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. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. 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.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. 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.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. 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.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. 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.

14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

The definitions contained within this section are for the benefit of non-technical readers of this document, for explanatory purposes only:

Applicant: Trans-Caledon Tunnel Authority (TCTA) on behalf of Eskom Holdings S O C Ltd

AMAFA: Amafa / Heritage KwaZulu Natali is the provincial heritage conservation agency for KwaZulu Natal.

DEA: National Department of Environmental Affairs

DWA: Department of Water Affairs

DAFF: Department of Agriculture, Forestry, and Fisheries.

DOL: Department of Labour

EZEMVELO KZN Wildlife: Provincial authority for conservation in KwaZulu Natal.

EWT: Endangered Wildlife Trust

NEMA: National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended 2010)

NWA: National Water Act, 1998 (Act No. 36 of 1998)

SANBI: South African National Biodiversity Institute

UW: Umgeni Water

WESSA: Wildlife and Environmental Society of South Africa

Environmental Assessment Practitioner (EAP): is an independent person appointed by the applicant to plan, manage and coordinate the environmental impact assessment process and compile the draft environmental management programme required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended 2010).

Interested and Affected Parties (I&APs): are any person/s, groups of people, or organisations interested in or affected by the proposed activity, and those government departments, authorities, institutions or agencies with jurisdiction over any aspect of the proposed activity.

Environment: Environment means the surroundings within which humans exist and is made up of:
(i) the land, water and atmosphere of the earth;
(ii) micro-organisms, plant and animal life;
(iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
(iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Authorisation: is the written document from DEA that either rejects or approves the construction of the planned activity and the mitigating measures required to prevent or reduce the effects of the activities environmental impacts during the life of the activity.

Environmental Impact: is the change to the environment, whether desirable or undesirable, that will result from the undertaking of an activity. An impact may be the direct or indirect consequence of the construction or operation of the activity, and may be restricted to the site where the activity is undertaken, or extend beyond the boundaries of the site.

Environmental Management Programme (EMPr): The purpose of the EMPr is to ensure the prevention of long-term or permanent damage to the environment and to provide guidance regarding mitigation measures and environmental specifications during construction and operation of the activity.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES	**NO X**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

The proposed construction of the new 88kV Spring Grove Tee powerline.

The Trans-Caledon Tunnel Authority (TCTA), the implementation agent for the Department of Water Affairs (DWA) is applying on behalf of Eskom Holdings S O C Ltd for Environmental Authorisation (EA) for the construction of the new 88kV Spring Grove Tee powerline, Nottingham Road, KwaZulu-Natal (KZN). Eskom Holdings S O C Limited proposes to construct the new 88kV Spring Grove Tee powerline to supply electricity to the Spring Grove Substation situated on farm portion 233/4 Spring Grove 2170, which was approved as part of the Spring Grove Dam Environmental Authorisation (DEA REF: 12/12/20/220).

The Spring Grove 88kV powerline will supply electricity to the Spring Grove Substation exclusively, and the Substation will supply three clients, namely, DWA, Umgeni Water (UW), and Eskom. DWA requires electricity to operate the Spring Grove Dam facility (DEA REF: 12/12/20/220), and the Mooi-Mgeni Transfer Scheme – Phase 2, Water Transfer Scheme (DEA REF: 14/12/16/3/3/2/334), collectively forming the Water Transfer System, henceforth referred to as MMTS-2. Umgeni Water requires electricity to operate their new proposed 'Water Treatment Facility' that will be situated on farm portion 233/4 Spring Grove 2170, Umgeni Water is currently undertaking their own Environmental Impact Assessment (EIA) Process for the 'Water Treatment Facility' which will supply water to the Mooi River, Nottingham Road and Rosetta areas. Eskom will utilise the Spring Grove Substation to strengthen the existing 11kV network in the Nottingham Road and Rosetta area, which will decrease the frequency of power outages experienced in the area and provide for the expected future load of the area. The new 88kV Spring Grove Tee powerline is essential for the operation of the MMTS-2 (DEA REF: 14/12/16/3/3/2/334) and (DEA REF: 12/12/20/220), future UW Treatment Plant, and existing Eskom 11kV powerline network as without this development these projects cannot operate or be undertaken.

The Spring Grove Substation, the existing Colenso-Gowrie 88kV powerline, the Spring Grove Dam, the towns of Rosetta and Nottingham Road, farming infrastructure, and property infrastructure, has limited the alternatives available for the proposed Spring Grove 88kV powerline. Therefore only three (3) Powerline Servitude Alternatives are available, and have been indicated in Appendix A of this BAR, in terms of their practicality which Eskom would be able to construct and maintain should positive Environmental Authorisation be granted.

Environmental Authorisation

The construction of the new 88kV Spring Grove Tee powerline triggers a listed activity as identified under Listing Notice one (Government Notice No. R544, 18 June 2010). Activities under listing notice one require that a Basic Assessment be undertaken in support of an application for Environmental Authorisation prior to commencement of the activity.

The following listed activity is triggered by the proposed development:

Listing Notice 1 Activity No. 10 The construction of facilities or infrastructure for the transmission and

distribution of electricity –

(i) outside urban areas or industrial complexes with a capacity or more than 33 but less than 275 kilovolts.

This report represents the Basic Assessment Report (BAR) and has been prepared in accordance with the EIA Regulations published in Government Notice No. R543, 18 June 2010.

Three (3) Alternative Powerline servitudes and two (2) Tower Technical Design Alternatives will be discussed and assessed in this BAR.

Spring Grove Tee 88kV powerline construction:

Servitude Alternatives:

The following assumptions have been made with regards to the Spring Grove Tee 88kV powerline servitude Alternatives regarding this Basic Assessment Report:

1. Each Alternative (C1; C2; C3) powerline servitude is assumed to be approximately 200 metres wide (100 metres on either side of the provided route in Appendix A);
2. The final 36 metre-wide servitude that the new Spring Grove 88kV powerline will be constructed within this 200 metre-wide servitude of the '*Approved Alternative'*;
3. There is a degree of flexibility available within this 200 metre-wide servitude in the positioning of the tower pylons, and towers may be positioned anywhere within this approved 200 metre-wide servitude Alternative provide that all conditions of the Environmental Authorisation, BAR, and Environmental Management Programme (EMPr) are adhered to;
4. The position of each tower in the powerline servitude Alternatives have not been finalized, as this can only be finalized by Eskom surveyors once Environmental Authorisation has been approved; and
5. The final position of the Spring Grove Substation situated on farm portion 234 Springvale 2170 is not known, therefore the following co-ordinates, 29°19'13.54" South and 29°58'18.43" East will be used to shown its approximate position on the property.

Construction Techniques for the Spring Grove Tee 88kV Powerline:

The table below is the generic construction process that is followed during the construction of an 88kV powerline and should be implemented along the entire powerline route, however depending on project conditions the following process may not follow the order that it has been displayed below. Each activity (1-14) should follow the previous one, with certain activities following each other immediately while there will be a time delay between other activities in the process. At any given time some or all of the different activities listed below may be undertaken by different construction teams along the length of the powerline.

Inception Phase		
Activity conducted by Eskom Surveyors/Land Development Department	**Duration per site**	**Size of Team**
1. Negotiations with Landowners for access to land during construction: • An access plan is prepared for each individual landowner's property. This plan is then approved by the landowner, Eskom and the contractor for the duration of construction and signed by all parties. • Access roads will be confirmed on each landowner's property and established through repeated use (i.e. there will be no road construction) • Rehabilitation measures as per the rehabilitation plan in the EMPr are agreed with the landowner for access	**1 Day**	**One man land development member from Eskom.**

	roads and pre-construction photographs taken to ensure that rehabilitation of the land back to its original state can be ensured. • Only light vehicle access (Bakkie or 4X4) will be required to conduct this activity.		
2.	**Eskom will confirm the centre line of the 88kV powerline by placing metal standards or pegging along the powerline, this will be the centre line of the 36 metre wide servitude registered to Eskom. At this stage the location of new gates that may be required on the landowners' property for access reasons during construction will be identified.** • Only light vehicle access (Bakkie or 4X4) will be required to conduct this activity.	**1 Day**	**Three man surveyor team**
3.	**Pegging of Towers:** • Eskom surveyors will peg each tower site for 88kV powerline. • The position of each tower pylon leg on each tower site will be set. This will indicate where the foundation must be excavated. • At this stage surveyors will report findings on each tower site back to the project team to confirm that it is safe to construct tower at this point. • Only light vehicle access (Bakkie or 4X4) will be required to conduct this activity.	**1 Day**	**Five man surveyor team**
4.	**Gate Installation on landowners properties:** • Only light vehicle access (Bakkie or 4X4) will be required to conduct this activity.	**1 Day**	**Five man construction team**
Construction Phase			
	Activity conducted by Eskom Contractor	**Duration per site**	**Size of Team**
5.	**Foundation or soil nominations are taken at each tower site to confirm soil types for the foundations requirements:** • Trial pits are excavated at each tower pylon foundation. • The pits are normal excavated by mechanical means like a back-actor or auger; • However manual labour may be used depending on terrain. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**2 Days**	**Five man construction team**
6.	**Excavation of tower pylon foundations:** • Foundations are excavated up to 4 metres in depth (depending on soil conditions found during the nominations) by 2 metres X 2 metres squared. • Foundations are fenced off for safety reasons until such time that the foundation is cast. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**2 Days**	**Ten man construction team**
7.	**Foundation (reinforcing) steelwork:** • All steelwork required for the tower pylon foundations are made up in the construction camp delivered to site by 7-ton construction truck. • Wiring of the foundation steel work is conducted on site. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**2 Days**	**Ten man construction team**
8.	**Foundation (concrete) pouring:** • Each tower pylon has shuttering installed on it to contained concrete. • Ready mix concrete trucks are used to deliver concrete	**2 Days**	**Ten man construction team**

to tower sites. • Should there be access problems, concrete will be mixed on site or delivered using a TLB. • Concrete tower foundations require a minimum 28 day period to cure before towers can be erected. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.		
9. Structure steel Delivered for towers: • Steelwork is delivered to the construction camp, towers are transported from the factory to construction camp and are individually designed for each tower site. • One 7-ton construction truck can transport one complete tower unassembled from the construction camp to the tower site. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**1 Days**	**Five man construction team**
10. Tower construction: • Towers are assembled by hand on site. • The structure steelwork is assembled on the ground using nuts and bolts. • Non-corrosive paint is used to seal the nuts in place to ensure that the towers cannot be tampered with. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**3 Days**	**Ten man construction team**
11. Tower erection: • Cranes along with 7-ton construction trucks are used to lift the assembled towers in to position on the tower foundations. • Cranes can weigh in excess of 50 tons. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**2 Days**	**Ten man construction team**
12. Stringing of 88kV powerline: • Stringing takes place in both directions by two construction teams. • Stringing activities are confined to the 36 metre servitude width, however during this stage heavy vehicle movement may take in the areas around the tower sites where stinging is being conducted. • The cable conductor is pulled up onto the towers through the use of a pulley system. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**5 Days**	**Ten man construction team**
13. Tensioning the 88kV powerline: • The 88kV powerline conductor is tensioned individually between towers to ensure that the minimum ground clearance and drift of the powerline is maintained. • Heavy vehicle access is required (7-ton construction truck & TLB) to conduct this activity.	**1 Day**	**Ten man construction team**
Post Construction Phase		
Activity conducted by Eskom Contractor	**Duration per site**	**Size of Team**
14. Rehabilitation: • Rehabilitation is a continuous process during the construction phase. • Only light vehicle access (Bakkie or 4X4) will be required to conduct this activity.	**1 Day**	**Ten man construction team**

Alternative C1:
The approximate length of the Alternative C1 Powerline Servitude is 3.3 kilometres, and the final width of the powerline servitude will be 36 metres wide. The powerline servitude will connect to the existing 88kV powerline at co-ordinates 29°18'44.85" South and 29°59'40.28" East and will end at the new Spring Grove Substation site situated on farm portion 234 Springvale 2170 at co-ordinates 29°19'13.54" South and 29°58'18.43" East.

Alternative C2:
The approximate length of the Alternative C2 Powerline Servitude is 3.3 kilometres, and the final width of the powerline servitude will be 36 metres wide. The powerline servitude will connect to the existing 88kV powerline at co-ordinates 29°20'27.67" South and 29°59'8.11" East and will end at the new Spring Grove Substation site situated on farm portion 234 Springvale 2170 co-ordinates 29°19'13.54" South and 29°58'18.43" East.

Alternative C3:
The approximate length of the Alternative C3 Powerline Servitude is 7.9 kilometres, and the final width of the powerline servitude will be 36 metres wide. The powerline servitude will connect to the existing 88kV powerline at co-ordinates 29°17'4.62" South and 29°59'20.10" East and will end at the new Spring Grove Substation site situated on farm portion 234 Springvale 2170 at co-ordinates 29°19'13.54" South and 29°58'18.43" East.

Technical/Design Alternatives:
Two different powerline proposals have been suggested for the new Spring Grove Tee 88kV powerline by Eskom Holdings S O C Ltd.

Alternative T1:
88kV double circuit powerline using 132 series steel lattice towers. Once fully erected the height of this tower is approximately 25.2 metres from ground to earthly wire, and holds six (6) cable conductors. The footprint required for this tower is 20 metres X 20 metres, with four (4) pylons legs of the tower being positioned approximately 6 metres away from the next pylon depending on the terrain.

Alternative T2:
88kV single circuit powerline using 131 series steel lattice towers. Once fully erected the height of this tower is approximately 21.8 metres from ground to earthly wire, and holds three (3) cable conductors. The footprint required for this tower is 20 metres X 20 metres, with four (4) pylons legs of the tower being positioned approximately 6 metres away from the next pylon depending on the terrain.

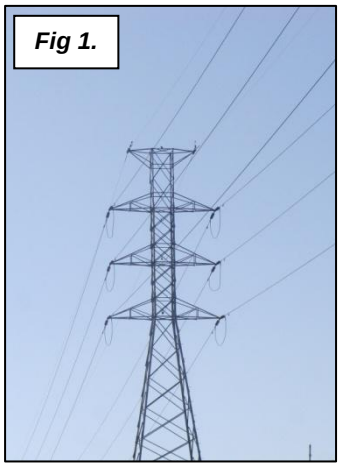
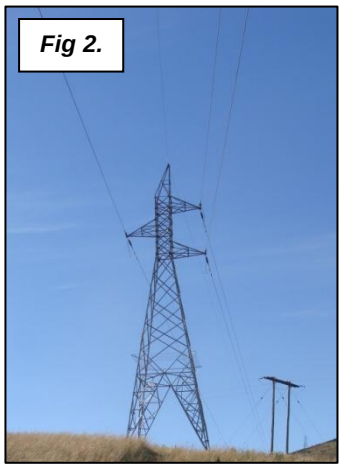


Figure 1: Example of a double circuit powerline.

Figure 2: Example of a single circuit powerline.



Tower Design Alternatives:
The following assumptions have been made with regards to the Spring Grove Tee 88kV powerline Tower Design Alternatives regarding this BAR:

1. The 132 and 131 steel lattice tower designs for the proposed 88kV Spring Grove Tee powerline have an identical footprint (i.e. 20m X 20m), therefore there will not be assessed against each other as the impacts will be the same for both tower designs;
2. The construction processes for the tower designs are identical therefore construction impacts will be identical;
3. The only difference between the 132 and 131 towers is that the 132 tower is 3.4 metres higher than the 131 tower, and carries an additional three (3) cable conductors; and
4. In terms of impacts on the Environment the additional height and number of cables between the tower designs will only have a potential impact on Avifauna and Visual aspects of the powerline during its operational phase.

No-Go Option: The no-go alternative assumes there would be no construction of the Spring Grove Tee 88kV powerline and that site would remain in its current state. The no-go alternative also considers the impacts on MMTS-2 (DEA REF: 14/12/16/3/3/2/334) and (DEA REF: 12/12/20/220), Eskom's mandate to satisfy potential customer needs, and UWs future 'Water Treatment Plant' should the powerline not be constructed. The no-go alternative will be used as a baseline throughout the assessment process against which potential impacts will be compared in an objective manner and will be fully assessed in the BAR.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R.544 Item 10(i): ***The construction of facilities or infrastructure for the transmission and distribution of electricity :*** ***(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or*** *(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.*	***1) The construction of the New Spring Grove Tee 88kV Powerline.***

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 as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) 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.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

In the case of linear activities:

Powerline Servitude:	**Latitude (S):**		**Longitude (E):**	
Alternative C1 (Preferred Alternative):				
• Starting point of the activity	**29°**	**18'44.85"**	**29°**	**59'40.28"**
• Middle/Additional point of the activity	**29°**	**18'41.00"**	**29°**	**58'52.35"**
• End point of the activity	**29°**	**19'13.54"**	**29°**	**58'18.43"**
Alternative C2:				
• Starting point of the activity	**29°**	**20'27.67"**	**29°**	**59'8.11"**
• Middle/Additional point of the activity	**29°**	**19'53.72"**	**29°**	**58'21.30"**
• End point of the activity	**29°**	**19'13.54"**	**29°**	**58'18.43"**
Alternative C3:				
• Starting point of the activity	**29°**	**19'13.54"**	**29°**	**58'18.43"**
• Middle/Additional point of the activity	**29°**	**17'21.01"**	**29°**	**57'27.57"**
• End point of the activity	**29°**	**19'13.54"**	**29°**	**58'18.43"**

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 metres along the route for each alternative alignment. **Please see attached Co-ordinates for the proposed corridors routes in Appendix A of this BAR.**

b) Lay-out alternatives

Please note that there are no Lay-out alternatives for the proposed project.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

c) Technology alternatives

Please note that there are no other alternatives for the proposed project.

Alternative 1
Alternative 2
Alternative 3
N/A

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Tower designs:

Alternative T1 (preferred alternative)
88kV double circuit powerline using 132 series steel lattice towers. Once fully erected the height of this tower is approximately 25.2 metres from ground to earthly wire, and holds six (6) cable conductors. The footprint required for this tower is 20 metres X 20 metres, with four (4) pylons legs of the tower being positioned approximately 6 metres away from the next pylon depending on the terrain.
Alternative T2
88kV single circuit powerline using 131 series steel lattice towers. Once fully erected the height of this tower is approximately 21.8 metres from ground to earthly wire, and holds three (3) cable conductors. The footprint required for this tower is 20 metres X 20 metres, with four (4) pylons legs of the tower being positioned approximately 6 metres away from the next pylon depending on the terrain.
Alternative 3
N/A

e) No-go alternative

The no-go alternative will be used as a baseline throughout the assessment process against which potential impacts will be compared in an objective manner and will be fully assessed in the BAR. The no-go alternative assumes there would be no construction of the Spring Grove Tee 88kV powerline and that site would remain in its current state. The no-go alternative also considers impacts on the operation of the MMTS-2 (DEA REF: 14/12/16/3/3/2/334) and (DEA REF: 12/12/20/220), Eskom, and UW should the powerline not be constructed. Water has been placed at the top of the service infrastructure list within the eThekwini Municipality and given the highest priority, this is due to projections that water demands within eThekwini Municipality will exceed the available supply. At present the existing water supply systems that supply eThekwini Municipality are not able to provide the additional capacity that will be required to supply the expected future demand. eThekwini Municipality- receives water from the Mgeni River, with four major dams already constructed on this system. There is no further possibility of additional water infrastructure being developed on this system. (Coastal& Environmental Services, 2012, Draft Environmental Scoping Report MMTS-2)

Should the proposed Spring Grove 88kV powerline not be approved the MMTS-2 (DEA REF: 14/12/16/3/3/2/334) and (DEA REF: 12/12/20/220). DWA will not be able to operate the dam, UWs Water Treatment Works will not be able to supply the local area with potable water, and Eskom will not be able to provide an assured supply of electricity to the Rosetta, and Nottingham Road. These

impacts will not only be felt within the eThekwini Municipality and their ability to provide and address service delivery requirements for provision of water, but also on the local community's requirement for potable water and electricity. If the MMTS-2 cannot supply water to the eThekwini Municipality and KwaZulu-Natal, this would also result in serious consequences in the economic sector, as water is a critical component in all forms of economic development from agriculture to industry.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

or, for linear activities:

In the case of linear activities:	**Length of the activity (Approximately):**
Alternative C1 (Preferred Alternative)	3 300m
Alternative C2	3 300m
Alternative C3	7 900m

Indicate the size of the powerline servitudes:

	Size of the servitude (Servitude length X Width):
Alternative C1 (Preferred Alternative)	118 800 m^2
Alternative C2	118 800 m^2
Alternative C3	284 400 m^2

Indicate the Height of the tower design:

Alternative T1 (Preferred Alternative)	25.2 m
Alternative T2	21.8 m

Indicate the size of the Tower Pylon Footprint:

	Approximate number of towers required for the powerline multiplied by (20m X 20m) 400m^2:
Alternative C1 (Preferred Alternative)	10 Towers X 400m^2 = 4 000 m^2
Alternative C2	12 Towers X 400m^2 = 4 800 m^2
Alternative C3	22 Towers X 400m^2 = 8 800 m^2

4. SITE ACCESS

Does ready access to the site exist?	YES	NO
Spring Grove 88kV powerline:		
Alternative C1 (Preferred Alternative):	**X**	**X**

Alternative C2:	**X**	**X**
Alternative C3:	**X**	**X**
If NO, what is the distance over which a new access road will be built	**Not Known**	

Describe the type of access road planned:

There is a network of formal roads and access tracks available within the proposed development area that are capable of providing sufficient access for vehicles involved in construction activities. However, due to the final position of the tower sites not being known it may be necessary to create access routes to access the tower sites. These routes will not be formal roads, but tracks created by construction vehicles (normally a TLB or 7-Ton truck) and will follow the terrain as far as possible. All tracks created to access the tower sites will be rehabilitated once the construction of the powerline has been completed to the satisfaction of an independent Environmental Control Officer (ECO).

Alternative C1:
Due to the existing 11kV powerline that the Alternative C1 runs parallel with, access roads to the connection point on the existing 88kV powerline will not be required as maintenance roads for the 11kV powerline already exist. Access to tower sites once the powerline has crossed the R103 Road would be along access roads on the landowners' properties. **See Appendix F for EMPr within attached access roads maps.**

Alternative C2:
The majority of the Alternative C2 powerline is situated on Mr Derek Greene's property, access to the powerline is available through the agriculture roads that Mr Derek Greene's agriculture vehicles utilise on a daily basis. However new access tracks would have to be created through Mr Greene's maize fields to access those areas where the roads are not easily accessible which would result in the removal/damage to the maize fields. Access tracks would also be required on Allen Charmicheal, Merewyn de Heer, and Tim McSeveney's properties to access the tower points on their properties.

Alternative C3:
The Alternative C3 is the least accessible of the proposed alternatives being assessed in this BAR. Due to the length and position of powerline servitude, numerous access tracks would be required through landowner properties and agriculture fields to access tower sites. Given the sensitive areas that this Alternative traverses the potential for negative impacts to occur as a result of the access tracks are sufficiently increased. This includes the damage of agriculture crops, and the disturbance of Avifaunal species that roost, breed, and forage in this area.

Image: An example of an access track that has been created by a TLB and construction vehicles (Source: KSEMS).

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. **Please see attached Map in Appendix A of this BAR.**

5. 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 accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- 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).

6. LAYOUT/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. **Please see attached Map in Appendix A of this BAR.**

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- 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 infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A. **Please see attached Map in Appendix A of this BAR.**

8. 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 report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 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.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	**YES X**	NO	Please explain
The existing land use rights for the properties affected by the proposed Spring Grove Tee 88kV powerline will not be changed and are permitted in terms of the existing land use rights. Eskom will register a powerline servitude with the landowners of the property that the approved Spring Grove 88kV powerline will traverse. The registered servitude will allow for the construction of the powerline on their property, and will state the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitude, in accordance with the Expropriation Act (Act 63 of 1975).			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES X**	NO	Please explain
This development is in line with the Provincial Spatial Development Framework as it forms part of the collective development and operation of the MMTS-2 to ensure that future water demand for the region can be met. Should the proposed Spring Grove 88kV powerline not be approved, the MMTS-2 will not be able to operate, which will directly impact the eThekwini Municipality's ability to provide and address service delivery requirements for provision of water. If the MMTS-2 cannot supply water to the eThekwini Municipality and KZN, this would also result in serious consequences in the economic sector as water is a critical component in all forms development from agriculture to industry. The development will also ensure that Eskoms' mandate to satisfy potential customer needs is fulfilled, and that existing users within the Nottingham Road and Rosetta area are provide with a strengthen 11kV network to ensure the future expect growth of the area is not impacted upon by insufficient supply of electricity. Furthermore, the electricity requirements are also for UWs Water Treatment Facility, which is to provide potable water to the local area (Mooi River, Nottingham Road and Rosetta).			

(b) Urban edge / Edge of Built environment for the area	**YES X**	NO	Please explain
The proposed Spring Grove Tee 88kV powerline is situated approximately 3 kms away from the centre of the town of Nottingham Road, and 1 km away from Rosetta. However, due to the area that the proposed Spring Grove 88kV powerline Alternatives traverses, it is situated on the Urban Edge for the area. Land uses within one (1) kilometre of the Alternative Powerline Servitudes include Residential, Retail, and Agriculture. Existing infrastructure and services surrounding the development area include the R103 Road, the Spring Grove Dam, the main Johannesburg-Durban Transnet railway line and associated infrastructure to operate the trains, and the existing Eskom 11kV and 88kV powerline network. Therefore the proposed Spring Grove Tee 88kV powerline will not compromise the edge of the built environment for the area.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES X**	NO	Please explain
The proposed development is in line with the IDP and SDF of the local Municipalities. The proposed development aims to address the service delivery targets with regard to providing electricity to the MMTS-2, and associated developments, and UWs 'Water Treatment facility' via the Spring Grove Substation. The new 88kV Spring Grove powerline will supply electricity to the Spring Grove Substation directly. During the initial planning stages for the Spring Grove Dam development the Spring Grove Substation was originally intended to be a dedicated Substation for the Department of Water Affairs (DWA) to operate the MMTS-2. However, over time the need and desirability for a stable electricity supply has increased and the Substation once constructed will supply Umgeni Water, DWA, and Eskom. DWA require electricity to operate the MMTS-2, UW for the future 'Water Treatment Plant', and Eskom will use the Substation to strengthen the existing 11kV network in the Nottingham Road and Rosetta area. Eskom Distribution has identified the need for the strengthening of supply to support the growing electrical demand in the Nottingham Road and Rosetta area. This development will strengthen the electricity network as well as provide additional capacity by supplying electricity from the Spring Grove Substation. Therefore the development will help to ensure that some of the deliverables within the Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipalities are met.			
(d) Approved Structure Plan of the Municipality	**YES X**	NO	Please explain
The proposed development falls within the approved Structure Plan of the Local Municipalities as without this Spring Grove Tee 88kV powerline the MMTS-2 and UWs water treatment plant cannot operate, therefore the Municipalities will not be able to meet the requirements of the local population in terms of economic growth and supplying basic services to all residents.			

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	**YES X**	NO	Please explain
The proposed development will not sufficiently impact on the environment and is in line with the Environmental Management Framework adopted by the Department. However, it is worth noting that had the Spring Grove Dam not been approved by the DEA, the proposed Spring Grove 88kV powerline would not be constructed or at the very least not be positioned at its current location as the Spring Grove Substation would not have been approved. The approval of the Spring Grove Substation as part of the MMTS-2 was also a prerequisite for UW to have prior to any planning and development of the future 'Water Treatment Works' commencing, as without the substation on the same property UW would not consider any development.			
(f) Any other Plans (e.g. Guide Plan)	YES	**NO X**	Please explain
N/A			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES X**	NO	Please explain
The proposed development is in line with the IDP and SDF of the local Municipality. The proposed development aims to address the service delivery targets with regard to proving electricity to the MMTS-2, UWs 'Water Treatment facility' via the Spring Grove Substation. The new 88kV Spring Grove Tee powerline is an essential part of the MMTS-2 development as this project cannot operate without the proposed powerline. The MMTS-2 is a critical project within the Provincial Spatial Development Framework for KZN, as this development has been implemented to ensure that the region has an adequate supply of water for the future, and that future demand for water within the region can be met.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES X**	**NO X**	Please explain
The proposed Spring Grove Tee powerline is a not a societal priority to the local community. However the MMTS-2 is a priority project mainly for the eThekwini Municipality and will not be able to operate without the proposed Spring Grove Tee 88kV powerline development. The MMTS-2 is a critical project within the Provincial Spatial Development Framework for KZN, as this development have been implemented to ensure that the region has an adequate supply of water for the future. If the MMTS-2 cannot supply water to the eThekwini Municipality and KZN, this would also result in serious consequences in the economic sector as water is a critical component in all forms development from agriculture to industry. This would then result in KZN not reaching or maintaining its targets for economic growth, impacting on South Africa's' economic profile.			

5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES X**	NO	Please explain
The necessary services are currently available with adequate capacity for this development to be undertaken.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES X**	NO	Please explain
From the uMgeni and Mpofana Local Municipality planning level the proposed Spring Grove Tee 88kV powerline does not required any additional infrastructure for construction to commence. What this means is that the local Municipalities do not need to allocate any resources towards this development. Eskom/TCTA will be responsible for all costs involved with construction and commissioning of the development, and adequate Municipal infrastructure is currently available in the form of roads and water connections. It must be noted that the proposed development will form part of the local municipal infrastructure once completed, and will help address the provision of basic services and service delivery targets with regard to electrification of houses, and the safe supply of electricity to the Nottingham Road and Rosetta Area.			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES X**	NO	Please explain
Safe drinking water is a basic human right for all South Africans under the Constitution, the MMTS-2 and UW developments are critical projects within the Provincial Spatial Development Framework for KZN to help ensure that this Constitutional right is met within KZN. Without the proposed 88kV Spring Grove Tee powerline these developments cannot operate, therefore water stored at the Spring Grove Dam cannot be pumped through the MMTS-2 pipeline to supply the Mgeni water system ensuring an adequate supply of water for all. Furthermore, water cannot be treated to potable quality by UW for users within the Mpofana and uMngeni local municipal areas.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES X**	NO	Please explain
Location factors have favoured the three (3) Alternative powerline servitudes that are being assessed within this BAR. Due to the position of the Spring Grove Substation, the existing Colenso-Gowrie 88kV powerline, the Spring Grove Dam, the towns of Rosetta and Nottingham Road, farming infrastructure, and property infrastructure, has limited the alternatives available for the proposed Spring Grove 88kV powerline. Therefore only three (3) Powerline Servitude Alternatives are available where it is feasible for the construction of a powerline to be undertaken and maintained should positive Environmental Authorisation be granted.			

9. Is the development the best practicable environmental option for this land/site?	YES	**NO X**	Please explain
In terms of the development being the best practicable environmental option for this land /site, the argument can be made that the development is not the best practicable environmental option and would be better if the development did not occur. However, as this development forms part of the collective development with the MMTS-2 and UW 'Water Treatment Facility', and the location factors as stated previously due to the position of the Spring Grove Substation, the existing Colenso-Gowrie 88kV powerline, the Spring Grove Dam, the towns of Rosetta and Nottingham Road, farming infrastructure, and property infrastructure. The proposed Spring Grove Tee powerline has only these three (3) Alternative servitudes available that are feasible for the construction of the powerline, therefore the BAR must assess which of the proposed Alternatives is the best practicable environmental option for the development and will have the least Environmental and Social impact on the area.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES X**	NO	Please explain
The proposed 88kV Spring Grove Tee powerline is an essential part of the MMTS-2 and future UW 'Water Treatment Facility', as these developments cannot operate without the proposed powerline to supply electricity to the Spring Grove Substation. The direct impacts of the development are localised to the Nottingham Road and Rosetta area and will be mitigated where possible to reduce the impact on the local environment and community. However the benefits of the MMTS-2 and future UW 'Water Treatment Facility' of which the 88kV Spring Grove Tee powerline is a critical component, in securing and supplying adequate water for the KZN region outweigh the negative aspects of the development. The Spring Grove Substation will also supply electricity via the Spring Grove Tee 88kV powerline to the Nottingham Road and Rosetta area and will strengthen the existing 11kV powerline network which will decrease the frequency of power outages experienced in the area.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	**NO X**	Please explain
The new 88kV Spring Grove powerline will supply electricity to the Spring Grove Substation directly, and once the Substation has been constructed it will supply Umgeni Water, DWA, and Eskom via 11KV powerlines from the Substation. DWA require electricity to operate the Spring Grove Dam and MMTS-2, Umgeni Water for the future 'Water Treatment Facility', and Eskom will use the Substation to strengthen the existing 11kV network in the Nottingham Road and Rosetta area. No 88kV Powerlines will exit the Substation and therefore the precedent for similar activities (Distribution powerlines 88-275kV) is not applicable and precedent will not be set, however the electrification projects (11kV powerlines) would increase once the project has been completed.			

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	**NO X**	Please explain
Public Participation has been conducted for this development to ensure that the local community is aware of the development and no individuals' rights may be affected. However due to the location factors as stated previously, the approved location of the Spring Grove Substation, the existing Colenso-Gowrie 88kV powerline, the Spring Grove Dam, the towns of Rosetta and Nottingham Road, farming infrastructure, and property infrastructure, has limited the available Alternatives for the development. Therefore landowners and residents may believe that their rights have been negatively affected by the development due to the position a powerline Alternative on their property or in relation to their property. All efforts have been made to limit the impact of the proposed development on landowners/residents, which included adjusting the Alternative servitude routes to best accommodate landowners. Landowners will also be compensated for the area of land required for the powerline servitude on their property, in accordance with the Expropriation Act (Act 63 of 1975). As the development will not require any individual/company to be moved or removed from the land in order for the development to be undertaken, nor will it impact on any individual/company during its operation as long as Eskom comply with the legal conditions set down by the South African Department of Health. The proposed development is therefore not anticipated to impact on anyone's rights negatively.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	**NO X**	Please explain
The proposed Spring Grove Tee 88kV powerline is situated approximately 3 kms away from the centre of the town of Nottingham Road, and **one (1) kilometre** away from Rosetta. However due to the area that the proposed Spring Grove 88kV powerline Alternatives traverses, it is situated on the Urban Edge for the area. Land uses within **one (1) kilometre** of the Alternative Powerline Servitudes include Residential, Retail, and Agriculture. Existing infrastructure and services surrounding the development area include the R103 Road, the Spring Grove Dam, the main Johannesburg-Durban Transnet railway line and associated infrastructure to operate the trains, and the existing Eskom 11kV and 88kV powerline network. Therefore the proposed Spring Grove Tee 88kV powerline will not compromise the edge of the built environment for the area.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES X**	NO	Please explain
The proposed development falls under SIP 10 of the 17 Strategic Integrated Projects that form part of Infrastructure Plan for South Africa, SIP 10 is the Electricity Transmission and Distribution for all.			
15. What will the benefits be to society in general and to the local communities?			Please explain
Once the Spring Grove Tee 88kV powerline has been completed, strengthen of the existing 11kV network in the Nottingham Road and Rosetta area will commence. This will provide additional capacity to the area, which will help the economic growth of the area by increasing the number of jobs through the development of the area thus improving the living standard of the local community and help to reduce poverty. Local communities will benefit from as the electricity supply to the area will be strengthened, which will decrease the number of electricity outages experienced in the area.			

16. Any other need and desirability considerations related to the proposed activity?	Please explain
N/A	
17. How does the project fit into the National Development Plan for 2030?	Please explain
The aim of the 'National Development Plan for 2030' is to eliminate poverty and reduce inequality by 2030. The South African Constitution states that it is a basic human right to have access to safe drinking water, and the new 88kV Spring Grove Tee powerline is an essential part for the operation of MMTS-2 and UW 'Water Treatment Facility' ensure that this basic right is being fulfilled within KZN. The development will also strengthen the electrical network in the Nottingham Road and Rosetta areas, which will increase the supply to area, helping to secure investment and development in the area thus creating economic growth, jobs, and help to reduce poverty.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
As per section 23 (2b) of NEMA, this BAR has identified, predicted and evaluated the actual and potential impact on the environment, socio-economic conditions, and heritage resources of this proposed development. Four specialist studies have been undertaken for the development which includes Avifaunal, Wetland, Heritage, and Vegetation. All alternatives for this development have been accessed by both the Specialists and EAP with the view of minimising negative impacts and maximising benefits. Section 23 (2c) of NEMA states that, "*effects of activities on the environment receive adequate consideration before actions are taken in connection with them*". The BAR process undertaken for this development ensures that the effects of the development are accessed and that all alternatives receive adequate consideration before a preferred option is chosen. In order to ensure that Integrated Environmental Management process is included external Environmental I&APs have been included to comment and provide input regarding the development, these I&APs include the Department of Water Affairs, Department of Agriculture, Forestry, and Fisheries, Ezemvelo KZN Wildlife, WESSA, AMAFA, and Birdlife South Africa. The inclusion of these I&APs also falls under Section 23 (2d) of NEMA, "*ensure adequate appropriate opportunity for public participation in decisions that may affect the environment*."	

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
As per the principles of environmental management in Section 2 of NEMA, the BAR has taken into account the disturbance of all ecosystems and loss of bio-diversity due to the proposed development, where possible this has been avoided (i.e. all wetland areas have been avoided and no construction is permitted within 32 metres of any wetland area) and where disturbance of ecosystems or loss of bio-diversity cannot be avoided they have been minimised through site-specific construction techniques and monitoring through an EMPr. The BAR has assessed the construction techniques required for the proposed development and has identified key areas where pollution and degradation of the environment could potential occur and where it cannot be avoided, mitigation measures to minimise and remedy any impacts have been assessed. The Heritage Specialist has identified all areas of cultural heritage and the proposed development has avoided these areas, appropriate buffers have been placed around these areas which will be enforced through the site-specific EMPr and ECO monitoring. All waste producing areas for the proposed development has been identified and appropriate mitigation measures have been included in the EMPr to control the production of waste during construction. A risk-averse and cautious approach has been applied to this BAR which has taken into account the limits of current knowledge regarding the proposed development, bearing this in mind it is impossible to predict all cumulative impacts of any development on the environment during construction. For this reason a site specific EMPr has been developed to monitor and assess the development during the construction phase, the purpose of the EMPr is to ensure the prevention of long-term or permanent damage to the environment and to provide guidance regarding mitigation measures and environmental specifications. Public participation has been undertaken for the proposed development which ensures that the local community and effected individuals have been consulted to ensure that people's environmental rights have not been impacted upon.

11. 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	Applicability to the project	Administering authority	Date
National Heritage Resource Act	The Act provides protection of and management of conservation worthy places, areas and objects by heritage authorities, by means of registration and the implementation of certain protections. A Heritage Impact Assessment (HIA) has been undertaken as part of the BAR phase for the proposed project. Heritage resources have been identified within the development area: • No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or paleontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority. • No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter or deface archaeological or historically significant sites.	DAC/AMAFA	1999
National Environmental Management Act	This Act places an onus on all levels of government and on Eskom to ensure that risk to the environment is identified and where it cannot be avoided, is minimised and mitigated against. Should there be any impact on the environment	DEA	1998

	during or after construction, Eskom, as a responsible party, has a responsibility to take measures to address these impacts and undertake the necessary clean up and mitigation measures. As per the NEMA Regulations the proposed development triggers a listed activity and as such requires a BAR to be undertaken. As such the developer must be mindful of the principles, broad liability and implications associated with NEMA and must eliminate or mitigate any potential impacts as identified during the BAR. As well as being mindful of the principles, broad liability and implications of causing damage to the environment that this development has the potential to cause.		
The Environment Conservation Act	The Act empowers government authorities to prohibit any action which, in their opinion, may cause serious damage to the environment, or to instruct responsible parties to any take steps that they deem fit to remedy or rectify the situation. The Act also provides for declaration of conservation areas and protected natural environments. The Act additionally contains important provisions for the control of waste management. The proposed development of the site will need to take into account this piece of legislation with regards to disposal of waste generated during and after construction. The following regulations are trigger by this development: • Control of activities which may have a detrimental effect on the environment; • No person shall undertake an activity or cause an activity which may have a detrimental effect on the environment without written consent from the competent authority; Such land activities include: • Land use and transformation; • Water use and disposal; • Resource removal, including natural living resources; • Resource renewal; • Agricultural processes; • Industrial processes; • Transportation; • **Energy generation and distribution; and** • Recreation. The Act also outlines general prohibitions for noise control. It is also specifies noise management during construction. Specifically section 3(i) states that no person shall use any power tool or power equipment for construction, earth drilling or demolition works, or allow it to be used, in a residential area during the following periods of time: i) Before 06:00 and after 18:00 from Monday to Saturday; and ii) at any time on any Sunday, Good Friday, Ascension Day, Day of the Covenant and Christmas Day, or any other day as may be determined by a local authority; The provisions of the regulations may not apply if any person may by means of a written application, in which the reasons are given in full, apply to the local authority concerned for exemption from any provision of these Regulations.	DEA	1989
Conservation of Agriculture Resources Act	The purpose of the Act is to provide guidance for the control over the utilization of the natural agricultural resources in order to promote the conservation of the Republics soil, water and vegetation resources, and the combating of weeds and invader plants. The proposed development traverses agriculture and natural land infested with invader/weed species. Therefore any	DEA	1983

	declared weed and/or invader species listed in terms of this Act present on site, will have to be removed.		
National Environmental Management: Biodiversity Act	This Act provides for the management and conservation of the Republics biodiversity within the framework of the National Environmental Management Act. The proposed development must conserve endangered ecosystems, protect and promote biodiversity, assess the impacts of the proposed development on endangered ecosystems. In terms of the Act no protected species may be removed or damaged without a permit, and the proposed development area must be cleared of alien vegetation using appropriate means.	DEA	2004
National Water Act	The Act regulates the protection, use, development, conservation, management and control of water resources in South Africa. The principle concerns in terms of the Act that related to the proposed development is the potential for pollution of surface and groundwater resources to occur, and to ensure that water is used as efficiently as possible. Other aims are to ensure that water resources are protected, used, developed, conserved, managed and controlled in a sustainable manner, for the benefit of everyone in South Africa. Section 19 includes various requirements to prevent and control water pollution. Water use is defined broadly and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities, altering a water course and removing water from underground. Unless the water use is for basic human needs, is an existing lawful use of is permitted under general authorisation, it must be licensed. Should water be extracted from a natural resource for use during construction, this use will need to be monitored and authorised by DWAF depending on volumes extracted. Potential risk to water quality during construction (spills) or during operation need to be identified and managed.	DWA	1998
National Water Resources Strategy	Describes how the water resources of South Africa will be protected, used, developed, conserved, managed and controlled in accordance with the requirements of the National Water Policy and the National Water Act, 1998	DWA	2004
Occupational Health and Safety Act	The developer must be mindful of the principles and broad liability and implications contained within the OHS Act and mitigate any potential impacts. The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed development. These cover, among other issues, noise and lighting.	DOL	1993
Hazardous Chemical Substance regulations	The Hazardous Chemical Substance regulations control the transportation, manufacturing, storage, handling, and treatment or processing facilities for any substance that is classified as hazardous or dangerous to humans and the environment. The importance of the act to the proposed development is that materials that are classified under this Act will be used during construction and operation. Thus, the management of any hazardous waste produced on site such that it does not endanger human health or the environment (i.e. oil spill), and to prevent such waste from being used for an unauthorised purpose (i.e. illegal dumping). These regulations stipulate requirements for storage and handling of hazardous chemical substances and provide guidelines for training of staff. Any hazardous chemical substances used in the substation must be identified, stored used and disposed of in accordance with	DOL	1995

	this legislation.		
Atmospheric Pollution Prevention	The importance of this Act to the proposed development is to ensure that the "best practicable means" for the abatement of dust during construction if approved is implemented, and that all appliances used for preventing or reducing the escape of noxious or offensive gases into the atmosphere from construction machinery/vehicles have to be properly operated and maintained.		1965
The National Forests Act	In terms of Section 12 (1) (d) of this Act no person may, except under licence: • Cut, disturb, damage or destroy a protected tree; or • Possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree. If any protected trees in terms of this Act occur within the proposed development footprint, the developer will require a licence from the DWA/DAFF to perform any of the above-listed activities.	DAFF/DWA	1998
Nature and Environmental Conservation Ordinance	This Ordinance provides a schedule of endangered and protected wild animals and flora, should any fauna and/or fauna listed in terms of the Nature and Environmental Conservation Ordinance be found within the development footprint the appropriate permits will have to be acquired for the removal thereof.	Ezemvelo KZN Wildlife/DAFF	1974
National Environmental Management: Protected Areas Act	The purpose of this Act is to provide for the protection and conservation of ecologically viable areas representative of the Republics biological diversity and its natural landscapes. Wetlands are listed as protected areas in terms of this Act and occur within the development footprint. The developer will require a Water Use Licence from the DWA should the development impact on these areas.	DEA	2004
Construction Regulations	These Regulations apply to any persons involved in construction work and are therefore applicable to the construction phase. The regulations provide guidelines for safe operation during construction. The developer must be mindful of the principles and broad liability and implications contained within the Construction Regulations and mitigate any potential impacts. The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed development.	DOL	2003
Noise Induced Hearing Loss Regulations	The developer must be mindful of the principles and broad liability and implications contained in the Noise Induced Hearing Loss Regulations and mitigate any potential impacts.	DOL	2003
National Environmental Management: Air Quality Act	As with the Atmospheric Pollution Prevention Act 45 of 1965, the objective of the new Air Quality Act is to protect the environment by providing the necessary legislation for the prevention of air pollution.	DEA	2004
National Environmental Management: Waste Act	To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of	DEA	2008

	contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith. As per Section 10 of the Act, Records of Waste Generation and Management must be recorded during the construction of the development must be keep. Waste generators must keep accurate and up to date records of the management of waste generate during construction, these records must reflect: • The classification of the wastes; • the quantity of each waste generated, • expressed in tons per month; • the quantities of each waste that has either been re-used, recycled, recovered, treated or disposed of; and • by whom the waste was managed.		
Environmental Regulations for Workplaces	These regulations specify optimal working conditions for staff including thermal conditions, illumination requirements, requirements for ventilation, noise levels etc and also specify requirements for housekeeping.	DOL	1987
General Administrative Regulations	These regulations stipulate the administration of the various OHS regulations incusing designation of health and safety committees, reporting and recording of incidents and occupational diseases.	DOL	2003

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

12 (a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES	NO
	X	

If yes, what estimated quantity will be produced per month?

Alternative C1	5m^3
Alternative C2	5m^3
Alternative C3	7m^3

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

Solid construction waste (i.e. building rubble/concrete/cement/spoil) will be removed from the construction site and stockpiled within the construction camp within the designated waste storage area. General waste (Paper, plastic, glass, tin Etc.) will be separated at source where possible and disposed of in the designated waste storage area within the construction camp in the bins/skips provided to store such waste. Hazardous waste will be stored within the appropriate bins/skips provided within the construction camp until such time that the waste is removed from site and disposed of at a registered hazardous waste facility.

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

General waste (Paper, plastic, glass, tin, food Etc.) must be removed to the local municipal registered waste site. Construction waste (spoil, rubble, excess concrete/cement Etc.) will be removed by an approved waste contractor and disposed of at an appropriate landfill that is registered to accept such waste. Safe disposal certificates must be maintained and kept on record for the duration of the contract. Hazardous waste must be disposed of a registered hazardous waste landfill site. Safe disposal certificates must be obtained and kept on site for the duration of the construction phase.

Will the activity produce solid waste during its operational phase?	YES	NO
		X
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 NEM:WA?	YES	**NO X**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

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

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. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

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

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? During construction portable chemicals toilets will be used by all contractors and will be situated within the construction camps for use by all staff.	**YES X**	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:

Liquid effluent will be taken away to be safely disposed of by a registered service provider.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	**NO X**
If YES, is it controlled by any legislation of any sphere of government?	YES	**NO X**

If YES, the applicant must 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:

The only emissions generated during the construction of the Spring Grove Tee 88kV powerline will be in the form of carbon dioxide and other emissions generated by diesel powered machinery and construction vehicles during the construction process (i.e. grader, tip trucks, TLB, concrete mixer and generators). Dust generation from the movement of the construction vehicles around the construction site may also result in emissions into the atmosphere. The emissions generated into the atmosphere will be temporary and limited to the construction phase, as the project will not produce any emissions during operation. Where appropriate dust suppression measures will be implemented to reduce the impacts. It is anticipated that dust impacts associated with the erection of the towers will be negligible as no clearing of the site is required. It is recommended that construction vehicles are regularly serviced and kept in good mechanical condition to minimise possible exhaust emissions.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	**NO X**

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

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

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:

The noise generated during the construction period will be from heavy equipment and machinery that will be used during the construction of the Spring Grove Tee 88kV powerline (i.e. grader, tip trucks TLB, concrete mixer and generators) and is not expected to exceed the occupational health and safety levels as set out in the Occupational Health & Safety Act No 85 of 1993 & Noise induced Hearing Loss Regulations 2003. Noise generated during construction will be temporary as equipment will only be on site during the construction phase.

13. WATER USE

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

Municipal X	Water board	Groundwater	**River, stream, dam or lake X**	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:

The construction of the Spring Grove Tee 88kV powerline will not require water carts to dampen the tower sites, and will only require water carts to dampen access roads and new access tracks to tower sites if required. Therefore one water cart (10 000 litres) per week should be adequate to dampen access roads and tracks during the construction of the powerlines.	40 000 litres per month per powerline	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs? **DWA general authorization limit is 50 000L per day. Should an activity require more than 50 000L per day during Spring Grove Tee 88kV powerline the contractor/applicant must apply for a permit for the DWA and produce the permit to the ECO. A Water Use License will only be necessary should a new access track required to be constructed in or through a wetland or riparian area. No tower sites will be constructed within 32 metres of any wetland area, therefore it is not anticipated that any access track will be constructed in/through a wetland area as a result. Should any construction related activity fall within a wetland or riparian area the applicant must apply for a permit for the DWA and produce the Water Use License to the ECO.**	YES	**NO X**

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

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

No measures will be undertaken other than ensuring the energy consumption of construction vehicles and equipment through proper maintenance is as efficient as possible in order to reduce operating costs.

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

The construction of the Spring Grove Tee 88KV powerline will involve the assembling of steel towers on site. This will be undertaken by hand as the design of the towers is a structural steel lattice design, which requires that the steel members of the towers to be bolted together which can only be conducted by hand. The foundations of the towers will require machinery to construct them. No alternative energy sources are available during construction.

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 B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B 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
X	

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

Alternative C1 (Preferred Alternative):

Property description/physical address:	
Province	KwaZulu-Natal
District Municipality	uMgungundlovu District Municipality
Local Municipality	Mpofana Local Municipality
Ward Number(s)	Ward 2
Farm name and number	SPRINGVALE 2170
Portion number	Portion 104 Portion 330 Portion 85 Portion 86 Portion 89 Portion 162 Portion 1 Portion 2 Portion 3 Portion 4 Portion 5 Portion 6 Portion 26 Portion 73
SG Code	21 Ditgitkey: NOFS00000000217000104 21 Ditgitkey: NOFS00000000217000330 21 Ditgitkey: NOFS00000000217000085 21 Ditgitkey: NOFS00000000217000086 21 Ditgitkey: NOFS00000000217000089 21 Ditgitkey: NOFS00000000217000162 21 Ditgitkey: NOFS00000000217000001 21 Ditgitkey: NOFS00000000217000002 21 Ditgitkey: NOFS00000000217000003

	21 Ditgitkey: NOFS00000000217000004 21 Ditgitkey: NOFS00000000217000005 21 Ditgitkey: NOFS00000000217000006 21 Ditgitkey: NOFS00000000217000026 21 Ditgitkey: NOFS00000000217000104 21 Ditgitkey: NOFS00000000217000073
Farm name and number	WELLINGTON 2212
Portion number	Portion 13 Portion 57
SG Code	21 Ditgitkey: N0FS00000000221200013 21 Ditgitkey: N0FS00000000221200057

Alternative C2:

Property description/physical address:	
Province	KwaZulu-Natal
District Municipality	uMgungundlovu District Municipality
Local Municipality	Mpofana Local Municipality uMgeni Local Municipality
Ward Number(s)	Ward 2 (Mpofana) Ward 3 (Umgeni)
Farm name and number	SPRINGVALE 2170
Portion number	Portion 112 Portion 113- sub 113 & sub 227
SG Code	21 Ditgitkey: NOFS00000000217000112 21 Ditgitkey: NOFS00000000217000113
Farm name and number	SPRING GROVE 2169
Portion number	Portion 1 Portion 166
SG Code	21 Ditgitkey: N0FS00000000216900001 21 Ditgitkey: N0FS00000000216900166

Alternative C3:

Property description/physical address:	
Province	KwaZulu-Natal
District Municipality	uMgungundlovu District Municipality
Local Municipality	Mpofana Local Municipality
Ward Number(s)	Ward 2
Farm name and number	WELLINGTON 2212
Portion number	Portion 34 Portion 26 Portion 35 Portion 67
SG Code	21 Ditgitkey: N0FS00000000221200034 21 Ditgitkey: N0FS00000000221200026 21 Ditgitkey: N0FS00000000221200035 21 Ditgitkey: N0FS00000000221200067
Farm name and number	CROMPTON FOLD 12474
Portion number	Portion 9

	Portion 2 Portion 3 Portion RE/12474
SG Code	21 Ditgitkey: N0FS00000001247400009 21 Ditgitkey: N0FS00000001247400002 21 Ditgitkey: N0FS00000001247400003 21 Ditgitkey: N0FS00000001247400000
Farm name and number	Rosetta 2983
Portion number	Portion 9 Portion 6 Portion 7 Portion 8 Portion 23 Portion 18
SG Code	21 Ditgitkey: N0FS00000000298300009 21 Ditgitkey: N0FS00000000298300006 21 Ditgitkey: N0FS00000000298300007 21 Ditgitkey: N0FS00000000298300008 21 Ditgitkey: N0FS00000000298300023 21 Ditgitkey: N0FS00000000298300018
Farm name and number	SPRINGVALE 2170
Portion number	Portion 239 Portion 214 Portion 230 Portion 231 Portion 232
SG Code	21 Ditgitkey: N0FS00000000217000239 21 Ditgitkey: N0FS00000000217000214 21 Ditgitkey: N0FS00000000217000230 21 Ditgitkey: N0FS00000000217000231 21 Ditgitkey: N0FS00000000217000232

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative C1 (Preferred Option):

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 C2

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 C3

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

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

Alternative C1 (Preferred Option):

2.1 Ridgeline	X	2.4 Closed valley	X	2.7 Undulating plain / low hills	X

2.2 Plateau		2.5 Open valley	X	2.8 Dune	
2.3 Side slope of hill/mountain	X	2.6 Plain	X	2.9 Seafront	

Alternative C2:

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	X
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain	X	2.9 Seafront	

Alternative C3:

2.1 Ridgeline	X	2.4 Closed valley	X	2.7 Undulating plain / low hills	X
2.2 Plateau		2.5 Open valley	X	2.8 Dune	
2.3 Side slope of hill/mountain	X	2.6 Plain	X	2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative C1 (Preferred Option):		**Alternative C2:**		**Alternative C3:**	
Shallow water table (less than 1.5m deep)	YES X	NO	YES X	NO	YES X	NO
Dolomite, sinkhole or doline areas	YES X	NO	YES X	NO	YES X	NO
Seasonally wet soils (often close to water bodies)	YES X	NO	YES X	NO	YES X	NO
Unstable rocky slopes or steep slopes with loose soil	YES X	NO	YES	NO X	YES X	NO
Dispersive soils (soils that dissolve in water)	YES X	NO	YES X	NO	YES X	NO
Soils with high clay content (clay fraction more than 40%)	YES X	NO	YES X	NO	YES X	NO
Any other unstable soil or geological feature	YES X	NO	YES X	NO	YES X	NO
An area sensitive to erosion	YES X	NO	YES X	NO	YES X	NO

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.). **Please refer to Specialists Reports attached in Appendix D**

4. GROUNDCOVER

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). **Please refer to Specialists Reports attached in Appendix D**

Alternative C1 (Preferred Option):

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

Alternative C2:

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

Alternative C3:

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

G McDonald and D Styles Consulting was appointed to conduct a vegetation assessment (which has been included in Appendix D of the BAR) along the three alternative powerline servitudes for the proposed Spring Grove Tee 88kV powerline to establish an overview of the vegetation that is present and to determine if there were any protected or red data species within the development footprint.

The Nottingham Road and Rosetta area falls within the Grassland biome, with the dominant vegetation found over the development area being Mooi River Highland Grassland and Drakensberg Foothill Moist Grassland. The greater Nottingham Road area (Nottingham Road, Rosetta, and Mooi River) is primarily a farming district, and has been since the early twentieth century, which has led to transformation of the area for agricultural purposes. This has had a heavy impact on the natural vegetation of the area, with the most significant impact being loss of/reduction in natural vegetation areas. Very little natural vegetation occurs within the areas of the proposed activity. (McDonald & Styles; 2013)

The proposed Alternatives run through two recognizable vegetation types based on the classification by Mucina and Rutherford (2006) and modified by Scott-Shaw and Escott (2011) namely Drakensberg Foothill Moist Grassland and Mooi River Highland Grassland. Mooi River Highland Grassland which is restricted to the KwaZulu-Natal Province and comprises of gently rolling landscapes dominated by grassland, in which *Themeda triandra, Heteropogon contortus* and *Tristachya leucothrix* are dominant. The Mooi River Highland Grassland is listed as Vulnerable, with a conservation target of 23%. The Drakensberg Foothill Moist Grassland is considered 'Least Threatened'. (McDonald & Styles; 2013)

Alternative C1:
From the tee-off point for the proposed powerline servitude, the servitude traverses through a large area of heavily-utilised natural pastures until it reaches the R103. At this point it passes over a small gorge with a stream at its base and heavily invaded with alien woody vegetation, and continues once more over habitat transformed by cultivation until it links up with the Spring Grove Substation. (McDonald & Styles; 2013)

Alternative C2:
The natural vegetation along the Alternative C2 servitude has been removed and replaced with natural and cultivated pastures for dairy farming. The only significant points of interest along the Alternative C2 servitude are where the servitude crosses over wetlands areas. Care will have to be taken to keep base elements as far as possible from these wetland areas. A semi-natural area of swampland with *Phragmites australis* below the spill-way of the impoundment on Derek Greens property was noted, with at a smaller impoundment flanked with *Juncus effuses* also traversed. (McDonald & Styles; 2013)

Alternative C3:
From its Tee-off point the Alternative C3 servitude traverses initially through heavily grazed grassland area where forb and geophyte diversity has found to be low, and woody vegetation in the form of *Leucosidea sericea* (Ouhout) is starting to invade/encroach into the area as a result of overgrazing. A limited number of geophytes such as *Boophone disticha* (Bushman Poison Bulb) were identified in this area, once the Alternative C3 crosses the R103 Road the servitude traverses natural and cultivated areas. From the point that the Alternative C3 servitude crosses the road at co-ordinates 29°17'46.20"S 29°57'14.68"E the servitude traverses cultivated or grazed fields until it reaches the Spring Grove Substation site. (McDonald & Styles; 2013)

The following species were identified during the site visit conducted by the Specialist (McDonald & Styles; 2013), and are protected by the KwaZulu-Natal Nature Conservation Act:

- *Boophone disticha* (Bushman Poison Bulb) was encountered in the heavily grazed grasslands at the tee-off point for the Alternative C3 servitude and its occurrence there suggests that it may be found along the other proposed routes.
- *Nerine pancratioides* (Nerine) is found on Spring Grove Farm. Although it was not encountered during the survey, this may be attributable to the time of year. The species inhabits moist grassland and may potentially be found along any of the proposed routes, although the known population on Spring Grove Farm is outside of the proposed Alternative C2 servitude.

Red-listed species seen along the routes include:

- ***Boophone disticha*** with a Red-listing of Declining.
- ***Nerine pancratioides*** with a Red-listing of Vulnerable.
- ***Argyrolobium sericoseminum*** which is endemic to Drakensberg Foothill Moist Grassland.

As noted by the specialist (McDonald & Styles; 2013), the proposed development will not impact on the vegetation so negatively as to reduce the conservation value of the vegetation, however the following potential impacts have been identified:

- Clearance of vegetation cover;
- Alien invasive plants;
- Soil erosion and compaction;
- Pollution and dumping of solid waste:
- Increased risk of fire:
- Environment on project:
- Aesthetic

As per recommendations by the specialist (McDonald & Styles; 2013), the following mitigation measures have been recommended:

- To minimise the loss of sensitive species a 'walk-through' of the approved Alternative should be conducted prior to the construction phase. The 'walk-through' would aim to identify sensitive areas such as wetlands where deviation of the alignment is necessary, or the tower requires re-positioning or where species require translocation, and to assess the permit requirements of the project i.e. permits must be obtained from EKZNW for disturbance to Schedule 12 species;
- The approved Alternative must span all sensitive vegetation areas, and a 32 metre buffer zone enforced between the tower pylons and any wetland areas;
- The approved Alternative should run as close as possible to the existing road/track network to minimize the creation of new access tracks;
- If any vegetation clearing is required for the approved Alternative it must be undertaken in accordance with Eskom Standards, and must be done under the supervision of the Contractor;
- The ECO must monitor construction and ensure that checks are being undertaken at regular intervals to identify areas where erosion is occurring;
- No vegetation/plants may be collected or destroyed on the tower sites, or along the approved Alternative servitude by staff members. Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to collect plants or plant parts from site must be enforced;
- No fires are allowed under any circumstances during construction, the contractor shall have fire-fighting equipment available on all vehicles working on site;
- The ECO must monitor the alien and invasive species programme implemented by the contractor and ensure that it is being implemented throughout the construction and post construction phase.

In conclusion, G McDonald and D Styles Consulting, have concluded that the study area has been heavily transformed through the dense occupation of the area by humans, and the style of subsistence living, heavy grazing of the land, and past land use. The major impacts are likely to be limited to disturbance during construction and to soil compaction and subsequent erosion caused by construction and maintenance vehicles. For this reason it is suggested that the shorter servitude options (Alternative C1 & C2) be given preference over the longer route option (Alternative C3) as they have a lower aesthetic and environmental impact, and require no (or fewer) crossings over rivers and wetlands and require no (or fewer) new access roads and tracks to service them. Access during construction and maintenance should, for the most part, be free of impacts from the environment with the exception of wetland areas (all sites, despite the presence of hygrophilous vegetation, were accessible without incident). These areas, where encountered, can be easily traversed by judicious spanning and left relatively un-impacted be selective placement of base elements. (McDonald & Styles; 2013)

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	**YES X**	NO	UNSURE
Non-Perennial River	YES	**NO X**	UNSURE
Permanent Wetland	**YES X**	NO	UNSURE
Seasonal Wetland	**YES X**	NO	UNSURE
Artificial Wetland	**YES X**	NO	UNSURE
Estuarine / Lagoonal wetland	YES	**NO X**	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Perennial Rivers: 1. Mooi River
Permanent Wetland: Please see attached the Wetland Delineation Assessment Report in Appendix D for all Wetland Areas.
Seasonal Wetland: Please see attached the Wetland Delineation Assessment Report in Appendix D for all Wetland Areas.

Zunckel Ecological & Environmental Services were appointed to conduct a wetland delineation study (which has been included in Appendix D of the BAR) along the three alternative powerline servitudes for the proposed Spring Grove Tee 88kV powerline. In order to negate or mitigate the impacts associated with the construction and maintenance of the transmission lines, it is necessary to determine the distribution of freshwater aquatic habitats within the proposed powerline servitudes identified in the BAR. (Zunckel, 2013)

Four (4) significant wetlands were found and delineated and the aquatic habitats identified by the specialist report and fall into the following categories, channelled valley bottom wetlands, floodplain wetland, seepage slope wetland, and un-channelled valley bottom wetlands. (Zunckel, 2013)

The following potential impacts where identified:

- Loss of wetland habitat and bed/bank modification;
- Water quality impairment;
- Flow modification; and
- Loss of terrestrial and wetland biodiversity;

These impacts can be mitigated against with the implementation of a strategy adopted to avoid, reduce or mitigate potential impacts associated with the development. However due to the majority of the development footprint being suspended above the landscape, the physical disturbance will be limited to the temporal scale with most of the physical disturbance will be associated with the construction.

As per recommendations by the specialist (Zunckel, 2013), the development within the project area with no significant impact on the wetland habitat is feasible provided that:

- The wetland buffer zone and development setback should be established in the identified mapped area, where no construction vehicles should dredge and/or work within 32m of wetland edges for all identified water features.
- If possible, the undertaking of construction should take place during the dry season when development activities are near the rivers and associated wetlands.
- The rehabilitation and re-vegetation of disturbed areas must take place concurrently and/or preconstruction of the proposed development. Only appropriate indigenous riparian vegetation may be used for rehabilitation and re-vegetation within the study area and wetland buffer areas (preferably indigenous plants representative of the region).
- Clearing or felling of all alien invasive trees should take place during construction.
- If clearing of woody debris and hard rubble on site and in the wetland buffer should be undertaken, it should be carried-out without significantly altering the condition and health of the associated water feature.
- The intensity of storm water run-off should be reduced where possible through encouraging permeable paving and surfaces that allow for greater infiltration.
- Any structure within the wetland buffer should as far as possible not disturb the aquatic habitat or alter the flow patterns in the stream. Approval should be obtained from the Department of Water and Environmental Affairs for any such activities.
- Activities that lead to elevated levels of turbidity must be minimised. Bulldozing and the use of other mechanical machinery in the wetland buffer zone should also be prevented within the wetland zones as far as possible.
- Hardened surfaces should be located at least 15 m outside of the outer boundary of the seasonal/permanent wetland zone.
- Where the wetland has a particularly high biodiversity value, further buffering and linkages to other natural areas are likely to be required, the width of which would depend on the specific requirements of the biota. In such cases, a specialist will need to be contacted to determine the appropriate buffer and linkages.
- Roads should not be allowed to traverse a wetland.
- No excavation of the wetland or any stream passing through the wetland (i.e. lowering of the base level) should be permitted.
- During construction, minimise disturbance of the wetland at, and adjacent to, the road crossing site.
- Where a road runs alongside a wetland and it intercepts natural hill slope runoff into the wetland, the road should be set back from the boundary of the wetland by at least 15 m and feed-off points should be included at frequent intervals along the road (at least every 100 m) and the outflows of these should conform to the requirements of the stormwater outflows.
- Stringent controls should be put in place to prevent any unnecessary disturbance or compaction of wetland soils.
- Any development must comply with the requirements of the National Water Act.

Conclusion:

Although all three proposed Alternative powerline servitudes cross wetlands and rivers, the results of the wetland delineation assessments and the associated impact assessment, recommends the Alternative C2 powerline servitude as a preferred option for the proposed Spring Grove 88kV powerline from a Wetland perspective. The motivation for not supporting the Alternative C3 is due to the proposed

development crosses more significant water resources, and that the Alternative C1 is largely untransformed and therefore supports more biodiversity. (Zunckel, 2013)

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that 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:
Alternative C1 (Preferred Alternative):

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	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?

Railway line [N]-The proposed Spring Grove Tee 88kV powerline will have to traverse the Johannesburg-Durban Transnet railway line at co-ordinates 29°18'45.30"S 29°58'48.72"E. As the proposed Spring Grove Tee powerline will span over the railway line and associated infrastructure, no anticipated impacts are expected as a result of the construction of the Spring Grove Tee powerline. The railway line will impact on the Spring Grove Tee powerline as conditions set down by Transnet will have to be implemented and adhered to during the construction and operation of the powerline.

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

Informal Residential[A]- housing is situated approximately 450 metres to the North-West of the Alternative C1 where the Alternative C1 crosses the R103 Road. The informal residential housing will not impact the proposed Spring Grove Tee 88KV powerline development, and no impact on the informal residential housing as a result of the Spring Grove Tee 88kV powerline development will occur.

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Alternative C2:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	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? Specify and explain:

N/A

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Alternative C3:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	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?

Railway line N- The proposed Spring Grove Tee 88kV powerline will have to cross the Johannesburg-Durban Transnet railway line at co-ordinates 29°17'3.63"S 29°59'13.51"E. As the proposed Spring Grove Tee 88kV powerline will span over the railway line and associated infrastructure, no anticipated impacts are expected as a result of the construction of the Spring Grove Tee 88kV powerline. The railway line will impact on the Spring Grove Tee powerline as conditions set down by Transnet will have to be implemented and adhered to during the construction and operation of the powerline.

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

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	**NO X**
Core area of a protected area?	YES	**NO X**
Buffer area of a protected area?	YES	**NO X**
Planned expansion area of an existing protected area?	YES	**NO X**
Existing offset area associated with a previous Environmental Authorisation?	YES	**NO X**
Buffer area of the SKA?	YES	**NO X**

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Alternative C1 (Preferred Alternative):

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 Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	**YES X**	NO X
	Uncertain	
The Heritage Assessment conducted for the proposed Spring Grove 88kV powerline servitude has identified two (2) later Iron Age sites that fall within close proximity to the proposed Alternative C1 servitude.		

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist: **Please refer to Specialists Reports attached in Appendix D**

Frans Prins (Active Heritage cc, 2013) conducted the Heritage Assessment for the new proposed Spring Grove Tee 88kV powerline. Prins notes that the construction of the Alternative C1 servitude should not impact on any of the heritage sites identified within the specialist report attached in Appendix D. This is provided that the mitigation measures outlined in the Specialist Report are implemented, and a buffer of 50 metres is maintained around the two sites identified within close proximity of the Alternative C1 servitude. For the full report please refer to specialists report attached in Appendix D.

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

Alternative C2:

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 Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	**YES X**	NO X
	Uncertain	

The Heritage Assessment conducted for the proposed Spring Grove 88kV powerline servitude has identified a Historical Tree lane that falls within close proximity to the proposed Alternative C2 servitude.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist: **Please refer to Specialists Reports attached in Appendix D**

Frans Prins (Active Heritage cc, 2013) conducted the Heritage Assessment for the new proposed Spring Grove Tee 88kV powerline. Prins notes that the construction of the Alternative C2 servitude should not impact on any of the heritage sites identified within the specialist report attached in Appendix D. This is provided that the mitigation measures outlined in the Specialist Report are implemented, and a buffer of 20 metres is maintained around the historical tree lane identified within close proximity of the Alternative C2 servitude. For the full report please refer to specialists report attached in Appendix D.

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

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

Alternative C3:

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 Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	**YES X**	NO X
	Uncertain	

The Heritage Assessment conducted for the proposed Spring Grove 88kV powerline servitude has identified a Historical Tree lane that falls within close proximity to the proposed Alternative C3 servitude.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist: **Please refer to Specialists Reports attached in Appendix D**

Frans Prins (Active Heritage cc, 2013) conducted the Heritage Assessment for the new proposed Spring Grove Tee 88kV powerline. Prins notes that the construction of the Alternative C3 servitude should not impact on any of the heritage sites identified within the specialist report attached in Appendix D. This is provided that the mitigation measures outlined in the Specialist Report are implemented, and a buffer of 20 metres is maintained around the historical tree lane identified within close proximity of the Alternative C3 servitude. For the full report please refer to specialists report attached in Appendix D.

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

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

Active Heritage cc was appointed to the conduct a Heritage Assessment (which has been included in Appendix D of BAR) for the three alternative powerline servitudes for the Spring Grove Tee 88kV powerline, to determine whether any areas of cultural heritage fall within the proposed development footprint and that would need to be avoided.

The Heritage Assessment conducted by Active Heritage cc identified four heritage features in the general study area, the four heritage sites were identified in close proximity to the proposed powerline servitudes for the Spring Grove Tee 88kV powerline. Heritage sites identified include two (2) Later Iron Age sites, one historical tree lane, and one (1) tree lane. No heritage sites occur in the direct path of the any of the Alternative Spring Grove Tee 88kV powerline servitudes (Active Heritage, 2013)

As per recommendations by the specialist (Active Heritage, 2013), the construction of the proposed powerlines along the Alternative servitudes as identified by the developer may proceed in terms of heritage values under the following conditions:

- Avoid all heritage sites during the construction phase.
- Strictly maintain a buffer zone of at least 50m around all sites.
- All sites within 50m the proposed powerline must be fenced off.
- Strictly maintain a buffer zone of at least 20m around the two (2) tree lanes.
- Should the developer decide to move any of the proposed powerlines closer than 20m to any of the identified heritage sites then a second phase heritage impact assessment should be initiated.
- Should any heritage material or artifacts be located during the construction process then all activities should stop in the immediate vicinity of the site and the local heritage agency Amafa contacted for further evaluation.

Conclusion:

From a heritage perspective the Alternative C1 is the preferred option for the development. It is only 3.3 kms in length and will have the least impact on the altering the sense of place associated with the cultural landscape of the area. Care must be taken to maintain a buffer of 50 metres around the two Iron Age sites that occur to either side of the proposed line. However, there is no archaeological reason why the development may not proceed but attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) and the KwaZulu-Natal Heritage Act (Act No 4 of 2008) which, requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage agency. (Active Heritage cc, 2013)

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

uMngeni Local Municipality: According to the January 2012 Economic Profile for uMngeni Local Municipality states that the uMngeni Local Municipality had an unemployment rate of 17% in 2009, from 2005 to 2007 unemployment was approximately 19% which dropped to 18% during 2007/2008 and decreased again during 2008/2009 to 17%.

Mpofana Local Municipality: 'The Local Government Handbook' states that the level of unemployment is 23.9% within the Mpofana Local Municipality. (http://www.localgovernment.co.za/locals/view/87)

Economic profile of local municipality:

uMngeni Local Municipality: According to the uMngeni Integrated Development Plan draft review report of March 2011, the total Gross Domestic Product for the uMngeni Local Municipality was approximately R632 Million.
(http://www.umngeni.gov.za/index.php?option=com_docman&task=cat_view&gid=53&Itemid=96)

Mpofana Local Municipality: According to the Mpofana Local Municipalities Local Economic Development (LED) Strategic Plan' 07, the Gross Domestic Product by Region (GDP-R) for 2004 (Constant 2000 Prices) was approximately R190 Million. (http://umdm.gov.za/index.php?option=com_docman&task=doc_download&gid=464&Itemid=323.)

Level of education:

uMngeni Local Municipality: 'The Local Government Handbook' states that the level of education for individuals over the age of 20 in the uMngeni Local Municipality is approximately 6.30% with 'No Schooling', 29.40% with some form of 'Higher Education', and 15.10% with a 'Matric'. (http://www.municipalities.co.za/locals/demographics/90)

Mpofana Local Municipality: 'The Local Government Handbook' states that the level of education for individuals over the age of 20 in the Mpofana Local Municipality is approximately 15.20% with 'No Schooling', 25.70% with some form of 'Higher Education', and 5.60% with a 'Matric'. (http://www.municipalities.co.za/locals/demographics/87)

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	**Approximately R35 million**	
What is the expected yearly income that will be generated by or as a result of the activity?	**N/A**	
Will the activity contribute to service infrastructure?	**YES X**	NO

Is the activity a public amenity?	**YES X**	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	**Approximately 10 to 15 new jobs for the duration of the construction.**	
What is the expected value of the employment opportunities during the development and construction phase?	**Not Known at this stage.**	
What percentage of this will accrue to previously disadvantaged individuals?	**100%**	
How many permanent new employment opportunities will be created during the operational phase of the activity?	**N/A**	
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. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Alternative C1:

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	**Other Natural Area (ONA) X**	**No Natural Area Remaining (NNR) X**	

Alternative C2:

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	**Other Natural Area (ONA) X**	**No Natural Area Remaining (NNR) X**	

Alternative C3:

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	**Other Natural Area (ONA) X**	**No Natural Area Remaining (NNR) X**	

b) Indicate and describe the habitat condition on site

Spring Grove 88kV Powerline: Alternative C1

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	**40%**	The Alternative traverses an area of heavily-utilised natural pastures (Mooi River Highland Grasslands) along the first 1600 metres of the servitude, and one wetland area.
Near Natural (includes areas with low to moderate level of alien invasive plants)	**15%**	As the Alternative passes over the R103 Road it traverse a stream where the surrounding area is heavy invaded with woody alien vegetation.
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	**45%**	The reminder of the Alternative traverse areas that have been utilised in the past or currently for cultivation proposes.

Spring Grove 88kV Powerline: Alternative C2

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	**10%**	Two wetland areas have been identified that the proposed Alternative will span.
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by	%	

alien plants)		
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	**90%**	The remainder of vegetation found along this Alternative servitude has been transformed for farming activities, either through the planting of the crops or cultivated pastures for livestock farming.

Spring Grove 88kV Powerline: Alternative C3

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural	**15%**	Nature areas found on the Alternative C3 servitude include two wetland areas, the six (6) Mooi River crossing points, and the area situated around the proposed Tee-Off point for the Alternative.
Near Natural (includes areas with low to moderate level of alien invasive plants)	**5%**	The area around the Tee-Off point is degraded due to the overgrazing, which has resulted in the encroachment of woody vegetation.
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	**80%**	The majority of vegetation found along Alternative C3 servitude has been transformed for farming activities, either through the planting of the crops or cultivated pastures for livestock farming.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Spring Grove 88kV Powerline: Alternative C1

Terrestrial Ecosystems		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable X							
	Least Threatened X	**YES X**	NO	UNSURE	YES	**NO X**	YES	**NO X**

Spring Grove 88kV Powerline: Alternative C2

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened X	**YES X**	NO	UNSURE	YES	**NO X**	YES	**NO X**

Spring Grove 88kV Powerline: Alternative C3

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable X							
	Least Threatened X	**YES X**	NO	UNSURE	YES	**NO X**	YES	**NO X**

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Gs 8 Mooi River Highland Grassland:
Distribution:
KwaZulu-Natal Province: Centre of occurrence in the Mooi River Basin, several scattered large patches near Underberg and Greytown and on the Helpmekaar Plateau southeast of Dundee. Altitude 1 340–1 620 m. (McDonald & Styles; 2013)

Vegetation and Landscape features:
Mainly rolling and partly broken landscape, covered in grassland dominated by short bunch grasses. *Heteropogon contortus, Themeda triandra* and *Tristachya leucothrix* are dominant in well-managed veld. The vegetation type is endemic to KZN and, therefore, of high conservation value. Its status is considered Vulnerable. No endemics or biogeographically important species are listed and the forbs that are present are, in the main, common generalists. (McDonald & Styles; 2013)

Gs 10 Drakensberg Foothill Moist Grassland:
Distribution:
KwaZulu-Natal and Eastern Cape Provinces: Broad arc of Drakensberg piedmonts covering the surrounds of Bergville in the north, Nottingham Road, Impendle, Bulwer in the east, and Kokstad, Mount Currie, Underberg (KZN) and the surrounds of Mt Fletcher, Ugie, Maclear and Elliot (Eastern Cape) in the southwest. Altitude 880– 1 860 m. (McDonald & Styles; 2013)

Vegetation and Landscape features:
Moderately rolling and mountainous, much incised by river gorges of drier vegetation types and by

forest, and covered in forb-rich grassland dominated by short bunch grasses including *Themeda triandra* and Tristachya leucothrix. It should be noted that the study area represents a "dry version of this veld type generally occurring in an adjacent rain-shadow area". Despite the number of biogeographically important and endemic taxa listed for the vegetation type (although the list may not be entirely accurate as *Dioscorea brownii* is not confined to this type), it is considered Least Threatened. (McDonald & Styles; 2013)

Avifauna:
The Endangered Wildlife Trust (EWT) was appointed to conduct a Avifaunal Assessment (which has been included in Appendix D in BAR) for the three alternative powerline servitudes for the proposed Spring Grove Tee 88kV Powerline development to determine the impact the development would have on the avifaunal communities found within the area. The development is situated in a highly sensitive area from an avifaunal perspective due to the presence of all three Crane species, Grey Crowned Crane, Wattled Crane, Blue Crane, as well as the abundance of good bird micro-habitats such as wetlands and cultivated lands.

The primary data source used to determine the distribution and abundance of bird species in the study area was the Southern African Bird Atlas Project data (Harrison *et al*, 1997). This data was collected over an 11 year period between 1986 and 1997. Although it is now quite old, it remains the best long term data set on bird distribution and abundance available to us at present. A total of 24 Red Data species have been recorded during the 11 year period for the development area, and comprises of 1 Critically Endangered, 1 Endangered, 9 Vulnerable and 13 Near-threatened species. The white Stork, which is not listed, but is protected internationally through the Bonn Convention on Migratory species, was also recorded. The most important of these species for this study are *the Wattled Crane, Blue Crane, Grey-crowned Crane, Denham's Bustard, Southern Bald Ibis, Secretary bird, Cape Vulture, and White Stork*. These species are historically all reasonably abundant in the area which has micro-habitat elements that may attract them, and/or are vulnerable to impacts associated with overhead power lines in South Africa. (Pearson, EWT, 2013)

The Avifauna Assessment found that the proposed development is not situated in any Important Bird Area (IBA), however a portion of KwaZulu-Natal Mistbelt Forests is situated approximately 8km east of the Spring Grove Substation site and it is conceivable that certain bird species could move between this IBA and the site study area. (Pearson, EWT, 2013)

Negative interactions between wildlife and electricity structures take many forms, but two common problems in Southern Africa are electrocution of birds and birds colliding with power lines. In general, large, heavy flying birds are more vulnerable to collision with over-head powerlines, while perching Raptors are more vulnerable to electrocution. Other problems are electrical faults caused by bird excreta when roosting or breeding on electricity infrastructure, and disturbance and habitat destruction during construction and maintenance activities. (Pearson, EWT, 2013)

The specialist has cited collisions as the biggest single threat posed by transmission lines to birds for this development. In general, large transmission lines with earth wires that are not always visible to birds, can have the largest impact in terms of collisions. Most heavily impacted upon are korhaans, bustards, storks, cranes and various species of water birds. These species are mostly heavy-bodied birds with limited manoeuvrability, which makes it difficult for them to take the necessary evasive action to avoid colliding with powerlines. Unfortunately, many of the collision sensitive species are considered threatened in Southern Africa. The Red Data species vulnerable to powerline collisions are generally long living, slow reproducing species under natural conditions. Some require very specific conditions for breeding, resulting in very few successful breeding attempts, or breeding might be restricted to very

small areas. Collisions with the proposed powerline of certain large flying bird species such as Blue Crane, Grey-Crowned Crane, Black Stork, and Southern Bald Ibis is a possibility. (Pearson, EWT, 2013)

The Avifaunal Assessment has assessed the three proposed Spring Grove Tee 88kV powerline alternatives, and due to its length, the number of river crossings required, the proximity to wetlands and known Crane Roosts, and the microhabitats that it will cross, the Alternative C3 servitude has been classified as ***"NO-GO"*** as it has been assessed that this Alternative will have a significant impact on avifauna. The specialist states, the most effective form of mitigation for collision of avifauna for the development would be to construct the proposed Alternative C1 servitude, as it has been rated as the preferred Alternative from an avifaunal perspective.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	**Isolezwe Newspaper**	
Date published	19th of February 2013	
Publication name	**Estcourt and Midlands News**	
Date published	22nd of February 2013	
Publication name	**Village Talk Newspaper**	
Date published	20th of February 2013	
Publication name	The Natal Witness	
Date published	21st of February 2013	
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'16.16"S	29°59'53.38"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'44.65"S	30° 0'12.81"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'12.72"S	29°59'48.15"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'12.19"S	29°59'47.21"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'17.60"S	29°59'44.19"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'26.77"S	29°59'49.32"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'30.69"S	29°59'35.60"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'28.66"S	29°59'38.98"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'28.42"S	29°59'36.46"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°21'5.74"S	29°59'27.06"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°19'16.92"S	29°58'22.24"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°18'23.63"S	29°58'37.82"E
Site Notice Position:	**Latitude**	**Longitude**

English & Zulu	29°18'17.82"S	29°58'35.30"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°18'14.92"S	29°58'42.70"E
Site Notice Position: English & Zulu	**Latitude**	**Longitude**
	29°18'58.37"S	29°59'0.51"E
Date placed	20th of February 2013	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	**Affiliation/ key stakeholder status**	**Contact details (tel number or e-mail address)**
Colin Regnard	Landowner (Alternative 1)	Colinr3@telkomsa.net
James Berning	Landowner (Alternative 1)	springvale@bundunet.com
Mr. Jeff Scrooby	Landowner (Alternative 1)	jeff.scrooby@transnet.net
Chris & Sue Coetzer	Landowner (Alternative 1)	marrakesh@dillon.co.za
R103-Road Reserve (KZN Transport)	Landowner (Alternative 1)	N/A
Janet Flowers	Landowner (Alternative 1)	flowers@lantic.net
Tim McSeveney	Landowner (Alternative 2)	timmc@live.co.za
Allen Charmicheal / Merewyn de Heer	Landowner (Alternative 2)	allanc@macs.co.tz; ne@heloow.co.za;
D.R. Greene	Landowner (Alternative 2)	Dunira@futurenet.co.za
Mark Ellis	Landowner (Alternative 2)	ellis@bundunet.com
Essop Jadwart / Mohammed and Nasima	Landowner (Alternative 3)	zoeblu@hotmail.com
Mr. Jeff Scrooby	Landowner (Alternative 3)	jeff.scrooby@transnet.net
Tim Snow	Landowner (Alternative 3)	snowman@bundunet
Brandon / Glynis Karg	Landowner (Alternative 3)	karg@bundunet.com
Alan Stratford	Landowner (Alternative 3)	devonfarm@telkomsa.net
Steven Morris	Landowner (Alternative 3)	stevenmorris@vodamail.co.za
Adrian Jack & Wendy Wilson	Landowner (Alternative 3)	a.wilson@intekom.co.za / tamakwa@intekom.co.za
Andew Davies	Landowner (Alternative 3)	daviesab@gmail.co.za
Peter Scott	Landowner (Alternative 3)	shonalangacottages@telkomsa.net / pscott@customsservices.co.za
Brett Scott	Landowner (Alternative 3)	bscott@customsservices.co.za
Ann Burke/ Andrew	KZN Crane Foundation	burkekzncranefoundation@gmail.com/ andrew@enviroplan.co.za
Ann Robinson (Secretary)	Gowrie Village Home Owners Assoc	afreed@saol.com
Duncan Price	GOWRIE FARM HOMEOWNERS'	gowriegolfbookings@gmail.com

	ASSOCIATION	
R. Bates	Nottingham Road Landowners Ass-Chairmen	richard@fordoun.com
Peter. L. Greene	Nottingham Road Landowners Association- TCTA Representative	greene@futurenet.co.za
Ms J. O'Neill	Nottingham Road Landowners Association-Secretary	nrla@bundunet.com
Jonathan.P. Parkinson	Mziki Homeowners Association	jonathan@fresheye.co.za
John Zelenka	Rosetta Ratepayers Association	johnz@iafrica.com
J. L. Wetton	Rosetta Ratepayers Association	johnwetton@mtnloaded.co.za
Stewart N. Winckworth	Vaalkop Ratepayers Association	winckworth@lantic.net
Libbey	Mooi River Farmers Association	mrfarmers@lantic.net
Carmen Moller	Riverside Cottages	riverside@vodamail.co.za
Scott Aldridge	MillsFitchet	scotta@millsfitchet.co.za
Mr Venables	Private	avenables@telkomsa.net
Lesly Kosh	Neighbouring property Alternative 1	info@midlandsgardencentre.co.za
R Naidu	Neighbouring property Alternative 1	033 3860600
Lani Flowers	Neighbouring property Alternative 1	See Appendix E for proof of notification
Douglas Robinson	Neighbouring property Alternative 1	doug@dsrconsulting.co.za
MFEZI TRUST-TRUSTEES	Neighbouring property Alternative 1	dvlee@mweb.co.za
Liz & John McBrearty.	Neighbouring property Alternative 1	033 267 7321
Phoebe Carnegie	Neighbouring property Alternative 1	See Appendix E for proof of notification
Flint Keith Graham	Neighbouring property Alternative 1	keithf@flintcon.co.za
Mark Bradford	Neighbouring property Alternative 1	mark.bradford@eu.jll.com markbradfb@gmail.com
Donald Errol Terblanche	Neighbouring property Alternative 1	penny.pets@gmail.com
Peter Louis Warren	Neighbouring property Alternative 1	033 267 7050
Mr Welsh	Neighbouring property Alternative 1	littlemilton@mweb.co.za
Frank Swindon	Neighbouring property Alternative 1	swindon@telkomsa.net
Murray Mackay	Neighbouring property Alternative 2	See Appendix E for proof of notification
Rolf Scheepers van Niekerk	Neighbouring property Alternative 2	See Appendix E for proof of notification
No Information on Owner	Neighbouring property Alternative 2	See Appendix E for proof of notification
D. R. Greene	Neighbouring property Alternative 2	Dunira@futurenet.co.za
Monty Brett	Neighbouring property Alternative 2	monty@montybrett.com; tim@montybrett.com
Andrew Williams	Neighbouring property Alternative 2	iz@slurrytech.co.za
Anthony Will	Neighbouring property Alternative 2	033 267 7416
Neil/ Barbara Millican	Neighbouring property Alternative 2	barmi@telkomsa.net; milli@bundunet.com
Tim Williamson	Neighbouring property Alternative 2	tim.williamson@standardbank.co.za
Leon Grobelaar	Neighbouring property Alternative 2	leong@fairfield.co.za
Brian Mennell	Neighbouring property Alternative 2	brianmennell@yahoo.co.uk

Norman Meyer	Neighbouring property Alternative 2	meyersgang@absamail.co.za
C N R LOGISTICS CC	Neighbouring property Alternative 2	See Appendix E for proof of notification
ROSETTA SR-CC	Neighbouring property Alternative 2	See Appendix E for proof of notification
HOTTI JOSIP	Neighbouring property Alternative 3	See Appendix E for proof of notification
RSA	Neighbouring property Alternative 3	See Appendix E for proof of notification
ROBINSON FIONA	Neighbouring property Alternative 3	See Appendix E for proof of notification
No Information on Owner	Neighbouring property Alternative 3	See Appendix E for proof of notification
Graham & Shirley Lister	Neighbouring property Alternative 3	goldenharvest@bundunet.com
J Buss	Neighbouring property Alternative 3	See Appendix E for proof of notification
Adrian & Wendy Wilson	Neighbouring property Alternative 3	a.wilson@intekom.co.za or tamakwa@intekom.co.za
Colin Hardy	Neighbouring property Alternative 3	ozonefire@telkomsa.net
Angus Stuart & Candice Jane Hart	Neighbouring property Alternative 3	See Appendix E for proof of notification
ORTNER RENA	Neighbouring property Alternative 3	See Appendix E for proof of notification
MILLER LAURA	Neighbouring property Alternative 3	jamesmiller@telkomsa.net; whitecottagebooks@telkomsa.net
Mr Andrew Davies	Neighbouring property Alternative 3	davies@gmail.com
Daniel Robin Parsons	Neighbouring property Alternative 3	robparsons@telkomsa.net
BIG 5 FALSE BAY MUNICIPALITY	Neighbouring property Alternative 3	See Appendix E for proof of notification
Szilvia Marks	Neighbouring property Alternative 3	See Appendix E for proof of notification
JOLO FARMING TRUST-TRUSTEES Mr. John Wetton	Neighbouring property Alternative 3	John.wetton@za.ey.com
Mr. Henk Groenewald	Neighbouring property Alternative 3	twinslogistics@lantic.net
Ms. A. M. Engelbrcht	Neighbouring property Alternative 3	ali@alicats.co.za/ 033 263 2020
Mr. Andrew Morkel	Neighbouring property Alternative 3	Andrew@digitalsky.co.za
Mr. Peter Scott	Neighbouring property Alternative 3	shonalangacottages@telkomsa.net / pscott@customsservices.co.za
Brett Scott	Neighbouring property Alternative 3	bscott@customerservices.co.za

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or

- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Please See Appendix E3 for Full Comments and Response regarding the BAR

Summary of main issues raised by I&APs	Summary of response from EAP

4. COMMENTS AND RESPONSE REPORT

Please See Appendix E3 for Full Comments and Response regarding the BAR

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR 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 the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
AMAFA	P. Bernadet	033 394 6543		Bernadetp@amafapmb.co.za	
Ezemvelo KZN Wildlife	Dineshrie Thambu	033 8451425		thambud@kznwildlife.com	
WESSA	Carolyn Schwegman	033 201 3126		afromatz@telkomsa.net	
WESSA	J. Taylor	033 330 3931		jt@wessa.co.za	
WESSA	B. Mckelvey	031 201 3126		conservation@wessakzn.org.za	
DAFF	Thobani/Wiseman			wisemanr@daff.gov.za; WisemanR@nda.agric.za; wfourie@deat.gov.za	
DWA	M. Maharaj-Acting Assistant Director	031 336 2750		thakurdinm@dwa.gov.za	
DWA	K. Bester-DWA Options Analysis	012 336 8071		BesterK@dwa.gov.za	
Bird Life South Africa	Carolyn AhShene ver Doorn	011 789 1122		advocacy@birdlife.org.za	
KZN DAEA	Ian felton- Assistant Manager: Environmental Planning	033 347 1820		ian.felton@kzndae.gov.za	
uMgungundlovu District Municipality,	Mr Sibusiso Mjwara	033 8976700		sbumj@umdm.gov.za	
Umngeni Local Municipality	Marc Hattingh-Town Planning Technician and Acting	Cellphone: 082 457 2389 Landline: (033)	(033) 330 2965	hattingm@umngeni.gov.za	

	Environmental Management Officer	239 9261			
Mpofana Local Municipality	Sandile Makhaya/ Mario Links	033 2637700		sandile.makhaya@mpofana.gov.za / mariolinks@yahoo.com	
Transnet	Mr. Jeff Scrooby			jeff.scrooby@transnet.net	
Department of Transport	B. Mackenzie-Department Manager	033 387 2320		blake.mackenzie@kzntransport.gov.za	
Department of Transport	W. Bennett-Head of Department	033 355 600		wally.bennett@kzntransport.gov.za	
KZN Department of Transport	Mr R Ryan	033 355 0570			
Eskom S O C Ltd	Sindisiwe Ncwane	Cellphone: 082 042 2047 Landline: 031 710 5792		NcwaneST@eskom.co.za	
uMngeni Local Municipal Ward Councillor 3	Zondi James Mthukuthel				
Mooi Mpofana Local Munipal Ward Councillor 2	Dladla Zwelithini Alson				

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation 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. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.
Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

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. 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

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts 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. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Table Impact Rating System:

Low	1
Low to Medium	2
Medium	3
Medium to High	4
High	5

Please noted there will be no direct, indirect and cumulative impacts as a result of the planning and design phase of this development as such they have not been included, the decommissioning and closure of the powerline development will not occur as the powerline is a critical component of MMTS-2 and UW developments. Therefore impacts relating to the closure/decommissioning have not been included in this table but have been included in full impact table in Appendix F.

Construction of the new proposed Spring Grove Tee 88kV Powerline:			
Alternative C1 (Preferred Alternative):	***Direct impacts:***		
	1. Interruption or damage to services (electricity, water etc).	Low (1)	This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance
	2. The onsite erosion of exposed soil before rehabilitation is completed.	Low to Medium (2)	The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. Only vegetation that is required to be removed for the construction of tower sites must be removed in a phased and controlled manner. Traffic and movement over stabilised areas must be restricted and

			controlled, and damage to stabilised areas must be repaired and maintained.
	3. Generation of dust caused by construction vehicles moving over exposed soil.	Low (1)	Dust control must be implemented throughout the construction phase.
	4. Risk of alien invasive encroachment into disturbed areas.	Low (1)	The establishment or spread of alien plant species in the powerline servitude and tower sites must be monitored and the correct removal and disposal of alien plant species must be followed. Rehabilitation of tower sites must commence as soon as construction activities are completed.
	5. Damage and removal of existing vegetation for the construction of the Spring Grove 88kV powerline Alternative C1 and tower sites.	Low (1)	A Vegetation Assessment (Appendix D) undertaken by McDonald & Styles Consulting, has assessed the 'clearance of vegetation cover' for the Alternative C1 servitude as 'Low'. Workers must be educated on minimizing damage to vegetation during construction of powerline. Each tower site for the Alternative C1 powerline will require that an area of 20mX20m have bush clearing conducted to be removed all small shrubs, bushes, and trees from the site. Grass/vegetation must only be removed from those areas where the tower foundations for the pylons will be excavated, this vegetation may be removed in a phased and controlled manner (approximately 16m^2 of vegetation for each tower). Due to the area that Alternative C1 servitude traverses being made up of Drakensberg Foothill Moist Grassland and Mooi River Highland Grassland, the powerline servitude for the Alternative C1 will not require that the area directly below the powerline to be kept clear of indigenous trees and other vegetation that could interfere with the powerline. The removal of exotic trees (i.e. Pines and Gums) must be undertaken by a suitable qualified specialist, and the wood made available to the landowner should he/she request it. The removal of vegetation for the proposed tower sites and powerline must be conducted by a

			bush clearing specialist to insure that the damage to vegetation is minimized. Indiscriminate clearing of vegetation must be avoided and only those areas directly affecting the construction site may be removed. The Rehabilitation of disturbed areas will be undertaken on completion of the project.
	6. Poaching/Hunting/Fishing/ of wildlife and collecting of plants by construction workers.	Low (1)	Hunting or poaching must be prohibited. During construction, guidelines set out by the ECO must be followed to ensure no potential impacts occur. No vegetation/plants may be collected or destroyed by staff members. Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to poach/hunt/fish/ or collect plants or plant parts from site must be enforced.
	7. Loss of land due to Spring Grove powerline requiring new servitudes	Medium (3)	This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. The registered servitude will allow for the construction of the powerline on the landowners property, and states the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitudein accordance with the Expropriation Act No 63 of 1975.
	8. Improper storage and disposal of solid waste.	Low (1)	All solid waste generated during the construction process must be placed in a designated waste collection area within the Construction Camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins. All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered.
	9. Littering around the	Low	Littering must not be permitted on the

	site.	(1)	site and general housekeeping must be enforced. General waste bins must be readily available for litter disposal and general housekeeping.
	10. Improper disposal of rubble i.e. burying or neglecting building rubble resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.	Low (1)	All excess material and rubble must be removed from the construction site so not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained. Site workers must be trained in avoiding such impacts. Safe disposal certificates must be kept on record.
	11. Lack of toilet facilities resulting in unsanitary conditions.	Low (1)	Adequate toilet facilities must be provided for all staff members as standard construction practice. Safe disposal certificates must be kept on record.
	12. Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment.	Low (1)	The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
	13. Improper storage of hazardous waste i.e.: used oils from vehicles, old cement bags.	Low to Medium (2)	Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses, water bodies, wetlands or drainage lines and the surrounding environment.
	14. Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	Low (1)	Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). The construction must be monitored by an ECO who must monitor compliance with the construction EMPr. All precautions must be taken to ensure that noise generation is kept to a minimum. If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event.
	15. Emissions generated from construction vehicles.	Low (1)	The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities and the environment. This impact is only

			relevant during the construction phase. The construction vehicles used must be regularly maintained to ensure that excessive emissions are controlled.
	16. Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining operations causing significant environmental damage.	Low (1)	All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO e.g. mined material such as stone must only be obtained from permitted quarries.
	17. Speeding vehicles resulting in safety issues for surrounding community and their livestock.	Low to Medium (2)	Speeding must be prohibited. Construction vehicles must travel slowly along the roads to the tower sites and must adhere to all traffic laws. Construction vehicles must not be permitted to park for extended periods of time on the roads or on road verges where they can block the roads and accesses. Flagmen must be kept in attendance to control traffic where road disruption is most likely.
	18. Positive impact - Potential temporary employment during the construction phase	N/A	Positive impact no mitigation required.
	19. Unearthing and damage to items of cultural or historical significance.	Low (1)	A Heritage Impact Assessment has been conduct for the proposed development (Appendix D), the Alternative C1 will not impact on any heritage resources provided that a 50 metre buffer is maintained around all heritage resources and a fence is erected to demarcate the position of heritage resources. Should any heritage resources be uncovered during construction, AMAFA Heritage KZN must be contacted immediately.
	20. Risk of contamination of soil and stormwater during concrete mixing.	Medium (3)	Hazardous material storage areas must not be within 100m from a stream/drainage line, wetland, river or local residential homesteads. Designated concrete/cement mixing areas and storage areas for all

			hazardous materials must be assigned prior to construction and must be stored within the construction site camp. Cement/concrete mixing must take place on a hard surface or on cement mixing trays. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
	21. Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil, drainage lines, wetlands, and surrounding environment.	Low to Medium (2)	Any hazardous or dangerous goods utilized during the construction phase must be stored on an impermeable surface that is bunded, fenced, locked and covered. A spill kit must be available within the construction camp and must be clearly marked and visible when utilizing hazardous or dangerous materials to ensure the repaid containment of the spill. Each construction vehicle used in the construction of Spring Grove Tee 88kV powerline must have a spill kit stored on board at all times. Spill kits must be regularly checked and maintained.
	22. Degradation and Contamination of the drainage lines, wetlands, and surrounding environment by cement and other hazardous materials.	Low to Medium (2)	Environmentally sensitive areas (i.e. the drainage lines, streams, wetlands) must be avoided where possible. Site workers must be trained in avoiding impacts in areas of potential concern (e.g. stream banks). No towers for the powerline may be constructed within 32 metres of a wetland area or riparian habitat. Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of this BAR. The Contractor must submit a method statement to the Residential Engineer (RE) for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and

			sedimentation control measures, surface water flow diversion, reinstatement, etc. Hazardous material storage areas must not be within 100m from a stream/drainage line or local residential homesteads. Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction camp. Cement/concrete mixing must take place on a hard surface or on cement mixing trays. Cement/concrete mixing must not be permitted to occur where run-off can enter storm water drains, watercourses, water bodies, wetlands or drainage lines. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
	23. Poor stormwater management during construction can lead to erosion and loss of soil.	Low (1)	Stormwater control must be instituted during the construction of the towers for the powerline; however this is a temporary impact of the proposal. A drainage system must be established for the construction camp. The drainage system must be regularly checked to ensure the unobstructed flow of water. The contractor must ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion and must take adequate steps to ensure that the amount of stormwater is not significantly increased and can be appropriately dealt with. The designated responsible person on site (usually the contractor) must ensure that no construction work takes place before adequate stormwater control measures are in place.
	24. Erosion of stockpiled material (stone, sand and gravel).	Low (1)	Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. All activities must be managed through the site-specific EMPr

			(Appendix F) and monitored by an ECO.
	25. Impacts on watercourses, water bodies or drainage lines.	Low (1)	No towers for the powerline may be constructed within 32 metres of or within a wetland area or riparian habitat. Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. No dumping must be allowed into any watercourse, drainage lines or water bodies. Site staff shall not be permitted to use the stream or natural water source adjacent to the construction of the tower sites for the purposes of bathing, washing of clothing or for any construction related activities. Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc.
	26. Bird collision with overhead powerlines, Impact on Red Data and other species	Low (1)	The Avifaunal Assessment conducted by the EWT has identified the Alternative C1 as being the preferred Alternative from an Avifaunal perspective. As per the recommendations by the specialist, Endangered Wildlife Trust, the effect of this proposed development on the local avifauna can be kept to an acceptable level if the appropriate steps are taken, the following recommendations have been made: Mark the identified sections of powerline with anti-collision marking devices on the earth wire to increase the visibility of the line and reduce likelihood of collisions. Marking devices should be spaced 10m apart. The sections of line that pose a concern and require marking should be finalised by an avifaunal specialist in a site "walkthrough" once final route is decided and towers/pylons pegged.

	27. Bird electrocution, Impact on Red Data and other species	Low (1)	The 131 (Single-Circuit) and 132 (Double-Circuit) tower alternatives for this proposed development are both classified as 'Bird Friendly' and are steel lattice tower structures. The distance between the cross arm and cable conductor for both tower Alternatives are more than 2 metres. Eskoms approved 'bird perch guards' must be fitted to the top of each tower used in the Spring Grove Tee 88kV powerline.
	28. Disturbance of birds, Impact on Red Data and other species	Low (1)	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. Sensitive zones described elsewhere in this report, should be avoided where possible. It is difficult to mitigate properly for this as some disturbance is inevitable. During construction, if any of the "Focal Species" identified in this report are observed to be roosting and/or breeding in the vicinity of the Alternative C1 servitude, the EWT is to be contacted for further instruction.
	29. Destruction or alteration of bird habitat, Impact on Red Data and other species	Low (1)	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable.
	30. Visual Impact of the powerline during operations.	Low to Medium (2)	The position of Alternative C1 powerline should not significantly impact on the aesthetics of the area. However this cannot be mitigated against due to the nature of the development, anything placed on the powerlines and towers to try increase the aesthetics would decrease the powerlines ability to function. The Heritage Specialists has stated in his report for the proposed Spring Grove 88kV powerline development that the Alternative C1 servitude will have the least impact on the altering the sense of place associated with the cultural landscape of the area. (Heritage Active cc, 2013)
	31. Impact on landowners.	Medium (3)	The Alternative C1 servitude traverses five (5) private landowners and two (2) other landowners in the form of

			Transnet and the Department of Transport. The properties owned by Mr Coetzer and Mr Regnard, both are currently being or have been subdividing their properties to sell to future residents. The Alternative C1 servitude will not directly impact on the sub-divided properties, Mr Coetzers properties are situated more than 100 metres away from the powerline servitude and the Alternative C1 servitude crosses on the boundary of one of the subdivided plots of Mr Regnard and will have no tower sites situated on it. Mr Coetzer is concerned that future buyers for his subdivided properties will be put off from purchasing the properties due to the powerline. Appendix J: Additional Information, Figure 1, shows the aerial photograph of the properties in question, both properties look North with a direct view of the R103 Road and Transnet Railway line. The Alternative C1 powerline will be visible from both properties, however due to the existing visual impacts associated with the R103 and Railway line. The proposed Alternative C1 servitude should not significantly increase the visual impact experienced by the properties and therefore should not advisedly impact on the chances of future residents purchasing the properties. Mr Regnard is concerned that the future buyers for his subdivided properties will be put off from purchasing the properties due to the powerline. Appendix J: Additional Information, Figure 2, shows the aerial photograph of the properties in question. As the image shows the properties look South and South-West and will see the powerline conductors of the Alternative C1 servitude. However, the tower situated on Mr Regnards' property should not be visual due to the Pine trees and buildings situated on the farm shielding the tower from view. The proposed Alternative C1 servitude will increase the visual impact experienced

			by the properties, however not to the extent that it would stop future residents purchasing the properties. There will be no impact on the R103 and Transnet railway line as a result of the Alternative C1 powerline servitude. The impact of the Alternative C1 servitude on the private landowners has been rated as 'Medium', this is due to the current land-use of the landowners that the servitude traverses being cultivated land for grazing livestock, or vacant/not in use. The powerline should not adversely impact on the landowners abilities to farm once constructed.
	32. Impact on Neighbouring properties.	Medium (3)	The only direct impact to neighbouring properties as a result of the Alternative C1 powerline servitude will be in the form of a visual impact of the powerline during construction, and operational phase. This cannot be mitigated against due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function. Approximately 10 properties may be able to see the Alternative C1 powerline once constructed during its operational phase. Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However over time the towers and cable conductors' will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. It must also be noted that there are numerous existing powerlines that traverse the greater Nottingham Road area, and given time the community will become acclimatize to the powerlines.
	33. Soil compaction due to construction machinery.	Low (1)	Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. This will be controlled through the EMPr which has been created for the development. The Rehabilitation of disturbed areas will be

			undertaken on completion of the project.
	Indirect impacts:		
	1. Potential for waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.	Low (1)	Waste must be classified prior to being disposed of. A registry of all waste that is removed from the construction site must be maintained. Safe disposal certificates must be from landfill sites and kept on record.
	2. Disruption to road services if construction activities accidentally affect the roads.	Low (1)	Flagmen must be kept in attendance to control traffic where road disruption is most likely. Remediation of the road/s must be undertaken immediately by the contractor to ensure that disruption is kept to a minimum.
	Cumulative impacts:		
	1. Increase in waste being sent to landfill.	Low (1)	Cannot be completely mitigated. All waste generated during construction must be recycled where possible. Staff members must be trained on limiting waste and the importance of recycling.
	2. Positive Impact- Providing infrastructure to enable future development within the region.	N/A	No mitigation required.
	3. Permanent loss of open space and grazing land adding pressure to alternative open space areas, leading to increased degradation and loss of indigenous fauna and flora.	Low (1)	The proposed Alternative C1 servitude will not result in a permanent loss of open space, as the majority of the development is suspended above the landscape in the form of powerlines. Fauna will be disturbed during construction activities however once construction has been complete, will be able to return to the site. There will be a loss of flora as a result of the development, however mitigation measures provided will limit the loss of flora as a result of the development. Given time flora will re-established in those areas that were required to be cleared for the development. Landowners will still be able to utilised the land below the powerline for grazing proposes.
	4. Increase safety risk due to aircraft collisions with powerlines during operation.	Low (1)	The Alternative C1 servitude traverses cultivated land for grazing livestock, or vacant/not in use. It is therefore unlikely that an aircraft would collide with the Alternative C1 powerline, as pastures

			used to graze livestock are not 'dusted' by crop dusting aircraft. The potential for an aircraft to collide with the Alternative C1 powerline as a result of its construction has been rated at 'Low'.
Total:	**51**		

Construction of the new proposed Spring Grove Tee 88kV Powerline:			
Alternative C2:	***Direct impacts:***		
	1. Interruption or damage to services (electricity, water etc).	Low (1)	This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance
	2. The onsite erosion of exposed soil before rehabilitation is completed.	Low to Medium (2)	The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. Only vegetation/crops that are required to be removed for the construction of tower sites must be removed in a phased and controlled manner. Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained.
	3. Generation of dust caused by construction vehicles moving over exposed soil.	Low (1)	Dust control must be implemented throughout the construction phase.
	4. Risk of alien invasive encroachment into disturbed areas.	Low (1)	The establishment or spread of alien plant species in the powerline servitude and tower sites must be monitored and the correct removal and disposal of alien plant species must be followed. Rehabilitation of tower sites must commence as soon as construction activities are completed.
	5. Damage and removal of existing vegetation and agriculture for the construction of the Spring Grove 88kV powerline Alternative	Low (1)	A Vegetation Assessment (Appendix D) undertaken by McDonald & Styles; Consulting has assessed the 'clearance of vegetation cover' for the Alternative C2 servitude as 'Low'. Workers must be educated on minimizing damage to vegetation/crops during construction of

	C2 and tower sites.		powerline. Each tower site for the Alternative C2 powerline will require that an area of 20mX20m have bush clearing conducted to be removed all small shrubs, bushes, trees, and agriculture from the site, grass/agriculture must only be removed from those areas where the tower foundations will be excavated. Due to the area that Alternative C2 servitude traverses being made up of Drakensberg Foothill Moist Grassland and agriculture areas of Derek Greene's property, the powerline servitude for the Alternative C2 will not require that the area directly below the powerline kept clear of vegetation. The removal of vegetation for the proposed tower sites and powerline must be conducted by a bush clearing specialist to insure that the damage to vegetation is minimized. Indiscriminate clearing of vegetation must be avoided and only those areas directly affecting the construction site may be removed. The Rehabilitation of disturbed areas will be undertaken on completion of the project.
	6. Poaching/Hunting/Fishing/ of wildlife and collecting of plants by construction workers.	Low (1)	Hunting or poaching must be prohibited. During construction, guidelines set out in the EMPr must be followed to ensure no potential impacts occur. No vegetation/plants may be collected or destroyed by staff members. Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to poach/hunt/fish/ or collect plants or plant parts from site must be enforced.
	7. Loss of land due to Spring Grove powerline requiring new servitudes.	Medium (3)	This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. The registered servitude will allow for the construction of the powerline on landowners properties, and states the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitude, and

			will be paid out at currently land value rates.
	8. Improper storage and disposal of solid waste.	Low (1)	All solid waste generated during the construction process must be placed in a designated waste collection area within the Construction Camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins. All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered.
	9. Littering around the site.	Low (1)	Littering must not be permitted on the site and general housekeeping must be enforced. General waste bins must be readily available for litter disposal and general housekeeping.
	10. Improper disposal of rubble i.e.: burying or neglecting building rubble resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.	Low (1)	All excess material and rubble must be removed from the construction site so not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained. Site workers must be trained in avoiding such impacts. Safe disposal certificates must be kept on record.
	11. Lack of toilet facilities resulting in unsanitary conditions.	Low (1)	Adequate toilet facilities must be provided for all staff members as standard construction practice. Safe disposal certificates must be kept on record.
	12. Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment.	Low (1)	The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
	13. Improper storage of hazardous waste i.e.: used oils from vehicles, old cement bags.	Low to Medium (2)	Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses, water bodies, wetlands or drainage lines and the surrounding environment.

	14. Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	Low (1)	Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). The construction must be monitored by an ECO who must monitor compliance with the construction EMPr. All precautions must be taken to ensure that noise generation is kept to a minimum. If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event.
	15. Emissions generated from construction vehicles	Low (1)	The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities and the environment. This impact is only relevant during the construction phase. The construction vehicles used must be regularly maintained to ensure that excessive emissions are controlled.
	16. Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining operations causing significant environmental damage.	Low (1)	All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO e.g. mined material such as stone must only be obtained from permitted quarries.
	17. Speeding vehicles resulting in safety issues for surrounding community and their livestock.	Low to Medium (2)	Speeding must be prohibited. Construction vehicles must travel slowly along the roads to the substation site and must adhere to all traffic laws. Construction vehicles must not be permitted to park for extended periods of time on the roads or on road verges where they can block the roads and accesses. Flagmen must be kept in attendance to control traffic where road disruption is most likely.
	18. Positive impact - Potential temporary employment during the construction	N/A	Positive impact no mitigation required.

	phase		
	19. Unearthing and damage to items of cultural or historical significance.	Low (1)	A Heritage Impact Assessment has been conducted for the proposed development (Appendix D), the Alternative C2 will not impact on any heritage resources provided that a buffer of 20 metres is maintained around the historical tree lane identified within close proximity of the Alternative C2 servitude. Should any heritage resources be uncovered during construction, AMAFA Heritage KZN must be contacted immediately.
	20. Risk of contamination of soil and stormwater during concrete mixing.	Medium (3)	Hazardous material storage areas must not be within 100m from a stream/drainage line, wetland, river or local residential homesteads. Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. Cement/concrete mixing must take place on a hard surface or on mixing trays. In addition cement/concrete and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
	21. Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil, drainage lines, wetlands, and surrounding environment.	Low to Medium (2)	Any hazardous or dangerous goods utilized during the construction phase must be stored on an impermeable surface that is bunded, fenced, locked and covered. A spill kit must be available on site and must be clearly marked and visible when utilizing hazardous or dangerous materials to ensure the repaid containment of the spill. Spill kits must be regularly checked and maintained. Each construction vehicle used in the construction of Spring Grove Tee 88kV powerline must have a spill kit stored on board at all times. Spill kits must be regularly checked and maintained.
	22. Degradation and Contamination of the drainage lines,	Low to Medium (2)	Environmentally sensitive areas (i.e. the drainage lines, streams, wetlands) must be avoided where possible. Site workers

	wetlands, and surrounding environment by cement and other hazardous materials.		must be trained in avoiding impacts in areas of potential concern (e.g. stream banks). No towers for the powerline may be constructed within 32 metres of a wetland area or riparian habitat. Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of this BAR. The Contractor must submit a method statement to the RE for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and sedimentation control measures, surface water flow diversion, reinstatement, etc. Hazardous material storage areas must not be within 100m from a stream/drainage line or local residential homesteads. Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. Cement/concrete mixing must take place on a hard surface or on cement mixing trays. Cement/concrete mixing must not be permitted to occur where run off can enter storm water drains, watercourses, water bodies, wetlands or drainage lines. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
	23. Poor stormwater management during construction can lead to erosion and loss of soil.	Low (1)	Stormwater control must be instituted during the construction of the towers for the powerline; however this is a temporary impact of the proposal. A drainage system must be established for the construction camp. The drainage system must be regularly checked to

			ensure the unobstructed flow of water. The contractor must ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion and must take adequate steps to ensure that the amount of stormwater is not significantly increased and can be appropriately dealt with. The designated responsible person on site (usually the contractor) must ensure that no construction work takes place before adequate stormwater control measures are in place.
	24. Erosion of stockpiled material (stone, sand and gravel).	Low (1)	Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. All activities must be managed through the site-specific EMPr (Appendix F) and monitored by an ECO.
	25. Impacts on watercourses, water bodies or drainage lines.	Low (1)	No towers for the powerline may be constructed within 32 metres of or within a wetland area or riparian habitat. Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. No dumping must be allowed into any watercourse, drainage lines or water bodies. Site staff shall not be permitted to use the stream or natural water source adjacent to the construction of the tower sites for the purposes of bathing, washing of clothing or for any construction related activities. Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc.
	26. Bird collision with overhead power line,	Medium (3)	The Avifauna Assessment conducted by the EWT has identified the Alternative

	Impact on Red Data and other species		C2 as being the second Alternative from an Avifaunal perspective. As per recommendations by the specialist, Endangered Wildlife Trust, the effect of this proposed development on the local avifauna can be kept to acceptably level the appropriate steps are taken, the following recommendations have been made: Mark the identified sections of line with anti-collision marking devices on the earth wire to increase the visibility of the line and reduce likelihood of collisions. Marking devices should be spaced 10m apart. The sections of line that pose a concern and require marking should be finalised by an avifaunal specialist in a site "walkthrough" once final route is decided and towers/pylons pegged. However due to the number of "Focal Species" identified within the avifauna report which have been observed by both the EAP (Appendix B) and the avifauna specialist on one of the properties (Derek Greene) that the Alternative C2 servitude traverses during site visits, mitigation measures in the form of bird diverters would have to be implemented across the entire length of the Alternative C2 servitude in order to mitigate the potential for collisions.
	27. Bird electrocution, Impact on Red Data and other species	Low (1)	The 131 (Single-Circuit) and 132 (Double-Circuit) tower alternatives for this proposed development are both classified as 'Bird Friendly' and are steel lattice tower structures. The distance between the cross arm and cable conductor for both tower Alternatives are more than 2 metres. Eskoms approved 'bird perch guards' must be fitted to the top of each tower used in the construction of the Spring Grove 88kV powerline.
	28. Disturbance of birds, Impact on Red Data and other species	Medium to High (4)	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some disturbance is inevitable. "Focal Species" identified within the avifauna

			report have been observed by both the EAP (Appendix B) and the avifauna specialist on one of the properties (Derek Greene) that the Alternative C2 servitude traverses during site visits. A pair of cranes is believed to be roosting and/or breeding in the vicinity of the Alternative C2 servitude at the co-ordinates 29°20'4.27"S 29°58'27.88"E. Construction of the Alternative C2 powerline servitude would disturb the cranes believed to be roosting and/or breeding on the property, as well as other Red Data species identified foraging on the property.
	29. Destruction or alteration of bird habitat, Impact on Red Data and other species	Low to Medium (2)	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable.
	30. Visual Impact of the powerline during operations.	Low to Medium (2)	The position of Alternative C2 powerline should not significantly impact on the aesthetics of the area. However this cannot be mitigated against due to the natural of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function.
	31. Impact on landowners.	Medium (3)	The Alternative C2 servitude traverses four (4) private landowners. The impact of the Alternative C2 servitude on the private landowners has been rated as 'Medium', this is due to the land-use of the majority landowner, Derek Greene, that the Alternative C2 servitude traverses being agriculture land of Spring Grove Farm. The proposed Alternative would adversely impact on the Mr Greenes ability to farm once constructed. The Alternative C2 will have to span one pivot and potentially a second pivot on Mr Greene's property, the loss of land required for the tower sites is of concern as potential six (6) towers could be situated on Mr Greenes property resulting in the loss of 2400m^2 of arable land.
	32. Impact on Neighbouring	Medium (3)	The only direct impact to neighbouring properties as a result of the Alternative

	properties.		C2 powerline servitude will be in the form of a visual impact of the powerline during its operational phase. This cannot be mitigated against due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function. Approximately 14 properties may be able to see the Alternative C2 powerline once constructed during its operational phase. Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However over time the towers and cable conductors' will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. It must also be noted that there are numerous existing powerlines that traverse the greater Nottingham Road area, and given time the community will become acclimatize to the powerlines.
	33. Soil erosion and compaction.	Low (1)	Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. This will be controlled through the EMPr which has been created for the development. The Rehabilitation of disturbed areas will be undertaken on completion of the project.
	Indirect impacts:		
	1. Potential for waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.	Low (1)	Waste must be classified prior to being disposed of. A registry of all waste that is removed from the construction site must be maintained. Safe disposal certificates must be from landfill sites and kept on record.
	2. Disruption to road services if construction activities accidentally affect the roads.	Low (1)	Flagmen must be kept in attendance to control traffic where road disruption is most likely. Remediation of the road/s must be undertaken immediately by the contractor to ensure that disruption is kept to a minimum.
	Cumulative impacts:		
	1. Increase in waste being sent to landfill.	Low (1)	Cannot be completely mitigated. All waste generated during construction

			must be recycled where possible. Staff members must be trained on limiting waste and the importance of recycling.
	2. Positive Impact- Providing infrastructure to enable future development within the region.	N/A	No mitigation required.
	3. Permanent loss of open space and grazing/agriculture land adding pressure to alternative open space areas, leading to increased degradation and loss of indigenous fauna and flora.	Low to Medium (2)	The proposed Alternative C2 servitude will not result in a permanent loss of open space, as the majority of the development is suspended above the landscape in the form of powerlines. Fauna/avifauna will be disturbed during construction activities however once construction has been complete, will be able to return to the site. There will be a loss of flora/agriculture as a result of the development due to the tower sites, however mitigation measures provided will limit the loss of flora/agriculture as a result of the development. However, landowners involved in agriculture activities will be impacted upon, which may result in farmers cultivating other grassland areas for agricultural use thereby increasing the loss of indigenous fauna and flora in the area.
	4. Increase safety risk due to aircraft collisions with powerline during operation.	Medium to High (4)	The Alternative C2 servitude traverses cultivated land with pivots and maize fields situated on them. Mr Derek Greene of Spring Grove farm utilises aircraft to 'crop dust' his fields, therefore the potential for an aircraft to collide with the Alternative C2 powerline as a result of its construction has been rated as 'Medium to High'. Mitigation measures in the form 'red and white' airdrome markers will have to be attached to the powerline as per Eskom standard. However the risk of an airplane colliding with the powerline during its operation is not only a health and safety risk to the local residents, but also potentially a significant environmental incident as the hazardous materials (aviation fuel, oil, pesticides) from the aircraft could contaminate the surrounding environment impacting the sensitive

			areas found on the Alternative C2 servitude (i.e. wetlands, watercourses) and avifauna that live and feed in these areas.
Total	**61**		

Construction of the new proposed Spring Grove Tee 88kV Powerline:			
Alternative C3:	***Direct impacts:***		
	1. Interruption or damage to services (electricity, water etc).	Low (1)	This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance
	2. The onsite erosion of exposed soil before rehabilitation is completed.	Low to Medium (2)	The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. Only vegetation/crops that are required to be removed for the construction of tower sites must be removed in a phased and controlled manner. Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained.
	3. Generation of dust caused by construction vehicles moving over exposed soil.	Low (1)	Dust control must be implemented throughout the construction phase.
	4. Risk of alien invasive encroachment into disturbed areas.	Low (1)	The establishment or spread of alien plant species in the powerline servitude and tower sites must be monitored and the correct removal and disposal of alien plant species must be followed. Rehabilitation of tower sites must commence as soon as construction activities are completed.
	5. Damage and removal of existing vegetation for the construction of the Spring Grove 88kV powerline Alternative C3 and tower sites.	Medium (3)	A vegetation assessment (Appendix D) undertaken by McDonald & Styles; Consulting has assessed the 'clearance of vegetation cover' for the Alternative C2 servitude as 'Medium'. Workers must be educated on minimizing damage to vegetation during construction of powerline. Each tower site for the Alternative C3 powerline will require that

			an area of 20mX20m have bush clearing conducted to be removed all small shrubs, bushes, and agriculture from the site, grass/agriculture must only be removed from those areas where the tower foundations will be excavated. Due to the area that Alternative C3 servitude traverses being made up of Drakensberg Foothill Moist Grassland, Mooi River Highland Grassland and vast agriculture areas, the powerline servitude for the Alternative C3 will not require that the area directly below the powerline kept clear of indigenous trees and other vegetation that could interfere with the powerline. The removal of exotic trees (i.e. Pines and Gums) must be undertaken by a suitable qualified specialist, and the wood made available to the landowner should he/she request it. The removal of vegetation for the proposed tower sites and powerline must be conducted by a bush clearing specialist to insure that the damage to vegetation is minimized. Indiscriminate clearing of vegetation must be avoided and only those areas directly affecting the construction site may be removed. The Rehabilitation of disturbed areas will be undertaken on completion of the project.
	6. Poaching/Hunting/Fishing/ of wildlife and collecting of plants by construction workers.	Low (1)	Hunting or poaching must be prohibited. During construction, guidelines set out in the EMPr must be followed to ensure no potential impacts occur. No vegetation/plants may be collected or destroyed by staff members. Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to poach/hunt/fish/ or collect plants or plant parts from site must be enforced.
	7. Loss of land due to Spring Grove powerline requiring new servitudes	Medium (3)	This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. The registered servitude will allow for the construction of the powerline on the landowners property,

			and states the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitude, and will be paid out at currently land value rates.
	8. Improper storage and disposal of solid waste.	Low (1)	All solid waste generated during the construction process must be placed in a designated waste collection area within the Construction Camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins. All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered.
	9. Littering around the site.	Low (1)	Littering must not be permitted on the site and general housekeeping must be enforced. General waste bins must be readily available for litter disposal and general housekeeping.
	10. Improper disposal of rubble i.e.: burying or neglecting building rubble resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.	Low (1)	All excess material and rubble must be removed from the construction site so not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained. Site workers must be trained in avoiding such impacts. Safe disposal certificates must be kept on record.
	11. Lack of toilet facilities resulting in unsanitary conditions.	Low (1)	Adequate toilet facilities must be provided for all staff members as standard construction practice. Safe disposal certificates must be kept on record.
	12. Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment.	Low (1)	The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
	13. Improper storage	Low to	Hazardous waste must be stored on a

	of hazardous waste i.e.: used oils from vehicles, old cement bags.	Medium (2)	hard surface within a bunded area and must not be allowed to enter watercourses, water bodies, wetlands or drainage lines and the surrounding environment.
	14. Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	Low (1)	Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). The construction must be monitored by an ECO who must monitor compliance with the construction EMPr. All precautions must be taken to ensure that noise generation is kept to a minimum. If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event.
	15. Emissions generated from construction vehicles	Low (1)	The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities and the environment. This impact is only relevant during the construction phase. The construction vehicles used must be regularly maintained to ensure that excessive emissions are controlled.
	16. Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining operations causing significant environmental damage.	Low to Medium (2)	All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO e.g. mined material such as stone must only be obtained from permitted quarries.
	17. Speeding vehicles resulting in safety issues for surrounding community and their livestock.	Low (1)	Speeding must be prohibited. Construction vehicles must travel slowly along the roads to the substation site and must adhere to all traffic laws. Construction vehicles must not be permitted to park for extended periods of time on the roads or on road verges where they can block the roads and accesses. Flagmen must be kept in attendance to control traffic where road disruption is most likely.

	18. Positive impact - Potential temporary employment during the construction phase	N/A	Positive impact no mitigation required.
	19. Unearthing and damage to items of cultural or historical significance.	Low (1)	A Heritage Impact Assessment has been conducted for the proposed development (Appendix D), the Alternative C3 will not impact on any heritage resources provided that a buffer of 20 metres is maintained around the historical tree lane identified within close proximity of the Alternative C3 servitude. Should any heritage resources be uncovered during construction, AMAFA Heritage KZN must be contacted immediately.
	20. Risk of contamination of soil and stormwater during concrete mixing.	Medium (3)	Hazardous material storage areas must not be within 100m from a stream/drainage line, wetland, river or local residential homesteads. Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. Cement/concrete mixing must take place on a hard surface or on cement mixing trays. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
	21. Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil, drainage lines, wetlands, Mooi River, and surrounding environment.	Medium to High (4)	The Alternative C3 servitude crosses the Mooi River six (6) times, the potential for indirect impacts as a result of the construction of the powerline on the Mooi River as a result of these crossings are significantly increased. Any hazardous or dangerous goods utilized during the construction phase must be stored on an impermeable surface that is bunded, fenced, locked and covered. A spill kit must be available on site and must be clearly marked and visible when utilising hazardous or dangerous materials to ensure the repaid containment of the spill. Spill kits must be regularly checked

			and maintained.
	22. Degradation and Contamination of the drainage lines, wetlands, and surrounding environment by cement and other hazardous materials.	Medium to High (4)	The Alternative C3 servitude crosses the Mooi River six (6) times, the potential for indirect impacts as a result of the construction of the powerline on the Mooi River as a result of these crossings are significantly increased. Environmentally sensitive areas (i.e. the drainage lines, streams, wetlands) must be avoided where possible. Site workers must be trained in avoiding impacts in areas of potential concern (e.g. River banks). No towers for the powerline may be constructed within 32 metres the Mooi River, wetland areas or riparian habitat. Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of Mooi River, wetland areas, or riparian habitat. The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of this BAR. The Contractor must submit a method statement to the RE for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and sedimentation control measures, surface water flow diversion, reinstatement, etc. Hazardous material storage areas must not be within 100m from a stream/drainage line, Mooi River, or local residential homesteads. Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. Cement/concrete mixing must take place on a hard surface or on cement mixing trays. Cement/concrete mixing must not be permitted to occur where run off can enter storm water drains, watercourses, water bodies, wetlands or drainage lines. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a

			permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
	23. Poor stormwater management during construction can lead to erosion and loss of soil.	Low (1)	Stormwater control must be instituted during the construction of the towers for the powerline; however this is a temporary impact of the proposal. A drainage system must be established for the construction camp. The drainage system must be regularly checked to ensure the unobstructed flow of water. The contractor must ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion and must take adequate steps to ensure that the amount of stormwater is not significantly increased and can be appropriately dealt with. The designated responsible person on site (usually the contractor) must ensure that no construction work takes place before adequate stormwater control measures are in place.
	24. Erosion of stockpiled material (stone, sand and gravel).	Low (1)	Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. All activities must be managed through the site-specific EMPr (Appendix F) and monitored by an ECO.
	25. Impacts on watercourses, water bodies or drainage lines.	Medium to High (4)	No towers for the powerline may be constructed within 32 metres of or within a wetland area, Mooi River, or riparian habitat. However due to the Alternative C3 servitude crossing the Mooi River six (6) times, the potential for indirect impacts as a result of the construction of the powerline on the Mooi River, watercourse, wetland areas surrounding the Alternative as a result of these crossings are significantly increased. Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. The wetland delineation assessment must be adhered to in respect to the

			construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. No dumping must be allowed into any watercourse, drainage lines or water bodies. Site staff shall not be permitted to use the stream or natural water source adjacent to the construction of the tower sites for the purposes of bathing, washing of clothing or for any construction related activities. Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc.
	26. Bird collision with overhead power line, Impact on Red Data and other species	High (5)	The Avifauna Assessment conducted by the EWT has identified the Alternative C3 as being an 'NO-GO' Alternative from an Avifaunal perspective. This is due to its length (7.9kms), the number of river crossings required (6), its proximity to wetlands, known Crane roosts at co-ordinates 29°17'3.55"S 29°58'21.09"E, and the number of microhabitats that it will traverse, means that the development will have a high impact on avifauna. The "Focal Species" identified within the avifauna report have been observed by both the EAP (Appendix B) and the avifauna specialist on the properties that the Alternative C3 servitude traverses, and these species being heavy-bodied birds with limited manoeuvrability makes it difficult for them to take the necessary evasive action to avoid colliding with powerlines. (EWT, 2013)
	27. Bird electrocution, Impact on Red Data and other species	Medium (3)	The 131 (Single-Circuit) and 132 (Double-Circuit) tower alternatives for this proposed development are both classified as 'Bird Friendly' and are steel lattice tower structures. The distance between the cross arm and cable conductor for both tower Alternatives are more than 2 metres. Eskoms approved 'bird perch guards' must be fitted to the top of each tower constructed for the Spring Grove Tee

			88kV powerline.
	28. Disturbance of birds, Impact on Red Data and other species	High (5)	"Focal Species" identified within the avifaunal report have been observed by both the EAP (Appendix B) and the avifaunal specialist on the properties that the Alternative C3 servitude traverses. The Alternative C3 powerline servitude traverses daily feeding sites for Grey Crowned Cranes and Wattled Cranes, and a known roosting area for Wattled Cranes at the co-ordinates 29°20'4.27"S 29°58'27.88"E. A "floater flock" of juvenile and unattached Wattled Cranes, numbering about 65 birds / 25% of the National population move between Karkloof, Kamberg and this site during winter (Tim Snow, 2013). Therefore the construction of the Alternative C3 powerline servitude would disturb and severely impact the cranes roosting, feeding, and/or breeding along this proposed Alternative C3 servitude.
	29. Destruction or alteration of bird habitat, Impact on Red Data and other species	Medium (3)	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable.
	30. Visual Impact of the powerline during operations.	Medium to High (4)	The Alternative C3 servitude is situated to the East of the town of Rosetta, the Drakensberg Mountains are situated to the East of the Alternative C3 powerline meaning the powerline servitude would be situated in between the Drakensberg Mountains and the town of Rosetta. Therefore the Alternative C3 powerline will be highly visible additional to the skyline, and will decrease the aesthetics of the area. This cannot be mitigated against due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function.
	31. Impact on landowners.	Medium (3)	The Alternative C3 servitude traverses ten (10) private landowners properties, and three (3) other landowners in the form of Transnet, the Department of Transport, and South African

			Government. The impact of the Alternative C3 servitude on the private landowners has been rated as 'Medium', this is due to the number of landowners that would be impacted upon by the development, as well as the land-use of the landowners. The majority of the Alternative C3 powerline servitude traverses agriculture land of Steven Morris, Brandon Karg, and Alan Stratford. The Alternative C3 would adversely impact on the landowners' ability to farm once constructed, with the major impact of the Alternative C3 servitude being the impact on the placement of future pivots on their properties as tower pylons for the Alternative C3 could potential fall within these future pivot areas. Other landowners would be impacted upon by the Alternative C3 servitude through visual impacts of the powerline.
	32. Impact on Neighbouring properties.	Medium to High (4)	The only direct impact to neighbouring properties as a result of the Alternative C3 powerline servitude will be in the form of a visual impact of the powerline during its operational phase. This cannot be mitigated against due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function. Approximately 20 properties may be able to see the Alternative C3 powerline once constructed during its operational phase. Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However over time the towers and cable conductors will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. However due to the majority of these properties being situated to the East of the town of Rosetta, the view of these properties is predominately East looking towards the Drakensberg Mountains. Therefore the

			Alternative C3 powerline will be highly visible additional to the skyline, and even with time would be visible against the scenic backdrop.
	33. Soil compaction due to construction machinery.	Medium (3)	Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. This will be controlled through the EMPr which has been created for the development. The Rehabilitation of disturbed areas will be undertaken on completion of the project.
	Indirect impacts:		
	1. Potential for waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.	Low (1)	Waste must be classified prior to being disposed of. A registry of all waste that is removed from the construction site must be maintained. Safe disposal certificates must be from landfill sites and kept on record.
	2. Disruption to road services if construction activities accidentally affect the roads.	Low (1)	Flagmen must be kept in attendance to control traffic where road disruption is most likely. Remediation of the road/s must be undertaken immediately by the contractor to ensure that disruption is kept to a minimum.
	Cumulative impacts:		
	1. Increase in waste being sent to landfill.	Low (1)	Cannot be mitigated. All waste generated during construction must be recycled where possible. Staff members must be trained on limiting waste and the importance of recycling.
	2. Positive Impact- Providing infrastructure to enable future development within the region.	N/A	No mitigation required.
	3. Permanent loss of open space and grazing land adding pressure to alternative open space areas, leading to increased degradation and loss of indigenous fauna and flora.	Low to Medium (2)	The proposed Alternative C3 servitude will not result in a permanent loss of open space, as the majority of the development is suspended above the landscape in the form of powerlines. Fauna/avifauna will be disturbed during construction activities however once construction has been complete, will be able to return to the site. There will be a loss of flora/agriculture as a result of the development due to the tower sites, however mitigation measures provided will limit the loss of flora/agriculture as a result of the development. However,

			landowners involved in agriculture activities will be impacted upon, which may result in farmers cultivating other grassland areas for agricultural use thereby increasing the loss of indigenous fauna and flora.
	4. Increase safety risk due to aircraft collisions with powerline during operation.	Medium (3)	The Alternative C3 servitude traverses cultivated land with pivots and maize fields situated on or in close proximity to them. Farmers utilise aircraft to 'crop dust' fields, therefore the potential for an aircraft to collide with the Alternative C3 powerline as a result of its construction has been rated as 'Medium to High'. Mitigation measures in the form 'red and white' airdrome markers will have to be attached to the powerline as per Eskom standard. However the risk of an airplane colliding with the powerline during its operation is not only a health and safety risk to the local residents, but also potentially a significant environmental incident as the hazardous materials (aviation fuel, oil, pesticides) from the aircraft could contaminate the surrounding environment impacting the sensitive areas found on site (i.e. wetlands, Mooi River) and avifauna that live and feed in these areas.
Total	**89**		

Construction of the new proposed Spring Grove Tee 88kV Powerline:			
Alternative T1 (Preferred Tower Design- Double Circuit Powerline):	***Direct impacts:***		
	1. Visual impact of the 132 tower and six (6) cable conductors.	Low to Medium (2)	Due to the nature of the development there will be a visual impact, this cannot be mitigated. Once fully erected the height of a 132 tower is approximately 25.2 metres from ground to earthly wire, and will hold six (6) cable conductors. However, as the 132 tower is only 3.2 metres higher than the 131 tower the overall impact in terms of the tower heights is minimal, and when viewed from a distance the towers heights would be indistinguishable. As the 132 towers hold additional cable conductors, construction of the double circuit powerline would have a higher visual impact than the construction of the 131

			single circuit powerline. The impact rating of the 132 tower for the Spring Grove Tee 88kV powerline has been rated as 'Low to Medium' due to the additional three (3) cables conductors required.
	2. Potential impact of 132 tower on Avifauna	Medium (3)	The 132 (Double-Circuit) tower Alternative for the development is classified as 'Bird Friendly' and is a steel lattice tower structure. The additional three (3) cable conductors held by the 132 tower can be viewed in both positive and negative light with regards to avifauna. The argument can be made that the additional three (3) cables will increase the potential be collisions by avifauna. However, the counterargument can be made that due to the additional three (3) cable conductors the proposed Spring Grove Tee 88kV powerline development will be more visible to avifauna and therefore the potential for collisions as a result of the additional three (3) cable conductors is decreased. The EAP has assessed both views, and well both arguments hold merit the potential for collisions as a result of the development exist regardless of the tower design utilised in the Spring Grove Tee 88kV powerline. Therefore the additional three (3) cable conductors will not significantly increase the potential for collisions provided that the mitigation measures recommended by the Avifaunal Specialist are implemented.
Total	5		

Construction of the new proposed Spring Grove Tee 88kV Powerline:			
Alternative T2: (Single Circuit Powerline)	***Direct impacts:***		
	1. Visual impact of the 131 tower and three (3) cable conductors.	Low (1)	Due to the nature of the development there will be a visual impact, this cannot be mitigated. Once fully erected the height of the 131 tower is approximately 21.8 metres from ground to earthly wire, and holds three (3) cable conductors. As the 131 tower is 3.2 metres shorter than the 132 tower, the overall impact in terms of the tower heights is minimal and when viewed from a distance the

			difference in tower heights would be indistinguishable. As the 131 towers hold three cable conductors less, construction of the single circuit powerline would have a lower visual impact than the construction of the 132 double circuit powerline. The impact rating of the 131 tower for the Spring Grove Tee 88kV powerline has been rated as 'Low' due to the presence of only three (3) cable conductors.
	2. Potential impact of 131 tower on Avifauna	Medium (3)	The 131 (Single-Circuit) tower Alternative for this proposed development is classified as 'Bird Friendly', and is a steel lattice tower structure. As the tower only holds three (3) cable conductors as opposed to the six of the 132 tower, the 131 tower structure may be viewed as having a lower potential impact on avifauna during operations. However, the number of cable conductors for the powerline can be viewed in both a positive and negative light with regards to avifauna, and the argument can be made that the lower the number of cables present the lower the potential chance of collisions by avifauna as a result of the powerline. However, the counterargument can be made that due to the powerline being less visual, the potential for the collisions to occur increases. The EAP has assessed both views, and well both arguments hold merit the potential for collisions as a result of the development exist regardless of the tower design utilised in the Spring Grove Tee 88kV powerline. Therefore 131 tower single circuit powerline will not result in fewer incidents with avifauna, and provided that mitigation measures recommended by the Avifaunal Specialist are implemented collisions can be kept to an acceptable level regardless of tower type utilised.
Total	4		

No-go option			
I.e. No construction of the new proposed Spring Grove Tee 88kV Powerline:			
	Direct impacts:		
	1. No impacts on the environment as there will be construction of the new Spring Grove Tee 88kV powerline.	Low (1)	Positive impact no mitigation required.
	2. MMTS-2 cannot operate.	High (5)	Can be mitigated through the construction of the Spring Grove Tee 88kV powerline. Safe drinking water is a basic human right for all South Africans' under the Constitution. Without the proposed Spring Grove Tee 88kV powerline water stored at the Spring Grove Dam cannot be pumped through the MMTS-2 pipeline to supply the Mgeni water system ensuring an adequate supply of water for all.
	3. Future Umgeni Water 'Water Treatment Facility cannot operate.	High (5)	Can be mitigated through construction of the Spring Grove Tee 88kV powerline. Without the proposed Spring Grove Tee 88kV powerline the future Umgeni Water 'Water Treatment Facility' cannot operate and will not be able supply water to the greater Nottingham Road and Rosetta area.
	4. Eskom cannot fulfil their mandate to supply electricity to all customers.	High (5)	Can be mitigated through the construction of the Spring Grove Tee 88kV powerline.
	5. eThekwini Municipalities ability to provide and address service delivery requirements for provision of water will be impacted upon.	High (5)	Can be mitigated through construction of the Spring Grove Tee 88kV powerline. The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future

			demand of the Municipality. Therefore without the Spring Grove Tee 88kV powerline development these critical projects which will ensure the municipalities ability to provide and address service delivery requirements for provision of water cannot be met.
	6. Eskom cannot upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area.	High (5)	Can be mitigated through the construction of the Spring Grove Tee 88kV powerline. In order for Eskom to upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area, the Spring Grove Substation must be energised. The Substation can only be energised through the construction of the Spring Grove Tee 88kV powerline, which would connect the Substation to the existing Eskom 88kV network.
	Indirect impacts:		
	1. As the growing demand for electricity increases the Nottingham Road and Rosetta area the supply will not meet the demand of the surrounding communities and business.	High (5)	Can be mitigated through the construction of the Spring Grove Tee 88kV powerline. As the demand for electricity increases the Eskom network will experience a drain which will reduce the supply of electricity to the Nottingham Road and Rosetta areas. Communities and businesses within the area would not have enough electricity supplied which would be insufficient for the needs of the area. This would not allow for the economic development of the area.

	2. Decrease in the economic development of the KwaZulu-Natal region as eThekwini Municipality will not be able to provide adequate water to all industries.	High (5)	Can be mitigated through the construction of the Spring Grove Tee 88kV powerline. The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Without adequate water there will be an impact on the economic sector within the KwaZulu-Natal region as water is a critical component in all forms of development from agriculture to industry. This would then result in a negative impact on the South African economy.
	Cumulative impacts:		
	1. In the long term there will be limited supply of electricity to the Nottingham Road and Rosetta area which will result in economic impacts for the area as electricity blackouts occur due to the inability to meet the growing demand for electricity in the area.	High (5)	Can be mitigated through construction of the Spring Grove Tee 88kV powerline. As the demand for electricity increases, the strain on the network in the area would increase. This would lead to an increase in illegal connections due to the lack of electricity supplied, which would cause power failures across the area and would have an economic impact on the area as businesses will not be able to operated. This would then result in a negative impact on the economy.
	2. eThekwini Municipality will not be able to provide additional water capacity that will be required to supply the expected future demand of the municipality as the MMTS-2 cannot operate.	High (5)	Can be mitigated through the construction of the Spring Grove Tee 88kV powerline. eThekwini Municipality receives water from the Mgeni River, with four major dams already constructed on this system

			there is no further possibility that additional water infrastructure can be developed on this system. The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Therefore without the Spring Grove Tee 88kV powerline development these critical projects which will ensure the municipalities ability to provide and address service delivery requirements for provision of water cannot be met.
Total	46		

A complete impact assessment in terms of Regulation 22(2)(i) of GNR.543 must be included as Appendix F.

2. 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.

Spring Grove Tee 88kV Powerline:
Alternative C1 (Preferred Alternative):

All impacts associated with the construction of the Alternative C1 can be management and mitigated through implementing the site-specific Environmental Management Programme (EMPr) created for the development. Therefore, any impacts relating to the degradation of the surrounding environment can be mitigated against and all construction impacts raised and investigated in Section D can be mitigated against provided that the suggested measures are followed. Key to this will be compliance with the construction EMPr and monitoring of construction by an independent ECO. Therefore from a construction perspective the impact that the Alternative C1 servitude has been rated as low, and will not have any lasting impact environment.

Once mitigation measures for construction activities have been implemented on the Alternative C1, the most significant impacts identified will be the visual impact of the powerline during operations, impact on landowners, and impact on neighbouring properties. Due to the nature of the development the visual impact of the powerline cannot be mitigated. Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However over time the towers and cable conductors will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. It must also be noted that there are numerous existing powerlines that traverse the greater Nottingham Road area, and given time the community will become acclimatised to the powerlines. The Heritage Specialist has stated in his report for the proposed Spring Grove 88kV powerline development that the Alternative C1 servitude will have the least impact on the altering the sense of place associated with the cultural landscape of the area. (Heritage Active cc, 2013)

The Alternative C1 servitude traverses five (5) private landowners and two (2) other landowners in the form of Transnet and the Department of Transport. However, depending on the final tower positions the number of landowners could potentially be limited to three (3). If all tower sites are positioned on James Beirning's property, the properties of Janet Flowers and Peter and Jenny Blyth would not be impacted upon. Therefore the impact of the Alternative C1 servitude on the private landowners has been rated as 'Low to Medium', this is due to the current land-use of the landowners that the servitude traverses being cultivated land for grazing livestock, or vacant/not in use. Therefore the powerline should not adversely impact on the landowners abilities to farm once constructed. The exception is the property owned by Mr Coetzer, he is currently sub-dividing his property to sell to future residents. The impact of the Alternative C1 servitude has been assessed in Section D, and should not adversely impact on his ability to sale the properties as there are already existing visual impacts in the form of the R103 Road and Transnet railway line. It must also be noted that landowners will be compensated for the area of land required for the powerline servitude, accordance with the Expropriation Act No 63 of 1975.

Using the impact rating system provided in the Section D of the BAR, the proposed Alternative C1 powerline servitude for the Spring Grove 88kV powerline development has score a total of **51** points against the **46** points of the 'No-Go' Alternative.

Alternative C2:

Impacts associated with the construction of the Alternative C2 can be management and mitigated through implementing the site-specific Environmental Management Programme (EMPr) created for the development. Therefore, any impacts relating to the degradation of the surrounding environment can be mitigated against and all construction impacts raised and investigated in Section D can be mitigated against provided that the suggested measures are followed. Key to this will be compliance with the construction EMPr and monitoring of construction by an independent ECO. Therefore from a construction perspective the impact that the Alternative C2 servitude has been rated as low, and will not have any lasting impact environment.

The exception of the construction related impacts is the disturbance of Red Data Avifaunal Species found along the Alternative C2 servitude during construction, and the removal/damage to agriculture crops on landowners properties. These impacts cannot be mitigated against. Some disturbance by heavy machinery/vehicle movements and staff members operating in the area is inevitable and will disturbed the Avifaunal Species found along the Alternative C2 servitude, and due to the tower sites requiring an 20 X 20 metre working area the removal/damage to agriculture will be unavoidable.

The most significant impacts identified during the operation phase of the Alternative C2 servitude would be the visual impact of the powerline, impact on landowners, impact on neighboring properties, impact on Red Data Avifaunal Species, and potential health and safety risks associated with aircraft colliding with the powerline.

Due to the nature of the development the visual impact of the powerline cannot be mitigated. Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminum cable conductor. However, over time the towers and cable conductors will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. The Alternative C2 servitude traverses four (4) private landowners. The impact of the Alternative C2 servitude on the private landowners has been rated as 'Medium', this is due to the land-use of the majority landowner, Derek Greene, that the Alternative C2 servitude traverses being agriculture land of Spring Grove Farm. The proposed Alternative would adversely impact on the Mr Greene's ability to farm once constructed, as it would have to span at least one pivot and potentially a second. A number of towers will fall with the agriculture fields and would result in a significant amount of agriculture crops being removed to accommodate the towers, access roads for construction/maintenance of the Alternative C2 powerline would also result in damage to agriculture.

The most significant environmental impacts of the Alternative C2 servitude during its operational phase is the potential for bird and aircraft collisions with overhead powerlines. "Focal Species" identified within the avifauna report which have been observed by both the EAP (Appendix B) and the avifauna specialist along the Alternative C2 servitude, and even with mitigation measures the potential still exists for collisions to occur. The Spring Grove farm utilises aircraft to 'crop dust' fields, therefore the potential for an aircraft to collide with the Alternative C2 powerline is present. The risk of an airplane colliding with the powerline during its operational phase is not only a health and safety risk to the local residents, but also potentially a significant environmental incident as the hazardous materials (aviation fuel, oil, pesticides) from the aircraft could contaminate the surrounding environment impacting the sensitive areas found on site (i.e. wetlands) and avifauna that live and feed in these areas.

Using the impact rating system provided in the Section D of the BAR, the proposed Alternative C2 powerline servitude for the Spring Grove 88kV powerline development has score a total of **61** points against the **46** points of the 'No-Go' Alternative.

Alternative C3:

The proposed Alternative C3 servitude is approximately 7.9 kilometres long, more than double the length of the Alternative C1 & C2. In terms of construction related impacts of this Alternative, the potential for Impacts to occur is double as there are double the number of towers and cable conductor required for the powerline. In terms of the construction timeframe (how long it would take to construct) for the Alternative C3 if it was built, would be anywhere from 4 to 8 months longer than the Alternative C1 & C2.

Therefore this Alternative from an environment perspective is not recommended from the potential construction impacts alone, however the impacts associated with the construction of the Alternative C3 could be management and mitigated through implementing the site-specific Environmental Management Programme (EMPr) created for the development. Therefore, any impacts relating to the degradation of the surrounding environment could be mitigated against and construction impacts raised and investigated in Section D mitigated against provided that the suggested measures are followed. Key to this will be compliance with the construction EMPr and monitoring of construction by an independent ECO. Therefore from a construction perspective the impact that the Alternative C3 servitude has been rated as Medium, as the potential for a lasting impact environment is present should the EMPr not be implemented affectively.

The exception of the construction related impacts is the disturbance of Red Data Avifaunal Species found along the Alternative C3 servitude during construction, and the removal/damage to vegetation/agriculture crops on landowners properties. These impacts cannot be mitigated against. The Alternative C3 servitude mainly due to its length impacts the most landowners of the three proposed Alternatives for the Spring Grove Tee 88kV powerline. The three principle landowners impacted on by the Alternative C3 powerline servitude are farmers involved in the production of maize and other crops. The major impact of the Alternative C3 servitude powerline would be the impact on the placement of future pivots, as the tower pylons for the Alternative C3 could potential fall within the future pivot areas of these landowners. Due to the number of towers that would be situated on these properties as a result of the Alternative C3, there would be a significant impact on the amount of agriculture crops being removed to accommodate the towers and access roads for construction/maintenance of the Alternative C3 powerline.

Some disturbance by heavy machinery/vehicle movements and staff members operating in the area is inevitable and will disturb the Avifaunal Species found along the Alternative C3 servitude. Daily feeding sites for Grey Crowned Cranes and Wattled Cranes are situated around the Alternative C3, and a known roosting area for Wattled Cranes at the co-ordinates 29°20'4.27"S 29°58'27.88". A “floater flock” of juvenile and unattached Wattled Cranes, numbering about 65 birds / 25% of the National population move between Karkloof, Kamberg and this area during winter (Tim Snow, 2013). Therefore the construction of the Alternative C3 powerline servitude would disturb and severely impact the cranes roosting, feeding, and/or breeding along this Alternative.

The most significant impacts identified during the operational phase of the Alternative C3 servitude would be the visual impact of the powerline, impact on landowners, impact on neighbouring properties, impact on Red Data Avifaunal Species, and potential health and safety risks associated with aircraft colliding with the powerline.

Due to the nature of the development the visual impact of the powerline cannot be mitigated. The Alternative C3 servitude is situated to the East of the town of Rosetta, the Drakensberg Mountains are situated to the East of the Alternative C3 powerline meaning the powerline servitude would be situated

in between the Drakensberg Mountains and the town of Rosetta. Properties situated to the East of the town of Rosetta predominately look East towards the Drakensberg Mountains, and even with time once the towers and cable conductors have weathered, accumulative dirt, and turned a dull grey colour, would still be highly visible against the scenic backdrop and would decrease the aesthetics of the area.

The most significant environmental impacts of the Alternative C3 servitude during its operational phase will be the potential for avifaunal and aircraft collisions with overhead powerlines, these impacts can only be managed and not mitigated completely. The Avifauna Assessment conducted by the EWT has identified the Alternative C3 as being an 'NO-GO' Alternative from an Avifauna perspective. This is due to its length (7.9kms), the number of river crossings required (6), its proximity to wetlands, known Crane roosts, and the number of microhabitats that it traverses means that the Alternative would have a high impact on avifauna. The "Focal Species" identified within the avifauna report have been observed by both the EAP and the avifaunal specialist on the properties that the Alternative C3 servitude traverses, and these species being heavy-bodied birds with limited manoeuvrability makes it difficult for them to take the necessary evasive action to avoid colliding with powerlines. (EWT, 2013)

The Alternative C3 servitude traverses cultivated land with pivots and maize fields situated on them. Farmers utilise aircraft to 'crop dust' fields, therefore the potential for an aircraft to collide with the Alternative C3 powerline is present. The risk of an aircraft colliding with the powerline during its operational phase is not only a health and safety risk to the local residents, but also potentially a significant environmental incident as the hazardous materials (aviation fuel, oil, pesticides) from the aircraft could contaminate the surrounding environment impacting the sensitive areas found on site (i.e. wetlands, Mooi River) and avifauna that live and feed in these areas.

Using the impact rating system provided in the Section D of the BAR, the proposed Alternative C3 powerline servitude for the Spring Grove 88kV powerline development has score a total of **89** points against the **46** points of the 'No-Go' Alternative.

Alternative T1 (Preferred Tower Design Double Circuit) Vs Alternative T2 (Single Circuit)

Due to the nature of the development there will be a visual impact, **this cannot be mitigated.**

Once fully erected the height difference between the 132 tower and 131 tower designs would be 3.2 metres, in terms of the overall impact of the towers the difference in height is minimal and when viewed from a distance would be indistinguishable. As the 132 towers hold additional cables, the construction of the double circuit powerline would have a higher visual impact then the construction of the 131 single circuit powerline. However, this would be marginal and when viewed from the side profile, only three (3) cable conductors would be seen for both the double and single circuit powerlines.

Both the 132 (Double-Circuit) tower and 131 (Single-Circuit) tower alternatives for the development are classified as 'Bird Friendly' and are steel lattice tower structures. The potential for collisions of avifauna and the Spring Grove Tee 88kV powerline exist regardless of the tower design utilised for its construction, therefore the additional three (3) cable conductors afforded by the 132 tower will not significantly increase the potential for collisions provided that the mitigation measures recommended by the Avifaunal Specialist are implemented.

When compared using the impact rating system provided in the Section D of the BAR, the proposed Alternative T1 vs. the Alternative T2 tower design for the Spring Grove 88kV powerline development, the Alternative T1 scored **5** vs. the Alternative T2 **4**. Although the Alternative T2 has a lower impact rating vs. the Alternative T1, the potential impact difference between the tower designs on the

environment is insignificant as not to result in the favouring of one Alternative over another. There is therefore no significant reason why the Alternative T1 cannot remain the Preferred Alternative tower design for the development, as the difference in the potential impact of the tower designs for the Spring Grove 88kV powerline is so small as to be negligible.

No-go alternative (compulsory)

The no-go alternative assumes there would be no construction of the Spring Grove Tee 88kV powerline and that site would remain in its current state. The no-go alternative also considers impacts on the MMTS-2 development, Eskom, and Umgeni Water should the powerline not be constructed.

Should the Spring Grove Tee 88kV powerline not be approved, the following impacts as a result of there being no electricity being supplied to the Spring Grove Substation will occur, the MMTS-2, and future Umgeni Water 'Water Treatment Facility' will not be able to operate.

The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Therefore without the Spring Grove Tee 88kV powerline development these critical projects which will ensure the Municipalities ability to provide and address service delivery requirements for provision of water cannot be met. Without adequate water within the eThekwini Municipality there will be an impact on the economic sector within the KwaZulu-Natal region, as water is a critical component in all forms development from agriculture to industry. This would result in a negative impact on the South African economy.

In order for Eskom to upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area, the Spring Grove Substation must be energised. The Substation can only be energised through the construction of the Spring Grove Tee 88kV powerline, which would connect the Substation to the existing Eskom 88kV network. As the growing demand for electricity increases the Nottingham Road and Rosetta area, the supply will not meet the demand of the surrounding communities and business. In the long term there will be limited supply of electricity to the Nottingham Road and Rosetta area which will result in economic impacts for the area as electricity blackouts occur due to the inability to meet the growing demand for electricity in the area.

Using the impact rating system provided in the Section D of the BAR, the No-Go' Alternative of not constructing the Spring Grove 88kV powerline development has scored **46** points.

Summary Statement:

It is in the opinion of the EAP that the proposed Alternative C1 & T1 Spring Grove 88kV powerline be approved. The direct impacts of the Alternative C1 & T1 are localised to the local area and have been migrated where possible to reduce the impact on the local environment and community. Of the three proposed Alternatives for the Spring Grove Tee 88kV powerline development the Alternative C1 will have the smallest overall impact on the Nottingham Road and Rosetta area, and the environment with an overall impact rating of **51**.

The Alternative C1 & T1 Spring Grove Tee 88kV powerline is an essential part of the MMTS-2 development and future UW 'Water Treatment Facility', as these developments cannot operate without the proposed powerline to supply electricity to the Spring Grove Substation. However, the benefits of the MMTS-2, and future UW 'Water Treatment Facility' of which the 88kV Spring Grove Tee powerline is a critical component, in securing and supplying adequate water for the KZN region outweigh the negative aspects of the development. Positives benefits of the Spring Grove Tee 88kV powerline for the local community will include, potable water as a result of the UW 'Water Treatment Facility' for the

greater Nottingham Road area (Nottingham Road, Rosetta, Mooi River).The Spring Grove Substation will also supply electricity via the Spring Grove Tee 88kV powerline to the Nottingham Road and Rosetta area, strengthen the existing 11kV powerline network which will decrease the frequency of power outages experienced in the area.

The impacts associated with the construction phase can be fully mitigated against and managed through independent ECO monitoring and implementation of the EMPr. The utilisation of the correct construction practices and the EMPr (Appendix G) will ensue the impacts are kept to a minimal.

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 X**	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.

1. It is the opinion of the EAP that the proposed Spring Grove Tee 88kV powerline, Nottingham Road, KwaZulu Natal (Alternative C1 and T1) should be constructed.
2. The 200m wide Alternative C1 Servitude should be approved, and the Spring Grove Tee 88kV powerline must fall within the Alternative C1 Servitude.
3. The mitigation measures indicated in this Basic Assessment Report must be implemented.
4. Construction impacts must be managed through a the construction EMPr.
5. Drainage lines, stream, rivers and wetlands must be protected from contamination at all times.
6. Any damage to existing infrastructure (residential property) must be repaired or replaced on completion of the construction.
7. Surrounding stakeholders and members of the community will need to be cautioned regarding safe practices during construction.
8. Emergency contact numbers should be placed at the construction site.
9. The exposure duration of exposed soil, especially on the sensitive areas must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed.
10. Materials must be stockpiled in appropriate areas where storm water runoff cannot erode into the stockpile.
11. Dust control will be implemented throughout the construction phase through the use of a water cart.
12. All existing services must be identified prior to construction as standard practice.
13. Construction activities must comply with designated working hours and surrounding residents must be informed prior to noisy activities.
14. Environmentally sensitive areas must be avoided where possible. During construction of the towers all the necessary steps must be taken to ensure that impacts on the drainage lines, stream, rivers and wetlands and associated riverine vegetation is limited.
15. Any alien vegetation found within, or surrounding the construction site must be cleared to ensure that invasion of disturbed areas does not occur.
16. Cement/concrete mixing will need to take place on a hard surface or on mixing trays. Cement/concrete mixing will not be permitted to occur where run off can enter storm water drains or drainage lines, streams, rivers and wetlands. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
17. All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the Environmental Control Officer if requested e.g. mined material such as stone must only be obtained from permitted quarries.
18. Littering must not be permitted on the site and general housekeeping must be enforced.

19. Waste must be stored in the bins within the waste collection area in the Construction Camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins and must be disposed of at an appropriate land fill site.
20. Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter storm water drains and the surrounding environment.
21. All excess material and rubble must be removed from the site so not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained.
22. Adequate toilet facilities must be provided for all staff members as standard construction practice.
23. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
24. Hunting, poaching, stock theft, or collection of vegetation/plants by construction staff must be prohibited. Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to collect plants or plant parts, hunting/ poaching from site must be enforced;
25. Speeding by construction vehicles must be prohibited.
26. All construction staff members must be undergo 'Environmental Induction Training';
27. Recycling should be undertaken where possible to limit waste added to the landfill site.
28. The construction of access tracks to the tower sites must take the recommendations of the wetland delineation specialist report into account to ensure the flow of ground water in not impacted upon.
29. If contractors uncover any cultural material during their activities, the Act requires that they cease work immediately and contact AMAFA.
30. A respectful distance of at least 50 metres from these heritage sites must be maintained when working or accessing the site with any vehicles.
31. All heritage resources must be fenced off with orange construction fence prior to construction commencing.
32. Only vegetation (i.e. grass) impacting on the tower pylon foundations must be removed, and all recommendations of the vegetation specialist report must be adhere to.
33. Clearing of vegetation must only be undertaken within the 20mX20m tower footprint for each tower site for Spring Grove 88kV powerlines (Alternative C1 and T1).
34. Removal of Pine and Gum Trees must be undertaken by a tree felling specialist, and the wood made available to the landowner.
35. Construction must be managed through implementation of the construction EMPr (see Appendix F).
36. Construction should be monitored by an independent ECO on a bi-monthly basis (twice a month), and a Construction Audit (CA) produced for each monitoring event (bi-monthly site visits) undertaken during the construction phase of the Spring Grove Tee 88kV powerline.
37. A Post Construction Audit (PCA) report must be submitted to DEA Enforcement and Compliance Department once construction has being completed.
38. Excavations and vegetation clearing for the tower pylons should be limited to as small an area as possible.
39. Hazardous materials required during construction should be stored in designated storage areas which are hard surfaced bunded and under cover
40. Spill kits should be kept on site during construction. Staff must be trained on the appropriate handling of spillages and use of spill kits. Spills must be recorded and addressed immediately.
41. The 32m buffer area around all wetland delineated areas must be enforced, and no heavy construction vehicles and machinery permitted to enter this area;

42. If possible, construction should take place during the dry season when development activities are near the rivers and associated wetlands;
43. Where a road runs alongside a wetland and it intercepts natural hill slope runoff into the wetland, the road should be set back from the boundary of the wetland by at least 15 m.
44. During construction, the on-site manager should be present to manage construction impacts. The manager should also serve as a medium for residents to voice their complaints regarding the Spring Grove Tee powerline.
45. Adequate security must be provided during construction of the Spring Grove Tee powerline. It must be ensured that protective measures such as fences and/or barriers and signage are adequately installed (especially during the excavation of foundations) so as to preclude unauthorized access to the facility during construction and operation by individuals and livestock.
46. Trucks should not be permitted to park for extended periods of time on roads or on road verges where they can block roads and accesses, especially during peak hours when people are travelling to and from work. A pointsman should be in attendance when large trucks are entering and leaving the site especially where there is potential for disruption of access.
47. As stated by Eskom, powerlines must comply with the legal limits set for electric and magnetic fields, as set by the South African Department of Health, which is guided by the International Commission on non-ionising radiation protection (ICNIRP) regarding human exposure to electromagnetic fields.
48. A 'walk-through' by a vegetation specialist of the approved Alternative should be conducted prior to the construction phase once the tower sites have been pegged, the specialist must identify any Red Date species on the tower sites that required to be translocate;
49. Permits must be obtained from Ezemvelo KZN Wildlife for disturbance to Schedule 12 species. All vegetation clearing required for the approved Alternative must be undertaken in accordance with Eskom Standards and undertaken by a bush clearing specialist under the supervision of a Contractor.
50. No fires are allowed under any circumstances during construction, the contractor shall have fire-fighting equipment available on all vehicles working on site;
51. A 'Walkthrough' must be conducted by the EWT once the tower sites and pylons have been pegged in order to "fine tune" these sensitive zones and to identify the exact spans of powerline that would require marking to mitigate bird collisions;
52. Mark the identified sections of powerline with anti-collision marking devices on the earth wire to increase the visibility of the line and reduce likelihood of collisions. Marking devices should be spaced 10m apart;
53. All towers for the Spring Grove Tee 88kV powerline must have Eskom approved 'perch guards' fitted to them.

Is an EMPr attached?	**YES X**	NO

The EMPr must be attached as Appendix G.
Please see attached Appendix G for the EMPr.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Kerry Seppings Environmental Management Specialists
NAME OF EAP

_____ _____
SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

Appendix A: Maps

Maps of the Spring Grove Tee 88kV Powerline Project Area, Nottingham Road-Rosetta, KwaZulu-Natal (Source: Eskom, Space Man GIS):

1) Overview Map
2) 88kV Powerline Alternative C1 Property Map
3) 88kV Powerline Alternative C2 Property Map
4) 88kV Powerline Alternative C3 Property Map
5) 88kV Powerline Landcover Map
6) 88kV Powerline Crop Boundaries Map
7) 88kV Powerline Water/Wetland/Stream Map
8) 88kV Powerline EWT Blue Crane Map
9) 88kV Powerline EWT Grey Crowned Crane Map
10) 88kV Powerline EWT Wattled Crane Map
11) Ezemvelo Wildlife Raptor Critical Foraging and Breeding Areas Map
12) Ezemvelo Wildlife Plant Map

South African National Biodiversity Institute Maps of the Spring Grove Tee 88kV Powerline Project Area, Nottingham Road-Rosetta, KwaZulu-Natal (Source: SANBI, GIS, 2013):

1) 88kV Alternative C1 Powerline Servitude Overview Map
2) 88kV Alternative C2 Powerline Servitude Overview Map
3) 88kV Alternative C3 Powerline Servitude Overview Map
4) National Biome Map
5) National Vegetation Map
6) Wetland Map
7) Contour Map
8) National Landcover Map
9) Municipal Landcover Map

1: 50 000 Topographic Map

Figure 1: Aerial image of the proposed Alternative C1 88kV Powerline Servitude, KwaZulu-Natal, Fauna and Avifauna identified by the EAP and Wetland Specialist during site visits has been indicated, buildings and structures have been highlight in green (Source: Google Earth 2013).

Figure 2: Aerial image of the proposed Alternative C2 88kV Powerline Servitude, KwaZulu-Natal, Fauna and Avifauna identified by the EAP during site visits have been indicated, buildings and structures have been highlight in green (Source: Google Earth 2013).

Figure 3: Aerial image of the proposed Alternative C3 88kV Powerline Servitude, KwaZulu-Natal, Fauna and Avifauna identified by the EAP during site visits has been indicated, buildings and structures have been highlight in green (Source: Google Earth 2013).

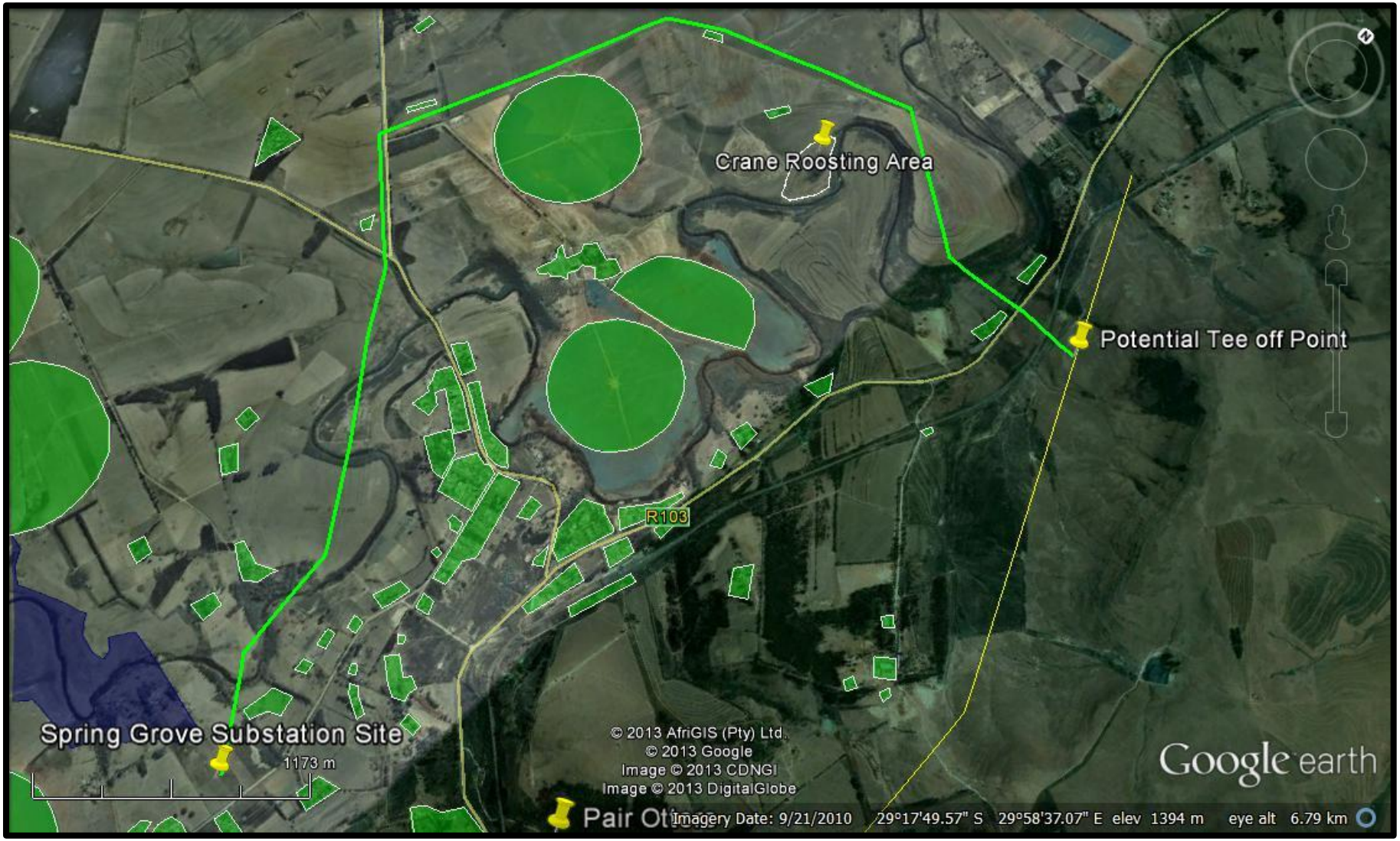


Figure 4: Aerial image of the Later Iron Age Sites identified by the Heritage Specialists on the Alternative C1 Spring Grove Tee 88kV Powerline (Source: Google Earth, 2013).

Figure 5: Aerial image of the Tree Lane identified by the Heritage Specialists on the Alternative C2 Spring Grove Tee 88kV Powerline (Source: Google Earth, 2013).

Figure 6: Aerial image of the Historical Tree lane identified by the Heritage Specialists on the Alternative C3 Spring Grove Tee 88kV Powerline (Source: Google Earth, 2013).

Figure 7: Aerial image of the Wetland/River/Stream/Drainage lines identified by the Wetland Specialists that the Alternative C1 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Figure 8: Close up aerial image of the wetland area identified by the Wetland Specialists that the Alternative C1 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Figure 9: Aerial image of the Wetland/River/Stream/Drainage lines identified by the Wetland Specialists that the Alternative C2 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Figure 10: Close up aerial image of the Wetland Area identified by the Wetland Specialists that the Alternative C2 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Figure 11: Aerial image of the Wetland/River/Stream/Drainage lines identified by the Wetland Specialists that the Alternative C3 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Figure 12: Close up aerial image of the Wetland/River/Stream/Drainage lines identified by the Wetland Specialists that the Alternative C3 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

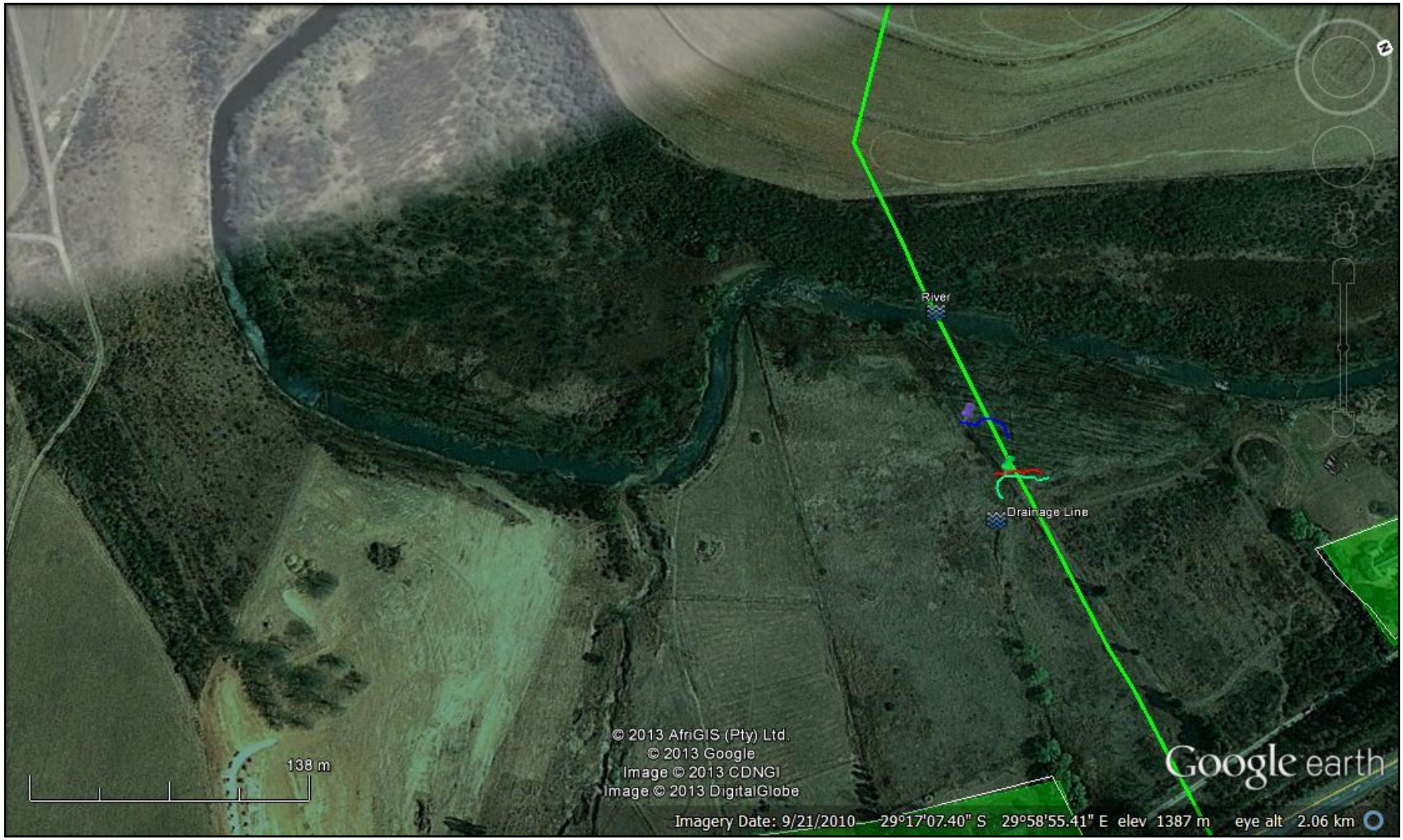


Figure 13: Close up aerial image of the Wetland/River/Stream/Drainage lines identified by the Wetland Specialists that the Alternative C3 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Figure 14: Close up aerial image of the Wetland/River/Stream/Drainage lines identified by the Wetland Specialists that the Alternative C3 Spring Grove Tee 88kV Powerline traverses (Source: Google Earth, 2013).

Co-ordinates taken every 250 metres along the Spring Grove Tee 88kV Powerline Alternative C1

1.	29°18'44.85"S 29°59'40.28"E
2.	29°18'39.87"S 29°59'32.70"E
3.	29°18'36.03"S 29°59'24.61"E
4.	29°18'32.21"S 29°59'16.49"E
5.	29°18'28.68"S 29°59'8.19"E
6.	29°18'26.27"S 29°59'0.54"E
7.	29°18'33.68"S 29°58'56.33"E
8.	29°18'41.00"S 29°58'52.35"E
9.	29°18'47.59"S 29°58'46.62"E
10.	29°18'54.67"S 29°58'41.69"E
11.	29°19'2.09"S 29°58'37.66"E
12.	29°19'9.46"S 29°58'33.68"E
13.	29°19'9.22"S 29°58'25.05"E
14.	29°19'13.54"S 29°58'18.43"E

Co-ordinates taken every 250 metres along the Spring Grove Tee 88kV Powerline Alternative C2

1.	29°20'27.67"S 29°59'8.11"E
2.	29°20'21.22"S 29°59'2.01"E
3.	29°20'15.46"S 29°58'55.08"E
4.	29°20'11.27"S 29°58'47.82"E
5.	29°20'10.77"S 29°58'38.99"E
6.	29°20'5.75"S 29°58'31.86"E
7.	29°20'0.81"S 29°58'24.59"E
8.	29°19'53.72"S 29°58'21.30"E
9.	29°19'45.59"S 29°58'19.79"E
10.	29°19'39.35"S 29°58'13.96"E
11.	29°19'32.71"S 29°58'8.59"E
12.	29°19'25.14"S 29°58'8.85"E
13.	29°19'17.29"S 29°58'11.16"E
14.	29°19'13.54"S 29°58'18.43"E

Co-ordinates taken every 250 metres along the Spring Grove Tee 88kV Powerline Alternative C3

1.	29°17'4.62"S 29°59'20.10"E
2.	29°17'3.40"S 29°59'11.08"E
3.	29°17'2.70"S 29°59'1.85"E
4.	29°17'2.54"S 29°58'52.51"E
5.	29°16'58.19"S 29°58'45.11"E
6.	29°16'53.03"S 29°58'37.97"E
7.	29°16'47.85"S 29°58'30.79"E
8.	29°16'45.81"S 29°58'23.03"E
9.	29°16'48.08"S 29°58'14.09"E
10.	29°16'50.20"S 29°58'5.21"E
11.	29°16'52.38"S 29°57'56.26"E
12.	29°16'55.00"S 29°57'47.40"E
13.	29°16'58.69"S 29°57'39.06"E
14.	29°17'5.93"S 29°57'35.13"E
15.	29°17'13.38"S 29°57'31.26"E
16.	29°17'21.01"S 29°57'27.57"E
17.	29°17'28.54"S 29°57'23.61"E
18.	29°17'36.04"S 29°57'19.89"E
19.	29°17'43.44"S 29°57'15.96"E
20.	29°17'49.89"S 29°57'18.12"E
21.	29°17'55.58"S 29°57'25.14"E
22.	29°18'1.12"S 29°57'32.09"E
23.	29°18'7.77"S 29°57'37.74"E
24.	29°18'14.68"S 29°57'42.92"E
25.	29°18'21.33"S 29°57'48.62"E
26.	29°18'27.98"S 29°57'54.38"E
27.	29°18'34.80"S 29°57'59.59"E
28.	29°18'41.86"S 29°58'4.88"E
29.	29°18'49.99"S 29°58'5.67"E
30.	29°18'58.22"S 29°58'6.51"E
31.	29°19'4.90"S 29°58'11.84"E
32.	29°19'13.54"S 29°58'18.43"E

Appendix B: Photographs

Spring Grove Tee 88kV Powerline Alternative C1

Figure 1: Existing 88kV Powerline that the proposed Spring Grove Tee will connect to.

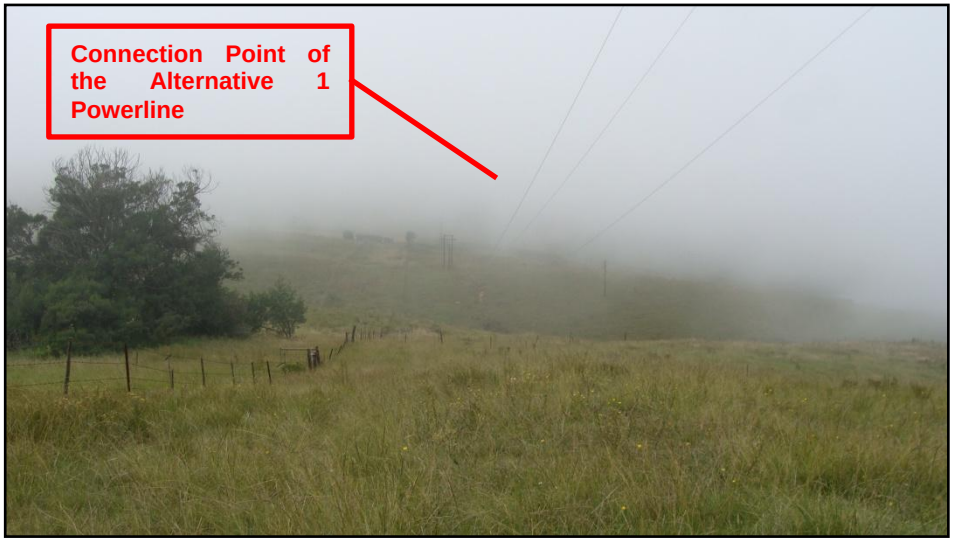


Figure 2: Photograph taken looking towards the connection point for the Alternative C1 powerline servitude, existing 11kV powerline can be seen.

Figure 3: Photograph taken looking towards the R103 Road, existing 11kV powerline can be seen.

Figure 4: Photograph of the dam situated on James Burring property.

Figure 5: Photograph taken at the top of the hill situated at co-ordinates 29°18'30.30"S 29°59'7.58"E looking down towards the R103.

Figure 6: Photograph taken of the access road to Alternative C1 powerline servitude shown in red.

Figure 7: Photograph taken from the R103 Road looking at the point where the powerline would span the Transnet railway line and R103 Road.

Figure 8: Photograph taken from the R103 looking towards the Spring Grove dam.

Figure 9: Photograph taken from Chris Coezter property, potential tower site indicated on photograph, stream and wetland area can be seen in the background.

Figure 10: Photograph taken from Chris Coezter property looking up along the proposed Alternative C1 powerline servitude towards Derek Greens property.

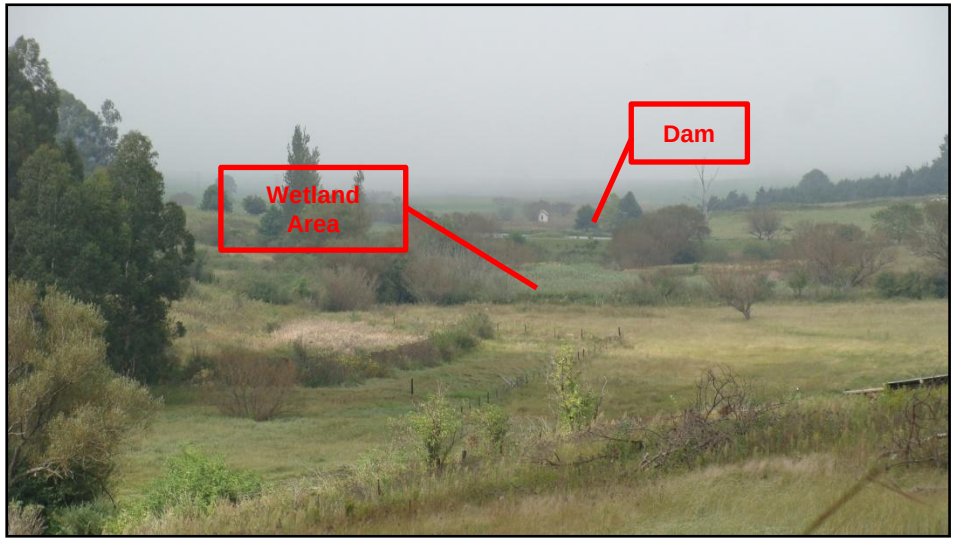


Figure 11: Photograph taken from Chris Coezter property looking up towards Derek Greens property, dam and wetland areas can be seen.

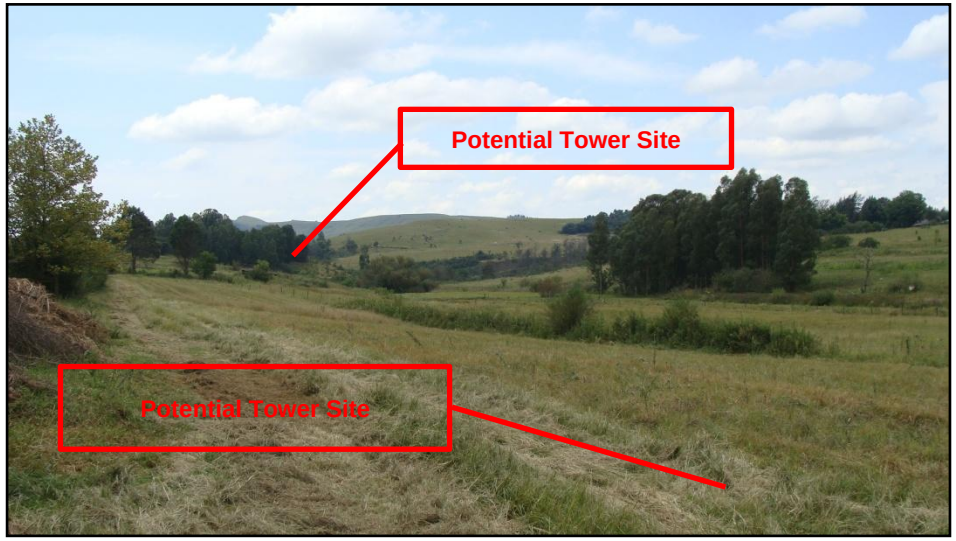


Figure 12: Photograph taken from the potential tower site situated on Colin Regards' property looking backs towards Chris Coezters property.

Figure 13: Photograph taken from the potential tower site situated on Colin Regards' property looking backs towards Chris Coezters property and the Alternative C1 powerline servitude route.

Figure 14: Photograph taken from the potential tower site situated on Colin Regards' property looking towards the Spring Grove dam site, pine trees that would have to be removed for the powerline.

Figure 15: Photograph taken from Colin Regards' property looking towards the Spring Grove dam site along the Alternative C1 powerline servitude.

Figure 16: Photograph taken on Derek Greens' property looking back along the Alternative C2 powerline servitude to its connection point.

Figure 17: Photograph taken on Derek Greens' property, agriculture fields and dams can be seen.

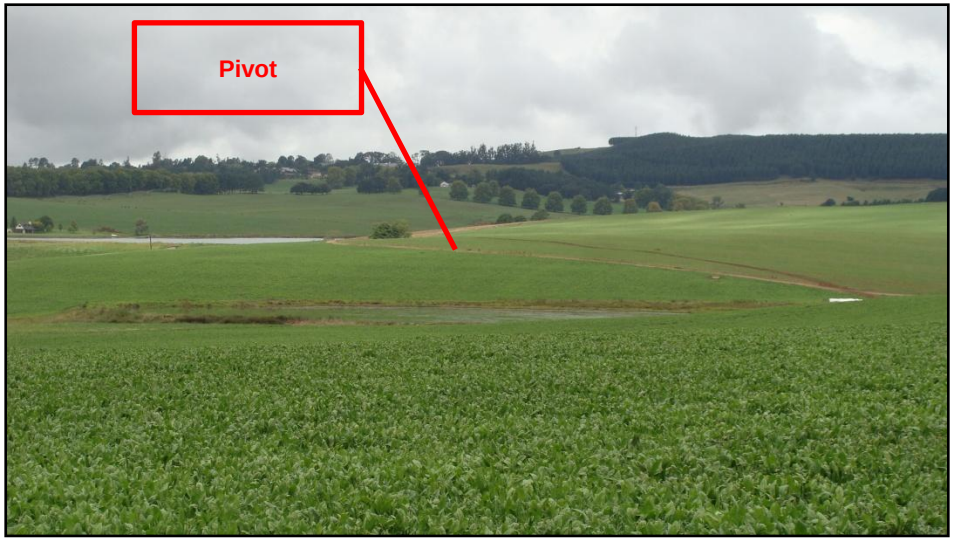


Figure 18: Photograph taken of Derek Greens' property, agricultural pivot can been seen behind the small dam.

Figure 19: Close up photograph of agricultural pivot on Derek Greens property.

Figure 20: Photograph of bald ibis (Red Data Species) taken on Derek Greens' property.

Figure 21: Photograph of white storks (International Protected) taken on Derek Greene's property.

Figure 22: Photograph taken looking North-East from Derek Greens' property over the area that the Spring Grove dam will cover.

Figure 23: Photograph looking towards the Spring Grove Dam wall site along the Alternative C2 powerline.

Spring Grove Tee 88kV Powerline Alternative C3

Figure 24: Photograph of the existing Colenso-Gowrie 88kV powerline, Transnet railway can be seen in the foreground.

Figure 25: Photograph of the crossing point of the Alternative C3 powerline over the R103 and through exotic tress that would be required to be removed.

Figure 26: Photograph of the route of the Alternative C3 powerline servitude once it crosses the Mooi River into agriculture land.

Figure 27: Photograph of Historical Tree lane identified by the Heritage Specialist, Alternative C3 servitude is situated to the left of the road.

Figure 28: Photograph of the maize fields found along the Alternative C3 servitude corridor, Drakensberg Mountains can be seen in the background.

Figure 29: Close up photograph of the Drakensberg Mountains seen from the Alternative C3 servitude corridor.

Figure 30: Photograph taken from the point where the servitude crosses the road at co-ordinates 29°17'46.58"S 29°57'14.95"E, powerline corridor route shown in red.

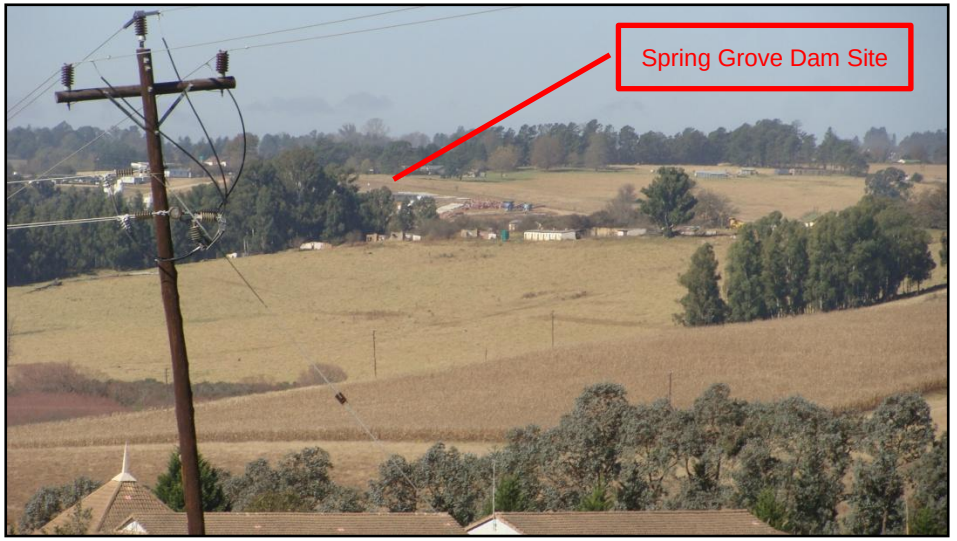


Figure 31: Photograph taken from the point where the servitude crosses the road at co-ordinates 29°17'46.58"S 29°57'14.95"E, the Spring Grove Dam site can be seen.

Figure 32: Photograph taken at co-ordinates 29°18'7.87"S 29°57'54.47"E, powerline corridor route shown in red.

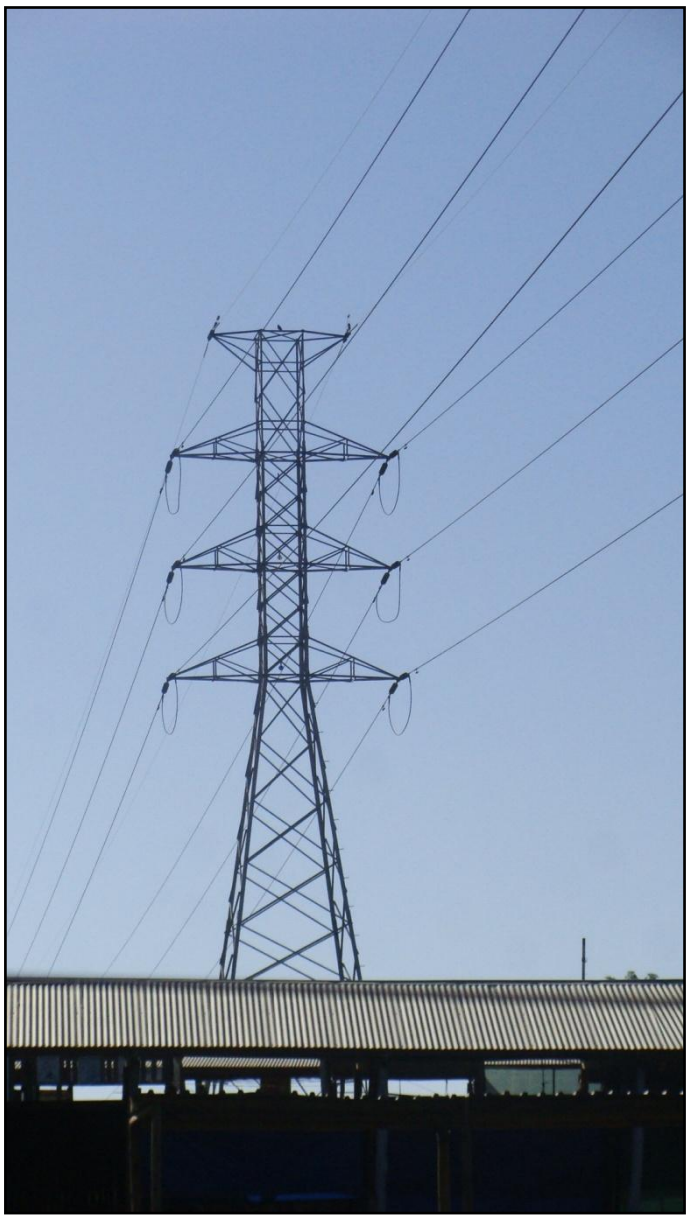
Figure 33: Photograph taken at co-ordinates 29°18'7.87"S 29°57'54.47"E, powerline corridor route shown in red.

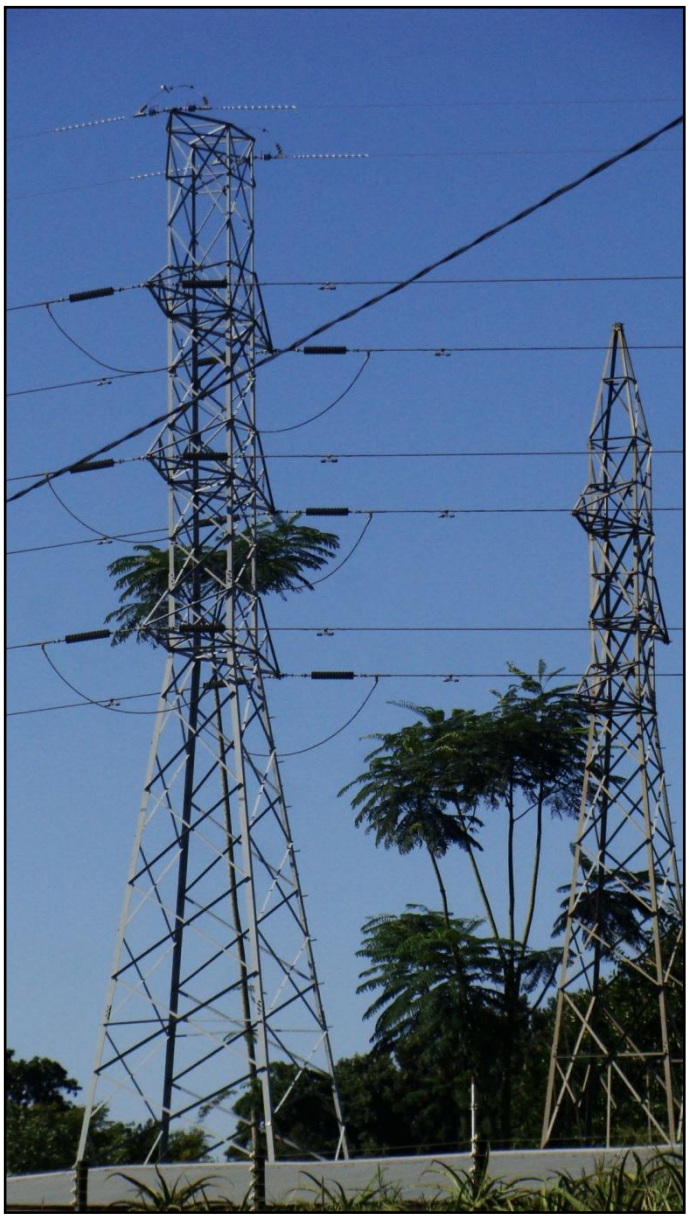
Figure 34: Photograph taken at co-ordinates 29°18'37.19"S 29°58'20.90"E, powerline corridor shown in red.

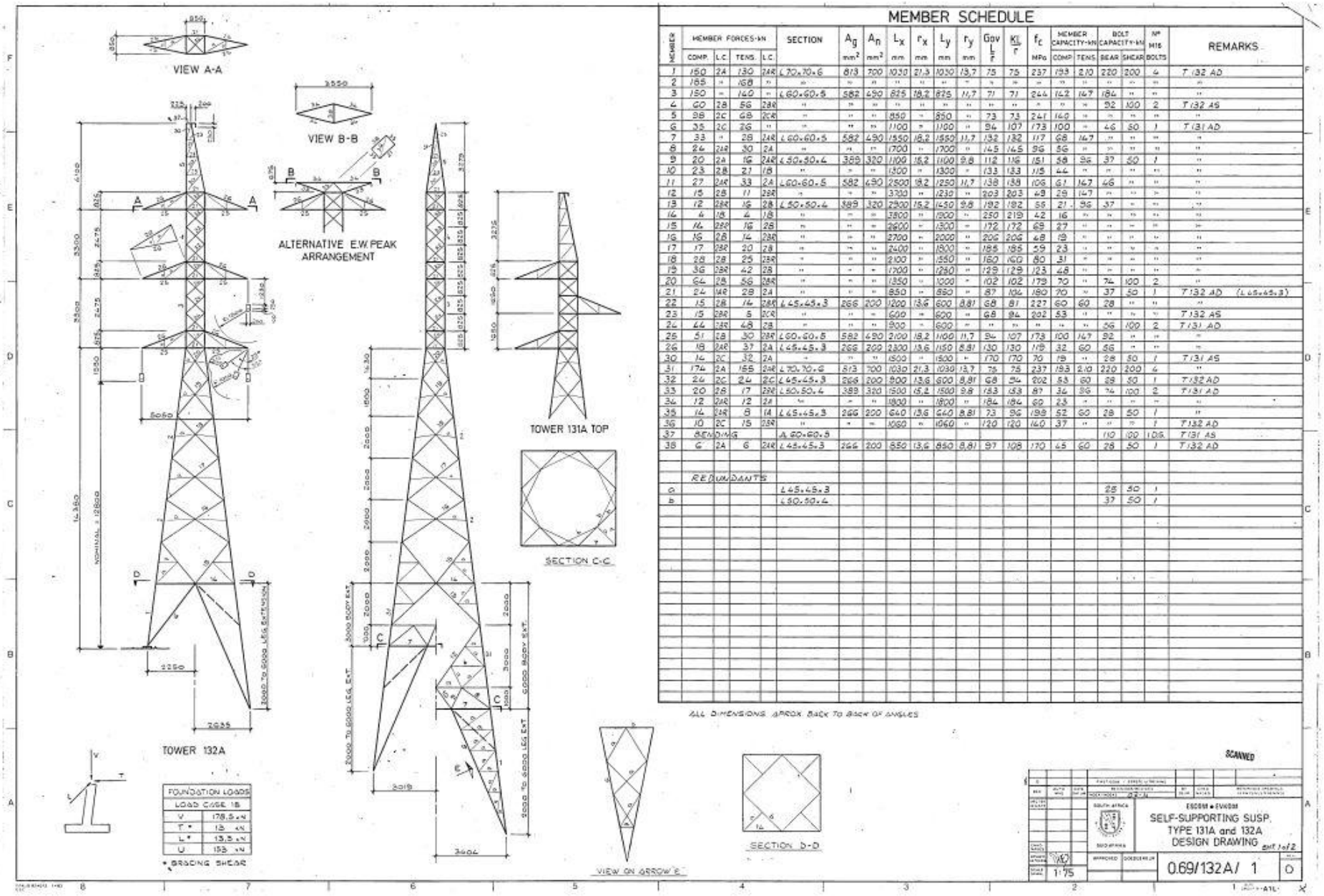
Figure 35: Photograph taken at co-ordinates 29°18'51.28"S 29°58'20.28"E, powerline corridor shown in red. The Spring Grove Dam wall can be seen in the photograph, powerline crosses in front of Dam wall over the Mooi River.

Appendix C: Facility illustration(s)

Figure 1: An example of the Double-Circuit 88KV self-supporting tower type that is the preferred design Alternative for the Spring Grove Tee powerline.







MEMBER SCHEDULE

MEMBER	MEMBER FORCES-kN COMP.	L.C.	TENS.	L.C.	SECTION	A_g mm²	A_n mm²	L_x mm	r_x mm	L_y mm	r_y mm	Gov $\frac{L}{r}$	$\frac{KL}{r}$	f_c MPa	MEMBER CAPACITY-kN COMP	TENS.	BOLT CAPACITY-kN BEAR	SHEAR	Nº M16 BOLTS	REMARKS
1	150	2A	130	2AR	L 70×70×6	813	709	1030	21,3	1030	13,7	75	75	237	193	210	220	200	4	T 132 AD
2	165	"	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
3	150	"	140	"	L 60×60×5	582	490	825	18,2	825	11,7	71	71	244	142	147	184	"	"	"
4	60	2B	56	2BR	"	"	"	"	"	"	"	"	"	"	"	"	92	100	2	T 132 AS
5	98	2C	68	2CR	"	"	"	850	"	850	"	73	73	241	140	"	"	"	"	"
6	35	2C	26	"	"	"	"	1100	"	1100	"	94	107	173	100	"	46	50	1	T 131 AD
7	33	"	28	2AR	L 60×60×5	582	490	1550	18,2	1550	11,7	132	132	117	68	147	"	"	"	"
8	24	2AR	30	2A	"	"	"	1700	"	1700	"	145	145	96	56	"	"	"	"	"
9	20	2A	16	2AR	L 50×50×4	389	320	1100	15,2	1100	9,8	112	116	151	58	96	37	50	1	"
10	23	2B	21	1B	"	"	"	1300	"	1300	"	133	133	115	44	"	"	"	"	"
11	27	2AR	33	2A	L 60×60×5	582	490	2500	18,2	1250	11,7	138	138	106	61	147	46	"	"	"
12	15	2B	11	2BR	"	"	"	3700	"	1230	"	203	203	69	29	147	"	"	"	"
13	12	2BR	16	2B	L 50×50×4	389	320	2300	15,2	1450	9,8	192	182	86	21	96	37	"	"	"
14	4	1B	4	1B	"	"	"	3800	"	1900	"	250	219	42	16	"	"	"	"	"
15	14	2BR	16	2B	"	"	"	2600	"	1300	"	172	172	69	27	"	"	"	"	"
16	16	2B	14	2BR	"	"	"	2700	"	2000	"	206	206	68	19	"	"	"	"	"
17	17	2BR	20	2B	"	"	"	2400	"	1800	"	185	185	59	23	"	"	"	"	"
18	28	2B	25	2BR	"	"	"	2100	"	1550	"	160	160	80	31	"	"	"	"	"
19	36	2BR	42	2B	"	"	"	1700	"	1280	"	129	129	123	48	"	"	"	"	"
20	64	2B	56	2BR	"	"	"	1350	"	1000	"	102	102	179	70	"	74	100	2	"
21	24	1AR	28	2A	"	"	"	850	"	850	"	87	104	180	70	"	37	50	1	T 132 AD (L 45×45×3)
22	15	2B	14	2BR	L 45×45×3	266	200	1200	13,6	600	8,81	68	81	227	60	60	28	"	"	"
23	15	2BR	5	2CR	"	"	"	600	"	600	"	68	84	202	53	"	"	"	"	T 132 AS
24	44	2BR	48	2B	"	"	"	900	"	600	"	"	"	"	"	"	56	100	2	T 131 AD
25	51	2B	30	2BR	L 60×60×5	582	490	2100	18,2	1100	11,7	94	107	173	100	147	92	"	"	"
26	19	2AR	37	2A	L 45×45×3	266	200	2300	13,6	1150	8,81	130	130	119	32	60	56	"	"	"
30	14	2C	32	2A	"	"	"	1500	"	1500	"	170	170	70	19	"	28	50	1	T 131 AS
31	174	2A	165	2AR	L 70×70×6	813	709	1030	21,3	1030	13,7	75	75	237	193	210	220	200	4	"
32	24	2C	24	2C	L 45×45×3	266	200	900	13,6	600	8,81	68	84	202	53	60	28	50	1	T 132 AD
33	20	2B	17	2BR	L 50×50×4	389	320	1500	15,2	1500	9,8	153	153	87	34	96	74	100	2	T 131 AD
34	12	2AR	12	2A	"	"	"	1800	"	1800	"	184	184	60	23	"	"	"	"	"
35	14	2AR	8	1A	L 45×45×3	266	200	640	13,6	640	8,81	73	96	198	52	60	28	50	1	"
36	10	2C	15	2BR	"	"	"	1060	"	1060	"	120	120	140	37	"	"	"	1	T 132 AD
37	BENDING				A 60×60×5												110	100	106	T 131 AS
38	6	2A	6	2AR	L 45×45×3	266	200	850	13,6	850	8,81	97	108	170	45	60	28	50	1	T 132 AD
	REDUNDANTS																			
a					L 45×45×3												28	50	1	
b					L 50×50×4												37	50	1	

ALL DIMENSIONS APPROX BACK TO BACK OF ANGLES

SCANNED

ESKOM • ESKOM

SELF-SUPPORTING SUSP. TYPE 131A and 132A DESIGN DRAWING sht 1 of 2

1:75

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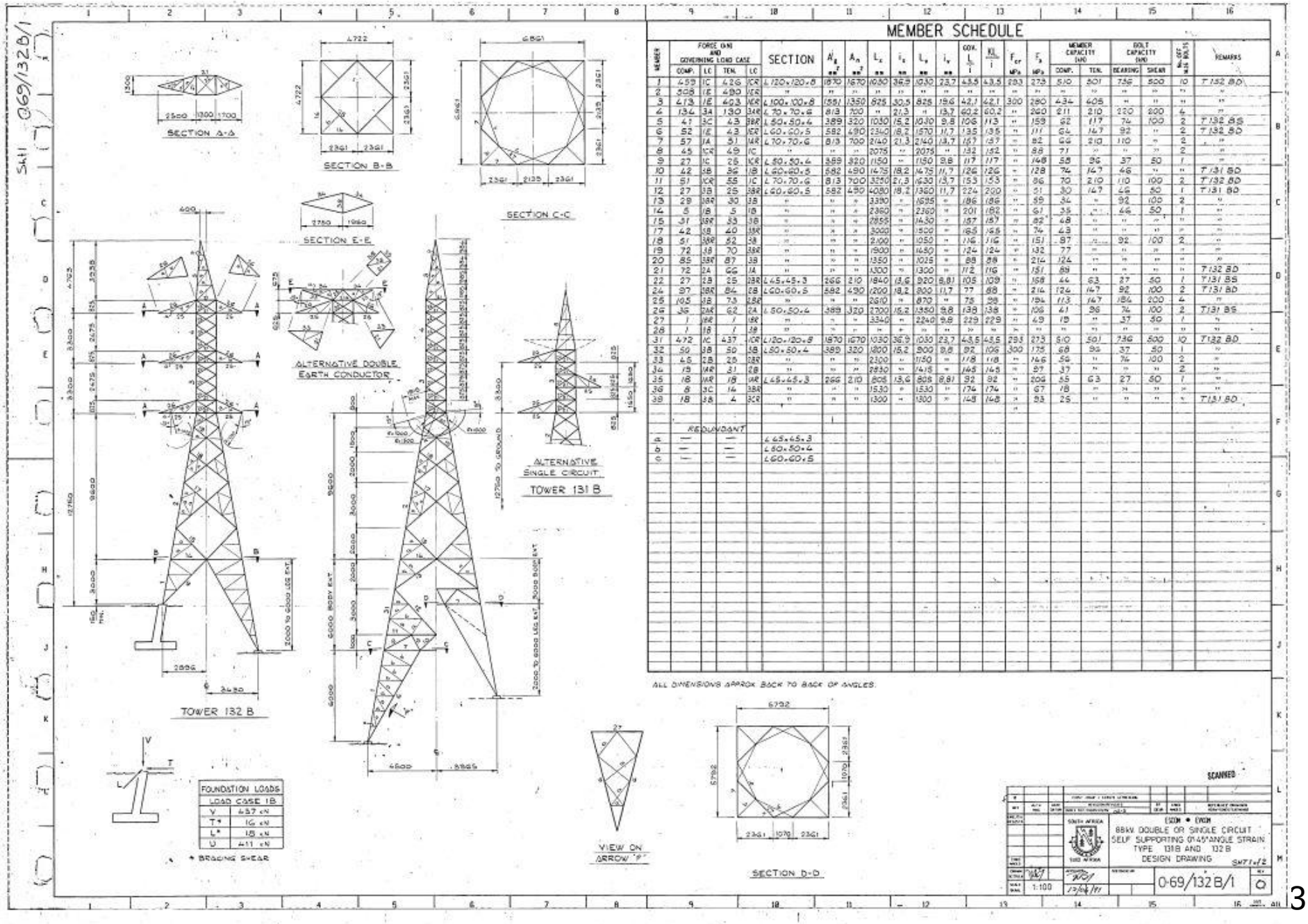
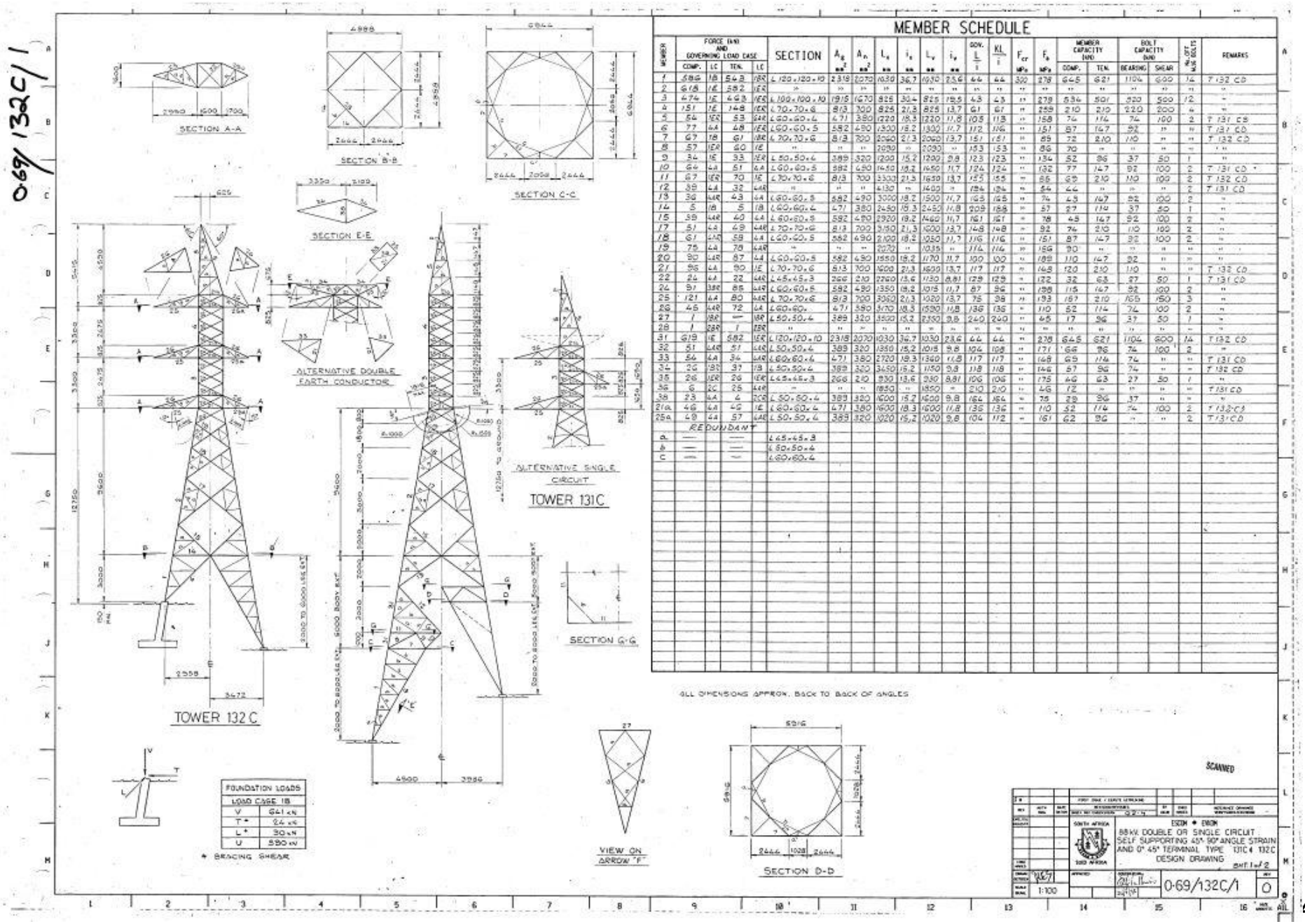


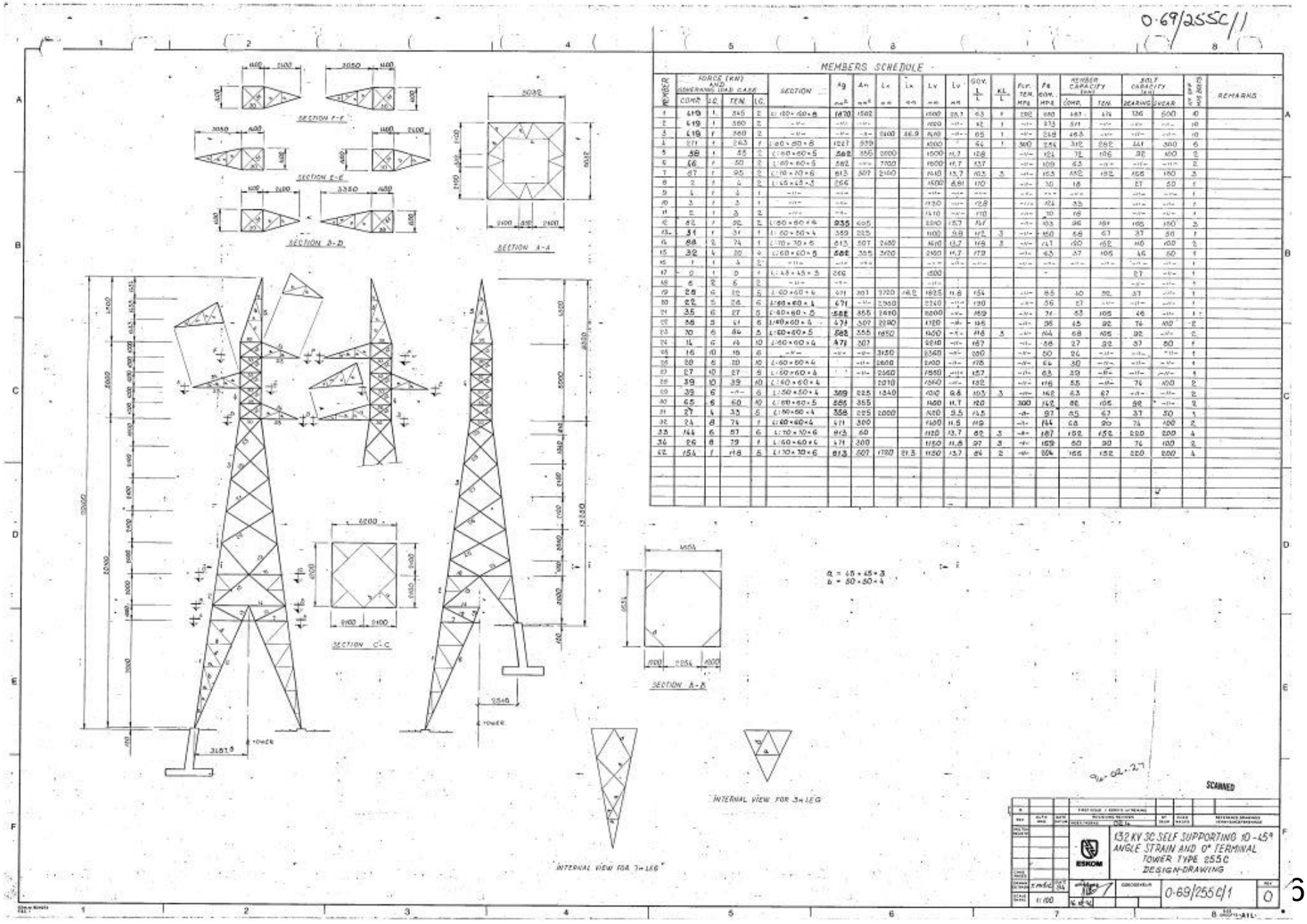
MEMBER	FORCE (kN) AND GOVERNING LOAD CASE				SECTION	A_g mm²	A_n mm²	L_x mm	i_x mm	L_y mm	i_y mm	GOV. $\frac{L}{i}$	$\frac{KL}{i}$	F_{cr} MPa	F_a MPa	MEMBER CAPACITY (kN)		BOLT CAPACITY (kN)		No. OF BOLTS	REMARKS
	COMP.	LC	TEN.	LC												COMP.	TEN.	BEARING	SHEAR		
1	459	1C	426	1CR	L 120×120×8	1870	1670	1030	36.9	1030	23.7	43.5	43.5	283	275	510	501	736	500	10	T 132 BD
2	508	1E	480	1ER	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
3	413	1E	403	1ER	L 100×100×8	1551	1350	825	30.5	825	19.6	42.1	42.1	300	280	434	405	"	"	"	"
4	134	3A	130	3AR	L 70×70×6	813	700	"	21.3	"	13.7	60.2	60.2	"	260	211	210	220	200	4	"
5	41	3C	43	3BR	L 50×50×4	389	320	1030	15.2	1030	9.8	106	113	"	159	82	117	74	100	2	T 132 BS
6	52	1E	43	1ER	L 60×60×5	582	490	2340	18.2	1570	11.7	135	135	"	111	64	147	92	"	2	T 132 BD
7	57	1A	51	1AR	L 70×70×6	813	700	2140	21.3	2140	13.7	157	157	"	82	66	210	110	"	2	"
8	45	1CR	49	1C	"	"	"	2075	"	2075	"	152	152	"	88	71	"	"	"	2	"
9	27	1C	26	1CR	L 50×50×4	389	320	1150	"	1150	9.8	117	117	"	148	58	96	37	50	1	"
10	42	1B	36	1B	L 60×60×5	582	490	1475	18.2	1475	11.7	126	126	"	128	74	147	46	"	"	T 131 BD
11	51	1CR	55	1C	L 70×70×6	813	700	3250	21.3	1630	13.7	153	153	"	86	70	210	110	100	2	T 132 BD
12	27	3B	25	3BR	L 60×60×5	582	490	4080	18.2	1360	11.7	224	200	"	51	30	147	46	50	1	T 131 BD
13	29	3BR	30	3B	"	"	"	3390	"	1695	"	186	186	"	59	34	"	92	100	2	"
14	5	1B	5	1B	"	"	"	2360	"	2360	"	201	182	"	61	35	"	46	50	1	"
15	31	3BR	33	3B	"	"	"	2855	"	1430	"	157	157	"	82	68	"	"	"	"	"
17	42	3B	40	3BR	"	"	"	3000	"	1500	"	165	165	"	74	63	"	"	"	"	"
18	51	3BR	52	3B	"	"	"	2100	"	1050	"	116	116	"	151	87	"	92	100	2	"
19	72	3B	70	3BR	"	"	"	1900	"	1450	"	124	124	"	132	77	"	"	"	"	"
20	85	3BR	87	3B	"	"	"	1350	"	1025	"	88	88	"	214	124	"	"	"	"	"
21	72	2A	66	1A	"	"	"	1300	"	1300	"	112	116	"	151	89	"	"	"	"	T 132 BD
22	27	2B	25	2BR	L 45×45×3	266	210	1840	13.6	920	8.81	105	109	"	168	44	63	27	50	1	T 131 BS
24	97	3BR	84	2B	L 60×60×5	582	490	1200	18.2	800	11.7	77	88	"	214	124	147	92	100	2	T 131 BD
25	105	3B	73	2BR	"	"	"	2610	"	870	"	75	98	"	194	113	147	184	200	4	"
26	36	2AR	62	2A	L 50×50×4	389	320	2700	15.2	1350	9.8	138	138	"	106	61	96	74	100	2	T 131 BS
27	1	1BR	1	1BR	"	"	"	3340	"	2240	9.8	229	229	"	49	19	"	37	50	1	"
28	1	1B	1	1B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
31	472	1C	437	1CR	L 120×120×8	1870	1670	1030	36.9	1030	23.7	43.5	43.5	283	275	510	501	736	500	10	T 132 BD
32	50	3B	50	3B	L 50×50×4	389	320	1800	15.2	900	9.8	92	106	300	175	68	96	37	50	1	"
33	46	2B	25	2BR	"	"	"	2300	"	1150	"	118	118	"	146	56	"	74	100	2	"
34	19	1AR	31	2B	"	"	"	2830	"	1415	"	145	145	"	97	37	"	"	"	2	"
35	18	1AR	18	1AR	L 45×45×3	266	210	805	13.6	805	8.81	92	92	"	209	55	63	27	50	1	"
36	8	3C	14	3BR	"	"	"	1530	"	1530	"	174	174	"	67	18	"	"	"	"	"
38	18	3B	4	3CR	"	"	"	1300	"	1300	"	148	148	"	93	25	"	"	"	"	T 131 BD
	REDUNDANT																				
a	—		—		L 45×45×3																
b	—		—		L 60×60×4																
c	—		—		L 60×60×5																



MEMBER SCHEDULE

MEMBER	FORCE (kN) AND GOVERNING LOAD CASE COMP.	LC	TEN.	LC	SECTION	A_g mm²	A_n mm²	L_x mm	i_x mm	L_y mm	i_y mm	CONV. $\frac{L}{i}$	$\frac{KL}{i}$	F_{cr} MPa	F_a MPa	MEMBER CAPACITY (kN) COMP.	MEMBER CAPACITY (kN) TEN.	BOLT CAPACITY (kN) BEARING	BOLT CAPACITY (kN) SHEAR	NO. OF M20 BOLTS	REMARKS
1	586	1B	543	1BR	L 120×120×10	2318	2070	1030	36.7	1030	23.6	44	44	300	278	645	621	1104	600	14	T 132 CD
2	618	1E	582	1ER	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
3	474	1E	468	1ER	L 100×100×10	1915	1670	825	30.4	825	19.5	43	43	"	278	534	501	920	500	12	"
4	151	1E	148	1ER	L 70×70×8	813	700	825	21.3	825	13.7	61	61	"	259	210	210	220	200	4	"
5	54	1ER	53	6AR	L 60×60×4	471	380	1220	18.3	1220	11.8	105	113	"	158	74	174	74	100	2	T 131 CD
6	77	6A	48	1ER	L 60×60×5	582	490	1300	18.2	1300	11.7	112	116	"	151	87	147	92	"	"	T 131 CD
7	67	1B	61	1BR	L 70×70×6	813	700	2060	21.3	2060	13.7	151	151	"	89	72	210	110	"	"	T 132 CD
8	57	1ER	60	1E	"	"	"	2080	"	2080	"	153	153	"	86	70	"	"	"	"	"
9	34	1E	33	1ER	L 50×50×6	589	320	1200	15.2	1200	9.8	123	123	"	134	52	96	37	50	1	"
10	64	4A	51	6A	L 60×60×5	582	490	1450	18.2	1450	11.7	124	124	"	132	77	147	92	100	2	T 131 CD "
11	67	1ER	70	1E	L 70×70×6	813	700	3300	21.3	1650	13.7	155	155	"	86	69	210	110	100	2	T 132 CD
12	59	4A	32	4AR	"	"	"	4130	"	1400	"	194	194	"	54	44	"	"	"	2	T 131 CD
13	36	4AR	43	4A	L 60×60×5	582	490	3000	18.2	1500	11.7	165	165	"	74	43	147	92	100	2	"
14	5	1B	5	1B	L 60×60×4	471	380	2450	18.3	2450	11.8	209	188	"	57	27	174	37	50	1	"
15	38	4AR	40	4A	L 60×60×5	582	490	2920	18.2	1460	11.7	161	161	"	78	43	147	92	100	2	"
17	51	4A	49	4AR	L 70×70×6	813	700	3150	21.3	1200	13.7	148	148	"	92	74	210	110	100	2	"
18	61	4AR	58	4A	L 60×60×5	582	490	2100	18.2	1050	11.7	116	116	"	151	87	147	92	100	2	"
19	75	4A	78	4AR	"	"	"	2070	"	1035	"	114	114	"	166	90	"	"	"	2	"
20	90	4AR	87	4A	L 60×60×5	582	490	1550	18.2	1170	11.7	100	100	"	188	110	147	92	"	"	"
21	96	4A	90	1E	L 70×70×6	813	700	1600	21.3	1600	13.7	117	117	"	168	120	210	110	"	"	T 132 CD
22	24	6A	22	6AR	L 45×45×3	266	210	2260	13.6	1130	8.81	129	129	"	122	32	63	27	50	1	T 131 CD
24	91	3BR	86	4AR	L 60×60×5	582	490	1350	18.2	1015	11.7	87	96	"	198	115	147	92	100	2	"
25	121	6A	80	6AR	L 70×70×6	813	700	3060	21.3	1020	13.7	75	98	"	193	157	210	165	150	3	"
26	46	4AR	72	6A	L 60×60×	471	380	3170	18.3	1530	11.8	136	136	"	110	52	174	74	100	2	"
27	1	3BR	—	1BR	L 50×50×6	589	320	3500	15.2	2350	9.8	240	240	"	65	17	96	37	50	1	"
28	1	2BR	1	2ER	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
31	619	1E	582	1ER	L 120×120×10	2318	2070	1030	36.7	1030	23.6	44	44	"	278	645	621	1104	600	14	T 132 CD
32	51	4AR	51	4AR	L 50×50×4	389	320	1350	15.2	1015	9.8	104	108	"	171	66	96	74	100	2	"
33	56	6A	34	6AR	L 60×60×4	471	380	2720	18.3	1360	11.8	117	117	"	148	65	174	74	"	"	T 131 CD
34	20	1BR	37	1B	L 50×50×4	389	320	3450	15.2	1150	9.8	118	118	"	146	67	96	74	"	"	T 132 CD
35	26	1ER	26	1ER	L 45×45×3	266	210	930	13.6	930	8.81	106	106	"	175	46	63	27	50	1	"
36	6	2C	25	4AR	"	"	"	1850	"	1850	"	210	210	"	46	12	"	"	"	"	T 131 CD
38	23	6A	6	2CR	L 50×50×4	389	320	1600	15.2	1600	9.8	164	164	"	76	29	96	37	"	"	"
21A	46	6A	46	1E	L 60×60×4	471	380	1600	18.3	1600	11.8	136	136	"	110	52	174	74	100	2	T 132 CD
25A	49	6A	57	6AR	L 50×50×4	389	320	1020	15.2	1020	9.8	104	112	"	161	62	96	"	"	2	T 131 CD
	REDUNDANT																				
a	—		—		L 45×45×3																
b	—		—		L 50×50×4																
c	—		—		L 60×60×4																

Figure 2: An example of a Single-Circuit 88KV self-supporting tower type that is the second design Alternative for the Spring Grove Tee powerline.


0·69/255C/1
MEMBERS SCHEDULE
SECTION F-F
SECTION E-E
SECTION D-D
SECTION A-A
SECTION C-C
SECTION B-B
INTERNAL VIEW FOR 3m LEG
INTERNAL VIEW FOR 7m LEG
a = 65 × 65 × 8
b = 50 × 50 × 4
132 KV 3C SELF SUPPORTING 10-45° ANGLE STRAIN AND 0° TERMINAL TOWER TYPE 255C DESIGN-DRAWING
ESKOM
0-69/255C/1
SCANNED

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix E1:
Proof of the placement of the relevant advertisements and notices
Newspaper Advertisements

Isolezwe Newspaper 19th of February 2013

ISOLEZWE February 19, 2013 IKHASI 19

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Public Works
PROVINCE OF KWAZULU-NATAL

HR PRACTITIONER: RECRUITMENT & SELECTION

North Coast Region (Ulundi)

Salary: R198 975 per annum (Level 8)

CONTROL WORKS INSPECTOR: STRUCTURAL (3 POSTS)

North Coast Region • Zululand Sub-district: Vryheid (Ref. Contr/ws/zul/nw/1/2013)
• Ulundi Sub-District Office (Ref. Contr/ws/ulundi/1/2013)
• Umkhanyakude Sub-District (Ref. Contr/ws/umkh/mth/1/2013)

Salary: R236 532 (Level 9)

711 Public Notices

Isaziso esikhishiwe sezicelo ezizohlolwa isaziso sikhishiwe sokugunyazwa kwezemvelo ngaphansi komthetho ophathelene nokuhlolwa kwezemvelo, 2010 (umthetho ngaphansi kwesigaba 5 sokongamelwa kwezemvelo kuzwelonke, 1998, njengoba uchibiyelwe) usufakwe nomnyango ophathelene nezemvelo.

ITrans-Cadelon Tunnel Authority (TCTA) ibambisene noEskom holdings S O C Ltd uaplayela ukuthola igunya kwabezemvelo lomsebenzi wokufakela izintambo zagesi eziwu 88kv eSpring Groove, Nottingham Road, Kwazulu Natali. iKerry Seppings Environmental Manegement Specialists (KSEMS) usuqokiwe njebasebenzi abazimele abangabaxhumanisi bezemvelo baqokiwe ukuth benze izinhlelo ezidingekayo ze EIA. Ukuze kukwazi ukuhlongzwa konke okudingekayo mayelana nokuhlongoziwe kwezemvelo, ukuhlolwa okujwayelekile kuyadingeka njengokomthetho wokongamelwa kwezemvelo kazwelonke we EIA (Notice:Namba R544 wamhlaka 18 Juni 2010 kuhulumeni) njenopba sikhishiwe mhlaka 2 August 2010 njengokwemisebenzi ehlongoziwe kunotice10.

Isaziso Sosizo Komphakathi

Usuku lomhlangano ovulelekile luyoba se Spring Groove Dam esaythini mhlaka 07 March 2013 einformation centre lolusuku luyoqala ngo 10 ekuseni luyobe ngo6 ntambama. Zonke izingxenye ezithintekayo nezinithando ziyamenywa ukuba zixhumane naloyo obhalwe imininingwane yakhe ngezansi babhalise njengamalungu el&AP , abazomela ukwenziwa kwalezicelo bangazenza ngocingo, feksi, noma nge e-mail.ukuze ukwazi ukuthola ulwazi mayelana nalomsebenzi kuzomele ubhalise njenge l&Aps. Imihlangano iyobanjwa uma iceliwe. Isikhathi nendawo kuyoqinisekiswa nalabo abangamalungu e l&Aps.izincwajana zolwazi (BID) ziyonikezelwa bonke abobe sebengamalungu el&AP lezincwajana zolwazi zobe ziqukethe nemenininingwane yomsebenzi ohlongoziwe kanye neBA process

Kerry Seppings Environmental Specialists cc Xhumana no:Calum Cockerill/Jean Delo/Ronell Kuppen
Ucingo: 031 7691578 /072 2321088 Feksi: 0865355281
E-mail: kerry.seppings@telkomsa.net
Website: www.ksems.co.za

Estcourt and Midlands News 22nd of February 2013

LEGAL NOTICES

UMTSHEZI MUNICIPALITY

NOTICE FOR INSPECTION OF VALUATION ROLL EFFECTIVE 1 JULY 2013 TO 30 JUNE 2017

Notice is hereby given in terms of Section 49(1)(a)(i) of the Local Government Municipal Property Rates Act, of 2004 (Act No. 6 of 2004), hereafter referred to as the "Act", that the supplementary valuation roll for the financial years 1 July 2013 to 30 June 2017 is open for public inspection at the Municipal Offices (Rates Department). Umtshezi Municipality, during office hours (Monday to Friday) from 8:00am to 16:00 from the **11/02/2013 to 22/03/2013 (30 days)**. In addition the supplementary valuation roll 6 is available on the website www.umtshezi.co.za.

An invitation is hereby made in terms of Section 49 (1)(a)(ii) of the Act that any owner of property or other persons who desires should lodge an objection with the Municipal Manager in respect of any matter reflected in, or omitted from, the valuation roll within the abovementioned period. Attention is specifically drawn to the fact that in terms of Section 50(2) of the Act, an objection must be in relation to a specific property and not against the valuation roll as such.

The form for the lodging of objection is obtainable at the Municipal Office, Victoria Street, Estcourt, Weenen Offices and Wembezi Offices. The completed form must be returned to the following address:

MUNICIPAL MANAGER
UMTSHEZI MUNICIPALITY
P.O.BOX 15
ESTCOURT, 3310

For further queries, please contact: Mrs C Hedgcock on 036 342 7839

NOTICE NO. 10/13

PN NJOKO
MUNICIPAL MANAGER

Email your legal notice advertising to salesest@dbn.caxton.co.za or fax 086 352 5596

NOTICE TO CREDITORS IN DECEASED ESTATES

In the Estate of the Late:Full Name
LEELA SEWSANKER
Estate No.:
7557/2010/pmb
Master's Office:
PIETERMARITZBURG
Date of Death:
19/11/2009
Identity No.:
5307170136083
Last address:
HOUSE NO 20 TENTH AVENUE, FORDERVILLE, ESTCOURT
Date of Birth:
17/07/1953

CREDITORS and DEBTORS in the above mentioned Estate are required to lodge their claims with and to pay their debts to the undersigned within THIRTY (30) DAYS from the **22 February 2013**.

Dated at Estcourt on this the 11/02/2013

LOMBARD-BADENHORST INC
ATTORNEY FOR EXECUTOR
P O BOX 18
81 HARDING STREET
ESTCOURT
3310
REF: 11S769002

Notice of Application for Basic Assessment
Notice is hereby given that an application for Environmental Authorisation in terms of the Environmental Impact Assessment Regulations, 2010 (Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998, as amended) has been lodged with the Department Environmental Affairs.

The Trans-Caledon Tunnel Authority (TCTA) is applying on behalf of Eskom Holdings S O C Ltd for Environmental Authorisation for the construction of the new 88kV Spring Grove Tee powerline, Nottingham Road, KwaZulu Natal. Kerry Seppings Environmental Management Specialists (KSEMS) have been appointed as independent environmental consultants to undertake the required EIA process. In order to determine the overall environmental feasibility of the proposal, a Basic Assessment (BA) is required as per the National Environmental Management Act EIA Regulations (Government Notice No. R 544 of 18th June 2010) promulgated as of the 2nd of August 2010 as the proposed activity triggers listing Notice 10.

Notice of Public Participation
A Public Open Day will be held at the TCTA Spring Grove Dam construction site on the 7th of March 2013 in the Information Centre, the Open Day will commence at 10H00 and end 18h00. All interested and affected parties (I&APs) are invited to register with the contact persons below, representations with respect to this application may be made by phone, fax or e-mail. Please note that in order to continue to receive information regarding this project, you must register as an I&AP. A Background Information Document (BID) will be distributed to all I&APs, and will provide information on the proposed project and the BA process.

Eskom Environmental Management TCTA A new word for water

Kerry Seppings Environmental Management Specialists cc
Contact: Calum Cockerill/Jean Delo/Ronell Kuppen
Phone: 031 769 1578/072 232 1088
Fax: 086 535 5281
E-mail: kerry.seppings@telkomsa.net
Website: www.ksems.co.za

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Contact: Calum Cockerill/Jean Delo/Ronell Kuppen
Phone: 031 769 1578/072 232 1088
Fax: 086 535 5281
E-mail: kerry.seppings@telkomsa.net

UMTSHEZI MUNICIPALITY

PUBLIC NOTICE

Notice is hereby given that an application has been lodged with the Umtshezi Local Municipality, in terms of Section 211 of the KwaZulu-Natal Local Authorities Ordinance, No.25 of 1974 for proposed closure of portion of road (7472).

Any person having an interest in the proposed application may lodge written comments not later than 29 March 2013 to the Municipal Manager, Ms PN Njoko, Umtshezi Municipality, P.O.Box 15, Estcourt 3310 or deliver such comments to Office no. 14 Ground Floor: Civic Building Victoria Street, Estcourt, 3310.

Copies of the application document will be available for inspection at Mr Les Jacob's office No.14 Ground Floor, Civic Building, Victoria Street, Estcourt during normal office hours.

Please be advised that failure to lodge or forward comments in response to this notice by the aforementioned date disqualifies a person from further participating in the process.

Enquiries: Mr E. H. Dladla:
DIRECTOR: PLANNING ECONOMIC AND COMMUNITY SERVICES

Tel: 036 352 2538

MUNICIPAL MANAGER
PN NJOKO
KZN 234

NOTICE NO:08/13

Village Talk Newspaper 20th of February 2013

gle man. R2 500pm. 072 307 0009.

GARDEN cottage suit single person. R3 800 incl lights and water. Phone 072 025 4239.

ONE bedroom cottage in Lions River. R2 200pm. Avail. immediately. 074 172 7238.

126 Houses to Let

A variety of **AMBERGLEN, AMBER VALLEY AND AMBER RIDGE RENTALS** available. Contact Tracy Williams your Amber rental specialist since 2007. Tel: 0 3 3 3 3 0 3 4 3 6 / 072 204 8194.

AMBERFIELD avail immediately modern 2 bed, enclosed patios remote garage, alarm furnished, unfurn short or long term. Phone 083 498 7231.

AMBERFIELD Retirement Village, Howick. 2 bedroom unit, 6 months lease, no children, no pets, R3 900 including levy. Max Rental & Sales. Eric 072 235 4592.

BEDSITTER furnished suit single person. R1 800 incl lights and water. 072 025 4239.

HOWICK 2 beds, 2 baths, study, laundry, garage, well run complex. Suit retired couple. Long lease neg. Available 1st March. R4 000pm. 084 613 8247.

144 Houses for Sale

AMBERFIELD modern 2 bed/r enclosed patio. Aircon, heating alarm, fenced, remote garage. 083 498 7231.

AMBERGLEN RETIREMENT VILLAGE
A number of units of varying sizes for sale privately by owners. No agents. Tel 082 265 5499.

157 Cars Wanted

AJAY
PAYS CASH
FOR CARS AND BAKKIES
Any condition or model
Old or New - Spot Cash
Free house calls done
PHONE: 082 966 2384

161 Servicing and Spares

CJ AUTOWORX
Car aircons (regas R250). Radiators, auto electrical. Diagnostics (R150). Servicing of vehicles, hydraulic pipes. Contact 082 307 7958. 15 Mopane Road, Merrivale.

164 Used Cars

LOOKING to buy a car or bakkie between R1 500 to R40 000. Phone 082 742 3230.

173 General Employment

FURNITURE Sales Consultant needed at a Howick Branch, if interested fax c.v to 087 230 2415.

MATURE lady seeks employment in and around Howick. Experience: PA, Secretary, cashier, coun-

invoicing clerk. Must be able to deal with customers in a friendly and professional manner. C.V. to triplecreek23@gmail.com

177 Technical/ Professional

LOCAL ELECTRICAL CO looking for experienced Electrical assistants with wiring and tubing knowledge. Drop CV at 84 Main Street or phone to arrange for an interview. 033 330 5404/ 5.

178 Work Wanted: Commercial

THOBEKA seeks restaurant work or any other work, has matric. 073 391 7028.

179 Work Wanted: Domestic

AN honest woman seeks work, 16yrs exp with ref. Tuesday or Thursday. 078 327 1492.

CATHRINE seeks sleep-in or out domestic work. Phone 079 305 4823.

ENA seeks sleep-out, 5 days domestic work. Cooking, has reference. 084 382 5053.

GOODNESS seeks sleep-in or out domestic work, has reference. 082 352 1814.

NTOMBIKHONA seeks sleep-in or out domestic work. 082 058 2419.

SINDI qualified homebase care, HIV English. 076 011 7783.

STHEMBILE seeks Saturday only domestic/garden work, has reference. 074 278 4173.

ZANELE seeks sleep-out domestic work, has reference. 079 943 7450.

ZIM lady seeks sleep-out, 5 days, has ref. 071 736 3990.

SUNDAYS
9am-Family Service
12pm-Zulu Service
CONTACT
Tel: 033 330 7835
or 084 506 7414

ARE YOU SHORT OF CASH?
A QUICK AND EASY SOLUTION IS TO SELL YOUR SECONDHAND GOODS THROUGH ADVERTISING IN
VILLAGE TALK CLASS ADS

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The Natal Witness 21st of February 2013

The Natal Witness

Printing & Publishing Company (PTY) LTD

Registration Number 1988/002702/07

45 WILLOWTON ROAD • BOX 362 • P.M.BURG
TEL 355 1111 S/BOARD • 355 1244/1255 LEGAL ADV
• 355 1177 CLASS FAX • 355 1144 A/C FAX

To Ronell Kuppen

It is hereby certified that the attached advertisement(s) appeared in our issue of the 21 Feb 13
on page 15

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— Kerry Seppings Environmental Management Specialists cc Contact:.......... Calum Cockerill/ Jean Dolo/ Ronell Kuppen. Phone: 031 709 1578/ 072 232 1085 Fax:...........086 335 5281. E-mail: .... kerry.seppings@telkomsa.net. Website: www.ksems.co.za

...ng Management

03/13

Directors: I S Craib, S J Francis, F... J H Conyng... N Marais, G R Ormond.

Signboards

Figure 1: Aerial photograph of the location of signboards erected on the 20th of February 2013 for the Application for Environmental Authorisation and Notice of Public Open Day at the TCTA Spring Grove Dam Offices (Source: Google Earth, 2013).

Figure 1: English/Zulu Signboard displayed at the Gowrie Village Coffee Shop/Barbz Café & Deli.

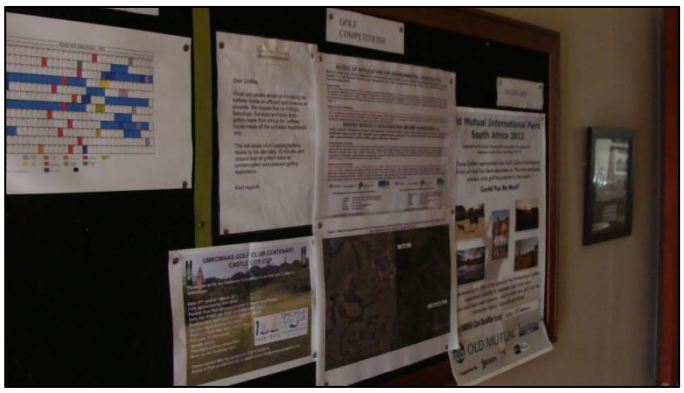

Figure 2: English/Zulu Signboard displayed on the Gowrie Golf Club notice board.

Figure 3: English/Zulu Signboard displayed at the Meander Square-Sapore Restaurant.

Figure 4: English/Zulu Signboard displayed at the Meander Square-toilets.

Figure 5: English/Zulu Signboard displayed on the Nottingham Road landowners Association notice board.

Figure 6: English/Zulu Signboard displayed at The Junction.

Figure 7: English/Zulu Signboard displayed at the Maggies Coffee Shop

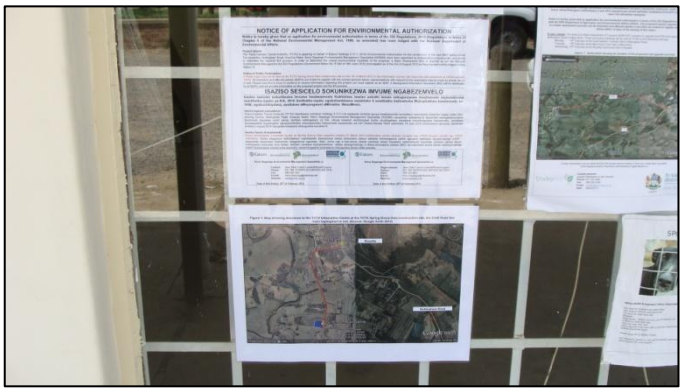

Figure 8: English/Zulu Signboard displayed at the Standard Bank in Nottingham Road next to the ATM.

Figure 9: English/Zulu Signboard displayed at the Group 5 Liaison Office.

Figure 10: English/Zulu Signboard displayed at the outside Nottingham Road SAPS Office.

Figure 11: English/Zulu Signboard displayed at the Spring Grove Dam Site.

Figure 12: English/Zulu Signboard displayed at the Rosetta Post Office.

Figure 13: English/Zulu Signboard displayed at the Rosetta Liquor Store.

Figure 14: English/Zulu Signboard displayed at the Rosetta Trading Store.

Figure 15: English/Zulu Signboard displayed at the Midlands Garden Centre.

Please see example Signboard below which was displayed at the above mentioned locations on the 20th of February 2013.

Notices

*Proof of Hand Delivered Notices to Properties that **may** be able to see the one of the proposed powerline servitudes*

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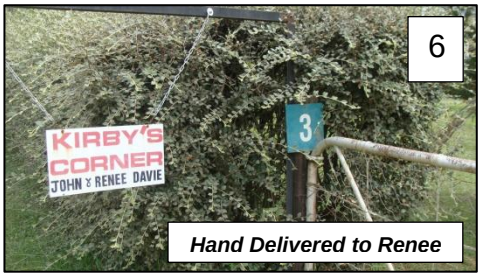

Hand Delivered to Renee

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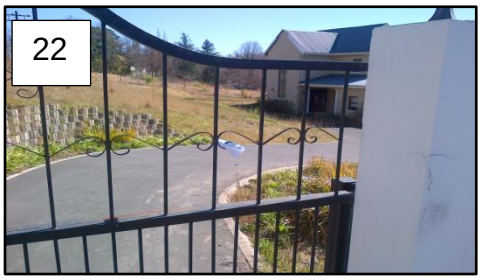

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Figure 16: Aerial image of the location of hand delivered notices as part of Public Participation (Source: Google Earth, 2013).

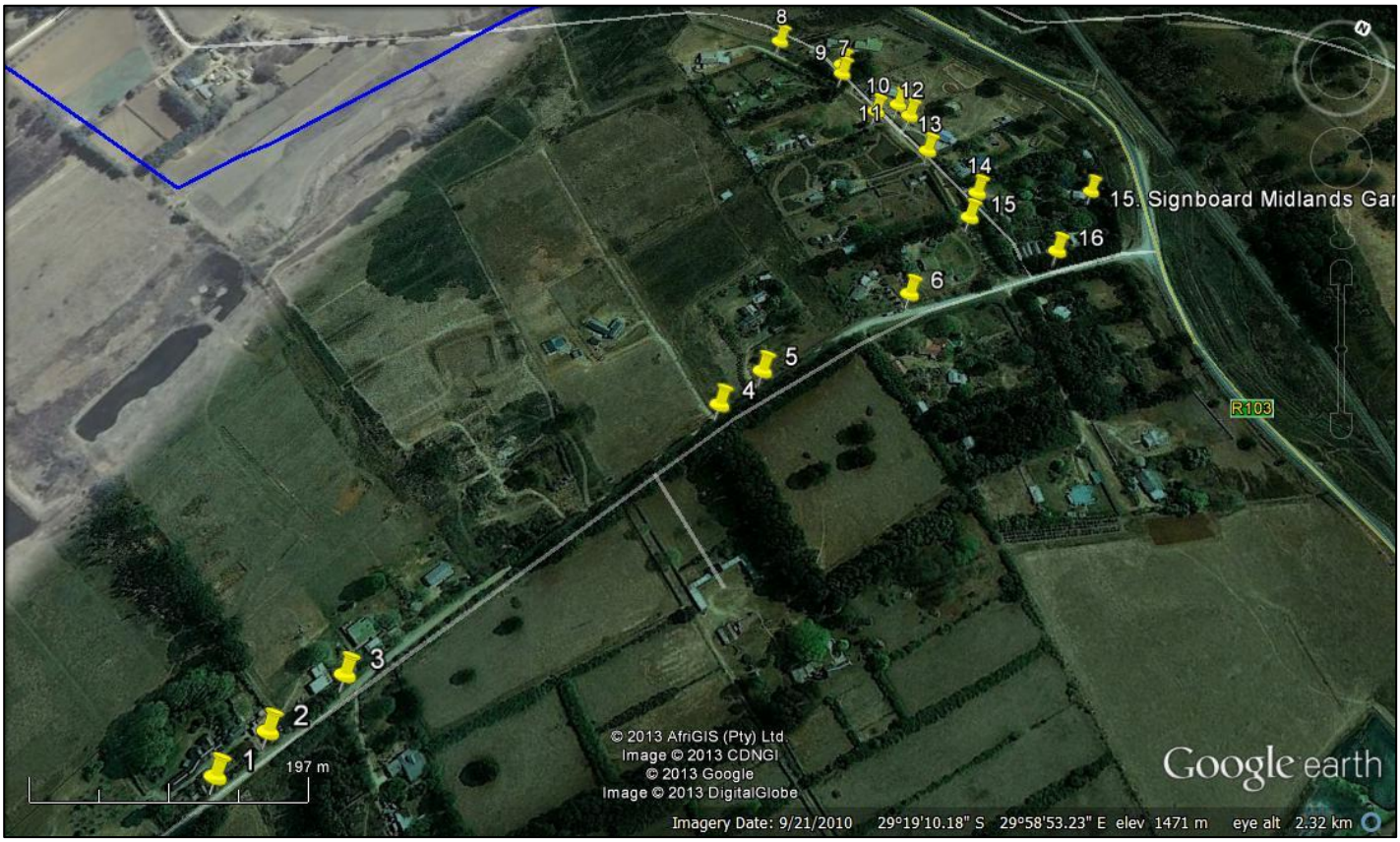

Figure 17: Aerial image of the location of hand delivered notices as part of Public Participation (Source: Google Earth, 2013).

Figure 18: Aerial image of the location of hand delivered notices as part of Public Participation (Source: Google Earth, 2013).

Appendix E2:
Prove that key stakeholders received written notification of the proposed activities

Appendix E3:
Comments and responses report

Comments Received from the BID and Public Open Day		
Comments	From/Date	Response
Comment: As the proposed line stands currently, it would be preferable to move it along the boundary as it would impact on some prime land.	Mrs Janet Flower Oakleigh Farm 033 2677909	Response: KSEMS and Eskom to conduct a site visit to confirm whether it is feasible to have the proposed Spring Grove Tee 88kV powerline (Alternative C1) run along the boundary. Site visit conducted, proposed Spring Grove Tee 88kV powerline has been moved to the boundary lines between James Bernings property, Janet Flower, and Peter Blyth.
Comment: Preferred alternative: at feed in on Gowrie/Colenso line tie in- location must be moved to the boundary between James Berning and Clifton and run along boundary line	Mr Peter Blyth Clifton Stud 0332677407	Response: KSEMS and Eskom to conduct a site visit to confirm whether it is feasible to have the proposed Spring Grove Tee 88kV powerline (Alternative C1) run along the property boundary. Site visit conducted, proposed Spring Grove Tee 88kV powerline has been moved to the boundary lines between James Bernings property, Janet Flower, and Peter Blyth.
Comment: 1. Line crosses Arable Land 2. Close 150m proximity to houses/workshops/labour houses 3. Crosses wetland where crowned crane are 4. Terrible visual impact as it goes right through the heart of the farm.	Mr Ian Morris Rosetta Farm 082 929 3698	Response: KSEMS and Eskom to conduct a site visit to confirm whether it is feasible to have the proposed Alternative C3 Spring Grove Tee 88kV powerline servitude moved to run along the property boundary as per the request of Mr Ian Morris and Mr Steven Morris. Site visit conducted, proposed Alternative C3 Spring Grove Tee 88kV powerline has been moved to the boundary as per Mr Ian Morris and Steven Morris request. Due to the relocation of the servitude, more landowners will be impacted as a result.
Comment: 1. The proposed line goes through arable lands 2. The line goes immediately in front of/or behind the premises (house) 3. Visual Impact 4. This line goes within 150 meters of my house, yard, workshops and labour accommodation- dangerous so close to so many people. 5. There is another route right along the river and boundary of the farm that does not affect arable lands and is not in too close a proximity to housing etc. 6. The dam wetland below the lines is also a habitat to crowned	Mr Steven Morris Rosetta Farm 082 777 5894	Response: KSEMS and Eskom to conduct a site visit to confirm whether it is feasible to have the proposed Alternative C3 Spring Grove Tee 88kV powerline servitude moved to run along the property boundary as per the request of Mr Ian Morris and Mr Steven Morris. Site visit conducted, proposed Alternative C3 Spring Grove Tee 88kV powerline has been moved to the boundary as per Mr Ian Morris and Steven Morris request. Due to the relocation of the servitude, more landowners will be impacted as a result.

crane and other water fowl. 7. Visual impact-goes right through the heart of the farm- past our house, on either side, breaking the view and aesthetics .		
Comment: 1. Please use existing structures as much as possible eg. Existing line through Mr Greenes property. 2. Least preferred route is Rosetta Farm Route (S Morris) (Alternative C3). 3. Orange Route is preferred (Alternative C1).	John Wetton Local Resident 083 2819513	Response: 1) Three Alternative powerline servitudes are being assessed as part of the Basic Assessment Process, which includes the Alternative C2 powerline servitude situated on Mr Derek Greenes' property. 2) Noted. Please note the Basic Assessment process will evaluate the proposed servitudes to determine the most preferred servitude to the less preferred servitude. 3) Noted. Please note the Basic Assessment process will evaluate the proposed servitudes to determine the most preferred servitude to the less preferred servitude.
Comment: 1. Please send more detailed view of the proposed route across my farm. 2. Totally against the route through my farm. I will send an email expanding on the reasons.	Mr Chris Coetzer Marrakesh Cheese Farm 084 352 8911	Response: 1) Maps sent to Mr Chris Coetzer as requested. See attached emails. 2) Noted. The impact of the proposed Alternative C1 powerline servitude that traverses Mr Coetzer property will be evaluated in the Basic Assessment Report. Please see Section D and Appendix F of the BAR.
Comment: 1. Not directly affected but nearby neighbours so would like to stay informed	Zeh Adu Local Resident 073 991 3983	Response: 1) Noted. Registered as an I&AP.
Comment: 1. Quarry site	Mr James Berning Springvale Farm 082 5606632	Response: KSEMS and Eskom to conduct a site visit to confirm whether it is feasible to have the proposed Alternative C1 Spring Grove Tee 88kV powerline servitude moved to by-pass the site that was investigated for a potential quarry site. Information received from TCTA. Site visit conducted, proposed Alternative C1 Spring Grove Tee 88kV powerline has been moved to by-pass quarry site on James Bernings property.
Comments Received after Public Open Day		
Comments: With regards to requested comments concerning the proposed 88kV powerline for the Spring Grove dam, we wish to make the following points:- 1. The BID document issued shows only 2 tee points on the current Colenso Gowrie 88kV powerline, defined on the map available at the public	Carolyn & John Zelenka Silk Tree Hill 082 864 0955	Response: 1) Correct, the BID issued to I&APs and Stakeholders initially only indicated the Alternative C1 and Alternative C3 proposed powerline servitudes. The reason for this as explained at the Public Open day was that the Alternative C2 powerline servitude was originally not going to be assessed as part of the Basic Assessment process. However, the decision was taken during a meeting held

participation open day as the green route and the yellow route. However this map showed an additional tee point shown as the red route. 2. Of these three options the first (green) route is inordinately long (expensive), and finishes by crossing the front of the dam wall creating an ugly visual impact that would be unacceptable to tourists visiting the area to view the dam. 3. The second (yellow) route, directly crosses 3 smallholdings and is a major visual impact on another 13 smallholdings/households. 1. It is a totally new route and for a smallholder the 50m servitude is a serious impact on working facilities. 2. This route is directly on a flight path for Cranes and Storks as well as other threatened birds. 3. Being so close to Rosetta crossing the R103 at it's most scenic location, the route will have a negative visual impact on tourists, a mainstay of the local economy. 4. In addition, although the landowner will get compensation for the use of the servitude, this would be of no consequence if & when the property is to be sold as it would reduce the value of the whole property, not just the servitude, as potential buyers would not accept the impact of a powerline through a property. 5. Of course the properties close to the line that are affected visually, whose prices will be negatively affected, get no compensation at all. 4. The third (undisclosed red) route, although not shown in the document, needs to be clarified to ensure all I&AP's understand it's impact and perceived		between TCTA, Eskom Holdings S O C Ltd, and KSEMS between the release of the BID and Public Open day that the three feasible Alternatives as identified by Eskom must be assessed, as the BID was released prior to the Public Open day to better inform the local community of the proposed development it could not be amended and therefore only indicated two of the three proposed Alternatives. 2) Noted. Please note the Basic Assessment process will evaluate the proposed servitudes to determine the most preferred servitude to the less preferred servitude. 3) The Public Open day held on the 7th of March 2013 enabled KSEMS to speak directly with all landowners impacted on by the development. KSEMS and Eskom conducted site visits to all properties along the Alternative C1 powerline servitude to adjust the servitude to each landowners property to limit the impact to each landowner. The Alternative C1 servitude will impact two landowners once it crosses the R103 Road prior or entering the property owned by TCTA. 3.1) All three of the proposed powerline servitudes are new route corridors (i.e. Alterntive C1, C2, & C3), the total servitude that will be registered will be 36 metres not 50 metres. 3.2) A Avifaunal Assessment has been commissioned as part of the Basic Assessment process, the Endangered Wildlife Trust assessment is attached in Appendix D of the BAR. Please note that the Avifaunal Assessment has indicated that he Alternative C1 servitude as having the least potential impact on Avifaunal communities found within the area. 3.3) The Alternative C1 servitude crossed the R103 Road as close to a right angle as possible to limit the visual impact of the powerline for motorists traveling on the R103. The visual impact of the Alternative C1 has been assessed in Section D and Appendix F of the BAR. 3.4) Noted. Impact on landowners and neighbouring properties has been assessed in Section D and Appendix F of BAR. 3.5) Noted. Impact on landowners and neighbouring properties has been assessed in Section D and Appendix F of BAR. 4) The Alternative C2 servitude is being assessed as part of the Basic Assessment Report for the proposed Spring Grove 88kV Powerline. 4.1) The landowner (Derek Greene) is currently is the process of applying to have the existing 11kV powerline situated on his property removed. The operational impact of the Alternative C2 servitude has been assessed in Section D and Appendix F of the BAR, and the proposed Alternative C2 will have an adverse impact on Mr Derek Greenes ability to farm. 4.2) The proposed construction of the Spring Grove

benefits, which seem to be:- 1. It largely follows a current (admittedly 11kV) line, across mainly larger scale agricultural land where the servitude is of minimal impact operationally. 2. The route would have less impact on tourism as it is a fair distance from roads and hospitality establishments. 3. Being on a current line would presumably mitigate the flight path problem defined for the previous route. 4. The financial impact on the landowners would be minimal, even with wishing to move pivot irrigation systems as subdivisions seem to be available. Other issues are:- 1. Height of towers 2. Size of the substation 3. Exact location of the substation and means of connection to the Pump Station 4. Will the "strengthening of the existing 11kV network" require realignment of that network or will the current "wooden pole and cable" set up remain? These are our concerns to date though others will no doubt arise as the project progresses.		88kV powerline will not have such an adverse impact that it would decrease the number of tourists visiting the area, regardless of the position of roads and hospitality establishments. 4.3) As stated before 11kV powerline is to be removed. The EAP and Avifaunal Specialist (Appendix D) have assessed the three proposed Alternative powerline servitudes for the development, the potential for there to be an impact on avifaunal situated within the area is present regardless of the Alternative constructed. However, the Avifaunal Specialist has assessed the Alternative C1 servitude as having the least potential impact on avifaunal communities in the area. 4.4) The impact on the landowner has been assessed in Section D and Appendix F of the BAR. Other Issues: 1) Refer to BAR Section A 2) Substation was approved as part of the Spring Grove Dam Environmental Authorisation and is not part of this Basic Assessment process. 3) Substation was approved as part of the Spring Grove Dam Environmental Authorisation and is not part of this Basic Assessment process. The pump station will correct to the Substation via 11kV powerlines. 4) The current wooden pole 11kV powerlines will remain, however certain 11kV powerlines will be replaced and others upgraded.
Comment: 1. At the open day visit hosted by KSEMS on 7/3/2013 I learned that one of the two proposed routes for the power line is to run the cables directly across my property. Given the tower footprint size and height, and the servitude width of 32m, plus the clearing of all trees within this servitude, and the news that there may be 2 towers needed on my property to span the length, my concern is that the installation will form a very visible scar on the land. 2. I bought my property in 2001 with a view to the investment, capital growth and careful subdivision and sale of smaller plots, as providing	Mr Chris Coezter Marrakesh Cheese Farm 084 352 8911	Response: 1) KSEMS and Eskom have conducted a site visit to Mr Chris Coezters' property, Roy Huntley, Eskom Surveyor believes that the placement of one tower on Mr Coezters' property would be sufficient and no additional towers would be required. The positioning of this tower would require that exotic trees (Gum) would be removed, however as the tower would be situated against the backdrop of the remaining trees this will decrease the visual impact of the tower. The required servitude for an 88kV powerline is 36 metres. The visual impact of the Alternative C1 servitude has been assessed in Section D and Appendix F of the BAR. Please see Appendix J: Additional Information for aerial maps of Mr Coezters property. 2) Noted. The impact of the proposed Alternative C1 powerline servitude has been assessed in

my pension fund. I have subdivided and sold two of three plots at this point. My future plan is to subdivide and sell a further 6 to 9 plots before I retire. The planned servitude path will make the towers and power lines clearly visible to all of the residents on the future plots. I am certain that these plots will not be easily sold with the lines being in their planned position. 3. All possible paths of the power lines across the land will also limit the sites for the building of houses on the land. Even in the event of my not subdividing any further plots, I believe that the servitude and power lines would severely impact on my being able to sell my land when I retire. 4. Since moving into my property in 2001, the adjacent 40 acre plot known as Ntuli's farm, which overlooks my main residence, has been earmarked for low cost housing. This fact has already diminished the future resale value of my house and cottage, eroding my planned pension funding. Placing the power lines on the other side of my property will further jeopardise my entire pension plan. 5. One of my concerns that needs to be recorded is the fact that the need for electricity supply and the placing of power lines for the Springvale Dam is only being addressed now. None of these issues were highlighted to me earlier on in the program for building the dam. Now that the dam is a fait accompli, the residents in the affected area are expected to live with the results.		Section D and Appendix F of the BAR regarding the subdivided plots of land. 3) The placement of Alternative C1 servitude in its current position, with only one tower situated on a the property should not limit Mr Coezter in subdividing his property further in the future should he wish. The area of land that the Alternative C1 servitude traverses after leaving the tower site situated on Mr Coezters' property is situated within the seasonal flood plain of the small watercourse on his property. Therefore it is likely that any construction of a structure of 50 square metres or more within this area would require Environmental Authorisation from the KZN Department of Agriculture, and Environmental Affairs, as any construction within this area could potential trigger a listed activity as defined in the EIA Regulations GNR 543 of 2010. 4) KSEMS is aware of the future planned 'Ntuli Housing' development and the proposed impact that that development could potential have on the future land value and resale value of properties directly adjacent to the 'Ntuli Housing' development. KSEMS would like to bring to your attention that the 'Ntuli Housing' development would have to apply for Environmental Authorisation prior to any construction commencing as the development would trigger multiple listed activities under the EIA Regulation GNR 543 of 2010. Public Participation would have to be undertaken by the EAP conducting the assessment, and you would be able to raise your concerns requiring the development at that time. As no Environmental Authorisation has been forwarded to the KSEMS regarding the 'Ntuli Housing' development the potential cumulative impact on land values as a result of the Spring Grove Tee 88kV powerline and 'Ntuli Housing' development has not been assessed. Only the potential impact of the Spring Grove Tee 88kV powerline on landowners has been assessed in this BAR. 5) As KSEMS was not involved in the planning stages of the Spring Grove Dam development we are not able to comment on why landowners where not informed regarding the proposed powerline development earlier. This query has been passed onto to TCTA to acquire an answer.
Comment: Visual, Lowering of Property Values, Effect on Fauna and Flora	Keith Flint Flint Construction 033 267 7168	Response: 1) Noted. The following impacts have been assessed in Section D and Appendix F of the Basic Assessment Report.

Comment: I do not want to look at powerlines on front of residence. Existing powerlines need to be used as they have been done in the past.	David Lee Neighbouring Property 082 808 8236	Response: 1) Noted. The potential impact on neighbouring properties has been assessed in Section D and Appendix F of the BAR. Please note that the proposed Spring Grove 88kV powerline is a new powerline, as it is required to connect the future Spring Grove Substation with the existing 88kV powerline network. No existing powerlines can be used to accomplish this.
Comment: 1) I would like to make it very clear that I do not want this powerline to run through or be visible from my property. 2) When I purchased my property I, like everybody else in our neighbourhood, purchased her as the place where we want to spend the rest of our lives in peace and surrounded by the pristine beauty for which this area is renowned. Most of us live on a fixed income of our pension, for which we spent our entire working lives putting aside savings to sustain us in our old age when we are not able to earn a living, so that we would not be a burden to the state or our families. Most of us have already paid out large sums of money in having our properties sub-divided specifically to add to our ever shrinking fixed income, which has been shrinking far quicker than anyone could have foreseen due to the increase in the cost of living since 1994. I foresee that is this proposed powerline were to go through my property, it would effectively negate the possibility of me ever selling my sub-divisions or in fact the balance of my farm in the future, simply because nobody would ever want to purchase a property where the main beautiful view has been interrupted by looking onto Eskom pylons and powerlines so, effectively bringing all our well made plans to naught. 3) I personally work all my lands consistently throughout the year, to keep my farm as efficient as possible, and have fenced it off into as near as possible rectangular camps to make working the land as easy as possible, and would find pylons in my fields a great nuisance to	Colin Regnard Landowner Alternative C1 0722622786	Response: 1) Noted. 2) KSEMS and Eskom have conducted a site visit to Mr Colin Regnards' property, Roy Huntley, Eskom Surveyor believes that the placement of one tower on the southern corner of Mr Regnards' property would be sufficient and no additional towers would be required. The positioning of this tower would require that exotic trees (Pine) to be removed, however as the tower would be situated behind Mr Regnards' house, farm buildings, and Pine trees the tower should not be visible from Mr Regnards' house or subdivide plots. The proposed Alternative C1 servitude will cross on the boundary of one of Mr Regnards' subdivided plots, and will not impact on the plots directly. The powerline conductors of the Alternative C1 servitude would be visible from the subdivided plots, the visual impacts of the Alternative C1 servitude have been assessed in Section D and Appendix F of the BAR. Please Appendix J: Additional Information for aerial maps of Mr Regnards' property. 3) As stated above one tower on the southern corner of Mr Regnards' property would be sufficient and no additional towers would be required, the placement of this tower at this position would not impact on Mr Regnards farming activities or arable land. Landowners will be compensated for the area of land required for the powerline servitude, in accordance with the Expropriation Act (Act 63 of 1975). 4) Noted. A Wetland Delineation Assessment has been commissioned as part of this Basic Assessment Report and is attached in Appendix D of the BAR. The tower site positioned on Mr Regnards' property does not fall with 32 metres of the watercourse or wetland area, and therefore does not required Environmental Authorisation for listing activities 11 of GNR 544 of June 2010. As the tower structure is a steel lattice design, if the tower site is within the 1:100 flood plains the impact on the tower by water will be minimal as water will be able to flow through the base of the tower structure. 5) An Avifaunal Assessment has been commissioned as part of this Basic Assessment Report and is attached in Appendix D of the BAR. The Endangered Wildlife Trust conducted the assessment for the development and has

poughing, mowing, raking, bailing, and fire-breaking, to say nothing of arable land. We have been told that we will be compensated for the area that the pylons occupy, but no monetary compensation could ever pay for the loss of income and inconvenience that such pylons and powerlines would incur. 4) I would like to advise you that when I registered my sub-divisions, I had to get a 100 year flood plan for the valley and the proposed position for the pylons is within the flood area. 5) The proposed powerline is exactly in the flight path of a flock of up to 9 Crown Cranes. In the late afternoon, a flock come overhead about 200 Metres North of our house, flying in an easterly direction. After calling to each other the flock splits, virtually over the stream in the valley, and a pair who perennially nest higher up the valley to the South, break formation, and the balance change direction to fly North East through the valley to Springvale. You will notice that this is exactly over the proposed powerline route, and at the same altitude. We also observe large flocks of up to 100 finches flying over our house in the evening from the Northwest to roost in the can surrounding the dam adjacent to our Secondary boundary. The corner pylon would be exactly in their flight path. 6) There are also quite a few buck living in the wetland area near the stream, who wold greatly disturbed by the construction of the pylons. 7) Finally, I don't know how construction vehicles would be able to access the bottom fields where the proposed pylons would be erected since the only access roads are narrow with tight right-angle bends which are difficult to access with my tractor and implements. 8) I cannot understand why Eskom would rather permanently damage, ruin the beautiful are		indicated that the Alternative C1 servitude as having the least potential impact on Avifaunal communities living in the area. The EAP is aware that the area that the proposed Spring Grove Tee 88kV development is situated in is a sensitive area from an avifaunal perspective due to the presence of all three Crane species and numerous other Red Data Species frequenting the area. The potential impacts of the Spring Grove Tee 88kV powerline development on avifaunal have been assessed in Section D and Appendix F of the BAR. 6) The impact on fauna during the construction of the proposed Spring Grove Tee 88kV powerline has been assessed in Section D and Appendix F of the BAR. Fauna will be disturbed as a result of construction activities, however, this is a temporary impact limited to the construction phase. 7) The largest vehicles to be used during construction of the proposed towers are 7-tons trucks that are equipment with 4X4, and will be able to access the proposed tower site utilising the access roads situated on Mr Regnards' property. Construction of the tower can be undertaken by hand which includes the erection of the tower top if necessary, as well as stringing activities. Therefore should it be required construction activities can be conducted without the need of a crane to erect the tower. 8) The proposed 88kV Spring Grove Tee powerline is an essential part of the MMTS-2 and future UW 'Water Treatment Facility', as these developments cannot operate without the proposed powerline to supply electricity to the Spring Grove Substation. The BAR is assessing all available Alternatives, however the proposed Spring Grove Tee 88kV powerline has only three (3) Alternative servitudes available that are feasible for the construction of the powerline. Therefore the BAR must assess which of the proposed Alternatives is the best practicable environmental option for the development and will have the least Environmental and Social impact on the area. The operational impact of the Alternative C2 servitude has been assessed in Section D and Appendix F of the BAR, and the proposed Alternative C2 will have an adverse impact on Mr Derek Greenes' ability to farm. 9) Please note that provided that Environmental Legislation is adhered to, there is no reason why a private individual, citizen, or company cannot apply for or undertake any listed activity as indicated in the National Environmental Management Act (107 of 1998).

with unsightly pylons and powerlines, and cause financial damage to at least eight landowners who have been planning for years for their retirement, when there is a perfectly good alternative (C2) through an enormous farm to the south, where the line would cause proportionately infinitely less inconvenience, unsightliness, and no financial damage, just because the owner has said that he is planning to add another centre pivot irrigation system to all the others he already has. Whereas our subdivisions have already been accepted and paid for by us, and all that money will have been wasted, including that fact that it be impossible to sell the subs without incurring huge depreciation in value. How would you personally, like someone to permanently and totally ruin your retirement plans, for which you had planned and worked hard all your life. 9) We all know that is I, as a private citizen, wanted to build or cultivate land in an area where the environmentalists considered that it would affect the future inhabitation of some endangered bug or bird or animal, they would effectively stop my efforts in their tracks.		
Comments Received for the Draft Basic Assessment Report		

Appendix E4:
Proof that Authorities and Organs of State received written notification of the proposed Project.

Appendix E5:
List of Registered I&APs

Appendix E6:
Correspondence and Minutes of Meetings

Appendix E7:
Background Information Background

Appendix F: Impact Assessment

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

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.

A. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the planning and design phase:

N/A. There are no impacts associated with the planning and design phase as all the planning and designing for the proposed development has been offsite.

b. Process, technology, layout or other alternatives

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

N/A. There are no impacts associated with the planning and design phase as all the planning and designing for the proposed development has been offsite.

B. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

Description Of Environmental Issues Identified, Assessment Of The Significance Of Each Issue And An Indication Of The Extent To Which The Issue Could Be Addressed By The Adoption Of Mitigation Measures [Regulation 22 (2) (i-k)]

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

The following list of potential impacts have been identified that could occur during the construction phase for the New Spring Grove Tee 88kV Powerline.

Spring Grove Tee 88kV Powerline:
Alternative C1 (Preferred Alternative):

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
SOIL										
Interruption or damage to services (electricity, water etc).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	High	• This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Erosion of stockpiled material (stone, sand and gravel).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	• Material must be stockpiled in such a way that it cannot fall or cause injury or damage to properties or the natural environment. • Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
The onsite erosion of exposed soil before rehabilitation is completed.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. • The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. • Only vegetation that is	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								required to be removed for the construction tower must be removed in a phased and controlled manner. • Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Generation of dust caused by construction vehicles moving over exposed soil.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• Dust control must be implemented throughout the construction phase. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Soil compaction due to construction machinery	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • The Rehabilitation of disturbed areas will be undertaken on completion of the	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								project. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
STORMWATER										
Poor stormwater management during construction can lead to erosion and loss of soil.	Indirect	Local	Construction phase (short term)	Yes	No	Low	High	• Stormwater control must be instituted during the construction of the tower site; however this is a temporary impact of the proposal. • A drainage system must be established for the construction camp. The drainage system must be regularly checked to ensure the unobstructed flow of water. • The contractor must ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion and must take adequate steps to ensure that the amount of stormwater is not significantly increased and can be appropriately dealt with. • The designated responsible person on	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								site (usually the contractor) must ensure that no construction work takes place before adequate stormwater control measures are in place. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
FLORA										
Risk of alien invasive encroachment into disturbed areas.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• The establishment or spread of alien plant species in the powerline servitude and tower sites must be monitored and the correct removal and disposal of alien plant species must be followed. • Rehabilitation of tower sites must commence as soon as construction activities are completed in those areas. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Damage and removal of existing vegetation for	Direct	Local	Construction phase (short-term)	Yes	No	High	Medium	• Workers must be educated on minimising damage to vegetation during construction of	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
the construction of the Spring Grove 88kV powerline Alternative C1 and tower sites.								powerline. • Each tower site for the Alternative C1 powerline will require that an area of 20mX20m have bush clearing conducted to be removed all small shrubs, bushes, and trees from the site, grass must only be removed from those areas where the tower foundations will be excavated. • Grass/vegetation must only be removed from those areas where the tower foundations for the pylons will be excavated, vegetation may be removed in a phased and controlled manner (approximately 16m^2 of vegetation for each tower). • The removal of exotic trees (i.e. Pines and Gums) must be undertaken by a suitable qualified specialist, and the wood made available to the landowner should he/she requests it. • The removal of		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								vegetation for the proposed tower sites and powerline must be conducted by a bush clearing specialist to insure that the damage to vegetation is minimized. • Indiscriminate clearing of vegetation must be avoided and only those areas directly affecting the construction site may be removed. • Where possible removal of indigenous and protected trees must be avoided, permits must be obtained from the EKZNW for the removal of these trees. • The Rehabilitation of disturbed areas must commence as soon as construction activities are completed in those areas. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Collecting of plants by construction workers.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• No vegetation/plants may be collected or destroyed by staff members.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								• Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting collect plants or plant parts from site must be enforced. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Loss of land due to Spring Grove powerline requiring new servitudes	Direct	Local	Construction phase and Operational (Long-term)	Impact cannot be prevented	No	This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. The registered servitude will allow for the construction of the powerline on the landowners property, and states the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitude in accordance with the Expropriation Act No 63 of 1975.				
FAUNA/AVIFAUNA										
Poaching/Hunting/Fishing of wildlife by construction workers.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• Hunting or poaching must be prohibited. During construction, guidelines set out in the EMPr must be followed to ensure no potential impacts occur. • Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to poaching/hunting/fishin	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								g from site must be enforced. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Disturbance of birds, Impact on Red Data and other species	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	High	• Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. Sensitive zones described elsewhere in this report, should be avoided where possible. It is difficult to mitigate properly for this as some disturbance is inevitable. • During construction, if any of the "Focal Species" identified in this report are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted for further instruction. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Destruction or alteration of bird habitat, Impact on Red Data and other species	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	High	• Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. • It is difficult to mitigate properly for this as some habitat destruction is inevitable. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
SENSITIVE ENVIRONMENTAL AREAS										
Degradation and Contamination of the drainage lines, wetlands, and surrounding environment by cement and other hazardous materials.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• Site workers must be trained in avoiding impacts in areas of potential concern (e.g. stream banks). Environmentally sensitive areas (i.e. the drainage lines, streams) must be avoided where possible. • No towers for the powerline may be constructed within 32 metres a wetland area or riparian habitat. • Prior to construction all access roads to the	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. • The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. • The Contractor must submit a method statement to the RE for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and sedimentation control measures, surface water flow diversion, reinstatement, etc. • Hazardous material storage areas must not be within 32m from a stream/drainage line or local residential homesteads. • Designated concrete mixing areas and storage areas for all		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								hazardous materials must be assigned prior to construction and must be stored within the construction site camp. • Cement mixing must take place on a hard surface or on cement mixing trays. Cement mixing must not be permitted to occur where run off can enter storm water drains, watercourses, water bodies, wetlands or drainage lines. In addition cement and fuels must be stored within bunded and hard surfaced areas. • If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Impacts on watercourses, water bodies or	Direct	Local	Construction phase (short-term)	Yes	No	Low	High	• No towers for the powerline may be constructed within 32	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
drainage lines.								metres of or within a wetland area or riparian habitat. • Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. • The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. • No dumping must be allowed into any watercourse, drainage lines or water bodies. • Site staff shall not be permitted to use the stream or natural water source adjacent to the construction of the tower sites for the purposes of bathing, washing of clothing or for any construction related activities. • Municipal water (or another source		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								approved by the Engineer) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
WASTE										
Improper storage and disposal of solid waste.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins. • All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. • Separate skips/ bins for the different waste streams must be available on site. The	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Littering around the site.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Littering must not be permitted on the site and general housekeeping must be enforced. • General waste bins must be readily available for litter disposal and general housekeeping. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Improper disposal of rubble i.e.: burying or neglecting building rubble resulting in direct mechanical damage to surrounding	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process. • All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
vegetation and untidiness of the site.								• Site workers will be trained in avoiding such impacts. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Lack of toilet facilities resulting in unsanitary conditions.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Adequate toilet facilities must be provided for all staff members as standard construction practice. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment and the stream.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. • Safe disposal certificates must be kept on record. • All activities must be managed through the	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								site-specific EMPr (Appendix G) and monitored by an ECO.		
Increased waste to landfill site.	Cumulative	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Waste streams must be separated and recycled where possible to limit waste added to the landfill site. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO..	Low	Low
Potential for waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.	Indirect	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Waste must be classified prior to being disposed of. • A registry of all waste that is removed from the construction site must be maintained. • Safe disposal certificates must be from landfill sites and kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
HAZARDOUS CHEMICALS / FUELS										
Risk of spills from construction equipment (oils, fuels, cement etc)	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Any hazardous or dangerous goods utilized during the construction phase must be stored on an impermeable surface	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
contaminating soil and watercourse.								that is bunded, fenced, locked and covered. • A spill kit must be available within the construction site and must be clearly marked and visible when utilizing hazardous or dangerous materials to ensure the repaid containment of the spill. • Each truck used in the construction of Spring Grove Tee 88kV powerline must have a spill kit stored abroad at all times. • Spill kits must be regularly checked and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Improper storage of hazardous waste i.e.: used oils from vehicles, old cement bags.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses, water bodies, wetlands or drainage lines and the surrounding environment. • All activities must be managed through the	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								site-specific EMPr (Appendix G) and monitored by an ECO.		
Risk of contamination of soil and stormwater during concrete mixing.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Hazardous material storage areas must not be within 100m from a stream/drainage line, wetland, river or local residential homesteads. • Designated concrete/cement mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. • Cement/concrete mixing must take place on a hard surface or on cement mixing trays. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. • All activities must be	Low	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
NOISE										
Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). • The construction must be monitored by an ECO who must monitor compliance with the construction EMPr and EA. • All precautions must be taken to ensure that noise generation is kept to a minimum. • If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
AIR QUALITY										

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Emissions generated from construction vehicles	Direct	Local	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities and the environment. • This impact is only relevant during the construction phase. • The construction vehicles used must be regularly maintained to ensure that excessive emissions are controlled. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
RESOURCE USE & CONSERVATION										
Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining operations	Direct	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO e.g. mined material such as stone must only be obtained from permitted quarries. • All activities must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
causing significant environmental damage.								managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
TRAFFIC										
Speeding vehicles resulting in safety issues for surrounding community and their livestock.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• Speeding must be prohibited. • Construction vehicles must travel slowly along the access roads to the tower sites and adhere to all traffic laws. • Construction vehicles must not be permitted to park for extended periods of time on the roads or on road verges where they can block the roads and accesses. • Flagmen must be kept in attendance to control traffic where road disruption is most likely. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low to Medium
Disruption to road services if construction activities accidentally affect the roads.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• Flagmen must be kept in attendance to control traffic where road disruption is most likely.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								• Remediation of the road/s must be undertaken immediately by the contractor to ensure that disruption is kept to a minimum. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
HERITAGE										
Unearthing and damage to items of cultural or historical significance.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• 50 metre buffer is maintained around all heritage resources. • A orange construction fence must be erected to demarcate the position of heritage resources found on site. • Should any heritage resources be uncovered during construction, AMAFA Heritage KZN must be contacted immediately.	Low	Low
SOCIO-ECONOMIC										
Positive impact - Potential temporary employment during the construction phase.	Direct	Local	Construction phase (short-term)	Positive impact no mitigation required.	No	Positive impact no mitigation required.				

Spring Grove Tee 88kV Powerline:
Alternative C2:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
SOIL										
Interruption or damage to services (electricity, water etc).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	• This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Erosion of stockpiled material (stone, sand and gravel).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	• Material must be stockpiled in such a way that it cannot fall or cause injury or damage to properties or the natural environment. • Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
The onsite erosion of exposed soil before rehabilitation is completed.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. • The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. • Only vegetation that is	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								required to be removed for the construction tower must be removed in a phased and controlled manner. • Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Generation of dust caused by construction vehicles moving over exposed soil.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• Dust control must be implemented throughout the construction phase. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Soil compaction due to construction machinery	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • The Rehabilitation of disturbed areas will be undertaken on completion of the	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								project. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
The onsite erosion of exposed soil before rehabilitation is completed.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. • The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. • Only vegetation that is required to be removed for the construction of tower sites must be removed in a phased and controlled manner. • Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
STORMWATER										

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Poor stormwater management during construction can lead to erosion and loss of soil.	Indirect	Local	Construction phase (short term)	Yes	No	Low	High	• Stormwater control must be instituted during the construction of the tower site; however this is a temporary impact of the proposal. • A drainage system must be established for the construction camp. The drainage system must be regularly checked to ensure the unobstructed flow of water. • The contractor must ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion and must take adequate steps to ensure that the amount of stormwater is not significantly increased and can be appropriately dealt with. • The designated responsible person on site (usually the contractor) must ensure that no construction work takes place before adequate stormwater control measures are in place. • All activities must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
FLORA										
Risk of alien invasive encroachment into disturbed areas.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• The establishment or spread of alien plant species in the powerline servitude and tower sites must be monitored and the correct removal and disposal of alien plant species must be followed. • Rehabilitation of tower sites must commence as soon as construction activities are completed in those areas. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Damage and removal of existing vegetation for the construction of the Spring Grove 88kV powerline Alternative C2 and tower sites.	Direct	Local	Construction phase (short-term)	Yes	No	High	High	• Workers must be educated on minimising damage to vegetation during construction of powerline. • Each tower site for the Alternative C2 powerline will require that an area of 20mX20m have bush clearing conducted to be removed all small	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								shrubs, bushes, trees, and agriculture from the site, grass/agriculture must only be removed from those areas where the tower foundations will be excavated. • Grass/vegetation must only be removed from those areas where the tower foundations for the pylons will be excavated, vegetation may be removed in a phased and controlled manner (approximately 16m^2 of vegetation for each tower). • The removal of vegetation for the proposed tower sites and powerline must be conducted by a bush clearing specialist to insure that the damage to vegetation is minimized. • Indiscriminate clearing of vegetation must be avoided and only those areas directly affecting the construction site may be removed. • Where possible removal of indigenous and protected trees		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								must be avoided, permits must be obtained from the EKZNW for the removal of these trees. • The Rehabilitation of disturbed areas must commence as soon as construction activities are completed in those areas. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Collecting of plants by construction workers.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• No vegetation/plants may be collected or destroyed by staff members. • Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting collect plants or plant parts from site must be enforced. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Loss of land due to Spring	Direct	Local	Construction phase and	Impact cannot be	No	This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. The registered servitude will allow for the				

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Grove powerline requiring new servitudes			Operational (Long-term)	prevented		construction of the powerline on the landowners property, and states the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitude in accordance with the Expropriation Act No 63 of 1975.				
FAUNA/AVIFAUNA										
Poaching/Hunting/Fishing of wildlife by construction workers.	Direct	Local	Construction phase (short-term)	Yes	No	Low	High	• Hunting or poaching must be prohibited. During construction, guidelines set out by the ECO must be followed to ensure no potential impacts occur. • Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to poaching/hunting/fishing from site must be enforced. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Disturbance of birds, Impact on Red Data and other species	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	High	Low	• Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. Sensitive zones described elsewhere in this report, should be	Medium to High	Medium to High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								avoided where possible. It is difficult to mitigate properly for this as some disturbance is inevitable. "Focal Species" identified within the avifauna report have been observed by both the EAP (Appendix D) and the avifauna specialist on one of the properties (Derek Greene) that the Alternative C2 servitude traverses during site visits. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Destruction or alteration of bird habitat, Impact on Red Data and other species	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low to Medium	Low	• Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. • It is difficult to mitigate properly for this as some habitat destruction is inevitable. • All activities must be managed through the	Low to Medium	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								site-specific EMPr (Appendix G) and monitored by an ECO.		
SENSITIVE ENVIRONMENTAL AREAS										
Degradation and Contamination of the drainage lines, wetlands, and surrounding environment by cement and other hazardous materials.	Direct	Local	Construction phase (short-term)	Yes	No	High	High	• Site workers must be trained in avoiding impacts in areas of potential concern (e.g. stream banks). Environmentally sensitive areas (i.e. the drainage lines, streams) must be avoided where possible. • No towers for the powerline may be constructed within 32 metres a wetland area or riparian habitat. • Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. • The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								of the Assessment. • The Contractor must submit a method statement to the RE for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and sedimentation control measures, surface water flow diversion, reinstatement, etc. • Hazardous material storage areas must not be within 32m from a stream/drainage line or local residential homesteads. • Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. • Cement mixing must take place on a hard surface or on cement mixing trays. Cement mixing must not be permitted to occur where run off can enter storm water drains, watercourses, water		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								bodies, wetlands or drainage lines. In addition cement and fuels must be stored within bunded and hard surfaced areas. • If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Impacts on watercourses, water bodies or drainage lines.	Direct	Local	Construction phase (short-term)	Yes	No	High	High	• No towers for the powerline may be constructed within 32 metres of or within a wetland area or riparian habitat. • Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. • The wetland delineation assessment must be adhered to in respect to	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. • No dumping must be allowed into any watercourse, drainage lines or water bodies. • Site staff shall not be permitted to use the stream or natural water source adjacent to the construction of the tower sites for the purposes of bathing, washing of clothing or for any construction related activities. • Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
WASTE										
Improper	Direct	Local	Construction	Yes impact	No	Medium	High	• All solid waste	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
storage and disposal of solid waste.		(within construction site)	phase (short-term)	can be managed				generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins. • All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. • Separate skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. • All activities must be managed through the site-specific EMPr (Appendix F) and monitored by an ECO.		
Littering around the site.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Littering must not be permitted on the site and general housekeeping must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								enforced. • General waste bins must be readily available for litter disposal and general housekeeping. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Improper disposal of rubble i.e.: burying or neglecting building rubble resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process. • All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained. • Site workers will be trained in avoiding such impacts. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Lack of toilet facilities resulting in	Direct	Local (within constructi	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Adequate toilet facilities must be provided for all staff members as	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
unsanitary conditions.		on site)						standard construction practice. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment and the stream.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Increased waste to landfill site.	Cumulative	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Waste streams must be separated and recycled where possible to limit waste added to the landfill site. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO..	Low	Low
Potential for	Indirect	Local	Construction	Yes impact	No	Medium	High	• Waste must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.		(potential to become regional)	phase (short-term)	can be managed				classified prior to being disposed of. • A registry of all waste that is removed from the construction site must be maintained. • Safe disposal certificates must be from landfill sites and kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
HAZARDOUS CHEMICALS / FUELS										
Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil and watercourse.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Any hazardous or dangerous goods utilized during the construction phase must be stored on an impermeable surface that is bunded, fenced, locked and covered. • A spill kit must be available within the construction site and must be clearly marked and visible when utilizing hazardous or dangerous materials to ensure the repaid containment of the spill. • Each truck used in the construction of Spring Grove Tee 88kV powerline must have a	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								spill kit stored abroad at all times. • Spill kits must be regularly checked and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Improper storage of hazardous waste i.e.: used oils from vehicles, old cement bags.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses, water bodies, wetlands or drainage lines and the surrounding environment. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low to Medium
Risk of contamination of soil and stormwater during concrete mixing.								• Hazardous material storage areas must not be within 100m from a stream/drainage line, wetland, river or local residential homesteads. • Designated concrete/cement mixing areas and storage areas for all hazardous materials		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								must be assigned prior to construction and must be stored within the construction site camp. • Cement/concrete mixing must take place on a hard surface or on cement mixing trays. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
NOISE										
Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). • The construction must be monitored by an	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								ECO who must monitor compliance with the construction EMPr and EA. • All precautions must be taken to ensure that noise generation is kept to a minimum. • If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
AIR QUALITY										
Emissions generated from construction vehicles	Direct	Local	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities and the environment. • This impact is only relevant during the construction phase. • The construction vehicles used must be regularly maintained to	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								ensure that excessive emissions are controlled. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
RESOURCE USE & CONSERVATION										
Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining operations causing significant environmental damage.	Direct	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO e.g. mined material such as stone must only be obtained from permitted quarries. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
TRAFFIC										
Speeding vehicles resulting in safety issues for surrounding community and their livestock.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• Speeding must be prohibited. • Construction vehicles must travel slowly along the access roads to the tower sites and adhere to all traffic laws. • Construction vehicles must not be permitted	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								to park for extended periods of time on the roads or on road verges where they can block the roads and accesses. • Flagmen must be kept in attendance to control traffic where road disruption is most likely. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Disruption to road services if construction activities accidentally affect the roads.								• Flagmen must be kept in attendance to control traffic where road disruption is most likely. • Remediation of the road/s must be undertaken immediately by the contractor to ensure that disruption is kept to a minimum. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
HERITAGE										
Unearthing and damage to items of cultural or historical	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• 20 metre buffer is maintained around all heritage resources.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
significance.								• A orange construction fence must be erected to demarcate the position of heritage resources found on site. • Should any heritage resources be uncovered during construction, AMAFA Heritage KZN must be contacted immediately.		
SOCIO-ECONOMIC										
Positive impact - Potential temporary employment during the construction phase.	Direct	Local	Construction phase (short-term)	Positive impact no mitigation required.	No	Positive impact no mitigation required.				

Spring Grove Tee 88kV Powerline:
Alternative C3:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
SOIL										
Interruption or damage to services (electricity, water etc).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	• This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Erosion of stockpiled material (stone, sand and gravel).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	• Material must be stockpiled in such a way that it cannot fall or cause injury or damage to properties or the natural environment. • Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
The onsite erosion of exposed soil before rehabilitation is completed.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. • The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. • Only vegetation that is	Low	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								required to be removed for the construction tower must be removed in a phased and controlled manner. • Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Generation of dust caused by construction vehicles moving over exposed soil.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• Dust control must be implemented throughout the construction phase. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Soil compaction due to construction machinery	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • The Rehabilitation of disturbed areas will be undertaken on completion of the	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								project. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
The onsite erosion of exposed soil before rehabilitation is completed.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	• The duration of exposed soil must be kept to a minimum and rehabilitation must be initiated as soon as construction is completed. • The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. • Only vegetation that is required to be removed for the construction of tower sites must be removed in a phased and controlled manner. • Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas must be repaired and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Medium	Medium
STORMWATER										

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Poor stormwater management during construction can lead to erosion and loss of soil.	Indirect	Local	Construction phase (short term)	Yes	No	Low	High	• Stormwater control must be instituted during the construction of the tower site; however this is a temporary impact of the proposal. • A drainage system must be established for the construction camp. The drainage system must be regularly checked to ensure the unobstructed flow of water. • The contractor must ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion and must take adequate steps to ensure that the amount of stormwater is not significantly increased and can be appropriately dealt with. • The designated responsible person on site (usually the contractor) must ensure that no construction work takes place before adequate stormwater control measures are in place. • All activities must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
FLORA										
Risk of alien invasive encroachment into disturbed areas.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• The establishment or spread of alien plant species in the powerline servitude and tower sites must be monitored and the correct removal and disposal of alien plant species must be followed. • Rehabilitation of tower sites must commence as soon as construction activities are completed in those areas. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Damage and removal of existing vegetation for the construction of the Spring Grove 88kV powerline Alternative C3 and tower sites.	Direct	Local	Construction phase (short-term)	Yes	No	High	High	• Workers must be educated on minimising damage to vegetation during construction of powerline. • Each tower site for the Alternative C3 powerline will require that an area of 20mX20m have bush clearing conducted to be removed all small	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								shrubs, bushes, and agriculture from the site, grass/agriculture must only be removed from those areas where the tower foundations will be excavated. • Grass/vegetation must only be removed from those areas where the tower foundations for the pylons will be excavated, vegetation may be removed in a phased and controlled manner (approximately 16m^2 of vegetation for each tower). • The removal of exotic trees (i.e. Pines and Gums) must be undertaken by a suitable qualified specialist, and the wood made available to the landowner should he/she request it. • The removal of vegetation for the proposed tower sites and powerline must be conducted by a bush clearing specialist to insure that the damage to vegetation is		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								minimized. • Indiscriminate clearing of vegetation must be avoided and only those areas directly affecting the construction site may be removed. • Where possible removal of indigenous and protected vegetation/trees must be avoided, permits must be obtained from the DAFF for the removal of these vegetation/trees. • The Rehabilitation of disturbed areas must commence as soon as construction activities are completed in those areas. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Collecting of plants by construction workers.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• No vegetation/plants may be collected or destroyed by staff members. • Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								attempting collect plants or plant parts from site must be enforced. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Loss of land due to Spring Grove powerline requiring new servitudes	Direct	Local	Construction phase and Operational (Long-term)	Impact cannot be prevented	No	This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. The registered servitude will allow for the construction of the powerline on the landowners property, and states the agreed conditions for the lease of their land for the powerline servitude. Landowners will be compensated for the area of land required for the powerline servitude in accordance with the Expropriation Act No 63 of 1975.				
FAUNA/AVIFAUNA										
Poaching/Hunting/Fishing of wildlife by construction workers.	Direct	Local	Construction phase (short-term)	Yes	No	Low	High	• Hunting or poaching must be prohibited. During construction, guidelines set out by the ECO must be followed to ensure no potential impacts occur. • Contractual fines must be imposed on the contractor, and immediate dismissal of any contract employee who is found attempting to poaching/hunting/fishing from site must be enforced. • All activities must be managed through the site-specific EMPr (Appendix G) and	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								monitored by an ECO.		
Disturbance of birds, Impact on Red Data and other species	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	High	Low	• Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. Sensitive zones described elsewhere in this report, should be avoided where possible. It is difficult to mitigate properly for this as some disturbance is inevitable. • "Focal Species" identified within the avifauna report have been observed by both the EAP and the avifauna specialist on the properties that the Alternative C3 servitude traverses. The Alternative C3 powerline servitude traverses daily feeding sites for Grey Crowned Cranes and Wattled Cranes, and a known roosting area for Wattled Cranes at the co-ordinates 29°20'4.27"S 29°58'27.88"E is	High	High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								known. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Destruction or alteration of bird habitat, Impact on Red Data and other species	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	Low	• Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. • It is difficult to mitigate properly for this as some habitat destruction is inevitable. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Medium	Medium
SENSITIVE ENVIRONMENTAL AREAS										
Degradation and Contamination of the drainage lines, wetlands, and surrounding environment by cement and other hazardous materials.	Direct	Local	Construction phase (short-term)	Yes	No	High	High	• Site workers must be trained in avoiding impacts in areas of potential concern (e.g. stream banks). Environmentally sensitive areas (i.e. the drainage lines, streams) must be avoided where possible. • No towers for the	Medium to High	Medium to High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								powerline may be constructed within 32 metres a wetland area or riparian habitat. • Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. • The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. • The Contractor must submit a method statement to the ECO for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and sedimentation control measures, surface water flow diversion, reinstatement, etc. • Hazardous material storage areas must not be within 32m from a		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								stream/drainage line or local residential homesteads. • Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. • Cement/concrete mixing must take place on a hard surface or on cement mixing trays. Cement mixing must not be permitted to occur where run off can enter storm water drains, watercourses, water bodies, wetlands or drainage lines. In addition cement and fuels must be stored within bunded and hard surfaced areas. • If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. • All activities must be managed through the		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								site-specific EMPr (Appendix G) and monitored by an ECO.		
Impacts on watercourses, water bodies or drainage lines.	Direct	Local	Construction phase (short-term)	Yes	No	High	High	• No towers for the powerline may be constructed within 32 metres of or within a wetland area or riparian habitat. • Prior to construction all access roads to the tower sites must be identified by the ECO and ensure that no access tracks pass through or fall within 32 metres of wetland area or riparian habitat. • The wetland delineation assessment must be adhered to in respect to the construction of access tracks through any wetland or riparian habitat and has been attached in Appendix D of the Assessment. • No dumping must be allowed into any watercourse, drainage lines or water bodies. • Site staff shall not be permitted to use the stream or natural water source adjacent to the construction of the tower sites for the	Medium to High	Medium to High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								purposes of bathing, washing of clothing or for any construction related activities. • Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
WASTE										
Improper storage and disposal of solid waste.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent the skips / bins. • All solid waste must then be disposed of at the nearest licensed landfill and safe	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								disposal certificates obtained. • Separate skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Littering around the site.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Littering must not be permitted on the site and general housekeeping must be enforced. • General waste bins must be readily available for litter disposal and general housekeeping. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Improper disposal of rubble i.e.: burying or neglecting	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
building rubble resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.								• All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained. • Site workers will be trained in avoiding such impacts. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Lack of toilet facilities resulting in unsanitary conditions.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Adequate toilet facilities must be provided for all staff members as standard construction practice. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
Improper disposal of toilet waste from chemical toilets resulting in contamination	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
of the surrounding environment and the stream.								appropriate facility. • Safe disposal certificates must be kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Increased waste to landfill site.	Cumulative	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Waste streams must be separated and recycled where possible to limit waste added to the landfill site. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO..	Low	Low
Potential for waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.	Indirect	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Waste must be classified prior to being disposed of. • A registry of all waste that is removed from the construction site must be maintained. • Safe disposal certificates must be from landfill sites and kept on record. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
HAZARDOUS CHEMICALS / FUELS										

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil and watercourse.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Any hazardous or dangerous goods utilized during the construction phase must be stored on an impermeable surface that is bunded, fenced, locked and covered. • A spill kit must be available within the construction site and must be clearly marked and visible when utilizing hazardous or dangerous materials to ensure the repaid containment of the spill. • Each truck used in the construction of Spring Grove Tee 88kV powerline must have a spill kit stored abroad at all times. • Spill kits must be regularly checked and maintained. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Medium to High	Medium to High
Improper storage of hazardous waste i.e.: used oils from vehicles, old	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses, water	Low to Medium	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
cement bags.								bodies, wetlands or drainage lines and the surrounding environment. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Risk of contamination of soil and stormwater during concrete mixing.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Hazardous material storage areas must not be within 100m from a stream/drainage line, wetland, river or local residential homesteads. • Designated concrete/cement mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. • Cement/concrete mixing must take place on a hard surface or on cement mixing trays. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible,	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
NOISE										
Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). • The construction must be monitored by an ECO who must monitor compliance with the construction EMPr and EA. • All precautions must be taken to ensure that noise generation is kept to a minimum. • If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event. • All activities must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
AIR QUALITY										
Emissions generated from construction vehicles	Direct	Local	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities and the environment. • This impact is only relevant during the construction phase. • The construction vehicles used must be regularly maintained to ensure that excessive emissions are controlled. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Low	Low
RESOURCE USE & CONSERVATION										
Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources	Direct	Local (potential to become regional)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	• All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made	Low	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
resulting in illegal sand mining and mining operations causing significant environmental damage.								available to the Environmental Control Officer e.g. mined material such as stone must only be obtained from permitted quarries. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
TRAFFIC										
Speeding vehicles resulting in safety issues for surrounding community and their livestock.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• Speeding must be prohibited. • Construction vehicles must travel slowly along the access roads to the tower sites and adhere to all traffic laws. • Construction vehicles must not be permitted to park for extended periods of time on the roads or on road verges where they can block the roads and accesses. • Flagmen must be kept in attendance to control traffic where road disruption is most likely. • All activities must be managed through the site-specific EMPr (Appendix G) and	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								monitored by an ECO.		
Disruption to road services if construction activities accidentally affect the roads.								• Flagmen must be kept in attendance to control traffic where road disruption is most likely. • Remediation of the road/s must be undertaken immediately by the contractor to ensure that disruption is kept to a minimum. • All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
HERITAGE										
Unearthing and damage to items of cultural or historical significance.	Direct	Local	Construction phase (short-term)	Yes	No	Medium	High	• 20 metre buffer is maintained around all heritage resources. • A orange construction fence must be erected to demarcate the position of heritage resources found on site. • Should any heritage resources be uncovered during construction, AMAFA Heritage KZN must be contacted immediately.	Low	Low
SOCIO-ECONOMIC										
Positive impact - Potential	Direct	Local	Construction phase (short-	Positive impact no	No	Positive impact no mitigation required.				

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
temporary employment during the construction phase.			term)	mitigation required.						

No-Go Alternative:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
IMPACTS OF THE NO-GO OPTION										
No impacts on the environment as there will be no construction of the new Spring Grove Tee 88kV powerline.	Direct	Local	Long term	Yes	No	Low	Positive impact no mitigation required.			
MMTS-2 cannot operate	Direct	Regional	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • Without the proposed 88kV Spring Grove Tee powerline water stored at the Spring Grove Dam cannot be pumped through the MMTS-2 pipeline to supply the Mgeni water	Low	Low

								system ensuring an adequate supply of water for all.		
Future Umgeni Water 'Water Treatment Facility cannot operate.	Direct	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • Without the proposed 88kV Spring Grove Tee powerline the future Umgeni Water 'Water Treatment Facility' cannot operate and will not be able supply water to Mooi River, Nottingham Road, and Rosetta area.	Low	Low
Eskom cannot fulfil their mandate to supply electricity to all customers.	Direct	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline.	Low	Low
eThekwini Municipalities ability to provide and address service delivery requirements for provision of water will be impacted upon.	Direct	Regional	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. • Without the Spring Grove Tee 88kV powerline development these critical projects which will ensure the Municipality's ability to	Low	Low

								provide and address service delivery requirements for provision of water cannot be met.		
Eskom cannot upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area.	Direct	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • In order for Eskom to upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area, the Spring Grove Substation must be energised. The Substation can only be energised through the construction of the Spring Grove Tee 88kV powerline, which would connect the substation to the existing Eskom 88kV network.	Low	Low
As the growing demand for electricity increases the supply will not meet the demand of the surrounding communities and business.	Indirect	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • As the demand for electricity increases the Eskom network will experience a drain which will reduce the supply of electricity to the Nottingham Road and Rosetta area. Communities and business within the area would not have enough electricity	Low	Low

								supplied which would be insufficient for the needs of the area. • Communities and business within the area would not have enough electricity supplied which would be insufficient for the needs of the area. This would not allow for the economic development of the area.		
Decrease in the economic development of the KwaZulu-Natal region as eThekwini Municipality will not be able to provide adequate water to all industries.	Direct	Regional	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Without adequate water there will be an impact on the economic sector within the KwaZulu-Natal region as water is a critical component in all forms development from agriculture to industry. This would then result in a negative impact on the South African economy.	Low	Low
In the long term there will be limited supply of	Indirect	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee	Low	Low

electricity which will result in economic impacts for the area as electricity blackouts occur due to the inability to meet the growing demand for electricity in the area.								88kV powerline. • As the demand for electricity increases the strain on the network in the area would increase. This would cause power failures across the area and would have an economic impact on the area as business's will not be able to operated. This would then result in an negative impact on the economy.		
eThekwini Municipality are not able to provide the additional water capacity that will be required to supply the expected future demand of the municipality as the MMTS-2 cannot operate.	Direct	Regional	Long term	Yes	No	High	High	• eThekwini Municipality receives water from the Mgeni River, with four major dams already constructed on this system there is no further possibility of additional water infrastructure to be developed on this system. The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Therefore without the Spring Grove Tee 88kV powerline development these critical projects which will ensure the Municipality's ability to provide and address service delivery	Low	Low

								requirements for provision of water cannot be met.		

C. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

Spring Grove Tee 88kV Powerline:
Alternative C1 (Preferred Alternative):

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Increase in hard surfaces leading to increased stormwater runoff.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• The proposal is not expected to result in significant stormwater runoff. The tower sites and other areas that were disturbed must be rehabilitated and reseeded thus restoring the area around the tower sites to a grasslands habitat, which will allow for infiltration of rainwater thus preventing sheet runoff. Any access tracks to the tower sites must be rehabilitated to allow the natural vegetation to re-establish its-self ensuring infiltration of rainwater into the subsoil. All vehicles accessing the tower sites must travel along	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								these designated access roads and no other access roads should be created.		
Risk to neighbours- Exposure to electromagnetic fields.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• Information provided by Eskom stated that the electromagnetic field values are negligible at 15m from the source of the electromagnetic field, after which exposure levels are significantly reduced. Given that the closest powerline is 23 metres from the ground at the tower sites there should be very limited risk to the community living close to the powerline. The Spring Grove Tee 88kV powerline will avoid built-up areas and local homesteads where possible within the Alternative C1 servitude to minimize the number of homesteads in close relation to the corridor. Eskom Land Development department must ensure that all houses and homesteads remain outside of the registered servitude.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Risk to neighbours- Risk of electrocution.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• The towers will be fitted with antipersonnel devises which will stop individuals from climbing on them. Children should be warned not to play near electrical towers, not to fly kites in the vicinity of powerlines, not to climb up towers.	Low	Low
Impacts on ecology (fauna and flora).	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• Certain insects and small mammals may frequent the tower sites and depending on their mobility will be able to return to the tower site post construction. • Negative interactions between wildlife and electricity structures take many forms, but two common problems in southern Africa are electrocution of birds and birds colliding with powerlines. An avifaunal assessment was conducted by the Endangered Wildlife Trust (EWT), the specialist noted that the construction of the powerline within the Alternative C1 servitude can continue provide that provided	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								that the various mitigation measures recommended in the avifaunal report are implemented. All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.		
Bird collision with overhead power line, Impact on Red Data and other species	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	Low	High	• Mark the identified sections of line with anti-collision marking devices on the earth wire to increase the visibility of the line and reduce likelihood of collisions. • Marking devices should be spaced 10m apart. • The sections of line that pose a concern and require marking should be finalized by an avifaunal specialist in a site "walkthrough" once final route is decided and towers/pylons pegged.	Low	Low
Bird electrocution, Impact on Red Data and other species	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	Low	Low	• The 131 (Single-Circuit) and 132 (Double-Circuit) tower alternatives for this proposed development are both classified as 'Bird Friendly' and are	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								steel lattice tower structures. • The distance between the cross arm and cable conductor for both tower Alternatives is more than 2 metres. • Eskoms approved 'bird perch guards' must be fitted on top of each tower.		
Strengthening the electricity network that supplies the area.	direct	Local	Operational phase (long term)	Positive impact no mitigation required.	No	Positive impact no mitigation required.				
Aesthetic or visual impacts arising from the powerline.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• The position of powerline within the alternative C1 (preferred) servitude should not significantly impact on the aesthetics of the area. • However this cannot be mitigated against Due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function. • The Heritage Specialists has stated in his report for the	High	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								proposed Spring Grove 88kV powerline development that the Alternative C1 servitude will have the least impact on the altering the sense of place associated with the cultural landscape of the area. (Heritage Active cc, 2013)		
Loss of land due to Spring Grove powerline requiring new servitudes	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. • The registered servitude will allow for the construction of the powerline on the landowners property, and states the agreed conditions for the lease of their land for the powerline servitude. • Landowners will be compensated for the area of land required for the powerline servitude in accordance with the Expropriation Act No 63 of 1975.	High	Medium
Permanent loss of open space	Direct	Local	Operational phase (long	Cannot be prevented.	No	Low	Low	• The proposed Alternative C1	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
and grazing land adding pressure to alternative open space areas, leading to increased degradation and loss of indigenous fauna and flora.			term)					servitude will not result in a permanent loss of open space, as the majority of the development is suspended above the landscape in the form of powerlines. • Landowners will still be able to utilise the land below the Alternative C1 servitude.		
Increase safety risk due to aircraft collisions with powerlines during operation.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Low	Low	• The Alternative C1 servitude traverses cultivated land for grazing livestock, or vacant/not in use. It is therefore unlikely that an aircraft would collide with the Alternative C1 powerline, as pastures used to graze livestock are not 'dusted' by crop dusting aircraft. • The potential for an aircraft to collide with the Alternative C1 powerline as a result of its construction has been rated at 'Low'.	Low	Low
Impact on landowners.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Low to Medium	Low	• The impact of the Alternative C1 servitude on the private landowners has been rated as 'Medium', this is due to the current land-use of the	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								landowners that the servitude traverses being cultivated land for grazing livestock, or vacant/not in use. Therefore the powerline should not adversely impact on the landowners abilities to farm once constructed. • The properties owned by Mr Coetzer and Mr Regnard, both are currently being or have been subdividing their properties to sell to future residents. The Alternative C1 servitude will not directly impact on the sub-divided properties, Mr Coetzers properties are situated more than 100 metres away from the powerline servitude and the Alternative C1 servitude crosses on the boundary of one of the subdivided plots of Mr Regnard and will have no tower sites situated on it. Mr Coetzer is concerned that future buyers for his subdivided properties will be put		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								off from purchasing the properties due to the powerline. Appendix J: Additional Information, Figure 1, shows the aerial photograph of the properties in question, both properties look North with a direct view of the R103 Road and Transnet Railway line. The Alternative C1 powerline will be visible from both properties, however due to the existing visual impacts associated with the R103 and Railway line. The proposed Alternative C1 servitude should not significantly increase the visual impact experienced by the properties and therefore should not advisedly impact on the chances of future residents purchasing the properties. Mr Regnard is concerned that the future buyers for his subdivided properties will be put off from purchasing the properties due to the		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								powerline. Appendix J: Additional Information, Figure 2, shows the aerial photograph of the properties in question. As the image shows the properties look South and South-West and will see the powerline conductors of the Alternative C1 servitude. However, the tower situated on Mr Regnard property should not be visual due to the Pine trees and building situated on the farm shielding the tower from view. The proposed Alternative C1 servitude will increase the visual impact experienced by the properties, however not to the extent that it would stop future residents purchasing the properties.		
Impact on Neighbouring properties.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium	Low	• The only direct impact to neighbouring properties as a result of the Alternative C1 powerline servitude will be in the form of a visual impact of the powerline during	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								construction, and operation phase. • Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However, over time the towers and cable conductors' will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. It must also be noted that there are numerous existing powerlines that traverse the greater Nottingham Road area, and given time the community will become acclimatise to the powerlines.		

Alternative C2:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Increase in hard surfaces leading to increased stormwater runoff.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• The proposal is not expected to result in significant stormwater runoff. The tower sites and other areas that were disturbed must be rehabilitated and reseeded thus restoring the area around the tower sites to a grasslands habitat, which will allow for infiltration of rainwater thus preventing sheet runoff. • Any access tracks to the tower sites must be rehabilitated to allow the natural vegetation to re-establish its-self ensuring infiltration of rainwater into the subsoil. • All vehicles accessing the tower sites must travel along these designated access roads and no other access roads should be created.	Low	Low
Risk to neighbours- Exposure to electromagnetic fields.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• Information provided by Eskom stated that the electromagnetic field values are negligible at 15m from the source of the electromagnetic	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								field, after which exposure levels are significantly reduced. Given that the closest powerline is 23 metres from the ground at the tower sites there should be very limited risk to the community living close to the powerline. The Spring Grove Tee 88kV powerline will avoid built-up areas and local homesteads where possible within the Alternative C2 servitude to minimize the number of homesteads in close relation to the corridor. Eskom Land Development department must ensure that all houses and homesteads remain outside of the registered servitude.		
Risk to neighbours- Risk of electrocution.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• The towers will be fitted with antipersonnel devises which will stop individuals from climbing on them. Children should be warned not to play near electrical towers, not to fly kites in the vicinity of powerlines, not to climb	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								up towers.		
Impacts on ecology (fauna and flora).	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• Certain insects and small mammals may frequent the tower sites and depending on their mobility will be able to return to the tower site post construction. • Negative interactions between wildlife and electricity structures take many forms, but two common problems in southern Africa are electrocution of birds and birds colliding with powerlines. An Avifaunal Assessment was conducted by the Endangered Wildlife Trust (EWT), the specialist noted that the construction of the powerline within the Alternative C2 servitude can continue provide that provided that the various mitigation measures recommended in the avifaunal report are implemented. All activities must be managed through the site-specific EMPr (Appendix G) and monitored by an ECO.	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Bird collision with overhead power line, Impact on Red Data and other species	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	Medium	Medium	• Due to the number of "Focal Species" identified within the avifauna report which have been observed by both the EAP (Appendix B) and the avifauna Specialist on one of the properties (Derek Greene) that the Alternative C2 servitude traverses during site visits, mitigation measures in the form of bird diverters would have to be implemented across the entire length of the Alternative C2 servitude. • Marking devices should be spaced 10m apart.	Medium	Medium
Bird electrocution, Impact on Red Data and other species	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	Low	Low	• The 131 (Single-Circuit) and 132 (Double-Circuit) tower alternatives for this proposed development are both classified as 'Bird Friendly' and are steel lattice tower structures. • The distance between the cross arm and cable conductor for both tower Alternatives is more than 2 metres.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								• Eskoms approved 'bird perch guards' must be fitted on top of each tower.		
Strengthening the electricity network that supplies the area.	direct	Local	Operational phase (long term)	Positive impact no mitigation required.	No	Positive impact no mitigation required.				
Aesthetic or visual impacts arising from the powerline.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• The position of powerline within the alternative C2 servitude should not significantly impact on the aesthetics of the area. • However this cannot be mitigated against due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function.	High	Low to Medium
Loss of land due to Spring Grove powerline requiring new servitudes	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. • The registered servitude will allow for the construction of the powerline on the	High	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								landowners property, and states the agreed conditions for the lease of their land for the powerline servitude. • Landowners will be compensated for the area of land required for the powerline servitude in accordance with the Expropriation Act No 63 of 1975.		
Permanent loss of open space and grazing land adding pressure to alternative open space areas, leading to increased degradation and loss of indigenous fauna and flora.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium	Low	• The proposed Alternative C2 servitude will not result in a permanent loss of open space, as the majority of the development is suspended above the landscape in the form of powerlines. • There will be a loss of flora/agriculture as a result of the development due to the tower sites, however mitigation measures provided will limit the loss of flora/agriculture as a result of the development. • Landowners involved in agriculture activities will be impacted upon, which may result in	Low to Medium	Low to Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								farmers cultivating other grassland areas for agriculture use thereby increasing the loss of indigenous fauna and flora.		
Increase safety risk due to aircraft collisions with powerlines during operation.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium to High	Low to Medium	• The Alternative C2 servitude traverses cultivated land with pivots and maize fields situated on them. Mr Derek Greene of Spring Grove farm utilises aircraft to 'crop dust' his fields, therefore the potential for an aircraft to collide with the Alternative C2 powerline as a result of its construction has been rated as 'Medium to High'. • 'Red and White' airdrome markers will have to be attached to the powerline as per Eskom standard.	Medium to High	Medium to High
Impact on landowners.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium	Low	• The Alternative C2 servitude traverses four (4) private landowners. The impact of the Alternative C2 servitude on the private landowners has been rated as 'Medium', this is due to the land-use of the majority	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								landowner, Derek Greene, that the Alternative C2 servitude traverses being agriculture land of Spring Grove Farm. The proposed Alternative would adversely impact on the Mr Greene's ability to farm once constructed. The Alternative C2 will have to span one pivot, and potentially a second pivot on Mr Greene's property.		
Impact on Neighbouring properties.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium	Low	• The only direct impact to neighbouring properties as a result of the Alternative C2 powerline servitude will be in the form of a visual impact of the powerline during operation phase. • Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However, over time the towers and cable conductors'	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. It must also be noted that there are numerous existing powerlines that traverse the greater Nottingham Road area, and given time the community will become acclimatise to the powerlines.		

Alternative C3:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Increase in hard surfaces leading to increased stormwater runoff.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• The proposal is not expected to result in significant stormwater runoff. The tower sites and other areas that were disturbed must be rehabilitated and reseeded thus restoring the area around the tower sites to a grasslands habitat, which will allow for	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								infiltration of rainwater thus preventing sheet runoff. Any access tracks to the tower sites must be rehabilitated to allow the natural vegetation to re-establish its-self ensuring infiltration of rainwater into the subsoil. All vehicles accessing the tower sites must travel along these designated access roads and no other access roads should be created.		
Risk to neighbours- Exposure to electromagnetic fields.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• Information provided by Eskom stated that the electromagnetic field values are negligible at 15m from the source of the electromagnetic field, after which exposure levels are significantly reduced. Given that the closest powerline is 23 metres from the ground at the tower sites there should be very limited risk to the community living close to the powerline. The Spring Grove Tee 88kV powerline will avoid built-up areas and local homesteads	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								where possible within the Alternative C3 servitude to minimize the number of homesteads in close relation to the corridor. Eskom Land Development department must ensure that all houses and homesteads remain outside of the registered servitude.		
Risk to neighbours- Risk of electrocution.	Direct	Local	Operational phase (long term)	Yes	No	Low	High	• The towers will be fitted with antipersonnel devises which will stop individuals from climbing on them. Children should be warned not to play near electrical towers, not to fly kites in the vicinity of powerlines, not to climb up towers.	Low	Low
Impacts on ecology (fauna and flora).	Direct	Local	Operational phase (long term)	Yes	No	High	Medium	• Certain insects and small mammals may frequent the tower sites and depending on their mobility will be able to return to the tower site post construction. • The Avifauna Assessment conducted by the EWT has identified the Alternative C3 as being an 'NO-GO' Alternative	Medium	High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								from an Avifauna perspective. This is due to its length (7.9kms), the number of river crossings required (6), its proximity to wetlands, known Crane roosts at co-ordinates 29°17'3.55"S 29°58'21.09"E, and the number of microhabitats that it will traverse means that the development will have a high impact on avifauna.		
Bird collision with overhead power line, Impact on Red Data and other species	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	High	Low	• The Avifauna Assessment conducted by the EWT has identified the Alternative C3 as being an 'NO-GO' Alternative from an Avifauna perspective. This is due to its length (7.9kms), the number of river crossings required (6), its proximity to wetlands, known Crane roosts at co-ordinates 29°17'3.55"S 29°58'21.09"E, and the number of microhabitats that it will traverse means that	High	High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								the development will have a high impact on avifauna. • The "Focal Species" identified within the avifauna report have been observed by both the EAP and the avifauna specialist on the properties that the Alternative C3 servitude traverses, and these species being heavy-bodied birds with limited maneuverability makes it difficult for them to take the necessary evasive action to avoid colliding with powerlines. (EWT, 2013)		
Bird electrocution, Impact on Red Data and other species	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	Medium	Medium	• The 131 (Single-Circuit) and 132 (Double-Circuit) tower alternatives for this proposed development are both classified as 'Bird Friendly' and are steel lattice tower structures. • The distance between the cross arm and cable conductor for both tower Alternatives is more than 2 metres. • Eskoms approved 'bird	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								perch guards' must be fitted on top of each tower.		
Strengthening the electricity network that supplies the area.	direct	Local	Operational phase (long term)	Positive impact no mitigation required.	No	Positive impact no mitigation required.				
Aesthetic or visual impacts arising from the powerline.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• The position of powerline within the alternative C3 servitude will significantly impact on the aesthetics of the area. • However, this cannot be mitigated against Due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function. • The Alternative C3 servitude is situated to the East of the town of Rosetta, the Drakensberg Mountains are situated to the East of the Alternative C3 powerline meaning the powerline servitude would be situated in between the	Medium to High	Medium to High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								Drakensberg Mountains and the town of Rosetta. Therefore the Alternative C3 powerline will be highly visible additional to the skyline, and will decrease the aesthetics of the area. This cannot be mitigated against Due to the nature of the development, anything placed on the powerlines and towers to increase the aesthetics would decrease the powerlines ability to function.		
Loss of land due to Spring Grove powerline requiring new servitudes	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• This cannot be mitigated against, due to the nature of the development which requires a 36 metre wide servitude to operate safely. • The registered servitude will allow for the construction of the powerline on the landowners property, and states the agreed conditions for the lease of their land for the powerline servitude.	High	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								• Landowners will be compensated for the area of land required for the powerline servitude in accordance with the Expropriation Act No 63 of 1975.		
Permanent loss of open space and grazing land adding pressure to alternative open space areas, leading to increased degradation and loss of indigenous fauna and flora.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• The proposed Alternative C1 servitude will not result in a permanent loss of open space, as the majority of the development is suspended above the landscape in the form of powerlines. • There will be a loss of flora/agriculture as a result of the development due to the tower sites, however mitigation measures provided will limit the loss of flora/agriculture as a result of the development. • However, landowners involved in agriculture activities will be impacted upon, which may result in farmers cultivating other grassland areas for agriculture use thereby increasing the loss of	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								indigenous fauna and flora.		
Increase safety risk due to aircraft collisions with powerlines during operation.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium	Medium	• The Alternative C3 servitude traverses cultivated land with pivots and maize fields situated on them. Farmers utilise aircraft to 'crop dust' fields, therefore the potential for an aircraft to collide with the Alternative C3 powerline as a result of its construction has been rated as 'Medium'. • 'Red and White' airdrome markers will have to be attached to the powerline as per Eskom standard	Medium	Medium
Impact on landowners.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	High	Low	• The Alternative C3 would adversely impact on the landowners' ability to farm once constructed, with the major impact of the Alternative C3 servitude being the impact on the placement of future pivots on their properties as tower pylons for the Alternative C3 could potential fall within the pivot area.	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								• Other landowners would be impacted upon by the Alternative C3 servitude through visual impacts of the powerline, or potential the construction of the tower structure on their property.		
Impact on Neighbouring properties.	Direct	Local	Operational phase (long term)	Cannot be prevented.	No	Medium	Low	• The only direct impact to neighbouring properties as a result of the Alternative C3 powerline servitude will be in the form of a visual impact of the powerline during operation phase. • Once constructed the towers and cable conductor will be highly visual due to the galvanizing of the steel members for the towers, and new aluminium cable conductor. However over time the towers and cable conductors' will weather and accumulative dirt which turns them a dull grey colour decreasing the visual impact of the powerline. • However due to the majority of these	High	Medium to High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								properties being situated to the East of the town of Rosetta, the view of these properties is predominately East looking at the Drakensberg Mountains. Therefore the Alternative C3 powerline will be highly visible additional to the skyline, and even with time would be visible.		

Alternative T1 Preferred (132 Tower Design Double Circuit Powerline)

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
IMPACTS OF THE 132 TOWER										
Visual impact of the 132 tower and six (6) cable conductors.	Direct	Local	Long term	No	No	High	Low	• Due to the nature of the development there will be a visual impact, this cannot be mitigated.	High	Low to Medium
Potential impact of 132 tower on Avifauna	Direct	Local with the potential to become Regional	Long term	Yes	No	Medium	Medium	• The 132 (Double-Circuit) tower alternative for the development is classified as 'Bird Friendly' and is a steel lattice tower structure. • The potential for	Medium	Medium

								collisions as a result of the development exist regardless of the tower design utilised in the Spring Grove Tee 88kV powerline. Therefore the additional three (3) cable conductors of the 132 tower structure will not significantly increase the potential for collisions provided that the mitigation measures recommended by the Avifaunal Specialist are implemented.		

Alternative T2

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
IMPACTS OF THE 131 TOWER										
Visual impact of the 131 tower and three (3) cable conductors.	Direct	Local	Long term	No	No	High	Low	• Due to the nature of the development there will be a visual impact, this cannot be mitigated.	High	Low
Potential impact of 131 tower on Avifauna	Direct	Local with the potential to become Regional	Long term	Yes	No	Medium	Medium	• The 131 (Double-Circuit) tower alternative for the development is classified as 'Bird Friendly' and is a steel lattice tower structure. • The potential for collisions as a result of the development exist	Medium	Medium

								regardless of the tower design utilised in the Spring Grove Tee 88kV powerline. Therefore 131 tower structure will not result in fewer incidents with avifauna, and provided that mitigation measures recommended by the Avifaunal Specialist are implemented collisions can be kept to an acceptable level.		

No-Go Alternative:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
IMPACTS OF THE NO-GO OPTION										
No impacts on the environment as there will be no construction of the new Spring Grove Tee 88kV powerline.	Direct	Local	Long term	Yes	No	Low	Positive impact no mitigation required.			
MMTS-2 cannot operate	Direct	Regional	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • Without the proposed 88kV Spring Grove Tee powerline water stored at the Spring Grove Dam cannot be	Low	Low

								pumped through the MMTS-2 pipeline to supply the Mgeni water system ensuring an adequate supply of water for all.		
Future Umgeni Water 'Water Treatment Facility cannot operate.	Direct	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • Without the proposed 88kV Spring Grove Tee powerline the future Umgeni Water 'Water Treatment Facility' cannot operate and will not be able supply water to the greater Nottingham Road and Rosetta area.	Low	Low
Eskom cannot fulfil their mandate to supply electricity to all customers.	Direct	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline.	Low	Low
eThekwini Municipalities ability to provide and address service delivery requirements for provision of water will be impacted upon.	Direct	Regional	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. • Therefore without the Spring Grove Tee 88kV powerline development	Low	Low

								these critical projects which will ensure the Municipality's ability to provide and address service delivery requirements for provision of water cannot be met.		
Eskom cannot upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area.	Direct	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • In order for Eskom to upgrade and strengthen the existing 11kV powerline network in the Nottingham Road and Rosetta area, the Spring Grove Substation must be energised. The Substation can only be energised through the construction of the Spring Grove Tee 88kV powerline, which would connect the substation to the existing Eskom 88kV network.	Low	Low
As the growing demand for electricity increases the supply will not met the demand of the surrounding communities and business.	Indirect	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • As the demand for electricity increases the Eskom network will experience a drain which will reduce the supply of electricity to the Nottingham Road and Rosetta area. Communities and	Low	Low

								business within the area would not have enough electricity supplied which would be insufficient for the needs of the area. • Communities and business within the area would not have enough electricity supplied which would be insufficient for the needs of the area. This would not allow for the economic development of the area.		
Decrease in the economic development of the KwaZulu-Natal region as eThekwini Municipality will not be able to provide adequate water to all industries.	Direct	Regional	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Without adequate water there will be an impact on the economic sector within the KwaZulu-Natal region as water is a critical component in all forms development from agriculture to industry. This would then result in a negative impact on the South African economy.	Low	Low

In the long term there will be limited supply of electricity which will result in economic impacts for the area as electricity blackouts occur due to the inability to meet the growing demand for electricity in the area.	Indirect	Local	Long term	Yes	No	High	High	• Can be mitigated through construction of the Spring Grove Tee 88kV powerline. • As the demand for electricity increases the strain on the network in the area would increase. This would cause power failures across the area and would have an economic impact on the area as business's will not be able to operated. This would then result in an negative impact on the economy.	Low	Low
eThekwini Municipality are not able to provide the additional water capacity that will be required to supply the expected future demand of the municipality as the MMTS-2 cannot operate.	Direct	Regional	Long term	Yes	No	High	High	• eThekwini Municipality receives water from the Mgeni River, with four major dams already constructed on this system there is no further possibility of additional water infrastructure to be developed on this system. The MMTS-2 development is critical in ensuring that eThekwini Municipality is able to provide additional water capacity to supply the expected future demand of the Municipality. Therefore without the Spring Grove Tee 88kV powerline development these critical projects which will ensure the	Low	Low

								Municipality's ability to provide and address service delivery requirements for provision of water cannot be met.		

2. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

List the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase:

The following list of potential impacts have been identified that could occur during the decommissioning phase Spring Grove Tee 88kV Powerline.

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
SOIL										
The rubble would need to removed and disposed of off-site. As a result, there will be a potential increase in the amount of waste sent to the landfill site	Direct	Local	Decommissioning (short-term)	Yes – can be managed.	No	Medium	High	• Material must be stockpiled in such a way that it cannot fall or cause injury or damage to properties or the natural environment. Stockpiles must not exceed 2m in height and must be covered to prevent erosion caused by exposure to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. A site-specific Environmental Management Programme (EMPr) must be designed to manage the	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								decommissioning activities.		
Degradation and contamination of the drainage lines, wetlands, and surrounding environment by cement and other hazardous materials.	Direct	Local	Decommissioning (short-term)	Yes – can be managed	No	Medium	High	• Site workers must be trained in avoiding impacts in areas of potential concern. The Contractor must submit a method statement to the RE for approval, detailing the location of the temporary bypasses, spill prevention measures, erosion and sedimentation control measures, surface water flow diversion, reinstatement, etc. Hazardous material storage areas must not be within 32m from a stream/drainage line or local residential homesteads. Designated concrete mixing areas and storage areas for all hazardous materials must be assigned prior to construction and must be stored within the construction site camp. Cement mixing must take place on a hard surface or on cement mixing trays. In addition cement and	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. A site-specific Environmental Management Programme (EMPr) must be designed to manage the decommissioning activities.		
Interruption or damage to services (electricity, water etc).	Direct	Local	Decommissioning phase (short-term)	Yes – can be managed.	No	Medium	High	• This Impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Impacts on watercourses, water bodies or drainage lines.	Indirect	Local	Decommissioning (short-term)	Yes – can be managed	No	Medium	High	• Environmentally sensitive areas must be avoided where possible. If the decommissioning process is managed carefully and the sites rehabilitated then this impact can be mitigated against. A site-specific Environmental Management Programme (EMPr) must be designed to manage the decommissioning activities.	Low	Low
Decommissioning activities causing erosion.	Direct	Local	Decommissioning (short term)	Yes	No	Low	High	• All tower sites will need to be rehabilitated and re-vegetated preventing any possible erosion. A site-specific Environmental Management Programme (EMPr) must be designed to manage the decommissioning activities.	Low	Low
Improper disposal of	direct	Local	Decommissioning (short-	Yes	No	Low	High	• All excess material and rubble must be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
rubble i.e.: burying or neglecting building rubble resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.			term)					removed from the site so not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained. Site workers will be trained in avoiding such impacts. Safe disposal certificates must be kept on record. A site-specific Environmental Management Programme (EMPr) must be designed to manage the decommissioning activities.		
Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents.	direct	Local	Decommissioning (short-term)	Yes	No	Medium	High	• Excessive noise must be controlled on site. Workers must be trained regarding noise on site and construction hours must be kept to working hours (06h00 to 18h00). The decommissioning must need to be monitored by an ECO who must ensure compliance with the decommissioning EMPr. All precautions must be taken to ensure that noise	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								generation is kept to a minimum. If excessive noise is expected during certain stages of decommissioning nearby residents must be notified prior to the event. A site-specific Environmental Management Programme (EMPr) must be designed to manage the decommissioning activities.		
Increase waste to landfill site.	Cumulative	Local (potential to become regional)	Decommissioning (short-term)	Yes impact can be managed	No	Medium	High	• Waste streams must be separated and recycled where possible to limit waste added to the landfill site. A site-specific Environmental Management Programme (EMPr) must be designed to manage the decommissioning activities.	Low	Low

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Kerry Stanton	BSc (Hons) MSc (EAPSA Certified)	SACNASP	18
Calum Cockerill	BSs Geography and Environmental Management	-	3
Ronell Kuppen	BSc (Hons)	-	1

KSEMS is an established environmental management consultancy which has been based in KZN since 1998. We are one of the leading environmental management consultancies in KZN and have clients throughout Southern Africa. KSEMS has been involved in the development of over 600 infrastructure projects (including roads, gas pipelines, stormwater reticulations, water reticulation, communication, electricity infrastructure etc) in South Africa in both large and small scale projects, as infrastructure projects are largely linear in nature and have both specific impacts and mitigation measures KSEMS has the experience to deliver an informed environmental focused service during the required EIA process.

In terms of Eskom developments KSEMS cc has been involved in monitoring construction of Substations and Powerlines as the Independent Environmental Control Office (ECO), as well as the EAP writing the various Environmental Impact Assessments (EIRs, BARs, and EMPrs) required for Eskom projects that need to obtain Environmental Authorisation prior to construction. The following is a list of Eskom and eThekwini Electricity projects that KSEMS has been involved in:

1) EAP: New Mzintlava (Mt Ayliff) Substation (EIA No:12/12/20/1400).
2) EAP: New 20MVA 132/22 kV Gunjaneni Substation and the associated 25km (Total) 132kV loop-in and loop-out powerline (EIA No: 12/12/20/2267).
3) EAP: New 20 MVA 132/22 kV Mt Elias Substation and the associated 16km 132kV powerline (EIA No: 12/12/20/2271).
4) EAP: New Amacwera 132kV Substation and associated 50 kilometre Chikandee 132kV powerline (EIA No: 12/12/20/2477) (Active).
5) EAP: New Makaula 132kV Substation and associated Mathafeni-Makaula 132kV 7km powerline (EIA No: 12/12/20/2476) (Active).
6) EAP: New 132/11kV Midlands Substation and associated 132kV feeder lines (EIA: 14/12/16/3/3/1/843) (Active).
7) ECO: New Hlabisa Substation and associated 88kV Powerline (EIA: 12/12/20/1021).
8) ECO: New Ncwane Switching Station and associated 88kV Powerline (EIA: 12/12/20/1020) (Active).
9) ECO: New Mzintlava (Mt Ayliff) Substation (EIA No:12/12/20/1400).
10) ECO: Eshowe/ Gingindlovu 88kV Powerline refurbishment.
11) ECO: eThekwini Electricity- New Sapref Substation and 132kV Underground Powerline (EIA: 6579)

Kerry Stanton (Director) is EAPSA certified and is a member of the IAIASA. As such we uphold the professional, moral and ethical obligations of these bodies in ensuring that we operate as an independent body in the assessment of environmental impacts of any project in which we are involved.
Calum Cockerill (Environmental Consultant) was an Environmental Office for a construction company prior to joining KSEMS cc, and has been directly involved in monitoring (ECO) and assessing (EAP) the above listed developments over the last three years.

Appendix I: Specialist's declaration of interest

Please see attached specialist reports for their signed declaration of independent

Appendix J: Additional Information

Figure 1: Aerial photograph of Mr Coezters subdivided properties with regards to the proposed Alternative C1 powerline servitude. (Source: Google Earth, 2013)

Figure 2: Aerial photograph of Mr Regards subdivided properties with regards to the proposed Alternative C1 powerline servitude. (Source: Google Earth, 2013)