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Eskom Holdings SOC Limited

PROPOSED INSTALLATION OF A 66kV OVERHEAD POWERLINE AND NEW SUBSTATION EAST OF THE BITOU RIVER, WESTERN CAPE

Final Basic Assessment Report (Re-submitted)

NEAS: DEA/EIA/0001209/2012
DEA REF: 14/12/16/3/3/1/570

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Document title:	FBAR: PROPOSED INSTALLATION OF A 66KV OVERHEAD POWERLINE (2.5KM) AND NEW SUBSTATION ON FARM 305/16 EAST OF THE BITOU RIVER, WESTERN CAPE (RE-SUBMISSION)
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Revision No.:	2
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For:	SiVEST Environmental Division
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EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONERS

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QUALIFICATIONS	M.Sc (Environmental Science)
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EXPERIENCE IN YEARS	16
EXPERIENCE	Jenny Barnard is a Divisional Manager of the SiVEST Western Cape Environmental Division based in the Somerset West Office. She has worked on numerous Environmental Impact Assessments, both in South Africa and in the United Kingdom and has considerable experience in the preparation and compilation of Environmental Impact Reports, Environmental Management Programmes, and Environmental Audits.

NAME	Ursina Rusch
RESPONSIBIILTY ON PROJECT	Environmental Consultant & Report Compilation
QUALIFICATIONS	MSc. Zoology & Environmental Management
EXPERIENCE IN YEARS	2
EXPERIENCE	Ursina Rusch has experience in site assessments, field work, compilation of basic assessment, impact assessment and environmental compliance reports, public participation, and environmental research.

EXECUTIVE SUMMARY OF THE CONTENT OF THE BASIC ASSESSMENT REPORT

INTRODUCTION AND PROJECT DESCRIPTION:

An Environmental Authorisation (EA) was obtained on the 30th of April 2010 for the construction of a 66kV Powerline from the existing Robberg Substation to a new Bitou Substation site, east of the Bitou River (DEA Ref: 12/12/20/691) (Attached in Appendix G). This Application was undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations (EIA) 2006. The following activities were approved:

- The construction of new 66kV Powerline from the existing Robberg Substation to a new Substation site (Site Alternative C) on Farm 305/16 east of the Bitou River to accommodate the new 66kV Line.
- The location of the Powerline between the existing Robberg Substation (1km north of the N2 near New Horizons) and the proposed new Bitou Substation site on Farm 305/16 adjacent to the R340 and N2, east of the Bitou River, with a total length of approximately 5 km with servitude of 22m in width measured 11meters on either side from the centerline of the powerline.
- The existing Robberg Substation to be upgraded and to include the establishment of a bus bar to supply the existing 66kV transformer bay for the Robberg Substation and a new isolator bay to cater for the incoming line from Bitou.
- The existing 66kV transformer bay will be equipped with a breaker and isolator.
- This upgrade will be in accordance with standard Eskom Procedures.
- The upgrade would remain within the existing boundaries of the existing Robberg Substation.

Subsequently, the EA (DEA Ref: 12/12/20/691) was appealed by Mr. Stoloff of Scopefull 77 (Pty) Limited. The Appeal was based on the argument that portions of the approved Eskom project (Route 4B and Substation Site C) were located within 100m of the High Water Mark (HWM) of the Keurbooms Estuary, which triggered certain listed activities contained in Government Notice 386 of the EIA Regulations (2006) that had not been included in the EIA process undertaken by the independent EIA consultant at the time. SiVEST Environmental was subsequently appointed to provide scientific perspective on the location of the proposed Powerline and new Substation in relation to the HWM, confirming that the proposed development triggered various listed activities, as highlighted in the Appeal, in terms of the NEMA EIA Regulations of 2006. The Appeal was upheld. The Appeal by Mr. Stoloff of Scopefull 77 (Pty) Limited has since been withdrawn (written confirmation contained in Appendix G) subject to the completion of a Basic Assessment process, to include listed activities pertaining to the construction within the watercourse and the HWM in terms of the EIA Regulations of 2010. Specifically for the Powerline structures of the **portion of Route 4B** (approximately 2.5km long) that falls within 100m of the HWM of the Keurbooms Estuary and for the construction of a **new Substation on Farm 305/16**, east of the Bitou River. The National Department of Environmental Affairs (DEA) has confirmed (as per letter attached in Appendix G) that the Applicant (Eskom Holdings SOC Ltd.) must apply for environmental approval for the Route 4B (approximately 2.5km long) that falls within 100m of the HWM of the Keurbooms Estuary and for the construction of a new Substation on Farm 305/16 (Site C).

Note: for ease of evaluation, all revisions incorporated into the report since the Draft BAR are highlighted in light grey.

Note: for ease of evaluation, all revisions incorporated into the report since the Final BAR are highlighted in blue.

Proposed Development:

SiVEST Environmental Division has been appointed by Eskom Distribution Western Region, to complete the Basic Assessment (BA) process to obtain Environmental Authorisation, in terms of the EIA Regulations of 2010 (as amended), for the development of a **66kV Powerline (approx. 2.5km) (Route 4B) and the construction of a new Substation on Farm 305/16 (Site C),** east of the Bitou River, Western Cape. Please note that the Department of Environmental Affairs regards the current Application for Powerline Route 4B and Substation Site C, as a separate development proposal to the approved Powerline Route 4A (EA received in April 2010, extended for 2 years in April 2013) (refer to DEA letter dated 20 April 2012, Appendix G).

Please note that this re-submitted FBAR continues to propose the construction of Route Alternative 4 and Substation Site C as the preferred alternative, but that Route Alternatives 1, 2 and 3 as well as associated Substation Site Alternatives A and B, as evaluated in the BA process of 2008, have been re-assessed in comparison to Route 4 and Substation Site C and integrated into this report. **Please note:** Route Alternative 1, 2 and 3 are associated with Substation Sites A and B, meaning either of these three route alternatives can feed into Substation sites A or B. Route Alternative 4 is associated with Substation Site C only, due to technical and geotechnical constraints.

APPLICABILITY OF NEMA EIA REGULATIONS:

The proposed development requires compliance with the Environmental Impact Assessment (EIA) Regulations of 2010 (as amended), promulgated in terms of the National Environmental Management Act, Act 107 of 1998, as amended. The proposed activity requires a Basic Assessment as listed ***Activities 10(i), 11(xi), 14, 16(vi), 18(iv), 24*** under Government Notice No R. 544 as well as listed ***Activities 12(b), 13(a) and (c) (i) and 16(iv)(d)(i) and (ii)(ff)*** of Government Notice No R. 546 of the EIA 2010 Regulations are triggered.

This project also requires an Application for a License for Protected Trees (National Department of Agriculture, Forestry and Fisheries). **Please refer to Appendix G for proof issued license**.

RECEIVING ENVIRONMENT:

The sites of both the Substations and Powerlines are located to the north of Plettenberg Bay. The Substation sites are located on the north-west corner of the R340 and N2 intersection / crossing at the Keurbooms-Bitou Estuary (Site C) as well as east of the intersection along the R340 (Site A and B). The Powerline Route (4B) lies to the west of, and approximately parallel to, the existing alignment of the N2 and extends approximately 2,5km south of the Substation site. Powerline Routes 1-3 are situated east of the N2, running south-north while crossing various agricultural and natural terrain as well as the Keurbooms Estuary.

The immediate surrounding area to the site has been altered by human intervention, such as the agricultural lands and housing developments. There are areas in which the natural elements predominate, such as the river courses and hills. The Keurbooms Estuary is a prominent feature of the landscape near the proposed substation and powerline. The following specialist assessments were undertaken in order to evaluate the impact of the proposed development on the receiving environment: Botanical (2008, re-evaluated in 2013), Estuarine Ecology (2013), Visual (2012), Heritage (2007, re-study confirmed in 2013), Avi-Fauna (2008, re-evaluated in 2013) and Geo-technical (2008).

ALTERNATIVES:

Alternatives are defined in the NEMA EIA Regulations (2010) as *"different means of meeting the general purpose and requirements of the activity, which may include alternatives to: (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be used in the activity; and (e) the operational aspects of the activity and (f) the option of not implementing the activity*".

***Location / Route Alternatives*:**

The initial Basic Assessment process completed in terms of the 2006 EIA Regulations with corresponding EA issued (DEA ref: 12/12/20/691 and as attached in Appendix G) **investigated and comparatively assessed** the impacts for **four (4) alternative routes for the installation of a 66kV Powerline and three (3) alternative Substation sites for the development of the new Bitou Substation**. Route Alternative 1, 2 and 3 are associated with Substation Sites A and B, meaning either of these three route alternatives can feed into Substation sites A or B. Route Alternative 4 is associated with Substation Site C only, due to technical and geotechnical constraints. The DEA approved (EA dated 30/04/10 and as attached in Appendix G) **Route 4 and Substation Site C** as the **preferred Powerline route alternative and Substation Site**.

This re-submission of the Final Basic Assessment Report re-evaluated Route Alternatives 1-3 as well as Substation Sites A and B in comparison to Route Alternative 4 and Substation Site C. A summary of this comparison can be found below:

Route Alternative 1
This alternative is located centrally, between Route Alternatives 2 and 3 running north-east from the existing Robberg substation to proposed Substation Alternative Site B. **Reason for dismissal in 2008/2009 BA process:** high visual impact as the proposed alternative crested a hill in the visual catchment of the Bitou River Estuary. Pylons were to be placed in the sensitive Estuarine Functional Zone. Further, the proposed route would have spanned the Keurbooms Estuary and its functional zone at an approximately 890m distance, requiring pylons to be placed in the estuary (maximum possible line span between pylons is 300m) which, due to technical constraints was not considered reasonable or feasible.

Route Alternative 2
This was the most easterly located alternative, running south-north from the existing Robberg substation to proposed Substation Alternative Site B. **Reason for dismissal in 2008/2009 BA process:** high visual impact as the proposed alternative crested a hill in the visual catchment of the Bitou River Estuary. Pylons were to be placed in the sensitive Estuarine Functional Zone. Further, the proposed route would have spanned the Keurbooms Estuary and its functional zone at an approximately 890m distance, requiring pylons to be placed in the estuary (maximum possible line span between pylons is 300m) due to technical constraints was not considered reasonable or feasible.

Note: during the specialist re-evaluation of Route Alternative 2, landowner resistance was encountered. Specialists were refused access to property at select areas of the route, and had to use alternative methods of site evaluation.

Route Alternative 3
This alternative was located west of Route Alternative 4 running north-east from the existing Robberg substation to proposed Substation Alternative Site A. **Reason for dismissal in 2008/2009 BA**

process: high visual impact as the proposed alternative would have crossed the Bitou River Estuary on an open plain with low-standing vegetation resulting in a large view shed. Pylons were to be placed in the sensitive Estuarine Functional Zone (EFZ). Further, the proposed route would have spanned the Keurbooms Estuary and its functional zone at a distance of approximately 590m, requiring a pylon to be placed in the Bitou River Estuary (maximum possible line span between pylons is 300m).

Route Alternative 4 (Approved in original EA April 2010)
This alternative was the most eastern route, running north, parallel to the N2 highway, from the existing Robberg substation to proposed Substation Alternative Site C. **Reason for 2008/2009 BA process EA approval:** low visual impact as the proposed alternative would run parallel to the N2 and its road reserve resulting in minimal vegetation disturbance; visual impact was deemed medium-low due to the line's proximity to the N2 and high-standing vegetation (tree wind breaks); only one pylon would have to be placed near the Estuarine Functional Zone and the estuary span would be 300m, therefore no pylons would have to be placed in the Keurbooms Estuary.

Substation Sites A and B
These alternative sites were located west of Substation Site C on the provincial gravel road in old agricultural fields. **Reason for dismissal in 2008/2009 BA process:** Both sites were discovered to be flood-prone by the nearby Keurbooms Estuary and Bitou River. During the 2008 BA process both sites were severely flooded and were therefore considered unfeasible from a geotechnical and technical standpoint.

Substation Site C (Approved in original EA April 2010)
This site alternative was located on the corner of the provincial gravel road and the N2, on a flat, degraded site. A steep cliff face is located north and west of the site. **Reason for 2008/2009 BA process EA approval:** This site is the highest lying site of the three alternatives and is not flood prone. An old milkwood tree is situated on the site, which will not be removed and minimally trimmed (license from DAFF obtained).

The Route 4 and Substation Site C were selected as the preferred location/route alternatives for the proposed development based on various **advantages** as highlighted above as well as in the previous Basic Assessment Process conducted in 2008/2009 (EA received for Powerline Route 4A). Based on this process, Route 4B and Substation Site C were selected as the preferred alternatives for this Basic Assessment Process. A full impact assessment of Route Alternatives 1-3, Substations Sites A and B as well as Route Alternative 4 and Substation Site C are highlighted in detail in Section D of this report as well as in the specialist Botanical, Avi-Fauna and Archaeological assessments.

Technological Alternatives:

Powerline:
Various design options for the Powerline structures /pylon (galvanised steel monopole vs. wooden pylons) exist and these were investigated by the design engineers. However, due to the type of land use activities and terrain in this area, the preferred technological alternative for the pylons is a galvanized steel monopole design, as wooden pylons are considered to be unfeasible. These would be unsuitable to carry the span associated with the Keurbooms estuary crossing. Wooden poles also require higher and more frequent maintenance which results in more frequent disturbance of the environment surrounding the servitude during the operational phase of the powerline, as well as greater cost implications. Impacts associated with a galvanised steel monopole design are assessed in this report. Refer to Section D.

Substation:
Due to the complex and appealing visual nature of the receiving environment, the proposed Substation will constitute Eskom's latest low profile design for Substations to ultimately minimise the visual impact. Visual impact associated with the low profile Substation design is assessed in this report. Refer to Section D.

No-Go Alternative:

The No-Go Alternative refers to the option of not implementing the activity (construction of a powerline from the existing Robberg substation to the proposed substation east of the Bitou River) and ultimately the continuation of the current status quo.

There is a demand and pressure for a reliable power supply and the current 11kV does not adequately cater for current and future developments. The town of Plettenberg Bay has grown exponentially in the past 15 years. This trend is set to continue with the ever-increasing popularity of the town and the surrounding areas as a holiday and recreation destination as well as a desirable place for retirement, especially east towards and past the Keurboom River areas which has been earmarked for future development. The result is a constantly increasing demand and pressure for a reliable power supply. The current 11kV will not adequately cater for the current and future developments in the wider Plettenberg Bay, since the area has been plagued with numerous power outages. The Plettenberg Bay Municipality has requested an increase in its Notified Maximum Demand (NMD) with Eskom, however the municipality was advised that an increase in the NMD cannot be granted until the distribution network in the area have been strengthened. The proposed substation and powerline form part of the required strengthening of the distribution network.

Currently there is no alternative means of increasing the electricity supply and distribution for the area. The project is, therefore, regarded as a vital infrastructural component to sustain economic and social development in the area. The no-go option therefore carries negative socio-economic impacts.

Additionally, the Plettenberg area is heavily affected by alien invasive vegetation that has infested large areas of indigenous vegetation habitat. The construction of a powerline will enable to clearance of alien vegetation in the servitude, providing a much-needed biodiversity corridor for indigenous species. The no-go option would therefore carry negative botanical impacts.

PUBLIC PARTICIPATION

A public participation process was undertaken in accordance with the NEMA EIA 2010 Regulations and in terms of the DEA&DP's Guideline on Public Participation (August 2010):

Draft BAR Notification
The following parties were notified of the Basic Assessment Process and the availability of the Background Information Document (BID), Draft Basic Assessment Report (DBAR) and Environmental Management Programme (EMP) for review and comment:

- Department of Environmental Affairs and Development Planning
- Department of Water Affairs
- Bitou Local Municipality
- Eden District Municipality
- Heritage Western Cape
- Department of Forestry
- Department of Marine and Coastal Management

- CapeNature
- NGO and Ratepayers Association of the Area
- Adjacent landowners (Route 4B and Substation Site C)
- Ward Councillor of the area

- In addition to this, a newspaper advertisement was published in Die Burger newspaper; site notices were placed on the site; and the BID, Draft BAR and Draft EMP was delivered to the Plettenberg Bay Public Library and made available on SiVEST's website (www.sivest.co.za/Downloads.aspx) for review and comment.
- Stakeholders were given the opportunity to review and comment on the Draft BAR for a period of 40 days (22 June – 1 August 2012).
- All comments received or responses sent during the public comment period for the Draft BAR are recorded in a Comments and Responses Report (refer to Appendix F).

Final BAR Notification

The Final BAR and EMP were released for comment to all registered I&AP's of Route 4 and Substation Site C as well as the government departments listed below, for 21 days from 24 July 2013 to 16 August 2013. The Final BAR and Final EMP was delivered to the Central Library Plettenberg Bay and made available on SiVEST's website www.sivest.co.za for review and comment. The following organs of state received hardcopies:

- Department of Environmental Affairs and Development Planning
- Department of Water Affairs
- Bitou Local Municipality
- Eden District Municipality
- Heritage Western Cape
- Department of Forestry
- Department of Agriculture
- Department of Marine and Coastal Management
- CapeNature

Due to the history on this project (as summarised above), all registered I&AP's on Powerline Routes 1, 2 and 3 of the previous application (EA granted in April 2010) were also notified of the Final BAR publication via registered letters (refer to Appendix E) for continuity.

This re-submission of the Final BAR does not have to undergo Public Participation, as confirmed by DEA on 12 September 2013 (refer to Appendix E - Meeting Minutes for details).

ENVIRONMENTAL IMPACT STATEMENT

The impacts rated for the CONSTUCTION PHASE (as detailed in the tables above) for the PREFEERED ALTERNATIVE (SUBSTATION DEVELOPMENT (SITE C) AND POWERLINE (ROUTE 4B) are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Physical and Geological	Potential physical and geological impacts associated by the construction of the Substation and associated retaining wall.	Substation	Negative	Low
Physical and	Soil erosion through vegetation	Substation and	Negative	Low

Geological	clearance and soil compaction by heavy duty construction vehicles.	Powerline		
Physical and Geological	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Substation and Powerline	Negative	Low
Botanical	Potential botanical impact on Garden Route Shale Fynbos vegetation due to site clearance and construction of Substation on flat portion of Site C.	Substation	Negative	Medium
Botanical	Potential botanical impact on adjacent Garden Route Shale Fynbos and Southern Afrotemperate Forest vegetation located on steep cliff and foot slopes at the northern end of Substation Site C.	Substation	Negative	Medium
Botanical	Botanical impact associated with the trimming of one *Sideroxylon inerme* (Milkwood tree) for the construction of the Substation.	Substation	Negative	Medium
Botanical	Potential botanical impact on adjacent Garden Route Shale Fynbos along Route 4B adjacent to N2.	Powerline	Negative	Low-Medium
Botanical	Potential botanical impact on adjacent Outeniqua Sandstone Fynbos along Route 4B adjacent to N2.	Powerline	Negative	Low-Medium
Botanical	Potential botanical impact on Southern Afrotemperate Forest vegetation along Route 4B.	Powerline	Negative	Low-Medium
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through habitat destruction and mortality of vegetation.	Access track between Pylon B15 and B16	Negative	Very Low
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through erosion.	Access track between Pylon B15 and B16	Negative	Insignificant
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through pollution.	Access track between Pylon B15 and B16	Negative	Insignificant
Visual	Visual impact associated with the construction of the Powerline and Substation	Powerline and Substation	Negative	Medium to High
Heritage	None.	N/A	N/A	N/A
Dust	Dust impacts on surrounding environment associated with construction activities.	Powerline and Substation	Negative	Low
Noise	Noise impacts on surrounding environment associated with construction activities	Powerline and Substation	Negative	Low

	(Construction vehicles and equipment).			
Waste	Generation of additional waste/ litter and building rubble/hazardous material.	Powerline and Substation	Negative	Low
Avi-Fauna	Short-term disturbance of breeding (or foraging) areas during the construction of the Powerline.	Powerline	Negative	Negligible
Estuarine Ecology	Habitat destruction within EFZ for the substation footprint.	Substation	Negative	Low
Estuarine Ecology	Habitat destruction within EFZ for pylon B16.	Powerline- Pylon	Negative	Very Low
Estuarine Ecology	Habitat destruction of the EFZ while stringing the overhead cables using described methods.	Powerline	Negative	Insignificant
Estuarine Ecology	Pollution, including soil runoff and other foreign materials associated with the proposed substation entering the estuary via the existing storm-water drain.	Substation	Negative	Insignificant
Estuarine Ecology	Pollution, including soil runoff and other foreign materials associated with pylon B16 during construction.	Powerline - Pylon	Negative	Insignificant

The impacts rated for the <u>OPERATIONAL PHASE</u> for both the PREFEERED ALTERNATIVE (SUBSTATION DEVELOPMENT (SITE C) AND POWERLINE (ROUTE4B) are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Socio-economic	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.	Powerline and Substation	**Positive**	High
Avi-Fauna	- Electrocution of birds perching on the pylon structures supporting the conductors, and; - Collision of flying birds with the suspended cabling of the line.	Powerline	Negative	Negligible
Avi-Fauna	- Disturbance of birds during maintenance	Powerline	Negative	Negligible
Visual	Visual impact associated with Powerline and Substation	Powerline and Substation	Negative	Medium - Low
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through erosion.	Access track between Pylon B15 and B16	Negative	Insignificant
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through pollution.	Access track between Pylon B15 and B16	Negative	Insignificant
Estuarine Ecology	The development footprint of the substation becoming a site of erosion and thus contributing to siltation of the estuary.	Substation	Negative	Low

Estuarine Ecology	The development footprint of pylon B16 and associated construction track becoming a site of erosion.	Powerline - Pylon	Negative	Very Low
Estuarine Ecology	The development footprint of the substation becoming colonised by alien vegetation.	Substation	Negative	Insignificant
Estuarine Ecology	The development footprint of pylon B16 and construction track becoming colonised by alien vegetation.	Powerline - Pylon	Negative	Insignificant
Estuarine Ecology	Mortality to waterbirds due to collision with powerlines across the EFZ.*	Powerline	Negative	Low
Estuarine Ecology	Mortality of birds due to electrocution.	Powerline - Pylon	Negative	Low

* EFZ: Estuarine Functional Zone

The impacts rated for the <u>DECOMISSIONING PHASE</u> for the proposed ACCESS TRACK BETWEEN PYLON B15 AND B16 are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Botanical	Erosion resulting from the development of the temporary access track.	Access Track between Pylon B15 and B16	Negative	Insignificant
Botanical	Alien plant infestations resulting from the proposed development (access track).	Access Track between Pylon B15 and B16	Negative	Insignificant

The impact rated for the <u>NO-GO Alternative</u>:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Socio-economic	Negative socio-economic impacts as a result of inadequate supply of electricity to the area, thereby limiting growth and expansion of local economic activities. Improvement in supply of electricity to the area will not be secured.	Powerline and Substation	**<u>Negative</u>**	High
Botanical	Negative botanical impacts as a result of continued, uncontrolled alien vegetation growth. Construction of a powerline would enable the clearing of alien vegetation in the servitude, establishing a biodiversity corridor for native plant species.	Powerline and Substation	**<u>Negative</u>**	High

To summarise, the negative environmental impacts associated with the proposed preferred Route Alternative 4 and Substation Site C are generally considered to be local of nature and can be mitigated to a low level of significance in accordance with the detailed EMP (Appendix F). The project will however, result in high positive cumulative impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local

economic activities. The project will also allow for the clearing of alien vegetation within the proposed powerline and substation footprints, thereby positively contributing to the conservation of indigenous plant species in the area, by creating an alien-free biodiversity corridor.

COMMENTS/ISSUES

The following comments and potential issues were identified by stakeholders (name in brackets) during the Draft BAR phase. All issues raised have been adequately addressed through additional specialist reports (Appendix D), and mitigations measures presented in Section D of this Final BAR and the EMP (Appendix G). **Please refer to Appendix E as well as Section C, Subsection 7 of this Final BAR for a comprehensive comments and responses list.**

- Impact on bird species in terms of habitat loss, powerline collisions and electrocution (Redford Conservancy, Plettenberg Bay Community Environment Forum (PBCEF))
- Erosion caused by construction activities and during the operational phase at the proposed substation site and pylon sites (Redford Conservancy)
- Pollution of the estuary due to construction activities near the estuary (Redford Conservancy)
- Potential loss of threatened ecosystems or transformation of sensitive areas (CBA/ESA/NFEPA) (CapeNature, PBCEF)
- Need alien vegetation clearing as part of the management of the proposed substation and pylon sites (CapeNature, PBCEF)
- Request for an investigation of the impacts associated with activities in the Estuarine Functional Zone (CapeNature, DEA Integrated Coastal Management, DEA&DP)
- Potential impacts on Southern Cape Afrotemperate Forest surrounding the cliffs near the substation site (DAFF)
- Visual impact of the proposed powerline is a concern (Plettenberg Bay Community Environment Forum (PBCEF))
- The potential issues of climate change and changing water levels/floods need to be adequately addressed (DEA ICM, PBCEF)

CONCLUSION AND RECOMMENDATIONS

The Environmental Assessment Practitioner is therefore of the opinion that the negative environmental impacts associated with the proposed development be mitigated in accordance with the detailed EMP (Appendix F).

The proposed development will result in positive, socio-economic, cumulative impacts and has an overall positive benefit to the socio-economic development of the region. The project is aligned with the objectives of the policies and frameworks at both Provincial and local level.

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.

2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable **tick** the boxes that are applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

6. This report must be handed in at offices of the relevant competent authority as determined by each authority.

7. No faxed or e-mailed reports will be accepted.

8. The report must be compiled by an independent environmental assessment practitioner.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

11. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	YES	**NO✓**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for appointment of a specialist for each specialist thus appointed:
Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

Project Background

An Environmental Authorisation (EA) was obtained on the 30th of April 2010 for the construction of a 66kV Powerline from the existing Robberg Substation to a new Bitou Substation site, east of the Bitou River (DEA Ref: 12/12/20/691) (Attached in Appendix G). This Application was undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations (EIA) 2006. The following activities were approved:

- The construction of new 66kV Powerline from the existing Robberg Substation to a new Substation site (Site Alternative C) on Farm 305/16 east of the Bitou River to accommodate the new 66kV Line.
- The location of the Powerline between the existing Robberg Substation (1km north of the N2 near New Horizons) and the proposed new Bitou Substation site on Farm 305/16 adjacent to the R340 and N2, east of the Bitou River, with a total length of approximately 5 km with servitude of 22m in width measured 11meters on either side from the centerline of the powerline.
- The existing Robberg Substation to be upgraded and to include the establishment of a bus bar to supply the existing 66kV transformer bay for the Robberg Substation and a new isolator bay to cater for the incoming line from Bitou.
- The existing 66kV transformer bay will be equipped with a breaker and isolator.
- This upgrade will be in accordance with standard Eskom Procedures.
- The upgrade would remain within the existing boundaries of the existing Robberg Substation.
- Construction of an access track (to be rehabilitated) to access pylon site B16 within the Estuarine Functional Zone.

Subsequently, the EA (DEA Ref: 12/12/20/691) was appealed by Mr. Stoloff of Scopefull 77 (Pty) Limited. The Appeal was based on the argument that portions of the approved Eskom project (Route 4B and Substation Site C) were located within 100m of the High Water Mark (HWM) of the Keurbooms Estuary, which triggered certain listed activities contained in Government Notice 386 of the EIA Regulations (2006) that had not been included in the EIA process undertaken by the independent EIA consultant at the time. SiVEST Environmental was subsequently appointed to provide scientific perspective on the location of the proposed

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

Powerline and new Substation in relation to the HWM, confirming that the proposed development triggered various listed activities, as highlighted in the Appeal, in terms of the NEMA EIA Regulations of 2006. The Appeal was upheld.

The Appeal by Mr. Stoloff of Scopefull 77 (Pty) Limited has since been withdrawn (written confirmation contained in Appendix G) subject to the completion of a Basic Assessment process, to include listed activities pertaining to the construction within the watercourse and the HWM in terms of the EIA Regulations of 2010. Specifically for the Powerline structures of the **portion of Route 4B** (approximately 2.5km long) that falls within 100m of the HWM of the Keurbooms Estuary and for the construction of a **new Substation on Farm 305/16**, east of the Bitou River. The National Department of Environmental Affairs (DEA) has confirmed (as per letter attached in Appendix G) that the Applicant (Eskom Holdings SOC Ltd.) must apply for environmental approval for the Route 4B (approximately 2.5km long) that falls within 100m of the HWM of the Keurbooms Estuary and for the construction of a new Substation on Farm 305/16. Please note that the Department of Environmental Affairs regards the current Application for Powerline Route 4B and Substation Site C, as a separate development proposal to the approved Powerline Route 4A (EA received in April 2010, extended for 2 years in April 2013) (refer to DEA letter dated 20 April 2012, Appendix G).

Please note that this re-submitted FBAR continues to propose the construction of Route Alternative 4 and Substation Site C as the preferred alternative, but that Route Alternatives 1, 2 and 3 as well as associated Substation Site Alternatives A and B, as evaluated in the BA process of 2008/2009, have been re-assessed as alternatives to Route 4 and Substation Site C and integrated into this report. **Please note:** Route Alternative 1, 2 and 3 are associated with Substation Sites A and B, meaning either of these three route alternatives can feed into either Substation sites A or B. Route Alternative 4 is associated with Substation Site C only, due to technical and geotechnical constraints.

Proposed Development:

SiVEST Environmental Division has been appointed to complete the Basic Assessment (BA) process to obtain Environmental Authorisation, in terms of the EIA Regulations of 2010, for the development of a **66kV Powerline from the existing Robberg Substation to the proposed new Substation on Farm 305/16,** east of the Bitou River, Western Cape.

The proposed development triggers the following listed activities in terms of the EIA Regulations of 2010 :

GN No. R. 544:
Activities: 10(i), 11(xi), 14, 16(vi), 18(iv) and 24.

GN No. R. 546:
Activities: 12(b), 13(a) and (c)(i), and 16 (iv)(d)(i) and (ii)(ff).

This project also requires an Application for a License for Protected Trees (National Department of Agriculture, Forestry and Fisheries). **Please refer to Appendix G for proof of issued license**.

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

Introduction:

Reference is made to the Guideline on Alternatives (2010) (EIA Guideline and Information Document Series) by DEA&DP which states that "*in relation to a proposed activity, [alternative] means different means of meeting the general purposes and requirements of the activity."* A number of types of alternatives are generally considered in similar applications, including the activity location/property, the type of activity, the design/layout, the technology used and/or the option of not implementing the activity ("No-Go").

Location, Layout and Route Alternatives:

The initial Basic Assessment process completed in terms of the 2006 EIA Regulations with corresponding EA issued (DEA ref: 12/12/20/691 and as attached in Appendix G) **investigated and comparatively assessed** the impacts for **four (4) alternative routes for the installation of a 66kV Powerline and three (3) alternative Substation sites for the development of the new Bitou Substation**. The DEA approved (EA dated 30/04/10 and as attached in Appendix G) **Route 4 and Substation Site C** as the **preferred Powerline route alternative and Substation Site**.

A full impact assessment and re-evaluation of Route Alternatives 1-3 associated with proposed Substations Sites A and B as well as Route Alternative 4 associated with proposed Substation Site C are highlighted in detail in Section D of this report as well as in the specialist Botanical, Avi-Fauna and Archaeological assessments.

The Route 4 and Substation Site C was selected as the preferred location/route alternatives for the proposed development based on the following **advantages** highlighted in the various specialist assessments:

Botanical (Botanical Survey by Ross C. Turner Botanical Surveys dated 8-9 September 2008, re-evaluated by Paul Emms (Bergwind Botanical) dated December 2013, attached in Appendix D):

- Route 4 crosses no pristine vegetation units;
- Vegetation along Route 4 is either entirely transformed or alien infested;
- Route 4 crosses far fewer properties than other route alternatives;
- Route 4 is the most direct route leading to the only feasible Substation Site (Site C). Substation Sites A and B are low-lying and prone to periodic flooding.
- Route 4 has good infrastructural access for maintenance, i.e. newly tarred roads on the New Horizons suburb, the well maintained gravel road running to the sewerage works and the N2 highway.

Avi-Fauna (Bird Impact Assessment by Endangered Wildlife Trust dated July 2008, re-evaluated by Andrew Jenkins (Avisense) dated February 2014 as attached in Appendix D):

- Site alternatives (A, B or C) for the Substation development (all positioned to the north of the Bitou River along the R340 either in areas of open pasture or degraded, alien infested and disturbed forest) **neither presents a greater or lesser threat to avi-fauna**. Substation site selection is considered to be entirely subservient to the choice of line route;
- Avi-fauna impacts (collisions) are evident; however **Route 4 is undoubtedly the preferred route**;
- **Route 4 crosses the Bitou River floodplain at a fairly narrow point, with <500m of contiguous, open wetland exposed to the line at that point, as opposed to 600-1000m for all the other options;**
- Route 4 runs along the N2 for well over half of its length, **running parallel with the existing power and telecoms infrastructure and within the heavily disturbed road reserve.**
- Route 4 also **crosses the least amount of natural Fynbos and forest habitat**, which support the highest diversity of endemic species.

Archaeological (Archaeological Impact Assessment by Prof. H.J. Deacon dated 23 August 2007, study confirmed by Heritage Western Cape dated November 2013 as attached in Appendix D)

- **No archaeological and palaeontological impacts** identified along Route 4 other than the general risks in any construction works of uncovering buried materials. It is considered unlikely that the construction and operation of the proposed Powerline along any of the four alternative routes will have an impact on any archaeological or palaeontological resources.
- There are further advantages in routing the line (Route 4) adjacent to the N2 because of previous **impacts of road building and in minimising the impacts of the line construction through easy access from the N2.**
- The proposed location of the new Substation on Site C, offers no advantages over locations A & B.

Route 4B (part of route 4) and Substation Site C are **the preferred alternatives assessed** in this report as these alternatives have been found to have the least negative impact on the environment based on the previous, appealed Basic Assessment process. Impact associated with Route 4B and Substation Site C as well as Routes 1-3 and associated Substations Sites A and B are detailed in Section D of this report. In order to adequately assess the impact of proposed Route 4B and Substation Site C on the Keurbooms Estuary, an Estuarine Ecological Study was commissioned and completed in June 2013.

Estuarine (Estuarine Ecological Assessment by Dr. Barry Clark dated June 2013 as attached in Appendix D)

- Impacts in terms of construction impacts associated with habitat destruction, pollution and erosion **were deemed low to very low after mitigation measures**. The impacts in terms of habitat destruction are low in particular because the proposed Substation Site C and pylon sites for Route

4 within the Estuarine Functional Zone are located in **areas of degraded terrestrial habitat/vegetation.**

- Operational phase impacts were identified as high before mitigation, in particular due to bird collision with powerlines and electrocution due to perching on structures. With appropriate mitigation measures, **these impacts can be mitigated to low levels.**
- The impact of climate change on the substation and pylon location was also evaluated. The site is located 2.5km upstream of the estuary, **therefore rise in sea levels are projected to have negligible influence** on the proposed substation and pylon in the next 100 years. Increases in flood events in the Keurbooms Estuary are predicted, however over the long-term period (100 years) they **are not predicted to significantly increase in comparison to the current *status quo***, in terms of occurrence and duration of rainfall events.

Botanical (Botanical Assessment by Dr. Sean Porter dated July 2013 as attached in Appendix D)

- Botanical assessment conducted specifically for the proposed access track of Route 4 between Pylon B15 and Pylon B16, partially within the Estuarine Functional Zone.
- The proposed access track will be a single-track "twee-spoortjie" of temporary nature. Vehicles will reverse out (no turning circle at Pylon B16).
- The proposed route is highly degraded with clear evidence of past vegetation removal. The site lies within Garden Route Shale Fynbos, however the site is of little conservation value. Several species of conservation value are located in the area, however they are located adjacent to the proposed access track.
- **The overall impact after mitigation is considered very low to insignificant and the cumulative impact low.** However, the potential invasive alien plant infestation after the track is decommissioned is considered to be of **medium significance**. Therefore, the proposed access track and areas immediately adjoining it should be rehabilitated and re-vegetation to a near-natural state. This would be in line with the Garden Route Initiative Fine-Scale Biodiversity Planning projects management objectives of SANParks and the Garden Route Initiative (2010).

Technological Alternatives:

Powerline:
Various design options for the powerline structures/pylon (galvanised steel monopole vs. wooden pylons) exist and these were investigated by the design engineers. However, due to the type of land use activities and terrain in this area, the preferred technological alternative for the pylons is a galvanized steel monopole design, as wooden pylons are considered to be unfeasible as these would be unsuitable to carry the span associated with the Keurbooms estuary crossing. Impacts associated with a galvanised steel monopole design are assessed in this report. Refer to Section D.

Substation:
Due to the complex and appealing visual nature of the receiving environment, the proposed Substation will constitute Eskom's latest low profile design for Substations to ultimately minimise the visual impact. Visual impact associated with the low profile Substation design is assessed in this report. Refer to Section D.

No-Go Alternative:

The No-Go Alternative refers to the option of not implementing the activity (construction of a powerline from the existing Robberg substation to the proposed substation east of the Bitou River) and ultimately the continuation of the current status quo.

There is a demand and pressure for a reliable power supply and the current 11kV does not adequately cater for current and future developments. The town of Plettenberg Bay has grown exponentially in the past 15 years. This trend is set to continue with the ever-increasing popularity of the town and the surrounding areas as a holiday and recreation destination as well as a desirable place for retirement, especially east towards and past the Keurboom River areas which has been earmarked for future development. The result is a constantly increasing demand and pressure for a reliable power supply. The current 11kV will not adequately cater for the current and future developments in the wider Plettenberg Bay, since the area has been plagued with numerous power outages. The Plettenberg Bay Municipality has requested an increase in its Notified Maximum Demand (NMD) with Eskom, however the municipality was advised that an increase in the NMD cannot be granted until the distribution network in the area have been strengthened. The proposed substation and powerline form part of the required strengthening of the distribution network.

Currently there is no alternative means of increasing the electricity supply and distribution for the area. The project is, therefore, regarded as a vital infrastructural component to sustain economic and social development in the area. The no-go option therefore carries negative socio-economic impacts.

Additionally, the Plettenberg area is heavily affected by alien invasive vegetation that has infested large areas of indigenous vegetation habitat. The construction of a powerline will enable to clearance of alien vegetation in the servitude, providing a much-needed biodiversity corridor for indigenous species. The no-go option would therefore carry negative botanical impacts.

3. ACTIVITY POSITION

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

Alternative:
Alternative S1[2] (**Substation Site –Site C)**
Alternative S2 (Substation Site – Site A)
Alternative S3 (Substation Site – Site B)

Latitude (S):		Longitude (E):	
34°	**00’26.08”**	**23°**	**23’35.44”**
34°	**00’21.38**	**23°**	**22’56.53**
34°	**00’18.76**	**23°**	**22’42.88**

In the case of linear activities:
Alternative:
Alternative S1 **(Preferred Route 4B)**

Latitude (S):		Longitude (E):	
34°	**00’26.08”**	**23°**	**23’35.44”**
34°	**00’59.64”**	**23°**	**23’06.61”**
34°	**01’34.71”**	**23°**	**22’43.44”**

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

Alternative S2 (Alternative Route 1)

34°	02’38.58	23°	20’37.50
34°	01’37.75	23°	21’36.61
34°	**00’18.76**	**23°**	**22’42.88**

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

[2] “Alternative S..” refer to site alternatives.

Alternative S3 (Alternative Route 2)

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

34º	01'31.78	23º	21'16.11
34º	00'59.00	23º	21'40.35
34º	**00'21.38**	**23º**	**22'56.53**

Alternative S4 (Alternative Route 3)

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

34º	01'03.19	23º	21'16.11
34º	01'28.75	23º	21'45.21
34º	**00'21.38**	**23º**	**22'56.53**

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

4. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[3] (**Substation Site C preferred)**	**Approx. 3 600 m²**
Alternative A2(**Substation Site A alternative)**	**Approx. 3 600 m²**
Alternative A3(**Substation Site B alternative)**	**Approx. 3 600 m²**

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 **(Preferred Route 4B)**	**Approx. 2.5 km**
Alternative A2 **(Alternative Route 1)**	**Approx. 7.2 km**
Alternative A3 **(Alternative Route 2)**	**Approx. 7.2 km**
Alternative A4 **(Alternative Route 3)**	**Approx. 7.2 km**

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

Alternative:	**Size of the site/servitude:**
Alternative A1 **(Preferred Route 4B)**	**Approx. 22 m²**
Alternative A2 **(Alternative Route 1)**	**Approx. 22 m²**
Alternative A3 **(Alternative Route 2)**	**Approx. 22 m²**
Alternative A4 **(Alternative Route 3)**	**Approx. 22 m²**

5. SITE ACCESS

Does ready access to the site exist?	YES	**NO✓**
If NO, what is the distance over which a new access road will be built	**30m & 80m**	

Describe the type of access road planned:

[3] "Alternative A.." refer to activity, process, technology or other alternatives.

Substation Site C will require a short access track of approximately 30m. All pylon positions with exception of Route Alternative 4, Pylon B16 (within the EFZ) are accessible by existing tracks/roads. The access track to Pylon B16 of Route 4 partially exists (approximately first 100m) with a total length of approximately 180m from Pylon B15 to Pylon B16 within the powerline corridor. The track will be of temporary nature and rehabilitated upon completion of the construction phase (refer to Section D in this report, Appendix D for Botanical Assessment and Appendix G (EMP)).

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

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

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;
6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all trees and shrubs taller than 1.8 metres;
6.7 walls and fencing including details of the height and construction material;
6.8 servitudes indicating the purpose of the servitude;
6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
6.11 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

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

8. FACILITY ILLUSTRATION

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

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	**Unknown**	
What is the expected yearly income that will be generated by or as a result of the activity?	**Unknown**	
Will the activity contribute to service infrastructure?	**YES✓**	NO
Is the activity a public amenity?	YES	**NO✓**
How many new employment opportunities will be created in the development phase of the activity?	**Unknown. Eskom will make use of registered vendors on its vendor list. Current Eskom Contractor and Employees will be utilized.**	
What is the expected value of the employment opportunities during the development phase?	**Unknown**	
What percentage of this will accrue to previously disadvantaged individuals?	**N/A**	
How many permanent new employment opportunities will be created during the operational phase of the activity?	**Eskom will use its own employees.**	
What is the expected current value of the employment opportunities during the first 10 years?	**N/A**	
What percentage of this will accrue to previously disadvantaged individuals?	**N/A**	

9(b) Need and desirability of the activity

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

NEED:			
1.	Was the relevant provincial planning department involved in the application? **The Bitou Local Municipality Planning Department as well as the Provincial Department of Environmental Affairs & Development Planning (DEA&DP) have been identified as stakeholders and are involved in the process. The proposed Substation Site (Site C) is currently zoned as agricultural. However, Eskom is a Statutory**	**YES ✓**	NO

	Body and as such is exempt in terms of Section 23 of the Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985) from rezoning and subdivision application procedures, therefore a application for rezoning/ subdivision is not necessary.		
2.	Does the proposed land use fall within the relevant provincial planning framework?	**YES** ✓	NO
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area? **The proposed substation and powerline development will fit into the surrounding area to some degree due to the presence of a significant number of trees and other vegetation in the surrounding areas. This will mitigate visual impacts on the surrounding terrain and specifically on surrounding residential areas. The proposed powerline will be traversing parallel to the N2 road reserve for the majority of the route.** **The town of Plettenberg Bay has grown exponentially in the past 15 years. This growth trend is projected to continue especially east towards and past the Keurboom's area which has been ear-marked for future development. The result is a constantly increasing demand for reliable power supply and subsequent strain on the current distribution network. The current 11kV will not adequately cater for the current and future developments in the wider Plettenberg Bay area.**	**YES** ✓	NO
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area? **Reference is made to section 4.5.3 of the Local Economic Development Strategy compiled by Urban-Econ (dated 2011) for the Bitou Municipality which indicates that the Plettenberg Bay CBD is currently the most stressed area in terms of electrical supply: "*Measures need to be taken to ensure that if developments which centre on retail and business are to be undertaken in the name of Local Economic Development, the electrical infrastructure needs to be upgraded and developed in accordance, to meet the future demands for such developments and the future business environment (Bitou Municipality, 2011)".***	**YES** ✓	NO
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it? **Due to high demand of electricity in the Plettenberg Bay area, the Plettenberg Bay Municipality has requested to increase its Notified Maximum Demand (NMD) with Eskom. However, an NMD increase cannot be granted until the electricity network is strengthened as the pressure on the distribution network is too great, causing equipment failure and subsequent power outages. The proposed**	**YES** ✓	NO

	development will not only relieve the strain on the Plettenberg Bay CBD distribution network but also the farm feeders in the surrounding areas. Most of the impacts which have been assessed are of a low significance and can be mitigated to acceptable levels therefore the proposed substation and powerline outweigh the negative impacts of its development.		
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
5.	Will the proposed land use / development impact on the sense of place?	**YES** ✓	NO
6.	Will the proposed land use / development set a precedent?	YES	**NO** ✓
7.	Will any person's rights be affected by the proposed land use / development?	YES	**NO** ✓
8.	Will the proposed land use / development compromise the "urban edge"? **Buyiswa Ntloko from the Bitou Local Municipality indicated that the proposed development is situated within the urban edge (pers. comm. on 23/9/2011).** **Correction: due to on-going disputes with regards to the Plettenberg Bay urban edge, it is uncertain as to whether the proposed development is located inside or outside the urban edge. In order to ensure compliance with all NEMA EIA Regulations (2010, as amended), the proposed development is treated as being <u>outside</u> the urban edge. The corresponding Listed Activities have been updated accordingly.**	YES	**NO** ✓
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		
	<u>Explanation to question 5:</u> **Potential visual impact associated with Route 4 and Site C was identified (previous Basic Assessment and specialist assessments) as significant. Visual impact of the development would potentially have a negative impact on the sense of place on the receiving environment. In response, a Visual Impact Assessment (VIA) was completed as part of this Application (for Route 4B and Substation Site C) by Albert van Der Stok Visual Impact Assessments (dated May 2012 and as attached in Appendix D). The VIA concluded the following:** **Substation (Site C):** **Although the Substation site is adjacent to the N2 which is considered a scenic route and therefore is in need of special protection in terms of its visual environment, several factors will aid in limiting the visual impact to an acceptable level:** • **The structures on the site will be relatively low (approximately 5m) except for the lightening mast at approximately 14m and the final pylon at approximately 22m.** • **The backdrop of the cliff face behind the Substation will result in the lowering of the perceived visual impact of the substation as the relative**		

	percentage of change in the overall vista will be relatively small. • **The Substation will at no time be seen against the skyline thus lowering the visual impact.** • **The partial screening of the Substation by means of vegetation planted between the N2/R340 edges and the fencing around the site will aid in breaking the perceived intensity of the visual impact.** • **The presence in the surrounding environment of a significant number of trees and other vegetation will mitigate the impact on the surrounding terrain and specifically on the houses in Twin Rivers Estate and the one farm house that will be affected.** **The overall significance of the visual impact of the substation has therefore been assessed at medium without mitigation and medium-low with full mitigation.** **Powerline (Route 4B):** **The nature of the visual impact of the transmission line is different to that of the Substation in that the visual impact will be sustained along its route and the pylons and lines will be seen against the skyline from many viewpoints. However, the relatively long distance between the pylons, their slim nature and the visual permeability of the lines serves to lower the visual impact with the overall significance also being assessed at medium-low once the galvanizing on the pylons has had time to weather and the construction scars have been re-vegetated.** **The changing visual context in the area with the increase in housing and the proposed new N2 bypass will also alter the visual context over time in a way that will reduce the visual impacts.** **The visual impacts of Site C and Route 4B are therefore considered as being within the range that is acceptable within the overall visual context and it is therefore recommended that, in terms of the visual issues, the project be allowed to proceed provided that the mitigation measures are implemented in full.** **Please note: Heritage Western Cape did not request visual impact assessments for Routes 1-3/Substation Site A and C (refer to Appendix E for HWC correspondence) nor Route 4/Substation Site C. A visual impact assessment was completed for Route 4 and Substation Site C during this BA process for due diligence.**

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	**YES** ✓	NO
2.	Explain:		
	The proposed development will ensure a constant, reliable supply of electricity to the Plettenberg Bay CBD and surrounding areas, thereby contributing positively to the expansion and strengthening of local development and economic activities. Plettenberg Bay has a strong tourism economy that provides income on a local, regional and provincial scale. The proposed development will ensure		

	that Plettenberg Bay has an adequate electricity supply to cater to this economic sector in the future, thereby contributing to provincial and national economic revenue.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	**YES** ✓	NO
4.	Explain:		
	The local community will benefit by receiving a consistent, reliable source of power supply as a result of a strengthened distribution network. Due to Plettenberg Bay's reputation as a tourism destination, the proposed development will ensure that the area will be supplied with adequate electricity to ensure future economic revenue and growth, hereby providing economic benefits to the local communities.		

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:	Administering authority:	Date:
The National Environmental Management Act, 1998 (Act 107 of 1998) (as amended)	**DEA**	**1998**
Regulations 543, 544 and 546 in terms of Chapter 5 of the NEMA, 1998 (as amended)	**DEA**	**2010**
NEM: Biodiversity Act, 2004 (Act 10 of 2004)	**DEA**	**2004**
NEM: Integrated Coastal Management, 2008 (Act 24 of 2008)	**DEA**	**2008**
National Water Act, 1998 (Act 36 of 1998)	**DWA**	**1998**
National Heritage Act, 1999 (Act 25 of 1999)	**HWC**	**1998**
DEA Integrated Environmental Management Guideline Series, Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006	**DEA**	**2006**
DEA Integrated Environmental Management Guideline Series, Guideline 5: Assessment of the Environmental Impact Assessment Regulations, 2012 (Government Gazette 805)	**DEA**	**2012**
DEA Integrated Environmental Management Guideline Series, Guideline 7: Public Participation in the Environmental Impact Assessment Process, 2012 (Government Gazette 807)	**DEA**	**2012**
DEA&DP Guideline Document: Guideline on Alternatives, March 2013	**DEA&DP**	**2013**
DEA&DP Guideline Document: Guideline on Public Participation, March 2013	**DEA&DP**	**2013**

DEA&DP Guideline for determining the scope of specialist involvement in the EIA process, March 2013	**DEA&DP**	**2013**
The Garden Route Biodiversity Sector Plan for the George, Knysna and Bitou Municipalities	**SANPARKS CapeNature**	**2010**
C.A.P.E Estuary Management Programme – Keurbooms/Bitou Estuary Management Plan	**C.A.P.E. Estuaries Programme Eden District Municipality**	**2010**
IDP Review for 2010/11:	**Eden District Municipality**	**2010**
Bitou Local Municipal IDP	**Bitou Municipality**	**2010**

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES✓**	NO
If yes, what estimated quantity will be produced per month?	**3 – 5 m³**	

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

Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site in Plettenberg Bay with proof of safe disposal as required.

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

Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site in Plettenberg Bay with proof of safe disposal as required.

Will the activity produce solid waste during its operational phase?	YES	**NO✓**
If yes, what estimated quantity will be produced per month?	**N/A**	

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

N/A

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

N/A

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

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	YES	**NO✓**

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

Is the activity that is being applied for a solid waste handling or treatment facility?	YES	**NO✓**

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

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	**NO✓**
If yes, what estimated quantity will be produced per month?	m^3	
Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	**NO✓**

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	**NO✓**

If yes, provide the particulars of the facility:

Facility name:
Contact person:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:

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

N/A

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	**NO✓**
If yes, is it controlled by any legislation of any sphere of government?	YES	NO

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

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

Emissions will be produced by construction vehicles during the construction phase. Vehicles must be serviced regularly in order to limit gaseous emissions.

Strong winds may intensify the generation of dust associated with earthworks and the movement of vehicles and equipment during construction. Dust generated during site clearance and the construction phase must be mitigated through dust control measures, and where possible, through strict access control and vehicular movement (refer to EMP in Appendix F for full mitigation measures).

11(d) Generation of noise

Will the activity generate noise?	**YES✓**	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	**NO✓**

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

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

Construction Phase :
Noise associated with the construction activities and vehicles will be generated. However, the increase in noise will not be significant and will be localised and temporary of nature. Noise will be limited to normal working hours (i.e. 8am - 5pm) during the week. No work will be carried out on weekends and public holidays (refer to the EMP (Appendix F) for full mitigation measures).

Operational Phase:
Noise will be generated during the operational phase of the proposed Substation. To this effect, the equipment and transformers that are installed at Eskom Substations must adhere to the International Standard for the Determination of Sound Levels for Power Transformers as published, International Electrotechnical Commission 60076-10. This standard requires that transformers, tap changing equipment and supplementary cooling equipment shall comply with the sound level values for audible sound levels for oil-immersed power transformers and be verified in accordance with IEC 60076-10. The standard for the proposed Substation is a noise level not exceeding 80 decibel amperes (dbA). This value is variable and constantly changes as the intensity level of utilization changes. Although some (varying levels not exceeding 80dBA) noise will be anticipated during operational phase, there are factors that mitigate the impact it is likely to have. During the operational phase of the Substation, the effect of the corona (low "buzzing" noise) is predicted to be negligible.

Decommission Phase:
Noise impacts as outlined in the Construction phase will be generated. Refer to Construction Phase above.

12. WATER USE

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

municipal	water board	groundwater	river, stream, dam or lake	other	**the activity will not use water✓**

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

the volume that will be extracted per month: Litres **N/A**

Does the activity require a water use permit from the Department of Water Affairs? **A General Authorisation Application in terms of Section 21 of the National Water Act, 1998 (Act 36 of 1998) will be required for the construction of the substation and pylons within 500m of the Keurbooms Estuary.**

YES✓	NO

A General Authorization Application in terms of Section 21 of the National Water Act (Act 36 of 1998) has been submitted to Department of Water Affairs (refer to Appendix G for proof). A decision regarding the application has not been reached at the time of publication of this re-submitted Final BAR.

The Department of Environmental Affairs: Oceans and Coasts has been identified as a commenting authority with regards to the development's impact on the Keurbooms Estuary (refer to Appendix E for Comments & Responses), however licenses are not required from the Department.

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

13. ENERGY EFFICIENCY

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

Electrical transmission lines and substations are designed to allow for maximum conduction of electricity in order to allow for transmission efficiency.

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

The majority of electricity produced in South Africa originates from non-renewable sources (coal). Therefore, the transmission and distribution of electricity does not provide for alternative energy sources to be used at this stage.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? YES [ ] **NO✓**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:
All specialist reports must be contained in Appendix D.

Property description/physical address:

Substation (Site C): Located on Farm 305/16, adjacent to the R340 and N2.

Powerline (Route 4B): Running from Farm 444/14 for approximately 2.5 km over the Bitou floodplain to where the line will feed in and connect to the new Bitou Substation on Farm 305/16, adjacent to the R340 and N2.

Please refer to Appendix E for a list of physical addresses/Erf numbers of all Route Alternatives (1-4) and Substation Site Alternatives (A, B and C).

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:

Agriculture

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.

Is a change of land-use or a consent use application required?	YES	**NO✓**
Must a building plan be submitted to the local authority?	YES	**NO✓**

Locality map: An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1 (Preferred Substation Site C):

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (Alternative Substation Site A):

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (Alternative Substation Site B):

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S1 (Preferred Route 4B):

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (Alternative Route 1):

Flat✓	**1:50 – 1:20 ✓**	1:20 – 1:15	1:15 – 1:10	**1:10 – 1:7,5 ✓**	**1:7,5 – 1:5 ✓**	Steeper than 1:5

Alternative S3 (Alternative Route 2):

Flat ✓	**1:50 – 1:20 ✓**	1:20 – 1:15	1:15 – 1:10	**1:10 – 1:7,5 ✓**	1:7,5 – 1:5	Steeper than 1:5

Alternative S4 (Alternative Route 3):

Flat ✓	**1:50 – 1:20 ✓**	**1:20 – 1:15 ✓**	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE - Substation Site C

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

2.1 Ridgeline
2.2 Plateau
2.3 Side slope of hill/mountain (The substation will be situated on the flat section at the foot of the cliff in the section between the intersection of the N2 and the R304).
2.4 Closed valley
2.5 Open valley
2.6 Plain
2.7 Undulating plain / low hills
2.8 Dune
2.9 Seafront

2. LOCATION IN LANDSCAPE - Substation Sites A and B

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

2.1 Ridgeline
2.2 Plateau
2.3 Side slope of hill/mountain (The substations sites are located north of the Keurbooms Estuary on flat pieces of agricultural land, at the foot of a chain of approximately 180m high hills)
2.4 Closed valley
2.5 Open valley
2.6 Plain
2.7 Undulating plain / low hills
2.8 Dune
2.9 Seafront

2. LOCATION IN LANDSCAPE – Route 4B

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

2.1 Ridgeline
2.2 Plateau
2.3 Side slope of hill/mountain

2.4 Closed valley
2.5 Open valley (This line runs to the west of, and adjacent to, the N2, predominantly close to the road reserve but deviating to the west in the area where the new N2 bypass interchange is planned, and angling slightly away from the N2 for the last pylon at the substation in order to facilitate entry to the site. There will be approximately seven pylons situated within the study area with differing lengths between them determined by the position of the various elements of the planned N2 interchange and the Bitou River).
2.6 Plain
2.7 Undulating plain / low hills
2.8 Dune
2.9 Seafront

2. LOCATION IN LANDSCAPE – Routes 1, 2 and 3

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

2.1 Ridgeline
2.2 Plateau
2.3 Side slope of hill/mountain
2.4 Closed valley
2.5 Open valley (These lines run though agricultural and natural vegetation from the outskirts of Plettenberg Bay to the Keurbooms Estuary)
2.6 Plain
2.7 Undulating plain / low hills
2.8 Dune
2.9 Seafront

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE - SUBSTATIONS

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

	Preferred Site C:		**Alternative Site A:**		**Alternative Site B:**	
Shallow water table (less than 1.5m deep)	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Dolomite, sinkhole or doline areas	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Seasonally wet soils (often close to water bodies)	YES	**NO✓**	**YES✓**	NO	**YES✓**	NO
Unstable rocky slopes or steep slopes with loose soil	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Dispersive soils (soils that dissolve in water)	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Soils with high clay content (clay fraction more than 40%)	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Any other unstable soil or geological feature	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**

An area sensitive to erosion	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**

Substation Site C: Reference is made to the Geotechnical Investigation Report by Element Consulting Engineers (dated June 2008 and attached in Appendix D) compiled for Preferred Substation Site C due to the steep slopes and cliff immediately north-west of the site. A report was not necessary for Substation Site Alternatives A and B. The report found that the geology of the cliff behind the proposed Substation Site C consists of stable Enon Conglomerate. Although the fine material between the pebbles is weathered, it is stable and cannot be easily removed with a geological hammer. The pebbles are well interlocked and bound together by finer sandy gravel. This comment is further enhanced by the good foundation material found on the platform where the Substation is to be located. The Report further concluded that due to the stable nature of the cliff face and the evidently low risk of rock-falls, this site is found well suited for the proposed Bitou Substation. A retaining wall will be constructed at the foot of the cliff to serve as catch-wall for falling rocks. It is recommended that the natural vegetation along the foot of the cliff not be disturbed during construction, as this serves as a natural retainer.

Substation Site Alternatives A and B are located approximately 2m above the Keurbooms Estuary water mark and 6m above sea level. Due to the low-lying location of those substation site alternatives, the soil is waterlogged in Winter and the sites may be flooded during Winter flood events when the Bitou River breaches its banks. This presents serious geotechnical constraints.

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE – ROUTE ALTERNATIVES

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

	Preferred Route 4B:		**Alternative Routes 1 & 2:**		**Alternative Route 3:**	
Shallow water table (less than 1.5m deep)	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Dolomite, sinkhole or doline areas	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Seasonally wet soils (often close to water bodies)	YES	**NO✓**	**YES✓**	NO	**YES✓**	NO
Unstable rocky slopes or steep slopes with loose soil	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Dispersive soils (soils that dissolve in water)	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Soils with high clay content (clay fraction more than 40%)	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**
Any other unstable soil or geological feature	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**

An area sensitive to erosion	YES	**NO✓**	YES	**NO✓**	YES	**NO✓**

Please note: Route Alternatives 1,2 and 3 are proposed to span the Keurbooms Estuary at locations where the powerline would require to span between 590m (Route 3) and 890m (Routes 1 and 2) over the estuary and estuarine functional zone, to feed into either Substation Site A or B. The maximum span possible between two pylons is approximately 350m. Therefore, Routes 1-3 would require the placing of at least one pylon within the Keurbooms Estuary. This is extremely difficult from a geotechnical perspective and may result in adverse impacts on the ecological functioning of the estuary as well as soil/ground stability.

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

4. GROUNDCOVER – Substation Site C

Indicate the types of groundcover present on the site:

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

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

GROUNDCOVER – Substation Sites A and B

Indicate the types of groundcover present on the site:

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

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

GROUNDCOVER – Route 4B:

Indicate the types of groundcover present on the site:

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

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

GROUNDCOVER – Routes 1, 2 and 3:

Indicate the types of groundcover present on the site:

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

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

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

5. LAND USE CHARACTER OF SURROUNDING AREA – Substation Site C

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

5.1 Natural area – the Keurbooms Nature Reserve is situated to the north of the Substation site.
5.2 Low density residential
5.3 Medium density residential– Twin Rivers Estate – residential houses are situated to the east of the Substation site.
5.4 High density residential
5.5 Informal residential[A]
5.6 Retail commercial & warehousing
5.7 Light industrial
5.8 Medium industrial [AN]
5.9 Heavy industrial [AN]
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam[A]
5.14 Quarry, sand or borrow pit
5.15 Dam or reservoir
5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church

5.20 Old age home
5.21 Sewage treatment plant[A]
5.22 Train station or shunting yard [N]
5.23 Railway line [N]
5.24 Major road (4 lanes or more) [N] – the N2 is situated to the east of the Substation site.
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture
5.34 River, stream or wetland – the Keurbooms Estuary is situated to the east and south of the Substation site.
5.35 Nature conservation area – the Keurbooms Nature Reserve is situated to the north of the Substation site.
5.36 Mountain, koppie or ridge – The Substation will be situated on the flat section at the foot of the cliff in the angle between the intersection of the N2 and the R304).
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 Other land uses (describe)

6. LAND USE CHARACTER OF SURROUNDING AREA – Substation Sites A and B

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

5.1 Natural area – the Keurbooms Estuary and Bitou River are situated to the south of the Substation site.
5.2 Low density residential - two (2) farm houses are situated near the proposed substation sites.
5.3 Medium density residential
5.4 High density residential
5.5 Informal residential[A]
5.6 Retail commercial & warehousing
5.7 Light industrial
5.8 Medium industrial [AN]
5.9 Heavy industrial [AN]
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam[A]
5.14 Quarry, sand or borrow pit
5.15 Dam or reservoir
5.16 Hospital/medical centre

5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant[A]
5.22 Train station or shunting yard [N]
5.23 Railway line [N]
5.24 Major road (4 lanes or more) [N]
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture – the proposed substation sites are situated on agricultural land and surrounded by farms to the north.
5.34 River, stream or wetland – the Keurbooms Estuary south of the substation sites.
5.35 Nature conservation area
5.36 Mountain, koppie or ridge
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 Other land uses (describe)

7. LAND USE CHARACTER OF SURROUNDING AREA – Route 4B

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

5.1 Natural area – the proposed powerline crosses the Keurbooms Estuary at it's northern end before feeding into the proposed Substation Site C.
5.2 Low density residential
5.3 Medium density residential - Twin Rivers Estate – residential houses are situated to the east of Route 4B.
5.4 High density residential
5.5 Informal residential[A]
5.6 Retail commercial & warehousing
5.7 Light industrial
5.8 Medium industrial [AN]
5.9 Heavy industrial [AN]
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam[A]
5.14 Quarry, sand or borrow pit – a quarry is situated to the west of the Route 4B.
5.15 Dam or reservoir

5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant[A]
5.22 Train station or shunting yard [N]
5.23 Railway line [N]
5.24 Major road (4 lanes or more) [N] – the N2 runs parallel to Route 4B in a northerly direction.
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course – Goose Valley Golf Course is situated to the south of where Route 4B starts.
5.29 Polo fields – a polo field is located to the east of Route 4B.
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture – farms are situated to the west of the Route 4B.
5.34 River, stream or wetland – Route 4B will span across the Keurbooms Estuary.
5.35 Nature conservation area – the Keurbooms Nature Reserve is situated to the north of the Substation site.
5.36 Mountain, koppie or ridge – The Substation will be situated on the flat section at the foot of the cliff in the angle between the intersection of the N2 and the R304).
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 Other land uses (describe)-

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity?
The proposed Substation Site C and Powerline Route 4B will be located parallel to the N2 and railway line. Impacts on the road and railway network are projected to be minimal as the powerline route and substation site are located parallel to the N2 either within or outside the road reserve. Low impacts in terms of traffic control, dust and noise are foreseen (refer to Section D in this BAR and the EMP (Appendix F) for impact ratings and mitigation measures).

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity? **N/A**
If YES, specify and explain:
If YES, specify:

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity. **N/A**
If YES, specify and explain:
If YES, specify:

8. LAND USE CHARACTER OF SURROUNDING AREA – Routes 1,2 and 3

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

5.1 Natural area – proposed alternative Routes 1, 2 and 3 cross the Keurbooms Estuary and various natural vegetation south of the estuary.
5.2 Low density residential
5.3 Medium density residential - residential houses are situated to the east of Routes 1 and 3 at the southern end of the proposed routes.
5.4 High density residential
5.5 Informal residential[A]
5.6 Retail commercial & warehousing
5.7 Light industrial – a light industrial area is situated east of Route 3
5.8 Medium industrial [AN]
5.9 Heavy industrial [AN]
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam[A]
5.14 Quarry, sand or borrow pit
5.15 Dam or reservoir
5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant[A] – Routes 1 and 3 pass near the Plettenberg Bay Sewage treatment plant.
5.22 Train station or shunting yard [N]
5.23 Railway line [N]
5.24 Major road (4 lanes or more) [N]
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields – a polo stud farm is located to the east of Route 3
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture – chicken farming occurs at the south end of Route 2, livestock farms are situated on Routes 1, 2 and 3.
5.34 River, stream or wetland – All routes will span across the Keurbooms Estuary.
5.35 Nature conservation area
5.36 Mountain, koppie or ridge
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 Other land uses (describe)-

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

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? **N/A**
If YES, specify and explain:
If YES, specify:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity. **N/A**
If YES, specify and explain:
If YES, specify:

STATUS OF KEURBOOMS ESTUARY & IMPACTS OF CLIMATE CHANGE

Due to the close proximity of the proposed Substation Site C and pylons to the estuary, the possibility of climate change, in the form of increased flooding activity in the estuary as well as rising sea levels, must be taken into consideration. **Please refer to Appendix D, Estuarine Ecology report (page 11-12) for a full analysis.**

Flood frequency

Streamflow: is expected to increase by 20% in the immediate and distant (up to 2100) future in the Bitou region, similar to the majority of the country.

Peak Discharge: this is projected to increase by 20% for the 2 year return period in the intermediate and distant (up to 2100) future. However, for the 10 and 20 year return period design peak discharge is expected to decrease.

Rainfall Duration: in terms of engineering design for the substation and pylon, the rainfall duration is of the highest importance as designs need to be able to withstand peak floods of specified magnitudes in order to continue to function safely and effectively. Increases in rainfall variability, due to temperature alternations and rainfall regimes, are likely. In terms of the Bitou system, the short duration (10min – 24h) design rainfall changes are not expected to change in the immediate, intermediate or distance future. The study area is projected to see a 10% increase in the long duration design rainfall days (1-10 days).

Based on the streamflow, peak discharge and rainfall duration information above, it is concluded that the impact of climate change on flows in the Keurbooms Estuary is not likely to impact water levels and flood events significantly more than under current levels. The above data indicates that a 1 in 100 year flood may now occur 1 in every 90 years. Further, the short term rainfalls are not likely to change in the next 100 years, therefore influences of climate change on the hydrodynamics of the Bitou Estuary are unlikely. Based on the above information, climate change will have a minimal influence on the proposed Substation and Pylon. The influences of climate change are unlikely to need further consideration in terms of the location of the substation and pylon above and beyond the standard 1 in 100 flood lines that were already considered by engineers.

Sea Level Rise

Global sea level rise predictions lie between 28cm and 43cm by 2100, that will impact coastal systems through an increase in inundation, flood and storm damage, erosion, saltwater intrusion, rising water tables/impeded drainage and loss of wetland habitat. Based on linear and non-linear sea level changes observed in Durban, South Africa, an increased sea level of approximately 24cm can be expected for the Keurbooms-Bitou Estuary over the next 100 years. As the proposed substation and pylon are approximately 2.5km inland from the sea it is highly unlikely that the site will be affected by events such as erosion and it is highly unlikely to inundate either the proposed substation or pylons.

Based on the above information it is therefore unlikely that the proposed substation and pylons will be adversely affected by climate change through increased flood events or sea level rise.

Development within 100m of HWM/5m Contour

The proposed substation site and pylon are located on the 3m contour of the estuary. The Provincial Spatial Development Framework (2009), Objective 8, Policy RC19 states that development in ecological setback lines in estuaries and below the 1:100 year floodline (building platforms) should no longer take place. Due to technical and logistical constraints the general area of the Keurbooms/Bitou estuary where the development is proposed, is the only reasonable and feasible area. It may be noted that the proposed substation site and pylons were carefully selected from four (4) alternatives and were deemed the only feasible option considering the flood risks in the area. Based on the specialist conclusions discussed above, the risk of infrastructure destruction or erosion through flooding are minimal for the proposed site. Further, please refer to Section 63(3) of the Integrated Coastal Management Act (Act 24 of 2004) which allows for competent authorities to issue an Environmental Authorisation if the nature of the development requires it to be located within coastal public property or if the development will provide important services to the public. Basic service provision, such as adequate electricity supply, is an important public service.

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including	YES	**NO✓**
Archaeological or palaeontological sites, on or close (within 20m) to the site?	Uncertain	
If YES, explain:		
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.		

Briefly explain the findings of the specialist:	**Reference is made to RoD (C20/3/6/1/1/1/1/C20) issued by HWC 6 March 2007 by noting:** - **There were no objections to the development with regard to archaeological and palaeontological resources.** - **In the event that human burials or archaeological resources are uncovered or exposed during earthworks or excavations, they must be reported immediately to the South African Heritage Resources Agency. An archaeologist will be required to remove the remains at the expense of the developer.** **Prof HJ Deacon undertook an Archaeological Impact Assessment dated 23 August 2007 which is attached in Appendix D. His findings indicated that it is considered unlikely that the construction and operation of the proposed Powerline and Substation along any of the four alternative routes will have an impact on any archaeological or palaeontological resources.** **A NID was completed and submitted to Heritage Western Cape on 22 June 2012 together with the Draft BAR and the Heritage Impact Assessment specialist reports.** Reference is made to HWC correspondence titled "Letter" on 7 May, 2013 (refer to Appendix E3) noting that: "*the comment regarding the powerline dated 6 March 2007 still stands and no further heritage studies are required.*" Reference is made to HWC correspondence titled "Notification of Intent to Develop" on 27 November 2013, noting that: *"You are herby notified that, since there is no reason to believe that the proposed development will impact on heritage resources, further processes under Section 38 of the National Heritage Resources Act (Act 25 of 1999) do not apply."*

Will any building or structure older than 60 years be affected in any way?	YES	**NO✓**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	**NO✓**

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

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

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

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

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
  (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;

(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
(iii) the nature and location of the activity to which the application relates;
(iv) where further information on the application or activity can be obtained; and
(iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

List of authorities informed of the Draft BAR:

- **Department of Environmental Affairs and Development Planning**
- **Department of Water Affairs**
- **Bitou Local Municipality**
- **Eden District Municipality**
- **Heritage Western Cape**
- **Department of Forestry**
- **Department of Marine and Coastal Management**
- **CapeNature**

List of authorities from whom comments have been received:

- **Department of Environmental Affairs and Development Planning**
- **Heritage Western Cape**
- **Department of Forestry**
- **Department of Marine and Coastal Management**
- **CapeNature**
- **Bitou Local Municipality**

Comments have been incorporated into the Final Basic Assessment Report. Refer to Appendix E for full Comments & Responses Chapter.

7. CONSULTATION WITH OTHER STAKEHOLDERS

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

Has any comment been received from stakeholders?	**YES✓**	NO

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

The Public Participation Process for the Draft BAR has been completed. Comments and issues raised as well as responses sent by the EAP during the Public Participation Process have been incorporated in the Final BAR and the Comments and Responses Chapter (Appendix E3) for review by all registered stakeholders and for submission to the DEA.

The following organizations and government departments submitted comments during the Draft BAR phase:

1) ***Redford Conservancy***
2) ***DEA&DP***
3) ***CapeNature***
4) ***Heritage Western Cape***
5) ***Department of Forestry***
6) ***DEA: Integrated Coastal Management***
7) ***Plettenberg Bay Community Environment Forum***
8) ***Bitou Municipality***

Please refer to Section D, subsection 1 and 2 below, as well as Appendix E Comments & Responses Chapter for detailed comments and responses from I&AP's and organs of state.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

Comments and issues raised during the Public Participation Process have been incorporated into the Final BAR (Appendix E, Comments & Responses Chapter) for review by all registered I&AP's and for submission to DEA.

Summary of main issues:

- Impact on bird species in terms of habitat loss, powerline collisions and electrocution (Redford Conservancy, Plettenberg Bay Community Environment Forum (PBCEF))
- Erosion caused by construction activities and during the operational phase at the proposed substation site and pylon sites (Redford Conservancy)
- Pollution of the estuary due to construction activities near the estuary (Redford Conservancy)
- Potential loss of threatened ecosystems or transformation of sensitive areas (CBA/ESA/NFEPA) (CapeNature, PBCEF)
- Need alien vegetation clearing as part of the management of the proposed substation and pylon sites (CapeNature, PBCEF)

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

Responses provided by SiVEST to any issues raised by stakeholders have been included in the Comments and Response report (Appendix E) in the Final BAR for review by all registered stakeholders and for submission to the DEA.

Summary of practitioner's responses:

- An Estuarine Ecological Assessment (Appendix D) was commissioned and finalised in June 2013. This report investigated and addressed the concerns raised by the I&AP's, as listed above. Impact Assessments and site-specific recommendation measures were provided for the following concerns raised:
  Construction phase: habitat loss, pollution & run-off
  Operational phase: erosion, alien vegetation establishment, bird-powerline collisions, bird electrocution
- The EMP (Appendix F) has been updated to reflect the site-specific, specialist mitigation measures of the Estuarine Ecological Assessment, as well as amended mitigation measures for the prevention of pollution run-off and erosion during the construction phase of the project.

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

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

2.1 Impact Rating for the Construction Phase for the Preferred Alternative

CONSTRUCTION PHASE – PREFERRED ALTERNATIVE: SUMMARY OF THE IMPACTS SIGNIFICANCE BEFORE MITIGATION AND RATING POST MITIGATION ASSOCIATED WITH THE PREFERRED OPTION (SUBSTATION DEVELOPMENT (SITE C) AND POWERLINE (ROUTE 4B)

GEOGRAPHICAL AND PHYSICAL ASPECTS (SUBSTATION SITE C)	
NATURE	Potential physical and geological impacts associated by the construction of the Substation and associated retaining wall
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction phase
PROBABILITY	Unlikely Reference is made to the Geotechnical Investigation Report by Element Consulting Engineers (dated June 2008 and attached in Appendix D). The report found that the geology of the cliff behind the proposed Substation consists of **stable** Enon Conglomerate. Although the fine material between the pebbles is weathered, it is **stable and cannot be easily removed** with a geological hammer. The pebbles are well interlocked and bound together by finer sandy gravel. This comment is further enhanced by the **good foundation material** found on the platform where the Substation is to be located. The Report further concluded that due to the **stable nature** of the cliff face and the evidently low risk of rock-falls, this site is found well suited for the proposed Bitou Substation. A retaining wall will be constructed at the foot of the cliff to serve as catch-wall for falling rocks
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE	Low

MITIGATION	
MITIGATION MEASURE	- All natural vegetation along the foot of the cliff are not be disturbed during construction, as this serves as a natural retainer.
SIGNIFICANCE – POST MITIGATION	Low

GEOGRAPHICAL AND PHYSICAL ASPECTS (SUBSTATION SITE C AND POWERLINE ROUTE 4)	
NATURE	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction period
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP attached in Appendix F: - All vehicles to remain within the designated vehicle tracks; - Permission from the property owner must first be sought before any new vehicle tracks are made; - Should it be necessary to plant a pole on a slope ensure that the necessary erosion prevention measures are put in place; and - Minimum / no movement in areas already eroded.
SIGNIFICANCE – POST MITIGATION	Low

GEOGRAPHICAL AND PHYSICAL ASPECTS (SUBSTATION SITE C AND POWERLINE ROUTE 4)	
NATURE	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction period
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low

CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP in Appendix F: - Storage of any materials shall not take place within 32m of any watercourses or sensitive environments. - Fuel, oil and any other hazardous substances and harmful materials shall be stored in suitable containers within adequately bunded areas (with 110% of the capacity of the volume of the container) in a dry, secure environment, with concrete or sealed flooring. - Material Safety Data Sheets shall be kept for all hazardous materials and substances and a copy of the Material Safety Data sheets shall be made available to all workers to ensure that the required safe handling and necessary precautions are taken when suing the materials. - The PC will ensure that materials storage facilities are cleaned/maintained on a regular basis, and that leaking containers are disposed of in a manner that allows no spillage onto the bare soil or surface water.
SIGNIFICANCE – POST MITIGATION	Low

BOTANICAL (SUBSTATION SITE C)	
NATURE	Potential botanical impact on Garden Route Shale Fynbos vegetation due to site clearance and construction of Substation on flat portion of Site C
EXTENT (GEOPRAPHICAL)	Site
DURATION	Short term
PROBABILITY	Possible
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to the Botanical Assessment (dated 2013 and attached in Appendix D) noting that the site has not changed since its initial assessment in 2008, and that it has been almost entirely transformed by past construction of the N2 and is of low conservation priority. Site is infested with adult plants of *Acacia mearnsii* and an understory of exotic weeds. No Red Data List species recorded.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP as attached in Appendix F:

	- Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas.
SIGNIFICANCE – POST MITIGATION	Low

BOTANICAL (SUBSTATION SITE C)	
NATURE	Potential botanical impact on adjacent Garden Route Shale Fynbos and Southern Afrotemperate Forest vegetation located on steep cliff and foot slopes at the northern end of Substation Site C
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Unlikely
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the cliff and foot slope vegetation located to the north of Site C site has not changed since the initial assessment in 2008. The location is home to the most intact vegetation community in the area. The following species were recorded on the cliff in 2008 and remain intact: *Bulbine frutescens, Crassula orbicularis*, *Crassula rupestris* and *Tritoniopsis caffra*. Foot slope species recorded: *Cliffortia serpyllifolia, Dipogon lignosus, Polygala myrtifolia, Stachys aesthiopia.* Additionally, various tree species were identified in 2013.
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	Medium to High
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the

	ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas.
SIGNIFICANCE – POST MITIGATION	Medium

BOTANICAL (SUBSTATION C)	
NATURE	Botanical impact associated with the trimming of one *Sideroxylon inerme* (Milkwood tree) for the construction of the Substation
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low (isolated individual tree to be trimmed)
SIGNIFICANCE RATING – PRE MITIGATION	Medium-High
MITIGATION MEASURE	- Application for a license regarding Protected Trees in terms of section 15(1) of the National Forests Act, 1998 (as amended) has been completed and the license granted (refer to Appendix G) - Tree will be trimmed in accordance with requirements stipulated by the Forestry Official. - Damage to adjacent vegetation shall be minimized. - No indigenous plants found on the cliff shall be removed or disturbed in any way. This will ensure slope stability.
SIGNIFICANCE – POST MITIGATION	Medium

BOTANICAL (POWERLINE 4)	
NATURE	Potential botanical impact on adjacent Outeniqua Sandstone Fynbos along Route 4 adjacent to N2
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Possible

REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Low to Medium Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is severely transformed with exception of a degraded area of fynbos past Old Nick. Vegetation remnants are at margins of agricultural fields, alien invested (mostly black wattle), developed or within the previously disturbed road side reserve. No Red Data List species recorded.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Low to Medium

BOTANICAL (POWERLINE 4)	
NATURE	Potential botanical impact on adjacent Garden Route Shale Fynbos along Route 4B adjacent to N2
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation

	is severely transformed with exception of a degraded area of fynbos past Old Nick. Vegetation remnants are at margins of agricultural fields, alien invested (mostly black wattle), developed or within the previously disturbed road side reserve. Old milkwood trees were noted in the vicinity of the proposed route, on open farmland. These milkwood trees must be avoided. No Red Data List species recorded. Dominant indigenous plant species recorded includes: *Chrysanthermoides monifelifera, Passerina obtusifolia, Rhus crenata* and *Stoebe sp.*
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Low to Medium

BOTANICAL (POWERLINE 4)	
NATURE	Potential botanical impact on adjacent Southern Afrotemperate Forest along Route 4 at the branch-off from Routes 1 and 3.
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Medium to High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is highly infested with alien species, most notably black wattle. Some remnant forest species are found

	interdispersed amongst the alien vegetation. An area of mixed fynbos and forest habitat with moderate black wattle infestation is noted at the branch-off towards the N2. A large milkwood tree is located in the vicinity of the proposed powerline route at that point, and should be avoided. The south side of the gravel track running parallel to the proposed route towards the N2 is densely infested with black wattle. The north side of the track contains better quality forest and should be avoided. The alien infestation continue from this point all the way to the N2.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium to High
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Low to Medium

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Potential botanical impact on vegetation (Garden Route Shale Fynbos species) through habitat destruction and mortality of vegetation.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Medium Term
PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to the Botanical Assessment (dated July 2013 and attached in Appendix D) noting that the site is highly degraded.

CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - Vegetation removal and disturbance to be limited to the track only. - No storing of equipment or parking of vehicles outside of the proposed route of the track within Erf 448/5. - There are several sensitive areas with plants of particular conservation value that should not be disturbed in any manner. These locations must be clearly demarcated with hazard tape and cordoned off. See **Error! Reference source not found.** for geographic co-ordinates of these plants/areas. - The mechanism to remove vegetation must not include any poisons due to the proximity of the route to the Bitou Estuary. - Vegetation should be removed in a manner that allows the roots of bushes and shrubs to remain in the ground as far as possible so that there is a chance of re-growth. Appropriate methods of vegetation removal would be the use of mowers, pangas and chainsaws. No bulldozing, grading or disturbance to soil should be permitted. - No workers allowed between the end of the proposed track and the estuary. - No access to or below the High Water Mark of the estuary. - No access to any areas off of the proposed access route. - All cleared alien vegetation must be removed from the site and taken to a suitable landfill area. - All cleared indigenous vegetation should be used to make mulch and applied in subsequent rehabilitation efforts during decommissioning. Mitigation measures regarding the rehabilitation of the site are outlined further in Section **Error! Reference source not found.** - There are several invasive alien species growing in the path of the proposed access route, directly adjacent to it and within the precinct of Erf 448/5 that are listed in Category 1 of the Conservation of Agricultural Resources Act. According to the Act the responsible landowner is under legal obligation to destroy these species immediately: *Tecoma stans, Acacia longifolia* - Furthermore, there are several alien invader species listed under Category 2 of the Act that should be destroyed as they are not being *grown under controlled conditions*: *Acacia mearnsii, Ricinus communis, Melia azedarach, Pinus* spp. **Optional mitigation measures:** - The access track should run as close as possible to the fence but avoid any of the sensitive areas listed

	above (see **Error! Reference source not found.**). - The row of planted Camphor trees *Cinnamomum camphora* should be removed while they are still young as these are alien invasive species and grow exceptionally large (up to 25 m).
SIGNIFICANCE – POST MITIGATION	Very Low

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Potential botanical impact on vegetation (Garden Route Shale Fynbos species) through erosion due to clearing of vegetation.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Medium Term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to the Botanical Assessment (dated July 2013 and attached in Appendix D).
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Very Low
MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - Removal of vegetation should be undertaken in a manner that allow the roots of bushes and shrubs to remain behind to keep the soil consolidated as far as possible. Appropriate methods include mowing and cutting of vegetation above ground with pangas and chain saws. - No disturbance to the soil by bulldozers or graders etc. - Once the vegetation has been cleared the operation of constructing the pylons and erecting the powelines must be undertaken as soon as possible afterwards and as quickly as possible within 2 years of the vegetation being removed so that the track can be re-vegetated and rehabilitated.
SIGNIFICANCE – POST MITIGATION	Insignificant

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Potential botanical impact on vegetation (Garden Route Shale Fynbos species) as well as the Keurbooms Estuarine System through pollution.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Short Term

PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to the Botanical Assessment (dated July 2013 and attached in Appendix D).
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - All chemicals such as petrol and oil should be responsibly contained and used, ideally oil and petrol should be left on the bakkies and powersaws refueled there. - All vehicles & machinery should be checked daily for oil and chemical leaks. No leaking machines to be allowed on site. - No area may be used as a toilet. However, a chemical toilet should be provided for all workers which should be located at least 32 m from the High Water Mark at a location already denuded of vegetation. - No littering or waste disposal except in dustbins. A dustbin for workers must be placed on board a vehicle and have a lid to ensure no material blows out. - All foreign material brought on to site to be removed during and once clearing is finished. - No burning of waste or cut vegetation on site. - Contractor in association with the Project Coordinator to ensure compliance of workers with good environmental practices and general conduct as per their environmental awareness induction training.
SIGNIFICANCE – POST MITIGATION	Insignificant

VISUAL (POWERLINE 4 AND SUBSTATION SITE C) ***	
NATURE	Visual impact associated with the construction of the Powerline and Substation
EXTENT (GEOPRAPHICAL)	Local
DURATION	Short term
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low Reference is made to the Visual Impact Assessment (dated May 2012 and attached in Appendix D) noting that

	the Substation and Powerline will represent an incremental increase in the 'industrial' or urban elements in the overall landscape but their character in a visual environment that is undergoing steady change with the addition of more urban elements and development is not entirely unexpected. It is believed that, while adding a new visual element to the overall vista, the sense of place will not seriously be affected as the balance in the visual environment will not be change in a way that is unacceptable. This is because of the visual strength of the natural elements in the overall landscape as opposed to the relatively small changes that the development will incur. Future developments in the area, such as the proposed new N2 alignment and interchange, and continued development of housing will however strengthen the urban visual elements at the expense of the natural.
SIGNIFICANCE RATING – PRE MITIGATION	Medium - High
MITIGATION MEASURE	Design Phase: - All structures on the substation site are to be kept as low as possible in the landscape. - The use of concrete is to be kept to a minimum as this will facilitate better decommissioning. - The gate along the R340, and any signage, is to be in line with local usages and not draw attention. - All colours and finishes of the building on the substation site are to be chosen for their ability to blend in to the local environment. The face brick finish is to be of a dark earth tone and the roof to be charcoal grey. - All galvanized elements are to be left to weather rather than being painted. This includes the transmission line pylons and the palisade fence. If, at some stage in the future the fence needs to be painted, the colour should be dark grey or black. The use of green is to be avoided. - Excavation on the site is to be kept to the absolute minimum required for the successful implementation of the project. - The design and construction methods must be planned in such a way that the maximum amount of natural vegetation is left undisturbed. This is especially true for the cliff face, the disturbance of which could greatly increase the visual impact. - Any lighting which may be needed for occasional maintenance at night must be shielded in such a way that no direct light is allowed to escape into the surrounding terrain or up into the sky. Only the areas that are necessary to be lit must be lit, the surrounding terrain being protected from any light pollution. No direct light sources must be visible from the N2 or the R340 although reflected light is permissible. (See Addendum 2 of VIA for the general principles involved.) - The design phase must take into consideration the need for partial vegetative screening of the substation site between the fence and the water channel using shrub and tree species that are endemic and will not

	require regular maintenance. It will be impossible to screen the whole of the substation site but the aim must be to provide a vegetative foreground which partially screens the site, with the visible parts of the substation seen as the middle ground, and the cliff face providing the background. Construction phase: - A photographic record of the site and its immediate surrounding area must be kept as part of the EMP to serve as a baseline for measurement of all future visual impacts and as an aid to the full rehabilitation of the site should the facility be decommissioned in future. - The disturbance of the existing environment around the substation and along the route of the transmission line is to be kept to a minimum. - All areas where disturbance of the existing environment is not necessary are to be marked or fenced off and access to these areas by the construction crews is to be prohibited. - All stockpiles necessary for the construction of the substation and the transmission line, such as cement and other building materials, diesel etc., must be prevented from entering the natural environment by any means whatsoever including dispersion by wind or water. - All littering is to be strictly controlled. - All areas that need to be disturbed in the construction process but are not required during the operation of the facility must be rehabilitated as soon as possible after their use is no longer needed. This includes specifically any areas that need to be disturbed by the installation of the pylons. - The use of fire by the construction workers is to be strictly controlled so that bush fires, especially on the substation site, are prevented. These could have a significant short-term visual impact if allowed to occur.
SIGNIFICANCE – POST MITIGATION	Medium - High

*****The negative visual impacts associated with the development of the Powerline and Substation have been evaluated above. The impacts were rated based on the findings of the Visual Impact Assessment (Appendix D). Please note due to the complexity of the VIA, additional parameters were used to evaluate the visual impacts associated with the proposed Powerline and Substation development. The following parameters were used in addition to the ones stated above: *1) Zones of Influence; 2) Visual Absorption Capacity of the Area; Compatibility of the Surrounding Landscape and; 3) Intensity of Visual Impact*. Please refer to the VIA (attached in Appendix D) for detailed evaluation of the additional parameter used for assessment.**

DUST (POWERLINE 4 AND SUBSTATION SITE C)	
NATURE	Dust impacts on surrounding environment associated with construction activities
EXTENT (GEOPRAPHICAL)	Local
DURATION	Construction period

PROBABILITY	Likely
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	No Loss
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Generation of dust shall be minimised and dust nuisance for the surrounding areas shall be kept to a minimum wherever possible. - Dust from exposed soil surfaces shall be minimised at all times, only using water spray during extremely windy conditions - Reasonable measures must be undertaken by the contractor to ensure that any exposed areas and material stockpiles are adequately protected against the wind. - Dust screens of a suitable height should be erected wherever required and possible. - All exposed surfaces should be minimised in terms of duration of exposure to wind and stormwater.
SIGNIFICANCE – POST MITIGATION	Low

NOISE (POWERLINE 4 AND SUBSTATION SITE C)	
NATURE	Noise impacts on surrounding environment associated with construction activities (Construction vehicles and equipment)
EXTENT (GEOPRAPHICAL)	Local
DURATION	Construction period
PROBABILITY	Likely
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	No Loss
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- The contractor shall adhere to the local by-laws and regulations regarding the noise and associated hours of operations. - The contractor shall limit noise levels (e.g. install and maintain silencers on machinery). The provisions of sans 1200a sub-clause 4.1 regarding “built-up” area shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas.

	- Construction and demolition activities generating output of 85db or more, shall be limited to normal working hours and not allowed during weekends to limit the impact of noise of neighbours. - Should the contractor need to work outside normal working hours, the surrounding neighbours shall be informed prior to the work taking place. - No amplified music shall be allowed on site.
SIGNIFICANCE – POST MITIGATION	Low

WASTE (POWERLINE 4 AND SUBSTATION SITE C)	
NATURE	Generation of additional waste/ litter and building rubble/hazardous material during the construction phase
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction period
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Medium
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Waste management mitigation measures as detailed in the EMP (attached in Appendix F) includes: - Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site in Plettenberg Bay with proof of safe disposal as required. - The contractor shall ensure that all litter is collected daily from the work area. Similarly, all bins shall be emptied daily and the waste disposed of at a permitted landfill site. - The contractor shall ensure that the construction site, working and eating areas are maintained in a clean, hygienic and orderly state. - Separate bins should be provided for various materials to facilitate recycling. The bins should have liner bags for easy control and safe disposal of waste. - The excavation and use of rubbish pits on site is forbidden. - The burning of waste is forbidden. - All vehicles and equipment must be maintained in a good condition in order to minimise the risk of leakage and possible contamination of the soil or stormwater by fuels, oils and hydraulic fluids. - Sufficient quantities of suitable hydrocarbon absorption or remediation materials must be present on site at

	all times.
SIGNIFICANCE – POST MITIGATION	Low

AVI-FAUNA (POWERLINE 4)	
NATURE	Potential avi-faunal impacts: Short-term disturbance of breeding (or foraging) areas during the construction of the line.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Short term
PROBABILITY	High
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Very Low/Unlikely Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D) noting the following: Generically, physical disturbance is likely to impact most significantly on species which nest on or close to the ground (Half-collared Kingfisher, African Grass-Owl, Denham's Bustard, Blue Crane, Black-winged Lapwing, African Marsh Harrier – Table 2), which may experience either the complete destruction or damaging disturbance of an active nest site placed in or close to the path of the construction process, or to a lesser extent tree-nesting species (e.g. Knysna Woodpecker, Knysna Warbler) nesting within a minimum distance of the proposed route.
CUMULATIVE IMPACTS	Medium
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Disturbance impacts should be minimized in two ways (Table 1), both of which apply equally to all the proposed routes: - Both the temporal and spatial disturbance footprints of the construction process should be as compressed as possible – i.e. the process should be completed as quickly as possible, and the area of ground directly affected by the process should be as small as possible. - An expert observer should work along the proposed route immediately before construction activities start to ensure that no nests, particularly those of 'priority' species, are situated on or very close to the line. - Minimizing the disturbance impacts associated with the construction of the line by abbreviating construction time, scheduling of construction activities around avian breeding and tide related feeding and

	roosting schedules where necessary, lowering levels of associated noise - Route the line away from the wider sections of open wetland.
SIGNIFICANCE – POST MITIGATION	Negligible

CULTURAL HISTORICAL (POWERLINE 4 AND SUBSTATION SITE C)	
NATURE	Potential impacts on cultural-historical elements during construction of the Substation and Powerline is unlikely. Reference is made to the Archaeological Impact Assessment dated 23 August 2007 (attached in Appendix D, confirmed to remain valid by HWC November 2013). AIA findings indicated that it is considered unlikely that the construction and operation of the proposed Powerline and Substation will have an impact on any archaeological or palaeontological resources.
EXTENT (GEOPRAPHICAL)	N/A
DURATION	N/A
PROBABILITY	N/A
REVERSIBILITY	N/A
IRREPLACEABLE LOSS OF RESOURCES	N/A
CUMULATIVE IMPACTS	N/A
SIGNIFICANCE RATING – PRE MITIGATION	N/A
MITIGATION MEASURE	Should any activities associated the development by chance uncover buried palaeontological or archaeological materials including human remains Heritage Western Cape should be notified (Private Bag X9067, Cape Town 8000, Tel: 021 483 9685, Fax: 021 483 9842).
SIGNIFICANCE – POST MITIGATION	N/A

ESTUARINE ECOLOGY (SUBSTATION SITE C)	
NATURE	Habitat destruction within the Estuarine Functional Zone for the substation footprint.
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Low

	Reference is made to Estuarine Ecological Assessment (dated 2013 and attached in Appendix D) noting the following: The EFZ component of the proposed substation site is highly degraded and dominated by alien species, therefore significance of habitat destruction is considered low.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- No workers allowed between the Main Road 390 (R340) and water level of the estuary or between the N2 and water level of the estuary. I.e. no access to or below the High Water Mark of the estuary. - These areas should be appropriately demarcated/fenced off for the duration of the construction period and all demarcation removed entirely after completion of the project. - No water abstraction of any kindto be permitted from the estuary - All cleared alien vegetation from the footprint of the substation to be removed from the site to a suitable landfill area. Any alien species seeds should not be allowed to enter the culvert. - No use of any herbicides within 32 m of the High Water Mark or near culverts or storm water drains.
SIGNIFICANCE – POST MITIGATION	Low

ESTUARINE ECOLOGY (POWERLINE 4 – PYLON B16)	
NATURE	Habitat destruction within the Estuarine Functional Zone for pylon B16 (only pylon located within EFZ).
EXTENT (GEOPRAPHICAL)	Site
DURATION	Medium term
PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to Estuarine Ecological Assessment (dated 2013 and attached in Appendix D) noting the following: The area [pylon footprint] itself is of low sensitivity but lies adjacent to sensitive estuarine habitat.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE	Low

MITIGATION	
MITIGATION MEASURE	- No workers allowed between the footprint of B16 and the Bitou Estuary. I.e. No access to or below the High Water Mark of the estuary. - These areas should be appropriately demarcated/fenced off for the duration of the construction period and all demarcation removed entirely after completion of the project. - No water abstraction of any kind to be permitted from the estuary. - Access to the footprint should be via a strip track where vegetation is simply cut and no road should be graded to the footprint. i.e no disturbance to the top soil - The access track must emanate from the N2, be as short as practicably possible, and use the road verge as far as possible to achieve an appropriate gradient to the track and thereby minimise habitat destruction of adjacent vegetation outside of the road verge (see Figure 9). - Any alien vegetation cleared from the footprint of the track and pylon to be removed from the site and placed at a suitable landfill area. Seeds from alien species should not be spread to adjacent sites. - The footprint of the pylon and the construction track must be rehabilitated with vegetation that is indigenous to the area, as directed by a rehabilitation specialist. Alien vegetation must be removed from the disturbed areas for a period of at least ten years post construction until the area has been suitably rehabilitated. - All top soil (from the top 40 cm) excavated from within the pylon footprint should be stored carefully offsite for later use in rehabilitation and not be mixed with any other materials. - The surrounding area should not be used for construction or storage of materials and disturbance must be limited to the construction track and pylon footprint. - No use of any herbicides within 32 m of the High Water Mark.
SIGNIFICANCE – POST MITIGATION	Low

ESTUARINE ECOLOGY (POWERLINE 4)	
NATURE	Habitat destruction within the Estuarine Functional Zone while stringing the overhead cables.
EXTENT (GEOPRAPHICAL)	Site
DURATION	Short term
PROBABILITY	Improbable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low

	Reference is made to Estuarine Ecological Assessment (dated 2013 and attached in Appendix D) noting the following: No significant impacts are likely to result from stringing the lines with a pulley which prevents any cables from touching the ground or water surface, as long as these methods are adhered to.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Very Low
MITIGATION MEASURE	- No mitigation required although the proposed method of stringing must be strictly adhered to.
SIGNIFICANCE – POST MITIGATION	N/A

ESTUARINE ECOLOGY (SUBSTATION SITE C)	
NATURE	Pollution, including soil runoff and other foreign materials associated with the proposed substation entering the estuary via the existing storm-water drain.
EXTENT (GEOPRAPHICAL)	Site
DURATION	Medium term
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Estuarine Ecological Assessment (dated 2013 and attached in Appendix D) noting the following: The construction phase of most developments increases the chance of pollution. In this case, the effect on the adjacent Keurbooms-Bitou Estuary would be exacerbated by the presence of a culvert that is situated between the proposed site of the substation and existing roads, which drains into the estuary via a storm-water outlet. Potential sources of pollution include soil runoff (during earth moving operations) which may lead to excessive turbidity and siltation of the estuary, but more serious could be chemical pollution such as from paints and solvents that are likely to be used during construction.
CUMULATIVE IMPACTS	Medium
SIGNIFICANCE RATING – PRE	Low

MITIGATION	
MITIGATION MEASURE	- No soil or other foreign material (paint, cement powder, chemicals and any other materials associated with construction) should be put either deliberately or accidentally in the culvert bordering the site so that is can wash into the estuary. Close supervision required to ensure this does not happen and or culvert should be covered until construction is finished. - No workers allowed between the Main Road 390 (R340) and water level of the estuary or between the N2 and water level of the estuary to prevent erosion. I.e. No access to or below the High Water Mark of the estuary. - All chemicals should be responsibly contained and used, and no chemicals should be stored within 32 m of the High Water Mark. - No storage of building materials within 32 m of the High Water Mark. - Cement & concrete mixing not to be done within 32 m of the High Water Mark or near the culvert and not to be done on permeable surfaces. Only to be undertaken at authorised sites determined suitable by botanist/terrestrial ecologist to ensure that this does not get into storm water, - All vehicles & machinery should be checked daily for oil and chemical leaks. No leaking machines to be allowed on site. - No washing of vehicles and machinery within 32 m of the High Water Mark or close to storm water drains and only at designated areas defined by botanist/terrestrial ecologist. - Chemical toilet to be provided for all workers which should be located at least 32 m from the High Water Mark. No other areas may be used for toilet facilities. - No littering or waste disposal except in dustbins. Dustbins for workers should be placed at least 32 m from the High Water Mark and have lids to ensure no material blows out. - No burning of waste or fires on site or within 32 m of High Water Mark. - No depositing of soil within 32 m of the High Water Mark, & only at authorised areas at least 32 m from the High Water Mark as guided by a terrestrial botanist/ecologist. - All building rubble, construction material and litter to be removed during and once construction is finished. - Contractor in association with the Project Coordinator to ensure compliance of workers with good environmental practices and general conduct as per their environmental awareness induction training.
SIGNIFICANCE – POST MITIGATION	Insignificant

ESTUARINE ECOLOGY (POWERLINE – PYLON B16)	
NATURE	Pollution, including soil runoff and other foreign materials associated Pylon B16 (only pylon within EFZ) during construction.
EXTENT (GEOPRAPHICAL)	Site
DURATION	Medium term
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Estuarine Ecological Assessment (dated 2013 and attached in Appendix D) noting the following: The construction phase of most developments increases the chance of pollution. In this case, the effect on the adjacent Keurbooms-Bitou Estuary would be exacerbated by the presence of a culvert that is situated between the proposed site of the substation and existing roads, which drains into the estuary via a storm-water outlet. Potential sources of pollution include soil runoff (during earth moving operations) which may lead to excessive turbidity and siltation of the estuary, but more serious could be chemical pollution such as from paints and solvents that are likely to be used during construction.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- All chemicals should be responsibly contained and used, and no chemicals should be stored within 32 m of the High Water Mark. - No storage of building materials within 32 m of the High Water Mark. - Cement & concrete mixing not to be done within 32 m of the High Water Mark and not to be done on permeable surfaces. Only to be undertaken at authorised sites determined suitable by botanist/terrestrial ecologist to ensure that this does not get into storm water, - All vehicles & machinery should be checked daily for oil and chemical leaks. No leaking machines to be allowed on site. - No washing of vehicles and machinery within 32 m of the High Water Mark or close to storm water drains and only at designated areas defined by botanist/terrestrial ecologist. - Chemical toilet to be provided for all workers which should be located at least 32 m from the High

	Water Mark. No other areas may be used for toilet facilities. - No littering or waste disposal except in dustbins. Dustbins for workers should be placed at least 32 m from the High Water Mark and have lids to ensure no material blows out. - No burning of waste or fires on site or within 32 m of High Water Mark. - No depositing of soil within 32 m of the High Water Mark, & only at authorised areas at least 32 m from the High Water Mark as guided by a terrestrial botanist/ecologist. - All building rubble, construction material and litter to be removed during and once construction is finished. - Contractor in association with the Project Coordinator to ensure compliance of workers with good environmental practices and general conduct as per their environmental awareness induction training.
SIGNIFICANCE – POST MITIGATION	Insignificant

2.2 Impact Rating for the Construction Phase for the Proposed Alternatives

CONSTRUCTION PHASE – PROPOSED ALTERNATIVES: SUMMARY OF THE IMPACTS SIGNIFICANCE BEFORE MITIGATION AND RATING POST MITIGATION ASSOCIATED WITH THE ALTERNATIVE OPTIONS (SUBSTATION DEVELOPMENT (SITE A AND B) AND POWERLINE (ROUTES 1, 2 AND 3)

GEOGRAPHICAL AND PHYSICAL ASPECTS (SUBSTATION SITES A & B AND POWERLINE ROUTES 1,2 AND 3)	
NATURE	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction period
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP attached in Appendix F:

	- All vehicles to remain within the designated vehicle tracks; - Permission from the property owner must first be sought before any new vehicle tracks are made; - Should it be necessary to plant a pole on a slope ensure that the necessary erosion prevention measures are put in place; and - Minimum / no movement in areas already eroded.
SIGNIFICANCE – POST MITIGATION	Low

GEOGRAPHICAL AND PHYSICAL ASPECTS (SUBSTATION SITES A & B AND POWERLINE ROUTES 1,2 AND 3)	
NATURE	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction period
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	Refer to EMP in Appendix F: - Storage of any materials shall not take place within 32m of any watercourses or sensitive environments. - Fuel, oil and any other hazardous substances and harmful materials shall be stored in suitable containers within adequately bunded areas (with 110% of the capacity of the volume of the container) in a dry, secure environment, with concrete or sealed flooring. - Material Safety Data Sheets shall be kept for all hazardous materials and substances and a copy of the Material Safety Data sheets shall be made available to all workers to ensure that the required safe handling and necessary precautions are taken when suing the materials. - The PC will ensure that materials storage facilities are cleaned/maintained on a regular basis, and that leaking containers are disposed of in a manner that allows no spillage onto the bare soil or surface water.
SIGNIFICANCE – POST MITIGATION	Low

BOTANICAL (SUBSTATION SITES A &B)	
NATURE	Potential botanical impact on Cape Lowland Alluvial Vegetation at/near the substations sites.

EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Unlikely
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is located on a transformed patch of farmland. There is little vegetation left, except in the road reserve.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	High
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Only disturbed dryland areas should be used to place pylons between the sections described in the Botanical report (Appendix D, page 49). - Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Medium

BOTANICAL (SUBSTATION SITES A &B)	
NATURE	Potential botanical impact on Garden Route Shale Fynbos at/near the substations sites.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Likely
REVERSIBILITY	Reversible

IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is located on a transformed patch of farmland. There is little vegetation left, except in the road reserve.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Only disturbed dryland areas should be used to place pylons between the sections described in the Botanical report (Appendix D, page 49). - Vegetation outside of Substation site footprint shall not be harmed. - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Low to Medium

BOTANICAL (POWERLINE ROUTES 1 AND 2)	
NATURE	Potential botanical impact on Cape Lowland Alluvial Vegetation in/near the proposed powerline footprints.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Unlikely
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is intact and of good quality on the northern part of Routes 1 and 2 before the estuary crossing. The vegetation

	after the estuary crossing is degraded due to the vicinity of the gravel road and farming activities.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	High
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - The stockpiling of materials must take place within the working area and not spill over into vegetation. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Low to Medium

BOTANICAL (POWERLINE ROUTES 1 AND 2)	
NATURE	Potential botanical impact on Southern Afrotemperate Forest in/near the proposed powerline footprints.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Uncertain
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Medium to High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is a low thicket-like forest with invasive pine where Route 1 splits off from Route 3. On Route 2, the forest is infested with black wattle on the valley floor as well as rooikrans. Same applies for Routes 1 and 2 past the farms on the Route 1 diversion. Afrotemperate Forest was also identified on Routes 1 and 2 just before the estuary crossing. The vegetation is in good condition in this area.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium to High

MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Infestations of black wattle and rooikrans must be eliminated. - Areas of vegetation in good condition must be avoided; pylon placement to take place outside these areas where possible. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Medium

BOTANICAL (POWERLINE ROUTES 1, 2 AND 3)	
NATURE	Potential botanical impact on Garden Route Shale Fynbos in/near the proposed powerline footprints.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Likely
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is the most common found on all three routes. The vegetation is invaded by alien species such as black wattle, acacia species and gum trees at various locations throughout the routes. However, the eradication of these alien invasives would probably allow the regeneration of indigenous species successfully. Areas south-west of the WWTW and locations on hill slopes and valley floors harbour vegetation in good condition with minimal alien invasives.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Refer to EMP as attached in Appendix F:

	- Infestations of black wattle and other invasives must be eliminated to allow the regeneration of indigenous seed banks. - Areas of vegetation in good condition must be avoided; pylon placement to take place outside these areas where possible. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Medium

BOTANICAL (POWERLINE ROUTES 1, 2 AND 3)	
NATURE	Potential botanical impact on Cape Estuarine Salt Marshes in/near the proposed powerline footprints.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Unlikely
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is in good condition with unaltered estuarine salt marsh.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium to High
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - The salt marsh must be avoided since the area is highly sensitive. - Areas of vegetation in good condition must be avoided; pylon placement to take place outside these areas where possible. - All incidents of harm to any natural vegetation (apart from the agreed upon areas) must be reported to the

	ECO; - Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.
SIGNIFICANCE – POST MITIGATION	Low to Medium

BOTANICAL (POWERLINE ROUTES 1, 2 AND 3)	
NATURE	Potential botanical impact on adjacent Outeniqua Sandstone Fynbos
EXTENT (GEOPRAPHICAL)	Site
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Low to Medium Reference is made to Botanical Assessment (dated 2013 and attached in Appendix D) noting that the vegetation is in good condition with some alien vegetation invasion north of the existing Robberg Substation. A kloof east of the Robberg substation contains natural forest that needs to be retained.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Refer to EMP as attached in Appendix F: - Remove alien vegetation. - Ensure burn cycles are maintained. - Refrain from bossie cutting. - The areas of vegetation that are to be protected during construction must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas. - All woody alien invasive vegetation within 10m of the proposed new powerline should be removed on an annual basis.

SIGNIFICANCE – POST MITIGATION	Low to Medium

CULTURAL HISTORICAL (SUBSTATION SITES A &B AND ROUTES 1, 2 AND 3)	
NATURE	Potential impacts on cultural-historical elements during construction of the Substation and Powerline is unlikely. Reference is made to the Archaeological Impact Assessment dated 23 August 2007 (attached in Appendix D, confirmed to remain valid by HWC November 2013). AIA findings indicated that it is considered unlikely that the construction and operation of the proposed Powerline and Substation will have an impact on any archaeological or palaeontological resources.
EXTENT (GEOPRAPHICAL)	N/A
DURATION	N/A
PROBABILITY	N/A
REVERSIBILITY	N/A
IRREPLACEABLE LOSS OF RESOURCES	N/A
CUMULATIVE IMPACTS	N/A
SIGNIFICANCE RATING – PRE MITIGATION	N/A
MITIGATION MEASURE	Should any activities associated the development by chance uncover buried palaeontological or archaeological materials including human remains Heritage Western Cape should be notified (Private Bag X9067, Cape Town 8000, Tel: 021 483 9685, Fax: 021 483 9842).
SIGNIFICANCE – POST MITIGATION	N/A

AVI-FAUNA (SUBSTATIONS A & B AND ROUTES 1, 2 AND 3)	
NATURE	Potential avi-faunal impacts: Short-term disturbance of breeding (or foraging) areas during the construction of the line.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Short term
PROBABILITY	High
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Very Low/Unlikely

	Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D) noting the following: Generically, physical disturbance is likely to impact most significantly on species which nest on or close to the ground (Half-collared Kingfisher, African Grass-Owl, Denham's Bustard, Blue Crane, Black-winged Lapwing, African Marsh Harrier – Table 2), which may experience either the complete destruction or damaging disturbance of an active nest site placed in or close to the path of the construction process, or to a lesser extent tree-nesting species (e.g. Knysna Woodpecker, Knysna Warbler) nesting within a minimum distance of the proposed route.
CUMULATIVE IMPACTS	Medium
SIGNIFICANCE RATING – PRE MITIGATION	Low-Medium
MITIGATION MEASURE	- Disturbance impacts should be minimized in two ways, both of which apply equally to all the proposed routes: - Both the temporal and spatial disturbance footprints of the construction process should be as compressed as possible – i.e. the process should be completed as quickly as possible, and the area of ground directly affected by the process should be as small as possible. - An expert observer should work along the proposed route immediately before construction activities start to ensure that no nests, particularly those of 'priority' species, are situated on or very close to the line. - Minimizing the disturbance impacts associated with the construction of the line by abbreviating construction time, scheduling of construction activities around avian breeding and tide related feeding and roosting schedules where necessary, lowering levels of associated noise - Route the line away from the wider sections of open wetland.
SIGNIFICANCE – POST MITIGATION	Low to Negligible

DUST (SUBSTATION SITES A & B AND POWERLINE ROUTES 1, 2 AND 3)	
NATURE	Dust impacts on surrounding environment associated with construction activities
EXTENT (GEOPRAPHICAL)	Local
DURATION	Construction period
PROBABILITY	Likely
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	No Loss
CUMULATIVE IMPACTS	Low

SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Generation of dust shall be minimised and dust nuisance for the surrounding areas shall be kept to a minimum wherever possible. - Dust from exposed soil surfaces shall be minimised at all times, only using water spray during extremely windy conditions - Reasonable measures must be undertaken by the contractor to ensure that any exposed areas and material stockpiles are adequately protected against the wind. - Dust screens of a suitable height should be erected wherever required and possible. - All exposed surfaces should be minimised in terms of duration of exposure to wind and stormwater.
SIGNIFICANCE – POST MITIGATION	Low

NOISE (SUBSTATION SITES A & B AND POWERLINE ROUTES 1, 2 AND 3)	
NATURE	Noise impacts on surrounding environment associated with construction activities (Construction vehicles and equipment)
EXTENT (GEOPRAPHICAL)	Local
DURATION	Construction period
PROBABILITY	Likely
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	No Loss
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- The contractor shall adhere to the local by-laws and regulations regarding the noise and associated hours of operations. - The contractor shall limit noise levels (e.g. install and maintain silencers on machinery). The provisions of sans 1200a sub-clause 4.1 regarding “built-up” area shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas. - Construction and demolition activities generating output of 85db or more, shall be limited to normal working hours and not allowed during weekends to limit the impact of noise of neighbours. - Should the contractor need to work outside normal working hours, the surrounding neighbours shall be informed prior to the work taking place.

	- No amplified music shall be allowed on site.
SIGNIFICANCE – POST MITIGATION	Low

WASTE (SUBSTATION SITES A & B AND POWERLINE ROUTES 1, 2 AND 3)	
NATURE	Generation of additional waste/ litter and building rubble/hazardous material during the construction phase
EXTENT (GEOPRAPHICAL)	Site
DURATION	Construction period
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Medium
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Waste management mitigation measures as detailed in the EMP (attached in Appendix F) includes: - Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site in Plettenberg Bay with proof of safe disposal as required. - The contractor shall ensure that all litter is collected daily from the work area. Similarly, all bins shall be emptied daily and the waste disposed of at a permitted landfill site. - The contractor shall ensure that the construction site, working and eating areas are maintained in a clean, hygienic and orderly state. - Separate bins should be provided for various materials to facilitate recycling. The bins should have liner bags for easy control and safe disposal of waste. - The excavation and use of rubbish pits on site is forbidden. - The burning of waste is forbidden. - All vehicles and equipment must be maintained in a good condition in order to minimise the risk of leakage and possible contamination of the soil or stormwater by fuels, oils and hydraulic fluids. - Sufficient quantities of suitable hydrocarbon absorption or remediation materials must be present on site at all times.
SIGNIFICANCE – POST MITIGATION	Low

ESTUARINE ECOLOGY (POWERLINE ROUTES 1, 2 AND 3)

NATURE	Habitat destruction within the Estuarine Functional Zone while stringing the overhead cables.
EXTENT (GEOPRAPHICAL)	Site
DURATION	Short term
PROBABILITY	Improbable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to Estuarine Ecological Assessment (dated 2013 and attached in Appendix D) noting the following: No significant impacts are likely to result from stringing the lines with a pulley which prevents any cables from touching the ground or water surface, as long as these methods are adhered to.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Very Low
MITIGATION MEASURE	- No mitigation required although the proposed method of stringing must be strictly adhered to.
SIGNIFICANCE – POST MITIGATION	Low

ESTUARINE ECOLOGY (POWERLINE ROUTES 1, 2 AND 3 – PYLON PLACEMENT IN EFZ)	
NATURE	Habitat destruction within the Estuarine Functional Zone for pylon placements within EFZ
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High Pylons placed in the EFZ or the estuary (as needed for Routes 1, 2 and 3) may cause a high environmental impact.
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	Very High

MITIGATION MEASURE	- Number of workers and equipment working within the EFZ and estuary to be kept to a minimum. - These areas should be appropriately demarcated/fenced off for the duration of the construction period and all demarcation removed entirely after completion of the project. - No water abstraction of any kind to be permitted from the estuary. - Access to the footprint should be via a strip track where vegetation is simply cut and no road should be graded to the footprint. i.e no disturbance to the top soil - The footprint of the pylon and the construction track must be rehabilitated with vegetation that is indigenous to the area, as directed by a rehabilitation specialist. Alien vegetation must be removed from the disturbed areas for a period of at least ten years post construction until the area has been suitably rehabilitated. - The surrounding area should not be used for construction or storage of materials and disturbance must be limited to the construction track and pylon footprint. - No use of any herbicides within 32 m of the High Water Mark.
SIGNIFICANCE – POST MITIGATION	High

**** PLEASE NOTE:** A visual impact assessment was not completed for Route Alternatives 1, 2 and 3 as well as Substation Site Alternatives A and B. As per HWC response dated 2007 and 2013 (refer to Appendix E), only an archaeological and paleontological impact assessment was necessary for the area in question. A visual impact assessment was completed for Preferred Route Alternative 4 and Substation Site C during this BA process for due diligence.

2.3 Impact Rating for the Operational Phase for the Preferred Alternative

OPERATIONAL PHASE – PREFERRED ALTERNATIVE: SUMMARY OF THE IMPACTS SIGNIFICANCE BEFORE MITIGATION AND RATING POST MITIGATION ASSOCIATED WITH THE PREFERRED OPTION (SUBSTATION DEVELOPMENT (SITE C) AND POWERLINE (ROUTE 4B)

SOCIO-ECONOMIC	
NATURE	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.
EXTENT (GEOPRAPHICAL)	Region
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	N/A

CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	High
MITIGATION MEASURE	N/A: Mitigation not required.
SIGNIFICANCE – POST MITIGATION	High

VISUAL (SUBSTATION AND POWERLINE) ***	
NATURE	Visual impact associated with the Powerline and Substation
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low
CUMULATIVE IMPACTS	Low Reference is made to the Visual Impact Assessment (dated May 2012 and attached in Appendix D) noting that the Substation and Powerline will represent an incremental increase in the 'industrial' or urban elements in the overall landscape but their character in a visual environment that is undergoing steady change with the addition of more urban elements and development is not entirely unexpected. It is believed that, while adding a new visual element to the overall vista, the sense of place will not seriously affected as the balance in the visual environment will not be change in a way that is unacceptable. This is because of the visual strength of the natural elements in the overall landscape as opposed to the relatively small changes that the development will incur. Future developments in the area, such as the proposed new N2 alignment and interchange, and continued development of housing will however strengthen the urban visual elements at the expense of the natural.
SIGNIFICANCE RATING – PRE MITIGATION	Medium Reference is made to the Visual Impact Assessment (dated May 2012 and attached in Appendix D) noting that although the **substation** site is adjacent to the N2 which is considered a scenic route and therefore is in need of special protection in terms of its visual environment, several factors will aid in limiting the visual impact to an acceptable level: - The structures on the site will be relatively low (approximately 5m) except for the lightening mast at

	approximately 14m and the final pylon at approximately 22m. - The backdrop of the cliff face behind the substation will result in the lowering of the perceived visual impact of the substation as the relative percentage of change in the overall vista will be relatively small. - The substation will at no time be seen against the skyline thus lowering the visual impact. - The partial screening of the substation by means of vegetation planted between the N2/R340 edges and the fencing around the site will aid in breaking the perceived intensity of the visual impact. - The presence in the surrounding environment of a significant number of trees and other vegetation will mitigate the impact on the surrounding terrain and specifically on the houses in Twin Rivers Estate and the one farm house that will be affected. - The overall significance of the visual impact of the **substation** has therefore been assessed at medium without mitigation and medium-low with full mitigation.
MITIGATION MEASURE	- Littering is to be strictly controlled over the entire life of the project. - All waste is to be regularly removed from substation site to a recognized dumping site. - Waste, in any form, should not be allowed to collect on the site. - The use of any cleaning materials or defoliants to aid in the control of vegetation is to be strictly monitored so that their long-term use does no cause future problems should the site be decommissioned. - The use of lighting is to be monitored over the entire life of the project so as to minimize light pollution. (See note on lighting in section 5.2 'Design Phase' above.) - A strict fire prevention policy must be implemented and monitored.
SIGNIFICANCE – POST MITIGATION	Medium - Low

AVI-FAUNA (POWERLINE AND SUBSTATION)	
NATURE	Potential avi-faunal impacts: collision and/or electrocution mortality of waterbirds, large terrestrial birds and raptors on new power infrastructure
EXTENT (GEOPRAPHICAL)	Regional
DURATION	Long term
PROBABILITY	Low
REVERSIBILITY	Unlikely
IRREPLACEABLE LOSS OF RESOURCES	Low to unlikely

	Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D) noting the following: Significant, long-term impacts on avifauna of the power line itself largely concern collision risk (assuming that the construction footprint is minimized and bird-friendly pylon structures are used throughout). Therefore, in the final analysis, route selection should be done primarily in terms of the distance of line crossing open wetland areas, where the maximum number of Red-listed and collision-prone species is likely to occur, and the high rates of avian traffic associated with the river, estuary and floodplain, and the general topography, both exacerbate the risk of aerial collision. With these considerations in mind, **Route 4** is undoubtedly the preferable option. It crosses the Bitou River floodplain at a fairly narrow point, with <500m of contiguous, open wetland exposed to the line at that point , as opposed to about 600-1000m for all the other options. Route 4 runs along the N2 for well over half its length, running parallel with existing power and telecoms infrastructure and within the heavily disturbed road reserve. It also crosses the least amount of natural Fynbos and forest habitat, which support the highest diversity of endemic species, and the second highest diversity of 'priority' species respectively.
CUMULATIVE IMPACTS	Additive to other powerlines in the area
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Routing the line away from the wider sections of open wetland . - Ensuring that all new lines are marked with bird flight diverters along their entire length, using industry standard markers and marker fitting protocols. - Ensuring that all new power infrastructure is adequately insulated and bird friendly in configuration. The risks of electrocution should be minimized in two ways (Tables 1 & 4), both of which apply equally to all the proposed routes: - The pylon structures used to support the conductors must be of a bird-friendly configuration, with sufficient gaps between the conducting elements and the metalwork, and with perching surfaces spaced adequately away from the conductors to prevent even the largest birds (African Crowned Eagle) from spanning these gaps. - Bird-guards should be fitted wherever birds might perch above the conductors to reduce bird-streamer related faulting. Collision impacts should be minimized in two ways (Tables 1 & 5): - Ensuring that all new lines are marked with bird flight diverters along their entire length (Jenkins et al.

	2010), using industry standard markers and marker fitting protocols (e.g. Van Rooyen 2004). Note that current understanding of power line collision risk in birds precludes any guarantee of successfully distinguishing high risk from medium or low risk sections of a new line (Bevanger 1994, Jenkins et al. 2010, Barrientos et al. 2011). The relatively low cost of marking the entire length of a new line during construction, especially quite a short length of line in an area frequented by collision prone birds, more than offsets the risk of not marking the line, causing unnecessary mortality of birds, and then incurring the much greater cost of retro-fitting the line post-construction. In situations where new lines run in parallel with existing, unmarked power lines, this approach has the added benefit of reducing the collision risk posed by the older line. - Once erected, the line should be surveyed at least twice for signs of avian collisions over the next 12 months.
SIGNIFICANCE – POST MITIGATION	Negligible

AVI-FAUNA (POWERLINE AND SUBSTATION)	
NATURE	Potential avi-faunal impacts: disturbance of waterbirds, large terrestrial birds and raptors
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Moderate
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low to unlikely Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D).
CUMULATIVE IMPACTS	None
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Minimizing the disturbance impacts associated with maintenance activities on the line by scheduling these around avian breeding and tide related feeding and roosting schedules where necessary, lowering levels of associated noise.
SIGNIFICANCE – POST MITIGATION	Negligible

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Erosion resulting from the use of the access track for the construction phase

EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to Botanical Assessment (dated July 2013 and attached in Appendix D).
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Very Low
MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - Vehicles must keep to the access track at all times and reverse out. No turning at the end of the access track as per the plans for the access track - Although unlikely, if the site becomes muddy vehicles should not be driven on the access track until it has dried out. - Vehicles should be driven up and down the access track as little as is practically possible. - Usage of the track must be limited to within 2 years of the vegetation being cleared so that appropriate rehabilitation can commence within a reasonable time.
SIGNIFICANCE – POST MITIGATION	Insignificant

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Impact on vegetation due to pollution
EXTENT (GEOPRAPHICAL)	Local
DURATION	Short term
PROBABILITY	Probable
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to Botanical Assessment (dated July 2013 and attached in Appendix D).
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low

MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - All chemicals such as petrol and oil should be responsibly contained and used - All vehicles & machinery should be checked daily for oil and chemical leaks. No leaking machines to be allowed on site. - No area may be used as a toilet. However, a chemical toilet should be provided for all workers which should be located at least 32 m from the High Water Mark at a location already denuded of vegetation. - No littering or waste disposal except in dustbins. A dustbin for workers must be placed on board a vehicle and have a lid to ensure no material blows out. - All foreign material brought on to site to be removed during and once the project is finished. - No burning of waste or fires on site. - Contractor in association with the Project Coordinator to ensure compliance of workers with good environmental practices and general conduct as per their environmental awareness induction training.
SIGNIFICANCE – POST MITIGATION	Insignificant

ESTUARINE ECOLOGY (SUBSTATION)	
NATURE	Development footprint of the substation becoming a site of erosion and thus contributing to siltation of the estuary.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Estuarine Ecology Assessment (dated 2013 and attached in Appendix D) noting the following: Due to the nature of the development, all vegetation within the Estuarine Functional Zone of the development footprint of the substation will be removed and therefore the area may be a potential site for erosion and a source of siltation and turbidity. This would possibly be the case if any bare ground areas are left exposed and would result in a *negative* status for this potential impact

CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Any bare ground areas of the substation that do not have hard infrastructure should be covered by suitable groundcover such as gravel or indigenous turf forming grass such as *Cynodon dactylon* to minimise soil erosion.
SIGNIFICANCE – POST MITIGATION	Low

ESTUARINE ECOLOGY (POWERLINE – PYLON B16)	
NATURE	Development footprint of pylon B16 and associated construction track becoming a site of erosion.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Estuarine Ecology Assessment (dated 2013 and attached in Appendix D) noting the following: Due to the nature of the development, all vegetation within the Estuarine Functional Zone of the development footprint of the pylon will be removed and therefore the area may be a potential site for erosion and a source of siltation and turbidity. This would possibly be the case if any bare ground areas are left exposed and would result in a *negative* status for this potential impact
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- Rehabilitation of the pylon footprint and track (refer to construction phase impact table).
SIGNIFICANCE – POST MITIGATION	Very Low

ESTUARINE ECOLOGY (SUBSTATION)	
NATURE	The development footprint of the substation becoming colonised by alien vegetation.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Estuarine Ecology Assessment (dated 2013 and attached in Appendix D) noting the following: Any disturbance, such as the development of a substation or the construction of pylons, increases the likelihood of alien plant infestations which can then become a source of aliens for other non-affected areas of the estuary.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- All alien vegetation to be removed periodically, at least once a year. - No use of any herbicides for the control of alien plant species within 32 m of the High Water Mark or adjacent to any culverts of storm water drains (refer to erosion control impacts above).
SIGNIFICANCE – POST MITIGATION	Insignificant

ESTUARINE ECOLOGY (POWERLINE – PYLON B16)	
NATURE	The development footprint of the pylon and construction track becoming colonised by alien vegetation.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Estuarine Ecology Assessment (dated 2013 and attached in Appendix D) noting the following:

	Any disturbance, such as the development of a substation or the construction of pylons, increases the likelihood of alien plant infestations which can then become a source of aliens for other non-affected areas of the estuary.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Low
MITIGATION MEASURE	- All alien vegetation to be removed periodically, at least once a year. - No use of any herbicides for the control of alien plant species within 32 m of the High Water Mark or adjacent to any culverts of storm water drains - Erosion control (refer to impact tables above)
SIGNIFICANCE – POST MITIGATION	Insignificant

ESTUARINE ECOLOGY (POWERLINE)	
NATURE	Mortality to waterbirds due to collisions with power lines across the Estuarine Functional Zone.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Estuarine Ecology Assessment (dated 2013 and attached in Appendix D) noting the following: It is well recognised that collisions are the biggest single threat posed by power lines to birds in southern Africa (van Rooyen, 2004). In this particular case, the problem is exacerbated because the transmission lines will cross an estuary with an important waterbird population. Many waterbirds, particularly duck, geese, egrets and herons are known to fly especially during low light levels at dawn and dusk or during the night
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	- Power lines over Estuarine Functional Zone should be fitted with FireFlys or After Glows and not

	bird flappers or other bird diversion devices which work during daylight only. The precise placement of the After Glows/Fireflys on the power line to be done under the guidance of an ornithologist. - Impaired/old After Glows & FireFlys to be replaced periodically (3-5 yrs) as and when required for the lifetime of the project.
SIGNIFICANCE – POST MITIGATION	Low

ESTUARINE ECOLOGY (POWERLINE & PYLON)	
NATURE	Mortality of birds due to electrocution.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Irreversible
IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Estuarine Ecology Assessment (dated 2013 and attached in Appendix D) noting the following: The risk of electrocution of birds perching on the pylon structure is most significant for large birds which are capable of spanning the air-gaps between the conductors, and for species which habitually perch on elevated structures.
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	- The pylon must be bird-friendly, with sufficiently large gaps between the conducting elements and the metalwork, and with perching surfaces spaced sufficiently far away from the conductors to prevent even large birds such as the African Fish Eagle from bridging these gaps. Note that the distance between grounded metal and conductors would need to be at least 80 cm, based on a fish eagle being 68 cm in length and with a wing span 148 cm. - Bird-guards should be fitted where birds might perch above the conductors to reduce bird-streamer related shorting. - Bird-guards to be replaced as and when required for the duration of the project.

SIGNIFICANCE – POST MITIGATION	Low

DECOMISSIONING PHASE – PREFERRED ALTERNATIVE: SUMMARY OF THE IMPACTS SIGNIFICANCE BEFORE MITIGATION AND RATING POST MITIGATION ASSOCIATED WITH THE DECOMISSIONING OF THE PROPOSED ACCESS TRACK BETWEEN PYLON B15 AND B16

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Erosion resulting from the development of the temporary access track
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low Reference is made to Botanical Assessment (dated July 2013 and attached in Appendix D).
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Very Low
MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - The track must be decommissioned within 2 years of the vegetation being cleared so that appropriate rehabilitation can commence within a reasonable time. - Rehabilitation of the site must include mitigation of any signs of early erosion and re-vegetation with appropriate vegetation indigenous to that habitat. - Rehabilitation must be undertaken under the guidance of a qualified rehabilitation ecologist.
SIGNIFICANCE – POST MITIGATION	Insignificant

BOTANICAL (ACCESS TRACK BETWEEN PYLON B15 AND B16)	
NATURE	Alien plant infestations resulting from the proposed development
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Reversible

IRREPLACEABLE LOSS OF RESOURCES	Medium Reference is made to Botanical Assessment (dated July 2013 and attached in Appendix D) which notes that the presence of highly invasive alien plant species at the site increases the colonisation probability.
CUMULATIVE IMPACTS	Low
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	Refer to EMP (Appendix F) and Botanical Specialist Report: - The area cleared of vegetation must form part of a holistic rehabilitation plan which should commence within 2 years of any vegetation being cleared. - The rehabilitation plan must undertake to re-vegetate the area with suitable indigenous vegetation from the area back to a natural or near-natural state in order to minimize the chance of alien plant infestations. - All alien vegetation must be removed periodically, at least once a year from the area cleared for the access track. - Alien plants to be removed mechanically and herbicides only to be used at distances of greater than 32 m from the estuary High Water Mark. - Any other alien vegetation on Erf 448/5 should also be destroyed as many of these species are listed under Category 1 & 2 of the Conservation of Agricultural resources Act, and therefore, according to the Act, the landowner is under legal obligation to do so immediately
SIGNIFICANCE – POST MITIGATION	Insignificant

2.4 Impact Rating for the Operational Phase for the Alternatives

OPERATIONAL PHASE – PROPOSED ALTERNATIVE: SUMMARY OF THE IMPACTS SIGNIFICANCE BEFORE MITIGATION AND RATING POST MITIGATION ASSOCIATED WITH THE ALTERNATIVE OPTIONS (SUBSTATION DEVELOPMENT (SITE A & B) AND POWERLINE (ROUTES 1, 2 AND 3)

SOCIO-ECONOMIC	
NATURE	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.
EXTENT (GEOPRAPHICAL)	Region
DURATION	Long term

PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	N/A
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	High
MITIGATION MEASURE	N/A: Mitigation not required.
SIGNIFICANCE – POST MITIGATION	High

AVI-FAUNA (POWERLINES 1 AND 2)	
NATURE	Potential avi-faunal impacts: collision and/or electrocution mortality of waterbirds, large terrestrial birds and raptors on new power infrastructure
EXTENT (GEOPRAPHICAL)	Regional
DURATION	Long term
PROBABILITY	Moderate
REVERSIBILITY	Low
IRREPLACEABLE LOSS OF RESOURCES	Possible Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D) noting the following: Significant, long-term impacts on avifauna of the power line itself largely concern collision risk (assuming that the construction footprint is minimized and bird-friendly pylon structures are used throughout). Therefore, in the final analysis, route selection should be done primarily in terms of the distance of line crossing open wetland areas, where the maximum number of Red-listed and collision-prone species is likely to occur, and the high rates of avian traffic associated with the river, estuary and floodplain, and the general topography, both exacerbate the risk of aerial collision. With these considerations in mind, **Route 4** is undoubtedly the preferable option. It crosses the Bitou River floodplain at a fairly narrow point, with <500m of contiguous, open wetland exposed to the line at that point , as opposed to about 600-1000m for all the other options. Route 4 runs along the N2 for well over half its length, running parallel with existing power and telecoms infrastructure and within the heavily disturbed road reserve. It also crosses the least amount of natural Fynbos and forest habitat, which support the highest diversity of endemic species, and the second highest diversity of 'priority' species respectively.

CUMULATIVE IMPACTS	Additive to other powerlines in the area
SIGNIFICANCE RATING – PRE MITIGATION	Medium
MITIGATION MEASURE	- Routing the line away from the wider sections of open wetland . - Ensuring that all new lines are marked with bird flight diverters along their entire length, using industry standard markers and marker fitting protocols. - Ensuring that all new power infrastructure is adequately insulated and bird friendly in configuration. The risks of electrocution should be minimized in two ways (Tables 1 & 4), both of which apply equally to all the proposed routes: - The pylon structures used to support the conductors must be of a bird-friendly configuration, with sufficient gaps between the conducting elements and the metalwork, and with perching surfaces spaced adequately away from the conductors to prevent even the largest birds (African Crowned Eagle) from spanning these gaps. - Bird-guards should be fitted wherever birds might perch above the conductors to reduce bird-streamer related faulting. Collision impacts should be minimized in two ways (Tables 1 & 5): - Ensuring that all new lines are marked with bird flight diverters along their entire length (Jenkins et al. 2010), using industry standard markers and marker fitting protocols (e.g. Van Rooyen 2004). Note that current understanding of power line collision risk in birds precludes any guarantee of successfully distinguishing high risk from medium or low risk sections of a new line (Bevanger 1994, Jenkins et al. 2010, Barrientos et al. 2011). The relatively low cost of marking the entire length of a new line during construction, especially quite a short length of line in an area frequented by collision prone birds, more than offsets the risk of not marking the line, causing unnecessary mortality of birds, and then incurring the much greater cost of retro-fitting the line post-construction. In situations where new lines run in parallel with existing, unmarked power lines, this approach has the added benefit of reducing the collision risk posed by the older line. - Once erected, the line should be surveyed at least twice for signs of avian collisions over the next 12 months.
SIGNIFICANCE – POST MITIGATION	Low to Medium

AVI-FAUNA (POWERLINE 3)

NATURE	Potential avi-faunal impacts: collision and/or electrocution mortality of waterbirds, large terrestrial birds and raptors on new power infrastructure
EXTENT (GEOPRAPHICAL)	Regional
DURATION	Long term
PROBABILITY	Low
REVERSIBILITY	Low
IRREPLACEABLE LOSS OF RESOURCES	Possible Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D) noting the following: Significant, long-term impacts on avifauna of the power line itself largely concern collision risk (assuming that the construction footprint is minimized and bird-friendly pylon structures are used throughout). Therefore, in the final analysis, route selection should be done primarily in terms of the distance of line crossing open wetland areas, where the maximum number of Red-listed and collision-prone species is likely to occur, and the high rates of avian traffic associated with the river, estuary and floodplain, and the general topography, both exacerbate the risk of aerial collision. With these considerations in mind, **Route 4** is undoubtedly the preferable option. It crosses the Bitou River floodplain at a fairly narrow point, with <500m of contiguous, open wetland exposed to the line at that point , as opposed to about 600-1000m for all the other options. Route 4 runs along the N2 for well over half its length, running parallel with existing power and telecoms infrastructure and within the heavily disturbed road reserve. It also crosses the least amount of natural Fynbos and forest habitat, which support the highest diversity of endemic species, and the second highest diversity of 'priority' species respectively.
CUMULATIVE IMPACTS	Additive to other powerlines in the area
SIGNIFICANCE RATING – PRE MITIGATION	Low-Medium
MITIGATION MEASURE	- Routing the line away from the wider sections of open wetland . - Ensuring that all new lines are marked with bird flight diverters along their entire length, using industry standard markers and marker fitting protocols. - Ensuring that all new power infrastructure is adequately insulated and bird friendly in configuration. The risks of electrocution should be minimized in two ways (Tables 1 & 4), both of which apply equally to all the proposed routes:

	- The pylon structures used to support the conductors must be of a bird-friendly configuration, with sufficient gaps between the conducting elements and the metalwork, and with perching surfaces spaced adequately away from the conductors to prevent even the largest birds (African Crowned Eagle) from spanning these gaps. - Bird-guards should be fitted wherever birds might perch above the conductors to reduce bird-streamer related faulting. Collision impacts should be minimized in two ways (Tables 1 & 5): - Ensuring that all new lines are marked with bird flight diverters along their entire length (Jenkins et al. 2010), using industry standard markers and marker fitting protocols (e.g. Van Rooyen 2004). Note that current understanding of power line collision risk in birds precludes any guarantee of successfully distinguishing high risk from medium or low risk sections of a new line (Bevanger 1994, Jenkins et al. 2010, Barrientos et al. 2011). The relatively low cost of marking the entire length of a new line during construction, especially quite a short length of line in an area frequented by collision prone birds, more than offsets the risk of not marking the line, causing unnecessary mortality of birds, and then incurring the much greater cost of retro-fitting the line post-construction. In situations where new lines run in parallel with existing, unmarked power lines, this approach has the added benefit of reducing the collision risk posed by the older line. - Once erected, the line should be surveyed at least twice for signs of avian collisions over the next 12 months.
SIGNIFICANCE – POST MITIGATION	Low

AVI-FAUNA (POWERLINES 1, 2 AND 3)	
NATURE	Potential avi-faunal impacts: disturbance of waterbirds, large terrestrial birds and raptors
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Moderate
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	Low to unlikely Reference is made to Avifauna Assessment (dated 2014 and attached in Appendix D).
CUMULATIVE IMPACTS	None
SIGNIFICANCE RATING – PRE	Low

MITIGATION	
MITIGATION MEASURE	- Minimizing the disturbance impacts associated with maintenance activities on the line by scheduling these around avian breeding and tide related feeding and roosting schedules where necessary, lowering levels of associated noise.
SIGNIFICANCE – POST MITIGATION	Negligible

ESTUARINE ECOLOGY (POWERLINES 1, 2 AND 3)	
NATURE	Development footprint of pylon(s) at/near/in the EFZ and associated construction track becoming a site of erosion.
EXTENT (GEOPRAPHICAL)	Local
DURATION	Long term
PROBABILITY	Possible
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING – PRE MITIGATION	High
MITIGATION MEASURE	- Rehabilitation of the pylon footprint and track (refer to construction phase impact table). - Erosion stabilisation.
SIGNIFICANCE – POST MITIGATION	High - Medium

2.5 Impact Rating for the No-Go Alternative

SUMMARY OF THE IMPACTS SIGNIFICANCE BEFORE MITIGATION AND RATING POST MITIGATION ASSOCIATED WITH THE NO-GO ALTERNATIVE

SOCIO-ECONOMIC	
NATURE	Negative socio-economic impacts as a result of inadequate supply of electricity to the area, thereby limiting growth and expansion of local economic activities. Improvement in supply of electricity to the area will not be secured.
EXTENT (GEOPRAPHICAL)	Region
DURATION	Long term

PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING	High
MITIGATION MEASURE	N/A: Mitigation not required.
SIGNIFICANCE – POST MITIGATION	High

BOTANICAL	
NATURE	Negative botanical impacts as a result of continued, uncontrolled alien vegetation growth. Construction of a powerline would enable the clearing of alien vegetation in the servitude, establishing a biodiversity corridor for native plant species. Refer to Botanical Impact Assessment (Appendix D, page 60)
EXTENT (GEOPRAPHICAL)	Region
DURATION	Long term
PROBABILITY	Definite
REVERSIBILITY	Reversible
IRREPLACEABLE LOSS OF RESOURCES	High
CUMULATIVE IMPACTS	High
SIGNIFICANCE RATING	High
MITIGATION MEASURE	N/A: Mitigation not required.
SIGNIFICANCE – POST MITIGATION	High

3. ENVIRONMENTAL IMPACT STATEMENT

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

Summary of impact ratings:

The impacts rated for the CONSTUCTION PHASE (as detailed in the tables above) for the PREFEERED ALTERNATIVE (SUBSTATION DEVELOPMENT (SITE C) AND POWERLINE (ROUTE4B) are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Physical and Geological	Potential physical and geological impacts associated by the construction of the Substation and associated retaining wall.	Substation	Negative	Low
Physical and Geological	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles.	Substation and Powerline	Negative	Low
Physical and Geological	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Substation and Powerline	Negative	Low
Botanical	Potential botanical impact on Garden Route Shale Fynbos vegetation due to site clearance and construction of Substation on flat portion of Site C.	Substation	Negative	Medium
Botanical	Potential botanical impact on adjacent Garden Route Shale Fynbos and Southern Afrotemperate Forest vegetation located on steep cliff and foot slopes at the northern end of Substation Site C.	Substation	Negative	Medium
Botanical	Botanical impact associated with the trimming of one *Sideroxylon inerme* (Milkwood tree) for the construction of the Substation.	Substation	Negative	Medium
Botanical	Potential botanical impact on adjacent Garden Route Shale Fynbos along Route 4B adjacent to N2.	Powerline	Negative	Low-Medium
Botanical	Potential botanical impact on adjacent Outeniqua Sandstone Fynbos along Route 4B adjacent to N2.	Powerline	Negative	Low-Medium
Botanical	Potential botanical impact on Southern Afrotemperate Forest vegetation along Route 4B.	Powerline	Negative	Low-Medium
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through habitat destruction and mortality of vegetation.	Access track between Pylon B15 and B16	Negative	Very Low
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through erosion.	Access track between Pylon B15 and B16	Negative	Insignificant
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through pollution.	Access track between Pylon B15 and B16	Negative	Insignificant
Visual	Visual impact associated with the construction of the	Powerline and Substation	Negative	Medium to High

	Powerline and Substation			
Heritage	None.	N/A	N/A	N/A
Dust	Dust impacts on surrounding environment associated with construction activities.	Powerline and Substation	Negative	Low
Noise	Noise impacts on surrounding environment associated with construction activities (Construction vehicles and equipment).	Powerline and Substation	Negative	Low
Waste	Generation of additional waste/ litter and building rubble/hazardous material.	Powerline and Substation	Negative	Low
Avi-Fauna	Short-term disturbance of breeding (or foraging) areas during the construction of the Powerline.	Powerline	Negative	Negligible
Estuarine Ecology	Habitat destruction within EFZ for the substation footprint.	Substation	Negative	Low
Estuarine Ecology	Habitat destruction within EFZ for pylon B16.	Powerline- Pylon	Negative	Very Low
Estuarine Ecology	Habitat destruction of the EFZ while stringing the overhead cables using described methods.	Powerline	Negative	Insignificant
Estuarine Ecology	Pollution, including soil runoff and other foreign materials associated with the proposed substation entering the estuary via the existing storm-water drain.	Substation	Negative	Insignificant
Estuarine Ecology	Pollution, including soil runoff and other foreign materials associated with pylon B16 during construction.	Powerline - Pylon	Negative	Insignificant

The impacts rated for the CONSTUCTION PHASE (as detailed in the tables above) for the ALTERNATIVE (SUBSTATION DEVELOPMENT (SITE A and B) AND POWERLINE (ROUTES 1, 2 and 3) are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Physical and Geological	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles.	Substation and Powerline	Negative	Low
Physical and Geological	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Substation and Powerline	Negative	Low
Botanical	Potential botanical impact on Garden Route Shale Fynbos vegetation due to site clearance and construction of the Substation.	Substation A & B	Negative	Medium

Botanical	Potential botanical impact on Cape Lowland Alluvial Vegetation due to site clearance and construction.	Substation A & B	Negative	Medium
Botanical	Potential botanical impact on Cape Lowland Alluvial Vegetation due to site clearance and construction.	Powerline 1 & 2	Negative	Medium
Botanical	Potential botanical impact on Southern Afrotemperate Forest due to site clearance and construction.	Powerline 1 & 2	Negative	Medium
Botanical	Potential botanical impact on Garden Route Shale Fynbos due to site clearance and construction.	Powerline 1, 2 & 3	Negative	Medium
Botanical	Potential botanical impact on adjacent Outeniqua Sandstone Fynbos.	Powerline 1, 2 & 3	Negative	Low-Medium
Botanical	Potential botanical impact on Cape Estuarine Salt Marsh.	Powerline 1, 2 & 3	Negative	Low-Medium
Heritage	None.	N/A	N/A	N/A
Dust	Dust impacts on surrounding environment associated with construction activities.	Powerlines and Substations	Negative	Low
Noise	Noise impacts on surrounding environment associated with construction activities (Construction vehicles and equipment).	Powerlines and Substations	Negative	Low
Waste	Generation of additional waste/ litter and building rubble/hazardous material.	Powerlines and Substations	Negative	Low
Avi-Fauna	Short-term disturbance of breeding (or foraging) areas during the construction of the Powerline.	Powerlines and Substations	Negative	Low to Negligible
Estuarine Ecology	Habitat destruction of the EFZ while stringing the overhead cables using described methods.	Powerline 1, 2 and 3	Negative	Low
Estuarine Ecology	Pollution, including soil runoff and other foreign materials associated with pylon construction within the EFZ.	Powerline 1, 2 and 3	Negative	High

The impacts rated for the <u>OPERATIONAL PHASE</u> for both the PREFFERED ALTERNATIVE (SUBSTATION DEVELOPMENT (SITE C) AND POWERLINE (ROUTE4B) are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Socio-economic	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.	Powerline and Substation	Positive	High
Avi-Fauna	- Electrocution of birds perching on the pylon structures	Powerline	Negative	Negligible

	supporting the conductors, and; - Collision of flying birds with the suspended cabling of the line.			
Avi-Fauna	- Disturbance of birds during maintenance	Powerline	Negative	Negligible
Visual	Visual impact associated with Powerline and Substation	Powerline and Substation	Negative	Medium - Low
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through erosion.	Access track between Pylon B15 and B16	Negative	Insignificant
Botanical	Potential impact on vegetation (Garden Route Shale Fynbos species) through pollution.	Access track between Pylon B15 and B16	Negative	Insignificant
Estuarine Ecology	The development footprint of the substation becoming a site of erosion and thus contributing to siltation of the estuary.	Substation	Negative	Low
Estuarine Ecology	The development footprint of pylon B16 and associated construction track becoming a site of erosion.	Powerline - Pylon	Negative	Very Low
Estuarine Ecology	The development footprint of the substation becoming colonised by alien vegetation.	Substation	Negative	Insignificant
Estuarine Ecology	The development footprint of pylon B16 and construction track becoming colonised by alien vegetation.	Powerline - Pylon	Negative	Insignificant
Estuarine Ecology	Mortality to waterbirds due to collision with powerlines across the EFZ.*	Powerline	Negative	Low
Estuarine Ecology	Mortality of birds due to electrocution.	Powerline - Pylon	Negative	Low

* EFZ: Estuarine Functional Zone

The impacts rated for the <u>DECOMISSIONING PHASE</u> for the proposed ACCESS TRACK BETWEEN PYLON B15 AND B16 are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Botanical	Erosion resulting from the development of the temporary access track.	Access Track between Pylon B15 and B16	Negative	Insignificant
Botanical	Alien plant infestations resulting from the proposed development (access track).	Access Track between Pylon B15 and B16	Negative	Insignificant

The impacts rated for the <u>OPERATIONAL PHASE</u> for both the ALTERNATIVE (SUBSTATION DEVELOPMENT (SITE A & B) AND POWERLINE (ROUTES 1, 2 AND 3) are:

Type of Impact	Description	Substation / Powerline	Status	Status after mitigation
Socio-economic	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.	Powerline and Substation	Positive	High
Avi-Fauna	- Electrocution of birds perching on the pylon structures supporting the conductors, and; - Collision of flying birds with the suspended cabling of the line.	Powerline 1 & 2	Negative	Low - Medium
Avi-Fauna	- Electrocution of birds perching on the pylon structures supporting the conductors, and; - Collision of flying birds with the suspended cabling of the line.	Powerline 3	Negative	Low
Avi-Fauna	- Disturbance of birds during maintenance	Powerline 1, 2 and 3	Negative	Negligible
Estuarine Ecology	The development footprint of pylons and associated construction track in the EFZ becoming a site of erosion.	Powerlines 1, 2 and 3	Negative	High - Medium

* EFZ: Estuarine Functional Zone

The impact rated for the <u>NO-GO Alternative</u>:

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	**YES✓**	NO

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

N/A

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

- **The EMP (Appendix F), in which all mitigation measures for Pre-Construction, Construction and Operational Phases, fines for non-compliance of all measures described in the EMP and the resultant environmental damage, must be strictly adhered to.**
- **The auditing of the construction phase must be carried out by a suitably qualified and experienced Environmental Control Officer.**

Is an EMPr attached?	**YES✓**	NO

The EMPr must be attached as Appendix F.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information