

Appendix G5 – Visual Impact Assessment

**VISSERSPAN PV FACILITY
TRANSMISSION LINE
FARM 40, DEALESVILLE, FREE STATE**

VISUAL ASSESSMENT

For consideration in the Basic Assessment

For

EnviroAfrica

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Draft Report

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ANNEXURES

- A View profiles of Potential visual receptors**
- B Photo sheet**

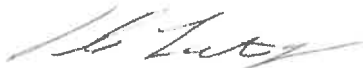
Relevant Qualifications & Experience of the Author

Ms Sarien Lategan holds an Honours Degree in Geography as well as a Masters Degree in Town and Regional Planning from the University of Stellenbosch. She has 7 years experience as Town planner at a local government, 3 years with South African National Parks as planner and project manager of various GEF and World Bank managed, tourist facilities in the Table Mountain National Park and since 2004 as private practitioner involved in inter alia Site Analysis and Visual Impact assessments for various types of developments ranging from housing, tourism to infrastructure developments.

Ms Lategan is registered as a professional Town and Regional Planner as well as Environmental Assessment Practitioner.

Declaration of Independence

I, Sarah C. Lategan, declare that I am an independent consultant to EnviroAfrica and, has no business, financial, personal or other interest in the proposed project or application in respect of which I was appointed, other than fair remuneration for work performed in connection with the application. There are furthermore no circumstances which compromise my objectivity in executing the task appointed for.



SC Lategan

EXECUTIVE SUMMARY

Sarien Lategan was appointed to undertake the visual impact assessment for the Visserspan PV Facility, transmission line, near Dealesville, Free State.

At the time of assessment, detail regarding the exact route and pylon design was not confirmed. This assessment thus assume the general route corridor and the worse case design option. The assessment I also make comparisons with other type of pylons to illustrate that the visual impact may actually less than assessed in this report

The viewshed of the site is limited by the topography which is characterized by low undulating rises and valleys, which created a medium level of visual absorption.

An assessment of the potential visual receptors through the use of landscape profiles coupled with on-site verification was undertaken. The visual receptors in the area are of medium to low sensitivity. The assessment finds that the overall visual impact of the proposed transmission lines holds a low overall visual impact.

The proposed transmission line follows primarily linear elements in the environment and therefore does not create further fragmentation of the landscape. Due to the existing HV lines providing a backdrop in sections, the overall intrusion is minimal. The most visible sections are where the line crosses the two roads. In these instances the duration is short and thus not detract significantly from the overall landscape experience.

The possible alternative route, connection to a proposed substation just south of the Visserspan substation will be accommodated on a proposed PV site and the impact thereof is thus minimal. This route also runs parallel to the Hertzogville route and the visual impact is insignificant.

Due to the small scale and length of the line the overall contribution to the cumulative impact is minimal to insignificant.

1 BACKGROUND

This report assess the visual impact of a transmission line of approximately 7km to connect the Visserspan PV Facility to the Kinderdam MTS or alternatively a 1,5km line towards a MTS in the direction of Perseus Substation, as input to the Environmental Assessment in terms of the National Environmental Management Act, 1998 (Act no. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2017, undertaken by EnviroAfrica. The route runs east-west from the Visserspan substation towards the Kinderdam MTS, approximately 4km north of the Preseus Substation near Dealesville in the Free State.

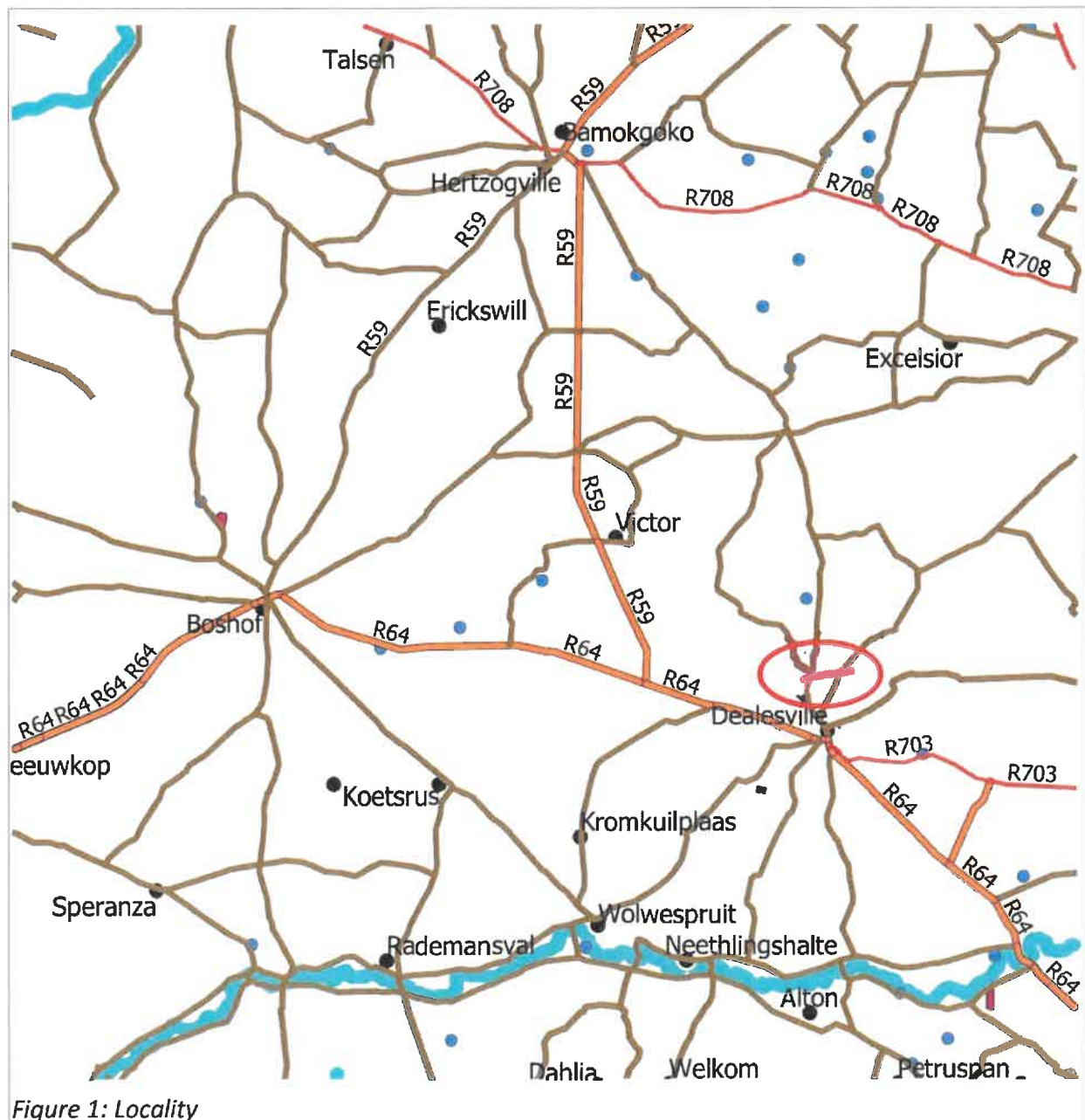


Figure 1: Locality

2 TERMS OF REFERENCE

The objective of the Visual Impact assessment is to determine the significance of any visual impact which may result from the construction of the proposed transmission line. The transmission line is related to the proposed Visserspan PV Projects on Farm 40, and will only be constructed if any of these PV projects are implemented. The landscape baseline would thus be a landscape where the Visserspan PV projects are present. This assessment will indicate whether, from a visual perspective, the development constitute an acceptable level of change and if so, what potential mitigation measures can reduce any visual impact.

To determine the potential extent of the VIA required, the following broad criteria are considered.

Table 1: Requirements for visual assessment

Areas with protection status, e.g. nature reserves	Closest Provincial Nature reserves - Soetdoring Nature reserve - 35km Sandveld Nature reserve – 85km Closest National Park - Mokala NP – 130km No reserves within potential viewshed area
Areas with proclaimed heritage sites or scenic routes	None known
Areas with intact wilderness qualities, or pristine ecosystems	Fragmented indigenous vegetation as identified by Botanical study
Areas with intact or outstanding rural or townscape qualities	None
Areas with a recognized special character or sense of place	None known
Areas with sites of cultural or religious significance	None known
Areas of important tourism or recreation value	None
Areas with important vistas or scenic corridors	None
Areas with visually prominent ridge lines or skylines.	No

Table 2: Nature of intended development

High-intensity type projects including large-scale infrastructure	Yes
A change in land use from the prevailing use	Yes.
A use that is in conflict with an adopted plan or vision for the area	None known

VIA: Visserspan Transmission line

A significant change to the fabric and character of the area	Potentially
A significant change to the townscape or streetscape	Potentially
Possible visual intrusion in the landscape	Potentially
Obstruction of views of others in the area	Potentially

From the above, it is clear that the receiving environment holds a low level of visual elements which may be impacted upon by development of the site.

The potential however exists that the construction of the transmission line may have a visual impact. In order to assist authorities thus to make an informed decision, the input of a specialist is required to assist in the project design and assess the visual impact of the preferred project proposal.

The term visual and aesthetic is defined to cover the broad range of visual, scenic, cultural, and spiritual aspects of the landscape. The terms of reference for the specialist are to:

- Provide the visual context of the site with regard to the broader landscape context and site-specific characteristics.
- Provide input in compiling layout/design alternatives.
- To describe the affected environment and set the visual baseline for assessment
- Identify the legal, policy and planning context
- Identifying visual receptors
- Predicting and assessing impacts
- Recommending management and monitoring actions

3 Methodology and principles

3.1 Methodology

Table 4: Summary of methodology

Task undertaken	Purpose	Resources used
A screening of the site and environment	To obtain an understanding of the site and area characteristics and potential visual elements	Photographs Site visits
Identify visual receptors	To assess the visual impact from specific viewpoints	Photographs, profiles
Contextualize the site within the visual resources	To present an easy to understand context of the site within the visual resource baseline	Specialist: S Lategan Graphic presentation Superimposed photo's
Propose possible mitigation measures	To present practical guidelines to reduce any potential negative impacts.	Specialist: S. Lategan

Throughout the evaluation the following fundamental criteria applied:

- Awareness that “visual’ implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment that contribute to the area’s sense of place.
- Consideration of both the natural and cultural (urban) landscape, and their inter-connectivity.
- The identification of all scenic resources, protected areas and sites of special interest, as well as their relative importance in the region.
- Understanding of the landscape processes, including geological, vegetation and settlements patterns which give the landscape its particular character or scenic attributes.
- The inclusion of both quantitative criteria, such as visibility and qualitative criteria, such as aesthetic value or sense of place.
- The incorporation of visual input as an integral part of the project planning and design process, so that the findings and recommended mitigation measures can inform the final design and quality of the project.
- To test the value of visual/aesthetic resources through public involvement.

3.1.1 Principles

The following principles to apply throughout the project:

- The need to maintain the integrity of the landscape within a changing land use process
- To preserve the special character or ‘sense of place’ of the area
- To minimize visual intrusion or obstruction of views
- To recognize the regional or local idiom of the landscape.

3.1.2 Fatal flaw statement

A potentially fatal flaw is defined as an impact that could have a “no-go” implication for the project. A “no-go” situation could arise if the proposed project is to lead to (Oberholzer, 2005):

VIA: Visserspan Transmission line

1. Non-compliance with Acts, Ordinance, By-laws and adopted policies relating to visual pollution, scenic routes, special areas or proclaimed heritage sites.
2. Non-compliance with conditions of existing Records of Decision.
3. Impacts that may be evaluated to be of high significance and that are considered by the majority of stakeholders and decision-makers to be unacceptable.

The screening of the site and initial project intentions did not reveal any of the above issues which may result in a fatal flaw.

3.1.3 Gaps, limitations and assumptions

1. The assessment is made on the assumption of a general corridor and not on exact pylon positions.
2. Exact Pylon design has not been specified and assessment work on assumption of worse case scenario of guyed V shape tower of an approximate height of 30 - 35m
3. Service roads will follow the line corridor
4. Regional thresholds for land use change to accommodate renewable energy nodes which may change the landscape, has not been determined and thus such statement cannot be made on a project level.
5. The landscape baseline assume the proposed Visserspan PV projects are approved and implemented as the transmission line will only be constructed for the purpose of the PV projects.

3.1.4 Assessment explained

The assessment of visual impact is done on two levels namely the absorption rate of the receiving environment and the individual view receptors. The absorption rate of the receiving environment is determined by various elements e.g. topography, land use etc. and the assessment will focus on the acceptable level of change of the area.

Visual receptors are assessed individually based on the sensitivity of the receptor, exposure to the development and intrusion rate.

The following framework is used in order to assess view receptors:

Criteria	High	Moderate	Low
Exposure	Dominant, clearly visible	Recognizable to the viewer	Not particularly noticeable to the viewer
Sensitivity	Residential, nature reserves, scenic routes	Sporting, recreational, places of work	Industrial, mining, degraded areas
Intrusion/Obstructive	A noticeable change, discordant with surroundings	Partially fits but clearly visible	Minimal change or blends with surroundings

A sensitive receptor with low exposure and/or low intrusion rate can be regarded as a low significance rating. A receptor of low sensitivity but with high exposure can be of high significance if the intrusion rate is also high but is reduced if the intrusion rate is medium or low.

The overall significance, therefore, depends not only on the sensitivity of the receptor but also on the exposure and intrusion rate and thus a combination of the criteria.

3.2 Legal Framework, Guidelines and policies

3.2.1 National Environmental Management Act, 107, 1998 and relevant Guidelines:

An assessment in terms of any activity that requires an EIA or Basic Assessment may be subjected to a specialist visual assessment in order to determine the significance of the potential impacts to result from a proposed activity.

3.2.2 Free State Provincial Spatial Development Framework, 2014

No specific references on this scale of development.

3.2.3 Lejeweleputswa IDP

This document support in principle the development of alternative energy sources within an environmentally sound context. The document provide no detail which will impact or provide policy guidelines on the development of such facilities.

4 Development Proposal

4.1 Route Corridor

The transmission line will extent from the proposed Visserspan PV facility substation eastwards towards the Kinderdam MTS for a distance of approximately 7km. An alternative option if connect directly to the south with a proposed MTS between the Visserspan substation and the Perseus substation. This alternative will be accommodated on the site of an approved PV facility and will run approximately parallel to the road.

Figure - Insert route alignment and alternative

4.2 Project elements

The transmission line, currently a 132kV but potentially built as a 400kV line will consist of towers, cables and potentially a service road where it does not already follow a farm track. The general height of the towers will be between 30 and 35m with ground clearance of lines approximately 8m.

If built as a 132kV line, monopoles of 30m would be positioned at approximately 300m to 350m intervals. If constructed as a 400kV line, either guyed V shape or self supporting strain towers will be used, also at intervals of approximately 300m.

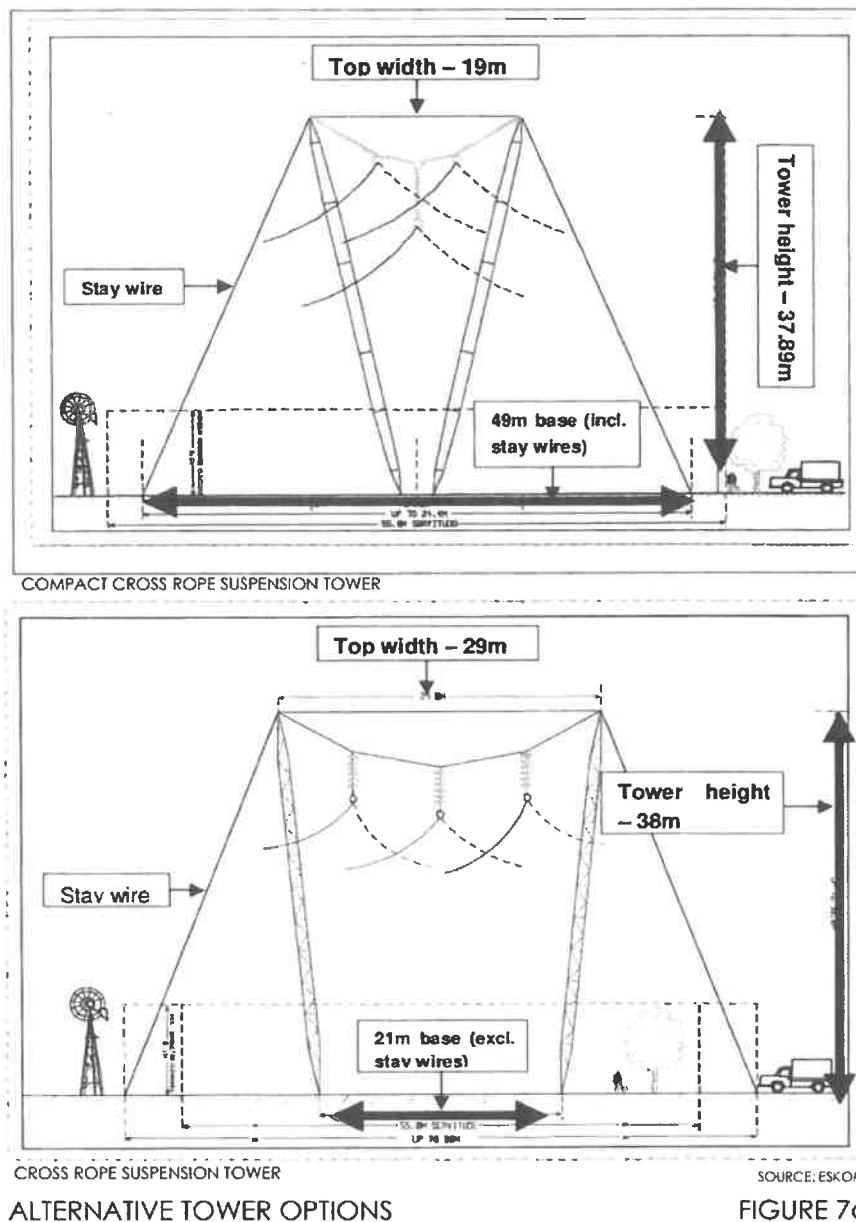


Figure 2: Tower designs

4.2.1 Operational elements

Depending on the exact technology the operational activities can vary. General maintenance and repairs requires vehicles (from LDV to trucks) and potentially small cranes to access via the service roads.

4.3 Construction elements

For the construction of the transmission lines, heavy vehicles, cranes and equipment may be required.. Large transport trucks for delivery will enter the corridor during construction.

Construction process entails:

- clearing of the site,
- construction of towers (including anchors)
- roll out of lines
- construction of service roads

5 RECEIVING VISUAL ENVIRONMENT

5.1 Description

Understanding the potential impact of a proposed development, an understanding of the receiving environment is important. In this regard, the main elements of the receiving environment relate to the character of the current surrounding land use and the absorption capacity of the area. The character of the area entails the sense of place created by the current land use and the scale and type of infrastructure or physical elements within the immediate area. The absorption capacity relates to the density of physical elements and topographical variations of the landscape, which will determine the catchment area. The human eye will observe the horizon on a perfectly flat surface at a distance of 30km. This is however significantly reduced by landscape elements which obstruct the view or increased if the viewer is elevated above the site. The height of object can increase the catchment area as the element can protrude above the horizon. Thus power lines with pylon of 30m will have a larger catchment area. The type of structure however also determine the visibility of that structure over a distance and to what the human eye can observe. A large, solid structure of 30m in height will be visible from a far greater distance than a lattice tower type of structure of the same height.

5.1.1 Catchment area

The site is situated in a rural area dominated by low intensity agricultural activities. Homesteads are spread out in the landscape, typically 3 -5km apart. A number of High Voltage power lines converge at the Perseus Substation to the south of the site. Perseus occupies approximately 140ha. The area thus display a typical rural landscape character with electricity network infrastructure very dominant in the landscape. The catchment area consists of low hills and shallow valleys with the maximum east-west elevation variation across the site of 20 -30m.

The catchment area is limited to the 1230 and 1310m relief line resulting in a fairly limited viewshed. The viewshed extend to the north as the area south of Dealesville slopes down towards the Modder river valley.

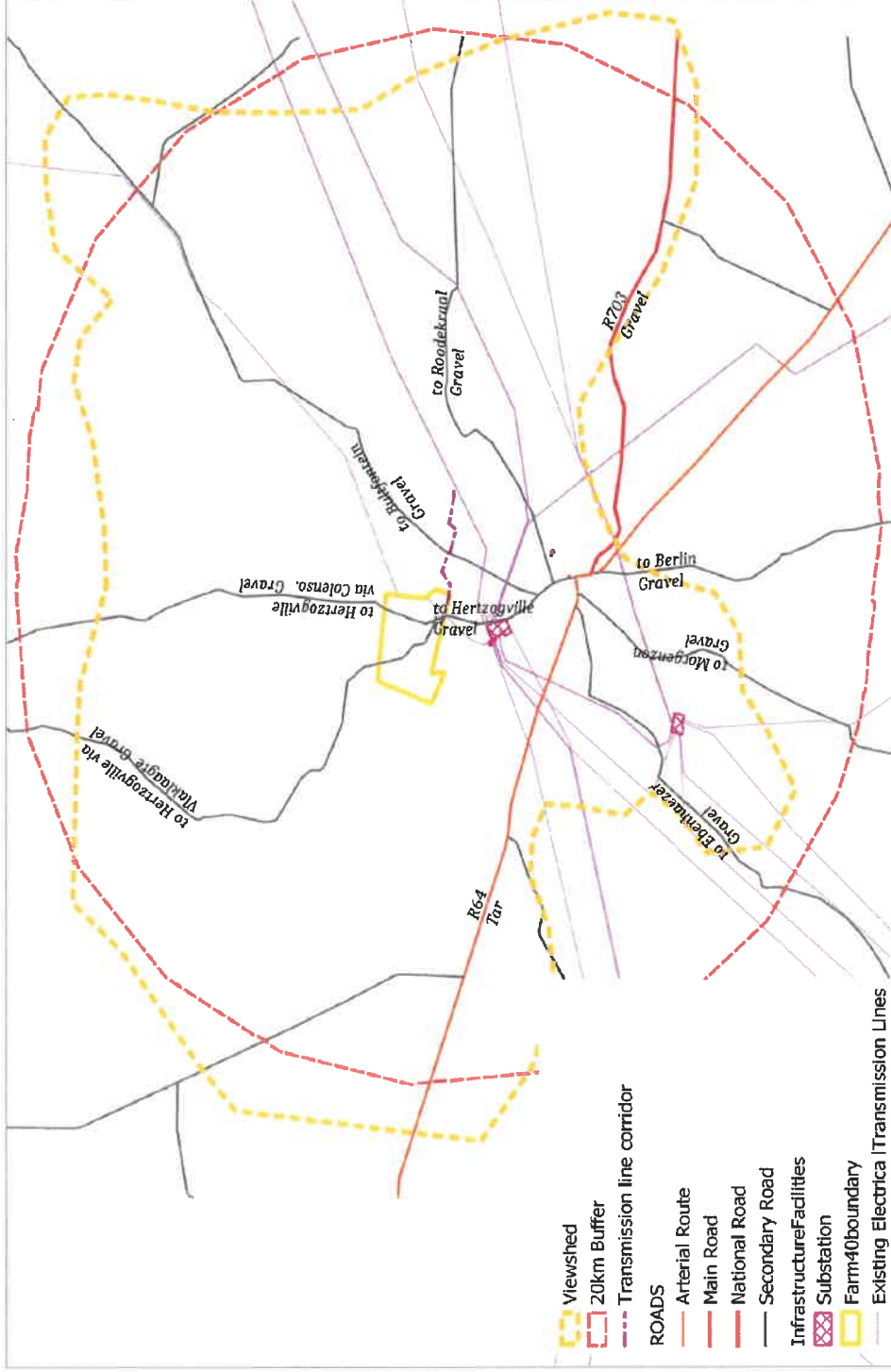


Figure 3: Viewshed

5.1.2 Sense of Place:

The site is situated in a low activity agricultural landscape with natural remnants, which is primarily used for grazing. Some game farming occurs in the area. The area display a sense of remoteness with homesteads located well apart and Dealesville is a typical rural village. The area does not display a strong tourism sector and visitors are most probably visiting family, on business related to the agriculture industry and electricity infrastructure maintenance or simply passing through with little interest in the landscape itself. The existing Perseus substation and high voltage powerlines is a prominent element in the landscape which reduces the rural atmosphere.

Given the fact that the transmission line will only be constructed when the Visserpan PV projects are implemented an assumed sense of place should be visualised. In such a scenario the sense of place would already have been changed with the PV arrays a prominent element in the direct vicinity of the transmission line. The transmission line in fact add only a minor element in relation to existing as well as other approved and proposed power supply projects in the area.

With the construction and expansion of the Perseus Substation and the related High Voltage powerline converging here as well as the approval of several PV projects in the area, it has been accepted that the sense of place has moved from a purely rural environment to an area used for large infrastructure.

Although the topography may appear fairly flat, the landscape is characterized by undulating rises and valleys which create significant visual screening for infrastructure with a low vertical extent. Any structures under 10m can be easily absorbed into the landscape. Higher structures, like the existing power lines are visible from quite some distance, but due to the grain of the structures (i.e. not large solid elements) the visibility is reduced significantly.

5.2 Findings

The sense of place has been altered over time from a rural landscape to accepting large infrastructure as part of the landscape with the construction and expansion of the Perseus substation and the high voltage power lines that converge at the substation. This altered landscape also accepted the proposed PV projects and these will eventually dominate the landscape. The proposed transmission line is merely a support infrastructure element which will be added to the landscape and fact be a fairly minor element in relation to the existing infrastructure elements in the area.

Dealesville, the closest town, is situated 7km to the south of the site. Perseus substation dominates the view from the town towards the north.

No major roads pass or approach the site. The R64 pass south of the site in an east-west direction and do not approach the site directly. Only two lower order gravel roads access and pass the site being the road to Bultfontein and to Hertzogville. No scenic drives or tourism corridors or nodes have been identified.

Statement 1: *The area along the corridor is characterized as a rural landscape with large scale infrastructure present. No land uses with high sensitivity towards scenic value has been identified. The area in general thus display a low visual sensitivity. The topography provides a medium level of visual absorption for low vertical extent objects and existing infrastructure of higher vertical extent provide a buffer for similar infrastructure.*

6 VISUAL RECEPTORS

Visual receptors are positions that are accessible or regularly accessed by people and from where the development site is potentially visible. Based on the character of the locality of the receptor, its sensitivity can be rated. Generally, residential areas and tourism-related destinations and routes are sensitive to visual intrusions as they relate to the well-being of residents and the tourism quality of the area. Receptors are not only fixed positions but can also be routes.

6.1 Potential Receptors

A number of routes exists within the viewshed area which has to be assessed. These are :

1. The R64 from Bloemfontein to Boshof
2. The R59 from the R64 to Herzogville
3. Gravel road from Dealesville to Bultfontein
4. Gravel road from Dealesville to Herzogville. This road split just north of the corridor into an eastern loop and a western loop.
5. R703 to Soutpan
6. Various local tracks connecting farm roads

Other potential visual receptors are :

1. Homesteads
2. Tourism accommodation

The following potential visual receptors have been identified:

Potential Receptor	Comment	Screening
R64 connecting Bloemfontein and Boshof (R1)	Situated to the south running in an southeast-west direction, view is only directed in the direction of the site, south of Dealesville from where it turn westward. Screened by the landscape and dominated by HV power line	Assess profile. Low visibility expected
R59 to the west connecting the R64 with Herzogville (R2)	The road is running north-south direction but 12+km to the west. It is screened by low ridges. Not a high order road	The R59 is outside the viewshed.
Gravel road from Dealesville to Bultfontein (R3)	Low order road with low traffic volumes.	Not a sensitive receptor. Low visibility expected.
Gravel road from Dealesville to Herzogville (R4)	Low order road with low traffic volumes. The road split in an east and west loop. The site is to the south of the split.	Not a sensitive receptor. Existing powerline provide backdrop for proposed line
R703 to Soutpan (R5)	The road is on lower gradient and thus outside the viewshed	Outside viewshed.
Visserspan Homestead (R6)	Homestead to the west but surrounded by Project 1 and 2.	Medium sensitivity. Owner of property

VIA: Visserspan Transmissionline

Potential Receptor	Comment	Screening
Homesteads to the north and west of the Visserspan PV facility (R7)	View blocked by the PV facility	No exposure
Wonderkop Homestead	Towards the north on higher ground	Due to distance and other screening elements of no significance
Melsetter homestead (R8)	Abutting eastern boundary of farm 40.	Visible from entrance but screened by landscape elements and existing HV line provides backdrop as same alignment is followed.
Mooihoek/Kinderdam Hunter's cottage (R9)	Mooihoek accommodate tourism accommodation (Hunter's cottage to the east of the Bultfontein road)	Owner of land on which transmission line is proposed
Dealesville (R10)	The town is on a lower altitude and screened by the landscape and landscape elements	Not visible

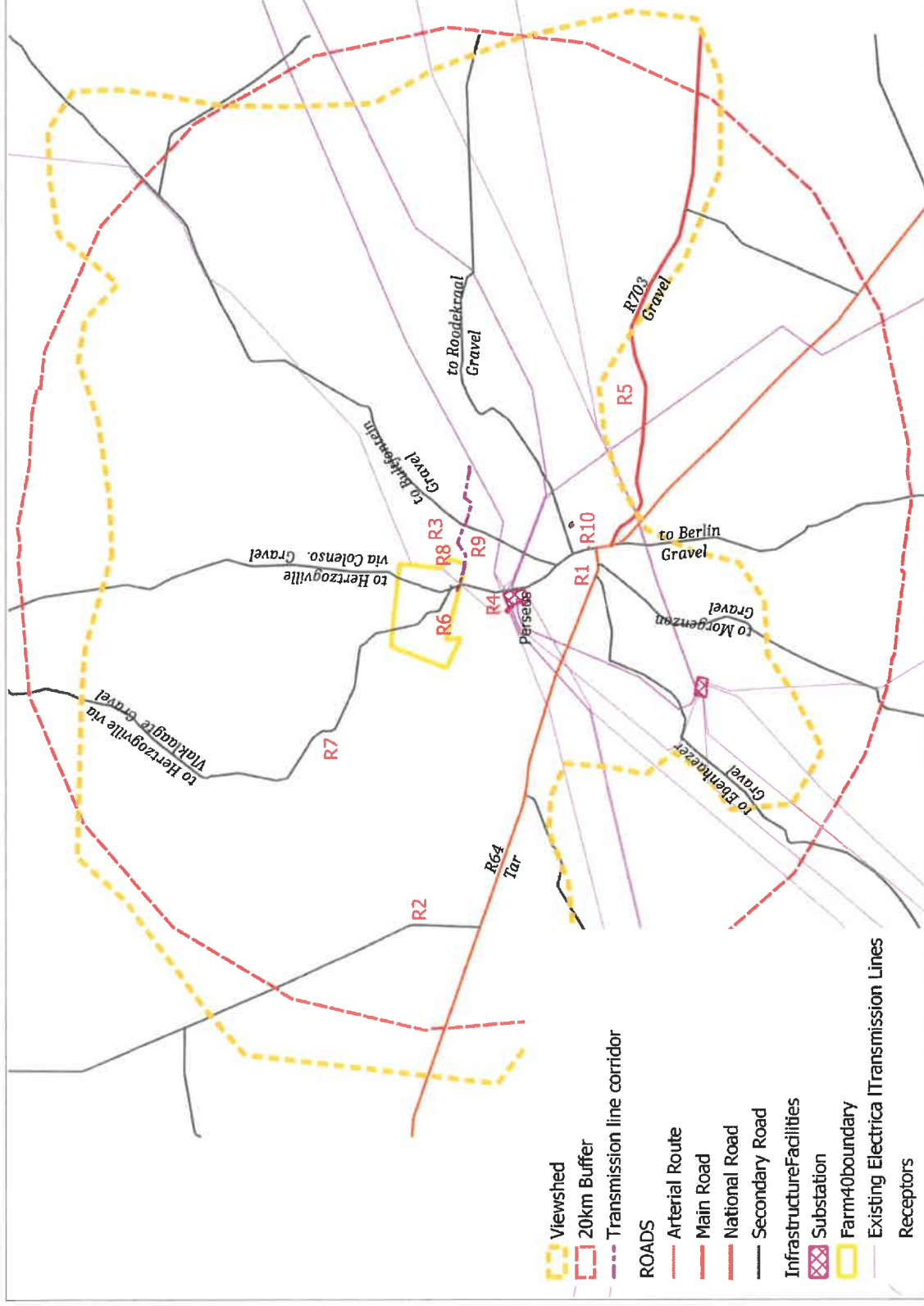


Figure 4: Potential Receptors

6.2 Assessment of Receptors

Refer to Annexure A and B for detail profiles and photos.

6.2.1 R64 from Bloemfontein to Boshof

The R64 runs in a general southeast-northwest direction. As the traveller approaches from Bloemfontein the direction is NNW to Dealesville where it turns in a westerly direction. Approaching from Bloemfontein the line of sight is thus towards Dealesville and the site, but due to the topography, landscape elements and distance from site, the site is not visible .

Passing through the town, the site is in the side view but also screened by the landscape and Preseus substation.

Travelling in the opposite direction, Perseus substation and HV powerlines screen and provide a backdrop for the proposed transmission line and it would simply phase in with the existing infrastructure.

Table 3: R64 Assessed as receptor

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration			short

The overall visual significance is low.

6.2.2 R59 from the R64 to Herzogville

The R59 is outside the viewshed and no impact is expected.

6.2.3 Gravel road from Dealesville to Bultfontein

This road is a lower order road primarily used by local farmers. The road follows mostly lower lying area and to a great extent screened by the low rise to the west. Only glimpses of the line may be visible except where the line cross the road where it will be in full view for a short period of time.

Table 4: Bultfontein Road assessed as receptor

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas Lower order road.
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration			short

The visual significance is rated as low.

6.2.4 Gravel road from Dealesville to Herzogville

Approaching from Dealesville the traveller passes the substation at which point the line will be visible but as it follows the same alignment and the existing HV line, it will create little additional detracting from the existing landscape. Once the point where the line crosses the road is reached the line is in full view. The duration of view is however short as the traveller passes under the line.

Approaching from the north the line will be screened by the proposed Visserspan PV facility and only come into view approximately at the split in the road. The line will be in full view for a short period of time until the traveller has passed underneath the line.

The overall visual significance is thus rated as low.

Table 5: Hertzogville East Loop assessed as Receptor

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration	Constant		short

6.2.5 R703 to Soutpan

The site is out of view of this road.

6.2.6 Mooihoek Hunter's Cottage

The Mooihoek farm provides limited tourism facilities. Accommodation is provided in the "Hunters cottage" situated to the east of the Bultfontein road. Both the homestead and cottage are screened by low rises to the west. The property belongs to the same owner whose land is traversed by the line. The line will be in full view

6.2.7 Melsetter and adjacent homesteads

The farms in the direct vicinity of the line will have full view of the line at certain points. Quality of visual experience is already compromised by the high voltage powerline crossing the Melsetter property in a general south-north direction.

The overall visual significance is rated as moderate to low.

Table 6: Melsetter & adjacent homesteads assessed as visual receptors

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration	Constant		short

VIA: Visserspan Transmission line

6.2.8 Dealesville

The town is on the perimeter of the viewshed. It is located lower than the site. The Preseus substation and the High voltage power lines also create a visual barrier towards the site. The site would thus not be visible from town.

Statement:

The overall visual impact on the identified receptors are moderate to low and require no mitigation measures to reduce visual impact.

Table 5: Summary of assessment of visual receptors

Potential Receptor	Comment	Assessment
R64 connecting Bloemfontein and Boshof	Screened by the landscape and dominated by HV power line	Low.
R59 to the west connecting the R64 with Herzogville	The road is running north-south direction but 12km to the west. It is screened by low ridges. Not a high order road	Beyond viewshed. No impact
Gravel road from Dealesville to Bultfontein	Low order road with low traffic volumes. Low ridges to the west screen the site. Intermittent views but short duration	Low
Gravel road from Dealesville to Herzogville	Low order road with low traffic volumes. Directly pass underneath the line however duration short.	Low
R703 to Soutpan	The road is on lower gradient and thus outside the viewshed	No impact
Homesteads to the west and north	Screened by proposed PV facility and landscape elements	Low
Melsetter homestead	Line will be visible but view compromised by existing HV powerlines	Moderate to low
Mooihoek/Kinderdam Hunter's cottage	Line will be visible but view compromised by existing HV powerlines	Low
Dealesville	The town is on a lower altitude and screened by the landscape and landscape elements	Not visible. No impact

7 CUMULATIVE IMPACT

The Department of Environment and Tourism issued a guideline document in terms of which cumulative impacts should be assessed.¹ This guideline document identifies types and characteristics of different cumulative effects as summarized in the table below.

As per Figure 5 below, a large number of PV facilities have already been approved and a number of powerlines traverse the area. Should all these projects be constructed it will create a node of high intensity PV development with additional transmission lines, which will change the visual character of the landscape. Thresholds for such nodes within areas of high renewable energy potential has not been determined on a regional level and it is not possible to include such an assessment on a project level.

Table 6: Types and characteristics of cumulative effects

TYPE	CHARACTERISTIC	IDENTIFY POTENTIAL IMPACT
Time Crowding	Frequent and repetitive effects.	Activity remains at same pace, frequency and intensity over time. No time crowding impacts.
Time Lags	Delayed effects.	No time lag impacts.
Space Crowding	High spatial density of effects.	A number of power lines exist and the proposed line runs more or less parallel with one of the high voltage lines. The proposed line will add a line element to the existing and increase the space density slightly.
Cross-boundary	Effects occur away from the source.	No impact
Fragmentation	Change in landscape pattern.	The proposed line runs partly parallel with the existing high voltage line and also follow existing property boundaries and tracks. It thus do not create further fragmentation
Compounding Effects	Effects arising from multiple sources or pathways.	No compounding impacts.
Indirect Effects	Secondary effects.	No impact
Triggers and Thresholds	Fundamental changes in system functioning and structure.	Visual thresholds for renewable energy facilities in areas identified suitable for such facilities have not been determined.

Statement:

The cumulative impact of proposed transmission line contribute little to the overall cumulative impact of the total number of PV facilities, substations and powerlines present and already approved. Due to the fact that thresholds have not been determined on a regional level, a statement to that effect on a project level is not appropriate.

¹ DEAT (2004) Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria

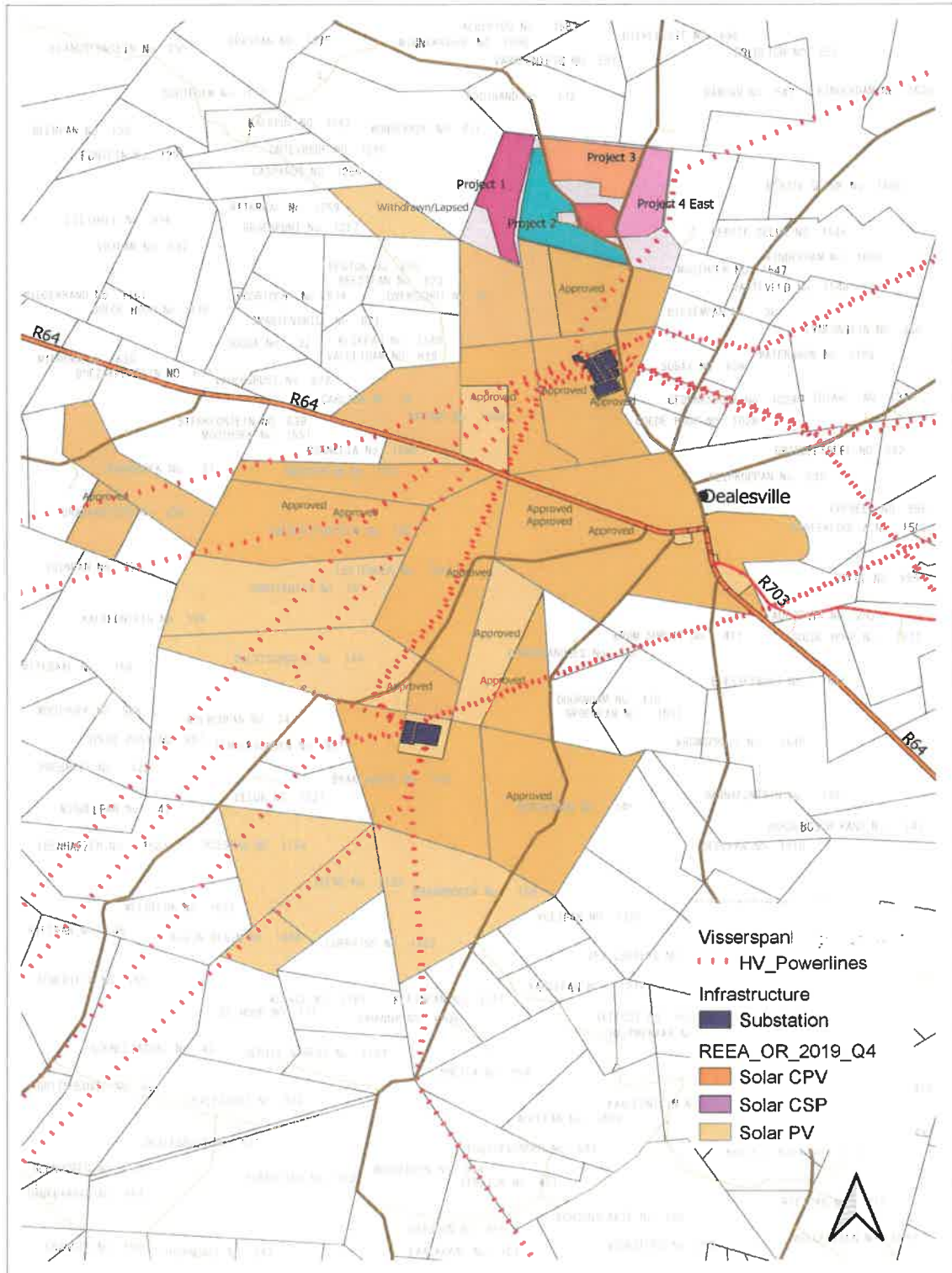


Figure 5: Existing and approved Power provision infrastructure and projects

8 CONSTRUCTION

During construction, various types of vehicles and equipment will be transported to the site and work on the site. This will impact on the general experience of viewers. This impact is however temporary and not uncommon during construction of infrastructure. Communities have fairly high tolerance levels for such activities if it contributes to the infrastructure and economic growth of the area.

Rating: Low

9 FINDINGS

Due to the fact that the line will partially follow existing lines, tracks, boundaries and linear landscape elements, the overall impact is low.

The small extent of the project in relation to the number of approved PV facilities as well as the fact that the site is in the immediate vicinity of other proposed and approved projects and is in close proximity to the Preseus substation result in a low contribution to the cumulative impact with regards to crowding.

10 MITIGATION MEASURES

Due to the low overall visual impact, no other mitigation measures are required.