



**PROPOSED DEVELOPMENT OF THE KHAUTA SOLAR PV CLUSTER
NEAR WELKOM, FREE STATE PROVINCE**

Desktop Visual Impact Assessment

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Prepared for:



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Today's Impact | Tomorrow's Legacy

INTRODUCTION

Enviroworks has been appointed by WKN Windcurrent to compile the Desktop Visual Impact Assessment (VIA) for the proposed Khauta Solar Cluster in order to determine the Visual Impact of the proposed development. This Desktop VIA Report was compiled in accordance with the Guidelines for involving a Visual and Aesthetic Specialist in the EIA process (DEA&DP, 2005). This Guideline was developed by the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) to be implemented as best practise.

SCOPE OF WORK

The determination of the potential visual impacts is undertaken in terms of nature, extent, duration, magnitude, probability and significance of the construction and operation phases of the proposed project. The study area for the visual assessment encompasses a geographical area of 130 km² (extent of the maps) and includes a ten kilometre (10 km) buffer zone from the proposed Khauta Solar PV Cluster and its associated infrastructure. The study area constitutes of residential areas, agricultural farmland and mining activities. The proposed development will be situated on the outskirts of the neighbourhood of Riebeeckstad.

Anticipated issues related to the potential visual impact of the proposed Khauta Solar PC Cluster include the following:

- The visibility of the project to, and potential visual impact on, observers travelling along the R730, R70, Mohlala Road, Craib Avenue, R34 and Mc Lean Street;
- The visibility of the facility to, and potential visual impacts on tourists visiting tourist attraction near Riebeeckstad (Helderwater Wedding Venue, Restaurants and numerous bed and breakfasts in the surrounding area);
- The visibility of the facility to, and potential visual impact on observers residing within Riebeeckstad and on the surrounding farms;
- The visual absorption capacity of natural or planted vegetation as well as man-made topographical features;
- Potential visual impacts associated with the construction- and operational phase; and,
- The potential to mitigate visual impacts.

It is anticipated that the issues listed above may constitute a visual impact at a local scale.

METHODOLOGY

The following Methodology was applied during the Desktop Visual Impact Assessment:

- **Determine the Potential Visual Exposure**
The visibility or visual exposure of any structure or activity is the point of departure for the VIA. It stands to reason that if the proposed infrastructure was not visible, no impact will occur. Viewshed analyses (Please refer to Figures 1 – 4) of the proposed structures indicate the potential visibility.
- **Determine Visual Distance/Observer Proximity to the facility**

In order to refine the visual exposure of the proposed Khauta Solar Cluster on surrounding areas/receptors, the principle of reduced impact over distance is applied in order to determine the core area of visual influence for the structures.

Proximity radii for the proposed facility are created in order to indicate the scale and viewing distance of the structures and to determine the prominence of the structures in relation to their environment.

The visual distance theory and the observer's proximity to the Khauta Solar Cluster are closely related, and especially relevant, when considered from areas with a high viewer incidence and a predominantly negative visual perception of the proposed infrastructure.

➤ **Determine Viewer Incidence/Viewer Perception**

The number of observers and their perception of a structure determine the concept of visual impact. If there are no observers, then there would be no visual impact. If the visual perception of the structure is favourable to all observers, the visual impact would be positive.

It is therefore necessary to identify areas of high viewer incidence and to classify certain areas according to the observer's visual sensitivity towards the proposed infrastructure. It would be impossible not to generalise the viewer incidence and sensitivity to some degree, as there are many variables when trying to determine the perception of the observer; regularity of sighting, cultural background, state of mind, and purpose of sighting which would create a myriad of options.

RESULTS

The viewshed analysis of each of the Alternatives were compiled within a ten kilometre (10 km) radius from the proposed development. No visual sensitive areas were identified during the desktop analysis. Visual sensitive areas include the following:

1. Heritage Buildings or places of Heritage Significance;
2. National Parks;
3. Biosphere Conservancies;
4. Tourist Attractions; and,
5. Areas or routes of high scenic, cultural or historical value.

It must be noted that numerous receptors (Please refer to Figure 5) are situated within the study area and include the following:

1. Neighbourhood of Thabong;
2. Neighbourhood of Bronville;
3. Neighbourhood of Hani Park;
4. Neighbourhood of Riebeeckstad;
5. Neighbourhood of Odendaalsrus; and,
6. Numerous roads traversing the study area.

No red flags were identified from a Visual perspective during the Desktop Study.

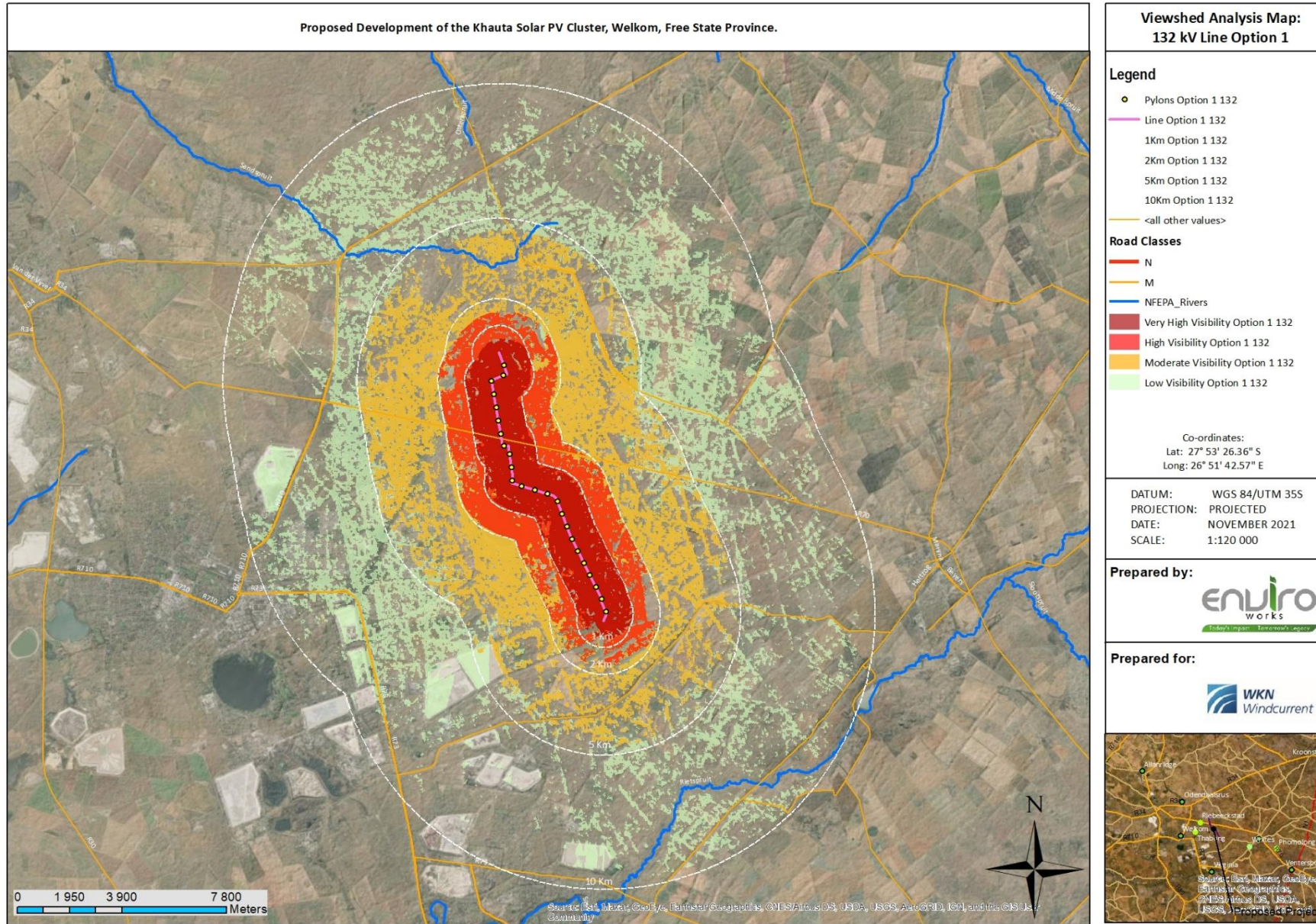


Figure 1: Viewshed Analysis of the 132 kV Line Option 1.

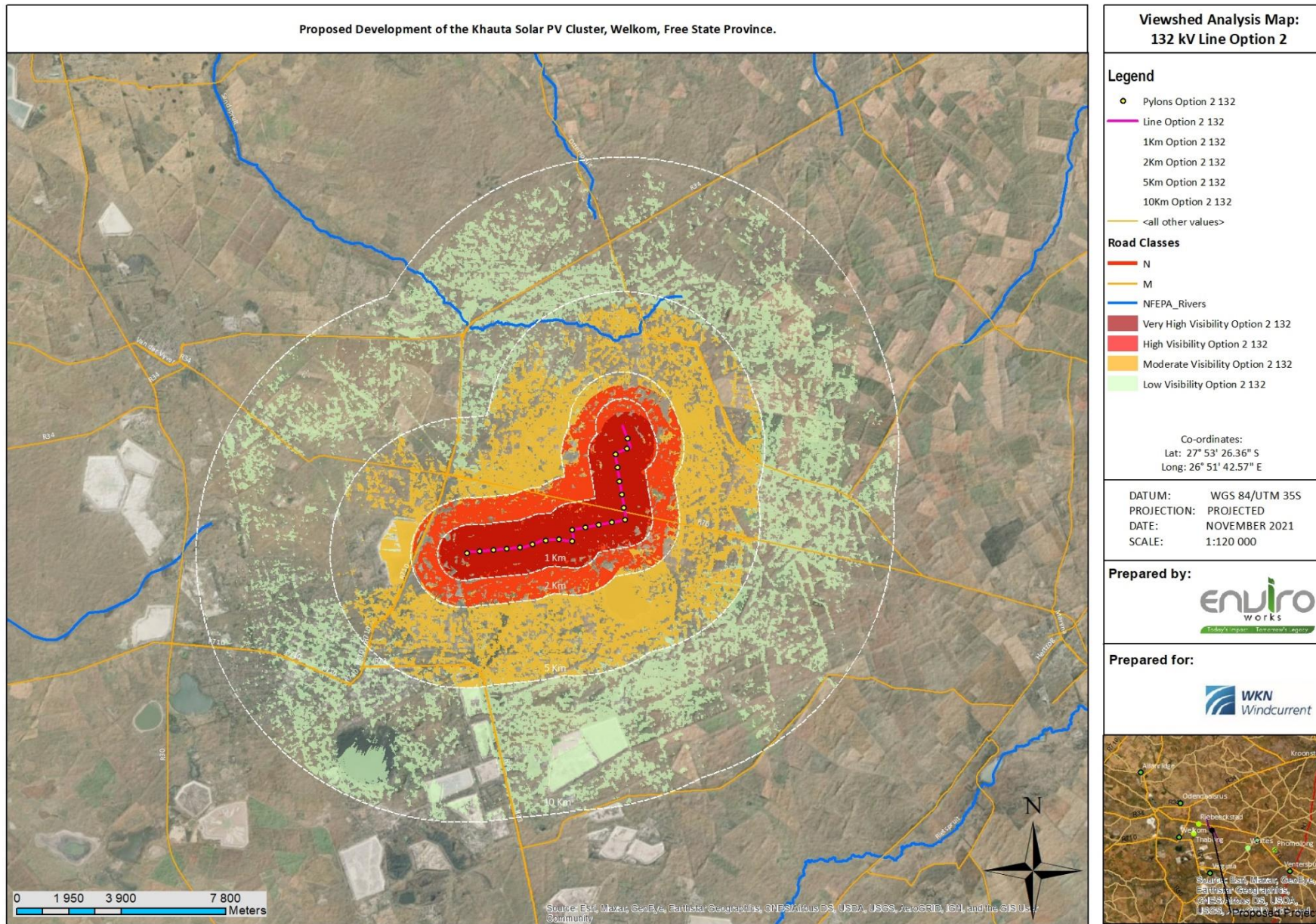


Figure 2: Viewshed Analysis of the 132 kV Line Option 2

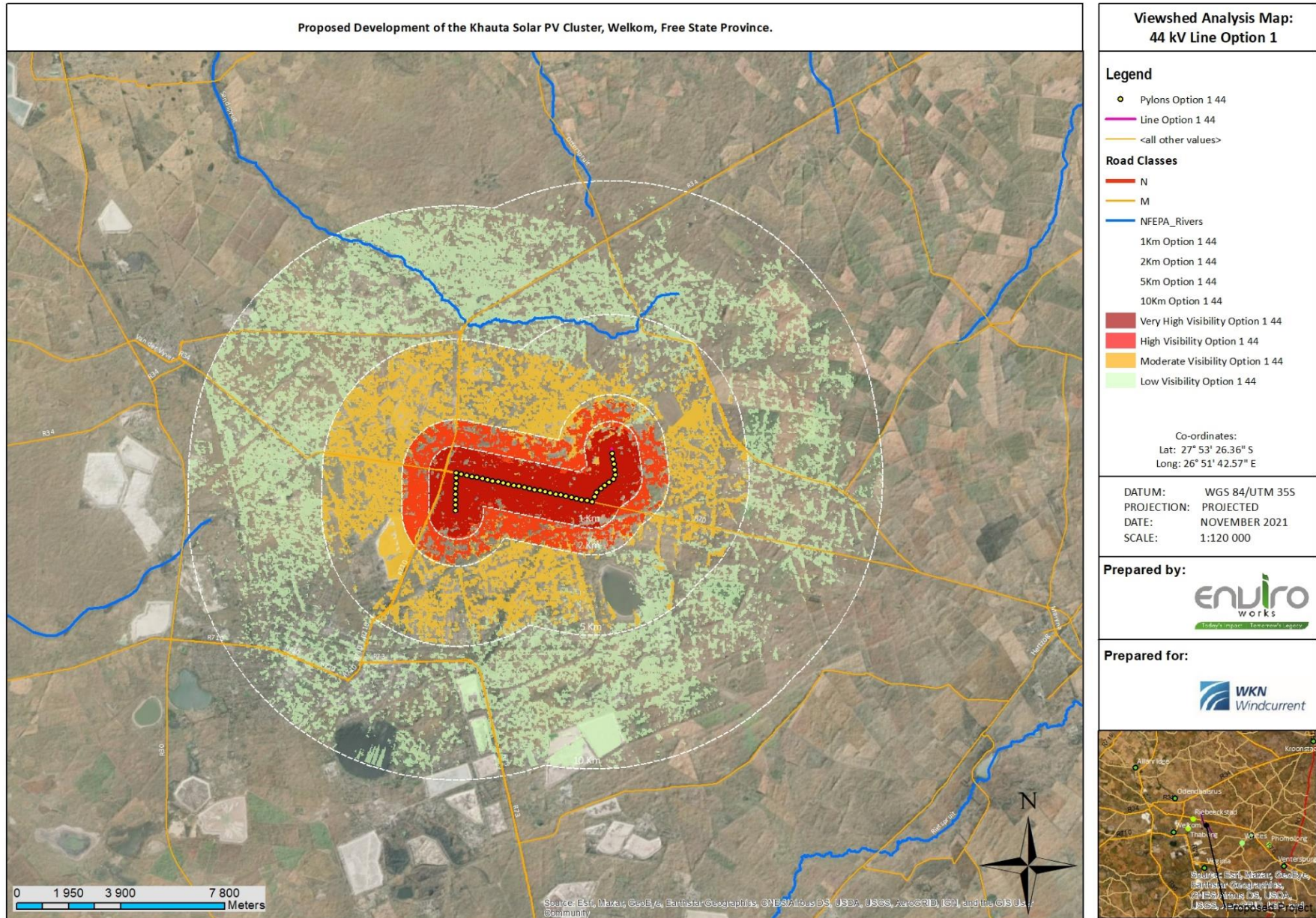


Figure 3: Viewshed Analysis of the 44 kV Line Option 1

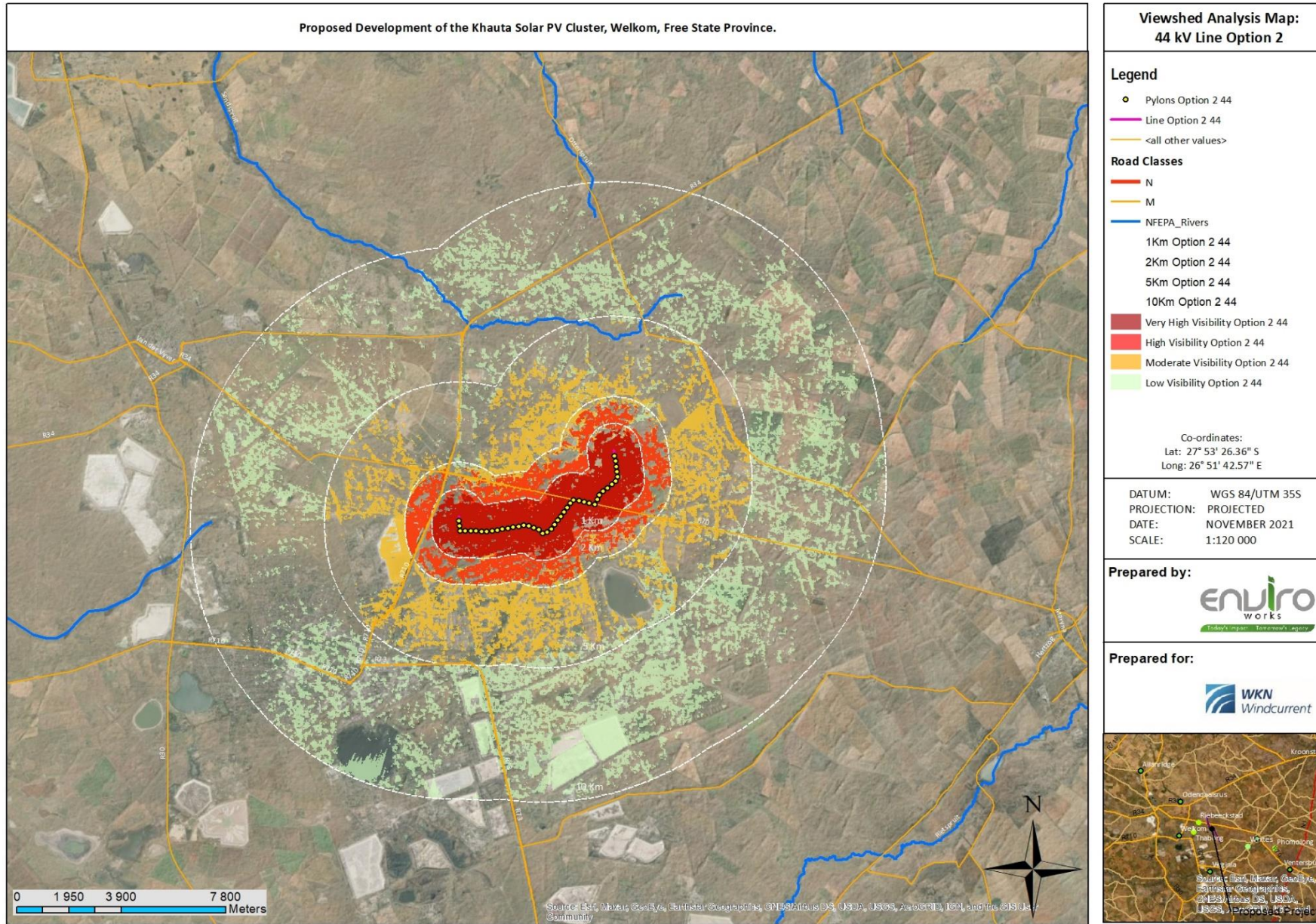


Figure 4: Viewshed Analysis of the 44 kV Line Option 2

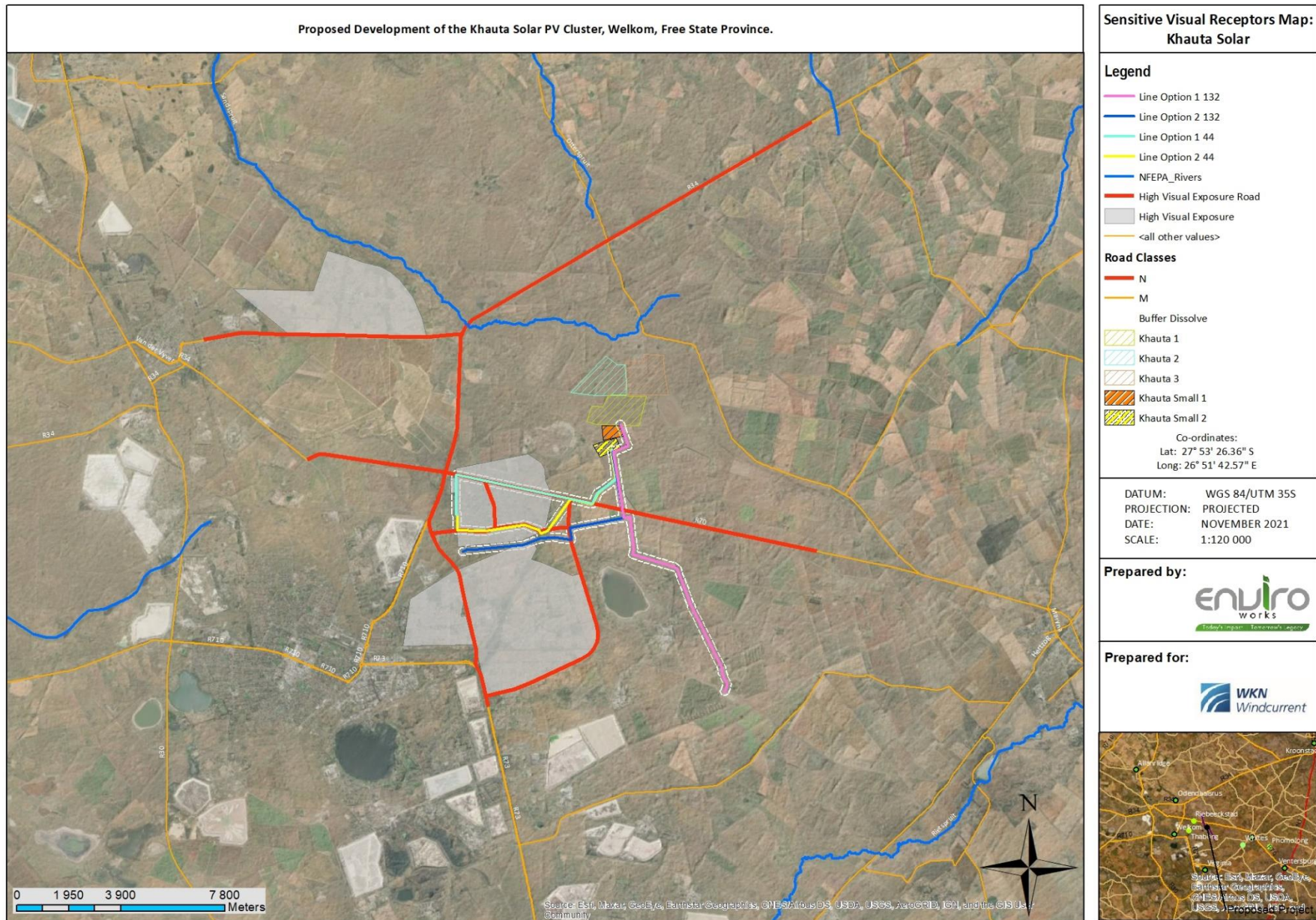


Figure 5: Sensitive Visual Receptors situated within the immediate study area.