

POORTJIE WES RENEWABLE ENERGY DEVELOPMENTS
PHOTOVOLTAIC CLUSTER, WIND TURBINES & GRID CONNECTION
NORTH OF BEAUFORT WEST, WESTERN CAPE

CULTURAL LANDSCAPE ASSESSMENT

Submitted in terms of Section 38 (4) of the National Heritage Resources Act (Act 25 of 1999)

26 APRIL 2022



Prepared for CTS Heritage

Prepared by Sarah Winter and Wendy Wilson

SARAH WINTER
HERITAGE CONSULTANT

21 Upper Towers Road Muizenberg 79
P O BOX 281 Muizenberg 7950

Tel: (021) 788-5923
Cell: 082 4210 510
E-mail: sewinter@yebo.co.za

TABLE OF CONTENTS

| | |
|---|-----------|
| A. INTRODUCTION | 1 |
| A.1 Brief and Scope of Work | |
| A.2 Project Description | |
| A.3 Site Description | |
| A.4 Site Photographs | |
| B. HISTORICAL CONTEXT: CULTURAL LANDSCAPE | 14 |
| B.1 Regional Cultural Landscape Patterns | |
| B.2 Settlement and Development | |
| C. STATEMENT OF HERITAGE SIGNIFICANCE | 17 |
| C.1 Overall Landscape | |
| C.2 Cultural Landscape Elements | |
| C.3 Built Landscape Elements | |
| D. CHARACTER AREA ANALYSIS | 33 |
| E. HERITAGE DESIGN INDICATORS..... | 39 |
| E.1 Principles | |
| E.2 Heritage indicators | |
| F. ASSESSMENT OF HERITAGE IMPACTS ON CULTURAL LANDSCAPE..... | 42 |
| F.1 Impact of Solar PV | |
| F.2 Impact of Wind Turbines | |
| F.3 Impact of Grid Connection | |
| G. CONCLUSIONS AND RECOMMENDATIONS | 44 |
| REFERENCES | 45 |
| TABLES | |
| Table 1. Character Areas | 33 |
| Table 2. Heritage receptors | 39 |
| ANNEXURES | |
| Annexure A. Additional Viewpoint Images | |
| FIGURES | |
| Figure 1. Site location | |
| Figure 2. Proposed development | |
| Figure 3. Graphic representation: location | |
| Figure 4. Diagram key to location of viewpoints. | |
| Figure 5. 1834: Colonial settlement | |
| Figure 6. Composite of early survey diagrams | |
| Figure 7. 1868 Nelspoort | |
| Figure 8. Nelspoort Station | |
| Figure 9. 1901 Route of N1 north | |
| Figure 10. Cultural landscape elements | |
| Figure 11. Site sections | |
| Figure 12. !xam San rock engravings | |
| Figure 13. Animal representation | |
| Figure 14. Khoe geometric engraving | |
| Figure 15. Settler/later engraving | |
| Figure 16. Rock gong complex | |
| Figure 17. Character areas | |
| Figure 18. Infrastructure placement principles | |
| Figure 19. No Go areas for development | |

A. INTRODUCTION

The Poortjie Wes Renewable Energy Facility Projects photovoltaic (PV) solar development is proposed for an area located approximately 40km to 70km northeast of Beaufort West, stretching east from the small town of Nelspoort in the Western Cape. It falls within the jurisdiction of the Beaufort West Municipality and the greater Central Karoo District Municipality. It is located within the Beaufort West Renewable Energy Development Zone (REDZ 11) and the central transmission corridor.

The proposed development comprises six solar energy clusters, which are to connect to the National Grid via overhead powerline. In the longer term, the wider Poortjie Wes project is considering the incorporation of a wind turbine cluster. While the precise placement of turbines and infrastructure has not yet been finalised, the general area was surveyed for cultural heritage significance along with the proposed sites of PV clusters.

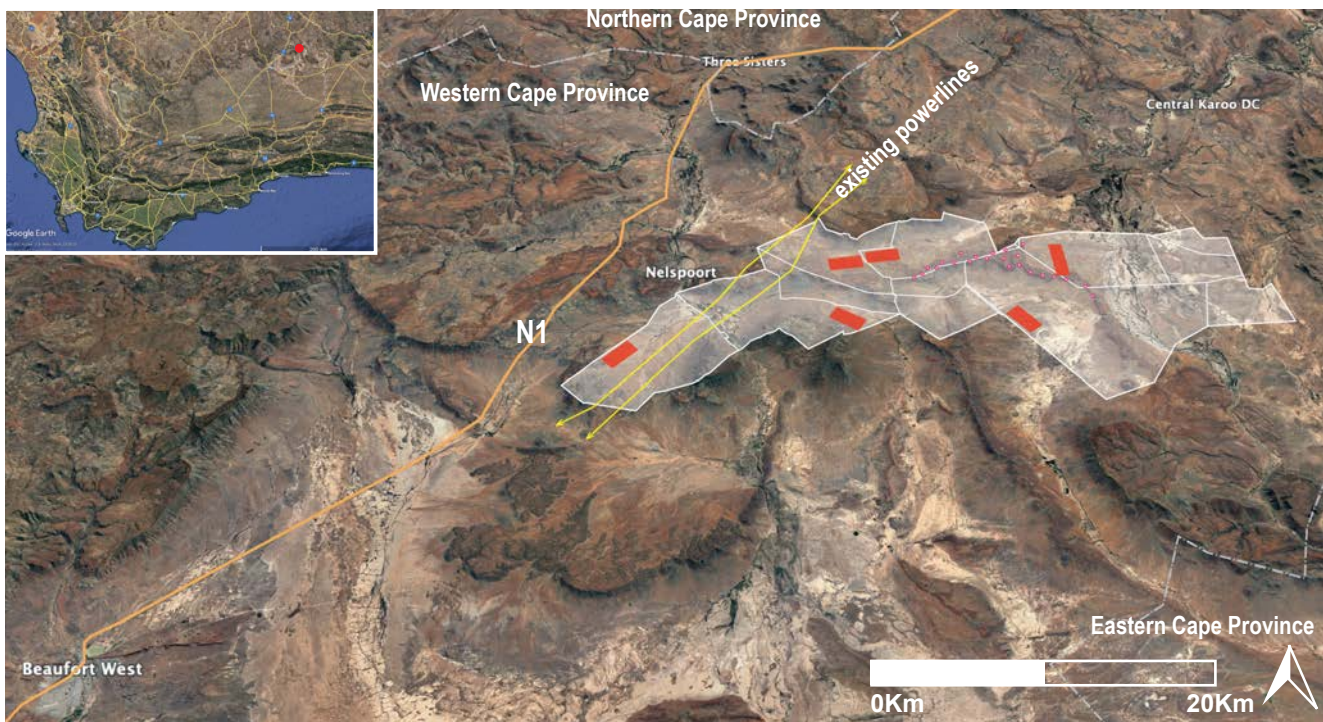


Figure 1. Site location: Proposed PV array, grid connection and WEF near Nelspoort, north of Beaufort West (Source: Google Earth)

A.1 Study Brief and Scope of Work

The study area incorporates five farms and is approximately 55 000ha in size. The purpose of this report is to assess the project from a cultural landscape perspective as a component of an integrated heritage impact assessment (HIA) that satisfies Section 38 (3) of the National Heritage Resources Act (Act 25 of 1999; NHRA). The assessment has included the following scope of work:

- An historical overview of the site and its broader context.
- Fieldwork with particular attention on potential heritage receptors from a cultural landscape perspective.
- An assessment of heritage significance and formulation of heritage indicators.
- An assessment of the impact of the proposals and formulation of recommendations.

A.2 Project Description

The Poortjie Wes project incorporates six solar energy PV clusters, each with an on-site collector substation that will connect to the proposed new Poortjie Wes Substation via a 132 kV Overhead line (OHL). The project is

considering the inclusion of a wind turbine cluster, with a possible location identified as shown on figure 9 below, however the precise specifications have not yet been determined.

The Poortjie Wes project is earmarked for submission into the REIPPPP (Renewable Energy IPP Procurement Programme) for a Private Off-take.

Photovoltaic clusters:

The following sites have been selected:

1. Site A: Brakpan 1 PV Facility on the Farm Poortjie No. 76 in the Kamdeboo Municipality, Division of Murraysburg.
2. Site B: Belvedere PV Facility on the Remaining extent of Portion 2 of the Farm Belvedere Nr. 73, in the Division of Murraysburg
3. Site C: Montana 3 PV Facility on Portion 1 of the Farm Belvedere Nr. 73, in the Division of Murraysburg.
4. Site D: Montana 2 PV Facility on the Remainder Portion 3 of the Farm Montana No 123 in the Division of Beaufort West.
5. Site E: Montana 1 PV Facility on Portion 4 of the Farm Montana No. 123 in the Division of Beaufort West.
6. Site F: Brakpan 2 PV Facility in the Kamdeboo Municipality, Division of Murraysburg.

Each facility will consist of solar PV technology, with the final design of the structures and facility confirmed after the detailed geotechnical investigations. Measured from the ground, the maximum height of the solar installation will not exceed 10m and OHL will not exceed 30m.

Associated infrastructure can be expected to include the following:

- Gravel access roads and internal roads
- Perimeter fencing and security infrastructure.
- Underground cabling and electrical infrastructure
- Auxiliary buildings (substation buildings, gatehouse and security, control centre, office, warehouse, workshop, canteen, ablutions and staff facilities).

Wind turbines:

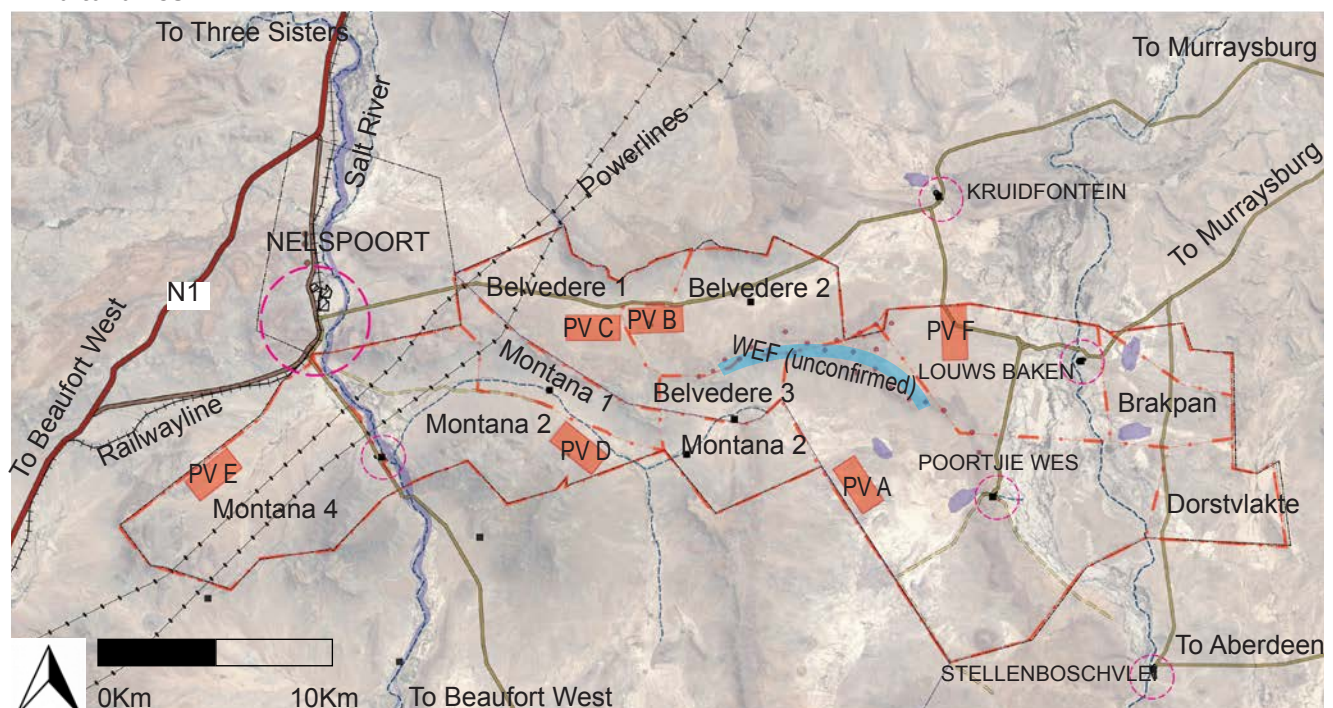


Figure 2. Proposed development: PV array, grid connection and WEF near Nelspoort, north of Beaufort West; farms involved are outlined red. (Source: Google Earth)

A low ridge-line traversing the following farms has been provisionally selected for the site of approximately 24 Wind Turbines and associated infrastructure:

1. Farm Poortjie No. 76 in the Kamdeboo Municipality, Division of Murraysburg.
2. Farm Portion 2 of Belvedere Nr. 73, in the Division of Murraysburg

Grid connection:

The proposed new Poortjie Wes Substation (location to be established) will connect to the PV installations via a 132 kV Overhead line (OHL).

A.3 Site Description

The site is characterised by the following:

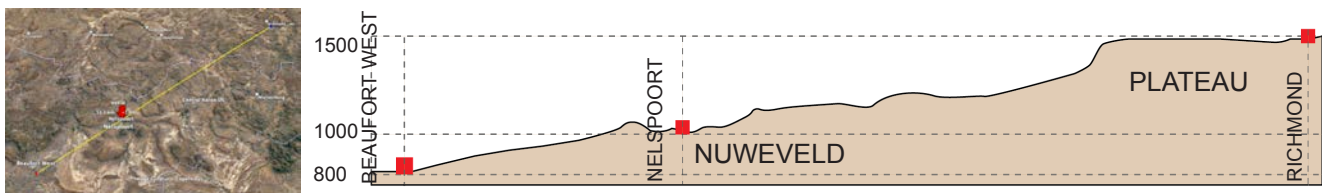


Figure 3. Graphic representation: location section of Nuweveld Mountain defining the edge of the Great Escarpment and the Karoo Central Plateau.

- Regional location within the southern sector of the Great Karoo in the foothills of the Nuweveld Mountain range that defines the edge of the Great Escarpment. Very distinctive topographical fold conditions, with a combination of steep slopes, ridgelines, flat topped mesa mountains and rounded koppies punctuating open plains. Vegetation cover is low, consistent with the Nama Karoo Biome.
- A semi-arid area with a dispersed pattern of settlement along perennial and seasonal rivers, extensive stock farms, and more recent game farms and tourism.
- The distinctive nature of farming settlements within a semi-arid landscape is generally associated with a loose collection of farm buildings adjacent to water courses and springs, and marked by clusters of tree planting, dams and wind pumps.
- The point of convergence for several linkage routes, some of which still traverse the site: to Murraysburg, Aberdeen, Beaufort West, Three Sisters and Graaf Reinet. Nelspoort town lies on an early transport route through Beaufort West (est. 1818) to Graaf Reinet (est. 1786).
- Nelspoort is located on the early transport and wagon route to the interior (mid- to late-18th century). Consolidated with the Victoria West road north c1900s to bypass Nelspoort, this later became the N1.
- The mainline railway was extended from Beaufort West through Nelspoort Station to De Aar in 1884.
- Nelspoort archaeology suggests constant habitation from approximately 12 000 years ago, with a period of co-habitation between !xam San, Khoe and early settlers pre-1820 making use of perennial water, hunting and seasonal pasture. From 1841 Nelspoort became the sheep farming and wool producing seat of the Molteno family. In 1824 Nelspoort Sanatorium opened for the treatment of tuberculosis, later adding psychiatry.
- Small settlement of Poortjie Wes located on the “old post road”, in a short, deep, defensible pass between Beaufort West and Graaf Reinet (pre-1829).
- Traversed by two rivers travelling north-south: the Salt River south of the confluence with the Kromrivier and the Buffelsrivier, with an extensive central seasonal wetland.
- Traversed north-south by two generations of kVA powerlines.
- Located in the REDZ, and in proximity to other existing and proposed power facilities.

A 4. Site Photographs

The following site photographs correspond with view points that characterise the broader cultural landscape qualities of the site location; these qualities and their significance are discussed and assessed in Section C. Additional images from each viewpoint are contained in Annexure A.

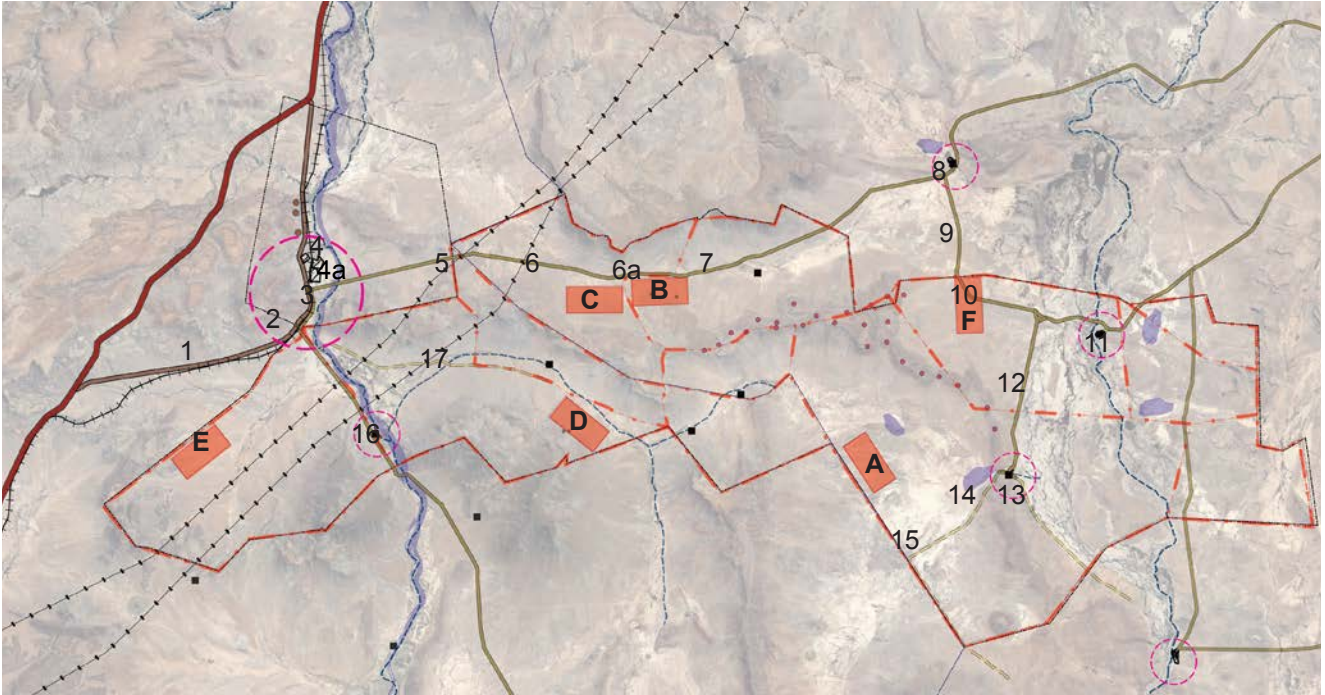


Figure 4. Diagram key to location of viewpoints.

Viewpoint 1 - proposed location of PV installation E

- Layering of distant hills with scrubby flatland and occasional dolerite rocks in the foreground.
- Existing infrastructure of railway line runs parallel to the road on its approach to Nelspoort.
- 765 Kva Eskom powerlines traverse the plains at the foothills of flat-topped mesa-style mountains.
- Telephone line infrastructure alongside road.



Northwest view towards Nelspoort.



View south east towards PV site E and valley plains with existing Eskom powerline infrastructure.

Viewpoint 2

- South approach to Nelspoort and the “enclosure” of the narrow pass through the rounded dolerite capped hills, creates a strong threshold character.
- Existing infrastructure narrows in relation to the road.
- Telecommunications towers evident on hill crests.



View northwards to “poort” of Nelspoort

Viewpoint 3

- Nelspoort Station, a small cluster of buildings and dwellings related to railway infrastructure and operations on west/road side of the railway line, with additional dwellings on the east side of the line.
- Mature gum and palm trees indicate established settlement quality.
- Pinched between rounded hills with dolerite rock scatterings.

(See page 25 for additional photographs and analysis)



View to dolerite scattered hills west of Nelspoort Station.

Viewpoint 4

- Nelspoort is a settlement cluster of institutional buildings of the historic sanatorium complex, some disused and derelict, others adapted to new community health and social uses straddle both sides of the railway with connecting underpass.
- Early farm complex of the Molteno family with outbuildings on the eastern extreme of the settlement.

(See page 23 for additional photographs and analysis)



Main road through Nelspoort west (above the railway); mature Blue gum treeline (planted 1925).

Viewpoint 4a

- Clusters of mature acacia and gum trees, with tree lined avenue connecting to Restvale.
- Restvale, more recent residential development located on the east side of the railway only, with schools and sports fields.



Restvale with distinctive, pointed landmark element of Nelspoort Koppie

Viewpoint 5

- Gentle ridge rise at the boundary entrance to Belvedere Farm on the Murraysburg road.
- Two generations of power infrastructure: 465 Kva and 765Kva cross the road travelling north to south at the farm boundary.
- Long views to north plains.
- Short views across south plain edged by low, constant ridge.



Powerlines cross at boundary of farm Belvedere.

Viewpoint 6 - proposed location of PV installation C

- Exit the “powerline fields” by gentle decent and long views framed by parallel ridgelines.
- Landscape dominated by steeply sloped, rocky north ridge (+/-1300m).
- Rolling grassy valley plain; gently curved south ridge (+/-1200m).
- Punctuated by remote farmsteads and farm infrastructure.
- Proposed location of PV site C and neighbouring site B.



Long views, parallel system of ridgelines and valley



South view, farm infrastructure and tree stand with rolling south ridge backdrop. Proposed location of PV C

Viewpoint 6a: proposed location of PV installation B

- Continuation of parallel system: steeply sloped, rocky north ridge (+/-1300m); grassy valley plain with occasional farm infrastructure; south ridge (+/-1200m).



Farm infrastructure and tree stand with rolling south ridge backdrop. Proposed location of PV B



North ridgeline escarpment

Viewpoint 7

- Layered topography south: gentle sloping ridge with foreground of natural berms and distant hills.
- North ridge starts to give way to distant views across plains.
- Farmstead Hamelkuil on valley bed with tree cluster.
- Possible location for wind turbines and WEF infrastructure on relatively low topographical feature (+/- 1200m).



Layered topography to the south; foreground ridge provisionally proposed for WEF development.



Farmstead Hamelkuil on valley floor below south ridge.

Viewpoint 8

- Change in topography: road rises, bends through narrowed opening between hills.
- Kruidfontein hunting lodge and farmstead (pre-c1920) Cape revival-style farmhouse with large outbuildings, possibly earlier. Settlement straddles the road and is located behind the rise, oriented away from the proposed development area.

(See page 32 for additional photographs and analysis)



South approach to farmstead Kruidfontein on the Murraysburg road

Viewpoint 9

- Long, wide views across open plains with distant rises and ridges.
- Sheep farming and hunting area with flocks of sheep and herds of buck.
- Views south towards PV F position framed by low ridge rise.



View south and west towards proposed PV site F with low ridgeline.

Viewpoint 10 - proposed location of PV installation F

- Road south to Poortjie: long views west towards ridgeline
- Proposed location for PV F and possible WEF turbines.
- Sheep farming and hunting area with flocks of sheep and herds of buck.



View across proposed PV F field and west to ridgeline for WT

Viewpoint 11

- Louws Baken, pre-1900 farmstead with dwelling, stone outbuildings. Numerous stone walled kraals, some still in use. Some distinctive stone walling with dry dung infill and worked corner stones.
- Seasonal river, managed water supply and furrows.

(See page 30 for additional photographs and analysis)



Werf approach road

Viewpoint 12

- Long views to ridgeline and possible proposed location of WEF turbines.



Viewpoint 13

- Poortjie Wes, located at a distinctive T-intersection - an early settlement on the old post road from Beaufort West to Graaf Reinet.
- Farmstead settlement with dwellings of various sizes and periods, outbuildings, and evidence of early stone buildings.
- Passageway westward through two matched peaks, each marking the end of a ridgeline - defensible topography and access to water.

(See page 27 for additional photographs of the built environment and analysis)



Road through Poortjie Wes farm settlement



Exit west through poort

Viewpoint 14

- Poortjie dam and plains west of Poortjie Wes
- Passageway through two matched peaks.
- Constructed dam wall.
- Nesting area for water birds, migratory white stork and others.



Road through poort to Poortjie Wes; potential proposed turbine location on ridge line, should be avoided.

Viewpoint 15 - views towards proposed location of PV installation D

- Long views across wetlands plain towards proposed location of PV site D.
- Layered ridges with far distant north ridgeline forming silhouetted skyline.
- Possible proposed location of WEF turbines on lower, nearer ridge.



Sand plains looking to proposed PV site D.

Viewpoint 16 - (not visually affected by the proposed development)

- Montana farmstead in a steep sided valley of the Salt River, south of Nelspoort.
- Located on a linkage route to Beaufort West.

(See page 26 for additional photographs and analysis)



Road south from Nelspoort toward Beaufort west; Eskom infrastructure.

Viewpoint 17 - towards distant proposed PV site D

- Private access road towards farmsteads Combrinkskuil, Nartjieskuil and Drinkwaterskloof (farmsteads were not accessible and could not be surveyed).
- Long valley sided by ridges and outcrops.
- Western edge traversed by Eskom powerlines



Eskom infrastructure crosses long valley.

B. HISTORICAL CONTEXT: CULTURAL LANDSCAPE

B.1 Regional Cultural Landscape Patterns

The Great Escarpment is a semi-continuous mountain system that defines the edge of the African plateau. A sector of this ridge north of Beaufort West, the Nuweveld Mountains, is characterised by a distinct landscape of parallel ridges separating long valleys. Nelspoort lies in the foothills of the mountains.

This relatively undisturbed area of the Karoo region has an archaeological record spanning hundreds of thousands of years. Archaeological sites typically occur near dolerite outcrops due to the presence of underground water, showing stone tool scatters, rock art and herder kraals (Winter & Oberholzer 2013). The Nelspoort area is significant for its archaeology with at least 14 distinct sites of occupation and activity attesting to possibly constant use and habitation over 12 000 years (Ouzman). Remains include hunter-gather stone tools, petroglyphs including a representation of a large bovine, thought to be either a *Megalotragus* or a *Pelorovis antiquus*, extinct over 7 000 years. Some sites include lithophones, groupings of dolerite rocks called rock gongs, used to produce ringing sounds when struck and believed to play a part in ritualistic events. Later material includes herder stone camps, grinding patches and geometric stone engravings, and historic period middens and engravings.

During the 1700s the VOC settlers inland push north to hunt and trade livestock came to a prolonged pause below the Nuweveld escarpment, a natural barrier to the arid central Karoo plateau. This started a period of uneasy co-habitation between the semi-nomadic trekboere, !xam San, and Khoe and Xhosa alienated from their preferred grazing to the south and east. Where the landscape allowed, settler farmers occupied land, either without formal title moving on when it ceased being productive, or in a system of renewable permits for loan farms. Expansion was fiercely opposed by the San, who resisted alienation from water sources, until they were forcibly suppressed by the 1790s.

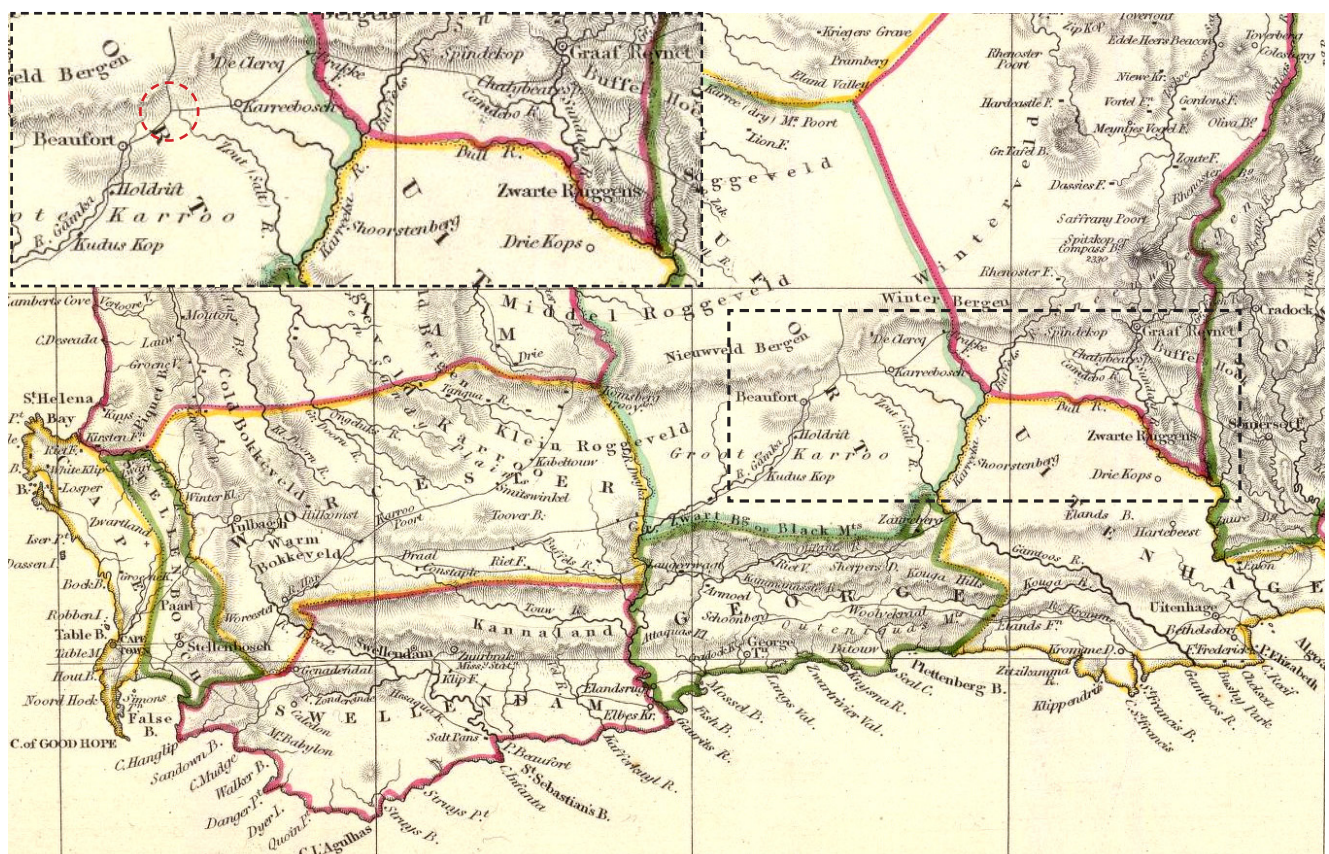


Figure 5. 1834: Colonial settlement with Beaufort established and the route from Beaufort to Graaf Reinet mapped. Karreebosch is situated 11,6 Km north of Louws Baken, on the road to Murraysburg; the Salt River is mapped; the road forks at Nelspoort (circled in inset). (Source: David Rumsey Collection)

The late 18th century frontier of the colony was edged by two vast administrative regions, District of Stellenbosch (1679) and District of Graaff-Reinet (1786). In 1818 the Colonial Government established a sub-magistracy on farms Hooyvlakte and Boesjesmansberg, selected for their access to permanent water. Both the town and its new district were named Beaufort (renamed Beaufort West in 1869).

B.2 Settlement and Development

British colonisation in 1806 brought new landownership systems and a changing farming economy with wool replacing wine export. Already established for sheep farming, the Beaufort West region was identified as well-suited to the wool producing Saxon Merino sheep and land became desirable to a new class of merchant farmer. Fairly ad-hoc land occupation was quickly formalised with land boundaries surveyed and loan farms transferred to perpetual quitrent. Beaufort West became a prosperous centre for wool production, and in 1837 was the first municipality in the Cape Colony. The area's increased traffic and habitation shows in the development of routes expanding north and west, with an outspan on the Salt River south of Nelspoort town, and the small settlement of Poortjie established by 1830 in the ravine of a highly defensible pass, on a route described as the “post route from Beaufort to Graaf Reinet”.

From 1841 Anglo-Italian immigrant and entrepreneur, John Charles Molteno, bought extensive tracts of land in the area north of Beaufort West for wool production: Klipkraal, Nell's Poort, Hamelkuil, with the centre of operations of his Nelspoort Estate at Nelspoort. He developed extensive kraals, and an irrigation system to water wheat fields and orchards. It became a hub on the route north towards Victoria West such that in 1849 Molteno applied for permission to establish a post office and act as its Post Master. In the 1860s, after a period in Beaufort West, Molteno moved to Cape Town where he became the first Prime Minister of the Cape Colony in 1872, while his extended family and subsequent generations expanded the farm acquiring additional land, and continued to farm it into the 20th century.

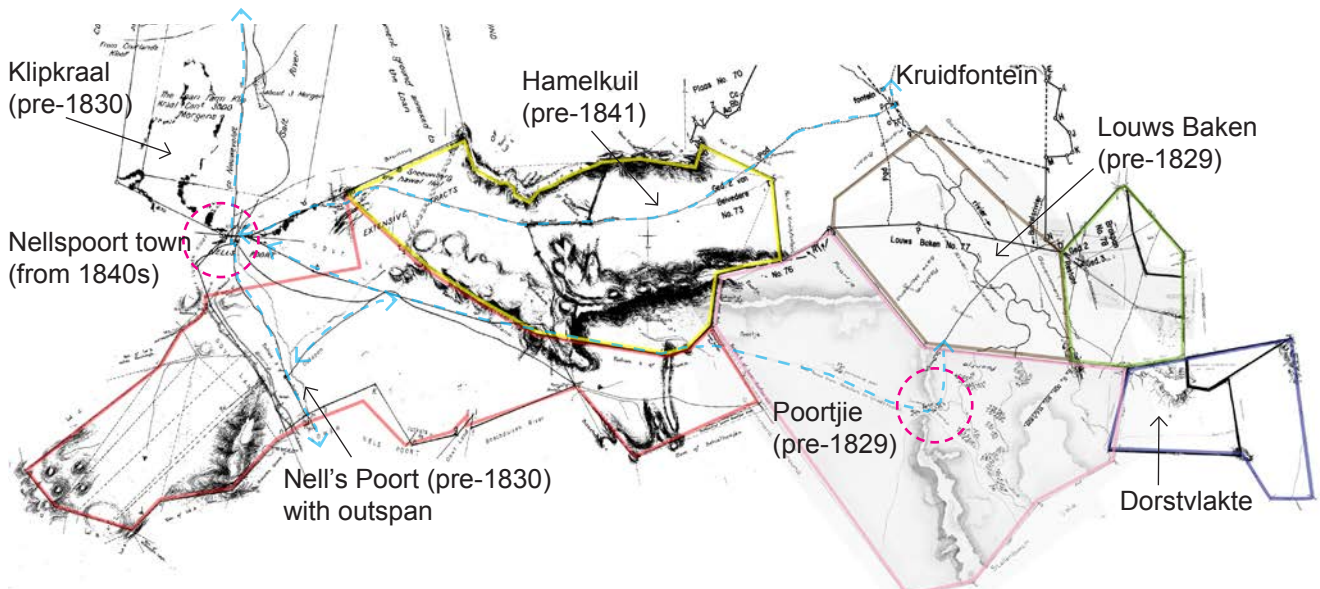


Figure 6. Composite of early survey diagrams with noted landscape features. Blue dashed line shows roads in evidence by 1830.



Figure 7. 1868 Nelspoort, captioned “wagons load wool for export”. (Source: Wikimedia)



Figure 8. Nelspoort Station in 1895 (left) and early 20thC (right) (Source: DRISA Archive)

The railway network, connecting ports to the interior centres of production, reached Beaufort West in 1880 and Nelspoort in 1884. The invention of the ground water pump (late 1880s) further altered the landscape, allowing year-round access to water for irrigation and stock. The South African War (1899-1902) introduced another layer, with the line of 18 British blockhouses built to protect the Cape Town to De Aar line (Tomlinson). Two concrete blockhouses were located north of Nelspoort at bridges over the Krom and Salt Rivers, with garrisons of soldiers housed in proximity.

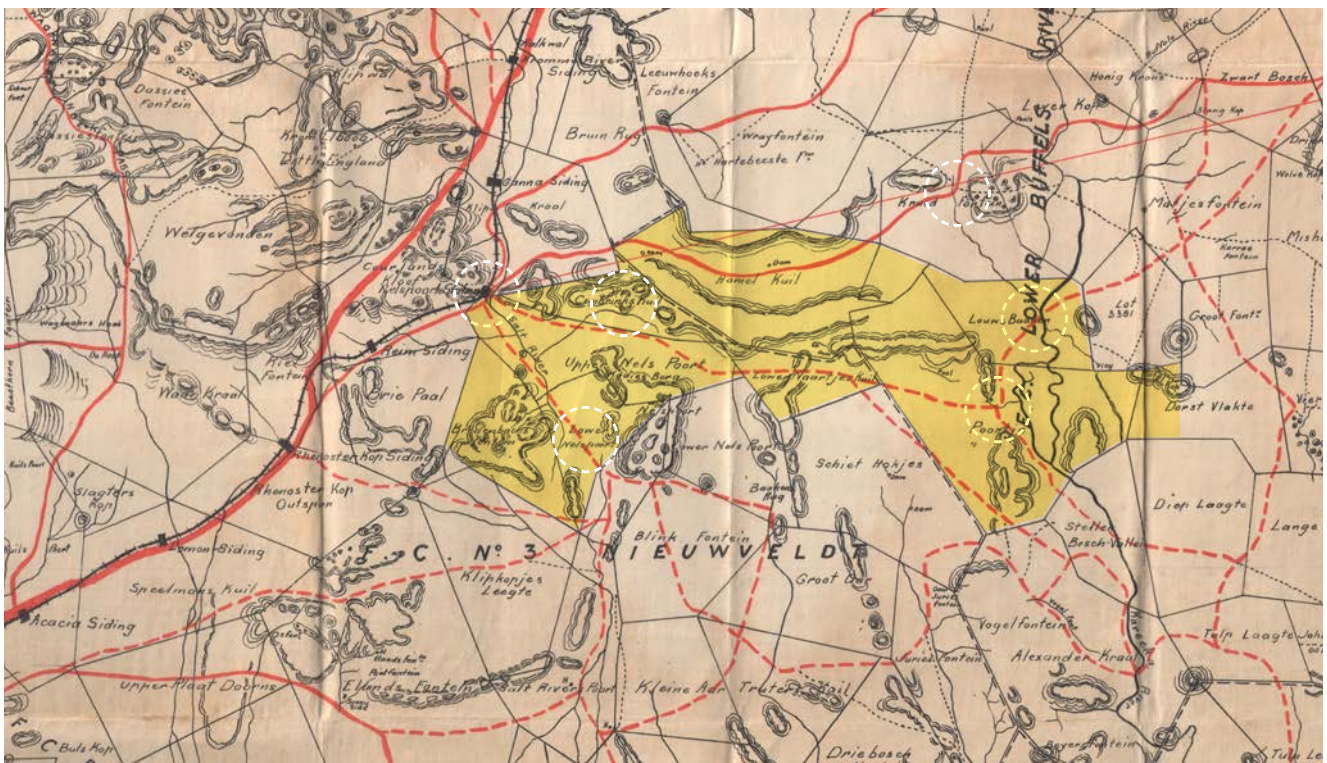


Figure 9. 1901 Route of N1 north now defined as a primary route. (Source: Imperial map of the Cape Colony of South Africa 1901. UCT Special Collections, islandora:24847)

From the 1830s the dry air of the area - Nuweveld Mountains and Beaufort West - had been identified as a good location for people suffering breathing disorders and by the 1850s onwards was frequently visited by Britons seeking a cure. Through a long campaign, the medical officer of health for Cape Town, concerned by the impact of tuberculosis on people living in slum conditions, successfully raised funds and bought a portion of the Klipkraal farm. It had plentiful water, was well established with orchards and had access to infrastructure, particularly, the Nelspoort station. The Sanatorium, designed by Public Works Department architect John Stockwin Cleland, opened in 1924. The grove of blue gum trees was planted in 1925, during an official visit by the Prince of Wales. In 1969 the sanatorium began treating mental health patients, with this dual focus continuing to the present.

The area remains sparsely inhabited and little developed outside with a focus on sheep farming, game hunting, tourism, and more recently, renewable energy developments.

C. STATEMENT OF HERITAGE SIGNIFICANCE

The National Heritage Resources Act (Act 25 of 1999; NHRA) does not specifically mention the term “cultural landscape”, however it is implied in its definition of terms. Section 3 (2) (b) of the NHRA includes “landscapes and natural features of cultural significance” as part of the national estate. Furthermore, Section 2(4) of the National Environmental Management Act (NEMA) regulations, in referring to the principles of environmental management and development, states that “the disturbance of landscapes and sites that constitute the nation’s cultural heritage is to be avoided, or, where it cannot be altogether avoided, is minimised and remedied.”

The concept of cultural landscape gives spatial and temporal expression to the processes and products of the interaction between people and the environment. It may thus be conceived as a particular configuration of topography, geology, vegetation, land use and settlement pattern and associations which establishes some coherence of natural and cultural processes.

The concept of cultural landscape has different meanings:

- It can have heritage significance in its own right and be worthy of formal protection under the heritage and/or environmental legislation.
- It can provide the context or setting for a specific heritage resource.
- It can provide an analytical framework within which individual heritage resources are embedded and linked (visually-spatially, thematically and temporally).

Cultural landscape assessment typically requires an understanding of the underlying natural landscape and how settlement occurs in response to natural resources (topography, geology, water, climate). It also requires an understanding of the physical attributes, processes and influences that have shaped the landscape character with reference to emerging landscape patterns (and possible landscape themes) and historical layering.

This section of the report provides a statement of significance of the cultural landscape impacted by the proposed development based on an interpretation of the physical fabric, experiential qualities and associational linkages to the landscape. It is followed by the identification of character areas and the carrying capacity of the cultural landscape - or, its ability to accommodate change - so as not to damage significance (heritage indicators). This will look at no-go areas, tread lightly areas and areas more resilient for the development of RE infrastructure.

C.1 Overall Landscape

The site possesses a number of cultural landscape qualities and elements which are outlined below.

- The location of the site on the south Central Plateau of the Great Karoo, separated from the Karoo vlakte by the Great Escarpment, characterised by a combination of flat open plains punctuated by mountains and koppies. Parallel valley-ridge systems.
- The folded quality of the landscape - open plains interrupted by ridges and koppies - a function of its geology, semi-arid conditions and low vegetation cover; a relatively ephemeral pattern of human intervention on the landscape resulting in a sense of remoteness and stillness, known also for its night sky.
- Generally a widespread archaeological signature dating to the Earlier and Middle Stone Ages described as a low frequency ancient scatter across the landscape, as well as an archaeological signature dating to the Later Stone Age. In this case, dense archaeology around the dolerite koppies.
- Historical associations with colonial expansion of the northern frontier zone in the late 18th early 19th century resulting in the further displacement of transhumant pastoralism by settled agriculture and the

emergence of extensive sheep farming in the early to mid-19th century; the farms Kruidfontein (pre-1890), Poortjie and Louws Baken (pre-1829), being first surveyed during this period.

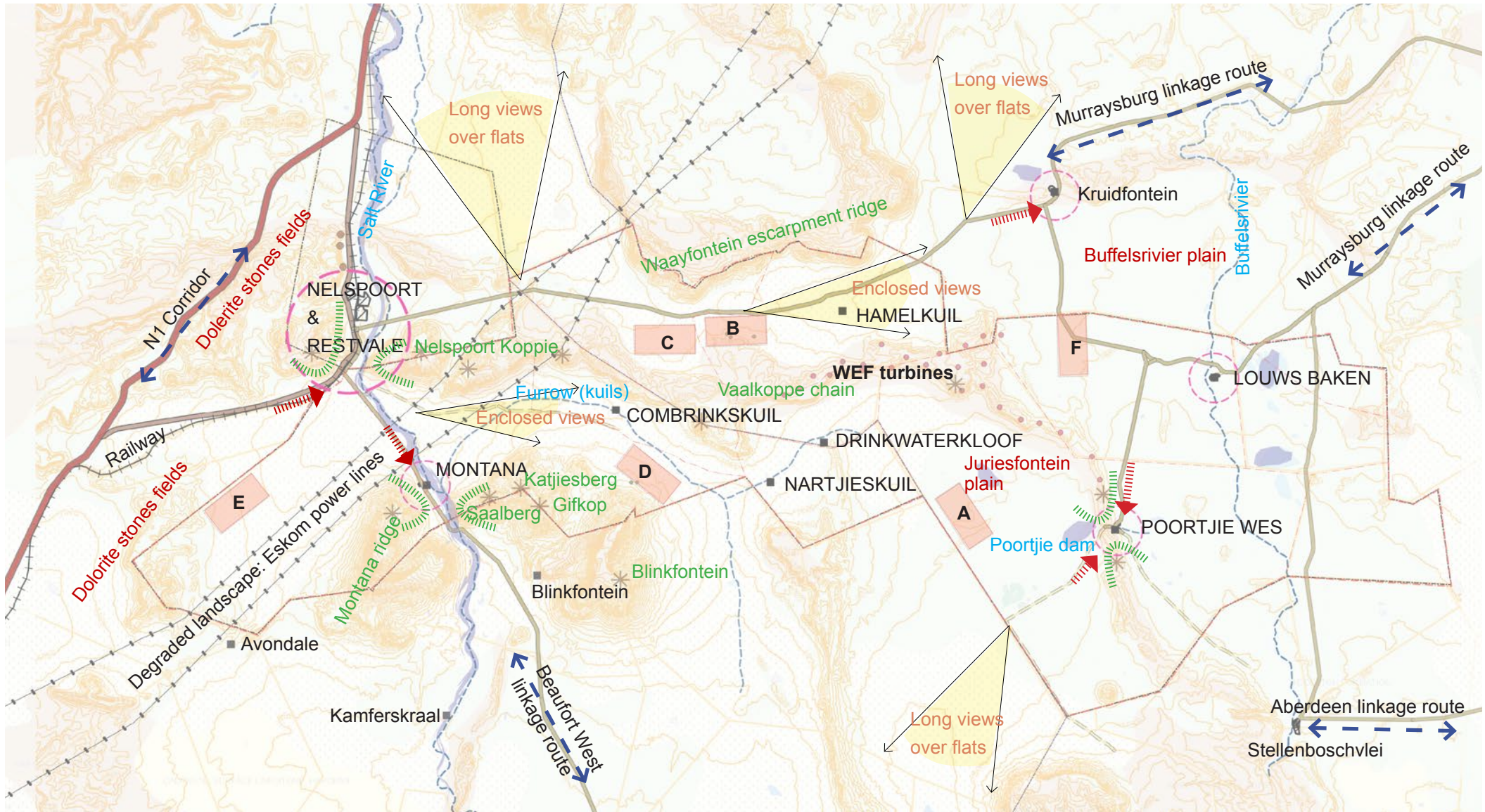
- A distinctive pattern of settlement informed by access to limited water resources with small, isolated farmsteads forming green oases in the semi-arid landscape, sheltered from the heat by exotic trees and associated with springs, streams, dams and windpumps. The manner in which homesteads are positioned at the base of hills and koppies forming distinctive topographical settings. The dry-packed stone walls historically used for kraals, are a characteristic feature of the landscape.
- The N1 corridor following the alignment of the late 18th century route to the interior and its role as a structuring element in the landscape along which dispersed settlement has occurred like “beads on a string”.
- Nelspoort, significant for its wealth of tangible remains demonstrating a continuous history of occupation from pre-history, through to its mid-19th century role in the local wool farming boom, and development as a 20th century medical sanctuary.
- Poortjie Wes, significant as an identified place on an early linkage route between Beaufort West and Graaf Reinet.

C.1.1 Cultural landscape overview

The following map identifies elements of cultural significance falling within the cadastral boundaries affected by the proposed Poortjie Wes RE development, and their spatial relationship with the proposed development.

These include:

- Places (towns and settlements)
- Farmsteads
- Rivers, dams and water furrows
- Mountain ridges and peaks which contribute to the cultural landscape
- Movement routes and views experienced from the routes
- 20th century communications and electrical infrastructure



- | | | | | | |
|--|----------------------|--|------------|--|-----------------------|
| | Farm boundaries | | Minor road | | Railway line |
| | Proposed PV sites | | Farm road | | Towns and settlements |
| | Provisional WT sites | | Dams | | Threshold pinch point |
| | Rivers/seasonal | | Farmsteads | | Mountain "embrace" |
| | National Road | | Peaks | | |

Figure 10. Cultural landscape elements

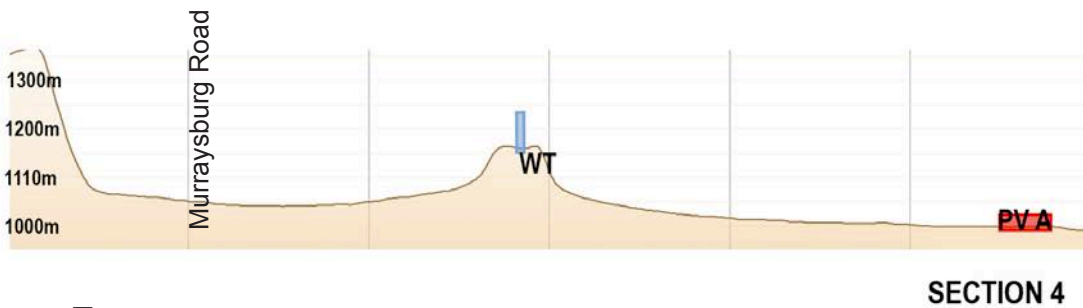
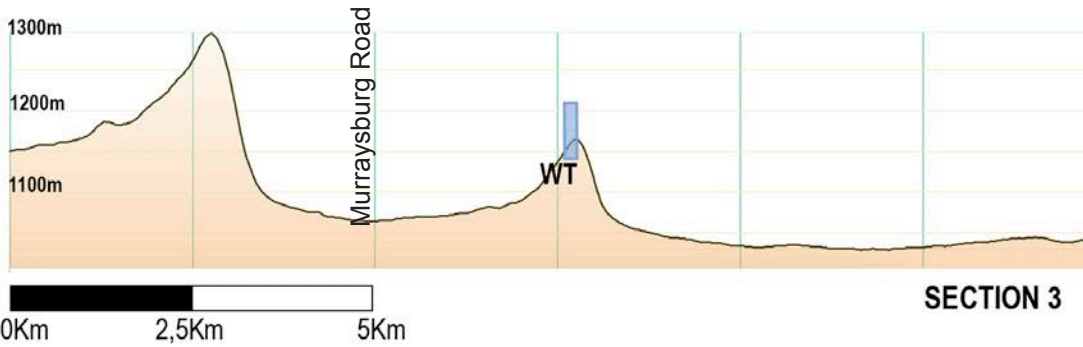
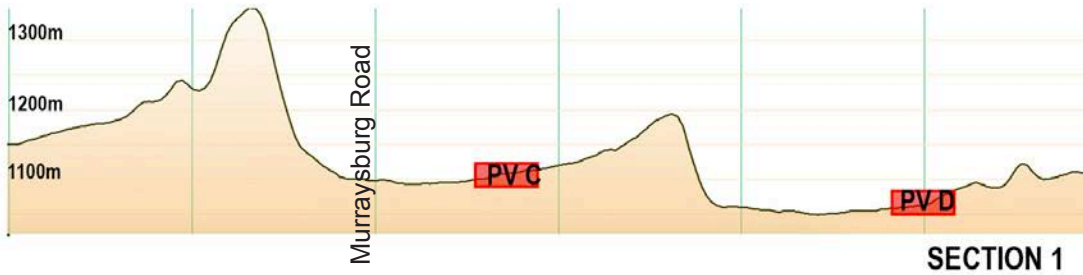
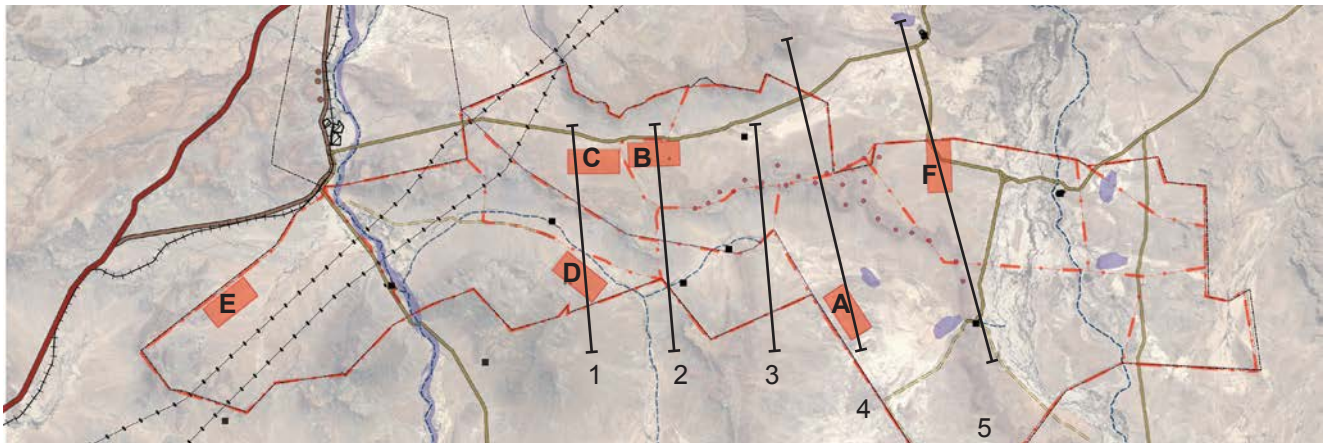


Figure 11. Site sections (Source: Google Earth)

C.2 Cultural Landscape Elements

C.2.1 Nelspoort and Klipkraal Cultural Landscape: Rock Art and Rock Gongs (Grade IIIA)

There are currently 14 identified sites of archaeological interest with over 400 examples of rock engravings (petroglyphs) in the immediate Nelspoort area of the Klipkraal farm. All engravings are made on the flat surfaces of the dolerite rocks, with the dark outer layer scraped away leaving the image expressed in the lighter sub layer of the rock.

While the precise authorship of rock art is debated (Smith, Ouzman 2004), engravings fall broadly into three types described as follows:

- |xam San hunter-gatherer rock engravings: representations include elephant, giraffe, hartebeest, jackal, zebra and rhinoceros. Images also of human figures, bird-human figures and spirit world representations.
- Khoe herder geometric engravings: patterns such as lines radiating sun-like from a centre point, zig-zag patterns and concentric circles.
- Settler engravings: these include text, symbols and direction markers such as arrows and images including a windpump and animals.

In many sites these different types of rock art co-exist, along with other evidence of habitation over an extended period of time, such as stone tools, grinding patches on stones, arranged stones, and rock gongs (Ouzman 2003).



Figure 12. |xam San rock engravings (Source: Rusch 2017: 17)



Figure 13. Animal representation (Source: Bristow 2019)



Figure 14. Khoe geometric engraving (Source: SA Tourism, Wikimedia Commons)



Figure 15. Settler/later engraving of a windmill and a motor car (Source: Rusch 2016: 12)

Nelspoort is the site of several rock gong complexes. The rock gong, or lithophone percussion instrument, is formed by dolerite boulders, some cracked as a result of lightning strike or extreme temperature fluctuation, balanced on each other so that they resonate with a deep ringing sound when struck in a specific way. They are believed to have been intrinsic to spiritual practices of the |xam San people. Two rock gong groupings are located on small rises across the shallow Nelspoort valley, suggesting that the gong's sound may have been used for communication purposes (Rusch 2016).

- The rock gongs demonstrate that the production of sound is an element of the pre-historic cultural landscape.



Figure 16. Rock gong complex (Source: Rusch 2017: 17)

Significance and Character:

In terms of Section-3 of the NHRA, the cluster of Nelspoort Klipkraal sites have high cultural heritage significance for the following reasons:

- Rarity.
- High aesthetic value.
- The rock gongs express a creative and technical attitude significant to their period.
- They are highly significant for their capacity to communicate an understanding of the cultural heritage and beliefs of particular groups and periods and of the nation's history.
- They have a strong association with particular cultural groups and spiritual expressions.

Furthermore:

- The sites have acquired a contemporary social value through an education and training programme which gives local schoolchildren the knowledge to search for new sites, and empowers them to provide a guide and information service to visitors to the sites.
- The excellent quality, variety and accessibility of the sites adds to their heritage value.

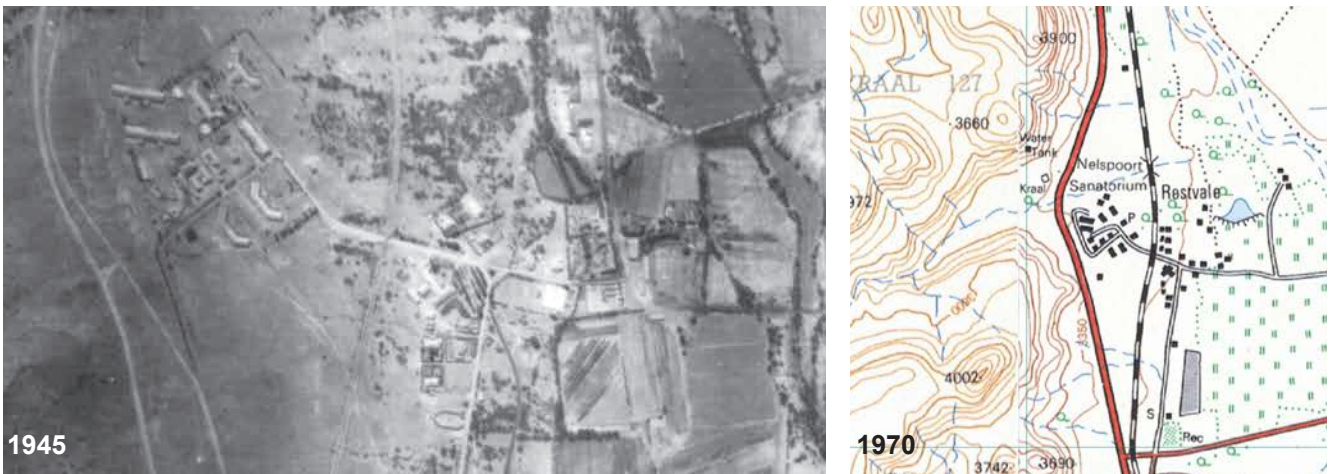
Given their rarity and importance, information concerning the exact location of the sites is controlled for their protection. They are located outside of the proposed development area.

C.3 Built Landscape Elements

C.3.1 Nelspoort (Grade IIIB)

Significance and Character:

- Located at the junction of Klipkraal (pre-1830) and Nel's Poort (pre-1830) on the Salt River.
- Early Klipkraal farm occupied by Abraham le Clercq on whose farm Beaufort West was established.
- Central hub point for early routes extending north and west (late 18th/early 19thC).
- Established from 1841 by JC Molteno as the centre of his Marino wool farming operations.
- Established with a station on the line from Beaufort to De Aar by 1884.
- South African War (1899-1902) military centre with blockhouses on the bridge over Krom River north.
- Site for a significant tuberculosis Sanatorium opened 1924 by PWD architect Cleland. Design influenced by Baker and others developing a "South African style". Use of Italianate colonnades for shade and ventilation, red brick, and plaster finish, interior detailing in joinery and fittings. Open U-shaped buildings stepped down the gentle slope west-east towards the Salt River, settled into the landscape along cut-fill terraces. Several buildings are now abandoned and in disrepair.
- Institution continues with additional buildings and psychiatric facilities.
- Blue gum tree avenue planted 1925.





Blue gum avenue west of the railway line



Disused sanatorium building



Molteno family's 20thC house extended c1925, and barn



Farm house in 2022.

C.3.2 Nelspoort Railway Station (Grade III C)

Significance and Character:

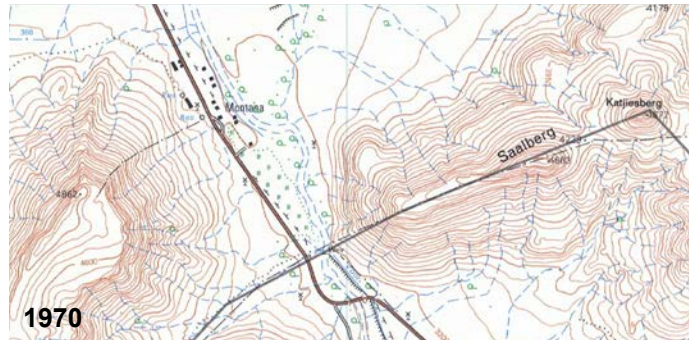
- Railway station established 1884
- Service settlement with railway infrastructure and dwellings; architectural appearance and detailing suggests structures range from late 19thC to mid-20thC. Early stone railway buildings no longer evident.
- Underpass to alternate Nelspoort-Restvale road and cluster of mid-20thC dwellings in standard railway typology of brick plinth, pitched corrugated metal sheet roof.
- Characterised by mature palm trees and gum trees and dolerite stones.



C.3.3 Montana (Grade IIIB) — Located in proposed development area

Significance and Character:

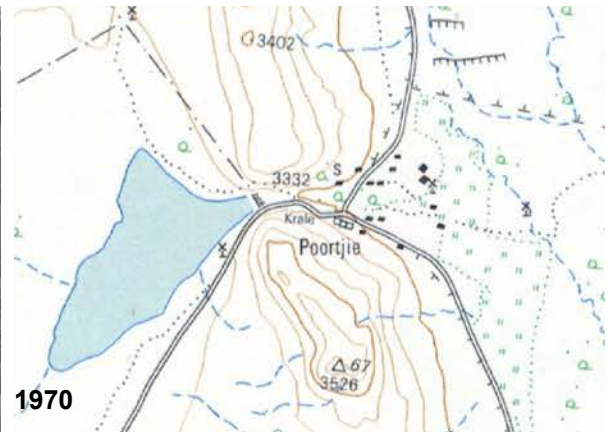
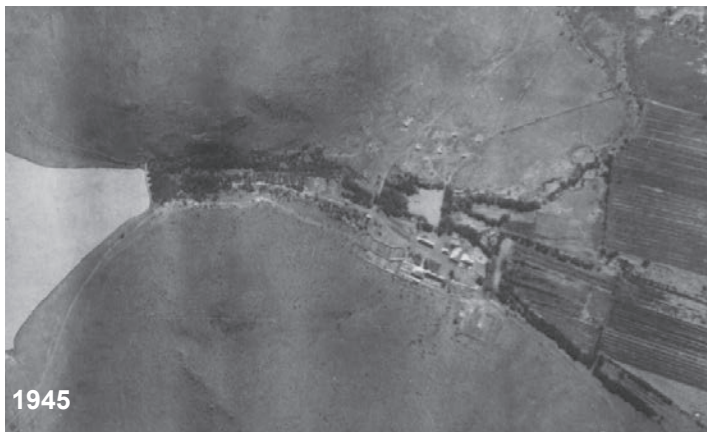
- Part of the original Nelspoort farm granted to JC Molteno c1841.
- Distinctive valley setting; steep-sided slopes rise from the Salt River, on a linkage route to Beaufort West.
- Long views north east.
- Cape revival-style farmhouse situated between road and river, oriented with back to the peak. Raised stoep oriented north east with extensive long views.
- Dispersed werf with outbuildings, possibly older; and new farm infrastructure above the road.
- Historically, primary agricultural product is Merino wool sheep.



C.3.4 Poortjie Wes (Grade IIIA) — Located in proposed development area

Significance and Character:

- Surveyed in 1829: settlement at perennial spring; early post route from Beaufort West to Graaf Reinet.
- Distinctive topography sites settlement at the pinch point of a deep pass.
- Early stone structures at lateral entrance/exit to settlement.
- Historic T-intersection altered c1927 with closure of public road east to Stellenboschvlei.
- Linear layout along dammed watercourse: cluster of dwellings and farm structures circa late 19thC - early 20thC. Large dwelling on raised stoep with Cape-revival and Art Deco detail; may include earlier fabric.
- Dispersed cluster of farm worker accommodation early-mid 20thC north of watercourse.
- Range of mature trees.





Main house early 20thC (possibly older sub-fabric) with Art Deco-style detailing



House late 19th/early 20thC with accretions



Old barns



Workers' accommodation





Early stone structure with later lean-to at the T-intersection, as shown on 1829 survey.



Reverse side of early stone structure



Early stone structure (farm building) at east exit.



Watercourse through port.



West exit from through port

C.3.5 Louws Baken (Grade IIIB) - Located in proposed development area

Significance and Character:

- Surveyed in 1829, identified as good pasture land and traversed by road connecting Poortjie and Sneeuwberg. Granted 1837 to NJ Smit.
- Farm settlement located on shallow extended banks of Buffelsrivier.
- Extensive stone kraal walls with evidence of dung-grass mix providing inner structure. Kraal at outskirts of settlement shows elegant stonework.
- Modest 20thC main dwelling may have older core with bakoond; older buttressed stone built outbuildings. Other late 19th/20thC barns and outbuildings.





Barn building with fabric layering: stone, brick



Several large stone kraal complexes

C.3.6 Kruidfontein (Grade IIIB)

- Located on the Murraysburg Road, at the Kruidfontein spring.
- Dwellings - late 19thC to early 20thC, one with Cape revival-style gables - oriented with back to the rise and long views east.
- Tightly clustered werf with outbuildings.
- Later 20thC clusters of small dwellings for farm worker and tourist accommodation.
- Mature trees.



D: CHARACTER AREA ANALYSIS

The landscape of the development area has been assessed for cultural heritage significance, with six distinct character areas identified:

1. Nelspoort Murraysberg valley
2. Buffelsrivier plains
3. Juriesfontein plains
4. Nelspoort valley
5. Montana valley
6. Western infrastructure corridor

Each character area lends itself to a different carrying capacity in terms of landscape altering infrastructure development. The table below assesses each character area in terms of nature and degree of heritage significance, character forming elements and capacity to accommodate change and absorb renewable energy infrastructure.

Table 1. Character Areas

Each character area lends itself to a different carrying capacity in terms of landscape altering infrastructure development. This is analysed as follows:

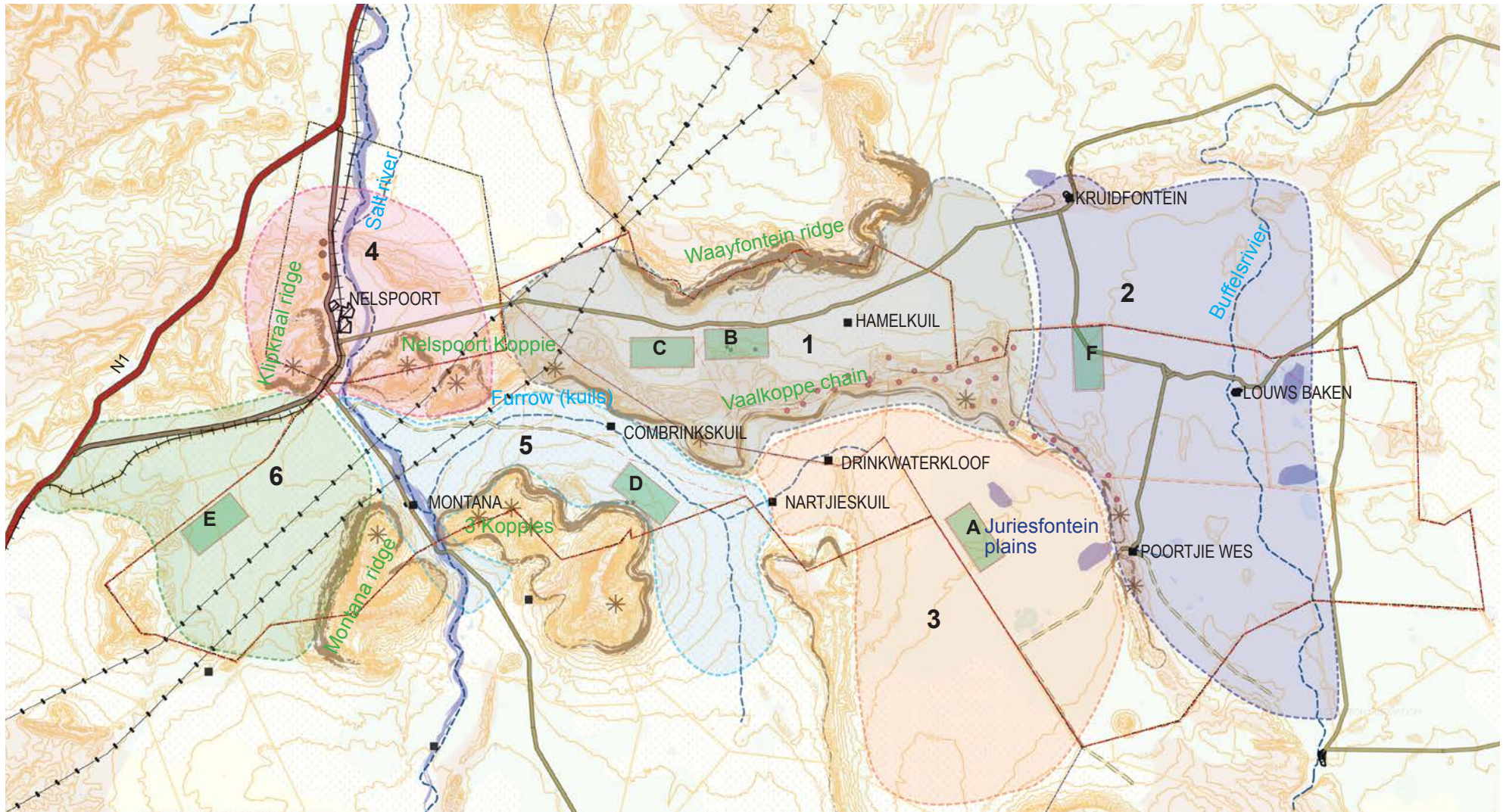
| Name | Heritage Significance | Character Statement | Heritage Indicators Capacity to Accommodate Change & Absorb Renewable Energy Infrastructure |
|--|---|---|---|
| 1. Nelspoort Murraysberg valley | <p>Of some historical value in terms of the historical linkage route linking Nelspoort and Murraysberg and associated pattern of settlement.</p> <p>No conservation-worthy built environment elements.</p> <p>Of aesthetic value in terms of scenic landscape qualities.</p> <p>A relatively intact valley landscape representative of the broader Karoo region.</p> <p>Possessing a sense of enclosure with a mountain backdrop immediately to the north and a hill running the length of the valley with views to distant mountains to the south.</p> | <p>Representative of the broader Karoo landscape with semi-arid conditions, low vegetation cover, dispersed settlement pattern and limited built footprint.</p> <p>Relatively intact landscape with minimal visual intrusion besides power line infrastructure traversing the area to the west.</p> <p>A linear enclosed valley condition with a parallel system comprising a valley floor contained by topography and traversed by a linkage route between Nelspoort and Murraysberg</p> | <p>No major cultural landscape receptors from a built environment perspective.</p> <p>Low to medium sensitivity in terms of the placement of renewable energy infrastructure.</p> <p>The principle of locating PV infrastructure in this environment is acceptable especially if occurring on the flatlands and lower slopes to the south.</p> <p>The principle of locating wind turbines in this environment is acceptable especially if avoiding prominent topographical conditions to the north.</p> |

| Name | Heritage Significance | Character Statement | Heritage Indicators Capacity to Accommodate Change & Absorb Renewable Energy Infrastructure |
|-------------------------------|---|---|--|
| 2. Buffelsrivier plains | <p>Of historical value in terms of the historical route network and the associated pattern of farmsteads.</p> <p>The farmsteads of Kruidfontein (IIIB), Louwsbaken (IIIB) and Poortjie Wes (IIIA) worthy of formal heritage protection in terms of their historical and architectural value and relationship with their setting.</p> <p>Poortjie Wes, significant as an identified place on an early linkage route between Beaufort West and Graaf Reinet.</p> <p>Of aesthetic value in terms of vast open landscape qualities, and relatively intact nature of the landscape representative of the broader Karoo region.</p> <p>Contrasting farmstead settings ranging from the vast open arid landscape setting of Louws Baken to the strategic location of Poortjie Wes at the base of a narrow poort between two hills and a threshold between two landscape conditions, and comprising a green treed riverine setting.</p> | <p>Representative of the broader Karoo landscape with semi-arid conditions, low vegetation cover, dispersed settlement pattern and limited built footprint.</p> <p>The inherent logic in the pattern of farmsteads located in relation to water, topography and movement routes.</p> <p>Relatively intact landscape with minimal visual intrusion.</p> <p>Vast open plains framed by the northern escarpment.</p> <p>The linear hill defining the area to the south with a distinctive poort traversed by a watercourse and linkage route with the Poortjie Wes farmstead at the base of the poort.</p> | <p>Primary heritage receptors from a built environment perspective including the farmsteads of Kruidfontein, Louws Baken and Poortjie Wes and their landscape settings.</p> <p>Of medium to high sensitivity in terms of the placement of renewable energy infrastructure.</p> <p>The principle of locating PV infrastructure in this environment is acceptable especially if occurring on the on the flatlands and lower slopes, and avoiding the immediate landscape settings of the three conservation worthy farmsteads.</p> <p>The principle of locating wind turbines in this environment is acceptable if avoiding prominent escarpments and ridgelines, and avoiding the immediate landscape settings of the three conservation-worthy farmsteads.</p> |

| Name | Heritage Significance | Character Statement | Heritage Indicators Capacity to Accommodate Change & Absorb Renewable Energy Infrastructure |
|----------------------------|---|--|---|
| 3. Juriesfontein plains | <p>Of historical value in terms of the historical linkage route through Poortjie Wes and associated pattern of farmsteads.</p> <p>Of aesthetic value in terms of the vast open quality landscape framed by hills and distant mountains and possessing a sense of remoteness and stillness.</p> <p>The scenic qualities of Poortjie dam located at the southern end of the poort providing a watering place in contrast to semi-arid surroundings and attracting an abundance of birdlife.</p> | <p>Representative of the broader Karoo landscape with semi-arid conditions, low vegetation cover, dispersed settlement pattern and limited built footprint.</p> <p>Relatively intact landscape with minimal visual intrusion.</p> <p>Vast open plains framed by hills and distant mountains.</p> <p>The linear hill defining the area to the north with a distinctive poort traversed by a watercourse and linkage route with the Poortjie dam at the entrance to the poort.</p> | <p>Primary heritage receptor from a landscape perspective is the distinctive poort and its associated dam, linkage route and topographical condition.</p> <p>Of medium to high sensitivity in terms of the placement of renewable energy infrastructure.</p> <p>The principle of locating PV infrastructure in this environment is acceptable especially if occurring on the flatlands and lower slopes and avoiding the immediate landscape setting of the poort.</p> <p>The principle of locating wind turbines in this environment is acceptable if avoiding prominent escarpments and ridgelines and avoiding the immediate landscape setting of the poort.</p> |

| Name | Heritage Significance | Character Statement | Heritage Indicators Capacity to Accommodate Change & Absorb Renewable Energy Infrastructure |
|------------------------|--|--|---|
| 4. Nelspoort valley | <p>Of high local historical, aesthetic, social and scientific value (Grade IIIA).</p> <p>Of historical value in terms of being a confluence of early routes during the late 18th and early 19th century.</p> <p>The historical layering of the settlement; the junction of two pre-1830 farms, the centre of Marino wool farming operations established by JC Molteno in 1841, railway station dating to 1884 and the tuberculosis sanatorium dating to 1926, and current health care facility.</p> <p>The architectural value of the sanatorium buildings being the work of PWD architect Cleland and possessing distinctive design features.</p> <p>The distinctive valley setting possessing a sense of enclosure with access through a narrow poort and the linear quality of the setting based on combination of topography, movement routes and riverine corridor.</p> <p>The distinctive dolerite outcrops in the area with a number of rock engravings and rock gong complexes spanning a long period and layering of use (San, Khoe and settler engravings) and having archaeological scientific heritage value as well as local educational value.</p> | <p>Discrete valley setting and sense of topographical containment with a narrow poort through which an early route north, railway line and Salt River passes and along which settlement has occurred.</p> <p>The junction with the Murraysburg linkage route.</p> <p>Power line infrastructure traversing the landscape to the east of the Valley.</p> | <p>The valley is a highly sensitive heritage receptor.</p> <p>Limited capacity to accommodate RE infrastructure especially wind turbines.</p> <p>A 'no-go' area from a WEF perspective with no placement of wind turbines within the valley and enclosing mountains.</p> <p>The valley is located outside of the proposed development area.</p> |

| Name | Heritage Significance | Character Statement | Heritage Indicators Capacity to Accommodate Change & Absorb Renewable Energy Infrastructure |
|------------------------------------|--|--|---|
| 5. Montana valley | <p>Of some historical value in terms of the route and associated pattern of farmsteads.</p> <p>Of aesthetic value in terms of the scenic qualities of the Beaufort West linkage route as it passes through a poort between the Montana escarpment and koppies.</p> <p>The Montana farmstead of suggested Grade IIIB heritage value in terms of its historical and architectural value and relationship with its setting.</p> <p>The strategic location of Montana at the confluence of the Salt River and its tributary and at the base of a poort in the Montana mountains through which the Beaufort West linkage route and Salt River passes.</p> <p>A relatively intact valley landscape representative of the broader karoo region.</p> <p>Possessing a sense of enclosure with a mountain backdrop immediately to the south and a hill running the length of the valley to the north</p> | <p>Representative of the broader Karoo landscape with semi-arid conditions, low vegetation cover, dispersed settlement pattern and limited built footprint.</p> <p>Relatively intact landscape besides the power lines traversing the landscape to the west.</p> <p>The linear valley defined by the Vaalkoppe to the north and the Montana mountains to the south and traversed by a tributary of the Salt River.</p> | <p>Primary heritage receptors from a landscape perspective is the Montana farmstead and its immediate landscape setting.</p> <p>Of medium to high sensitivity in terms of the placement of renewable energy infrastructure.</p> <p>The principle of locating PV infrastructure in this environment is acceptable especially if occurring on the flatlands and lower slopes and avoiding the immediate landscape setting.</p> <p>The principle of locating wind turbines in this environment is acceptable if avoiding prominent escarpments and ridgelines and avoiding the immediate landscape setting of Montana.</p> |
| 6. Western infrastructure corridor | <p>A landscape of minimal heritage value with the strong presence of an infrastructural corridor based on a combination of power lines and railway line.</p> <p>No conservation-worthy built elements.</p> | <p>Representative of the broader Karoo landscape with semi-arid conditions, low vegetation cover, dispersed settlement pattern and limited built footprint.</p> <p>Strong presence of power line infrastructure traversing the landscape.</p> <p>An open flat landscape framed by Montana mountain slopes to the east.</p> | <p>This area is suitable for the location of RE infrastructure, particularly in terms of the location of PV infrastructure.</p> |



- | | |
|----|---|
| 1. | Nelspoort Murraysberg valley: Parallel system of the Murraysburg road valley |
| 2. | Buffelsrivier plains: Riverline of Buffelsrivier with Kruidfontein, Louws Baken and Poortjie Wes |
| 3. | Juriesfontein plains: Open flats framed by the northern escarpment |
| 4. | Nelspoort valley: Nelspoort and Klipkraal “knuckle” and its pre-historic cultural landscape |
| 5. | Montana valley: Enclosed route of the Salt river |
| 6. | Western infrastructure corridor: South arrival and infrastructure |

Figure 17. Character areas

E: HERITAGE INDICATORS

E.1 Principles

In principle, this landscape can accommodate several well-positioned PV facilities and a limited number of WEF turbines and associated infrastructure, however certain standard principles should be observed. These principles are derived from international best practice as contained in various International Charters on Conservation, and a number of local adaptations, and can be applied to this cultural landscape assessment.

- Landscape significance - acknowledge the overall natural and cultural landscape, and the layered pattern of settlements in response to the natural landscape over time.
- Landscape integrity – retain the essential character and intactness of natural, rural and urban landscapes in the face of fragmentation through unstructured development.
- Landscape connectivity – retain the continuity and interconnectedness of natural and cultural landscapes, including the relationships between settlements, agricultural patterns, ecological green corridors and the historical scenic route network.
- Landscape setting – maintain the role of the natural landscape as a “container” within which settlements are embedded, the natural landscape providing the dominant setting or backdrop.
- Logic of landscape – recognise the intrinsic characteristics and suitability of the landscape and its influence on land use, settlement and movement patterns, in response to geology, topography, water, soil types and microclimate.

E.2 Heritage indicators

While the site has been found to have the capacity to accommodate development of this nature, the broader landscape is regarded as having a high degree of sensitivity. The landscape comprises heritage receptors of varying degrees of sensitivity to this type of development. These receptors are identified below as well as their varying degree of sensitivity to the location of RE infrastructure. This information serves as a guide to an assessment of the carrying capacity of the cultural landscape to accommodate the proposed development and the assessment of heritage impacts on the cultural landscape.

Table 2. Heritage receptors

The following heritage receptors are applicable to both WEF and PV placement, with the size of the buffers directly applicable to WEF in certain instances.

| RESOURCE | NO-GO AREAS | HIGH SENSITIVITY | MEDIUM SENSITIVITY |
|--|---|------------------|--------------------|
| Cultural landscapes - formally protected or worthy of formal protection. <ul style="list-style-type: none">• Klipkraal Rock Art and Rock Gongs | 0 – 3 km | 3 – 5 km radius | 5 – 10km |
| Settlements (towns, villages and hamlets) - formally protected or worthy of formal heritage protection. <ul style="list-style-type: none">• Nelspoort | 0 - 2km radius | 2 - 4km radius | 4 – 6km |
| Historic scenic routes <ul style="list-style-type: none">• Nelspoort road extension from N1• Nelspoort Murraysburg linkage route | 0 – 1km buffer either side (WT) 500m buffer (PV) | 1 – 2.5km | 2,5 - 5km |

| RESOURCE | NO-GO AREAS | HIGH SENSITIVITY | MEDIUM SENSITIVITY |
|--|--|------------------|--------------------|
| Heritage sites worthy of Grade I, II and IIIA heritage status <ul style="list-style-type: none"> • Poortjie Wes settlement | 0 – 1km radius | 1 – 2km | 2- 5 km |
| Heritage sites worthy of grade IIIB and IIIC heritage status. <ul style="list-style-type: none"> • Nelspoort Railway Station settlement • Louws Baken farmstead • Kruidfontein farmstead • Montana farmstead | 0 - 500m radius | 500m – 1km | 1 – 2km |
| Water features (rivers, wetlands and dams) <ul style="list-style-type: none"> • Salt River • Buffelsrivier • Poortjie dam | 0 - 250m buffer either side/ surrounding water feature | 250 - 500m | |
| Topographical features (ridgelines, peaks, scarps) <ul style="list-style-type: none"> • Nelspoort Koppie • Klipkraal ridge west of Nelspoort • Waayfontein ridge running north of and parallel to Nelspoort-Murraysburg valley • Montana ridge • Three koppies (Saalberg, Katjiesberg, Gifkop) | 0 - 250m radius buffer from peak/ apex | 250 - 500m | |
| Steep slopes <ul style="list-style-type: none"> • Slopes of Nelspoort Koppie • South slopes of Waayfontein ridge • West-facing slopes of Montana ridge | >1:4 slopes | >1:10 slopes | <1:10 slopes |

Heritage receptors adapted from Oberholzer 2020

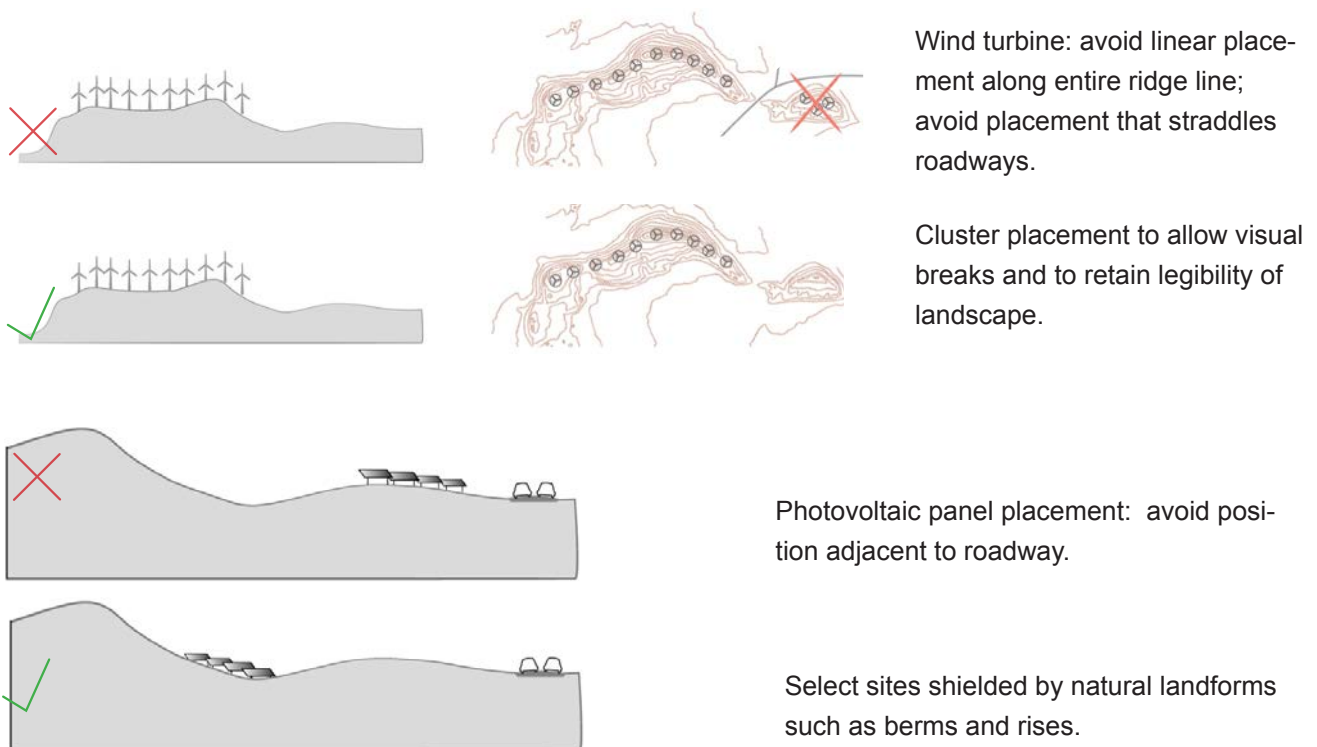
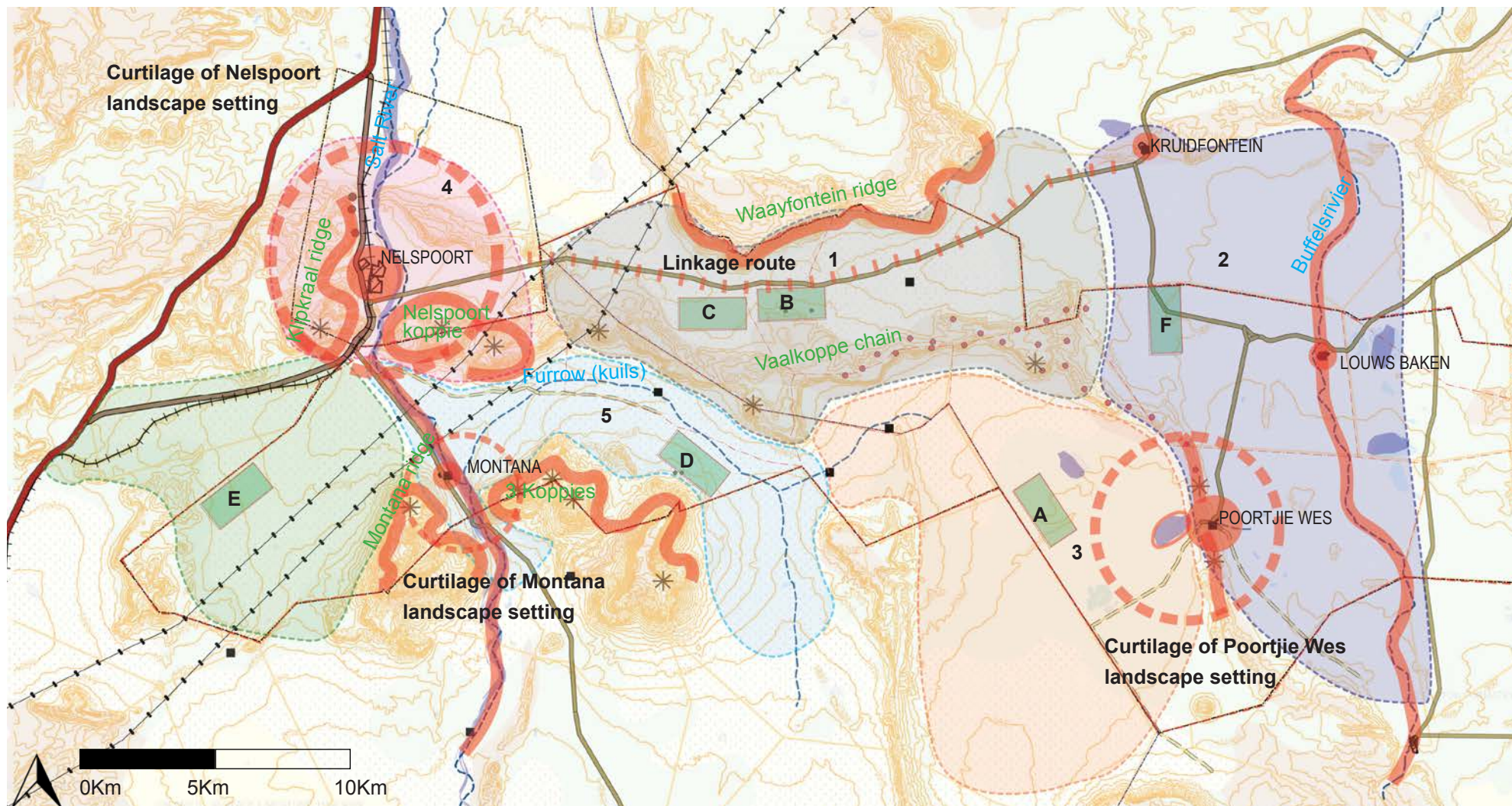


Figure 18. Infrastructure placement principles



NELSPOORT VALLEY AREA (character area 4)

- Klipkraal cultural landscape: 3Km radius buffer
- Nelspoort town: 2Km radius buffer
- Nelspoort historic scenic route: 1Km buffer either side
- Nelspoort koppie: 250m buffer
- Klipkraal ridge: 250m buffer
- Salt River: 250m buffer either side

MONTANA VALLEY AREA (character area 5)

- Montana farmstead: 500m radius buffer
- Montana koppie: 250m buffer
- 3 Koppies (Saalberg, Katjiesberg, Gifkop): 250m buffer
- Salt River: 250m buffer either side

NELSPOORT MURRAYSBURG VALLEY (area 1)

- Waayfontein ridge: 250m buffer

POORTJIE WES & PLAINS (character areas 2 & 3)

- Poortjie Wes settlement: 1Km radius buffer
- Kruidfontein, Louws Baken: 500m radius buffer
- Buffelsrivier: 250m buffer either side
- Poortjie dam: 250m radius buffer
- Poortjie koppies: 250m buffer

Figure 19. No Go areas for development

F. ASSESSMENT OF HERITAGE IMPACTS ON CULTURAL LANDSCAPE

The principle of renewable energy infrastructure within the study area is supported from a cultural landscape perspective provided this is located in areas more suitable to accommodating a high degree of change and absorbing such infrastructure.

Generally, the proposed layout of the PV and WE facilities responds positively to the heritage indicators in terms of the following:

- The avoidance of the Nelspoort Valley of suggested Grade IIIA heritage value.
- The avoidance of farmsteads and their settings worthy of formal protection.
- The location of PV infrastructure on the flatlands and lower slopes of topographical features.
- The avoidance of prominent escarpments and ridgelines of high visual sensitivity with the WEF turbines located on a less prominent linear hill with a localised sphere of visual influence.
- The avoidance of areas adjacent to major routes with the WEF turbines located some distance from the N1 corridor and historic linkage routes.

F.1 Impact of Solar PV

| PV Facility | Character area | Alignment with heritage indicators | Recommendations |
|-------------|---------------------------------|--|---|
| PV A | Juriesfontein plains | The PV facility is aligned with the heritage indicators being located the flat and lower slopes and avoiding sensitive heritage receptors. | Supported |
| PV B | Nelspoort Murraysberg valley | The PV facility is aligned with the heritage indicators being located the flat and lower slopes. The proximity of the facility to the route is of concern. | The facility should be set back from the route by 500m and separated from PV C by at least 1km to avoid the sense of a continuous swathe of infrastructure. |
| PV C | Nelspoort Murraysberg valley | The PV facility is aligned with the heritage indicators being located the flat and lower slopes and set back from the route by 1km. | The facility should be separated from PV B by at least 1km to avoid the sense of a continuous swathe of infrastructure. |
| PV D | Montana valley | The PV facility is aligned with the heritage indicators being located the flat and lower slopes and avoiding sensitive heritage receptors. | Supported |
| PV E | Western infrastructure corridor | The PV facility is aligned with the heritage indicators being located on the flats and lower slopes and avoiding sensitive heritage receptor. | Supported |
| PV F | Buffelsrivier plains | The PV facility is aligned with the heritage indicators being located the flat and lower slopes and avoiding sensitive heritage receptors. | The PV facility should be set back from the route by 500m and not occur both sides of the road to minimise a sense of visual clutter in the landscape. |

F.2 Impact of Wind Turbines

The location of the wind turbines on the Vaalkoppe hill is supported given that this is a less prominent topographical feature in the landscape particularly in relation to the Waayfontein ridge to the north and the Montana ridge and koppies to the south-west.

The proposed layout of the wind turbines is supported in terms of avoiding the higher peaks and being loosely arranged and staggered rather than following a rigid linear layout.

The proposed layout predominantly avoids the no-go buffer zones of sensitive heritage receptors. However, the position of the two easternmost wind turbines, closest to Poortjie Wes, are of concern in terms of potential visual impacts on the setting of the Poortjie Wes farmstead. It is recommended that these turbines be removed or relocated.

| WT Facility | Character area | Alignment with heritage indicators | Recommendations |
|-----------------------|------------------------------|--|--|
| Vaalkoppe chain north | Nelspoort Murraysberg valley | The wind turbines are located approximately 2,5Km from the Nelspoort Murraysburg linkage route, and on a less prominent topographical feature to the south. The escarpment to the north is avoided | Supported |
| Vaalkoppe chain east | Buffelsrivier plains | The proposed layout predominantly avoids the no-go buffer zones. However, the position of the two wind turbines closest to Poortjie Wes, are of concern. | It is recommended that these turbines be removed or relocated. |

F.3 Impact of Grid Connection

The location of the grid connection has not yet been determined.

G. CONCLUSIONS AND RECOMMENDATIONS

The study area is representative of the broader Karoo region.

It has the capacity to accommodate RE infrastructure from a cultural landscape perspective. The area comprises a range of sensitive heritage receptors, which have generally been avoided in terms of the location and layout of the proposed PV and WE facilities.

The site possesses a number of landscape elements contributing to a composite cultural landscape including topographical features, open plains, water features, historic scenic routes and farmsteads.

The landscape affected by the proposed development has a number of character areas within varying significances and sensitivities to accommodate RE infrastructure culminating in the identification of no-go areas, and areas more resilient to PV and WE facilities (see Figures 17, 17 and 19).

Three primary heritage receptors are:

- The Nelspoort cultural landscape of suggested Grade IIIA heritage value.
- The Poortjie Wes farmstead and its immediate landscape setting of suggested Grade IIIA heritage value.
- The Montana farmstead and its immediate setting of suggested Grade IIIB heritage value.

In overlaying the proposed development with the heritage receptors and associated buffer areas, the proposals are largely in accordance with the heritage indicators. Three areas of concern were identified, resulting in the following recommendations:

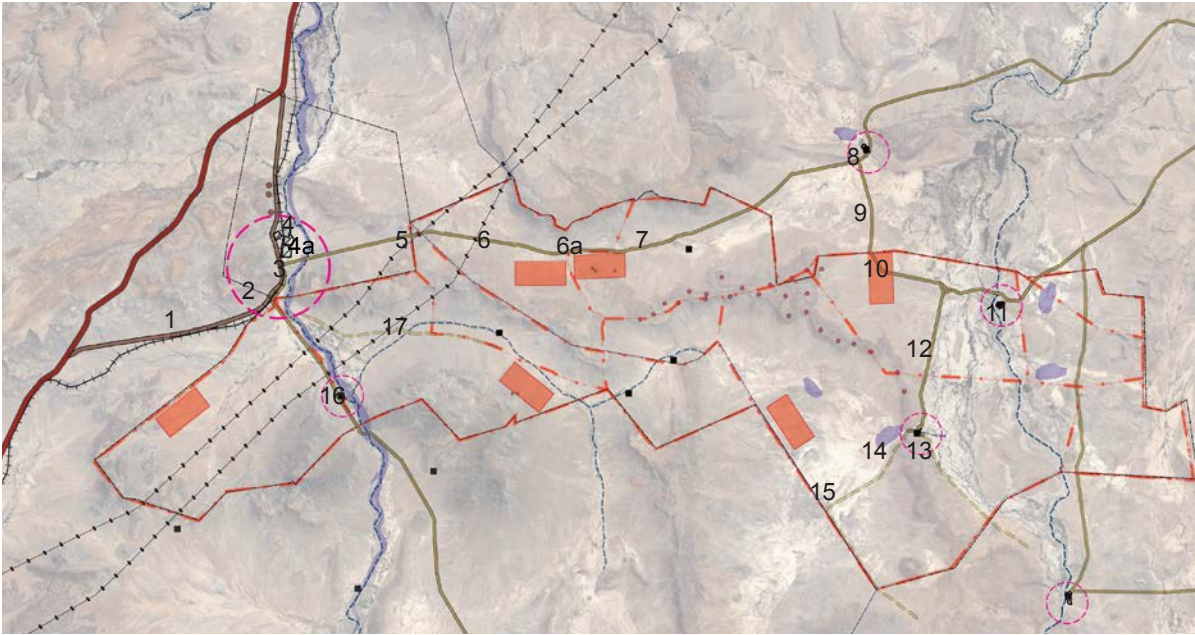
1. PV locations B and C on the Nelspoort Murraysburg linkage route: The facilities should be set back from the route by 500m and separated from each other by at least 1km to avoid the sense of a continuous swathe of infrastructure.
2. PV location F on the Poortjie Wes route: The PV facility should be set back from the route by 500m and not occur on both sides of the road to minimise a sense of visual clutter in the landscape.
3. The two south-easternmost wind turbines, in proximity to Poortjie Wes, should be removed or relocated.

REFERENCES

- Anderson, Elisabeth Dell. "A history of the Xhosa of the Northern Cape, 1795-1879." Thesis., University of Cape Town ,Faculty of Humanities ,Department of Historical Studies, 1985. <http://hdl.handle.net/11427/26614>
- Bristow, David. "Amazing Places. 'Rock Pianos of the Karoo'." In *Getaway*, September 1, 2019.
- Immelman, R. F. M. "Sir John C. Molteno, 1814-1886. A Biographical Sketch." *MoltenoFamil.net* Accessed March 2022
- Molteno Family. "Short Illustrated account of Donald Molteno's life." *MoltenoFamily.net* Accessed March 2022
- Guelke, Leonard and Robert Shell. "Landscape of Conquest: Frontier Water Alienation and Khoikhoi Strategies of Survival,1652-1780." *Journal of Southern African Studies* , Dec., 1992, Vol. 18, No. 4 (Dec., 1992): 803-824.
- Guelke, Leonard. "The Making of Two Frontier Communities: Cape Colony in the Eighteenth Century." *Historical Reflections / Réflexions Historiques*, Fall 1985, Vol. 12, No. 3 (Fall 1985): 419-448.
- Marais, Dr JJ. *Beaufort West: 'n Oorsig van die Gesskiedenis van die Dorp en Distrik*. 1977. Accessed October 2021 [https://repository.nwu.ac.za/bitstream/handle/10394/5062/No_2\(Jul-1977\)_Marais_JJ.pdf](https://repository.nwu.ac.za/bitstream/handle/10394/5062/No_2(Jul-1977)_Marais_JJ.pdf)
- Ouzman, Sven. "Rock Art sites at Nelspoort." Part of a site report for the Rock Art Department of the National Museums. <https://www.beaufortwest.net/explore/central-karoo/nelspoort/rock-engravings.html> Accessed March 2022.
- Ouzman, Sven. "Public Rock Art Sites of Southern Africa: Nelspoort. In *CULNA* 58 (2003): 11 - 12.
- Rusch, Neil. "Sounds and sound thinking in !xam-ka !au: 'These are those to which I am listening with all my ears'." In *Cogent Arts & Humanities*, 3:1, 1233615, DOI: 10.1080/23311983.2016.1233615
- Rusch, Neil. *Karoo lithophones and rock gongs*. YouTube, November 24, 2017. <https://youtu.be/q5iBcn8vRoc>. Accessed March 2022
- Smith, Benjamin & Ouzman, Sven. (2004). *Taking Stock: Identifying Khoekhoen Herder Rock Art in Southern Africa*. *Current Anthropology*. 45. 499-526. 10.1086/422081.
- Tomlinson, Richard. "Blockhousing the Cape Town-De Air Railway in 1901. *Military History Journal*, Vol 18 No 1 - Dec 2017. Accessed March 2022 <http://samilitaryhistory.org/jnl2/vol181rt.html>
- Winter, Sarah, Baumann, Nicolas, and Clift, Harriet (2009). *Heritage Scoping Study (2009): Cultural Landscape and Built Environment Specialist Study of proposed Eskom Gamma-Omega Transmission Line (520km)*.
- Winter, Sarah and Oberholzer, Bernard (2013). *Heritage and Scenic Study: Provincial Spatial Development Framework (2013)*.

ANNEXURES

Annexure A: Additional Viewpoint Images



Key to viewpoints



Viewpoint 1: Mesa-shaped mountain (1494m) on Montana farm; Eskom powerlines traverse valley floor



Viewpoint 1: Built infrastructure of railway line and powerlines with dolerite rocks in foreground. Proposed PV site A.



Viewpoint 1: View southwest towards N1.



Viewpoint 2: Hills straddling the entrance to Nelspoort



Viewpoint 3: Nelspoort Station, mature trees with east koppie of poort in background.



Viewpoint 4: Nelspoort institution.



Viewpoint 4: Koppies east of Nelspoort.



Viewpoint 4a: Treelined avenue connects Nelspoort and Restvale



Viewpoint 5: Long view to western boundary of farm Belvedere; power infrastructure visible in the distance.



Viewpoint 5: View north to powerlines and ridgeline



Viewpoint 5: View south, two generations of power pylon extend over ridgeline.



Viewpoint 6: Views south to ridgeline.



Viewpoint 6: Two generations of power pylon.



Viewpoint 6: North view, farmstead at base of rocky north ridge



Viewpoint 6a: Views east along parallel system.



Viewpoint 6a: Views west along parallel system.



Viewpoint 7: Visually dominant rise behind low ridgeline



Viewpoint 8: Road south departing Kruidfontein farmstead



Viewpoint 9: Long views north to ridgeline escarpment along Murraysburg road.



Viewpoint 9: View south towards Louws Baken and distant Poortjie.



Viewpoint 10: View south towards distant Poortjie, possible WEF turbine ridgeline continues on right.



Viewpoint 10: View east towards Louws Baken and the denser vegetation of the Buffelsrivier valley.



Viewpoint 10: View north towards now distant escarpment ridge.



Viewpoint 11: Louws Baken stone kraal on rise above Buffels river.



Viewpoint 13: Poortjie intersection view south



Viewpoint 13: Poortjie view north with mature tree stands



Viewpoint 13: Exit Poortjie view west



Viewpoint 14: Dam and wall.



Viewpoint 14: Wetland looking northeast.



Viewpoint 14: Migratory birds; low ridge for proposed WT blends into pronounced north escarpment backdrop layered behind.



Viewpoint 14: Wetlands landscape view north.



Viewpoint 14: Wetlands landscape view northwest.



Viewpoint 15: Sand plains looking north to escarpment ridge.



Viewpoint 16: Entrance to Montana farm with views towards central plain and distant low ridge.



Viewpoint 16: Road south from Nelspoort toward Beaufort west; Eskom infrastructure.



Viewpoint 17: Salt River south of Nelspoort after rains, looking northwards.



Viewpoint 17: Exit of Salt River valley on farm road into Hartebeeshoek valley area