

6.16 Sensitive Environments

The sites are not in a conserved or a protected area. There are no ridges, rivers or wetlands in or near any of the three study sites. Therefore there are no sensitive environmental features on any of the sites.

Refer to **Figure 8** below.

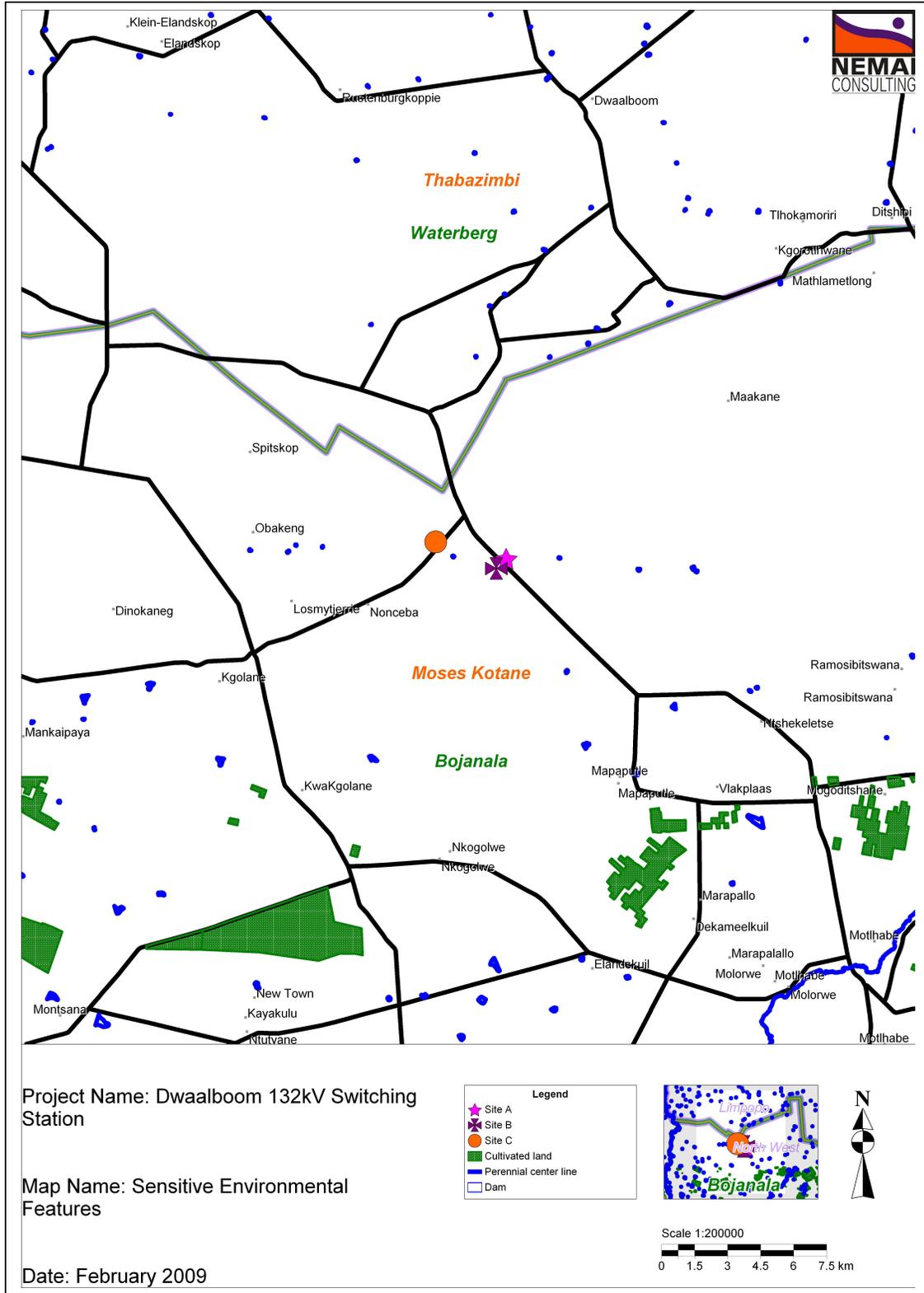


Figure 8: Sensitive Environmental Features at a 1: 200 000 Scale

Potential Impact

No foreseen adverse or beneficial effects.

7 OVERVIEW OF SPECIALIST STUDIES

Based on a desktop investigation of the receiving environment and the impacts associated with the construction of a switching station, two studies were undertaken during the EIA phase, namely:

1. A geotechnical investigation; and
2. A flora and fauna study.

7.1 Geotechnical Investigation

The geotechnical investigation was conducted by Arcus Gibb in November 2008. The full report can be found in **Appendix A** and an extract is contained below.

7.1.1 Introduction

The geotechnical report considered a 500m x 500m area for each of the three site alternatives.

The substations sites are expected to bear loads of between 100kPa to 150kPa.

The study included testpit excavations and soil laboratory testing, however a detailed analysis of the preferred site is required in order to confirm the ground conditions.

7.1.2 Site A

The soil profile of Site A shows hillwash and nodular ferricrete horizons. These overlay shales as well as a horizon of cobbles and gravels (colluvium horizon). Additional testing is required to determine the origin, extent and nature of the colluvium horizon.

If Site A is chosen the recommended position of the substation would be where the colluvial material is denser. The pressure on the colluvium should be limited to 200kPa. The load on the foundation materials should be limited to 150kPa.

7.1.3 Site B

Site B consists of shales, colluvium and quartzite. The quartzites are located within the southeast corner of the site.

There is a ferricrete layer located in the centre of Site B. The geotechnical report recommends that the substation footprint be located on this layer. The pressure on the ferricrete should be limited to 300kPa and on the quartzite to 500kPa.

The quartzite would require blasting for excavation.

7.1.4 Site C

Site C consists of dolomite and chert breccia. The geotechnical report recommends that the substation be located within the area underlain by the shallow dolomite bedrock.

There is a risk associated with Site C, dolomite is typically associated with sub-surface cavities, which may result in subsidence and possible sinkhole formation. The pressure on the bedrock should be limited to 500kPa.

The dolomite may require excavation by blasting.

There is a potential fault zone or shear at Site C. This fault or shear may be problematic as water in zones such as this aids sinkhole formation.

7.1.5 Conclusions

As Site C is directly underlain by dolomite it is a risk in terms of subsidence and sinkhole formation. This site is therefore the least preferred of the three.

The soil profile of Site A includes shale overlain by colluvium. Due to the variability of the soil profile, Site A is not the preferred option.

Site B is underlain by ferricrete and quartzite and is therefore the preferred option. A more detailed study of the underlying dolomite and the dip and direction of the sedimentary strata is recommended before construction.

7.2 Flora and Fauna Study

The flora and fauna specialist study was conducted by EnviRoss CC in December 2008. The full report can be found in **Appendix B** and an extract is contained below.

Information relating to the three sites was obtained from the relevant authorities, available literature, GIS databases and topographical mapping. An email from the specialist confirmed the number of protected tree species at each site.

7.2.1 Flora Study

The vegetation type of the three areas falls within a transitional ecotone between the Madikwe Dolomite Bushveld and the Dwaalboom Thornveld. All sites therefore showed floral species composition typical of both vegetation

units. The area falls within the Savanna Biome and the Central Bushveld Bioregion.

The vegetation unit has largely retained the basic structure and community species composition to still be recognised as being representative of the vegetation types. As a result of livestock grazing some transformation of the vegetation structure has taken place. All three sites showed very similar floral species composition. Vegetation transformation was observed at each site, the degree of which varied between the sites.

Site A

Site A is typical of the vegetation type, trees and shrubs are well represented throughout with grasses dominating the understory. Site A showed a relatively high density of nationally protected tree species, *Combretum imberbe* and *Sclerocarya birrea* subsp *caffra* are protected under the National Forests Act 84 of 1998. Permission from the Department of Water Affairs and Forestry (DWAF) is necessary if these trees need to be removed. Four hundred and sixty seven *C. imberbe* and fifteen *S. birrea* were found at Site A. Site A has a higher density of these trees than either Site B or Site C.

The vegetation community structure has been retained at the site and only six exotic species were recorded.

Site B

Site B is typical of the vegetation type, trees and shrubs are well represented throughout the site, with grasses dominating the understory. There was a higher degree of bare soil observed within this site. It has been subjected to greater negative ecological impacts through historical land management practises, vegetation removal and poor veld management than that of Site A and, to a lesser degree, Site C. There were six exotic species recorded for this Site.

Site B has a relatively lower density of nationally protected tree species than Sites A and C. Permission from DWAF is required for the removal of *C. imberbe* and *S. birrea* subsp *caffra*. Fifteen *C. imberbe* and one *S. birrea* were found at Site B.

Some areas of Site B are dominated by *Dichrostachys cinerea* (Sickle bush) this is an indication of veld disturbance.

Site B is the preferred location for the switching station.

Site C

Site C is typical of the vegetation type, trees and shrubs are well represented and grasses dominate the understory. Seven exotic species were recorded for the site.

Both *C. imberbe* and *S. birrea* subsp *caffra* require permission from DWAF for their removal. One hundred and eleven *C. imberbe* and one *S. birrea* were recorded at Site C. Site C has a higher density of these protected trees than Site B, but less than Site A.

Some areas of Site C are dominated by *D. cinerea* (Sickle bush), as mentioned above, the presence of this plant indicates that the veld has been disturbed.

Based solely on vegetation Site C is a viable option for the location of the switching station due to the high degree of agricultural usage, Site B is however still the preferred option.

7.2.2 Faunal Study

The faunal assessment was based on desktop review, habitat diversity, quality, availability and visual observations. The desktop study included consulting with the relevant authorities for conservational species lists, the latest relevant literature, GIS databases and topographical mapping.

Mammals

The area is known to be historically rich in mammal diversity. One hundred and nine mammal species have a historical distribution range that incorporates the three sites and the surrounding areas.

No direct or indirect signs of any Red Data List (RDL) mammalian species were observed at any of the proposed development sites. There are potentially two of the 28 RDL mammal species recorded for the region that would potentially be dependent on the habitat that incorporates the proposed development area, these are the Bushveld Gerbil (*Tatera leucogaster*) and the Short - snouted Elephant – shrew (*Elephantulus brachyrhynchus*).

Direct observations were made of Steenbok (*Raphicerus campestris*), Black – backed Jackal (*Canis mesomelas*), Scrub hare (*Lepus saxatilis*) and Common molerat (*Cryptomus hottentotus*). Indirect observations of Porcupine (*Hystrix africaeaustralis*) and various other small mammal (mostly rodent) species.

Avifauna

The area surrounding the development site is known to be relatively rich in avifaunal diversity, with a recorded list of 390 species. Birds are highly mobile and can therefore move away from unfavourable areas and habitats.

The nearby Madikwe and Pilanesberg Game Reserves protect habitat of a more suitable quality and also offer better habitat for any RDL avifauna species recorded from the region.

Reptiles

Sixty-six reptile species have a distribution range that correlates to the proposed development area. Two of the 66, namely the Southern African Python (*Python natalensis*) and the Blunt – tailed Worm Lizard (*Dalophia pistillum*), are on the Red Data List. No RDL species were found to have a significant dependence on the habitat quality and quantity offered by the proposed development site. The development activities are perceived to pose an insignificant threat to RDL reptile conservation within the area.

Amphibians

One near threatened amphibian species *Pyxicephalus adspersus* (Giant bullfrog) is recorded for the area. This species has specific habitat requirements for breeding, foraging and over-wintering that are not met by the proposed development sites.

Invertebrates

Invertebrate RDL species were not directly observed during the site visit. The localised extent of the proposed development areas that are surrounded by large areas of similar habitat means that the proposed development activities are perceived to have insignificant negative impacts on the overall conservation of RDL species within the region.

7.2.3 Recommendations

- According to the floral assessment Site B is the preferred location for the switching station, Site C is the second choice;
- Permits to remove the protected *C. imberbe* and *S. birrea* subsp *caffra* are needed prior to the commencement of the proposed development;
- The proposed development sites have limited relevance to RDL species conservation within the region;
- The specialist report has an EMP attached. The recommendations within the EMP should be followed to ensure the proposed development activities will inflict the least amount of negative ecological impact as possible.

8 ENVIRONMENTAL ISSUES

The potential environmental impacts associated with the Dwaalboom Switching Station were identified during the Scoping and EIA phases through an appraisal of the project description and the receiving environment, via issues raised during public participation, and via the specialist reports. The pertinent environmental issues associated with the Dwaalboom Switching Station are tabulated below.

Table 6: Pertinent Environmental Issues Associated with the Dwaalboom Switching Station

Environmental Factor	Potential Issues / Impacts	Resolution
Geology and geohydrology	<ul style="list-style-type: none"> Potential contamination of soil and groundwater. 	Geotechnical Study - see Section 7
Watercourses	<ul style="list-style-type: none"> Potential contamination of surface water. 	See Section 9 and the Environmental Management Plan (EMP).
Fauna	<ul style="list-style-type: none"> Damage to fauna Occurrence of pests Damage to livestock 	See Section 9 and the Environmental Management Plan (EMP).
Flora	<ul style="list-style-type: none"> Removal of indigenous vegetation Damage to vegetated areas Removal of protected tree species 	Flora Study - see Section 7
Socio-economic	<ul style="list-style-type: none"> Creation of job opportunities Maintenance of the economic sustainability of the Dwaalboom PPC plant 	No resolution is necessary, however the public must be engaged with and kept informed of developments regarding the project.
Air quality	<ul style="list-style-type: none"> Dust creation from construction vehicles Emissions from construction vehicles 	See Section 9 and the Environmental Management Plan (EMP).
Aesthetics	<ul style="list-style-type: none"> Switching station is visually unappealing 	There are no measures available that would make the switching station more visually appealing. The only available resolution would be to situate the switching station away from areas that the community would be exposed to daily.
Noise	<ul style="list-style-type: none"> Creation of noise during construction from vehicles, machinery, generators and blasting. 	See Section 9 and the Environmental Management Plan (EMP).

Agricultural land	<ul style="list-style-type: none"> • Disturbance to livestock from construction activities • Loss of grazing for livestock 	See Section 9 and the Environmental Management Plan (EMP).
Infrastructure - Roads	<ul style="list-style-type: none"> • Use of the road by construction vehicles • Use of the road by maintenance vehicles. 	See Section 9 and the Environmental Management Plan (EMP).

9 ENVIRONMENTAL IMPACT ASSESSMENT

9.1 Methodology

All impacts are analysed in the section to follow with regard to their nature, extent, magnitude, duration, probability and significance. The following definitions apply:

Nature (/Status)

The project could have a positive, negative or neutral impact on the environment.

Extent

- Local - extend to the site and its immediate surroundings.
- Regional - impact on the region but within the province.
- National - impact on an interprovincial scale.
- International - impact outside of South Africa.

Magnitude

Degree to which impact may cause irreplaceable loss of resources.

- Low - natural and social functions and processes are not affected or minimally affected.
- Medium - affected environment is notably altered; natural and social functions and processes continue albeit in a modified way.
- High - natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.

Duration

- Short term - 0-5 years.
- Medium term - 5-11 years.
- Long term - impact ceases after the operational life cycle of the activity either because of natural processes or by human intervention.
- Permanent - mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Probability

- Almost certain - the event is expected to occur in most circumstances.
- Likely - the event will probably occur in most circumstances.
- Moderate - the event should occur at some time.
- Unlikely - the event could occur at some time.
- Rare/Remote - the event may occur only in exceptional circumstances.

Significance

Provides an overall impression of an impact's importance, and the degree to which it can be mitigated. The range for significance ratings is as follows-

- 0 – Impact will not affect the environment. No mitigation necessary.
- 1 – No impact after mitigation.
- 2 – Residual impact after mitigation.
- 3 – Impact cannot be mitigated.

9.2 Assessment of Environmental Impacts and Suggested Mitigation Measures

Only the environmental issues identified during the appraisal of the receiving environment and potential impacts (refer to **Section 6**) are assessed below. Mitigation measures are provided to prevent (first priority), reduce or remediate adverse environmental impacts.

9.2.1 Geology and Geohydrology

SOIL & GROUNDWATER: CONSTRUCTION (Construction activities, site preparation, equipment use)	
Impact	Mitigation
<p>Potential contamination of soil - and groundwater through:</p> <ul style="list-style-type: none"> • Improper disposal of waste. • Incorrect storage of material. • Spillages from fuel storage and decanting. • Spillages of chemicals, oil and paint. • Contaminated storm water not disposed off or routed correctly. • Concrete left on site or not disposed of correctly. • Packaging material not disposed of correctly. 	<p>9.2.1a) Waste to be managed. Proper bins to be provided for the collection of waste.</p> <p>9.2.1b) All construction waste should be sorted, separating domestic, building rubble and hazardous waste.</p> <p>9.2.1c) All waste to be removed and disposed of at an appropriate site.</p> <p>9.2.1d) Construction material to be stored in designated areas. Cement to be stored on an impermeable surface. Chemicals, paints and dangerous goods to be stored in containers. Material Safety Data Sheets (MSDSs) must be available for all substances. Empty containers must be disposed of responsibly.</p> <p>9.2.1e) Sufficient number of chemical toilets to be provided – 1 toilet per 20 workers. Chemical toilets to be placed at strategic points. Chemical toilets to be serviced once per week.</p> <p>9.2.1f) Vehicles to be serviced at construction camp, under controlled conditions. Drip-trays to be used for leaks.</p> <p>9.2.1g) Elevated fuel storage tanks to be provided with impermeable floors and bund walls to prevent pollution during accidental spillages. The outflow of the bunded area to be supplied with an oil trap. The bund wall to be of sufficient height to allow for the containment of 110% of the tank(s) volume. The area must be provided with relevant warning signage (e.g. no smoking and open fires, fire extinguisher). Prevent spillage from elevated fuel tanks during decanting.</p> <p>9.2.1h) A dedicated area should be allocated for the mixing of concrete and cement. All</p>

	<p>excess cement and concrete needs to be removed from the site and disposed of at an appropriate disposal site.</p> <p>9.2.1i) Packaging material should be recycled as far as possible. All packaging material should be collected and disposed of at an appropriate site.</p> <p>9.2.1j) In the event of a spill, the spill should be cleaned immediately. Any contaminated soil should be removed and disposed of at an appropriate site. All workers should be trained in the correct handling procedures to prevent spillages from occurring.</p> <p>9.2.1k) Electricity generators used by the contractor should be in good working condition and regular maintenance checks should be scheduled.</p>
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	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium - high	long-term	likely	3
After Mitigation	-	local	low	long-term	rare	1

SOIL & GROUNDWATER: CONSTRUCTION
(Transportation)

Impact	Mitigation
Spillages during transportation of construction material.	<p>9.2.1l) Clean up measures should be implemented. Workers should be trained in these procedures.</p> <p>9.2.1m) Any contaminated soil should be removed to a registered and appropriate landfill site.</p>

	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium - high	long-term	moderate	3
After Mitigation	-	local	low	long-term	rare	1

SOIL & GROUNDWATER: PRE-COMMISSIONING

Impact	Mitigation
<p>Potential contamination of soil - and groundwater through:</p> <ul style="list-style-type: none"> • Chemicals used for cleaning, etc not disposed of correctly. • Poor stormwater management. • Poor storage practices. • Spillages. 	<p>9.2.1n) Ensure that all chemicals used for pre-commissioning activities are disposed of correctly at a permitted site. Records to be kept of amounts used.</p> <p>9.2.1o) All storm water to be routed to the stormwater facility.</p> <p>9.2.1p) Test whether water is contaminated. Contaminated water must be routed to a safe disposal route.</p> <p>8.2.1q) Chemicals must be stored in such a manner that pollution or spills are</p>

	prevented. Clean up procedures must be in place for potential spillages.					
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium - high	long-term	moderate	3
After Mitigation	-	local	low	long-term	rare	1

SOIL & GROUNDWATER: OPERATION						
Impact			Mitigation			
Potential contamination of soil - and groundwater through: <ul style="list-style-type: none"> • Improper management of wastewater. • Improper disposal of waste. • Contaminated storm water not disposed off/routed correctly. 			8.2.1r) All stormwater to be routed to the stormwater facility. 8.2.1s) In the event of a spill, it should be reported to the Safety Health and Environmental (SH&E) manager and be cleaned immediately. Any contaminated soil should be removed and disposed of at an appropriate site.			
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium - high	long-term	moderate	3
After Mitigation	-	local	low	long-term	rare	1

9.2.2 Watercourses

SURFACE WATER: CONSTRUCTION (Construction activities, site preparation, equipment use)	
<p>Potential contamination of surface water through:</p> <ul style="list-style-type: none"> • Improper disposal of waste. • Incorrect storage of material. • Spillages from fuel storage and decanting. • Spillages of chemicals, oil and paint. • Contaminated storm water not disposed off or routed correctly. • Concrete left on site or not disposed of correctly. • Packaging material not disposed of correctly. 	<p>9.2.2a) Waste to be managed. Proper bins to be provided for the collection of waste.</p> <p>9.2.2b) All construction waste should be sorted, separating domestic, building rubble and hazardous waste.</p> <p>9.2.2c) All waste to be removed and disposed of at an appropriate site.</p> <p>9.2.2d) Construction material to be stored in designated areas. Cement to be stored on impermeable surface. Chemicals, paints and dangerous goods to be stored in containers. Material Safety Data Sheets (MSDSs) must be available for all substances. Empty containers must be disposed of responsibly.</p> <p>9.2.2e) Sufficient number of chemical toilets to be provided – 1 toilet per 20 workers. Chemical toilets to be placed at strategic points. Chemical toilets to be serviced once per week.</p> <p>9.2.2f) Vehicles to be serviced at the construction camp, under controlled conditions. Drip-trays to be used for leaks.</p> <p>9.2.2g) Elevated fuel storage tanks to be provided with impermeable floors and bund walls to prevent pollution during accidental spillages. The outflow of the bunded area to be supplied with an oil trap. The bund wall to be of sufficient height to allow for the containment of 110% of the tank(s) volume. Provide area with relevant warning signage (e.g. no smoking and open fires, fire extinguisher). Prevent spillage from elevated fuel tanks during decanting.</p> <p>9.2.2h) A dedicated area should be allocated for the mixing of concrete and cement. All excess cement and concrete needs to be removed from the site and disposed of at an appropriate disposal site.</p> <p>9.2.2i) Packaging material should be recycled as far as possible. All packaging material should be collected and disposed of at an appropriate site.</p> <p>9.2.2j) In the event of a spill it should be cleaned immediately. Any contaminated soil should be removed and disposed of at an appropriate site. All workers should be</p>

	<p>trained in the correct handling procedures to prevent spillages from occurring.</p> <p>9.2.2k) Electricity generators used by the contractor should be in good working condition and regular maintenance checks should be scheduled.</p> <p>9.2.2l) Provision of diversion trenches to divert clean water runoff around site.</p> <p>9.2.2m) Provision of silt traps to prevent silt runoff.</p>					
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	short-term	unlikely	3
After Mitigation	-	local	low	short-term	rare	1

SURFACE WATER: CONSTRUCTION (Transportation)						
Impact	Mitigation					
Spillages during transportation of construction material.	<p>9.2.2n) Clean up measures should be implemented. Workers should be trained in these procedures.</p> <p>9.2.2o) Any contaminated soil should be removed to a registered and appropriate landfill site.</p>					
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	short-term	moderate	3
After Mitigation	-	local	low	short-term	rare	1

SURFACE WATER: PRE-COMMISSIONING						
Impact	Mitigation					
<ul style="list-style-type: none"> Chemicals used for cleaning, etc not disposed of correctly. Poor stormwater management. Poor storage practices. Spillages. 	<p>9.2.2n) Chemicals must be stored in such a manner that pollution or spills are prevented. Clean up procedures must be in place for potential spillages.</p>					
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	short-term	moderate	3
After Mitigation	-	local	low	short-term	rare	1

9.2.3 Fauna

FAUNAL ASPECTS: CONSTRUCTION	
Impact	Mitigation

<ul style="list-style-type: none"> • Damage to fauna (e.g. poaching, wilful damage). 	<p>9.2.3a) No animal may be poached, captured or wilfully damaged or destroyed.</p> <p>9.2.3b) All labourers to remain inside construction footprint.</p> <p>9.2.3c) All labourers to be informed of disciplinary actions for the wilful damage to animals by the Environmental Control Officer (ECO) during induction.</p>
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	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	short-term	likely	2
After Mitigation	+	local	low	short-term	almost certain	1

FAUNAL ASPECTS: OPERATION

Impact	Mitigation
<ul style="list-style-type: none"> • Livestock may wander through open servitude gates. 	<p>9.2.3d) Eskom employees and their associates entering an Eskom servitude must ensure that they close the gates behind them.</p>

	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	short term	likely	2
After Mitigation	+	local	low	short term	moderate	1

9.2.4 Flora

FLORAL ASPECTS: CONSTRUCTION

Impact	Mitigation
<ul style="list-style-type: none"> • Damage to plant life. 	<p>9.2.4a) A license must be obtained from DWAF before removing any protected tree species.</p> <p>9.2.4b) Indigenous plants should be used to replace any vegetation removed during construction where appropriate.</p> <p>9.2.4c) No vegetation must be unnecessarily removed.</p>

	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	long-term	likely	2
After Mitigation	-	local	low	long-term	almost certain	2

FLORAL ASPECTS: OPERATION

Impact	Mitigation
<ul style="list-style-type: none"> • Removal of vegetation during routine maintenance. 	<p>9.2.4d) The switching station footprint must be kept clear of all invader plants as per the Conservation of Agricultural Resources Act, 1983</p>

	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	+	local	low	long term	likely	0
After Mitigation	+	local	low	long term	likely	0

9.2.5 Socio Economic Aspects

SOCIO ECONOMIC ASPECTS: CONSTRUCTION						
Impact		Mitigation				
<ul style="list-style-type: none"> • Temporary employment opportunities • Skills development 		9.2.5a) Preference given to local labour in all tender documentation. Unskilled labour would be employed from the local community.				
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	+	local	medium	short-term	likely	1
After Mitigation	+	local	medium	short-term	almost certain	1

SOCIO ECONOMIC ASPECTS: OPERATION						
Impact		Mitigation				
No new permanent job opportunities would be created for the local community.		N/A				
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	/	/	/	/	/	/
After Mitigation	N/A					

9.2.6 Air quality

AIR: CONSTRUCTION	
Impact	Mitigation
<ul style="list-style-type: none"> • Dust from construction site. • Emissions from construction vehicles, machinery and generators. • Burning of waste and smoke from fires will reduce air quality. 	9.2.6a) Dust must be reduced by wetting down bare areas and stockpiled soil. Water used for this purpose must be used in quantities that must not result in the generation of run-off. 9.2.6b) Construction material to be stored in designated areas 9.2.6c) Vehicles to be properly maintained to avoid unnecessary emissions. 9.2.6d) No fires allowed. Contractor to strictly adhere to Regulation 27 (i.e. “fire precautions on construction sites”) of the

	Construction Regulations (GNR. 1010 of 2003). 9.2.6e) No waste is allowed to be burnt, and must be removed from site and disposed off at a registered waste disposal site. 9.2.6f) No equipment causing excessive smoke (above normal standards for specified equipment) should be allowed on site.					
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local to regional	medium	short-term	moderate	1
After Mitigation	-	local to regional	low	short-term	rare	0

9.2.7 Aesthetics

AESTHETICS: OPERATION						
Impact			Mitigation			
<ul style="list-style-type: none"> A switching station at Site C would be visually unappealing to the tenants. 			<ul style="list-style-type: none"> There are no mitigation measures available for this impact. 			
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	Medium	Long-term	likely	3
After Mitigation	N/A					

9.2.8 Noise

NOISE: CONSTRUCTION						
Impact			Mitigation			
<ul style="list-style-type: none"> Noise from construction vehicles, machinery and generators. Noise from blasting. 			9.2.8a) All machinery to be maintained to reduce noise levels. 9.2.8b) Labourers to be provided with hearing protection. 9.2.8c) No loud music allowed from the construction camp or anywhere else. 9.2.8d) All attempts will be made to keep noise levels to a minimum. 9.2.8e) All blasting must be carried out in accordance with the Explosives Act (Act 15 of 2003). 9.2.8f) Blasting must be conducted by a professional team. 9.2.8g) All directly affected IAPs to be informed of any blasting events.			
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance

Before Mitigation	-	local	medium	short-term	moderate	2
After Mitigation	-	local	low	short-term	rare	1

9.2.9 Agriculture Land

AGRICULTURE: CONSTRUCTION						
Impact		Mitigation				
<ul style="list-style-type: none"> Disturbance to livestock by construction activities. 		9.2.9a) The construction site must be fenced off to prevent livestock from entering it. 9.2.9b) Construction workers must not harm any livestock.				
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	low	short-term	unlikely	1
After Mitigation	-	local	low	short-term	rare	1

AGRICULTURE: OPERATION						
Impact		Mitigation				
<ul style="list-style-type: none"> Loss of grazing land. 		9.2.9c) There are no mitigation measures for this impact.				
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium	long term	moderate	2
After Mitigation	N/A					

9.2.10 Infrastructure - Roads

INFRASTRUCTURE - ROADS: CONSTRUCTION						
Impact		Mitigation				
<ul style="list-style-type: none"> Transportation of equipment. Use of road network by construction vehicles. 		9.2.10a) Relevant traffic authorities to be contacted for any anticipated disruptions. 9.2.10b) Compliance with Southern African Road Traffic Signs Manual.				
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium	short-term	moderate	2
After Mitigation	-	local	low	short-term	rare	1

INFRASTRUCTURE - ROADS: OPERATION						
Impact			Mitigation			
<ul style="list-style-type: none"> Use of road network by maintenance vehicles. 			9.2.10c) There are no mitigation measures for this impact.			
	+/- Impacts	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	-	local	medium	long-term	moderate	2
After Mitigation	N/A					

10 PUBLIC PARTICIPATION

The public participation process that was followed is governed by NEMA and Government Notice No. R. 385. The figure below (**Figure 9**) outlines the public participation process for the Scoping and Environmental Impact Assessment phases.

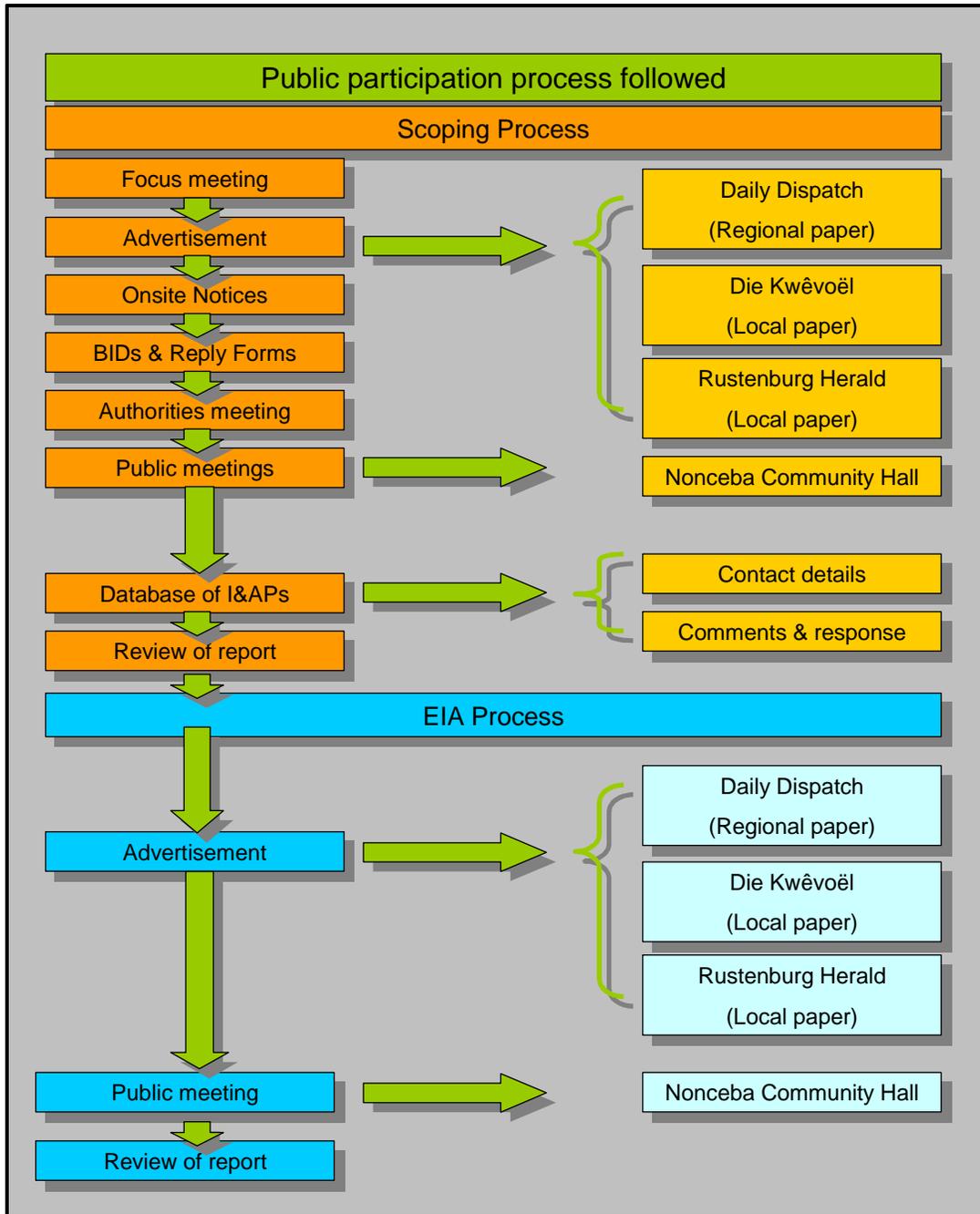


Figure 9: Public Participation Process

The public participation for the Scoping Process involved the following stages:

- Advertisements were placed in two local newspapers and one regional newspaper, these were:
 - The Kwêvoël (30 May 2008);
 - The Rustenberg Herald (29 May 2008); and
 - The Daily Sun (29 May 2008).
- Onsite notices were placed at all three of the locality alternatives (28 May 2008);
- Background information documents were distributed among the local communities (28 May 2008);
- A public meeting was held in order to engage with all affected members of the community (12 June 2008);
- An Authorities meeting was scheduled (19 June 2008); and
- The Scoping Report was placed in the care of the Ward Councillor, with the Department of Land Affairs, at the offices of Nemai Consulting and on the Eskom website (14 July 2008 – 12 August 2008).

The public participation process for the EIR is described below, as are any concerns raised by parties during the EIR phase of the project. Concerns raised by IAPs during the Scoping phase of the assessment are included in **Appendix D**.

10.1 Notification

Interested and Affected Parties (I&APs) are defined by Section 24(4)(d) of NEMA as those people, groups of people or organizations that have an interest in or are affected by a proposed activity, and any organ of state that may have jurisdiction over any aspect of the activity.

A database of I&APs, which contained authorities, stakeholders and members of the general public, was prepared during the Scoping phase, and was updated during the EIA phase. The database is contained in **Appendix E**.

10.2 Meetings

10.2.1 Tenant Meeting

A meeting was held during the Scoping Phase between Nemai Consulting and the tenant's of De Paarl 246. The outcome of this meeting was that a second meeting should take place, between Eskom, the Department of Land Affairs (the owner) and the tenants.

The purpose of the second meeting was to explain to the tenants how the project affects them as well as take care of any issues they may raise.

On 26 January 2009 Mr Phuti (Eskom Transmission) met with Ms Patience Ntwape (Department of Land Affairs), Mr Mosito, Mr Mafeleng and the De

Paarl Farmers Association. The tenants did not raise any objections to the project, they did however request to be kept informed of the progress on the project.

10.2.2 Public Meeting

Following permission from DEAT to undertake the EIA, a second public meeting was held. The public meeting was advertised in the Daily Sun (26 January 2009), Rustenburg Herald (23 January 2009) and the Kwêvoël (23 January 2009) (**Appendix F**). This was held at the Nonceba Community Hall.

The aims of the meeting were to:

- Describe the project;
- Present the findings of the specialist studies;
- Explain the EIA process; and
- Allow for queries and concerns to be raised, and for the project team to respond.

Comments from the second public meeting have been included in the draft EIA report. These comments and the response of the EAP to these comments are summarised in **Table 7** below. The minutes of the public meeting can be found in **Appendix G**.

Table 7: Concerns raised by IAPs at the public meetings

Concern		Response	
1	Why are the specialist studies focussed on animals?	1	The Department of Environmental Affairs and Tourism needs to approve the project before it can be implemented. If endangered species are found on site then approval may not be granted.
2	Why is the vegetation on the proposed alternative sites not in a pristine condition?	2	As a result of the Eskom servitude and grazing practises the sites have changed from what they once were.
3	Why is the community being consulted for this project?	3	It is part of the requirements of an environmental project for the community to be consulted. This provides the community an opportunity to raise comments or concerns regarding the project.
4	Will the community be used, in terms of local labour and small businesses, for the switching station?	4	This query will be forwarded to Eskom. Eskom's response will be included within the Environmental Impact Assessment Report as well as communicated to the community through the Ward Councillor.

Concern	Response
	See Section 10.3 below for Eskom's response.
5 A community member suggested that public meetings be advertised over the local radio stations.	5 Noted.

10.3 Issues raised by I&APs

Queries and issues raised by I&APs and the proposed resolution thereof are summarised in **Table 8**.

Table 8: Proposed resolution of issues raised by I&APs

Summary of Concerns/Issues/Comments	Proposed Resolution
1 Will the community be used, in terms of local labour and small businesses, for the switching station?	1 The local community will be the first to be considered for jobs during the construction of the switching station. This will be limited to unspecialized work.

10.4 Public review of Draft EIA Report

Three copies of the draft EIA Report were left in the care of Councillor Ramokopelwe so that the report can be distributed on request to members of the community. A copy of the report has also been left with the Municipal Manager of the Moses Kotane Local Municipality. A copy of the report can be found on the Eskom website as well as at the Nema Consulting offices. In addition a report will be submitted to the Department of Land Affairs for their review. **Table 9** below provides a summary of the number of reports, location and contact details for the review of the report.

A thirty-day period was provided for the community and other I&APs to review and comment on the draft EIA Report. The review of the EIA Report was initially advertised as 26 February 2009 – 28 March 2009, however this review period was moved to 18 May 2009 – 18 June 2009. The amendment to the review period was advertised in the Kwêvoël (15 May 2009), Rustenburg Herald(14 May 2009) and Daily Sun (14 May 2009). Proof of advertisement can be found in **Appendix H**.

Table 9: Locations for review of Draft EIA Report and the contact details

Number of Reports	Place	Contact Details
3	Councillor Ramokopelwe	082 307 9667
1	Nemai Consulting Library	011 781 1730
1	Eskom website	www.eskom.co.za
1	Department of Land Affairs	012 252 3505
1	Moses Kotane Local Municipality Municipal Manager	014 555 1300

All parties on the I&APs database were notified of the review process, and were requested to complete Comment Sheets (attached to draft EIA Report and included in the notification). These Comment Sheets need to be forwarded to Nemai Consulting on or before 17 June 2009.

The Comment Sheets can be submitted as follows:

By hand: 147 Braam Fischer Drive,
Ferndale
Fax: 011 781 1731
Email: samanthab@nemai.co.za
Post: PO Box 1673
Sunninghill
2157

Comments by I&APs from the public review of the draft EIA Report will be contained in the final version of the document that will be submitted to DEAT.

11 ASSUMPTIONS, UNCERTAINTIES & GAPS IN KNOWLEDGE

Possible gaps in knowledge identified during the EIA include the following:

A desktop survey was undertaken to determine whether the project area has any historical significance. The desktop survey did not find any mention that the area is historically significant. However a 100% certainty that there are no areas of cultural or historical interest on any of the project areas cannot be guaranteed, given that there may be buried artefacts. To counter this uncertainty a section has been added to the Environmental Management Plan (EMP), which states that if any finds of cultural or historical significance are made during construction then a museum should be informed, preferably one with an archaeologist so that an assessment of the find can be made.

Although conducted during the recommended period (the summer months) the flora study was a snapshot survey and not a survey done over the whole of the growing season. To ensure that all potential species were considered a desktop survey of the species likely to occur on site was also conducted. Therefore although the complete picture of the site is unknown, an acceptable analysis of the site has been made.

The faunal assessment was also a snapshot survey, however literature and databases with information on the faunal species of the area were consulted and included in the specialist report.

The geotechnical report provides a preliminary assessment of the three sites. A detailed investigation will only be undertaken on the preferred alternative.

12 COMPARATIVE ASSESSMENT OF ALTERNATIVES

Alternative A – Preferred Option

	Advantages	Disadvantages
Environmental	<ul style="list-style-type: none"> ✓ None. 	<ul style="list-style-type: none"> × An area of land would have to be cleared for the switching station. This area has been identified as the most sensitive due to the relatively high number of protected trees. × A DWAF permit is required for the removal of protected trees.
Social	<ul style="list-style-type: none"> ✓ Provide a source of temporary employment during the construction period. ✓ Tenants/land owner would be reimbursed for the use of the land. 	<ul style="list-style-type: none"> × Loss of a 100m x 300m area of grazing land.
Economic	<ul style="list-style-type: none"> ✓ Provide a firm supply of electricity to the Dwaalboom PPC Plant. 	<ul style="list-style-type: none"> × None.
Technical	<ul style="list-style-type: none"> ✓ The transmission lines would not need to cross under each other. 	<ul style="list-style-type: none"> × None.

Alternative B – Locality Alternative

	Advantages	Disadvantages
Environmental	<ul style="list-style-type: none"> ✓ According to the flora and fauna assessment, site B is the most suitable of the site alternatives. 	<ul style="list-style-type: none"> × An 100m x 300m area would have to be cleared for the switching station. × A DWAF permit is required for the removal of protected trees.
Social	<ul style="list-style-type: none"> ✓ Provide a source of temporary employment during the construction period. ✓ Tenants/land owner would be reimbursed for the use of the land. 	<ul style="list-style-type: none"> × Loss of a small area of grazing land.

	Advantages	Disadvantages
Economic	✓ Provide a firm supply of electricity to the Dwaalboom PPC Plant.	× More expensive to construct, requires the overhead lines to cross under each other.
Technical	✓ None.	× The transmission lines would need to cross under each other. × Blasting would be required for the switching station's foundations.

Alternative C – Locality Alternative

	Advantages	Disadvantages
Environmental	✓ The second most suitable of the site areas for the location of the switching station.	× An 100m x 300m area of land would have to be cleared for the switching station. × A DWAF permit is required for the removal of protected trees.
Social	✓ Provide a source of temporary employment during the construction phase. ✓ Tenants/land owner would be reimbursed for the use of the land.	× Close to the tenant's houses, the switching station would therefore be a permanent visual impact.
Economic	✓ Provide a firm supply of electricity to the Dwaalboom PPC Plant.	× None.
Technical	✓ The transmission lines would need to cross under each other.	× Blasting would be required for the switching station's foundations.

Alternative D - No Go

	Advantages	Disadvantages
Environmental	✓ No clearing of land for the switching station and associated structures. ✓ Protected tree species would not be removed.	× None.
Social	✓ None, the social status quo would remain the same.	× Potential loss of employment.
Economic	✓ Eskom would allocate	× The Dwaalboom PPC

	the projects funding to other project/s.	Plant would not have a firm supply of electricity.
Technical	✓ None	<ul style="list-style-type: none"> × The Dwaalboom PPC Plant may not be financially viable. × The Dwaalboom PPC Plant would experience potential operational losses.

13 OPINION AS TO WHETHER OR NOT THE ACTIVITY SHOULD BE AUTHORISED

The proposed activity can be authorised based on the following:

- The local community had no objections to the project during either the Scoping or the EIA phase of the project;
- There would not be a significant impact to the faunal species of the region;
- There would not be a significant impact to the floral species of the region; and
- The preferred option is Site B.

14 CONDITIONS MADE IN RESPECT OF THE AUTHORISATION

The following conditions should be adhered to:

- A permit is granted by DWAF for the removal of protected tree species;
- Recommendations within the Environmental Management Plan (EMP) and the specialist reports must be adhered to;
- An Environmental Control Officer should be appointed to monitor compliance against the EMP monthly;
- A copy of the EMP must be kept on site during the construction phase;
- Construction would occur on land currently used for grazing. Livestock found in the construction footprint should not be moved by the contractors, but rather by the owners of, or parties responsible for, the livestock;
- Alien invasive vegetation must be cleared within the construction footprint; and
- Where possible local labour should be employed.

15 ENVIRONMENTAL MANAGEMENT PLAN

Refer to **Appendix I** for the Environmental Management Plan (EMP).

16 REFERENCES

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