# 1. INTRODUCTION

Eskom Holdings Limited (Eskom) propose to construct a second 765 kV Transmission power between Hydra Substation, near De Aar and Gamma Substation, near Hutchinson south of Victoria West, approximately 130 km in length. This power line is proposed to be constructed parallel to the first Hydra Gamma 765 kV Transmission line (DEAT Ref. No. 12/12/20/577) approved in December 2005.

In addition, Eskom propose the extension of the existing Hydra Substation in order to accommodate the increase in Transmission load within the area.

In terms of the Environmental Impact Assessment (EIA) Regulations published in Government Notice No. R. 385 and No. R. 387 of 2006 in terms of Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998) an EIA must be conducted for the proposed Hydra Substation extension and proposed additional 765 kV Transmission line, to be constructed between Hydra and Gamma Substations in the Northern Cape Province.

For simplified understanding purposes, the initial 765 kV Transmission line between Hydra and Gamma Substation will be referred to as **Hydra Gamma 1** from this point on. The proposed additional 765 kV Transmission power line addressed within the ambit of this EIA process will be referred to as **Hydra Gamma 2**.

## 1.1. Hydra Gamma 1: Background and Need for the Project

An EIA for the construction of a 765 kV Transmission line between the Hydra Substation and the Gamma Substation was previously undertaken in accordance with the EIA Regulations published in Government Notice R1182 to R1184 of 5 September 1997, in terms of Section 21 of the Environment Conservation Act (No 73 of 1989), as well as the National Environmental Management Act (NEMA; No 107 of 1998). Environmental authorisation, in the form of a Record of Decision, was granted by the National Department of Environmental Affairs and Tourism (DEAT) in December 2005.

The environmental studies for the original project were undertaken in 2 phases, in accordance with the EIA Regulations i.e. an Environmental Scoping Study and an EIA.

In undertaking the EIA, Bohlweki Environmental were assisted by a number of specialists in order to comprehensively identify both potential positive and negative environmental impacts (social and biophysical) associated with the project, evaluate the significance of the identified impacts, and propose

appropriate mitigation measures, where required. The specialist team identified and evaluated the potential impacts for the initial proposed study area for the Gamma Substation and the 765 kV Transmission power line (in terms of their discipline).

These specialists' studies included:

- Topography
- Climate and Atmospheric Conditions
- Geology and Soils
- Agricultural Potential
- Surface Water
- Vegetation and General Ecology
- Avifauna
- Social Environment and Land Use
- Visual Aspects and Aesthetics
- Heritage Impacts
- Tourism Potential

A comprehensive public participation process was undertaken as part of the EIA process, and involved the consultation of individuals and organisations throughout the broader study area representing a broad range of sectors of society. This consultation included telephonic interviews, Focus Group Meetings, documentation distributed via mail, pamphlets and via the printed media throughout the process. Issues and concerns raised during the EIA process were recorded and captured within an Issues Trail.

In December 2005, Eskom Holdings Limited (Eskom) received a Record of Decision (RoD) for the construction of the 765 kV Transmission power line between the existing Hydra Substation and the proposed new Gamma Substation parallel to the 400 kV Hydra-Droërivier No. 2 Transmission power line.

## 1.2 Overall need for National Transmission network expansion

The grid system that specifically supplies electricity to the Cape Provinces operates in the following manner:

- A combination of 400 kV and 765 kV Transmission lines feed electricity from power stations in Mpumalanga Province to 14 Transmission Substations situated across the Cape Provinces.
- The electricity supply to the Southern and Western Cape and Namibia is supplemented by the generation output of the Koeberg and Palmiet Hydro Power Stations.

Operating at full capacity (i.e. including power from the Palmiet Power Station and all the lines operational from Mpumalanga) the transmission network currently consisting of only 400 kV Transmission lines, can supply 3 400 megawatt of power to the Cape Provinces. Peak demands over the last few years

show levels reaching 3 000 megawatt. Therefore the network is approaching peak capacity, which could potentially result in more outages.

Should one of the 400 kV Transmission power lines fail, the 3 400 MW capacity of the network is reduced to 2 800 MW, thereby placing the network under severe strain. This potentially places industry dependant on a reliable supply of electricity at risk.

Demand projections are an uncertain science and are currently under review. However, the latest projection is that in addition to improve reliability immediately, there will be a need for increased capacity by 2008 to meet the projected demands. Such is the planning timeline for such developments that the planning process needs to be implemented immediately. The EIA process is one of the initial phases of the entire planning process.

Eskom is committed to undertaking its activities in an environmentally responsible manner. Eskom not only complies with environmental legislation, but has also developed its own environmental policy, and, for example, has been undertaking environmental impact assessments prior to them being a regulatory requirement.

## 1.3 Hydra Gamma 2: Need for the Project

Since December 2005, there has been continued high growth in electricity demand in the Western and Eastern Cape Provinces, particularly at Port Elizabeth with the extensive developments taking place within the Coega Industrial Development Zone (IDZ).

The proposed Hydra Gamma 2 power line that is subject to this EIA process forms part of a broader project being undertaken by Eskom Transmission. The Eskom Transmission project aims to strengthen the existing electricity network between Mpumalanga, where most power is generated, and the Western and Eastern Cape Provinces, where demand is set to exceed the available supply. One of the components of this broader network strengthening project is the construction of a 765 kV Transmission power line between Secunda (Mpumalanga) and Port Elizabeth (Eastern Cape). This power line is necessary in order to satisfy the increasing demand for electricity in the broader Western and Eastern Cape, and in particular, the Coega IDZ. The total length of the proposed power line, from Secunda to Port Elizabeth is approximately 1 300 km.

In order to facilitate the EIA process, the proposed power line from Secunda to Port Elizabeth has been divided into the following four sections:

1. Secunda (Mpumulanga) to Dealesville (Free State): Approx. 450 km

2. Dealesville (Free State) to De Aar (Northern Cape): Approx. 260 km
3. De Aar (Northern Cape) to Victoria West (Northern Cape): Approx. 130 km
4. Victoria West (N.Cape) to Port Elizabeth (Eastern Cape): Approx 320km

Figure 1.1 provides a representation of the overall strategy with regards to the Eskom Transmission broader network strengthening project incorporating the requirement of the Hydra Gamma 2 power which forms the third section of the above-mentioned 765 kV Transmission line extending from Secunda (Mpumalanga) to Port Elizabeth (Eastern Cape).

This EIA will therefore address the third section of the strengthening project: The extension of the 765 kV Hydra Substation and the proposed construction of the additional 765 kV Transmission power line extending between De Aar (Hydra Substation) and Victoria West (Gamma Substation), in the Northern Cape Province. The proposed additional 765 kV Transmission power line will run parallel to the authorised 765 kV Transmission power line between Hydra and Gamma, as mentioned in Section 1.1 above.

## 1.4 Hydra Gamma 2: Scope of the proposed project

The scope of this proposed Hydra Gamma 2 project therefore includes the following and is represented in Figures 1.2 and 1.3 below:

- The proposed extension of the 765 kV Hydra Substation will take place adjacent to the existing Hydra Substation, on Eskom owned property.
- The proposed additional 756 kV Transmission power line to be constructed parallel to the existing Hydra-Gamma 765 kV Transmission power line, a distance of approximately 130 km.

## 1.5 Environmental Study Requirements

In terms of the Environmental Impact Assessment (EIA) Regulations, Eskom Holdings Limited require authorisation from the National Department of Environmental Affairs and Tourism (DEAT) for the undertaking of the proposed extension of Hydra Substation and additional 765 kV Transmission power line. In order to obtain authorisation for all aspects of this project, comprehensive updated and current, independent environmental studies are required to be undertaken in accordance with the new EIA Regulations.

Eskom Holdings Limited has appointed Bohlweki Environmental, as independent consultants, to undertake the environmental studies to identify and assess all potential environmental impacts associated with the proposed new project. An environmental impact assessment is an effective planning and decision-making tool. It allows the potential environmental consequences of a proposed project to

be identified up-front and managed through the planning process. As part of these environmental studies, all I&APs will be actively involved through a public participation process.

## 1.6 The Proponent

The particulars of the applicant are as follows:

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|---|---|
| Proponent: | Eskom Holdings Limited |
| Contact person: | Carol Streaton |
| Telephone number: | (011) 800 5411 |
| Facsimile number: | (011) 800 3917 |
| E-mail: | carol.streaton@eskom.co.za |

## 1.7 The Environmental Assessment Practitioner (EAP)

The particulars of the EAP are as follows:

| | |
|---|---|
| Consultant: | Bohlweki Environmental (Pty) Ltd |
| Contact person: | Rebecca Thomas |
| Telephone number: | (011) 466 3841 |
| Facsimile number: | (011) 466 3849 |
| E-mail: | rebeccat@bohlweki.co.za |

Expertise of the EAP carrying out this Environmental Impact Assessment Process is included within Appendix A of this report

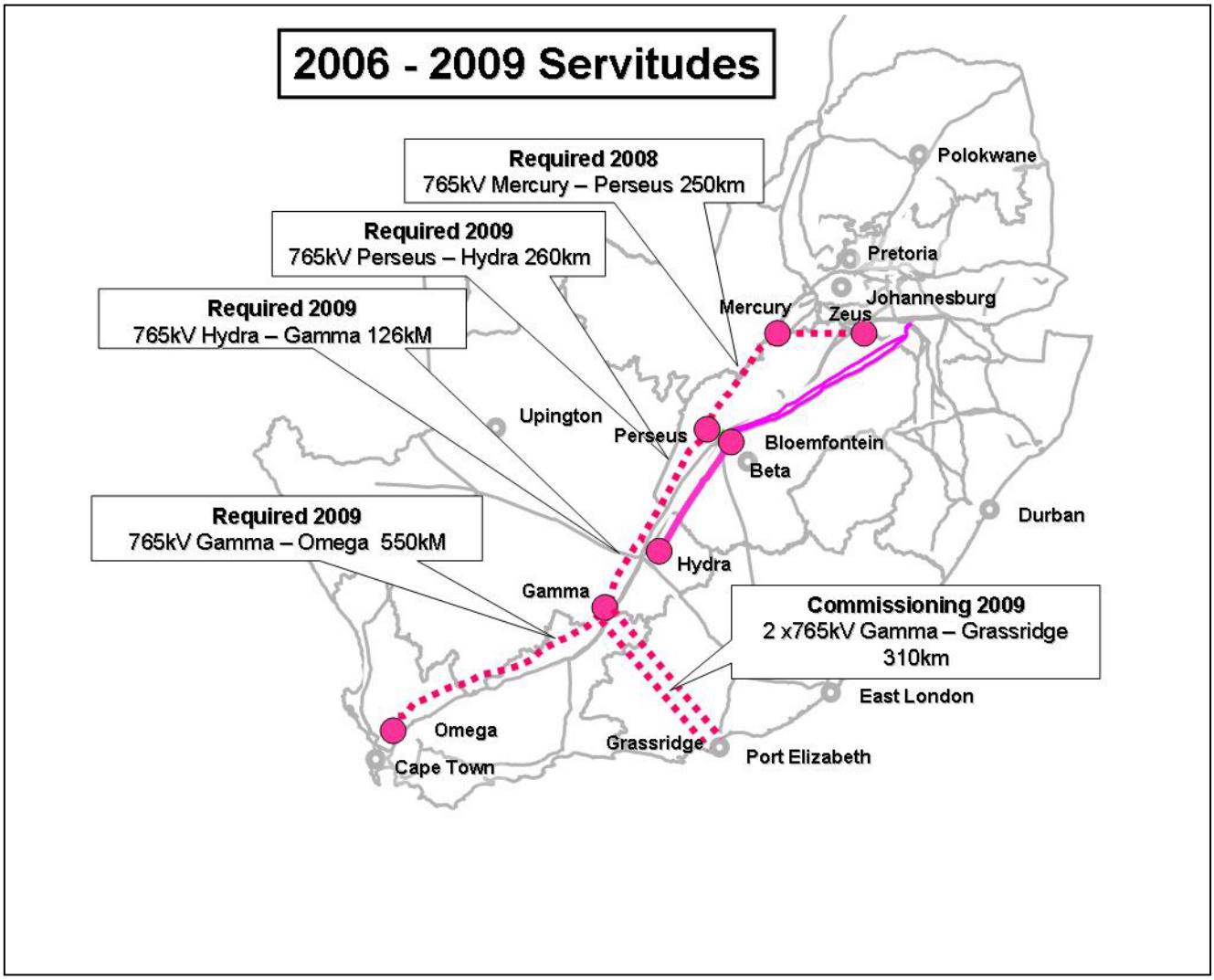


**Figure 1.1:** Eskom Transmission broader network strengthening project

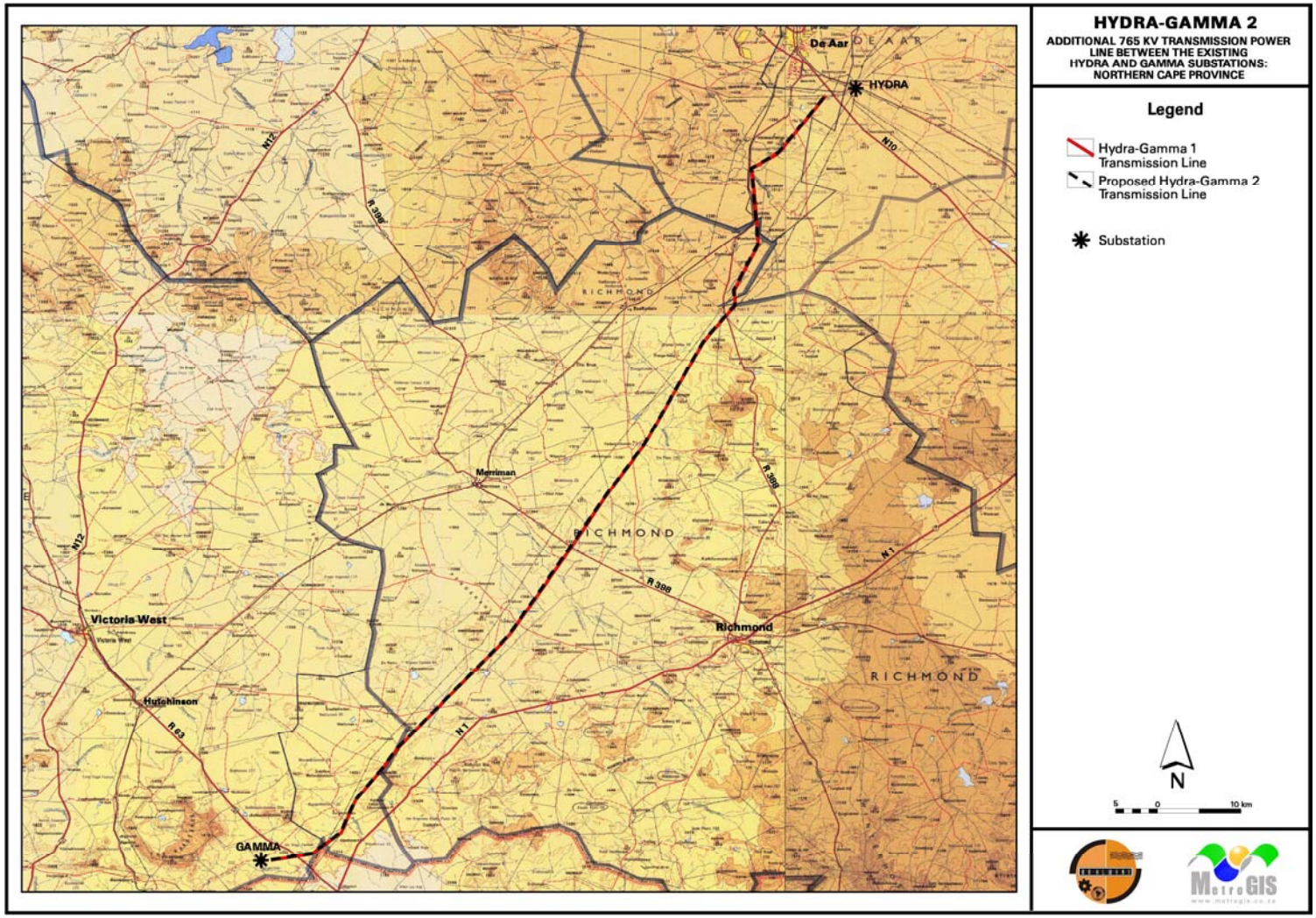


**Figure 1.2:** 1:50 000 map indicating the proposed additional 765 kV Hydra Gamma 2 Transmission power line and site for proposed extension of Hydra Substation.

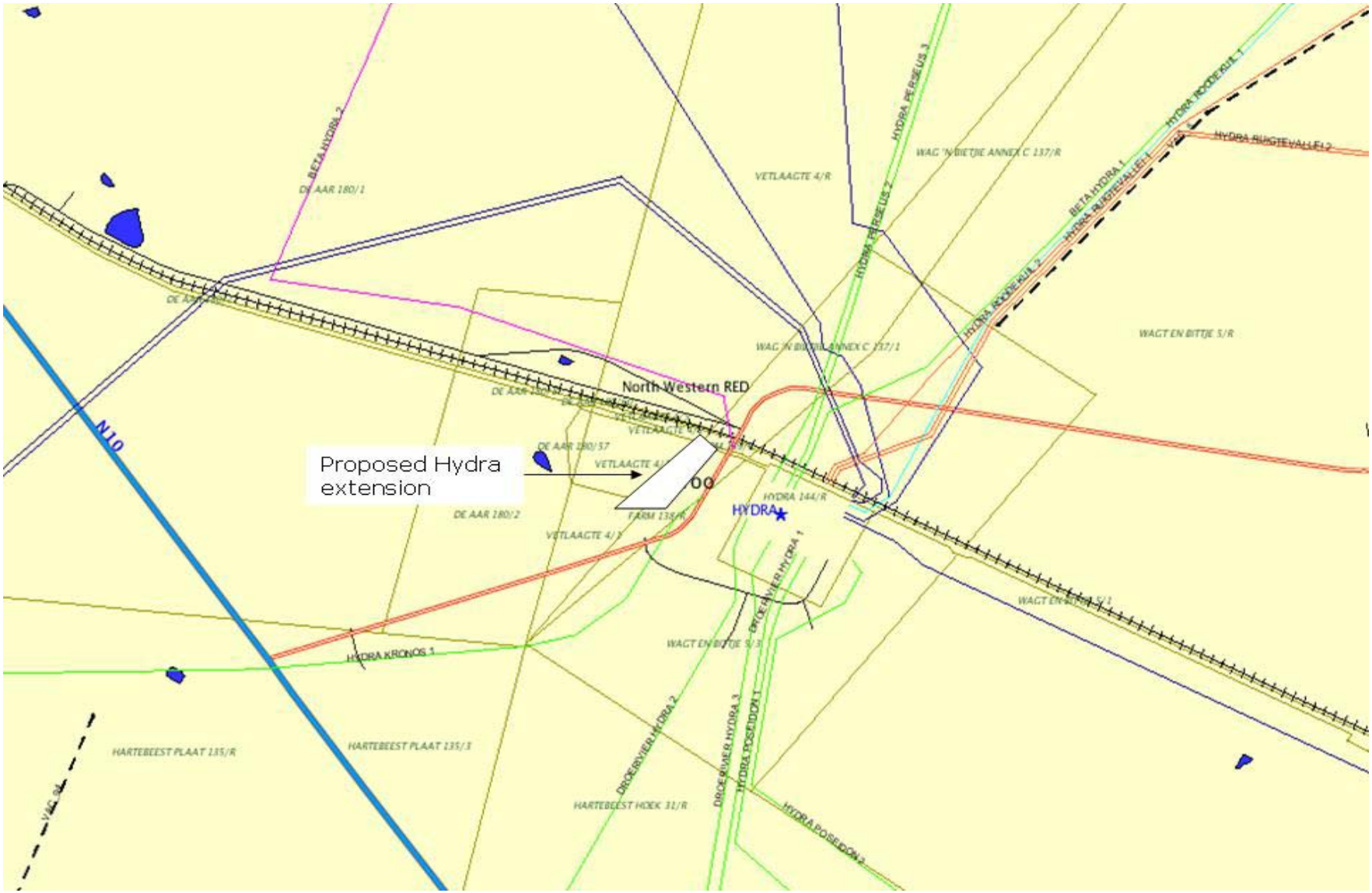


**Figure 1.3**: Proposed extension of Hydra Substation