mitigation within Section A. Mitigation includes site specific placement alternatives and potential alignment deviations.
Heritage	Option Preferred	Option Preferred	Sensitive sites can easily be avoided by micro-siting the final alignments and individual pylon placements during the EIA phase of the final route alignment options to avoid sensitive heritage resources where necessary.
Social	Option Preferred	Option Possibly Viable	The negative displacement impacts on affected farmers in this section can be effectively mitigated through compensation and the careful design of the route to avoid towers impacting any irrigation infrastructures. The northern corridor has more potential impacts on irrigated cultivation infrastructures in comparison to the southern route. This makes the southern route the preferred social alternative. However, both options are viable. The positive benefits for wind farms and the benefiting farmers are rated as high and do not need mitigation.

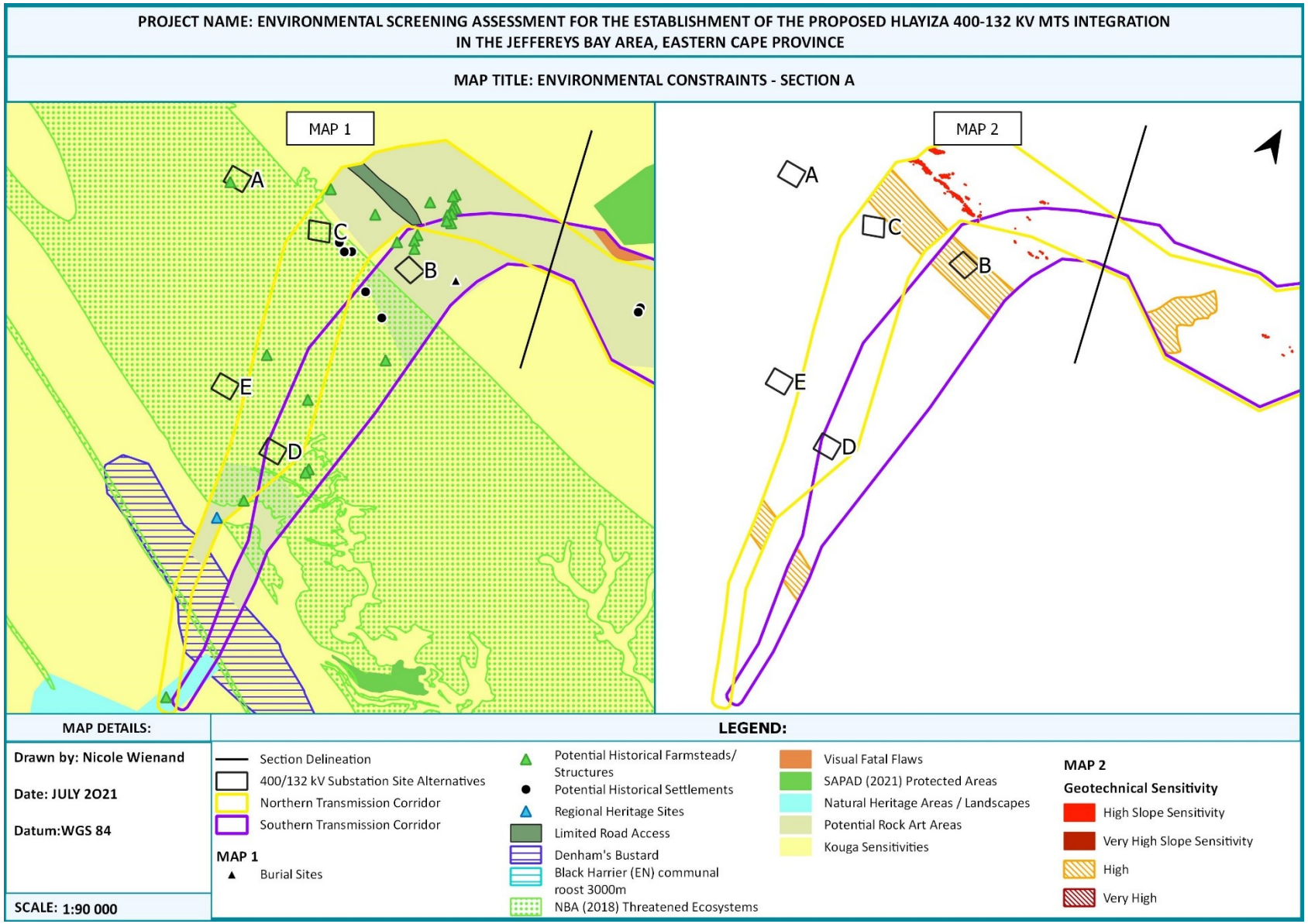


Figure 3.1: Environmental Constraints identified for Section A of the propose Hlaziya 400-132 kV Powerline Project.

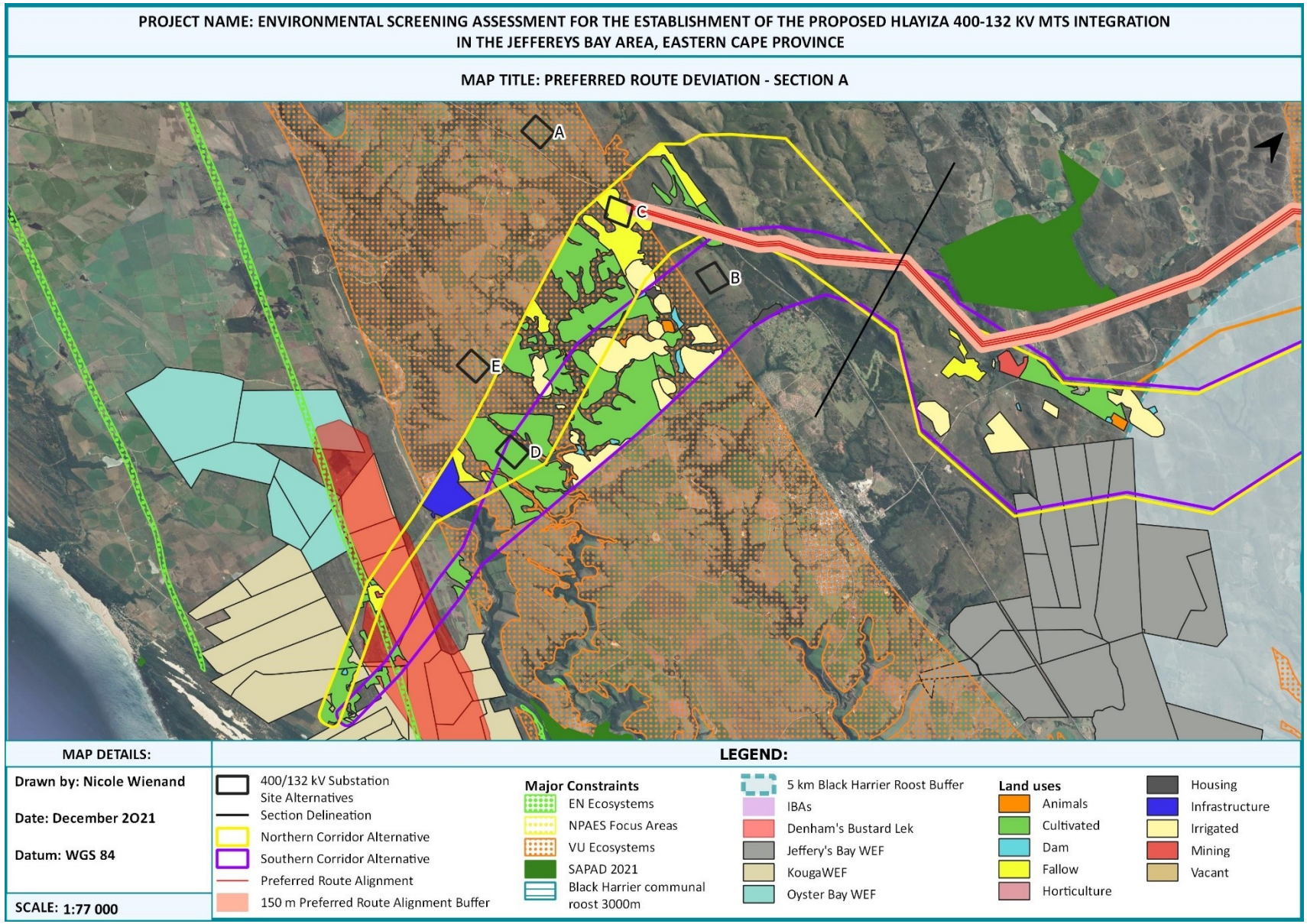


Figure 3.2: Preferred route alignment within Section A of the propose Hlaziya 400-132 kV Powerline Project.

3.2 Substation Site Alternatives

Due to the proximity of the Denham's Bustard lek identified within Section A of the proposed 400-132 kV Powerline corridors, the Avifaunal specialist strongly recommends not using Substation site alternatives D and E (Figure 3.1). Substation site alternative A falls outside of both the proposed route corridor alternatives and was therefore excluded as a preferred substation site alternative. As such, the remaining two (2) substation alternatives, site alternative B and C, were considered. In terms of environmental sensitivities, no major constraints were identified for either substation site alternative B or C. However, the social specialist identified two (2) rural homesteads/farm structures and access roads on site C.

A site visit was conducted by CES and Eskom on the 23rd of February 2022 in order to visually inspect the two substation site alternatives B and C. The infrastructure on substation site alternative C was confirmed. However, according to consultation with Eskom, this does not constitute as a major constraint as the property, as well as the infrastructure located thereon, would be purchased by Eskom and the landowner would be compensated accordingly. In terms of technical and financial feasibility, Substation Site Alternative C is the preferred option due to the following reasons:

1. Access to substation site alternative C from the R102 via a wide, well maintained gravel road exists. The route to substation site alternative B is longer and narrower in comparison and would require considerable widening and maintenance to allow for access by construction vehicles and plant. The route to substation site alternative B also traverses a watercourses which could pose a problem for access during rainy periods.
2. Due to the topography and underlying geology, the cut and fill volumes for substation site alternative B is almost double that required for substation site alternative C. This would pose significant financial implications for construction.
3. Substation site alternative B is located nearer to an informal settlement (Kruisfontein) and therefore concerns relating to theft and vandalism are greater for substation site alternative B in comparison to substation site alternative C.

Based on the above, substation site alternative C is the preferred substation site alternative as it avoids the sensitive Denham's Bustard lek, it has the least impact on the social and ecological environment, and it is the most technically and financially feasible option.

Table 3.2: Summary of preferred substation site alternatives according to the specialist studies undertaken.

Substation Alternative					
Specialist	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Traffic	X	X	X	X	X
Town Planning	**No preferred location**				
Geotech			X		
Soils and Agriculture	**No preferred location**				
Avifauna		X	X		
Freshwater	X	X			X
Ecological	X		X	X	X
Visual		X		X	
Heritage	X		X	X	X
Social		X		X	X

3.3 SECTION B

The northern and southern corridor alternative for Section B largely overlap, forming one route alternative which runs from the Remaining Extent of Kruisfontein Farm Nr. 2 (RE/2) near Humandsdorp to the Remaining Extent of Spitz Bak Estate Farm Nr. 310 (RE/310), Remaining Extent of Zuurbrons Kloof Farm Nr. 307 (RE/307), Remaining Extent of Boschbok Hoek Farm Nr. 182 (RE/182), and Portion 4 of Boschbok Hoek Farm Nr. 182 (RE/182) along the Gamtoos River.

3.3.1 Major Constraints identified within Section B

The major constraints identified within Section B relates to avifauna and traffic, and to a lesser extent agricultural impacts (Table 2.1). In terms of avifaunal sensitivity, Section B falls within the Kouga Sensitive area that is of high importance to Blue Crane, Denham's Bustard, and White-bellied Korhaans. As with Section A, additional relevant species include the White Stork *Ciconia Ciconia* (present in large numbers in summer months), Black Harrier *Circus maurus* (several known nest sites occur near to, but not within the corridor), African Marsh-Harrier *Circus ranivorus* (resident in wetlands), Martial Eagle *Polemaetus bellicosus* (resident in area, at least one nest known 3 kilometres east of corridors).

Of particular importance within Section B is a known Black Harrier communal roost which exists immediately east of the corridors. Counts at this roost (the largest global known seasonal Black Harrier roost) in 2014 and 2015 average around ten birds per night, with a variation between zero birds in October and to a peak average of 23 birds in December in 2014 (J Walton unpublished data). The highest individual count was 35 birds in one night in March. Assuming an estimated global population of 1,000 birds (Taylor *et al*. 2015), this means up to 3% of the species population congregate here to roost at night at times of the year. Black Harrier will be susceptible to collision with power lines and disturbance and displacement from the roost. It is recommended that a buffer of around 3-5 km (preferably 5 km) be established around this roost and development within this buffer should be avoided. In the same area, a Secretarybird *Sagittarius serpentarius* nest is also known and must be avoided by a 2.5 km buffer. It is recommended that this area is bypassed to the north to avoid these constraints. The Gamtoos River itself and associated riparian and floodplain areas should also be considered sensitive.

In terms of traffic sensitivity, a constraint area in the far north-eastern portion of Section B was identified which poses limited vehicular access due to mountainous terrain and steep slopes. This could be easily mitigated by choosing the correct alignment within the overlapping corridor which avoids this area.

With regard to the Jeffery's Bay Wind Farm, the potential displacement impact can be mitigated by routing the line through the northern part of the proposed corridor so that it does not encroach into the windfarm area.

Two (2) major terrestrial ecological constraints were identified within Section B, namely the loss of Humansdorp Shale Renosterveld (VU) and Albany Alluvial Vegetation (EN). However, an analysis of the NBA (2018) Current Remaining Extent of the Threatened Ecosystems, as well as Google Earth aerial imagery suggests that only fragments of Humansdorp Shale Renosterveld (VU) remain within the proposed corridors and therefore the loss of Humansdorp Shale Renosterveld can be mitigated by ensuring that, where possible, the pylons and temporary construction and permanent

maintenance roads avoid the remaining fragments of this vegetation type by constructing the pylons in previously transformed/disturbed areas. Albany Alluvial Vegetation occurs in a narrow band along the banks of the Gamtoos River in the farthest north-eastern portion of the proposed corridor. Any further loss of this vegetation type/threatened ecosystem would have a high negative significance. However, it is assumed that vegetation clearance will be limited to that which is strictly necessary for the construction of the pylons and roads, and that the pylons and roads can be constructed outside of the of remaining Albany Alluvial Vegetation. Based on the high-level impact assessment, both route corridor alternative are deemed suitable provided the recommendations outlined above are implemented.

Based on the high post-mitigation impact significance and the 'achievable' mitigation potential, Section B of the corridor alternative has been deemed 'Option Potentially Viable' provided the constraints outlined above are avoided. The remainder of the sensitivity constraints identified by the various specialists within Section B can be mitigated to some degree which has resulted in the classification of the alternatives as either 'option preferred' or 'option possibly viable' (refer to Table 3.2).

3.3.2 Preferred Route Alignment identified within Section B

The large Black Harrier communal roost located just south of the proposed corridor and the associated 3-5 km buffer dictates to a large extent the route alignment in this section, as the roost hosts up to 3% of the global Black Harrier population, and this species is susceptible to powerlines (Figure 3.4). This makes mitigation very difficult and the impact very high, resulting in a potential fatal flaw to any alignment within the buffer area. Therefore, the proposed Hlaziya 400-132 kV Powerline corridor has been re-routed to the north. The preferred route alignment avoids, as far as practically and feasibly possible, impacts on high sensitivity agricultural land-uses, such as cultivated areas, dams, horticulture, housing, industry, infrastructure, irrigated land, and poultry, as well as the Honeyville Nature Reserve (SAPD, 2021) to the north of the corridor alternatives.

It should be noted that the entire route corridor has been re-routed within Section B, including the western half of the preferred route corridor, to ensure the straightest possible route with minimal bends as these have significant financial implications for the project.

Table 3.3: Summary of preferred route corridors for Section B in terms of specialist constraints identified.

Section B			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Traffic	Option Possibly Viable		Only one (1) constraint was identified within the far north-eastern portion of section A, namely mountainous terrain where vehicle access will be challenging during both the construction and operational phase. However, a suitable route alignment is easily achievable by ensuring the constraint area is avoided.
Town Planning	Option Preferred		To the north of the Zwartenbosch Golf Course, the proposed route corridor crosses areas which are subject to mining (quarries) – Portions 29 & 5 of Farm 347 Humansdorp Road. It is possible to avoid most the highlighted land uses except at the point just to the south of Hankey where intensive agriculture along the Gamtoos River crosses the entire width of the corridor. There is no possible mitigation to this as this circumstance will be present along much of the Gamtoos River Valley.
Geotech	Option Possibly Viable		Both corridors follow the same alignment, and no differentiation is required. The powerlines move over from the Cape Supergroup to the Uitenhage Group sediments deposited in the Gamtoos Basin. The expected average soil depth ranges from 300 mm to > 750 mm with clay percentages being between 0.0% and 30.0%. The slopes for the section are flat to moderately steep with occasional steep (>11.3°) slope within the drainage lines cross cutting the corridor.
Soils and Agriculture	Option Preferred		There are no fatally flawed route corridors/ sections in terms of agriculture as agricultural land uses can be mitigated. Section B is dominated by medium capability land, however very little is cultivated.
Avifauna	Option Possibly Viable		• Section B falls within the Kouga Sensitive Area that is very important for Blue Crane, Denham's Bustard, and White-Bellied Korhaan. • Additional relevant species White Stork *Ciconia Ciconia* (present in large numbers in summer months), Black Harrier *Circus maurus* (several known nest sites known near to, but not within the corridor), African Marsh-Harrier *Circus ranivorus* (resident in wetlands), Martial Eagle *Polemaetus bellicosus* (resident in area, at least one nest known 3 kilometres east of corridors). • A known Black Harrier communal roost exists immediately east of the corridors., which accounts for 3% of this species population. • A Secretarybird *Sagittarius serpentarius* nest is also known and must be avoided by a 2.5km buffer
Freshwater	No Preferred Option		Given the extent of the watercourses located within Section B (in both the northern and southern corridor alternatives) avoidance of the watercourses and their respective Zones of Regulation (ZoR) is not feasible. Thus, there is no preferred corridor alternative or a suggested powerline route alignment within Section B. Considering that the proposed development is of a linear nature that will

Section B			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
			span over watercourses, effort must be made to avoid placement of powerline support towers within the watercourses. It is strongly recommended that the proposed powerline support towers be located outside of the watercourses and at least 32 m (as far as possible/feasible) from the delineated edge of a watercourse. It must be noted that the powerline support towers can be located within the NEMA and GN509 regulated zones as it relates to the NWA– provided the relevant authorization for these localities is approved.
Ecological	Option Preferred		Two (2) main ecological constraints were identified, namely the loss of Humansdorp Shale Renosterveld (VU) and Albany Alluvial Vegetation (EN). However, analysis of the NBA (2018) Remaining Extent of Threatened Ecosystems suggests that large portions of these vegetation types have already been lost. Provided the pylons and access roads are located within previously disturbed areas and outside of the remaining extent of this vegetation type, the impact on the Humansdorp Shale Renosterveld and Albany Alluvial Vegetation can be effectively mitigated. As such, both route corridor alternatives are deemed suitable.
Visual	No preferred option		Both the Northern and Southern Corridors have areas of potentially high impact significance within Sections A and B. Section B includes the following visual constraints, mainly in the far north-eastern portion: indigenous forest, steep slopes (>20%), and mountains and prominent hills. Mitigation includes site specific placement alternatives and potential alignment deviations.
Heritage	Option Preferred		Sensitive sites can easily be avoided by micro-siting the final alignments and individual pylon placements during the EIA phase of the final route alignment options to avoid sensitive heritage resources where necessary.
Social	Option Possibly Viable		The route could potentially negatively impact the Jeffrey's Bay Windfarm. The potential displacement impact to the Jefferey's Bay Wind Farm can be mitigated by routing the line through the northern part of the proposed corridor so that it does not encroach into the windfarm area.

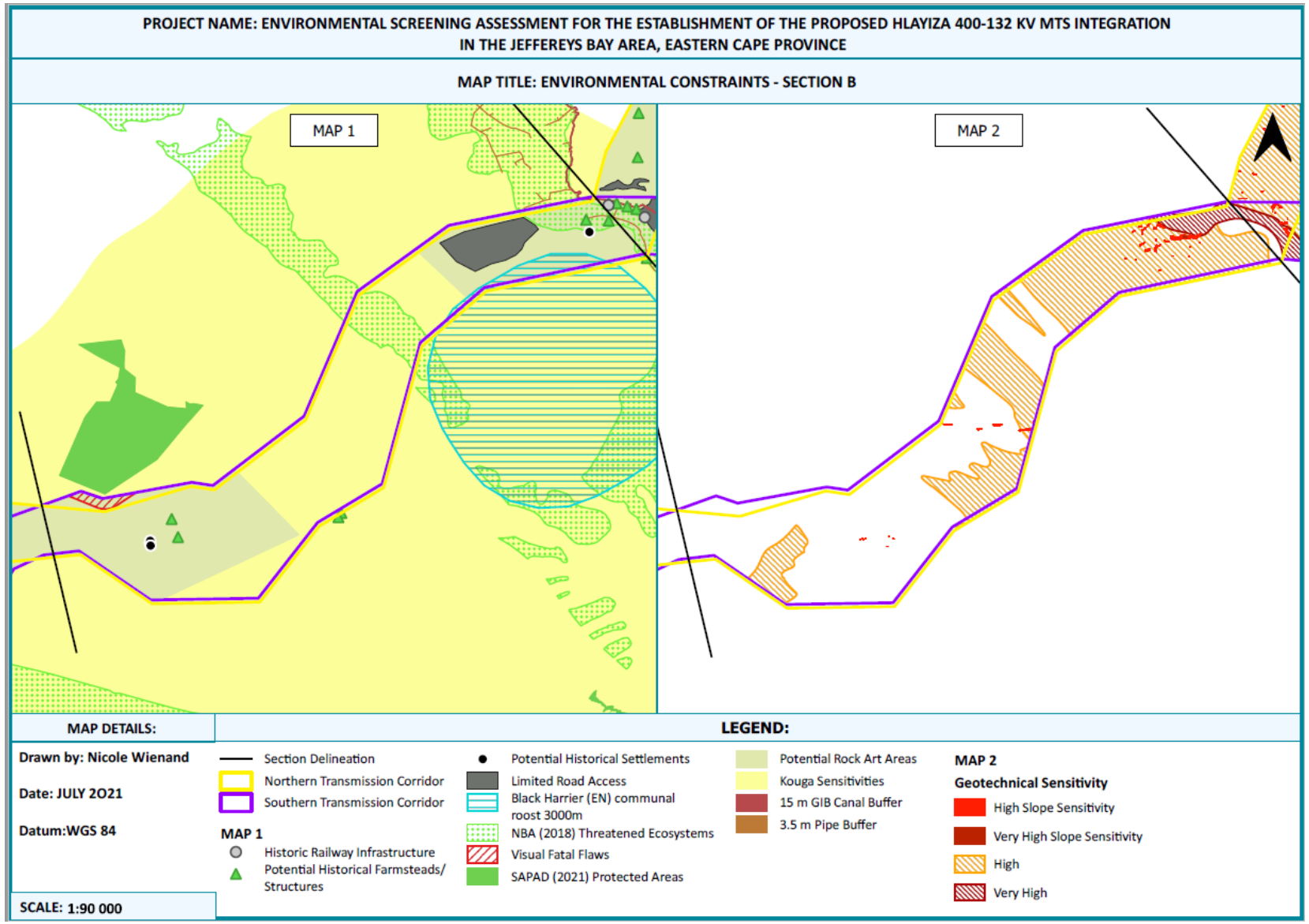


Figure 3.3: Environmental Constraints identified for Section B of the propose Hlaziya 400-132 kV Powerline Project.

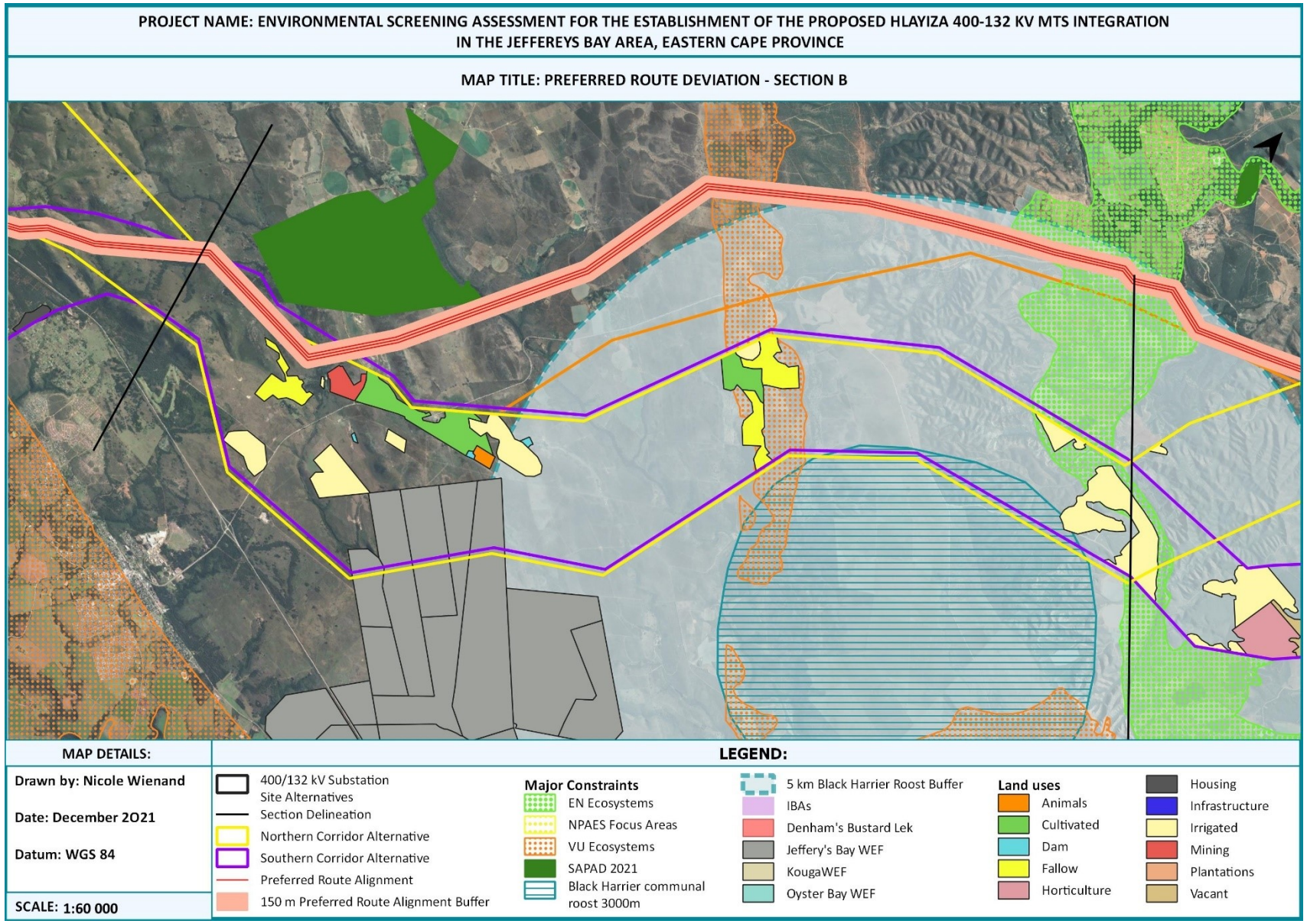


Figure 3.4: Preferred route alignment within Section B of the propose Hlaziya 400-132 kV Powerline Project.

3.4 SECTION C

The route corridor splits forming two separate defined route corridor alternatives: a northern and southern route corridor alternative. Section C runs from the Remaining Extent of Spitz Bak Estate Farm Nr. 310 (RE/310), Remaining Extent of Zuurbrons Kloof Farm Nr. 307 (RE/307), Remaining Extent of Boschbok Hoek Farm Nr. 182 (RE/182), and Portion 4 of Boschbok Hoek Farm Nr. 182 (RE/182) along the Gamtoos River to Portion 12 of Boschfontein Farm Nr. 390 (12/390), Portion 23 of Boschfontein Farm Nr. 390 (23/390), Farm 660, and Portion 8 of Boschfontein Farm Nr. 390 (8/390) near Rocklands.

3.4.1 Major Constraints identified within Section C

In terms of terrestrial ecological sensitivity, three (3) main sensitivities were identified within Section C, namely the loss of Albany Alluvial Vegetation (EN) (both alternatives), impacts on protected areas (both alternatives), and the loss of the frog species *Heleophryne hewitti* habitat (northern corridor alternative). The mitigation potential for the loss of Albany Alluvial Vegetation and the impacts on protected areas was deemed achievable by the ecological specialist. However, the loss of *H. hewitti* habitat associated with the northern corridor alternative was identified as a major constraint within the northern corridor alternative.

H. hewitti is a species of frog classified as Critically Endangered (the same classification as, for example, the White Rhino) and endemic to the Eastern Cape Province. Its distribution is limited to only four rivers of the Elandsberg range, including the Geelhoutboom, Martin's, Klein and Diepkloof rivers. The rivers occur within close proximity to one another, with the greatest distance between any two being 3.5 km, while the sources of the four rivers only extends over approximately 10 km^2. Only the Martin's and Klein rivers have perennial tributaries. *H. hewitti* has only been recorded within three (3) quarter-degree squares and at altitudes of between 400-550 m. As such, *H. hewitti* has an extremely small extent of occurrence (EOO <100 km^2), making it one of the most restricted distribution ranges of any southern African amphibian. Its habitat includes the upper reaches of clear, fast-flowing perennial mountain streams with rocky beds, in an area with annual rainfall of 1000 mm. Adults and tadpoles are typically found beneath submerged and partly submerged rocks in these streams, and occasionally at the edge of small waterfalls and cascades (Boycott and Branch, 1988 in FrogMap, 2021). During the non-breeding season, adults forage in surrounding terrestrial habitat (mainly Grassy Fynbos). The greatest threat to this species is habitat loss, fragmentation, and degradation due to forestry, forest fires, and floods. Due to the threat status of this species (CR), its limited EOO <100 km^2, and the limited extent/isolated remaining patches of fynbos habitat, the habitat of *H. hewitti* has been considered a fatal flaw within that portion of the northern corridor alternative of Section C for the proposed Hlaziya 400-132 kV Powerline Project.

In terms of avifauna, Section C is far less studied than Sections A and B. No particular sensitivities are known in this area. However, this certainly does not mean that Section C is of low sensitivity. It is likely that if this area was surveyed intensively, multiple sensitive features would be identified, such as large raptor breeding sites in particular. The habitat is not favourable for large terrestrial bird species such as cranes, bustards and korhaans. This means that it is probably of lower sensitivity for bird collision than Sections A and B. Due to its' low levels of transformation and remoteness, this is probably the most sensitive section in terms of habitat destruction, and disturbance of avifauna. This is particularly true of the Northern Corridor. Few, if any, Eskom transmission lines exist in these areas. This means that the proposed project will significantly alter the status quo.

Although not specifically an avifaunal issue, both corridors pass through formal protected areas. The Northern Corridor passes through Groendal Nature Reserve, whilst the Southern Corridor passes through the Loerie Dam Local Authority Nature Reserve and the Longmore State Forest protected area. This may require further investigation during the formal Scoping and EIA process. Section C is sensitive for avifauna, but without spatially explicit areas that can be highlighted based on current knowledge. In Section C, the two corridors differ substantially in terms of the route that they follow. The Southern Corridor follows a route closer to the N2 and more developed areas, whilst the Northern Corridor traverses more of a wilderness area. In general terms, the Southern Corridor would therefore be preferred as it impacts on less remote/wilderness areas.

In terms of the social sensitivity, there are negative social impacts associated with both routes in this section. These negative impacts are primarily associated with displacement impacts of the irrigation farms and orchards, and the forest plantations. There is also a potential negative impact on tourism which stakeholders indicated was more of a concern for the southern route. The northern route is the preferred route from a social perspective for this section due to the lower tourism impacts and greater benefits of a new firebreak and improved electricity supply in this area. This route would also impact the Longmore commercial forest plantations, but the line could be designed to minimize the impact on these plantations. The southern route is possible, but the routing of the line must be designed to avoid, as far as possible, impacts on irrigated farms, irrigation and other infrastructure, and the Longmore commercial forest plantations.

However, at the start of Section C the overall social impacts are greater in the southern route in comparison to the northern route, as it could affects the Gamtoos Irrigation Board (GIB) water infrastructure and the farmers cultivating orchards and crops within the area where the powerline is proposed to cross the scheme and Gamtoos River. To mitigate the impacts of the southern corridor the social scientists recommended that the route be realigned to cut across the Gamtoos River further south in a place where there is a gap in the extensive irrigated lands. This alignment, at the start of Section C will avoid the displacement impacts on irrigated farms and orchards, and the associated high compensation costs. Care will still need to be taken to avoid towers impacting irrigation infrastructure, particularly the GIB water canals and pipelines. However, due to the large Black Harrier communal roost located just south of the proposed corridor and the associated 3-5 km buffer, an alternative that takes the line further south of the southern corridor, as suggested in the social study is not possible, as this alignment will imping into the Black Harrier communal roost.

Based on the above constraints within Section C of the proposed Hlaziya 400-132 kV Powerline Project, the significance of impacts associated with those constraints, as well as the mitigation potential, the southern corridor alternative is deemed the preferred route corridor alternative within Section C. The remainder of the sensitivity constraints identified by the various specialists within Section C can be mitigated to some degree which has resulted in the classification of the alternatives as either ‘option preferred’ or ‘option possibly viable’ (refer to Table 3.4).

3.4.2 Preferred Route Alignment identified within Section C

Determining the preferred route alignment within Section C of the proposed Hlaziya 400-132 kV Powerline Project presents several challenges, as both corridors have major constraints. Therefore, the preferred alignment utilizes both corridors. At the start of Section C, the line is located in the northern corridor and follows the northern corridor alternative for approximately 10.3 km in order to

avoid the 3-5 km buffer associated with Black Harrier communal roost identified within the south-eastern portion of Section B, before deviating south-east to join up with the southern corridor alternative to avoid the *H. hewitti* habitat identified within the northern corridor alternative. The preferred route alignment avoids, as far as practically and feasibly possible, impacts on high sensitivity agricultural land-uses such as cultivated areas, dams, horticulture, housing, industry, infrastructure, irrigated land, and poultry as well as the Loerie Nature Reserve (SAPAD, 2021). However, in some areas this is not possible, especially at the start of Section C where the route crosses the Gamtoos River, with its extensive irrigated fields. Of particular concern here are the impacts on orchards, as the route crosses a number of these, and it was not possible to avoid them. More detailed design, and a refined route layout is required here to avoid as many orchards as possible. Compensation payments for the loss of mature orchards will be very costly, and the Black harrier constraints prevents the route being moved south to areas with less irrigation, and fewer orchards.

It should be noted that the majority of the preferred route corridor alternative follows the southern-most extent of the southern corridor alternative. This is especially the case towards the end of Section C, where the route runs along the southern edge of the corridor, to avoid as far as possible the extensive plantations in this area. The alignment also ensures, as far as practically and feasibly possible, minimal bends due to the financial implications associated therewith (refer to Figure 3.6 below).

Table 3.4: Summary of preferred route corridors for Section C in terms of specialist constraints identified.

Section C			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Traffic	Option Possibly Viable	Option Possibly Viable	Both the northern and southern corridor alternative traverse mountainous terrain which could limit vehicular access during both the construction and operational phase. However, there are more constraints along the northern corridor. As such, the southern corridor is the preferred corridor for Section C, although the Northern Corridor is also viable.
Town Planning	Option Preferred	Option Possibly Viable	The southern corridor alternative traverse's intensive agriculture east of Hankey and north of Loerie/LoerieHeuwel as well as land identified for agricultural purposes in the SDF. The northern corridor alternative traverses predominantly uninhabited area (Protected Area and Longmore State Forest). The northern corridor alternative is also made up of a higher percentage of public land (large state-owned land parcels). The southern corridor alternative has a higher impact on human settlement and 'built-up' areas.
Geotech	Option Possibly Viable	Option Preferred	The Northern corridor traverses "very steep" terrain as it crosses the eastern arm of the Tsitsikamma Mountain range. The southern corridor shows less variation in elevation with "flat" to "moderately" steep slopes. The average soil depth and clay content is relatively identical with slightly higher clay percentage and deeper soil profiles expected for the southern corridor. Geologically the corridors are still underlain by the Kirkwood Formation, before finally moving back into the lowermost formations of the Cape Supergroup. The significant difference between the two corridors geologically is that the North Corridor crosscuts the Klein River and Kaan Formations from the Namibian Succession towards the northern boundary before the corridor diverts to the east. These formations are potentially limestone-rich and are associated with the Gamtoos Fault, which is mapped to terminate on the border with the Northern Corridors western boundary.
Soils and Agriculture	Option Preferred	Option Possibly Viable	Soil along the northern alignment of Section C is shallow and rocky Mispah and Glenrosa soil with a low arable potential. It is mostly used as grazing or forestry. The southern portion have plinthic soils but with deeper soils in the lower laying parts. Much if these are now cultivated, with some irrigated. Section C North is mostly low capability land that is presently under plantations or used as grazing. Section C South has islands of medium and high capability land. These portions are cultivated and irrigated where water is available. The rest has a low capability. It is suggested that Route Section C south under its present alignment be avoided from an agricultural perspective because of the intensive and large-scale irrigation.

Section C			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Avifauna	Option Possibly Viable	Option Possibly Viable	In terms of avifauna, Section C is far less studied than Sections A and B. However, it is expected that Section C is sensitive for avifauna, albeit without spatially explicit areas that can be highlighted based on current knowledge. The Southern Corridor follows a route closer to the N2 and more developed areas, whilst the Northern Corridor traverses more of a wilderness area. In general terms the Southern Corridor would therefore be preferred as it impacts on less of a remote/wilderness area.
Freshwater	Option Preferred	Option Preferred	While the northern and southern corridor alternatives are not overlapping within Section C, the number and extent of watercourses within both these corridors are similar and both are located within aquatic CBAs. Thus, avoidance of the watercourses and their respective ZoRs is not feasible. As such, there is no preferred corridor alternative for a suggested powerline route alignment within Section C. Considering that the proposed development is of a linear nature that will span over watercourses, effort must be made to avoid placement of powerline support towers within the watercourses. It is strongly recommended that the proposed powerline support towers be located outside of the watercourses and at least 32 m (as far as possible/feasible) from the delineated edge of a watercourse. It must be noted that the powerline support towers can be located within the NEMA and GN509 regulated zones as it relates to the NWA– provided the relevant authorization for these localities is approved.
Ecological	Option Not Viable	Option Possibly Viable	Two (2) impacts of high significance were identified for both corridor alternatives, namely the loss of Albany Alluvial Vegetation (EN) and impacts on protected areas. Despite the high significance of these impacts, it is the opinion of the specialist that mitigation of these impacts is achievable. One (1) impact of very high significance was identified for the northern corridor alternative, habitat loss/fragmentation of *H. hewitti* (CR) habitat. Mitigating for the potential loss of this species and its habitat would prove very difficult and costly and cannot ensure no further loss of this species, resulting in a residual impact of very high significance. Due to the threat status of this species (CR), its limited EOO <100 km^2, and the limited extent/isolated remaining patches of fynbos habitat, the habitat of *H. hewitti* has been considered a fatal flaw within the northern corridor alternative of Section C for the proposed Hlaziya 400-132 kV Powerline Project. As such, the southern route corridor alternative is deemed the preferred route corridor option for Section C of the proposed Hlaziya 400-132 kV Powerline project.

Section C			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Visual	Option Possibly Viable	Option Possibly Viable	Both the northern and southern corridors traverse designated protected areas, namely the Groendal Nature Reserve (north) and the Loerie Dam NR and Longmore State Forest (south). These may imply potential fatal flaws for both of the corridors. It would be possible to deviate to the northern corridor in order to circumvent the protected areas within Section C. Other constraints will remain, but the potential fatal flaw would be averted. Other visual constraints identified in Section C include: indigenous forest, steep slopes (>20%), and mountains and prominent hills. The southern corridor may require a more elaborate deviation in order to circumvent the protected areas within Section C.
Heritage	Option Preferred	Option Preferred	Sensitive sites can easily be avoided by micro-siting the final alignments and individual pylon placements during the EIA phase of the final route alignment options to avoid sensitive heritage resources where necessary.
Social	Option Preferred	Option Possibly Viable	There are negative social impacts associated with both routes in this section. These negative impacts are associated with displacement impacts of the irrigation farms and orchards and the forest plantations. The Gamtoos Irrigation Board (GIB) water infrastructure and the farmers cultivating orchards and crops within the area where the powerline is proposed to cross the scheme and river result in significant impacts. For the southern option – care will need to be taken to avoid towers impacting irrigation infrastructure, particularly the GIB water canals and pipelines. There is also a potential negative impact on tourism which stakeholders indicated was more of a concern for the southern route. The northern route is the preferred route from a social perspective for this section due to the lower tourism impacts and greater benefits of a new firebreak and improved electricity supply in this area. This route would also impact the Longmore commercial forest plantations, but the line could be designed to minimize the impact on these plantations. The southern route is possible, but the routing of the line must be designed to avoid impacts on irrigated farms, infrastructures and the Longmore commercial forest plantations.

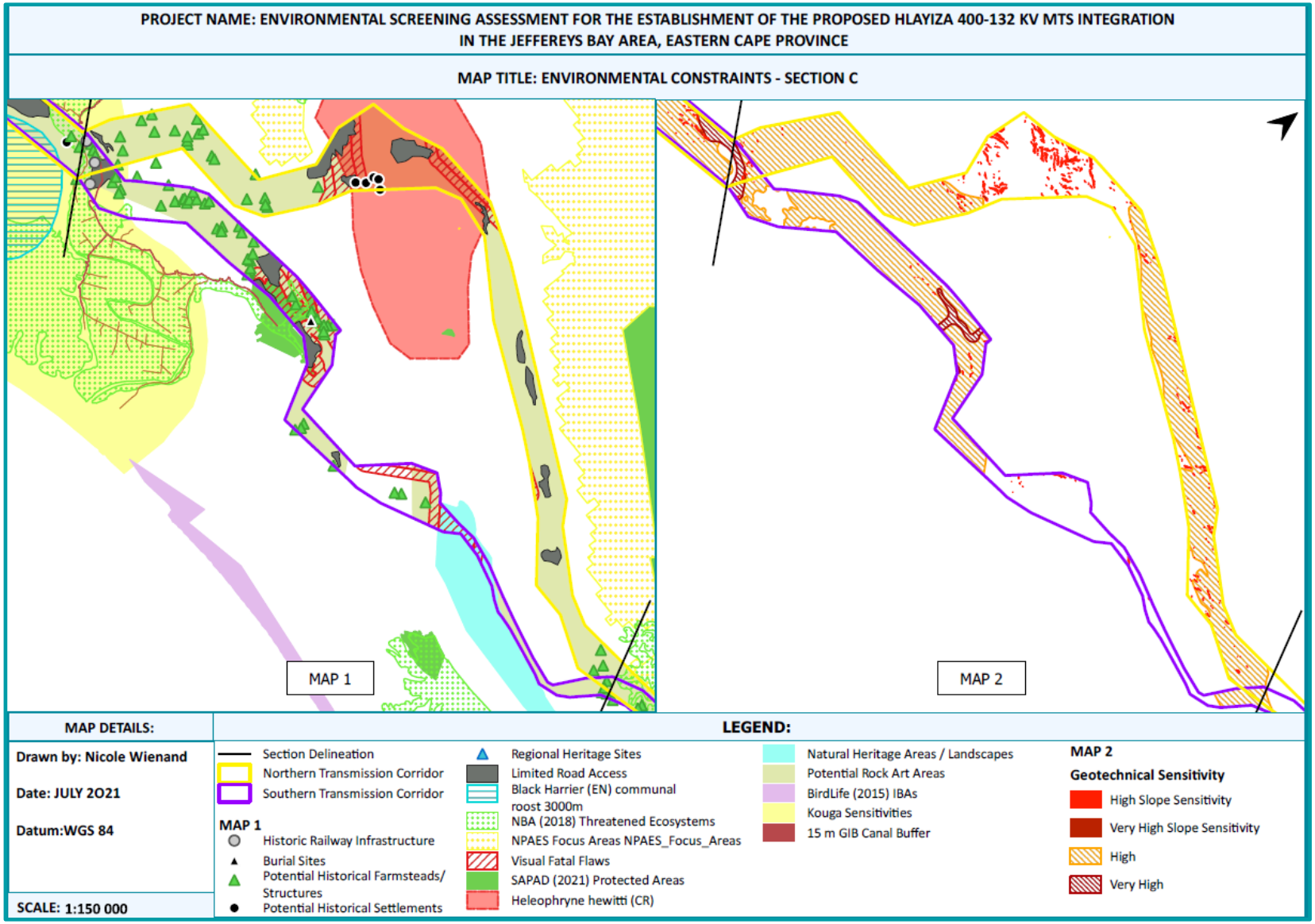


Figure 3.5: Environmental Constraints identified for Section C of the propose Hlaziya 400-132 kV Powerline Project

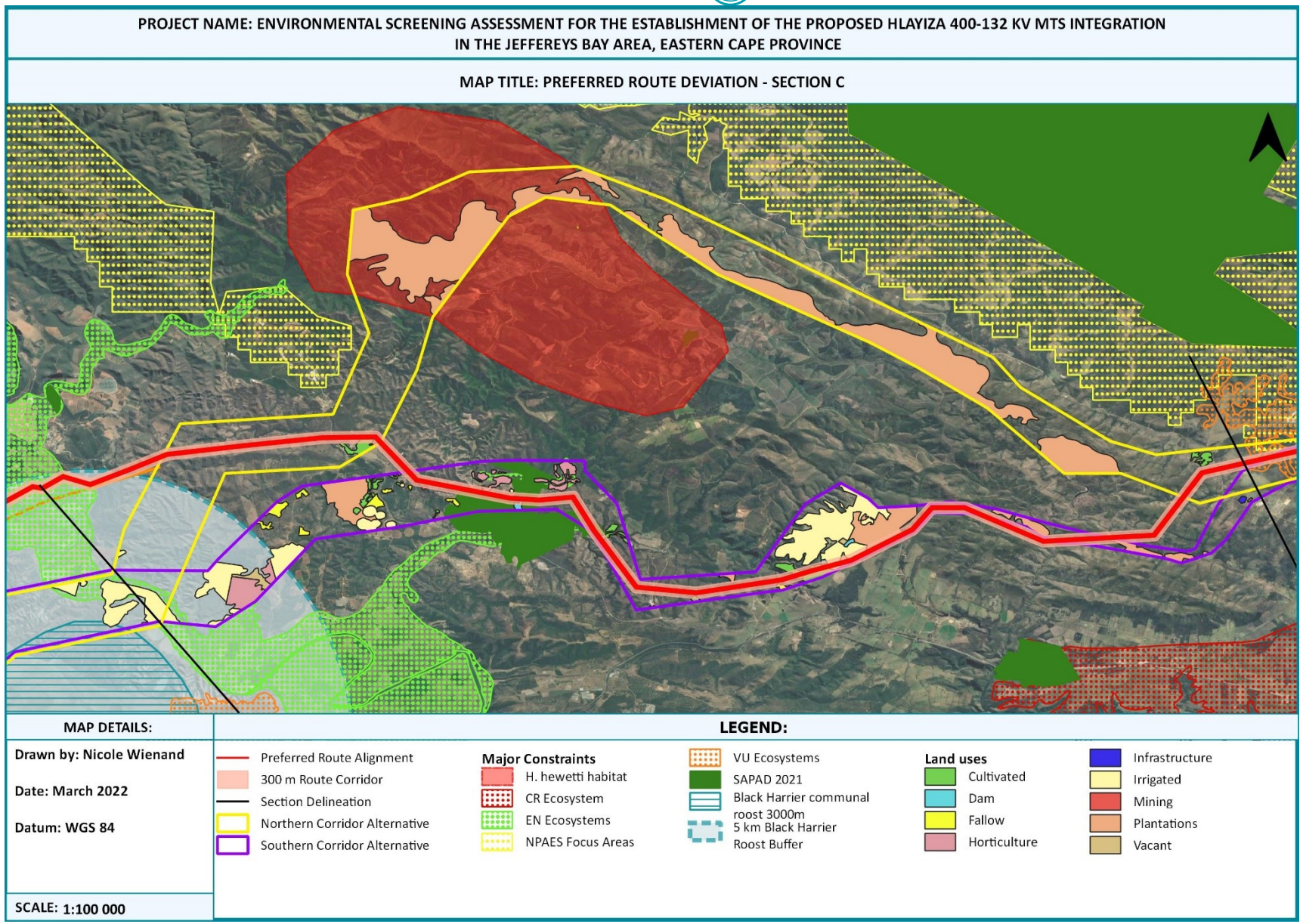


Figure 3.6: Preferred route alignment within Section C of the propose Hlaziya 400-132 kV Powerline Project.

3.5 SECTION D

The northern and southern corridor alternative for Section D largely overlap, forming one route alternative which runs from Portion 12 of Boschfontein Farm Nr. 390 (12/390), Portion 23 of Boschfontein Farm Nr. 390 (23/390), Farm 660, and Portion 8 of Boschfontein Farm Nr. 390 (8/390) near Rocklands to the boundary of Kwa Nobuhle township where it intersects a number of farm portions.

3.5.1 Major Constraints identified within Section D

There are no major constraints within Section D of the proposed Hlaziya 400-132 kV Powerline Project. As such, the majority of the specialists classified both the northern and southern route corridor alternative as 'option preferred', except for the southern corridor in terms of town planning and the northern and southern route corridor alternatives in terms of social sensitivities. These route corridor alternatives are classified as 'option possibly viable'.

In terms of town planning, the southern corridor has a higher impact on human settlement and 'built up' areas which can possibly be totally mitigated by the appropriate alignment of the servitude. However, it will be more onerous to register the required servitude across the higher number of land parcels that make up the southern route option. In general terms, an alignment further north or on the northern side of the current corridors would be preferred as it would have a reduced impact on existing dwellings and infrastructure.

Based on the desktop observations it was found that the ideal route for the line from a social perspective would be as far north of the corridor as possible as not to disturb intensive chicken/livestock farming in the area. Intensive livestock farming and associated structures in Section D appear to be the most intensive land use activity in the area and could pose a fatal flaw if it is not adequately planned for. This corridor section is viable from a social perspective, but careful alignment is needed to avoid impacting intensive farming operations and structures.

Two (2) main terrestrial ecological constraints were identified, including the loss of Humansdorp Shale Renosterveld (VU) and Impacts on Baviaans-Addo NPAES Focus Area. However, an analysis of the NBA (2018) Current Remaining Extent of the Threatened Ecosystems, as well as Google Earth aerial imagery, suggests that only fragments of Humansdorp Shale Renosterveld (VU) remain within the proposed corridors and therefore the loss of Humansdorp Shale Renosterveld can be mitigated by ensuring that the pylons and access roads avoid the remaining fragments of this vegetation type by constructing the pylons and temporary construction and/or permanent maintenance roads in previously transformed/disturbed areas. Both corridor alternatives intersect a small section of the Baviaans-Addo NPAES Focus Area. Development within these areas could compromise the potential for government to achieve targets for expanding South Africa's protected area network. It is recommended that development within this area be avoided as far as possible. Provided these recommendations and mitigation measures are implemented, the residual impact on these sensitive receptors will be reduced to a low negative.

Based on the above constraints identified within Section D of the proposed Hlaziya 400-132 kV Powerline Project, the significance of impacts associated with those constraints, as well as the mitigation potential, both the southern and northern route corridor alternative are deemed preferrable. The remainder of the sensitivity constraints identified by the various specialists within

Section C can be mitigated to some degree which has resulted in the classification of both route corridors as 'option preferred' (refer to Table 3.5).

3.5.2 Proposed Route Deviation

The Agricultural Specialist identified a route deviation which would mitigate negative impact on the agricultural sector. The proposed deviation begins where the proposed corridor traverses the Elandsriver Road and travels in a north eastern direction to a point just north of the Kruisrivier agricultural area, where it joins the northern corridor of Section E. The deviation proposal will affect fewer land parcels and will have a reduced impact on the agricultural activity.

There are no major issues that can be identified from the Traffic and transportation side with the preferred route deviation.

In terms of aquatic sensitivity, the following should be noted:

- The deviation is largely within Section D of the corridor alternative and based on aquatic sensitivity according to the national web based Environmental Screening Tool (DEA, 2020), the proposed deviation still falls within an area considered of **high aquatic biodiversity** sensitivity due to the presence of watercourses, aquatic Critical Biodiversity Areas (CBAs) and being located within Freshwater Ecosystem Priority Area (FEPA) quaternary catchments.
- Based on the available data (river lines from topographical maps and the NFEPA database (2011)), more watercourses are associated with the deviation compared to the current corridor alternatives (see *additional watercourses* in snip A below). Thus, more watercourses are likely to be traversed by the proposed powerline.
- In addition, according to the Eastern Cape Biodiversity Conservation Plan (2018), the proposed deviation is located in a CBA 1 of aquatic importance compared to the current corridors which are located within a CBA 2 of aquatic importance.

The current corridor alternatives are preferred from a freshwater sensitivity perspective, as the deviation would result in more watercourse crossings. However, given that the current corridor alternatives and the proposed deviation still host watercourses and are located within aquatic CBAs, avoidance of watercourses and their respective NEMA (32m buffer) and GN509 (100m buffer according to the NWA) zones of regulation is not possible.

Terrestrial Biodiversity Theme Sensitivity for the proposed route deviation is also classified as VERY HIGH due to the intersection of the project area with a Critically Endangered, Protected Areas Expansion Strategy (Baviaans-Addo NPAES Focus Area), Strategic Water Source Areas, Vulnerable Ecosystem (Humansdorp Shale Renosterveld), and the Groendal Wilderness Area. The proposed route deviation traverses more natural areas, including Humansdorp Shale Renosterveld (VU) as well as the Baviaans-Addo NPAES Focus Area, in comparison to the current corridor alternatives. As such, the current corridor alternatives are more preferred than the proposed route deviation.

Based on the input received from ecological and aquatic specialist, as well as the potential to mitigate impacts on agricultural land uses through the correct alignment of the powerline and hard structures, and through compensation, the current route corridor alternative is preferred over the route deviation proposed by the agricultural specialist.

3.5.1 Preferred Route Alignment identified within Section D

The preferred alignment in Section D is to locate the powerline as far north as possible in the northern corridor (Figure 3.8). The southern corridor has a higher impact on human settlement and 'built up' areas. Although mitigable, it will be more onerous to register the required servitude across the higher number of land parcels that make up the southern corridor alternative in comparison to the northern corridor alternative. Additionally, the far northern route corridor alternative does not impact on chicken/livestock farming within the area and avoids, as far as practically possible, highly sensitive agricultural land uses.

As such, the preferred route alignment within Section D of the proposed Hlaziya 400-132 kV Powerline Project follows the northern most extent of the northern corridor alternative for 2.4 km before deviating north-east to avoid, as far as practically and feasibly possible, highly sensitive agricultural land uses and built-up areas (see Figure 3.8).

Table 3.5: Summary of preferred route corridors for Section D in terms of specialist constraints identified.

Section D			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Traffic	Option Preferred	Option Preferred	No traffic/transportation constraints were identified in Section D. As such, both the northern and southern corridor alternatives are equally preferred throughout Section D.
Town Planning	Option Preferred	Option Possibly Viable	The southern corridor has a higher impact on human settlement and 'built up' areas which can possibly be totally mitigated by the appropriate alignment of the servitude. However, it will be more onerous to register the required servitude across the higher number of land parcels that make up the southern route option. In general terms an alignment further north or on the northern side of the current corridors would be preferred as it would have a reduced impact on existing dwelling s and infrastructure
Geotech	Option Preferred	Option Preferred	Section D is a relatively short section of about 7.0 km. The geological terrain is limited to the Ceres Subgroup from the Cape Supergroup. The slope and elevation within the section is relatively constant varying from flat to moderately steep. Average soil depth is expected to be about 0.5 m with low to moderate clay contents. No major geological constraints were identified within Section D.
Soils and Agriculture	Option Preferred	Option Possibly Viable	Section D is medium to low capability land and is used as grazing, but with intensive chicken/livestock farming in the south.
Avifauna	Option Preferred	Option Preferred	There are no known significant avifaunal sensitivities within Section D. Based on land use and habitat types, this section is not anticipated to be of high sensitivity. The impact of bird collision with overhead cables, habitat destruction and disturbance of birds in this area is rated as Moderate significance post mitigation, and the mitigation potential is rated as Achievable. As such, both corridor alternatives are acceptable,
Freshwater	Option Preferred	Option Preferred	Given the extent of the watercourses located within Section D (in both the northern and southern corridor alternatives which are very similar and are therefore associated with the same watercourses) avoidance of the watercourses and their respective ZoRs is not feasible. Thus, there is no preferred corridor alternative or a suggested powerline route alignment within Section D. Considering that the proposed development is of a linear nature that will span over watercourses, effort must be made to avoid placement of powerline support towers within the watercourses. It is strongly recommended that the proposed powerline support towers be located outside of the watercourses and at least 32 m (as far as possible/feasible) from the delineated edge of a watercourse. It must be noted that the powerline support towers can be located within

Section D			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
			the NEMA and GN509 regulated zones as it relates to the NWA – provided the relevant authorization for these localities is approved.
Ecological	Option Preferred	Option Preferred	Two (2) main ecological constraints were identified, including the loss of Humansdorp Shale Renosterveld (VU) and Impacts on Baviaans-Addo NPAES Focus Area. However, the mitigation potential of the impacts associated with these constraints was classified as 'achievable'. As such, both the northern and southern route corridor alternatives are preferred. provided the recommendations and mitigation measures specified are implemented.
Visual	Option Preferred	Option Preferred	The combined Northern and Southern Corridors within Section D are expected to have a moderate to low impact significance, which is expected to be easy to mitigate with site specific placement alternatives. Both alternatives are preferred.
Heritage	Option Preferred	Option Preferred	Sensitive sites can easily be avoided by micro-siting the final alignments and individual pylon placements during the EIA phase of the final route alignment options to avoid sensitive heritage resources where necessary.
Social	Option Possibly Viable	Option Possibly Viable	Based on the desktop observations it was found that the ideal route for the line would be as far north of the corridor as possible to disturb intensive chicken/livestock farming in the area. Intensive livestock farming and associated structures in section D appear to be the most intensive land use activity in the area and could pose a fatal flaw if not adequately planned for. See figure 3-8 for the proposed routing. This corridor section is viable from a social perspective, but careful alignment is needed to avoid impacting intensive farming operations and structures.

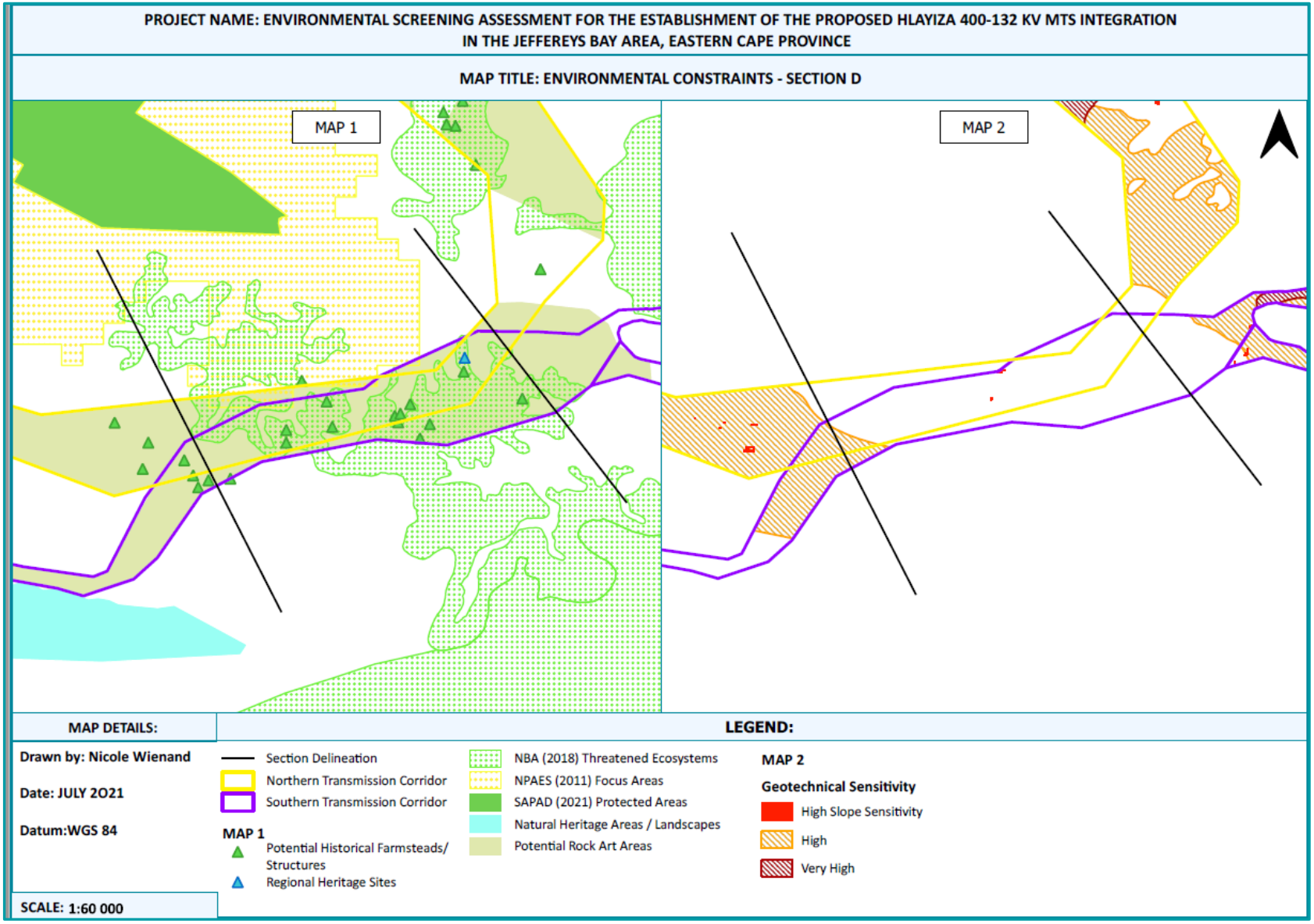


Figure 3.7: Environmental Constraints identified for Section D of the propose Hlaziya 400-132 kV Powerline Project

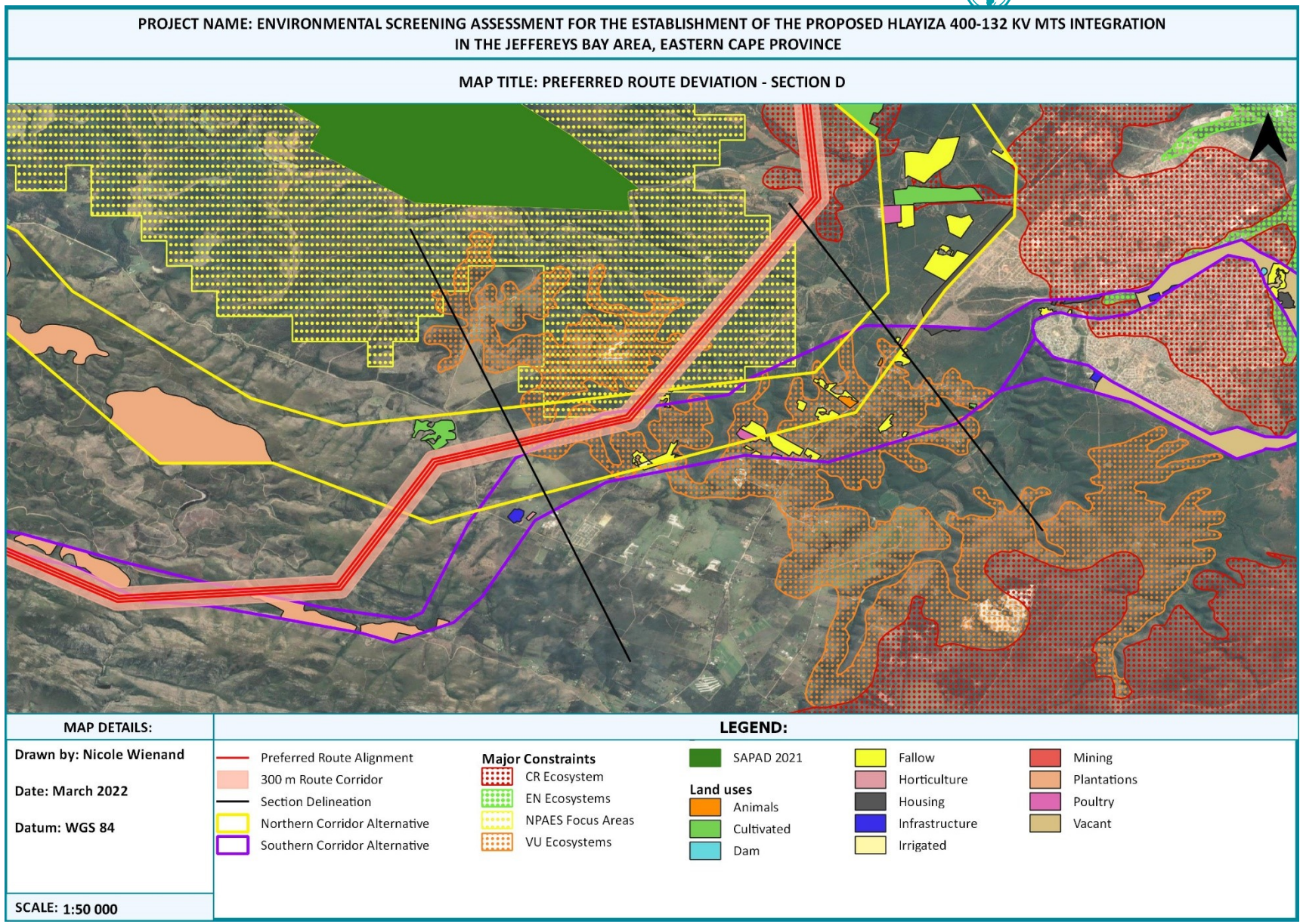


Figure 3.8: Preferred route alignment within Section D of the propose Hlaziya 400-132 kV Powerline Project.

3.6 SECTION E

The route corridor splits forming two separate defined route corridor alternatives: a northern and southern route corridor alternative. Section E runs from the boundary of Kwa Nobuhle township where it intersects a number of farm portions to the Remaining Extent of Welbedachtsfontein Farm Nr. 300 (RE/300), Papenkuils Vley Farm Nr. 299, and the Remaining Extent of Rietheuvel Farm Nr. 296 (RE/296) along the boundary of the Coega River.

3.6.1 Major Constraints identified within Section E

Two (2) major constraints associated with town planning and terrestrial ecology were identified within the southern corridor alternative for Section E of the proposed Hlaziya 400-132 kV Powerline Project.

In terms of town planning, the northern Corridor traverses a significant part of the Kruisrivier agricultural area. This area includes irrigated lands and other intensive agricultural practices. The southern route is severely constrained by the fact that it traverses/intersects dense urban areas. The areas between Joe Slovo and Khayamnandi are particularly constrained as these areas have been earmarked for human settlement development. Many of the areas have already been planned (Existing Layouts and services designs). It will be possible to mitigate the potential impact of the servitude by alignment in the proposed open spaces which would follow existing drainage features. The southern route also impacts on the planned Jachtvlakte Precinct (Large planned human settlement area), traverses' numerous informal settlements and informal farming communities, and traverses an area which is already subject to numerous and significant bulk electrical supply corridors. The introduction of an additional servitude will potentially reduce the availability of already scarce land required for human settlement development. Based on the above, the northern corridor alternative is the preferred option for Section E from a social perspective while the southern corridor alternative is classified as 'option not viable'.

Two (2) terrestrial ecological constraints were identified for Section E, namely the Loss of Albany Alluvial Vegetation (EN) and the loss of Motherwell Karroid Thicket (CR). Based on the NBA (2018) Current Remaining Extent of Threatened Ecosystems for both the Albany Alluvial Vegetation (EN) and the Motherwell Karroid Thicket (CR), the northern corridor alternative has been identified as the preferred corridor alternative for Section E, as the loss of these vegetation types can be largely avoided by careful alignment of the proposed powerlines within this corridor alternative. The impact on the protected areas (northern corridor: Springs Local Authority Nature Reserve; southern corridor: Swartkops Valley Local Authority Nature Reserve) can also largely be mitigated as these protected areas occur on the outer most edge of the corridor alternatives and can therefore be avoided. In terms of the impacts on the Addo-Baviaans NPAES Focus Area, it is assumed that vegetation clearance will be limited to that which is required for the construction of the pylons and temporary construction and/or permanent maintenance roads only. With the appropriate mitigation measures, it is the opinion of the specialist that this impact can be effectively mitigated to ensure a low residual impact.

The northern corridor alternative is also preferred in terms of aquatic ecology, geology, heritage and avifaunal sensitivity. In terms of traffic and visual the northern corridor alternative is classified as 'option possibly viable' provided the recommendations specified are implemented to determine the preferred route alignment within Section E.

3.6.1 Preferred Route Alignment identified within Section E

Based on the major constraints identified within the southern corridor alternative for Section E of the proposed Hlaziya 400-132 kV Powerline Project, the preferred route alignment follows the northern corridor alternative. Particular attention was afforded to the highly sensitive agricultural land uses within the western half of the northern corridor alternative. As such, the preferred route alignment follows the northern most extent within this area to avoid these sensitive agricultural land uses as far as practically and feasibly possible. Where avoidance of sensitive agricultural land uses is not possible, appropriate mitigation measures such as compensation and careful selection of Tower positions will need to be negotiated with the landowner.

Table 3.6: Summary of preferred route corridors for Section E in terms of specialist constraints identified.

Section E			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Traffic	Option Possibly Viable	Option Possibly Viable	A number of traffic constraints were identified within both the northern and southern corridor alternative in Section E. The northern corridor alternative traverses mountainous terrain where accessibility could be limited, an existing railway line, a proposed road, and proposed railway line. These impacts can be easily mitigated by ensuring the correct alignment which avoids these constraints. The southern corridor alternative traverses proposed future roads, proposed railway lines, as well as an existing railway line. However, impacts associated therewith are easily mitigable by spanning of the powerline over the existing and planned future transport infrastructure and by ensuring the that the support towers remain outside of all perspective reserves and building lines.
Town Planning	Option Preferred	Option Not Viable	The southern corridor will potentially have a higher impact on human settlement and 'built up' areas which can possibly be partially mitigated by the appropriate alignment of the servitude. The northern corridor also has an impact on human settlement and 'built up' areas which can possibly be totally mitigated by the appropriate alignment of the servitude. The northern corridor however traverses more active agricultural uses.
Geotech	Option Preferred	Option Possibly Viable	The corridors follow different routes underlain by Uitenhage group sediments within the Algoa Basin. Younger Tertiary Formation and Quaternary Sediments will also be intersected along both proposed routes. Deeper soil profiles can be expected in the basin with higher average clay percentages. These profiles are associated with the Kirkwood Formation which covers a large portion of the Algoa Basin. The slope for both corridors is relatively similar. A topographical comparison shows that the southern corridor traverses the central depression of the Algoa Basin, whereas the northern corridor follows a wider route along the boundary of the basin. The northern boundary does however flank developed land which would need to be considered.
Soils and Agriculture	Option Preferred	Option Preferred	Route Section E North has large, irrigated areas and the hydroponics on Kruisrivier 337. The southern extent of the northern corridor alternative consists of high capability land. The land is on alluvium of the Zwartkop River and it is used for irrigated crops and horticulture. The eastern extent of the northern corridor alternative consists of low capability land. The sensitive portions within the northern corridor alternative can be avoided by a slight deviation on Kruisrivier, which will make this the preferred route. The southern corridor alternative is mostly urban but is classified as medium or high capability land. Section E south has a grazing capacity of 15 ha/LSU, while the northern part is 20 ha/LSU.

Section E			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Avifauna	Option Preferred	Option Preferred	The Northern Corridor skirts around Uitenhage to the western side, between the town and the Groendal Nature Reserve. Parts of this corridor traverse arable lands, where there could be a bird collision risk. West of Uitenhage the corridor passes through areas of thicket and Bontveld. The Southern Corridor is more urban in nature, passing through KwaNobuhle and other similar areas before reaching the Swartkops River. Several existing Eskom transmission lines are present for parts of this corridor, providing an opportunity to group the new power line into an existing corridor of linear infrastructure. The Swartkops River crossing is a sensitive area, with many bird species present, some of which are susceptible to collision with power lines. However, the corridor does cross the river outside and upstream of the IBA. The Swartkops Valley Local Authority Nature Reserve is bisected very slightly by the corridor, but this is presumably avoidable. Based on the current desktop consideration, the southern corridor alternative is preferred as it passes through generally more built-up areas and is shorter (by approximately 5 kilometres if centre lines are used).
Freshwater	Option Preferred	Option Possibly Viable	Given the extent of the watercourses located within Section E (in both the northern and southern corridor alternatives) avoidance of the watercourses and their respective ZoRs is not feasible. In addition, both corridor alternatives are located within aquatic CBAs which makes avoidance of aquatic sensitive areas further challenging. However, considering the number of watercourses present within the northern corridor (which has fewer watercourses (34 in total) compared to the southern corridor with 42 watercourses, especially along the eastern portion of the northern corridor alternative, the southern corridor alternative is less preferred as it has more watercourses, thus more watercourse crossings by the proposed powerline are anticipated compared to the northern corridor. Considering that the proposed development is of a linear nature that will span over watercourses, effort must be made to avoid placement of powerline support towers within the watercourses. It is strongly recommended that the proposed powerline support towers be located outside of the watercourses and at least 32 m (as far as possible/feasible) from the delineated edge of a watercourse. It must be noted that the powerline support towers can be located within the NEMA and GN509 regulated zones as it relates to the NWA– provided the relevant authorization for these localities is approved.
Ecological	Option Possibly Viable	Option Not Viable	Two (2) ecological constraints were identified, namely the Loss of Albany Alluvial Vegetation (EN) and the loss of Motherwell Karroid Thicket (CR). However, impacts associated with the northern corridor alternative are easier to mitigate in comparison to those impacts associated with the southern corridor alternative.

Section E			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Visual	Option Possibly Viable	Option Preferred	The Northern Corridor has potential impacts of high to very high significance as it traverses more elevated terrain and steeper slopes within Section E. The Southern Corridor is preferred as it encounters fewer areas of potential higher impacts and has a higher potential to consolidate power line infrastructure within the corridor. Section E Northern Corridor is possibly viable with some deviations.
Heritage	Option Preferred	Option Preferred	Sensitive sites can easily be avoided by micro-siting the final alignments and individual pylon placements during the EIA phase of the final route alignment options to avoid sensitive heritage resources where necessary.
Social	Option Preferred	Option Possibly Viable	The northern route passes around the north of Kariega/Uitenhage town through mostly livestock farming areas. However, the route should be designed to go west of the irrigated farming areas immediately west of Uitenhage/Kariega town - this will minimise the economic displacement impacts and costs of compensation. The only social impacts of concern are potential displacement impacts which can be easily mitigated through careful design and compensation payments. The southern routes pass through and around the urban settlements around Dispatch town. This route is not recommended due to potentially high community health and safety impacts that cannot easily be mitigated, and high risks of vandalism to the line and infrastructures.

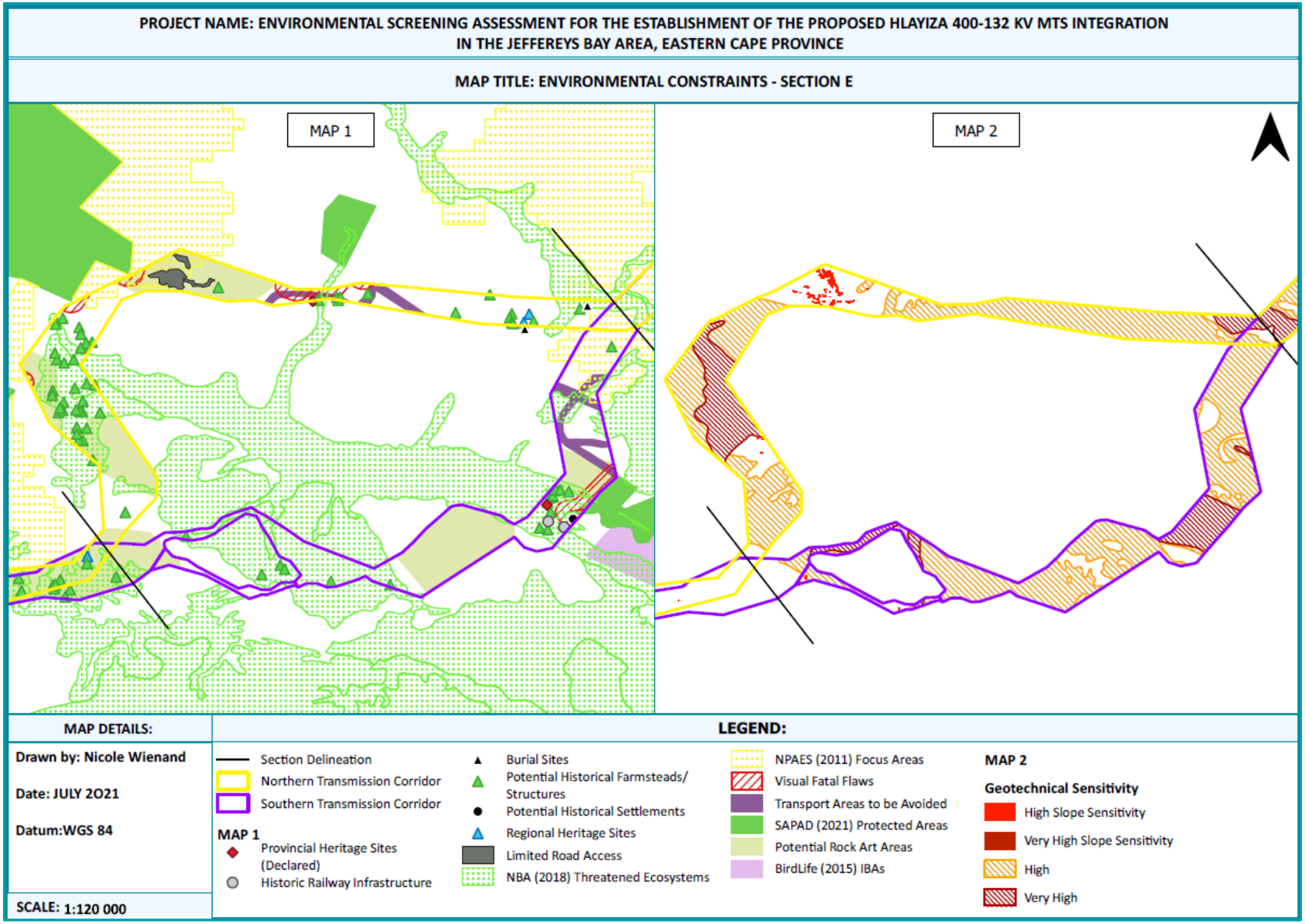


Figure 3.9: Environmental Constraints identified for Section E of the propose Hlaziya 400-132 kV Powerline Project

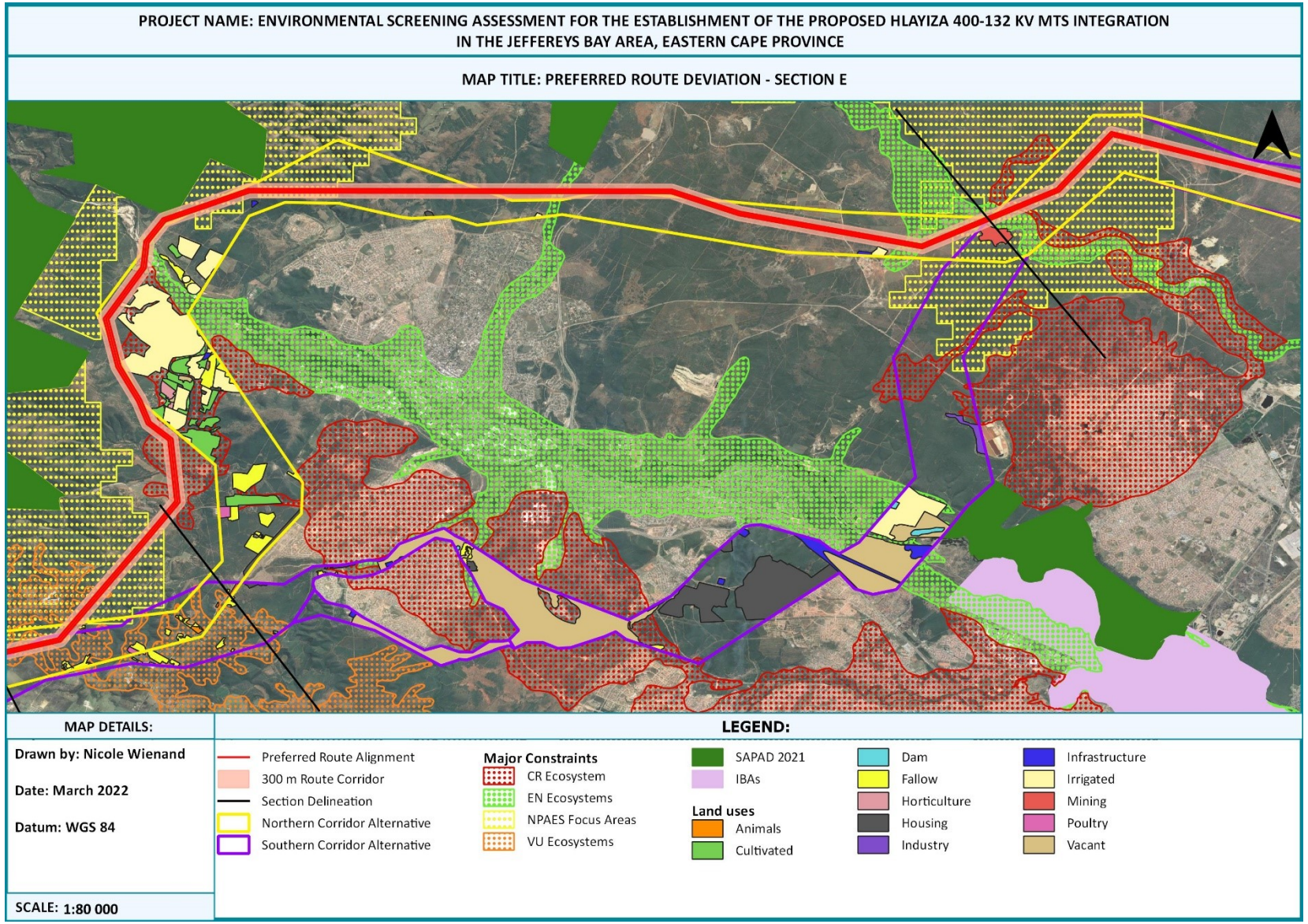


Figure 3.10: Preferred route alignment within Section E of the propose Hlaziya 400-132 kV Powerline Project.

3.7 SECTION F

The northern and southern corridor alternative for Section F overlap, forming one route alternative which runs from the Coega River to the Eskom Grassridge Substation.

3.7.1 Major Constraints identified within Section F

No major constraints were identified within Section F of the proposed Hlaziya 400-132 kV Powerline Project. The majority of the impacts identified can be mitigated by ensuring that the preferred powerline route follows existing cut lines and roads as far as possible (refer to Table 3.7 below).

3.7.2 Preferred Route Alignment identified within Section F

The preferred route alignment within Section F of the proposed Hlaziya 400-132 kV Powerline Project follows existing cut lines and fence lines, and avoids areas dominated by dense, intact thicket as far as practically possible. The route alignment from the Grassridge substation to the Dedisa substation follows existing Eskom line servitudes.

Table 3.7: Summary of preferred route corridors for Section F in terms of specialist constraints identified.

Section F			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
Traffic	Option Possibly Viable		This route crosses the R335 which is soon to be upgraded by SANRAL (F1). This is easily mitigated by spanning of the powerline over the existing and planned future transport infrastructure and ensuring that the support towers remain outside of all respective reserves and building lines.
Town Planning	Option Preferred		No town planning constraints were identified within Section F of the proposed Hlaziya 400-132 kV Powerline Project.
Geotech	Option Possibly Viable		The routes are underlain by the Sundays River Formation covered by Tertiary and Quaternary Sediments. Expected soils depth vary from 100 mm to 300 mm with moderately low clay contents. The slope and topography are also considered to be flat. No Major geological constraints were identified within Section F of the proposed Hlaziya 400-132 kV Powerline Project.
Soils and Agriculture	Option Preferred		Section F consists of shallow Glenrosa or Mispah soils and has low capability land.
Avifauna	Option Possibly Viable		Section F is moderately sensitive for avifauna, but without spatially explicit areas that can be highlighted. In this section, the two corridors do not differ substantially in terms of the relevant avifauna risks. Both corridors traverse similar habitat and landscape and will present similar risk to avifauna. It is recommended that the proposed powerline is routed along existing cut lines and roads as far as possible to the substation.
Freshwater	Option Preferred		There is no preferred corridor alternative or a suggested powerline route alignment within Section F. Considering that the proposed development is of a linear nature that will span over watercourses, effort must be made to avoid placement of powerline support towers within the watercourses. It is strongly recommended that the proposed powerline support towers be located outside of the watercourses and at least 32 m (as far as possible/feasible) from the delineated edge of a watercourse. It must be noted that the powerline support towers can be located within the NEMA and GN509 regulated zones as it relates to the NWA– provided the relevant authorization for these localities is approved.
Ecological	Option Preferred		Three (3) main ecological constraints identified are the loss of Motherwell Karroid Thicket (CR) and Albany Alluvial Vegetation (EN) and Impacts on Baviaans-Addo NPAES Focus Area. However, the further loss of these ecosystem could be avoided with careful planning and placement of the pylons and temporary construction and/or permanent maintenance roads. In terms of the impacts on the Addo-Baviaans NPAES Focus Area, it is assumed that vegetation clearance will be limited to that

Section F			
Specialist	**Northern Corridor**	**Southern Corridor**	**Preferred Route (reasoning)**
			which is required for the construction of the pylons and temporary construction and/or permanent maintenance roads only. With the appropriate mitigation measures, it is the opinion of the specialist that this impact can be effectively mitigated to ensure a low residual impact.
Visual	Option Preferred		The combined corridor alternatives for Section F are expected to have impacts of moderate to low significance. Both alternatives are preferred
Heritage	Option Preferred		Sensitive sites can easily be avoided by micro-siting the final alignments and individual pylon placements during the EIA phase of the final route alignment options to avoid sensitive heritage resources where necessary.
Social	Option Preferred		There appear to be no social impacts of concern in this section of the proposed powerline. Consideration should be made for any agricultural activity found in the area at proposed pylon/tower points.

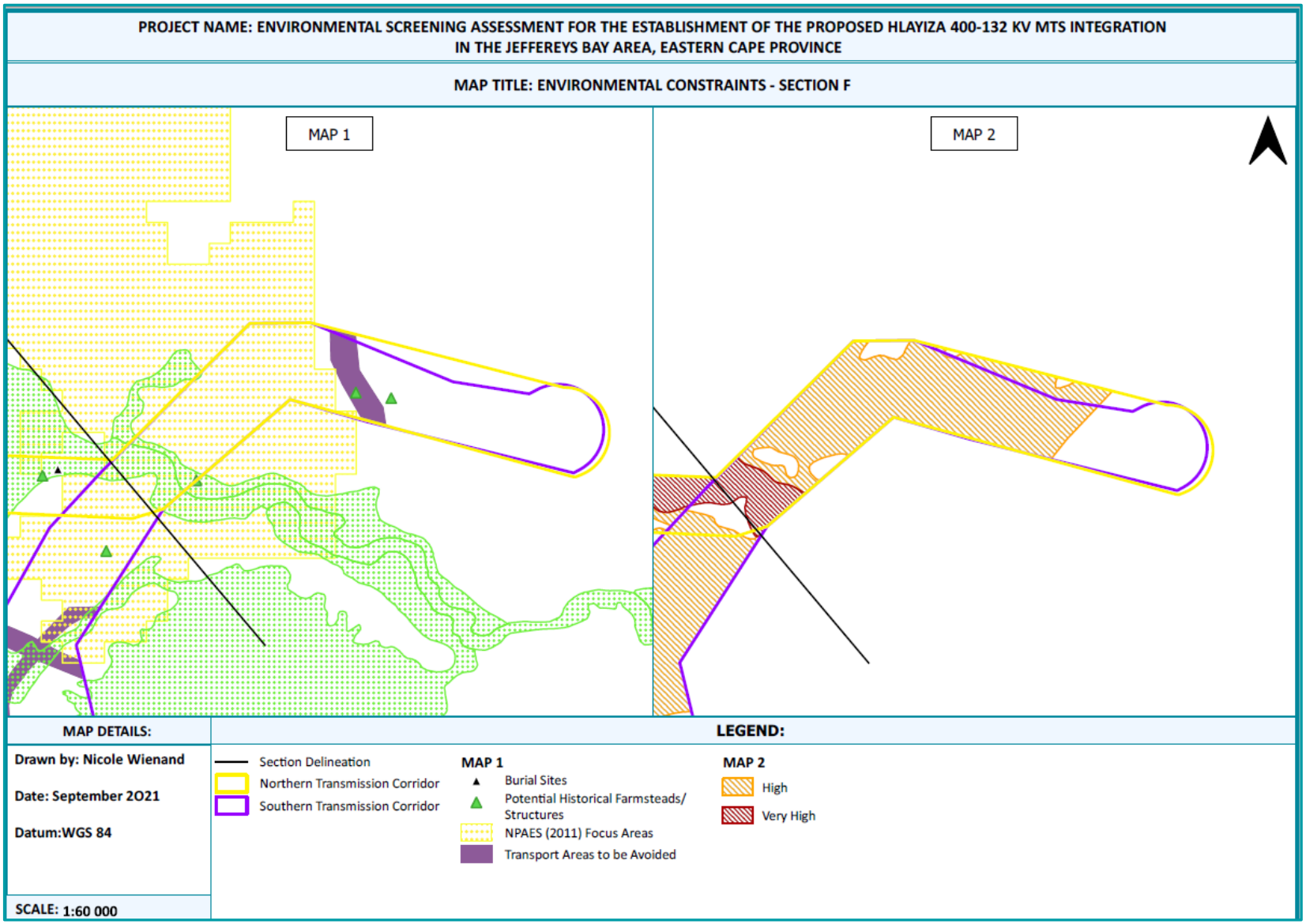
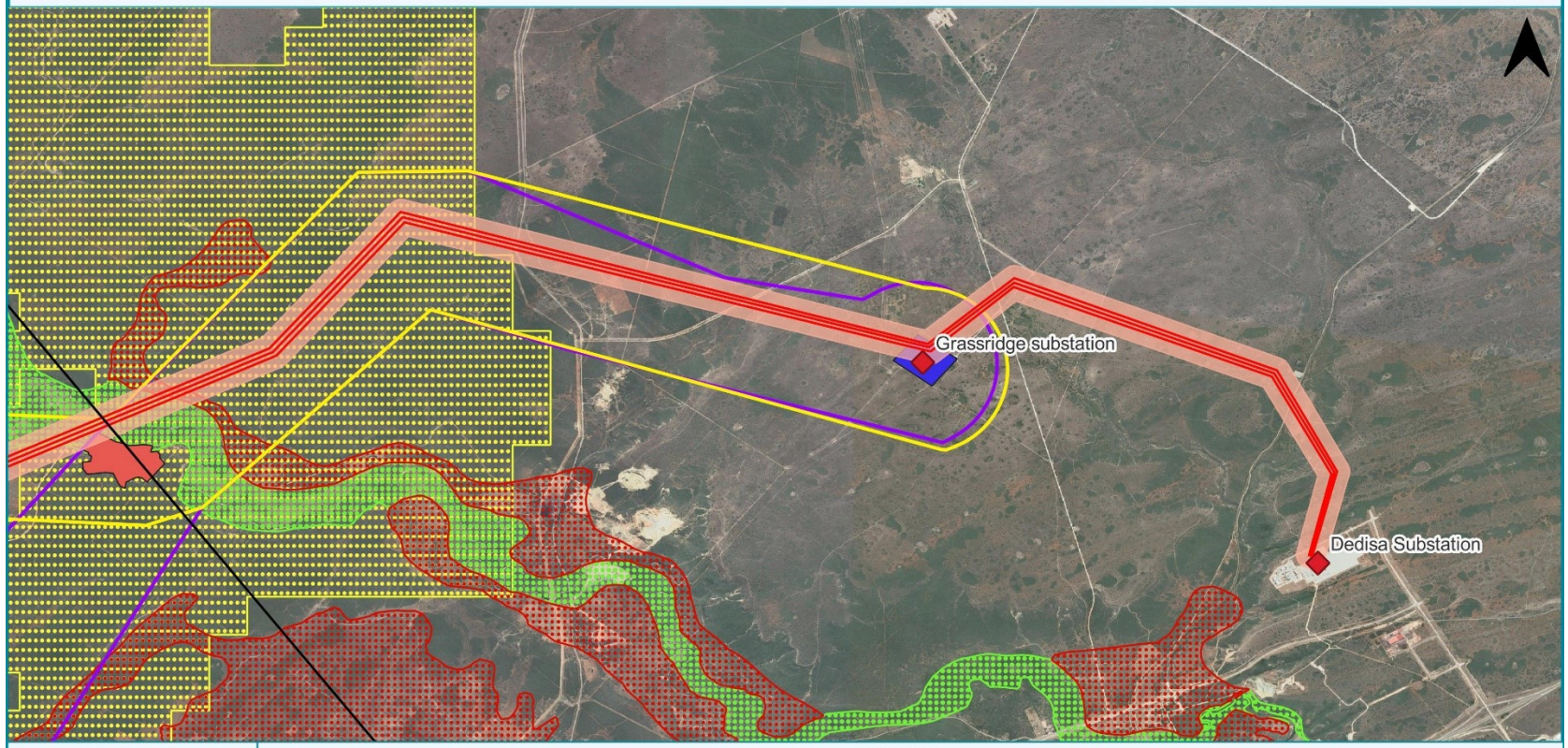


Figure 3.11: Environmental Constraints identified for Section F of the propose Hlaziya 400-132 kV Powerline Project

PROJECT NAME: ENVIRONMENTAL SCREENING ASSESSMENT FOR THE ESTABLISHMENT OF THE PROPOSED HLAYIZA 400-132 KV MTS INTEGRATION IN THE JEFFEREYS BAY AREA, EASTERN CAPE PROVINCE

MAP TITLE: PREFERRED ROUTE DEVIATION - SECTION F



MAP DETAILS:	LEGEND:		
Drawn by: Nicole Wienand	Preferred Route Alignment	Northern Corridor Alternative	EN Ecosystems
Date: March 2022	300 m Route Corridor	Southern Corridor Alternative	NPAES Focus Areas
Datum: WGS 84	Section Delineation	**Major Constraints**	**Land uses**
		CR Ecosystem	Infrastructure
			Mining
SCALE: 1:40 000			

Figure 3.12: Preferred route alignment within Section F of the propose Hlaziya 400-132 kV Powerline Project.

4 CONCLUSION AND WAY FORWARD

A preferred alignment has been determined for each of the six sections that CES defined to facilitate the selection of a preferred route alignment for the entire route length. The determination thereof has considered all inputs from the specialists using a multicriteria analysis approach. We are confident that the approach adopted is scientifically credible and has successfully integrated a range of criteria and factors in arriving at a preferred route alignment. We achieved this by integrating information into a geographical information system to facilitate route selection. It is our opinion that the selected route is a fair compromise between managing and mitigating impacts associated with the powerline route whilst still ensuring that the route follows, as far as possible, the route corridors defined by Eskom. It needs to be noted that in some instances it was necessary to deviate outside the defined corridors in order to mitigate environmental and social impacts or to avoid identified fatal flaws. However, the preferred route alignment was sent to all specialist for confirmation that no significant social and environmental constraints are affected. The following feedback was obtained and should be taken into consideration:

In terms of **aquatic** sensitivity, the revised layout traverses several watercourses as identified during the screening assessment, a majority of which are rivers and drainage lines. Development of powerline support structures and substations within watercourses and 32 m thereof is not preferred and recommended to be avoided as far as feasibly possible. The watercourses associated with the preferred powerline route alignment must be ground-truthed and assessed in terms of PES and EIS to inform the Department of Water and Sanitation (DWS) Risk Assessment prior to construction. The relevant authorisation will have to obtained from the DWS depending on the outcome of the field assessment and DWS Risk Assessment.

Concerning **agricultural** sensitivity, the final route traverses three areas that are sensitive because of the irrigated land it traverses (including pivots and horticulture). However, it should be noted that agricultural land use was carefully considered during the design of the final routing. Due to extensive agricultural land use, especially around the major river crossings within the irrigated alluvial soils of the river basins, it is not possible to avoid all agricultural land uses. As such, the only mitigation in these areas is compensation. Additionally, if the clearance of trees for the power line allows for normal moving of tractors and implements, then the impact is less severe.

With regards to terrestrial **ecological** sensitivity, the proposed route traverses a number of formal and informal protected areas (SAPAD, 2021, Q3), NPAES Focus Areas (2010), and conservation areas (SACAD, 2021, Q3). The management authorities for these areas, such as South African National Parks (SANParks) and the Eastern Cape Parks and Tourism Agency, must be consulted in order to ensure impacts on these areas are mitigated.

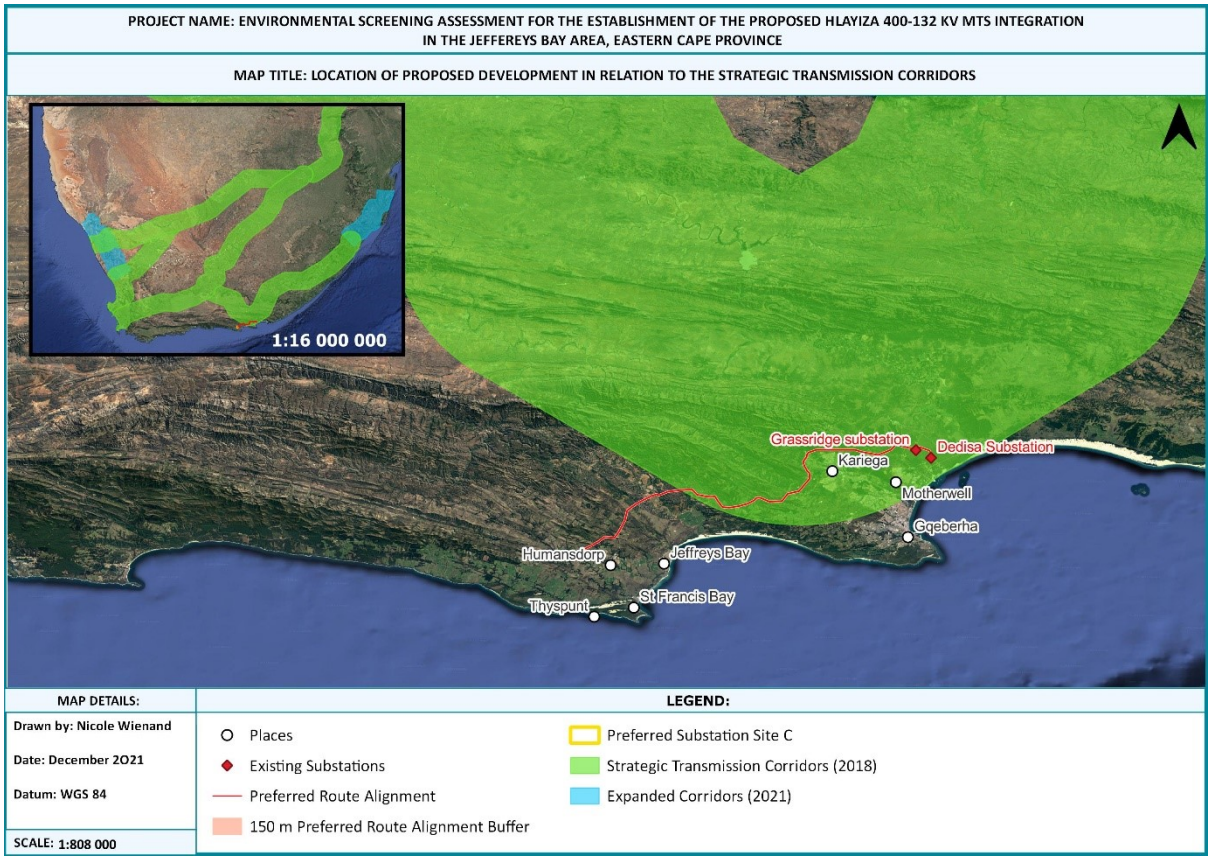


Figure 4.1: Location of the proposed development in relation to the Strategic Transmission Corridor.

In terms of the way forward and the process required to obtain the necessary Environmental Authorisation (EA) for the proposed development, the Government Gazette published on the 16th of February 2018 regarding Electricity Grid Infrastructure (EGI) Transmission Corridors states the following:

"3. Applications for an environmental authorisation for large scale electricity transmission and distribution facilities, when such facilities trigger ***activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014 and any other listed and specified activities*** *necessary for the realisation of such facilities, and* *where the greater part of the proposed facility is to occur in one or more such Strategic Transmission Corridors, must follow the basic assessment procedure* *contemplated in Regulation 19 and 20 of the Environmental Impact Assessment Regulations, 2014 in order to obtain environmental authorisation, as required in terms of the Act.* Section 4 also states that, *"The timeframe for decision making as contained in the Environmental Impact Assessment Regulations, 2014 for purposes of the applications for environmental authorisation contemplated in this Notice is 57 days."*

Approximately 87.2 km of the proposed route falls within the Strategic Transmission Corridor while 33.7 km of the proposed route falls outside of the Strategic Transmission Corridor (please refer to Figure 4.1 above). As the greater part of the proposed route falls within the Strategic Transmission Corridor, a Basic Assessment Process (and not a full Scoping and EIA) in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended) Environmental Impact Assessment (EIA) Regulations (2014, as amended) is required.