

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED GOUDA WIND ENERGY FACILITY, TULBAGH MAGISTERIAL DISTRICT, WESTERN CAPE

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999) as part of an EIA)

Prepared for

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EXECUTIVE SUMMARY

ACO Associates was appointed by Savannah Environmental to undertake a Heritage Impact Assessment for the proposed Gouda Wind Energy Facility on the Remainder of Farm 397 in the Tulbagh Magisterial District. The area to be developed is approximately 13 km² in area and lies alongside the R44 just north of the town of Gouda. The proposed wind energy facility would include up to 60 turbines of up to 80 m high supported on concrete bases, underground cables between the turbines, a substation on site, internal access roads and 132 kV power lines linking to the existing substations at Gouda and Windmeul (Wellington). All alien vegetation would be cleared from the area.

The site is flat, mostly agricultural land and is traversed by the Klein Berg River. It is bordered to the west by the R44 road and the town of Gouda lies 1.7 km to the south. The site is characterised by large rows of gum trees, wheat and barley fields and grazing land. The substrate varies from sandy with few cobbles to strongly dominated by cobbles. In some places there is shale substrate revealed with very few cobbles present. South of the proposed wind energy facility site the landscape becomes progressively more focused on vineyards until they dominate quite strongly around Wellington.

The study included a literature survey to establish what heritage may already be known about in the area as well as a foot survey of the affected site. The power line routes were only considered at the landscape level from the roads passing through the area. Finds were photographed and positions were taken on a hand-held GPS receiver set to the WGS84 datum. The presence of dense vegetation in some areas of the wind energy facility site restricted the survey and a few turbine positions that lay within highly predictable wheat fields were not examined.

No palaeontological material was found and none is expected. Contrary to expectations, no Later Stone Age sites were found. Archaeological material consisted solely of Early Stone Age artefacts spread in varying densities over almost the entire area surveyed. Four areas were identified as having somewhat higher densities of artefacts and are considered for mitigation. The majority of structures were found to be quite recent, although one is clearly 19th century and another seems to be early 20th century. The latter is the only building found to be worthy of grading and is assigned a provisional grade of 3C. A third structure in the workers' village is considered to date around the 1930s. A historical survey diagram indicates the presence of two farmsteads and associated outbuildings in 1910 but, as revealed by aerial photography, one was obliterated in the 1980s.

Minor features of the cultural landscape include evidence of disused fields and two dams. The dominant feature, however, is the many rows of gum trees that occur both around the farmstead and elsewhere on the property. Given their visual prominence, these trees characterise the landscape quite strongly. Also present are the remnants of leiwat furrows. These occur in various areas but are usually fragmented having been partly filled in and ploughed over through the years. At least since 1910 there was a train line running northwards from Gouda onto the farm. The 1945 topographic map shows a piggery on the farm and the line was no doubt used for railing the pigs to Cape Town. This railway appears to have been removed by the 1960s. The local cultural landscape is thus strongly agricultural and the sense of place is linked to this. The main roads in the region are all considered to be scenic routes and the wind energy facility and power lines would all impact these routes to varying degrees.

Visual impacts have been assessed in a separate Visual Impact Assessment. In terms of the other aspects of heritage considered here, the impacts to the cultural landscape and sense of place are found to be most significant. The proposal to remove all the gum trees from the property is particularly problematic, since these trees not only form a key element of the local cultural landscape but also offer the only possible opportunity to reduce the impacts that the proposed wind energy facility would have on the scenic qualities of the area.

It is thus considered that if the proposed wind energy facility was constructed, impacts to the local environment would be far smaller should the gum trees be left in place. Other aspects of

heritage (excluding the visual impacts) are less significant and should not affect the decision to proceed. However, it should be noted that any alteration or demolition of structures greater than 60 years of age may only happen under a permit issued by Heritage Western Cape.

Power line routes that follow existing power lines are preferred over those that are independent from already established electrical servitudes.

08 November 2010

Declaration of independence:

I, Jayson Orton, am an independent specialist consultant who is in no way connected with the proponent, other than in terms of the delivery of consulting services.

I hold a Masters degree and have been consulting since 2004 in the Northern, Eastern and Western Cape Provinces, including work on numerous wind energy facilities. I am an accredited Principal Investigator with the Association of Southern African Professional Archaeologists (ASAPA; member No. 233).

A handwritten signature in black ink, appearing to be 'Jayson Orton', written in a cursive style.

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1. INTRODUCTION

ACO Associates was appointed by Savannah Environmental to undertake a Heritage Impact Assessment for the proposed Gouda Wind Energy Facility on the Remainder of Farm 397 in the Tulbagh Magisterial District (Figure 1). The area to be developed is approximately 13 km² in area and lies alongside the R44 just north of the town of Gouda in the far eastern Swartland. An earlier scoping assessment conducted by Orton (2010) recommended a field survey during the EIA phase to locate and assess any heritage resources that may be present within the study area. The current report aims to fulfil this recommendation.

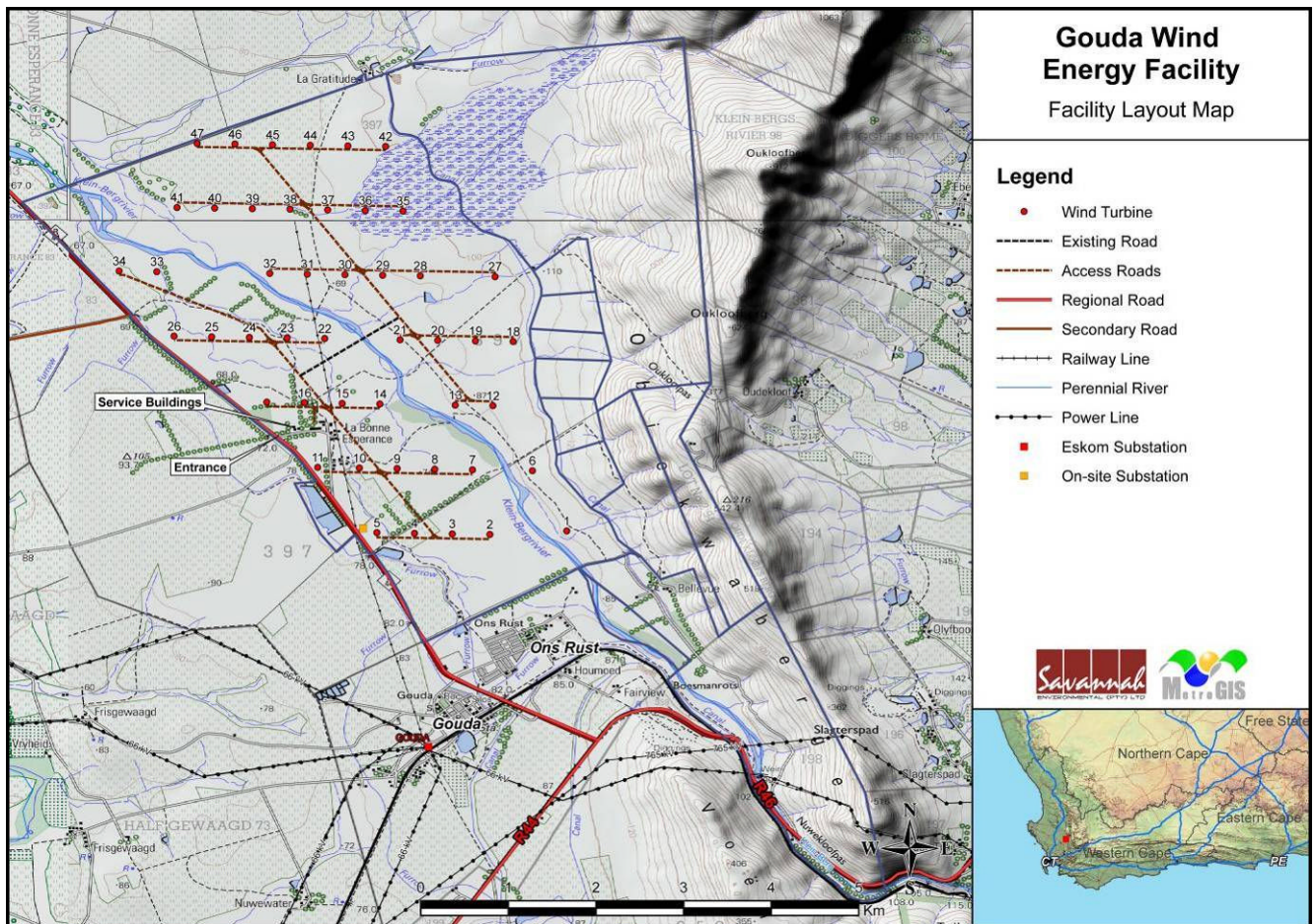


Figure 1: Map showing the location of the study area in the eastern Swartland, just north of Gouda.

The proposed wind energy facility would include the following components:

- Up to 60 wind turbines of 80 m – 100 m high with blades of approximately 52 m length;
- Each turbine would have a concrete base of 16 x 16 x 2.5 m to support the tower;
- Underground cables linking the turbines;
- One substation on site;
- Internal access roads running between the turbines; and
- 132 kV overhead power lines linking to the existing ESKOM substations at Gouda and Windmeul near Wellington (two alternatives have been identified).

The proponent also plans to remove all alien vegetation from the property, including the gum tree lines and Port Jackson.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources including palaeontological, prehistoric and historical material (including ruins) more than 100 years old (Section 35), human remains older than 60 years and situated outside a formal cemetery administered by a local authority (Section 36) and non-ruined structures older than 60 years (Section 34). Landscapes with cultural significance are also protected under the definition of the National Estate (Section 3 (3.2d)).

Since the project is being conducted as part of an Environmental Impact Assessment, Heritage Western Cape (HWC) is required to provide comment on the proposed development in order to facilitate final decision making by the Department of Environmental Affairs.

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The site lies just west of the Obiekwa Mountains that separate it from the Tulbagh valley. Immediately east of the site and at the foot of the mountain lies a canal carrying water to the Voelvlei Dam. To the southwest, west and northwest the Swartland stretches out for many kilometres towards the towns of Gouda (1.7 km south), Saron (6 km north), Riebeeck Kasteel and Riebeeck West (both about 16 km southwest).

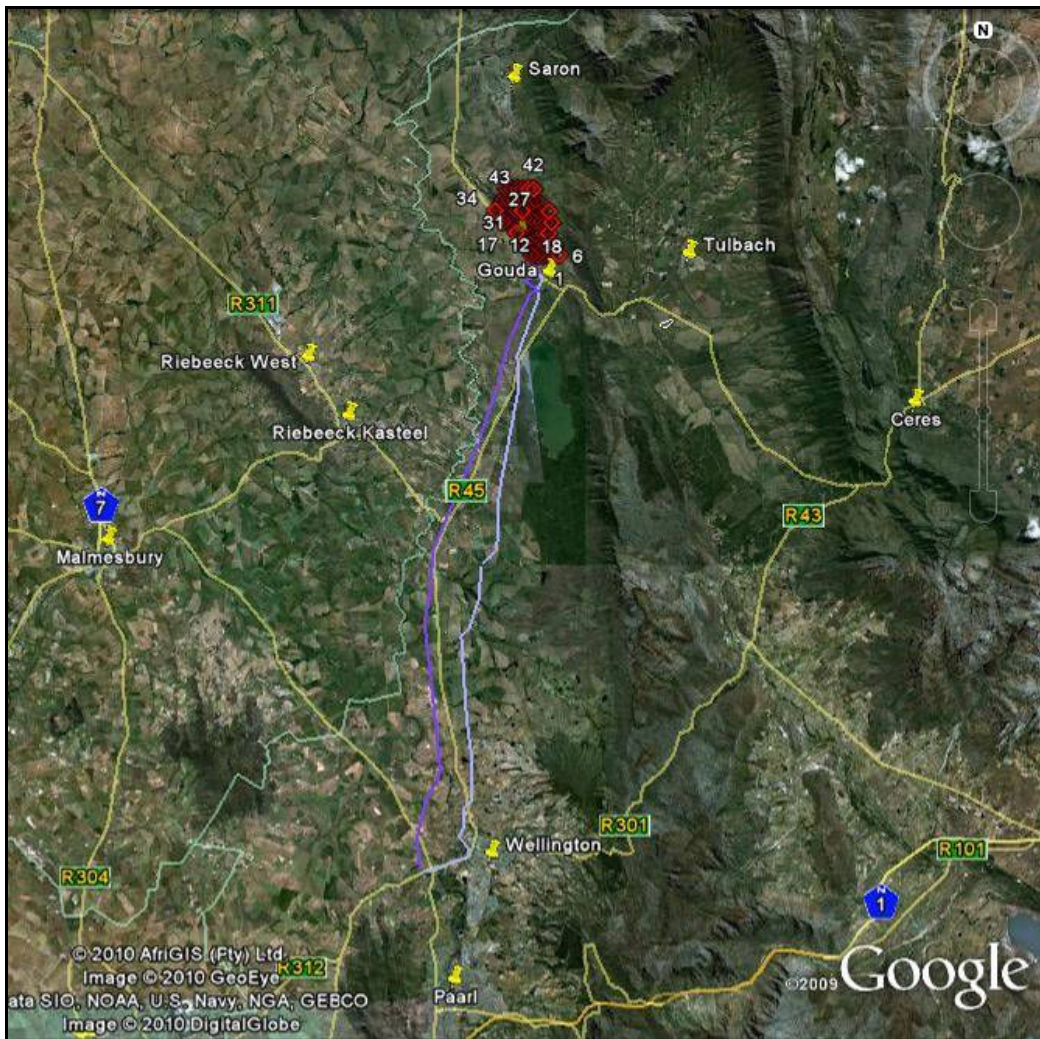


Figure 2: Aerial view showing the wider context of the site and proposed power line routes (favoured routes in dark purple, alternative in light purple). The proposed wind energy facility is indicated at the top of the picture by the red numbered diamond symbols.

The site itself straddles the Little Berg River which flows out of Nuwekloof and then north-westwards to join the Berg River 6 km northwest of the wind energy facility site. It is generally very flat (Figures 3 – 5) but with the river obviously occupying a slightly lower-lying area across the site. Most of the site is covered by sand and river cobbles deposited long ago by the area's rivers and along the Klein Berg River there were areas of small vegetated 'dunes'. While some land appeared to be grazing (Figure 6), fields of wheat and barley predominate (Figures 7 – 9). Some unploughed land is still present, mainly where the cobbles are most dense. Large gum trees are common around the homestead area. Some land has been invaded by Port Jackson bush, with particularly dense stands along the river (Figures 10 & 11). The unploughed land includes a large mound that lies along the edge of an outwash fan that stems from the large valley to the northeast of the site. This mound was particularly dense in cobbles and still sports indigenous vegetation (Figures 12 & 13). In other areas the ratio of sand to cobbles varies and in some parts, particularly close to the R44 road, shale substrate occurs and cobbles are rare.



Figure 3: View westwards towards the farmstead.

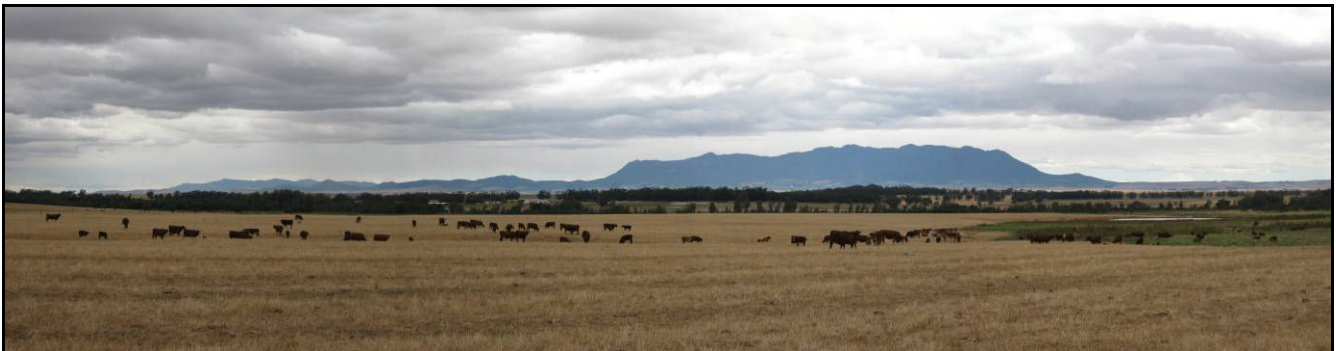


Figure 4: View westwards over the southern part of the site with Riebeeck Kasteel in the distance.



Figure 5: View westwards over the northern part of the site with Riebeeck Kasteel in the distance.

Also evident on the site are many rows of very large blue gum trees, but all are located to the east of the river. Although not completely accurate, these tree lines are best seen on Figure 1.



Figure 6: Cobbles and grass.



Figure 7: Cobbles and old wheat lands.



Figure 8: Barley field.



Figure 9: Wheat field.



Figure 10: Cobbles and grass with Port Jackson bush in the background.



Figure 11: Port Jackson bush invading near the river.



Figure 12: Cobbles and indigenous vegetation. **Figure 13:** Cobbles and indigenous vegetation.

The area to the south of Gouda where the power lines would run becomes progressively greener as one moves towards Wellington where vineyards eventually dominate the landscape instead of wheat and livestock grazing. Photographs of this area are included below under findings (Section 7.4).

4. METHODS

Background research was conducted in order to establish precisely what heritage was already on record in the vicinity. This allowed an estimation of what to expect on site and also where in the study area it would most likely be found. This process was conducted at scoping level (Orton 2010) but is repeated here for completeness.

In the field the site was searched on foot, with the primary focus being to walk the turbine rows. Co-ordinates for the turbine positions were supplied by Savannah Environmental and these were loaded onto hand-held GPS receivers set to the WGS84 datum so as to accurately locate the positions on the ground. Finds were photographed and their positions recorded by means of the GPS units. The walk paths on site are shown in Figure 14. The power line routes were not examined in detail with the focus being at the landscape level and the assessment carried out from the local roads.

Although only one heritage resource worthy of grading was found, Table 1 shows the grading system described by Winter and Baumann (2005). Ungraded sites are essentially not worth preservation with some perhaps requiring mitigation prior to their destruction.

Finally, historical aerial photography was sourced from the Chief Directorate: surveys and mapping in order to examine changes to the cultural landscape over the last 68 years and also to assess the age of various of its features.

4.1. Limitations

Some parts of the site were covered in thick bush making meaningful survey impossible. Such bush severely restricts visibility. Many other areas had the remains of the last year's wheat and barley crops on them which also reduce visibility. These areas, however, were still suitable to be searched. Given the general uniformity and high degree of predictability of the findings, a decision was taken on site not to visit a few of the turbine locations but to rather focus on recording the more obvious heritage around the farm werf. These limitations are not considered to have had any impact on the outcome of the report.

Table 1: Grading of heritage resources (Source: Winter & Baumann 2005: Box 5).

Grade	Level of significance	Description
1	National	Of high intrinsic, associational, and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.
2	Provincial	Of high intrinsic, associational, and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.
3A	Local	Of high intrinsic, associational, and contextual heritage value within a local context, i.e. formally declared or potential Grade 3A heritage resources.
3B	Local	Of moderate to high intrinsic, associational, and contextual value within a local context, i.e. potential Grade 3B heritage resources.
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial, and local context, i.e. potential Grade 3C heritage resources.

5. HERITAGE CONTEXT

5.1. Palaeontology

The study area is underlain by deposits of the Malmesbury Group (low-lying areas) and Cape Supergroup (mountains). According to Almond and Pether (2008) the Malmesbury Group is of low palaeontological significance with no fossils recorded as yet. The Cape Supergroup rocks contain several units with varying palaeontological significance. Generally, the shale units have higher significance than the sandy units but are not well represented in the study area. The lowest rocks, if present, would be Piekenierskloof Formation conglomerates (J. Compton, pers. comm., 2010), while Peninsula Sandstone would overlie them. Norman and Whitfield (2006:fig. 19) show that the more significant Cederberg shale only occurs in the very high reaches of the mountains. The only shale unit that might be present is the Graafwater Formation, which occurs between the above two units, but this would be very thin here if present at all.

5.2. Pre-colonial archaeology

Only two archaeological research projects have been carried out in the nearby vicinity. One involved a survey of the Swartland area around Porterville (Hart, 1984, 1987), while the second saw two small rock shelters being excavated (Smith *et al.*, 1991) with a view to exploring the relationship between hunter-gatherers and herders in the south-western Cape. A few impact assessments have also been conducted (Orton, 2008a, 2008b; Webley & Hart, 2010). These studies inform the following archaeological review.

The earliest period of pre-colonial archaeology present in the region is the Early Stone Age (ESA) which occurred until about 200 000 years ago. Artefacts pertaining to this period of prehistory are commonly encountered all along the western edge of the Cape Fold Belt Mountains. Most often they are associated with river terraces where the cobbles served as a source of stone material for manufacture of the artefacts. Such artefacts have been recorded in the vicinity of the study area where Hart (1984, 1987) found ESA artefacts to be closely associated with rivers and focused on stony hills and ridges. Orton (2008b) found ESA artefacts scattered in farmland on the lower mountain slopes between Saron and Porterville. These were in secondary context and had also been moved about through ploughing. Closer to the study area, Webley and Hart (2010) found no archaeology in an area to the southwest of Gouda, but in the town Orton

(2008a) found a large number of ESA artefacts. These artefacts were suggested to be in primary context with many exposed by the excavation of the canal system in the area. As such they are of greater research value.

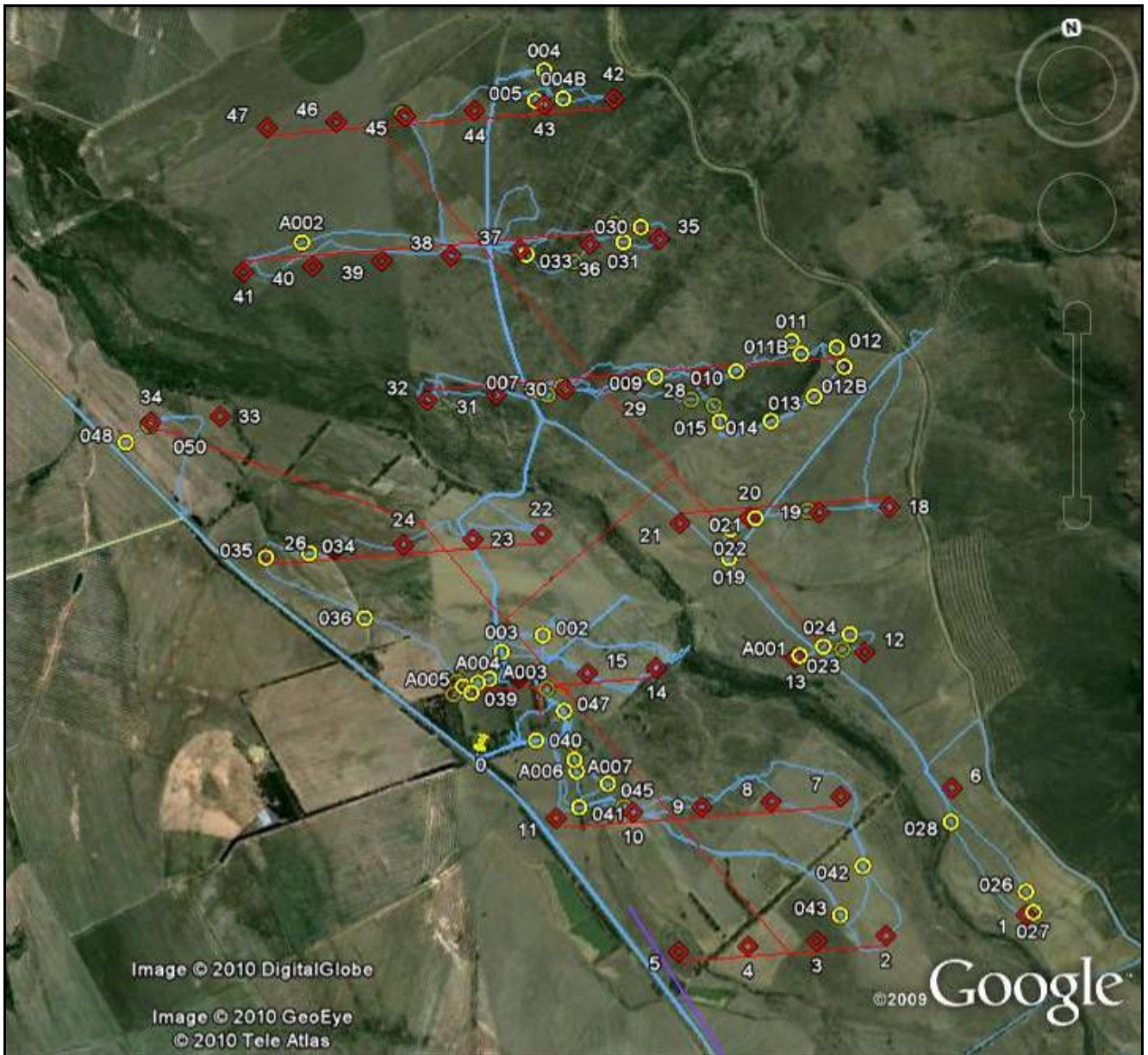


Figure 14: Aerial view of the proposed wind energy facility area showing the facility layout (red diamonds and lines), the walk paths (blue lines) and finds (yellow circles).

After 200 000 years ago and extending up until some 40 000 to 20 000 years ago is the Middle Stone Age (MSA). Hart (1984, 1987) records the occurrence of MSA artefacts in similar locations to ESA ones throughout his study area. No other reports of MSA artefacts are known.

The Later Stone Age (LSA) extends from the end of the MSA until the arrival of European colonists some 350 years ago. By far the majority of archaeological sites found in South Africa pertain to the last 5000 years. The two small rock shelter excavations conducted by Smith *et al.* (1991) yielded material demonstrating that the area was certainly used by the San and the Khoekhoen. The latter only appeared in South Africa within the last 2000 years, although the exact time of arrival is still very much under debate. The Voelvllei rock shelter had three radiocarbon dates conducted with the upper two being in the 15th and 16th centuries and the

oldest one, from the base of the site, falling within the 2nd century AD. This last is claimed by the authors to be from a level predating the introduction of pottery to the site. Driebos was never dated but the finds suggest material of a similar age (Smith *et al.*, 1991).

The rock shelter excavations were conducted as part of Smith's wider interest in the origins of the herding economy in the Western Cape. He proposed that the Khoekhoen moved between winter pastures at the coast (specifically the Vredenburg Peninsula) to summer pastures inland (Smith, 1983, 1984). The latter would have been on the Malmesbury shales where the nutritious Renosterveld vegetation grew. His cycle of transhumance passed through the Gouda area, following the course of the Great Berg River (Figure 15).

It was largely to test Smith's (1983, 1984) hypothesis that Hart (1984) conducted his extensive survey of the region around Porterville and Saron. He was not very successful, with just 16 LSA sites being found in the areas searched. Most were very ephemeral and all but one lay in ploughed land. The artefacts were generally very informal and likely indicate considerable expediency in manufacture. Few conclusions could be drawn from the results of the survey, but they do show quite clearly that LSA material is widely found out in the open, away from rock shelters.

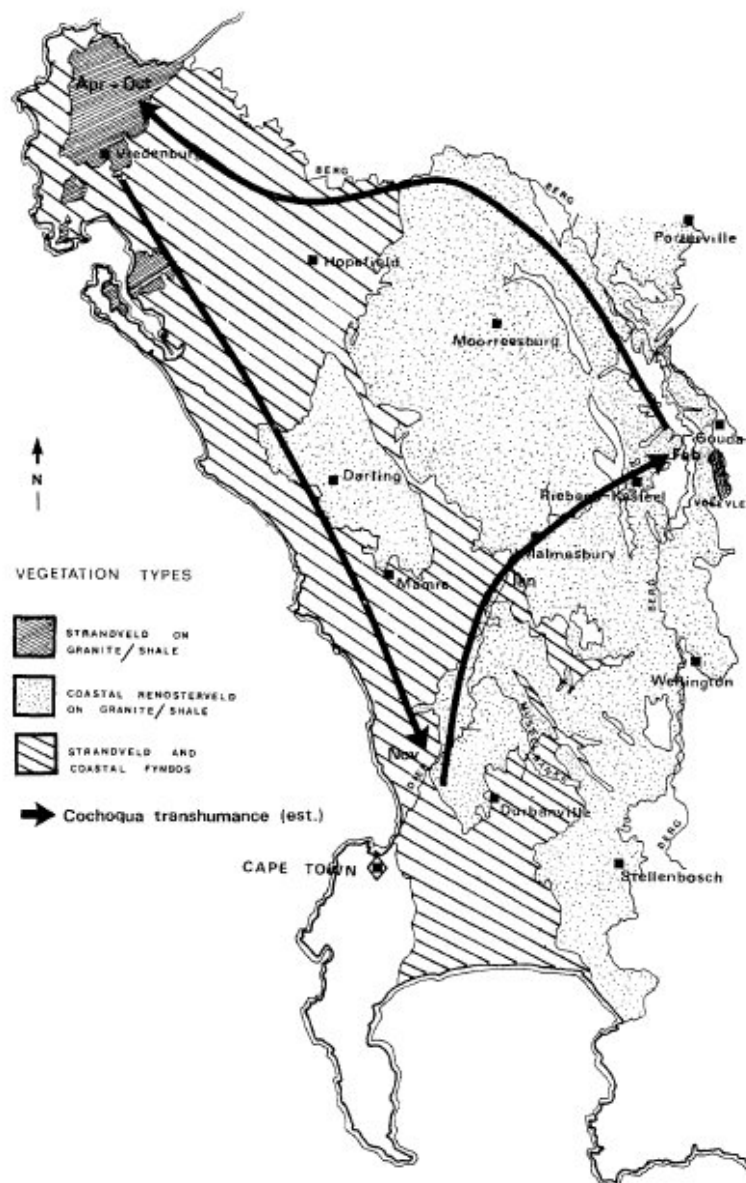


Figure 15: Estimation of the route of seasonal transhumance used by the south-western Cape Khoekhoen. The stippled area denotes Renosterveld which was suggested to have been important for summer grazing. Gouda and the Voelvlei Dam lie at middle right (source: Smith 1984: fig. 1). Whether the Nuwekloof was used in pre-colonial times as a major thoroughfare is unknown, but the one clue we do have is that Pieter Potter, the first European to set foot in the kloof, was unable to find his way through and reported that no path existed (Mossop, 1927).

Rock art is present in the area with both the shelters documented by Smith *et al.* (1991) containing art. Furthermore, although this is subject to confirmation in the field, there is a rocky outcrop labelled on maps as “Boesmanrots¹” just east of the town and which may contain rock art. Mossop (1927) describes the rock but mentions no art. Several rock art sites are reported to occur in the region around Porterville (SA-Venues, 2010) with the famous European galleon being a notable inclusion (Parkington, 2003). It is reported that Thomas Bain discovered rock art sites in the vicinity of Nuwekloof when he was building the pass (Storror & Komnick, 1984). The precise age of rock paintings is unknown but those with European content, such as the galleon, clearly indicate that the tradition of painting on the walls of rock shelters and boulders continued into the colonial period.

5.3. Colonial period

5.3.1. Regional development

The distinct character and vast amount of heritage present in Tulbagh generally overshadows the history of the smaller surrounding towns. Tulbagh was founded in 1743 when a church was built at the suggestion of Baron Gustaf Willem van Imhoff, the newly appointed governor of the Netherlands Indies, who was visiting the Cape. It was several generations, though, until the settlement developed into a town (Fransen, 2006). The name “Tulbagh” was only given in 1805 to replace the original “Roodezand” (Ross, 2002). The smaller towns to the west all came about in later years as shown in Table 2.

Table 2: Origins of towns in the vicinity of Gouda (Fransen 2006).

Town	Founding date	Type of town
Tulbagh	1743	Church town
Saron	1846	Mission settlement
Riebeek-West	1855	Church town
Porterville	1863	Church town
Riebeek Kasteel	1863	Church town

5.3.2. Development of Gouda

Gouda does not feature in Fransen’s (2006) list of towns originating prior to 1900 and a map of the south-western Cape dating from circa 1902 shows nothing in the vicinity of Gouda². The town started on a farm named Gouda and various origins of the name have been suggested. All share the notion of the word being Khoekhoen. It may have been from a word meaning “antelope” or “honey kloof” (Western Cape Tourism, 2007). The former meaning is also

¹ But see an alternative origin of this name alluded to in Section 5.3.2 below.

² Untitled map held in the UCT Dept of Archaeology collection.

mentioned by Nienaber and Raper (1977) who mention the use of the "Bushman Rock³" as a lookout point to scan the area for antelope to hunt. Other sources point towards a meaning along the lines of a dirty road or one with dung or faeces on it. They are certain, however, that the name does not relate to the town of that name in the Netherlands.

A precise date for the beginnings of the settlement at Gouda is unknown but it initially served as a railhead for Porterville until the new line linking Porterville with Riebeeck West through Hermon was constructed in 1929 (Siyabona Africa Travel, 2008). Prior to this the settlement was known as Porterville Road⁴. While all of the northern part of the town is relatively recent, a number of the houses in the southern part are likely more than 60 years of age and thus included as protected heritage.

In recent years the town has been used as a centre for fruit packing with a large warehouse having been built in the eastern part.

5.3.3. Roads and railways

Although this aspect of heritage predates the establishment of the town, it is probably for reasons of transport that the vicinity of Gouda is most significant in heritage terms. Ross (2002) describes several early passes that existed between the Swartland and the Tulbagh Valley, which was originally known as "Roodezand". The first of these stemmed from the need to find the Khoekhoe people and their herds of domestic stock for trading purposes. An expedition in 1658 was sent out by Van Riebeeck. On this expedition a surveyor named Pieter Potter became the first European to see the Tulbagh Valley when he climbed a ridge some miles the north of the river and gained a view into the valley. He had previously tried to walk through the kloof but found the going too difficult along the river (Mossop, 1927).

In 1699 Willem Adriaan van der Stel, then governor at the Cape, opened the Roodezand valley to farming, naming it "Land van Waveren" after a place in the Netherlands. In order to provide access to the valley a new pass some 4 km to the north was made (Ross, 2002). Mossop (1927) suggests this new pass to have been somewhere near the spot where Potter had ascended. Despite W.A. van der Stel's new name, the name "Roodezand" was still in common use for the Tulbagh valley and the pass became known as "Roodezand Pass". A rather poor pass, it had a very steep slope on its eastern side, was narrow and in places thickly wooded. Ross (2002) notes Kolbe's statement in 1731 that for these reasons wagons were frequently taken apart and carried over the pass before being reassembled on the other side.

Burman (1963) managed to relocate the old pass but found it to be heavily overgrown. This is in keeping with Kolbe's description but a modern aerial photograph shows a very clear track (Figure 16). This clarity may well be as a result of modern use of the track by locals. Burman (1963) describes the track leading northwards from the summit as being cut into the hillside by up to three feet in places. He noted piles of rocks along the roadside and also located a built-up section where the track crossed a water-course. There were even some places where wagon tracks were visible cut into the rocks as is the case, more famously, at the old Gantouw Pass above Gordon's Bay (Orton, 2009).

From Ross's (2002) account that Potter climbed a spur north of the river, the precise location of his climb seems unclear but Burman (1963: 49) states that Potter climbed to "a nek a few miles further north" (of the river) and that "the early travellers followed Potter's route over the top of the range, and this became known as the Roodezand (Red Sands) Pass". Whether these two passes were at one and the same place is thus not known but perhaps the spur referred to by Ross (2002) is the one immediately south of the pass (visible at the bottom of Figure 16)?

³ Referred to in Section 5.2 above.

⁴ A 1910 survey diagram that will be discussed below mentions 'Porterville Road Station'.

As a result of the difficulties associated with the Roodezand Pass, the local farmers tried to improve its quality but no satisfactory solution was forthcoming. They then turned their attention to the river valley and succeeded in creating a road along the northern side of the river that was not too steep. Since it afforded access to the Roodezand, it took on the name of Roodezand Kloof. To avoid confusion the old pass became known as Oude Roodezand Kloof and the new one Nieuwe Roodezand Kloof. The abbreviations Oudekloof and Nieuwekloof soon followed. By the 1760s Nieuwekloof had become the primary means of access to the Tulbagh valley (Ross, 2002). A toll was levied as a contribution towards maintenance of the road and this resulted in some farmers still driving their cattle over the old pass to avoid the toll fee (Burchell, 1822). Burchell illustrated the pass as it appeared in 1811 (Figure 17).

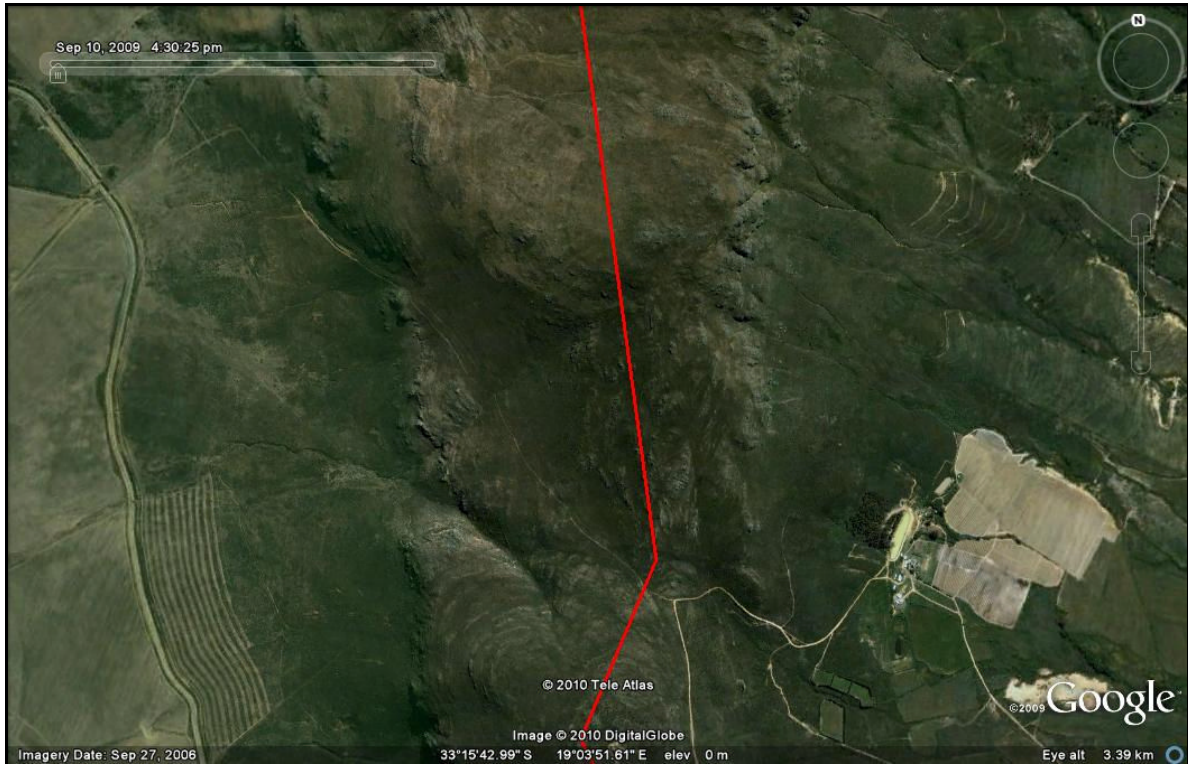


Figure 16: Aerial view of Oudekloof with a track clearly visible through the neck. The study area lies to the left of the red line and the turbines will be constructed left of the canal (visible at far left).

Two early travellers who used the pass left the descriptions of it. Carl Thunberg (1793 in Ross, 2002) passed through in 1772 stating that:

“the cleft through which we passed from the sandy plain that lies towards the Cape, but gradually rises until it comes to Roodezand, is one of the few chasms left by the long range of mountains through which it is possible for a wagon to pass, though possibly not entirely without danger. In some places it is so narrow two wagons could not pass each other.”

William Burchell (1822:137-138), passing through in 1811, described the kloof as:

“a narrow winding defile of about three miles in length, just enough to allow passage for the Little Berg River on each side of which the mountains rise up abruptly and lofty. Their rocky sides are thickly clothed with bushes and trees from their summits down to the water... Along the steep and winding sides, a road has been cut, which follows the course of the river, at a height above it generally between fifty and a hundred feet; in one part rising much higher, and in another, descending to the bottom, and leading through the river, which, at this time, was not more than three feet deep, although often so much swollen by the rains, as to be, for a day or two, quite impassable.”

The remains of this pass, too, were found to be still in existence by Burman (1963), although it was in a very state with low-lying sections washed away and others blocked by tumbled rocks. He also notes the scars of “remskoene”⁵ to be present in places on this pass.

With the renaming of Tulbagh, the pass changed names again, becoming “Tulbagh Kloof”. The drifts that had to be crossed were problematic and in 1855 Thomas Bain examined the kloof recommending an alternative route on the south-western side of the river. This road was built between 1859 and 1860 and carried road traffic for more than a next century thereafter. Bain was also asked to plan a railway through the kloof which he did in 1873 and 1874 (Ross, 2002). The section designed by Bain was part of the Cape Town to Kimberley railway that was constructed in sections up until 1885 (Table 3). Although originally intended to serve the Western Cape farming community, the railway was rapidly extended to Kimberley as a result of the diamond rush. The Nuwekloof section followed a very similar line to the road (Figure 18) and was opened on 1st September 1875, while the final leg to Kimberley was opened prior to final completion on 28 November 1885 (Walker, 2001). The modern road through the kloof was constructed in the 1960s and opened in 1968. The name “Nuwekloof Pass” was chosen for the new road (Ross, 2002).

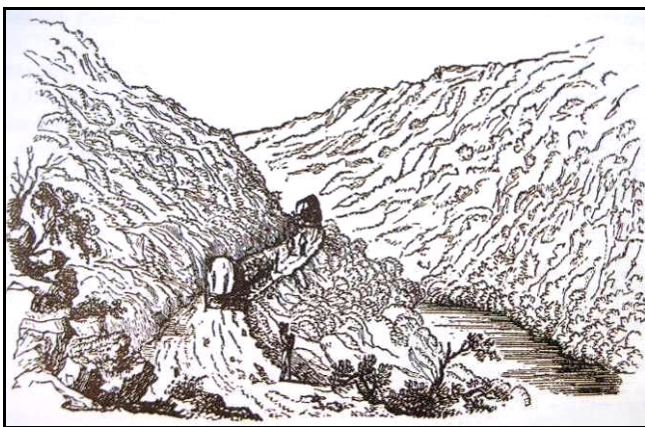


Figure 17: Burchell’s sketch of the Nuwekloof Pass from his 1811 travels (Source: Ross, 2002:3).

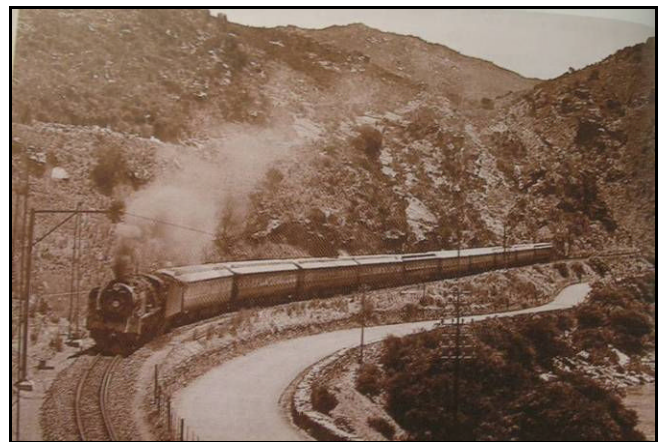


Figure 18: View of Thomas Bain’s road and railway alignments running side-by-side through Nuwekloof (Source: Ross, 2002:4).

Table 3: Development of the Cape Town to Kimberley railway line (Walker, 2001).

Town	Date opened
Paarl	18-03-1863
Wellington	04-11-1863
Tulbagh	01-09-1875
Worcester	16-06-1876
Kimberley	28-11-1885

As stated earlier, Gouda originally served as the railhead for Porterville and was known for this reason as Porterville Road. A new line running from Hermon through Riebeeck Kasteel and Riebeeck West and on to Porterville was opened in 1929 (Siyabona Africa Travel, 2008).

⁵ Remskoene are the iron shoes fitted to the wheels to act as brakes and to protect the wooden wheels from damage on the rough rocks on steep sections of the pass.

5.3.4. Water infrastructure

A multitude of canals and lei water furrows surround Gouda. The Voëlvlei Dam to the south of the town was built in 1952 and some of the canals and furrows post-date its construction. These include the long channel that runs from a kloof northeast of Saron bringing water to Voelvlei Dam as well as the shorter one that brings water from a weir on the Klein Berg River. Although their precise age is unknown, they post-date 1952 and are thus not of heritage concern. Some may be as recent as the 1980s.

Others, however, are related to the earlier agricultural activities and many were present already on aerial photographs dating from 1938 (Orton, 2008a). Although not structures in the usual sense, they are man-made, greater than 60 years of age and should be considered as protected heritage.

5.4. Built environment

The town of Gouda is not particularly old but it is quite likely that structures greater than 60 years of age and of heritage conservation value will be present in the town. Farming has certainly been taking place in the region for a long time and farm complexes will certainly include buildings of value.

6. FINDINGS

Here all heritage located during the ground survey is presented and discussed. Figure 14 shows the overall distribution of finds while Figure 19 shows where the four concentrated areas are located.

6.1. Palaeontology

No fossil material was observed during the survey and, following Almond and Pether (2008), it is considered highly unlikely that significant palaeontological heritage would be found within the study area.

6.2. Archaeology

Aside from a single Later Stone Age quartz flake located in the sandy area alongside the river near Turbine 32, all archaeological material found dates to the Early Stone Age. This period is essentially between about one million years ago and 200 000 years ago. The property appeared to have a sparse scattering of ESA material in all areas, but with a few seemingly having greater concentrations of artefacts. No archaeological "sites" are discussed, since the material is more of a background scatter whose distribution may be more strongly conditioned by natural factors than anthropogenic ones. Areas of higher concentration are identified, however. All of this archaeology would remain ungraded in terms of the grading system, but some mitigation would still be in order in terms of gaining an understanding of the artefacts. This is discussed further below.

The artefacts are in various states of abrasion with some having been very heavily rolled among the river gravel prior to their final deposition and others being entirely unrolled (Figure 20). The latter tended to be located further away from the mountain and river, generally on areas where shale substrate was exposed and natural cobbles were relatively infrequent. Whether these areas actually reflect primary occupation areas cannot be said with any certainty and it seems more likely that some degree of erosion and weathering has resulted in their current positions. A similar area with ESA artefacts on a shale substrate was earlier located further south within the town of Gouda (Orton, 2008a).

Hand-axes, the typical and most characteristic tool of the ESA, were noted in many areas. The artefacts are made from either a cobble or a large flake which is then flaked from both sides (bifacially) to shape the artefact. In plan view, one end is pointed and the other generally more rounded. A selection of these is presented in Figures 21 to 27. Figure 28 shows an artefact that was certainly bifacially manufactured but is perhaps not quite a hand-axe. It may, of course, represent an unfinished example.

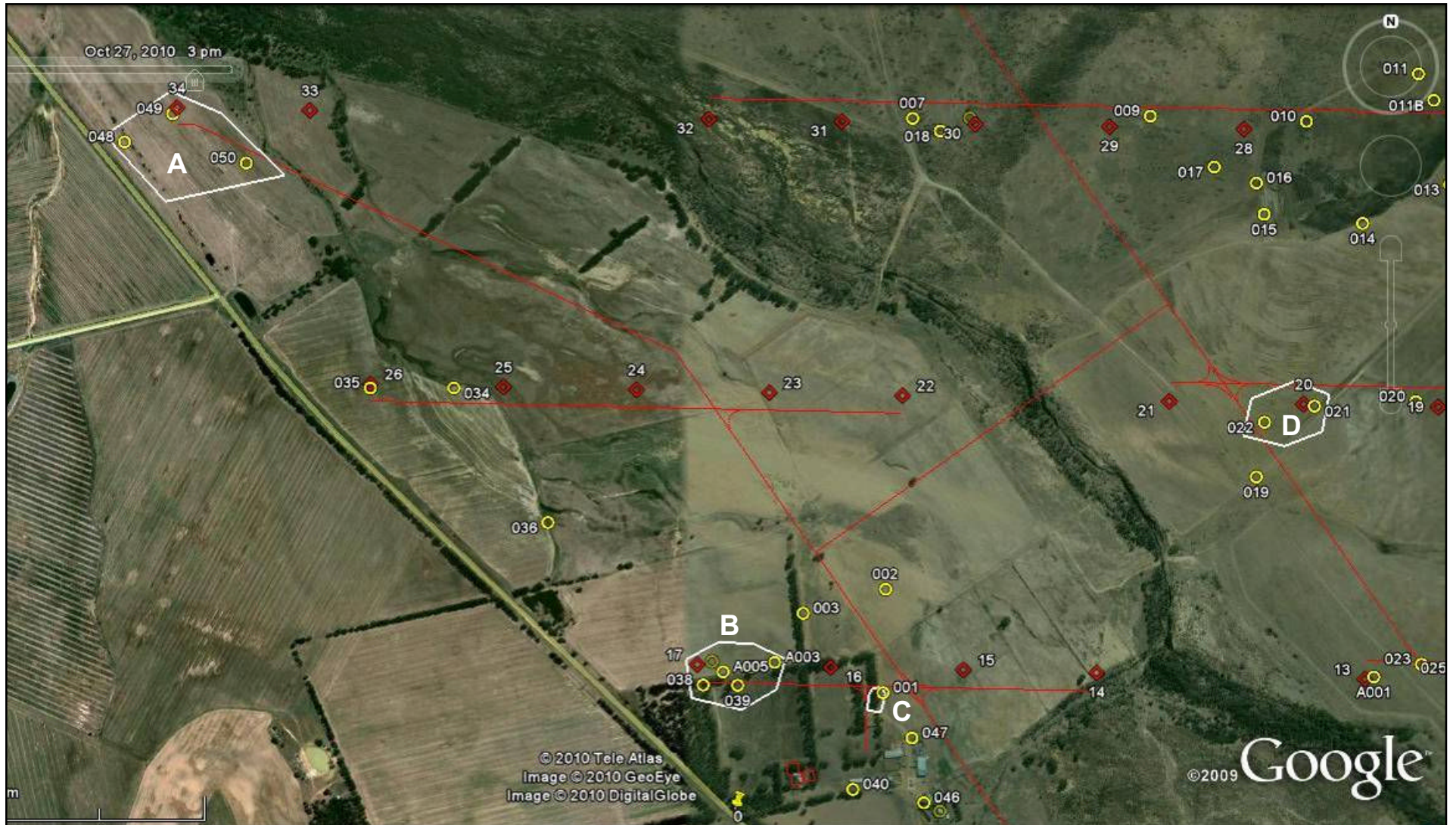


Figure 19: Aerial view of the central portion of the site showing the locations of the four areas of concentration of ESA artefacts (indicated by the white polygons marked A to D).



Figure 20: A variety of ESA artefacts from various parts of the study area. The variable states of abrasion are clearly visible from, for example, the upper and middle artefacts on the right hand side.



Figure 21: Hand-axe.



Figure 22: The hand-axe in place (centre).



Figure 23: Hand-axe.



Figure 24: Hand-axe.



Figure 25: Hand-axe.



Figure 26: Hand-axe.



Figure 27: Broken hand-axe.



Figure 28: Bifacial artefact.

Four areas of concentration were located. These are labelled Areas A to D (Figure 19) and central co-ordinates for each area are as follows:

- Area A: 33° 15' 22"S 19° 00' 18"E
- Area B: 33° 16' 09"S 19° 01' 17"E
- Area C: 33° 16' 10"S 19° 01' 32"E
- Area D: 33° 15' 45"S 19° 02' 15"E.

Since the survey aimed only to check the approximate alignments of the turbines and roads, these scatters may extend more widely than mapped in Figure 19. The scatter at Area B was certainly the most significant with a wide variety of artefacts being present. Some were found

collected up with numerous unworked cobbles into a large pile at the edge of a field. All four areas appeared to have shale substrate exposed with small nodules of ferruginous gravel on the surface, as was the case in the town of Gouda (Orton, 2008a). Figures 29 to 35 show selection of artefacts from these locations and their contexts.



Figure 29: Artefacts from Area A.



Figure 30: Context at area A.



Figure 31: Artefacts from Area B. A hand-axe lies left of centre and is illustrated further in Figure 33. The typical shale substrate with ferruginous nodules is visible.



Figure 32: Artefacts from Area B. The left one is a hand-axe and is illustrated further in Figure 37.



Figure 33: Hand-axe from Area B.



Figure 34: Hand-axe from Area B.



Figure 35: Hand-axe from Area B.



Figure 36: Hand-axe from Area B.



Figure 37: Hand-axe from Area B.



Figure 38: Two hand-axes from Area B.



Figure 39: Context at Area B.



Figure 40: Context at Area B.



Figure 41: Artefacts from Area C.



Figure 42: A core from Area C.



Figure 43: Artefacts from Area D.



Figure 44: Context at Area D.

At one point (002 on Figure 19) a few widely scattered fragments of glass, ceramics, brick, and cement were noted in ploughed land. These appeared to all be 20th century and are thus not considered archaeological. The recent age of the majority of buildings (see below) makes it less likely that historical archaeological material will be present.

6.3. Built environment

Almost all the structures on the property are recent (likely post-1960s) but some are older. The structures close to the entrance to the farm, a house and a garage, will be reused for office and work space for the proposed wind energy facility (Figures 45 & 46). The core of the house is visible on the 1949 aerial photograph but it has since been extended and modified. The garages seem to be later. Most houses in the workers' village (Figure 47) are not yet present in the mid-1960s and are first visible on the 1973 aerial photograph.

Two of the older structures are located in the workers' village. One appears to have been a house but is no longer in use (Figure 48). It has had various fixtures and fitting removed and is quite badly damaged on its eastern side. Internal hearths are present (Figure 49) and the windows are of steel. An even older structure appears to be a stable or similar building. It has quite thick walls and the northern end is supported by a buttress (Figures 50 & 51). It has quite old and pale-coloured plaster revealed on its southern end. Both structures appear on the 1942 aerial photograph and this photograph also shows another building in between that has since been removed. The stable-type structure with its thick walls is likely much older, probably dating to the late 19th century.

The oldest dwelling on the property may date to the early 1900s. It has some Victorian features, but cannot be described as a Victorian house. It looks as though additions have been made to the house over the years and the steel windows may have been added later (Figures 52 & 53). Although substantial changes to this farmstead have been made through the years, this house is

just visible on the 1942 aerial photograph. It is the only structure worthy of receiving a grading and is given a provisional grading of 3C.



Figure 45: Modern house with garage behind.



Figure 46: Modern garage.



Figure 47: The workers' village with structures likely post-dating the 1960s. The structure in the centre and that at far left appear older.



Figure 48: A structure perhaps dating to the 1930s or early 1940s. **Figure 49:** Internal hearth.

Having described the buildings as above based on external features and characteristics, a 1910 survey map shows the Bonne Esperance farmstead to have been present at that time with several buildings marked (Figure 54). This suggests that some of the buildings present today may well

have older cores to them. The layout as drawn in 1910 may not be accurate, but the orientation of many of the buildings suggests distinct differences from the current werf layout (Figure 55). Even if the buildings were only marked notionally, one would expect the orientation to be approximately correct. Those along the train line certainly do reflect the current north-south orientation. The Nootgedaght homestead has been removed entirely and this will be discussed further below.

6.4. Cultural landscapes and sense of place

Cultural landscape refers to the human-created or anthropogenic landscape as opposed to the natural landscape. There are relatively few elements of past cultural landscapes present on the site. A few farm dams occur on the eastern side of the river (Figures 56 & 57) but are of little significance. Also in that area one can see the remnants of some past activity through the alignments and piles of stone present on the landscape in the north-eastern part of the site (Figures 58 & 59). The latter certainly represent stones cleared from fields, but it is quite clear that the alignments are different given that the intervening spaces are still very stony and unlikely to have been regularly ploughed, if at all. These features are clearly visible on the modern aerial photograph (Figure 60) but could not be traced historically. Some of the older images may, however, be too indistinct for this but the 1987 one seems clear.



Figure 50: North end of stable.



Figure 51: South end of stable.



Figure 52: The front of the oldest house on site.



Figure 53: Oblique view of the old house showing gable detail.

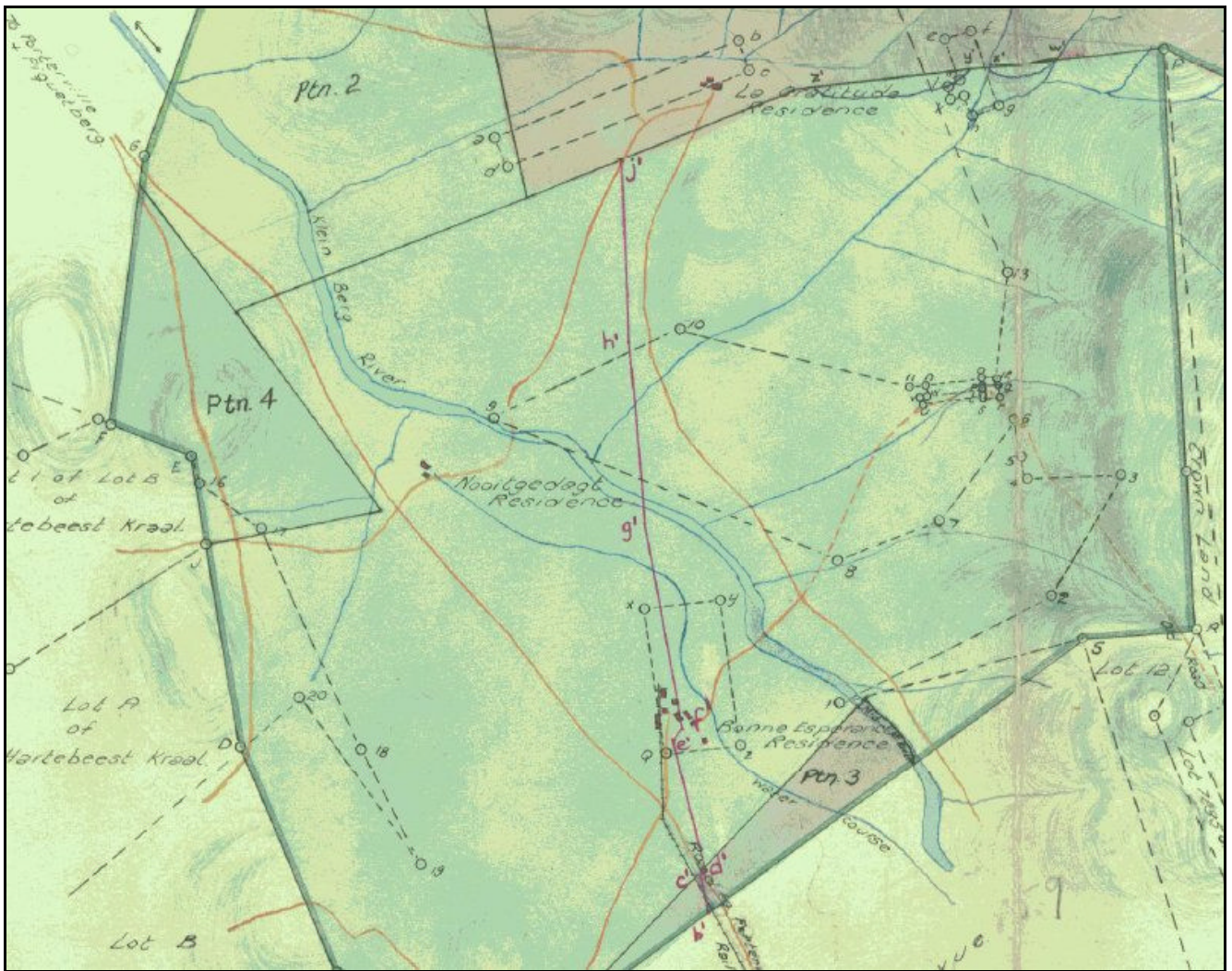


Figure 54: A 1910 survey map of the farm (then Farm No. 83) showing the Bonne Esperance residence as well as two others, Nooitgedagt to the northwest and La Gratitude to the north (source: <http://csg.dla.gov.za>).



Figure 55: Close up view of the Bonne Esperance homestead area in 1910 (left) and today (right). It should be noted that the 1910 survey may have only indicated the buildings notionally.



Figure 56: Farm dam.



Figure 57: Farm dam.



Figure 58: Stone alignments.



Figure 59: Stone piles.

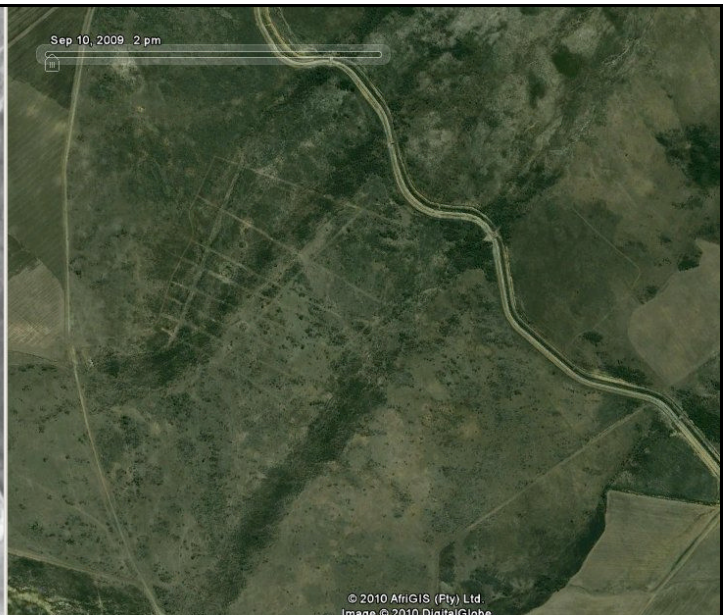


Figure 60: Modern aerial view of the modified landscape in the north-eastern part of the study area (right) alongside the equivalent 1987 aerial photograph. The scars on the modern landscape are not visible in 1987.

By far, the most significant aspect of the cultural landscape is represented by the extensive tree lines that strongly dominate the area, particularly around the Bonne Esperance farm werf (Figure 61). Many have been removed though, with the result that what is left is perhaps better termed a remnant cultural landscape. Tree lines also occur further north on the farm, with some still

being quite young in 1942 (Figure 62). Interestingly, in this area there was another, smaller farm werf but this has now been completely obliterated (Figure 63). The 1910 survey diagram shows its name to be Nooitgedaght, but in 1945 the topographic map names it Middelplaas. These buildings were still present in 1973 but had been removed by 1987. Tree lines also characterise the southern part of the farm, as they did in 1942, but there are somewhat fewer trees remaining (Figure 64).



Figure 61: Aerial photograph from 1942 of the main farm werf alongside its modern equivalent. The study area lies to the east (right) of the R44 road.

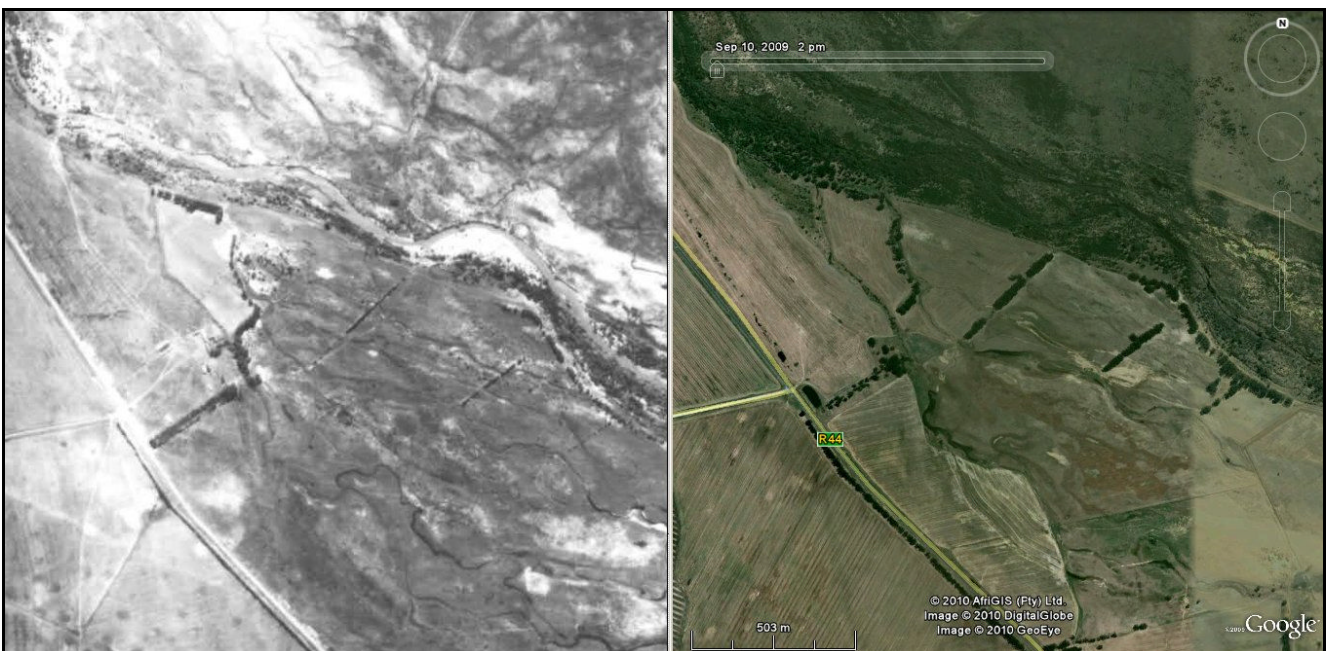


Figure 62: The northern part of the farm in 1942 (left) and today (right).



Figure 63: Close-up of the secondary werf area on the northern part of the farm in 1942 (left) and today (right). All buildings have now been removed and the land ploughed over. The inset shows the farm on the 1945 topographic map.



Figure 64: The southern part of the farm in 1942 (left) and today (right).

Another aspect of the local cultural landscape relates to the presence of irrigation furrows, or *leiwaters*, on the property. Several remnant furrows were noted but from an examination of aerial photography it seems that many have been disrupted and had parts filled in and ploughed over in recent years. This is no doubt owing to the advent of irrigation in the area. *Leiwater* furrows are common in the vicinity and are often greater than 60 years of age.

Perhaps the most surprising presence on the earlier cultural landscape is a train line running northwards onto the farm from Gouda. No trace of this line exists today. While the 1910 survey diagram (Figure 54) and 1945 topographic map (Figure 65) show the line quite plainly (it is

labelled a private line on the latter), it is less clear on aerial photography. The main train line through Nuwekloof appears as a dark line in the 1949 aerial photograph but yet the alignment of the private line northwards is very light coloured. This could reflect a different substrate used beneath the tracks (Figure 65). The line is also visible on the 1942 photograph but it is less clear. The 1945 map labels the area just north of the buildings as a piggery suggesting that the line was used for railing the pigs to the markets. Although the alignment still remains clear in the 1966/7 aerial photograph, the picture suggests the railway to no longer be present at that date. The 1971 topographic map shows no train line. The alignment is still largely traceable on modern aerial photography.

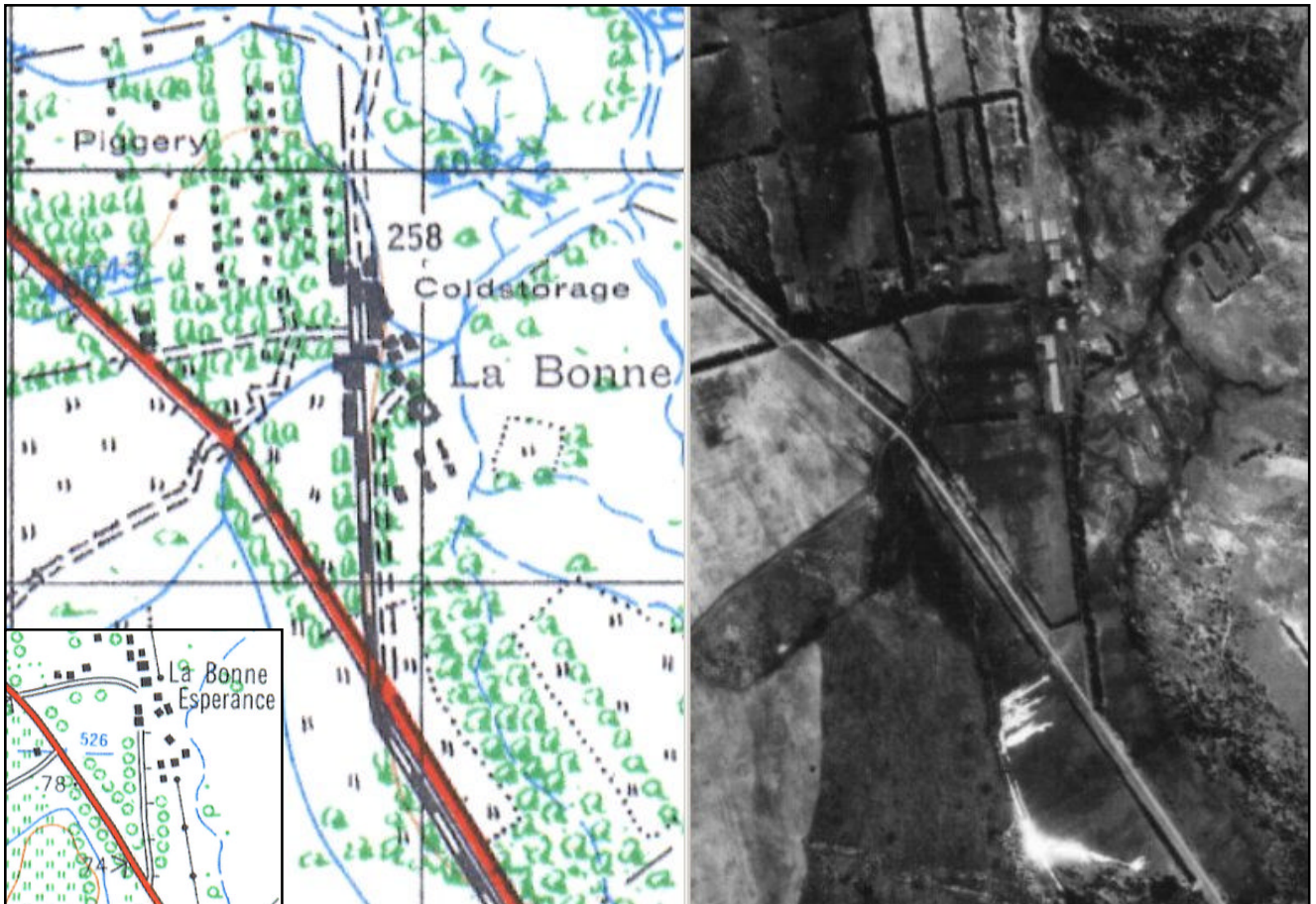


Figure 65: 1945 topographic map and 1949 aerial photograph showing the private train line running onto the farm. In the latter, the line is best visible at the point where it crosses the R44 road. The inset at lower left shows the 1971 topographic map with no train line present.

Sense of place is typically related to the cultural or natural landscape, whichever is most strongly dominant. In this case the find a landscape dominated by wheat fields and lines of gum trees which together give a strong rural character to the place. Buildings are few and far between and, when away from the trees, a strong sense of openness prevails in this part of the Swartland. The flat, open nature of the Swartland means that topography able to suitably absorb the visual intrusion into the landscape is lacking.

Also to be considered here are the two alternative power line routes running between the proposed site and Wellington, just over 40 km to the south. The cultural landscapes here are all dominated by agriculture but moving southwards there is a distinct transition from wheat and livestock to vineyards. Figures 66 to 73 provide an overview of this area from north to south. Several power lines of varying size already exist in the vicinity with the preferred alternative for the proposed power line (west of the R44) seemingly having the majority of them.



Figure 66: View eastwards of the Gouda substation.



Figure 67: Power lines west of the Gouda substation.



Figure 68: View east from the R44 just south of the Voelvllei Dam.



Figure 69: View southwest from the R44 towards Riebeeck Kasteel



Figure 70: View north on the R44 showing vineyards on the left and cereal agriculture on the right.



Figure 71: View to the northwest from the R44 towards Riebeeck Kasteel showing cereal agriculture.



Figure 72: View southwards from a secondary road running off the R45 just northwest of Wellington. The northern end of Paarl Mountain lies at right.



Figure 73: View eastwards from the R44 Berg River Bridge with vineyards and industrial buildings.

6.5. Scenic routes

The R44 running to the west of the site and the R46 running through Nuwekloof a few kilometres south of the proposed site are both considered scenic routes, as is the R45 that is crossed by the southern end of one of the power line alternatives. The imposition of a wind energy facility onto the landscape will pose significant impacts to the scenic nature of the area around Gouda, but the power lines are likely to have a relatively small impact, especially considering the precedent already set by the existing lines.

7. ASSESSMENT OF IMPACTS

Significance ratings are based on a standard methodology employed by Savannah Environmental where extent, duration, magnitude and probability are scored individually and significance is thus calculated using those values.

7.1. Palaeontology

Palaeontological material has only a very low likelihood of being impacted and it is felt that the significance of any impacts is also likely to be very low negative.

Table 5: Summary of impacts to palaeontological material

NATURE OF IMPACT: Impacts to palaeontological material could involve displacement or destruction of material at turbine locations and in the paths of power lines and access roads.		
	Without mitigation	With mitigation
EXTENT	Local (1)	n/a
DURATION	Permanent (5)	n/a
MAGNITUDE	Small (0)	n/a
PROBABILITY	Very improbable (1)	n/a
SIGNIFICANCE	Low (6)	n/a
STATUS	Negative	n/a
REVERSIBILITY	Non-reversible	n/a
IRREPLACEABLE LOSS OF RESOURCES?	Yes	n/a
CAN IMPACTS BE MITIGATED?	No	
MITIGATION: No palaeontological resources were located and nothing significant is expected from the vicinity. As such, no mitigation can be suggested or implemented.		
CUMULATIVE IMPACTS: n/a		
RESIDUAL IMPACTS: n/a		

7.2. Archaeology

Archaeological material in the form of ESA stone artefacts occur throughout the study area. The majority are likely best thought of as background scatter but a few concentrations do occur.

Table 6: Summary of impacts to archaeological material

NATURE OF IMPACT: Impacts to archaeological material could involve displacement or destruction of material at turbine locations and in the paths of power lines and access roads.		
	Without mitigation	With mitigation
EXTENT	Local (1)	Local (1)
DURATION	Permanent (5)	Permanent (5)
MAGNITUDE	Low (4)	Minor (2)
PROBABILITY	Highly probable (5)	Very improbable (1)
SIGNIFICANCE	Medium (50)*	Low (8)
STATUS	Negative	Positive
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	Yes
CAN IMPACTS BE MITIGATED?	No	
MITIGATION: Metric data and photographs should be taken from a selection of ESA artefacts in order to characterise the artefacts present on site.		
CUMULATIVE IMPACTS: n/a		
RESIDUAL IMPACTS: n/a		

*This overall significance rating is considered to be inflated by the permanent nature of the impact. In heritage terms the significance of the archaeological resources would be rated low.

7.2.1. Suggested mitigation measures.

While mitigation of ESA material is seldom recommended, this property has sufficient artefacts present to be able to obtain a meaningful collection of data; in the limited survey undertaken fourteen hand-axes were found. Mitigation should be carried out on site, with the artefacts left there afterwards. Removing them to a museum for permanent storage is not advised due to the space constraints and the limited amount of information that can be gained from them. In consultation with Will Archer (pers. comm. 2010), a local expert on hand-axes (Archer, 2010; Archer & Braun, 2010), a mitigation approach was devised. The vicinities of the four areas of highest artefact concentration should be searched thoroughly to locate all ESA material within a reasonable range. The hand-axes and cores should then have maximum length, width and thickness measurements taken and they should be photographed from each side and edge-on. The flakes should just have the measurements taken as above.

The metric data will allow a general characterisation of the hand-axes to be obtained which can then be used in broader studies of ESA artefacts.

7.3. Built environment

Many structures are located on the property but the age of those greater than 60 years old remains unknown. The following impact assessment assumes that the buildings close to the entrance will be reused in their current form or with only minor alterations and that all other structures will remain untouched. Any alterations to those structures identified as being greater than 60 years of age (including those to be reused) will require a permit from Heritage Western Cape.

Table 7: Summary of impacts to the built environment

NATURE OF IMPACT: Impacts to the built environment are in the form of destruction of structures and inappropriate adaptive reuse.		
	Without mitigation	With mitigation
EXTENT	Local (1)	Local (1)
DURATION	Long term (4)	Long term (4)
MAGNITUDE	Minor (2)	Minor (1)
PROBABILITY	Highly probable (5)	Highly probable (5)
SIGNIFICANCE	Medium (35)*	Medium (30)
STATUS	Negative	Negative
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	Yes
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Avoid all structures as far as possible. Any alterations or demolitions may require further study and a permit to be issued by Heritage Western Cape.		
CUMULATIVE IMPACTS: n/a		
RESIDUAL IMPACTS: Reused structures could end up being modified in such a way that their original functions will not be applicable any more after decommissioning of the wind energy facility.		

* This overall significance rating is considered to be inflated by the permanent nature of the impact. In heritage terms the significance of the structures would be rated low to medium.

7.4. Cultural landscapes and sense of place

This assessment pertains only to the site and not the power lines, since the latter will result in a far smaller impact. The region's landscape is characterised by agriculture and gum tree lines. These provide a strong rural feel to the place. The flatness of the study area means that topography able to absorb the intrusion posed by a wind energy facility is lacking. This aspect of local heritage should also be assessed through a Visual Impact Assessment which would provide further insight into the nature and significance of the impacts.

7.5. Scenic routes

Scenic routes will be impacted by the proposed development but, since this aspect of heritage is almost entirely subject to visual impacts, no detailed impact assessment is included here. This should be conducted as part of the Visual Impact Assessment.

8. MANAGEMENT MEASURES

Only two factors need consideration here. (1) Archaeological mitigation must take place prior to the start of construction. (2) An ECO will need to ensure that any restrictions put in place by Heritage Western Cape are adhered to during the construction phase.

Table 8: Summary of impacts to cultural landscapes and sense of place

NATURE OF IMPACT: Three forms of impacts will be experienced. (1) Impacts will be through visual intrusion into the landscape which results in erosion of landscape context and decreasing quality of sense of place. (2) Removal of trees and other cultural landscape elements will compromise the rural sense of place. (3) Filling in of dams and furrows will remove tangible traces of past agricultural activities.		
	Without mitigation	With mitigation
EXTENT	Local (2)	n/a
DURATION	Permanent (5)	n/a
MAGNITUDE	High (10)	n/a
PROBABILITY	Definite (5)	n/a
SIGNIFICANCE	High (85)	n/a
STATUS	Negative	n/a
REVERSIBILITY	Reversible	n/a
IRREPLACEABLE LOSS OF RESOURCES?	No	
CAN IMPACTS BE MITIGATED?	No	
MITIGATION: Due to its flatness, the landscape is unlikely to be able to accommodate the turbines. Leaving all gum tree lines in place will help to some degree but successful mitigation of impacts to sense of place and cultural landscapes is unlikely.		
CUMULATIVE IMPACTS: If other wind energy facilities were constructed in the area then the erosion of context and sense of place would escalate.		
RESIDUAL IMPACTS: Will only occur if turbines and concrete footings are left standing after decommissioning and rehabilitation does not happen.		

9. CONCLUSION AND RECOMMENDATIONS

In terms of heritage, the proposed wind energy facility will certainly have negative impacts on the receiving environment with those to cultural landscapes and sense of place being the greatest. The landscape is visually dominated by the large rows of gum trees that form the most tangible aspect of the local cultural landscape. The proposal to remove these trees would thus strongly alter the sense of place and leave the wind turbines isolated on a bare landscape. This landscape lacks natural topography capable of absorbing the proposed wind energy facility and the trees offer the only possible opportunity of softening the impacts the turbines would have on the area.

It is thus considered that if the proposed wind energy facility was constructed, impacts to the local environment would be far smaller should the gum trees be left in place. Aside from visual impacts, which will need to be assessed separately, other aspects of heritage are less significant and should not affect the decision to proceed. However, it should be noted that any alteration or demolition of structures greater than 60 years of age may only happen under a permit issued by Heritage Western Cape. Power line routes that follow existing power lines are preferred over those that are independent from already established electrical servitudes.

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11. PROJECT TEAM

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