

Appendix 6: Background Information Documents (BIDs)

PROPOSED MOOKODI-MAHIKENG 400KV LINE



BACKGROUND INFORMATION DOCUMENT

October 2017

CONTENT

1. Purpose of this document
2. Background & Introduction
3. Project Location
4. Project Overview
5. Environmental Assessment
6. Contact Details

1. PURPOSE OF THIS DOCUMENT

The purpose of this **Background Information Document** (BID) is as follows:

1. It serves to provide an overview of the proposed Mookodi-Mahikeng 400kV line;
2. It provides an outline of the Environmental Impact Assessment (EIA) Process that will be undertaken for the project; and
3. It grants the opportunity to be registered as an Interested and Affected Party (IAP) and allows for comments to be made on the proposed project (refer to attached Reply Form).

The purpose of the EIA includes: (1) to identify and evaluate potential impacts, (2) to recommend measures to avoid or reduce negative impacts and (3) to enhance positive impacts.

2. BACKGROUND & INTRODUCTION

The existing Watershed substation is currently un-firm and has insufficient capacity to support the forecasted load in the Watershed Main Transmission Substation (MTS) area, which includes Lichtenburg which extends to Mahikeng town. Hence there is a need for further network expansion through establishing a new transmission substation in Mahikeng. The proposed Mahikeng substation will undergo a separate EIA Process. As part of establishing the site for the proposed Mahikeng substation, Mahikeng substation will be designed with an end state of 3x 500MVA 400/132kV transformers and install 2x 500MVA 400/132kV transformers initially. A 1x 160km Pluto – Mahikeng 400kV line will be established (this will undergo a separate EIA Process) and a 1x 180km Mookodi - Mahikeng 400kV line will be established, this proposed line is within the proposed scope of work for this EIA Process.

3. PROJECT LOCATION

The project is located within the Naledi Local Municipality (LM), Kagisano-Molopo LM, Ratlou LM, and Mahikeng LM in the North West Province. The proposed alternative routes for the line start in Vryburg at the existing Mookodi MTS and travel in a north-east direction to end near Mahikeng at the proposed Mahikeng substation site (see **Figure 1**).

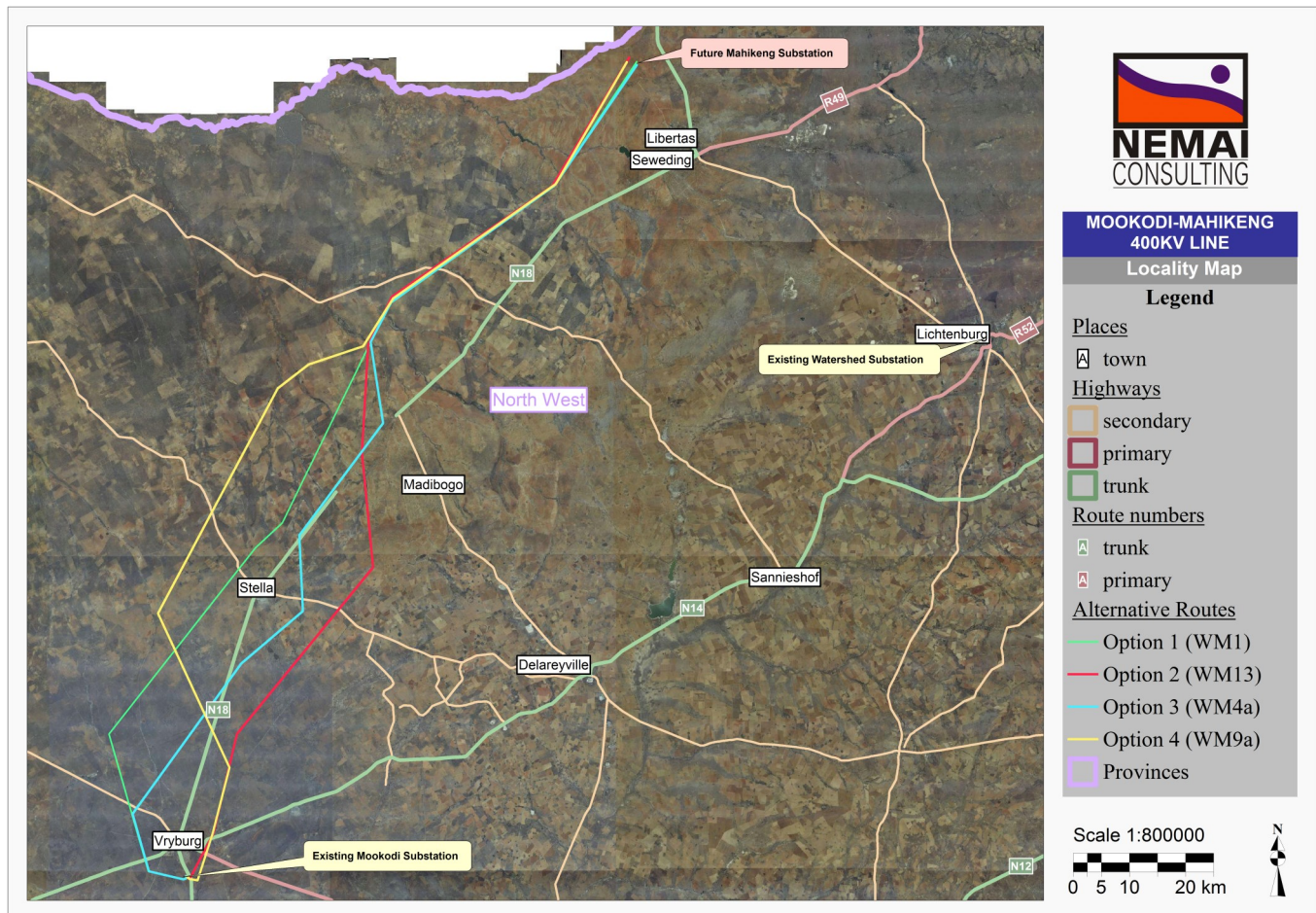


Figure 1: Locality Map

4. PROJECT OVERVIEW

4.1 PROJECT AIMS

The Mookodi-Mahikeng 400kV Line is required to transmit electricity to the new Mahikeng Substation which forms part of the scope for the overall network system, in which the proposed Pluto – Mahikeng 400kV line (separate EIA Process) will improve reliability of the Watershed Substation constraints which are not sufficient to support and supply the demand growth in Mahikeng town (**Figure 2**).

The study is dependent on the proposed Mookodi and Ngwedi substations which will de-load Watershed load by approximately 180MW by year 2021, of which 100MW is to Mookodi and 80MW to Ngwedi substation. The load shifts from Watershed creates some relief in load however it is not sufficient in restoring the firm capacity in the 20 year planning horizon. There is however a project to install a 250MVA 275/132kV transformer and capacitor banks on the 88kV and 132kV bus bar by year 2021 which improves Watershed firm capacity in the short term. The load growth at Mahikeng and the limitations of the existing Watershed substation triggers the need for the new transmission injection in Mahikeng substation to be established at the load center to accommodate the new load, de-load Watershed and align with the long term strategic view for regional trade.

4.2 SCOPE OF WORK

The proposed development includes an approximately 180km transmission line from the existing Mookodi Substation in Vryburg (**Figure 3**) and travels towards the north-east ending near Mahikeng at the proposed Mahikeng substation site (**Figure 4**). A 2km servitude for each route alternative applies (1km on each side). This extended study area allows for any possible deviations from the current proposed alignment of the power lines within this corridor, which may be necessary due to findings of the Specialist Studies, outcome of Eskom negotiations with landowners and technical requirements.

The following shall be used as a standard for vegetation clearance for new powerlines with a nominal voltage of 220 to 765 kV for access purposes (inspection, repair and maintenance), safety clearance, and prevention of fires in Servitudes and Wayleaves:

- Servitude building restriction widths (measured from the centre line of the power line) are 22 m to 40 m.
- Clear from the centre of the power line up to the outer conductor, plus an additional 10 meters on either side.

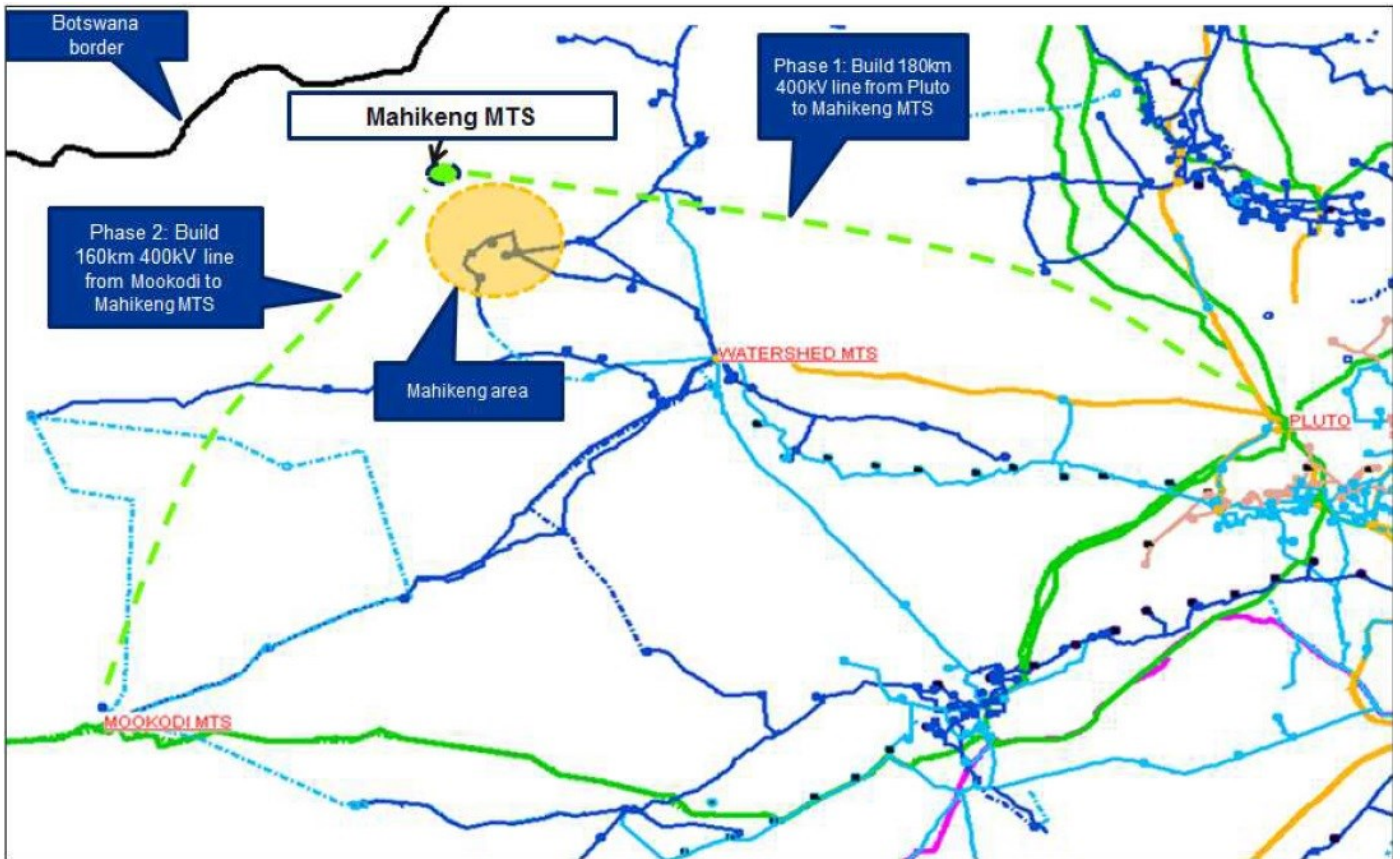


Figure 2: Mahikeng Substation Integration

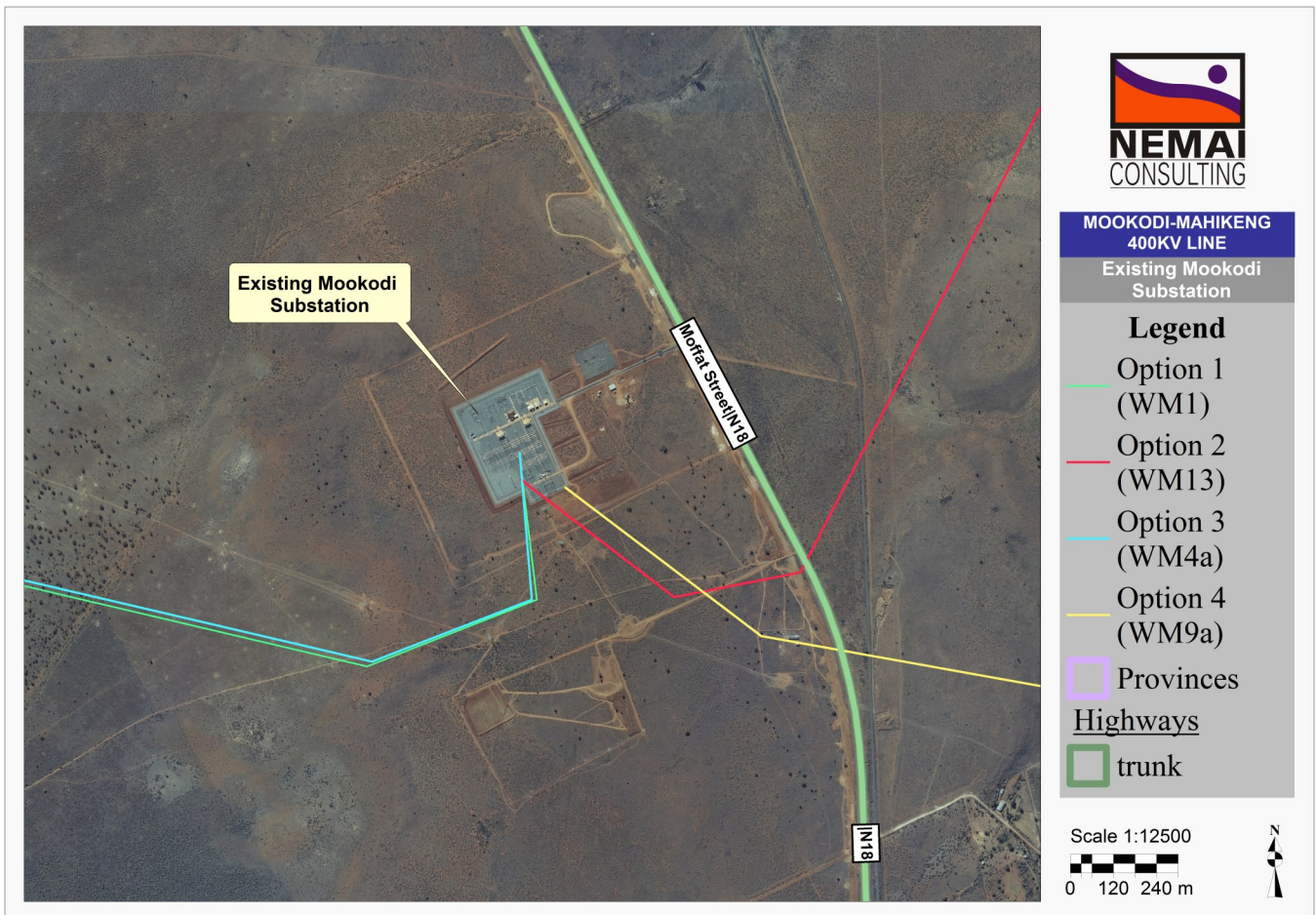


Figure 3: Start Point at existing Mookodi Substation

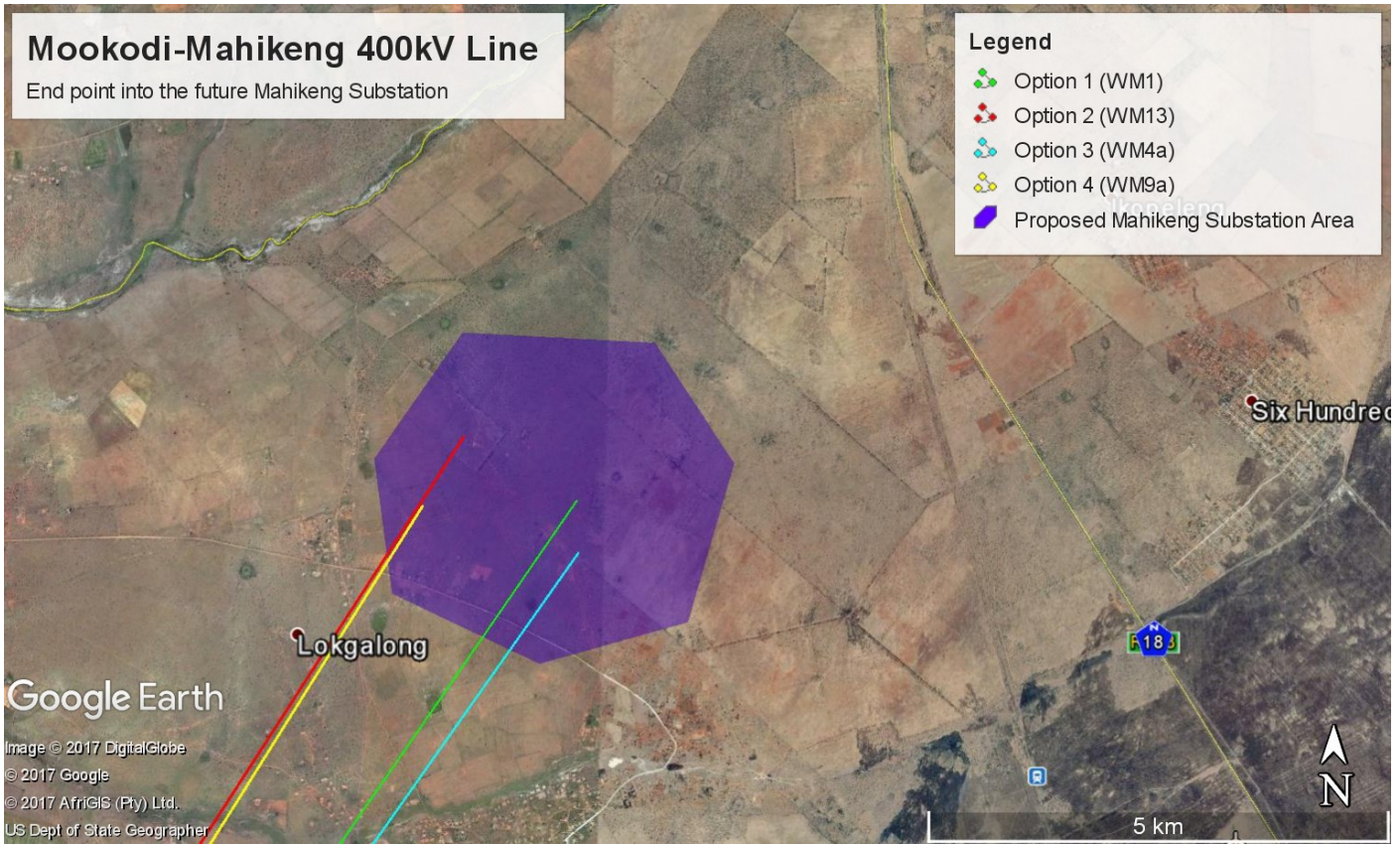


Figure 4: End point at future Mahikeng Substation

There are three main tower types that are used for 400kV lines:

1. Guyed-v (Figure 5)
2. Cross- rope (Figure 6)
3. Bend/Strain (Figure 7)

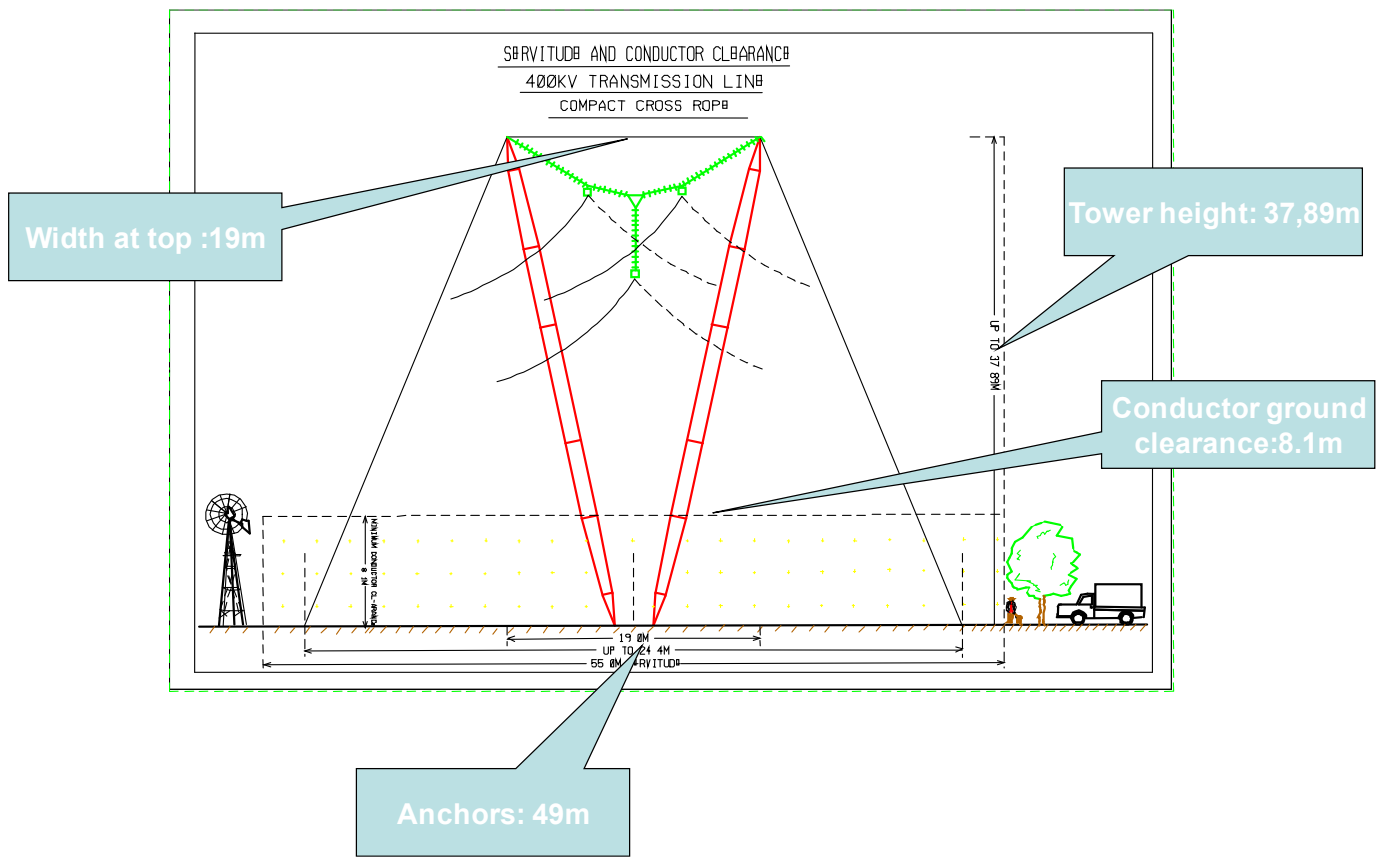


Figure 5: Guyed-v Type Tower

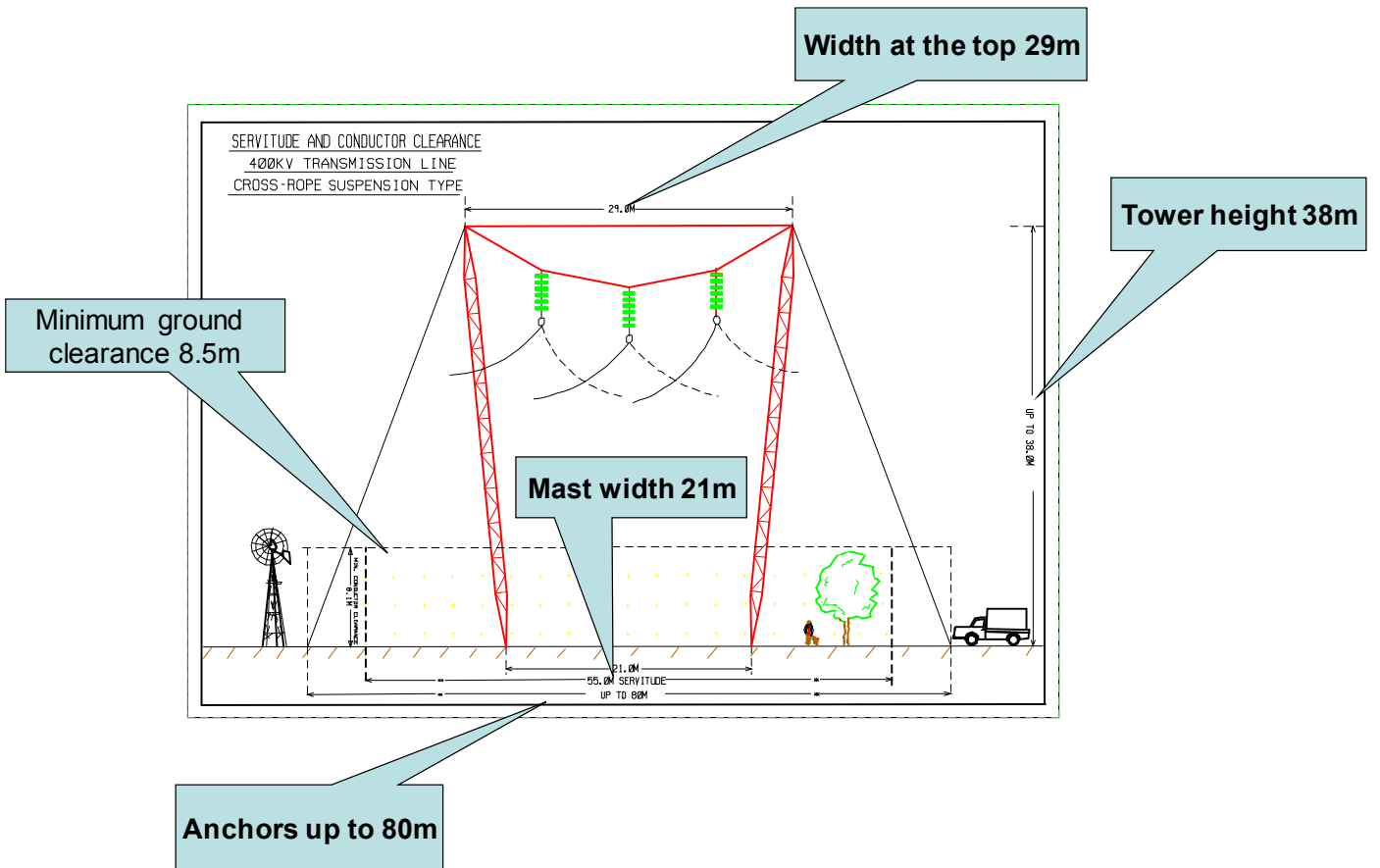


Figure 6: Cross-rope Type Tower

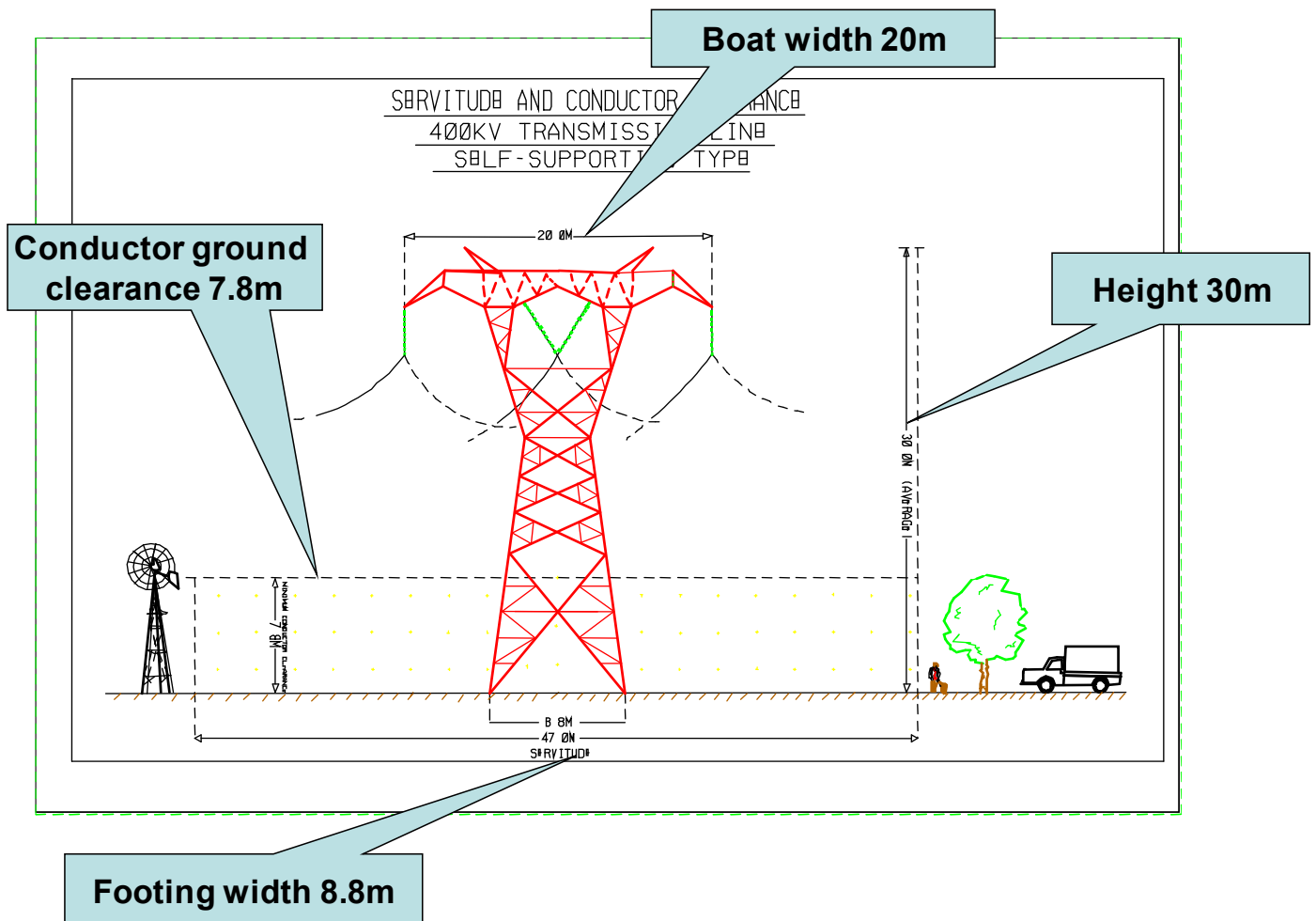


Figure 7: Bend/Strain Type Tower

5. ENVIRONMENTAL ASSESSMENT

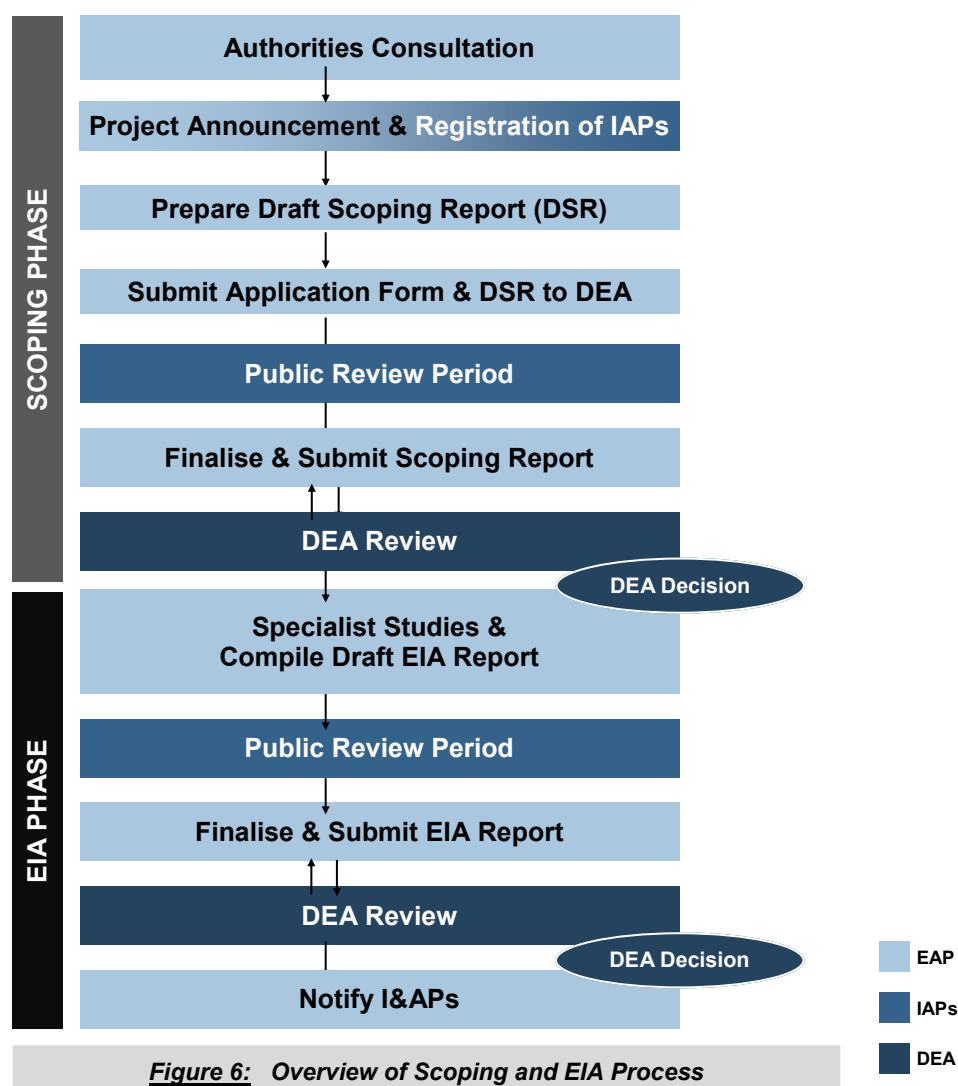
5.1 EIA TRIGGERS

The proposed project requires environmental authorisation in terms of the EIA Regulations of 2014 (as amended) that were promulgated in terms of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998).

A Scoping an EIA Process is triggered as activities from Government Notice (GN) No. R 983, 984 and 985 are associated with the project. The detailed list of activities will be included in the Application Form and Scoping Report.

5.2 EIA PROCESS

In terms of NEMA, the lead decision-making authority for this environmental assessment is the Department of Environmental Affairs (DEA) as the project proponent (Eskom) is fully owned by the South African government. Nema Consulting was appointed by Eskom to act as the Independent Environmental Assessment Practitioner (EAP) to undertake the requisite EIA Process for the project, which will be executed in accordance with GN No. 982 of the 2014 EIA Regulations (as amended). Based on the listed activities triggered by the project, a Scoping and EIA Process will be conducted (outlined in **Figure 6**).



5.3 SPECIALIST STUDIES

The nature and extent of the specialist studies to be conducted for the purposes of the EIA will be determined during the Scoping Phases. At this stage, the following environmental specialist studies have been identified:

- ◆ Terrestrial Ecological Assessment
- ◆ Heritage Impact Assessment
- ◆ Aquatic and Wetland Assessment
- ◆ Agricultural Impact Assessment
- ◆ Visual Impact Assessment
- ◆ Social Impact Assessment
- ◆ Economic Assessment
- ◆ Avifaunal Impact Assessment

Additional studies may be identified as the EIA Process unfolds. Various technical studies will also be undertaken.

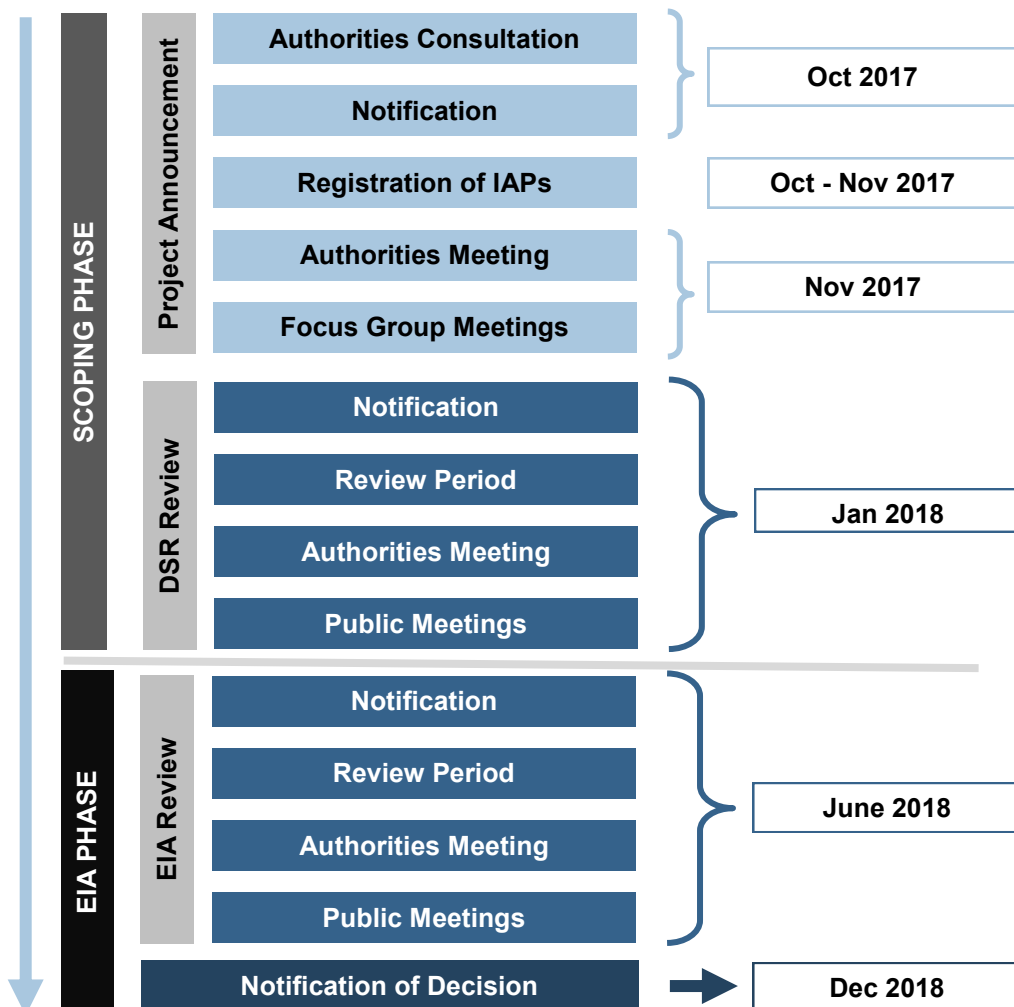
5.4 ALTERNATIVES

Four alternative routes will be considered as part of the Scoping & EIA Process, namely: 1) Option 1 (WM1), Option 2 (WM13), Option 3 (WM4a) and Option 4 (WM9a).

5.5 HOW CAN YOU BECOME INVOLVED?

5.5.1. Overview of Public Participation Process

The diagram below outlines the Public Participation Process to be undertaken as part of the Scoping & EIA phases.



Note:
Dates may change during the course of the Basic Assessment

Figure 7: Outline of Public Participation Process

5.5.2. Registration as an IAP

To register as an IAP and to raise any comments or concerns, kindly complete the attached Reply Form and return to Nemaï Consulting .

5.5.3. Public Meetings

A series of Focus Group Meetings and Public Meetings shall be organised and registered IAPs will be invited to the meetings.

6. CONTACT DETAILS

For any queries pertaining to the project, please contact the Environmental Assessment Practitioner below:



Contact Person: Kristy Robertson
Tel: (011) 781 1730
Fax: (011) 781 1731
Email: kristyr@nemaï.co.za
Postal Address: PO Box 1673, Sunninghill, 2157



P.O. BOX 1673
SUNNINGHILL
2157

147 Bram Fischer Drive
Ferndale
2194

Phone: (011) 781 1730
Fax: (011) 781 1731
Email: kristyr@nemai.co.za

PROPOSED MOOKODI-MAHIKENG 400KV LINE

SCOPING & EIA - REPLY FORM

Official use	Date received	Our reference	Status

Note: The purpose of the Reply Form includes the following:

1. Registration of Interested and Affected Parties;
2. Obtain contact details to include in the project database; and
3. Allow for comments and concerns to be raised regarding the proposed project.

1) GENERAL INFORMATION

Name of organisation (if applicable)	
Name & Surname	
Postal Address	
Physical Address	
Telephone No.	
Fax No.	
Email Address	

Registration as an
Interested & Affected Party:

YES

NO

2) COMMENTS

2.1) Potential issues or concerns associated with the project?

--

2.2) Specific requirements in terms of the Basic Assessment process?

--

2.3) Key stakeholders to be engaged with (provide contact details, if possible)?

--

2.4) General Comments

--

Signature _____

Date _____

— Thank you for your participation —

VOORGESTELDE MOOKODI-MAHIKENG 400KV KRAGLYN



AGTERGROND INFORMASIE DOKUMENT

Oktober 2017

INHOUD

1. Doel van die Dokument
2. Agtergrond en Inleiding
3. Projek Terrein
4. Projek Oorsig
5. Omgewings Impakassessering
6. Kontakbesonderhede

1. DOEL VAN HIERDIE DOKUMENT

Die doel van hierdie Agtergrond Informasie Dokument (AID) is as volg:

1. Dit dien as oorsig van die voorgestelde Mookodi-Mahikeng 400Kv kraglyn.
2. Dit gee informasie van die Omgewings impakassessering (OIA) Proses wat oor hierdie projek gedoen word; en
3. Dit verleen die geleentheid om geregistreer te word as 'n Belanghebbende en Geaffekteerde Party asook vir kommentaar oor die voorgestelde projek (sien aangehegte antwoordvorm).

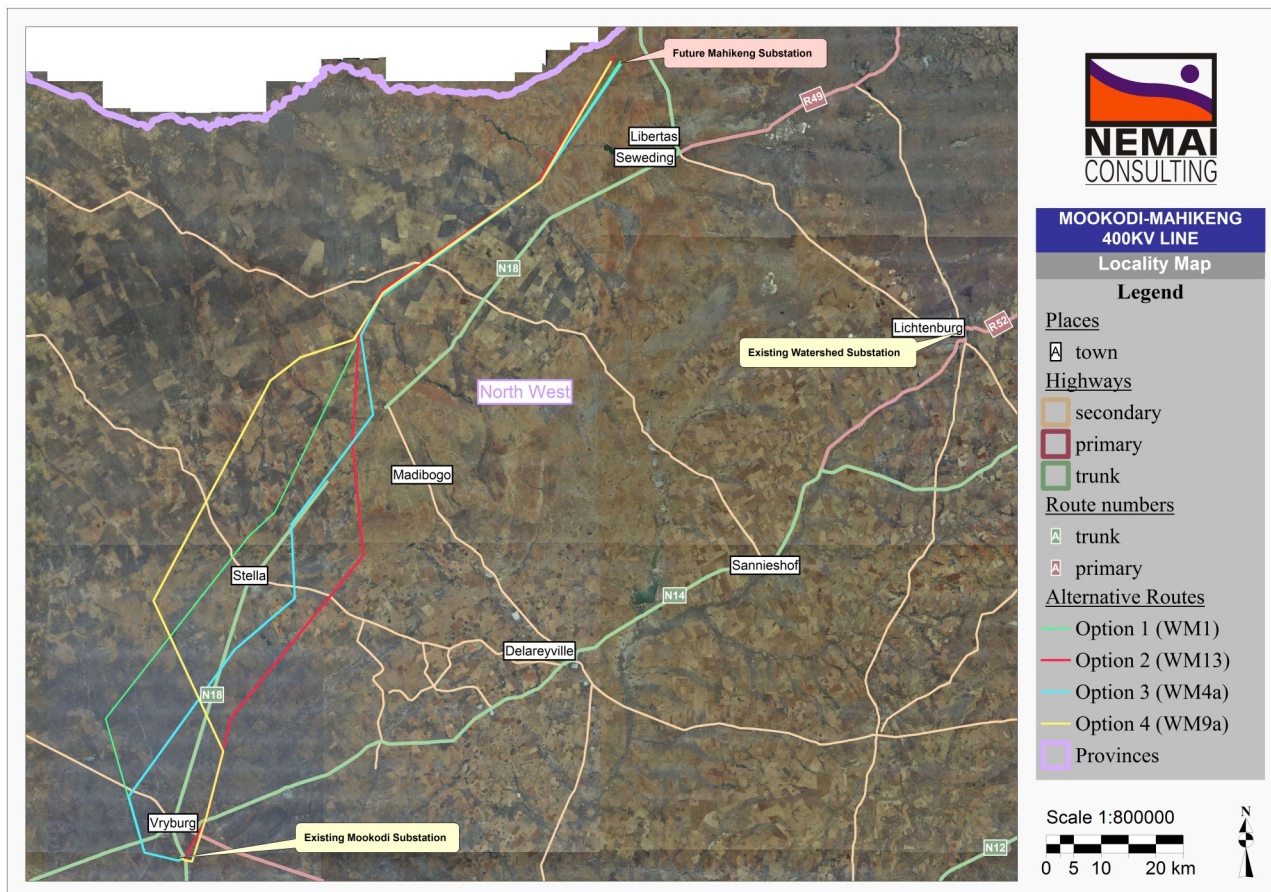
Die doel van die OIA sluit in: (1) om potensiële impak te identifiseer en te evalueer, (2) om maatreëls in te stel om negatiewe impak te vermy of te reduseer en (3) om positiewe impak te verbeter.

2. AGTERGROND & INLEIDING

Die bestaande Watershed substasie het huidige onvoldoende kapasiteit om die voorgestelde vraag in die Watershed Hoof Transmissie Substasie Area, wat Lichtenburg tot Mahikeng dorp insluit, te ondersteun. Daar ontstaan dus 'n vraag na verdere netwerk uitbreiding deur 'n nuwe transmissie substasie in Mahikeng te vestig. Die voorgestelde Mahikeng substasie sal 'n aparte OIA Proses ondergaan. As deel van die vestiging van die terrein vir die voorgestelde Mahikeng substasie, sal die substasie ontwerp word met 'n eindproduk van 3x 500MVA 400/132Kv transformators, waarvan 2x 500 MVA 400/132Kv aanvanklik geïnstalleer sal word. 'n 1x 160km Pluto - Mahikeng 400Kv kraglyn sal gevestig word ('n aparte OIA Proses sal hiervoor gedoen word) sowel as 'n 1x 180km Mookodi - Mahikeng 400Kv kraglyn wat binne die voorgestelde omvang van hierdie OIA Proses val.

3. PROJEK LIGGING

Die projek is geleë in die Naledi Plaaslike Munisipaliteit (PM), Kagisano-Molopo PM, Ratlou PM en Mahikeng PM in die Noordwes Provinsie. Die voorgestelde alternatiewe roetes vir die kraglyn begin in Vryburg by die bestaande Mookodi Hoof Transmissie Substasie en beweeg in 'n noordoostelike rigting om naby Mahikeng by die voorgestelde Mahikeng substasie terrein te eindig. (sien figuur 1)



Figuur 1: Liggingskaart

4. PROJEK OORSIG

4.1 DOEL VAN DIE PROJEK

Die Mookodi – Mahikeng 400kV kraglyn is veronderstel om elektrisiteit na die nuwe Mahikeng Substasie, oor te dra. Die voorgestelde Pluto – Mahikeng 400kV kraglyn (aparte OIA Proses) wat deel vorm van die omvang van die netwerkstelsel in sy geheel, sal die betroubaarheid van die Watershed Substasie, wat onvoldoende is om die groei in die aanvraag in Mahikeng te ondersteun en te voorsien, verbeter. (Figuur 2)

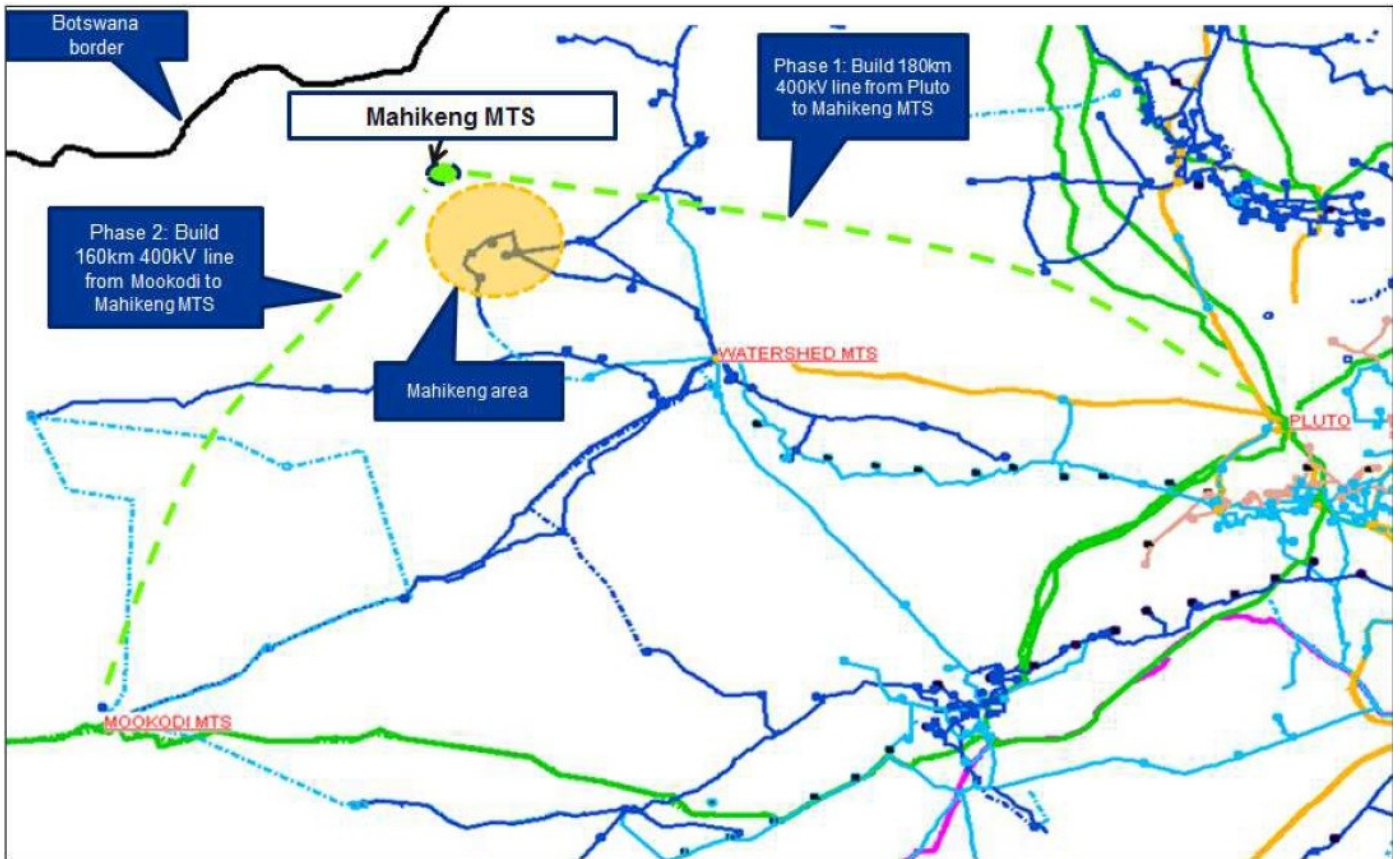
Die studie is afhanklik van die voorgestelde Mookodi en Ngwedi substasies wat die Watershed vraag met ongeveer 180MW teen die jaar 2021 sal verminder, waarvan 100MW na Mookodi en 80MW na Ngwedi substasie sal gaan. Hierdie vragverskuiwings van Watershed sal verligting bring, hoewel dit onvoldoende is om die vaste kapasiteit in die 20 jaar beplande horison, te herstel. Daar is egter 'n projek om 'n 250MVA 275/132kV transformator en kapasitor banke op die 88kV en 132kV bus teen 2021 te installeer wat in die korttermyn Watershed se vaste kapasiteit sal verbeter. Die groei in aanvraag in Mahikeng en die tekortkominge van die bestaande Watershed substasie veroorsaak die behoefte aan die nuwe transmissie inspuiting wat by die vragentrum gevestig sal word om die nuwe vrag te akkommodeer, Watershed se vrag te verminder en in lyn te bring met die langtermyn strategiese siening vir plaaslike handel.

4.2 SCOPE OF WORK

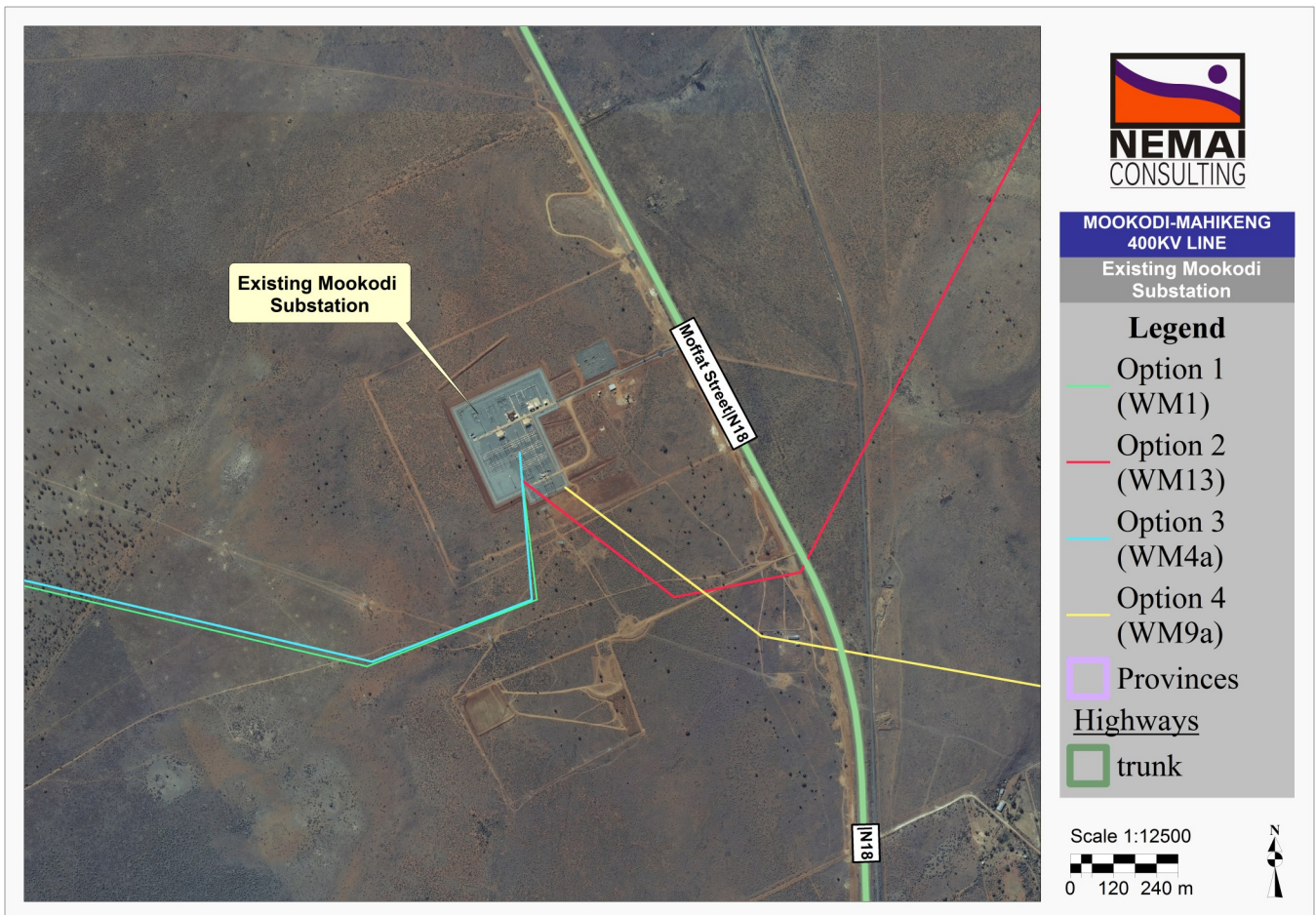
Die voorgestelde ontwikkeling sluit 'n ongeveer 180km transmissielyn vanaf die bestaande Mookodi substasie in Vryburg (Figuur 3) na die noordoostelike eindpunt naby Mahikeng by die voorgestelde Mahikeng substasie terrein in (Figuur 4). 'n 2km serwituut vir elke roete is van toepassing (1km aan albei kante). Hierdie uitgebreide studie-area maak voorsiening vir enige afwykings van die voorgestelde belyning van die kraglyne in hierdie gang, wat nodig mag wees as gevolg van bevindings van die Spesialisstudies, uitkoms van Eskom samesprekings met grondeienaars en tegniese vereistes.

Die volgende sal gebruik word as 'n standaard vir die verwydering van plantegroei vir die nuwe kraglyne met 'n nominale spanning van 220 tot 765 kV vir toegangsdoeleindes (inspeksies, herstel en instandhouding), veiligheidsdoeleindes en vir die voorkoming van veldbrande in serwitute en gebruike:

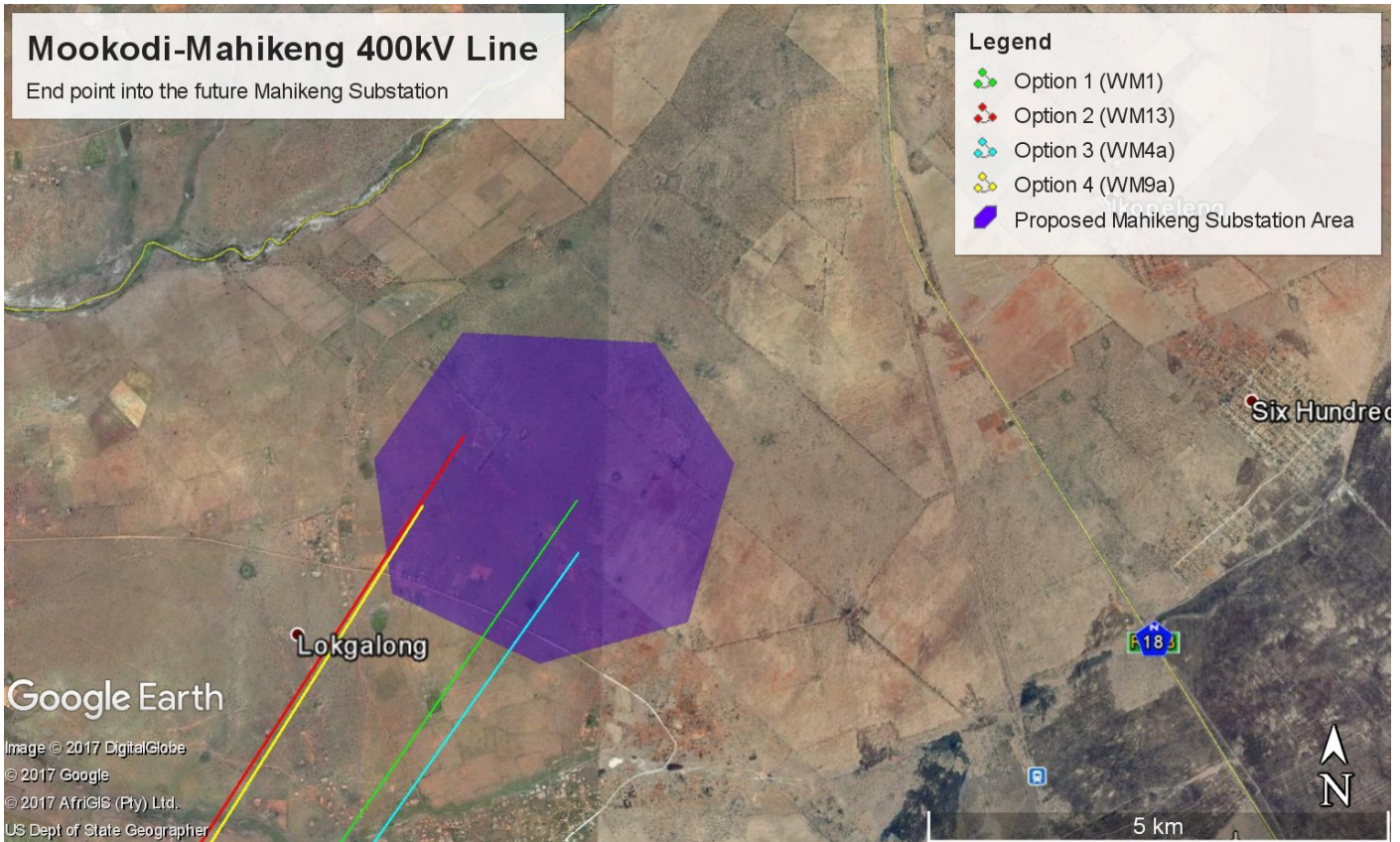
- Serwituut boubeperking wydtes (gemeet vanaf die middel van die kraglyn) is 22m tot 40m.
- Skoongemaak vanaf die middel van die kraglyn tot by die buitenste geleier, plus 'n addisionele 10 meter aan albei kante.



Figuur 2: Mahikeng Substansie Integrasie



Figuur 3: Beginpunt by die bestaande Mookodi Substansie



Figuur 4: Eindpunt by Voorgestelde Mahikeng Substasie

Daar is drie hoof toring tipes wat vir 400kV lyne gebryk word:

1. Guyed-v (Figuur 5)
2. Cross- rope (Figuur 6)
3. Bend/Strain (Figuur 7)

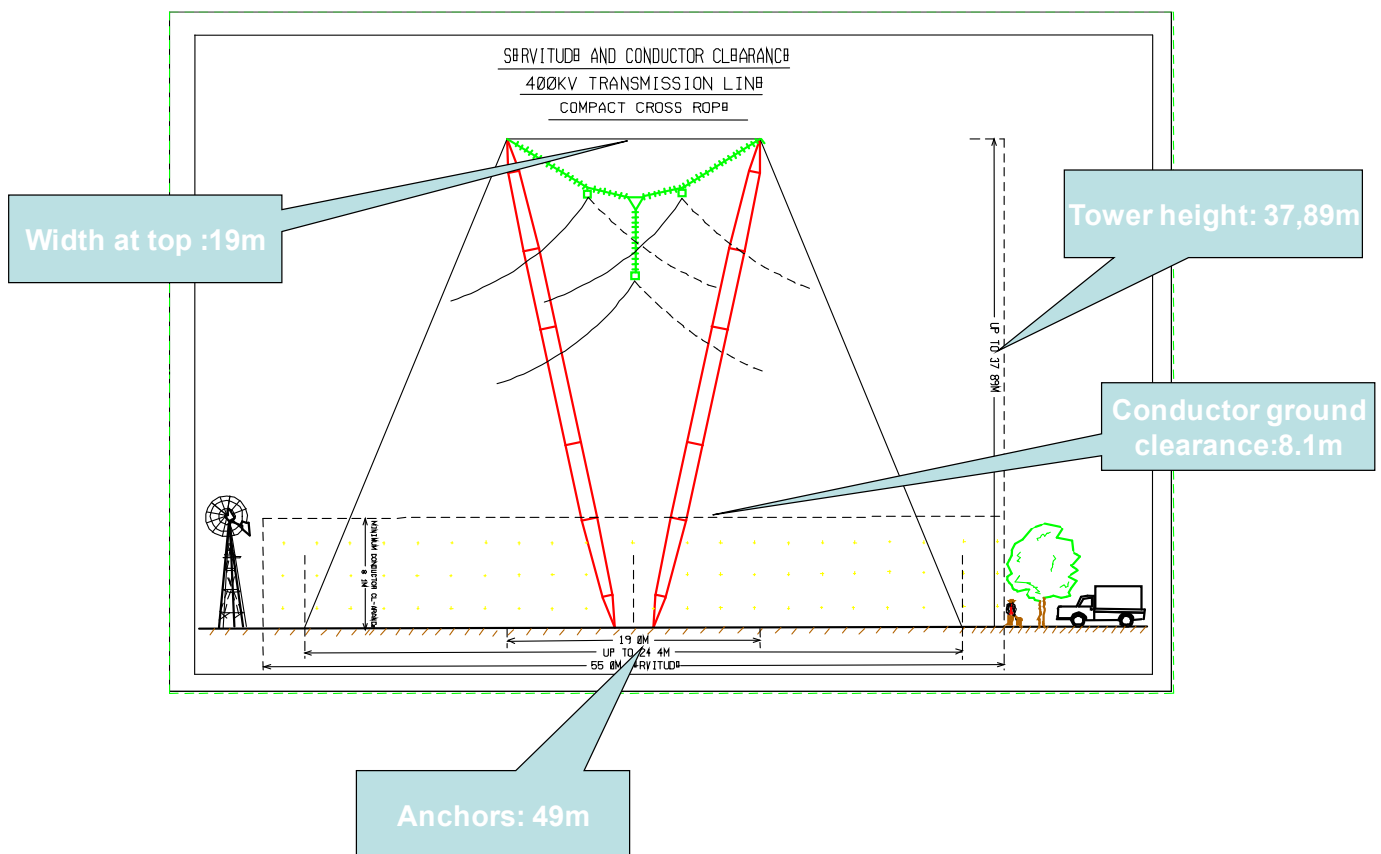
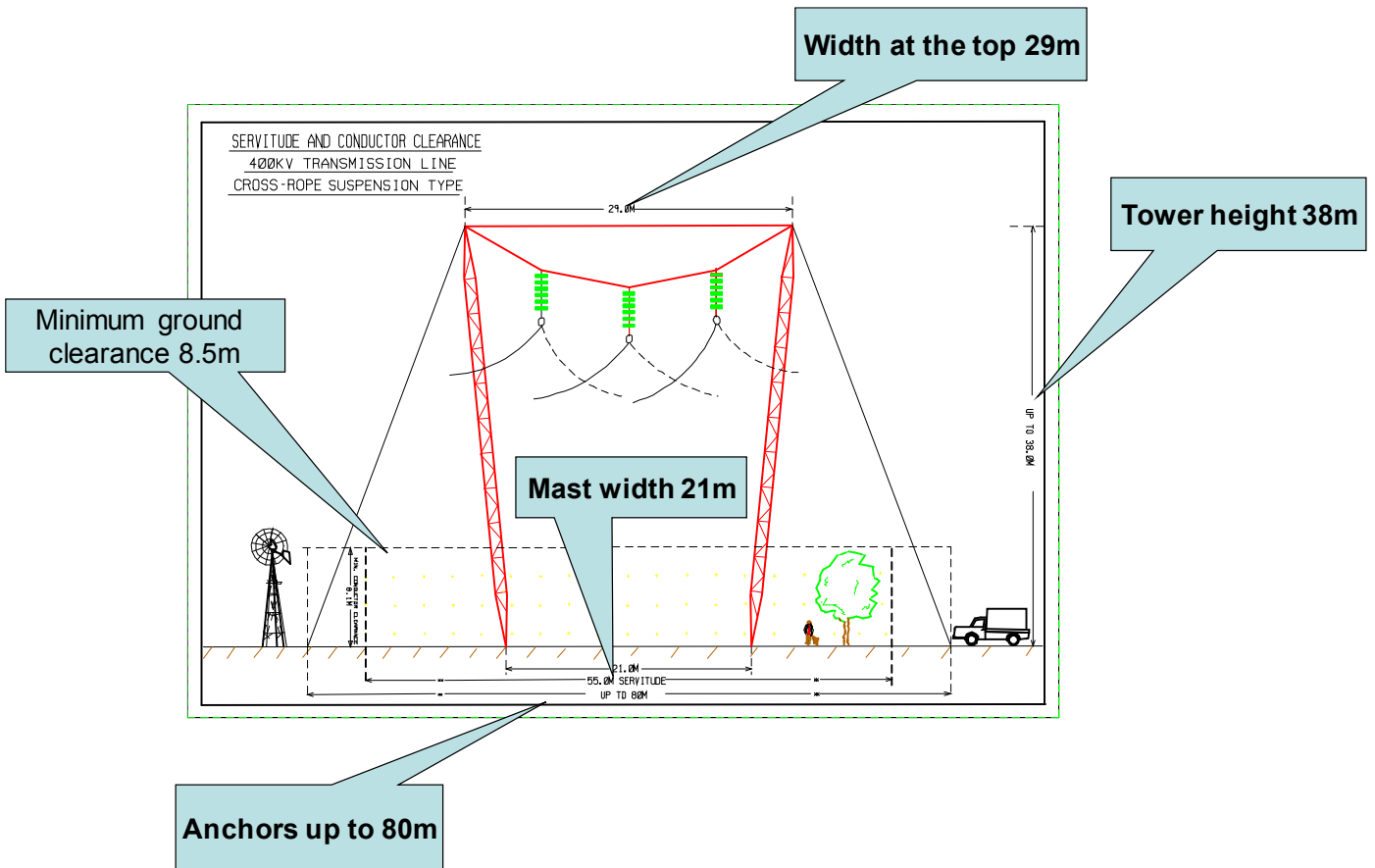
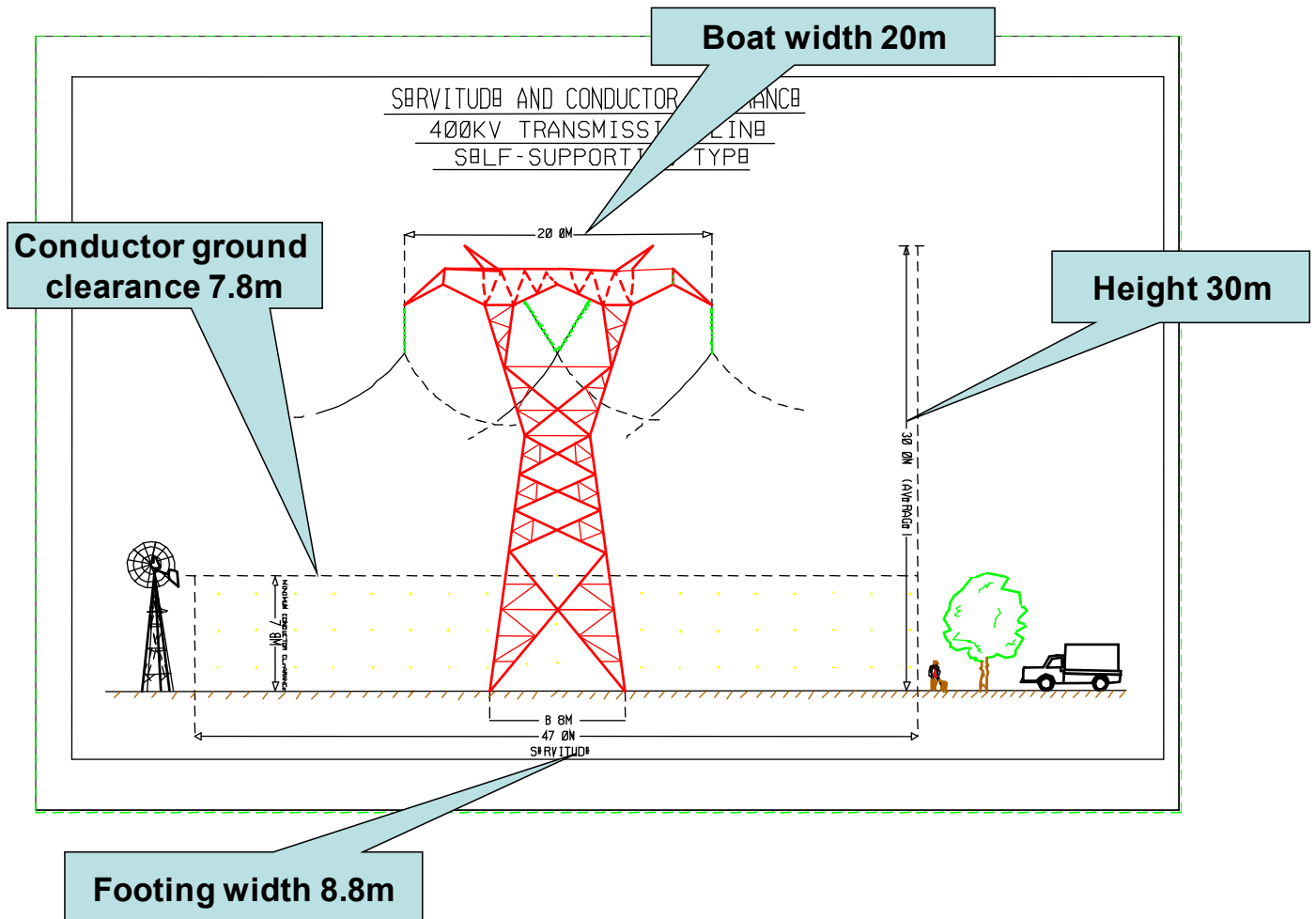


Figure 5: Geankerde "Guyed-v" Tipe Toring



Figur 6: Dwarskabelhang Tipe Torings



Figur 7: "Bend/Strain" Tipe Torings

5. OMGEWINGS ASSESSERING

5.1 OIA INISIEËRDERS

Die voorgestelde projek vereis omgewingsgoedkeuring in terme van die OIA Regulasies van 2014 (soos aangepas) wat gepromulgeer is in terme van die Nasionale Omgewings Bestuurswet (NOBW), 1998 (Wet Nr. 107 van 1998). Bestekopname en Omgewingsevalueringsproses, geïnisieer deur regeringskenningsgewings (SK) Nr. R. 983, 984 en 985 word geassosieer met hierdie projek. Die gedetailleerde lys van aktiwiteite sal ingesluit word by die aansoekvorm en bestekopname verslag.

5.2 OIA PROSES

In terme van die Nasionale Omgewings Bestuurswet, is die hoof besluitnemingsgesag vir hierdie omgewings impakassessering die Departement van Omgewingsake (DOS) aangesien die projek voorsteller (Eskom) ten volle deur die Suid-Afrikaanse regering besit word. Nemaï Consulting is deur Eskom aangestel om op te tree as die Onafhanklike Omgewingsassessor Praktisyn (OAP) om die vereiste OIA Proses vir die projek te bestuur, in ooreenstemming met SK Nr. 982 van die 2014 OIA Regulasies (soos aangepas). Gebaseer op die gelyste aktiwiteite wat deur die projek veroorsaak word, sal 'n Bestekopname en Omgewings evalueringsproses uitgevoer word (soos voorsien in **Figuur 6** hieronder).



5.3 SPESIALISSTUDIES

Die aard en omvang van die spesialisstudies wat uitgevoer sal word vir die doel van die OIA sal tydens die Bestekopname fase bepaal word. Op hierdie stadium is die volgende spesialisstudies geïdentifiseer:

- ◆ Terrestriële Ekologiese Assessering
- ◆ Erfenis Impak Assessering
- ◆ Water en Vleiland Assessering
- ◆ Landbou Impak Assessering
- ◆ Visuele Impak Assessering
- ◆ Sosiale Impak Assessering
- ◆ Ekonomiese Impak Assessering
- ◆ Voëllewe Impak Assessering

Addisionele studies kan geïdentifiseer word soos die OIA Proses verloop. Verskeie tegniese studies sal ook onderneem word.

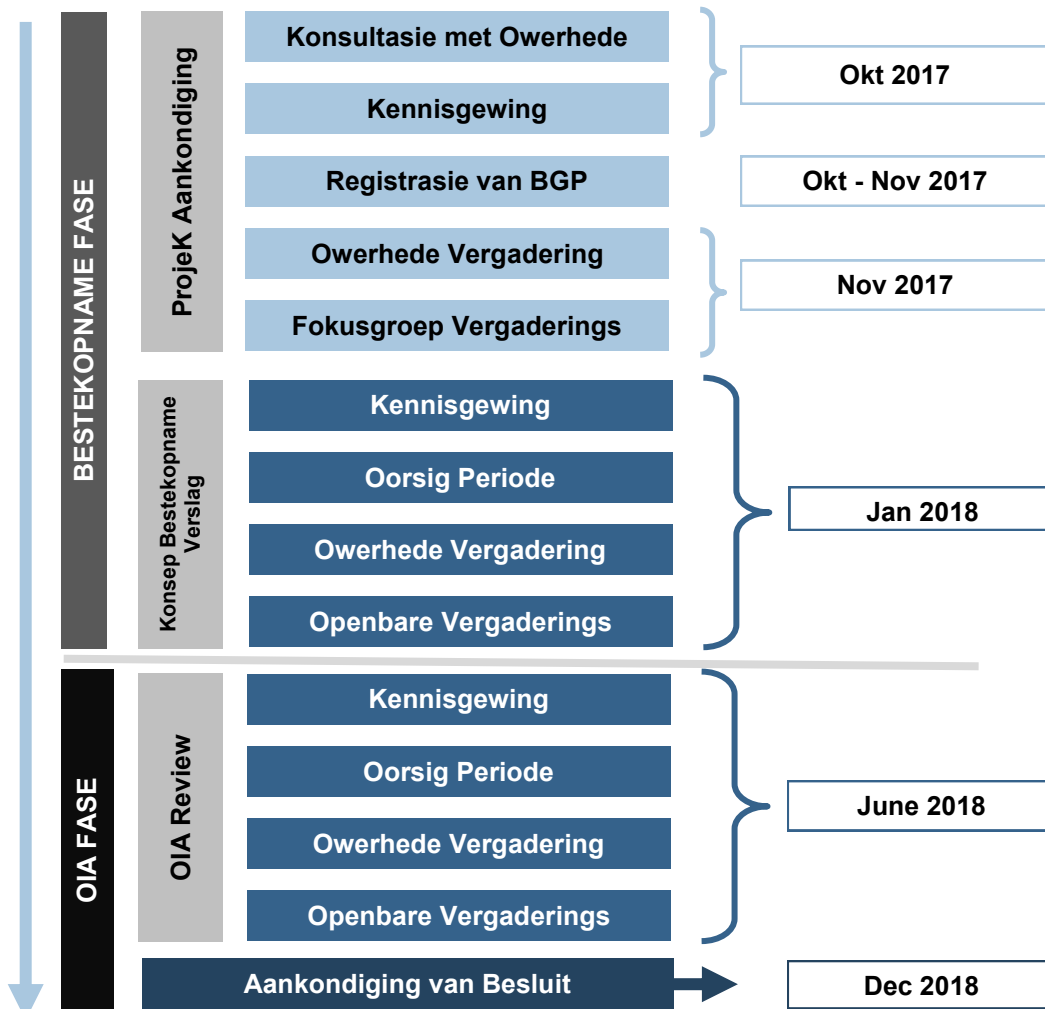
5.4 ALTERNATIEWE

Vier alternatiewe roetes sal in ag geneem word as deel van die Bestekopname- en Omgewings impakassessering proses naamlik: (1) Opsie 1 (WM1), opsie 2 (WM13), Opsie 3 (WM4a) en Opsie 4 (WM9a).

5.5 HOE KAN JY BETROKKE RAAK?

5.5.1. Oorsig van die openbare deelname proses:

Die onderstaande diagram gee 'n uiteensetting van die openbare deelname proses as deel van die Bestekopname- en Impakstudie fases:



Nota:
Datums mag verander
in die loop van die OIA

Figuur 7: Oorsig van Openbare Deelname Proses

5.5.2. Registrasie as 'n Belanghebbende en Geaffekteerde Party (BGP)

Om as 'n belanghebbende en geaffekteerde party te registreer en om enige kommentaar of bekommernisse te oop, voltooi asseblief die aangehegte antwoordstrokie en stuur dit aan Nemaï Consulting.

5.5.3. Openbare Vergaderings

'n Reeks Fokusgroep en openbare vergaderings sal georganiseer word en geregistreerde belanghebbende en geaffekteerde partye sal na die vergaderings uitgenooi word.

6. KONTAKBESONDERHEDE

Vir enige navrae in verband met die projek, kontak asseblief die onderstaande Omgewingsassessor Praktisyn:



Kontakpersoon: Kristy Robertson
Tel: (011) 781 1730
Faks: (011) 781 1731
E-pos: kristyr@nemaï.co.za
Posadres: PO Box 1673, Sunninghill, 2157



P.O.BOX 1673
SUNNINGHILL
2157

147 Bram Fischer Drive
Ferndale
2194

Phone: (011) 781 1730
Fax: (011) 781 1731
Email: kristyr@nemai.co.za

VOORGESTELDE MOOKODI-MAHIKENG 400KV KRAGLYN

BESTEKOPNAME EN OMGEWINGS IMPAKASSESSERING

TERUGVOERINGSVORM

Vir offisiële gebruik	Datum ontvang	Verwysing	Status

LET WEL: Die doel van die terugvoering is as volg:

1. Registrasie van Geaffekteerde en belanghebbende partye;
2. Om kontakbesonderhede te kry vir die databasis; en
3. Geleentheid te gee vir kommentaar en bekommernisse aangaande die voorgestelde projek.

1) ALGEMENE INFORMASIE

Naam van organisasie (indien toepaslik)	
Naam en Van	
Posadres	
Fisiese Adres	
Telefoon Nr.	
Faks Nr.	
E-pos Adres	

Registrasie as 'n Belanghebbende en Geïnteresseerde Party:

JA

NO

2) KOMMENTAAR

2.1) Potensiële bekommernisse aangaande die voorgestelde projek:

2.2) Spesifieke vereistes in terme van die OIA Proses:

2.3) Enige ander moontlike belanghebbendes (verskaf kontakbesonderhede indien moontlik):

2.4) Algemene kommentaar: (bykomende bladsye mag ingesluit word indien die ruimte wat voorsien is, te min is)

Handtekening _____

Datum _____

— Dankie vir u deelname —