

VISUAL IMPACT ASSESSMENT

PROPOSED SAND MINE ON BLAAUWBERG FARM (CAPE FARM 88 AND CAPE FARM 91, MELKBOSSTRAND), CITY OF CAPE TOWN

By

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1. PROJECT DESCRIPTION

1.1. Description of Proposed Sand Mining Activity

Tip Trans Resources (Pty) Ltd has submitted an application to the Department of Mineral Resources (DMR) for a sand mining right in terms of Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and is required to submit a scoping report and an Environmental Management Programme (EMP) to the DMR in a format specified by the DMR.

The latest Environmental Impact Assessment (EIA) Regulations (published in terms of section 24 of NEMA), came into effect in August 2010. GN R543 sets out the procedures to be followed for an application for environmental authorisation. GN R544 (Listing Notice 1) provides a list of activities requiring a 'Basic Assessment' process. GN R545 (Listing Notice 2) provides a list of activities requiring a 'Scoping and EIA' process. GN R546 (Listing Notice 3) provides a list of activities in specific identified geographic areas requiring a 'Basic Assessment Process'. In this case, Activity 15 in GNR545 triggers the requirement to undertake a "Scoping and EIA" process for this application for environmental authorisation.

An application form for environmental authorisation for the proposed sand mine was accepted by DEA&DP on 13 October 2011. DEA&DP Reference: E12/2/4/2-A2/305-3031/11 was assigned to the application.

Proposed sand mining project

Sand is a basic material that is needed for construction and development projects. Five areas on the farm have been identified as containing significant sand resources. The total area that has been applied for is 336 hectares in 5 separate proposed mining areas (MA1, MA2, MA3, MA4 & MA5). All of the proposed mining areas have been previously transformed, ploughed and used as pastureland for cattle.



Figure 1: Location

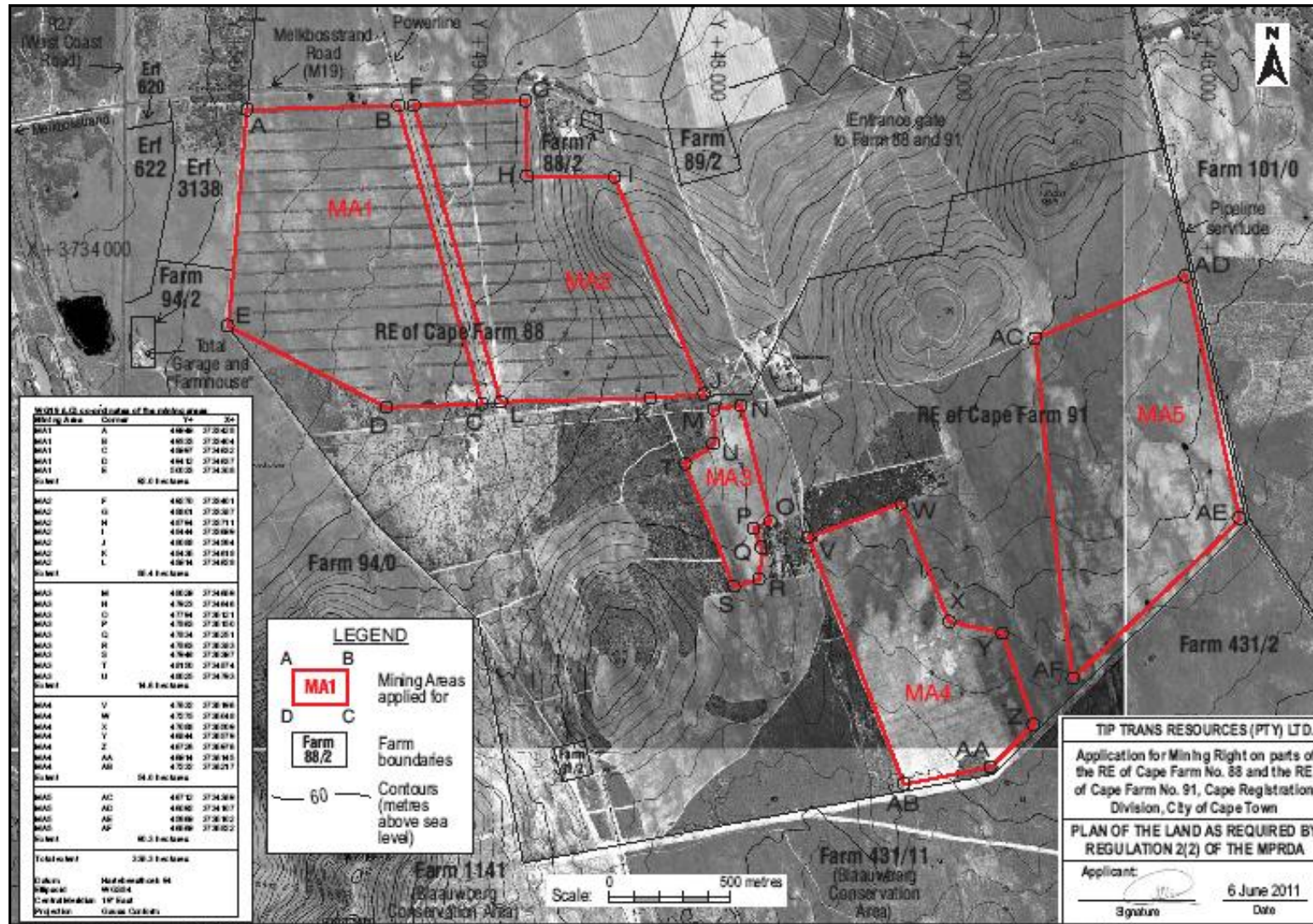


Figure 2: Proposed Mining Areas (MA1-MA5); Original Alternative

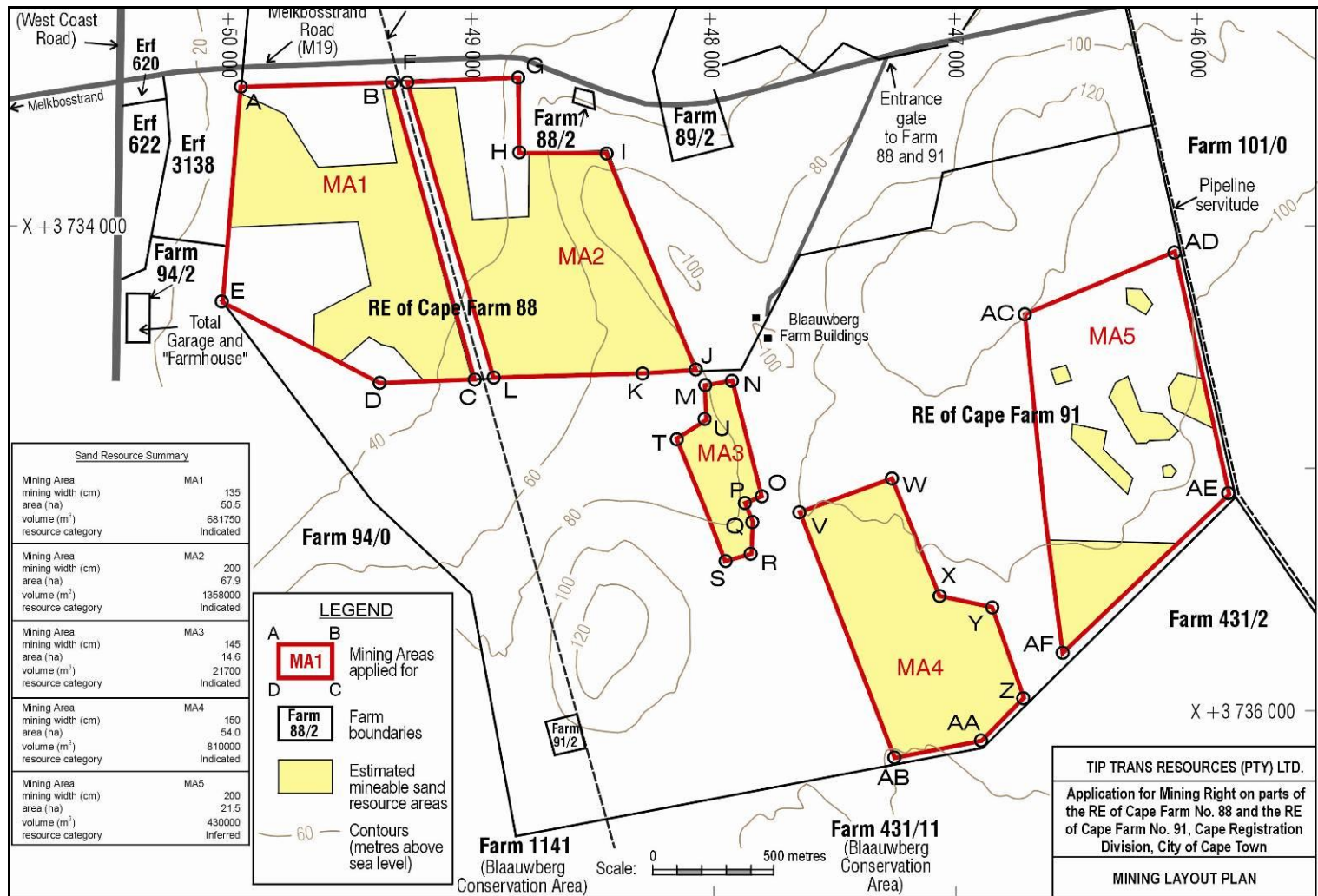


Figure 3: Estimated mineral sand resource areas to be mined; Original Alternative

A structured method of mining and concurrent rehabilitation is planned for these properties. Each mining area will be divided into blocks of approximately 1 hectare in size. Before mining of the first block starts, the top 300mm of topsoil will be removed. The topsoil will be stockpiled just outside of the first block. Rehabilitation will start immediately when mining has been completed on the first mining block. The area will be levelled and sloped and the topsoil will be replaced. The rehabilitated area will be ploughed and a cover crop established to stabilise the soil and protect it from erosion.

At any one time there should be approximately one hectare of land open in the active mining area, and one hectare of land that is being rehabilitated (i.e. concurrent mining and rehabilitation). When mining has been completed in one of the Mining Areas, it will be necessary to complete the rehabilitation of the final mining block, before moving on to the next Mining Area.

The planned end use of the land is to rehabilitate it so that it can continue being used as pastureland for cattle (i.e. extensive agriculture).

1.2 Terms of Reference

A Visual Impact Assessment was requested by Heritage Western Cape as part of the EIA phase of the application. The purpose of the VIA is to determine the Visual Impact that the proposed sand mining activity will have on the landscape and the receptors in the landscape.

Paul Slabbert from PHS Consulting was appointed by Tip Trans Resources (Pty) Ltd to compile the Visual Impact Assessment (VIA) as per HWC requirements. This report is generally based on South African environmental management procedures and more specifically on the latest provincial guideline endorsed by the Provincial Government of the Western Cape (PGWC) on 3 November 2005: *Guideline for Involving Visual and Aesthetic Specialists in EIA Processes* (Edition 1, Draft: April 2005, PGWC) and the *Guideline for Involving Heritage Specialists in EIA Processes* (Edition 1, June 2005, PGWC).

The Visual Impact Assessment (VIA) report was compiled by a visual specialist, APHP accredited and qualified in environmental and visual planning; with recognised experience in cultural landscape issues.

We have approached the visual assessment with a combination of Visual elements based on “what we can see” and “what we cannot see”. The following points are taken into account:

- Pertinent visual aspects
- Mitigating measures
- Environmental impact (viability, quality and quantity)
- Environmental Management

The VIA Analysis will focus on the Planning, Mining and Post-Mining Phases of this project.

1. Planning Phase: Ensure that this phase is informed to consider all concerns and to mitigate as far as possible.
2. Mining Phase: The implementation of an EMP and mitigating measures to protect the sensitive environment and to minimise visual disturbance.
3. Post-Mining Phase: When the project is implemented, it should reflect what was envisaged during the planning phase.

The visual environment can be structured into the following components:

- Natural Environment: geology, soil, landforms, climate, vegetation and fauna.
- Cultural Historic Environment: urban, rural, human activity, agricultural, architecture, engineering, lighting, services and history.

- Visual Environment: aesthetics views, scenic routes and townscape, natural surrounds and landform.

1.3 Methodology

The following steps were used in the visual assessment process:

- A site visit and visual survey of the site and surroundings;
- Identification of issues raised in environmental Scoping Phase;
- Description of the receiving environment and the proposed project;
- Indication of the nominal view shed and important view corridors on a map, based on topographic information;
- An assessment of the character of the landscape to determine visual characteristics, scenic resources, receptors and visually sensitive areas;
- An indication of quantitative and qualitative criteria, which would be used to measure visual impacts;
- Indication of potential visual impacts using established criteria;
- Provision of visual guidelines and mitigating actions to follow in order to reduce potential impacts of the proposed "Original Alternative"
- Receipt of an amended plan regarded as an "Revised Alternative"
- Assessment of both alternatives
- Description of further mitigation measures and monitoring programmes.

1.4 Definition of 'Visual'

The term 'visual' used in this report is taken in its broadest meaning to include visual, scenic, aesthetic and amenity values represented by the natural and the built environment, which can in totality be described as the area's 'sense of place'.

1.5 Assumptions

The EIA process is in process and the preferred alternative was informed by various specialist studies. These reports informed the current planning fixes. According the EIA report limited assumptions were made in the process to date.

The purpose of this study, together with the Historical, Archaeological and Paleontological Studies, is to inform HWC what level of Visual and related heritage impact is possible if the sand mining activities should proceed.

1.6 Previous Studies

Paul Slabbert from PHS Consulting completed mining and visual related assessments in the Visserhok and Vredendal area, in 2010 and 2011. The author is also involved in conservation projects along the west coast and in particular the West Coast National Park. The author of this document is therefore familiar with the visual landscape along the west coast of South Africa.

The qualification and experience of the author is as follow:

- Paul Slabbert – B Art et Scien (Planning Honours Degree), 15 years experience in heritage, environmental and land use planning. Registered with the Association of Professional Heritage Practitioners (APHP) since 2007. Certified as an EAP by the interim Certification Board (EAPSA) since 2009.

1.7 Key Issues

Issues raised during the public participation process, have been provided by AMATHEMBA Environmental Management Consulting CC. Only those issues that have visual, landscape and heritage implications are listed below:

Table 1. Comments received relating to potential visual, cultural landscape and heritage impacts

| Comments and responses | | |
|------------------------|--|--|
| HWC | An Interim Comment dated 14 November 2011 was provided by HWC requiring an HIA incorporating the following studies with an integrated set of recommendations: 1. archaeological; 2. palaeontological; 3. historical; and 4. visual. | 28 November 2011, AMATHEMBA Environmental Management Consulting CC wrote to HWC requesting that HWC should review the interim comment and exclude the requirement for the historical and paleontological studies |
| | HWC subsequently replied on the 6 th of December 2011, confirming the need for a desktop paleontological study and a historical study, referring in specific to the Battle of Blouberg. | |
| City of Cape Town | <p>The location of the Battle of Blaauwberg burial sites is unknown. Appropriate heritage investigations must be undertaken.</p> <p>Given the projected 20 years life cycle normally associated with a vast mining area of this nature, the mining blocks should be completed in a sequence that would minimize potential impact on the northwards expansion of the Blaauwberg growth corridor.</p> <p>In addition areas least visible from the M19 Melkbosstrand road should be mined first. In this regard the opinion is held that mine phasing should commence first with MA5 and end with MA1.</p> <p>Refer to 2.2.4 Conservation Initiative, for further comments that relate to the inclusion of some of the application area into the Blouberg Conservation Area</p> | <p>Historic Study determined that it is "highly unlikely that a considerable number of burials occurred within the areas of Blaauwberg Farm".</p> <p>The mining activity is not complex and, if required, the sequence can be changed.</p> <p>The comments related to the Biodiversity Network will be field checked by a botanical specialist.</p> <p>The sites landscape significance relate to the natural environment and areas critical for conservation. Areas suitable for maintaining and furthering conservation efforts should be excluded from the mining area.</p> |

2 DESCRIPTION OF VISUAL CHARACTERISTICS (SPATIAL ANALYSIS)

2.1 Location

The proposed mining areas are located on the farm Blaauwberg in specific the remainder of Cape Farm 88 and the Remainder of the Farm 91. The farm is to the east of the R27 (West Coast Road) and to the south of the M19 (Melkbosstrand Road). Access to the farm and the proposed mining sites is off the M19 at the current farm entrance.

The closest mining area to an urban area, MA 1 is 1, 5 km east of Melkbosstrand and 1 km east of Atlantic Beach Golf Estate. The Blaauwberg Hill and Blaauwberg Conservation Area (BCA) is approximately 1 km south and southwest of the applied area. Bloubergstrand is 5 km south of the proposed mining area.

2.2 Description of the Area

The study area is typical of the West Coast region, consisting of an undulating landscape consisting of low hills and sandy flats. The soils consist of aeolian origin sand only . Minimum soil genesis has taken place in the extremely sandy parent material. There is slightly darker topsoil A horizon, containing higher organic matter, which is 20 to 40cm deep. Most of the deeper sands are classified as the Fernwood soil form and the shallower soils are classified as the Kroonstad form according to the South African soil classification scheme. The soils are limited by the low clay content (+- 2-4%) and leaching of the upper soil horizons and therefore have a low water and nutrient holding capacity. As a result, they have a low agriculture potential.

The sand occurs in aeolian sand deposits in two Formations in the applied area. The Witzand Formation is late Pleistocene to Holocene in age and commonly forms parabolic dunes. This Formation occurs in the southeastern part of the property. The Springfontyn Formation consists of well-sorted, fine- to medium-grained, unconsolidated structureless quartzose sand. This formation occurs in the north-west of the applied areas. The bedrock in this area consists of shale of the Malmesbury Group.

Blaauwberg hill and Kleinberg hill south of the application area are significant features in the landscape. The main ridgelines of the hills trend in an N-S direction, parallel to the coastline. Hills in the application area form a connection to the west and northwest with Blaauwberg hill. The hill ridges form a strong "high-land" connection in the relative flat landscape. These ridgelines are indicated in a green broken line in Figure 2 below.

The area is characterised by 4 major landscape types, namely the Coastal terrace (A), undulating plains (D), hillock slopes (C) and the hill tops (D).



Figure 4: Terrain map

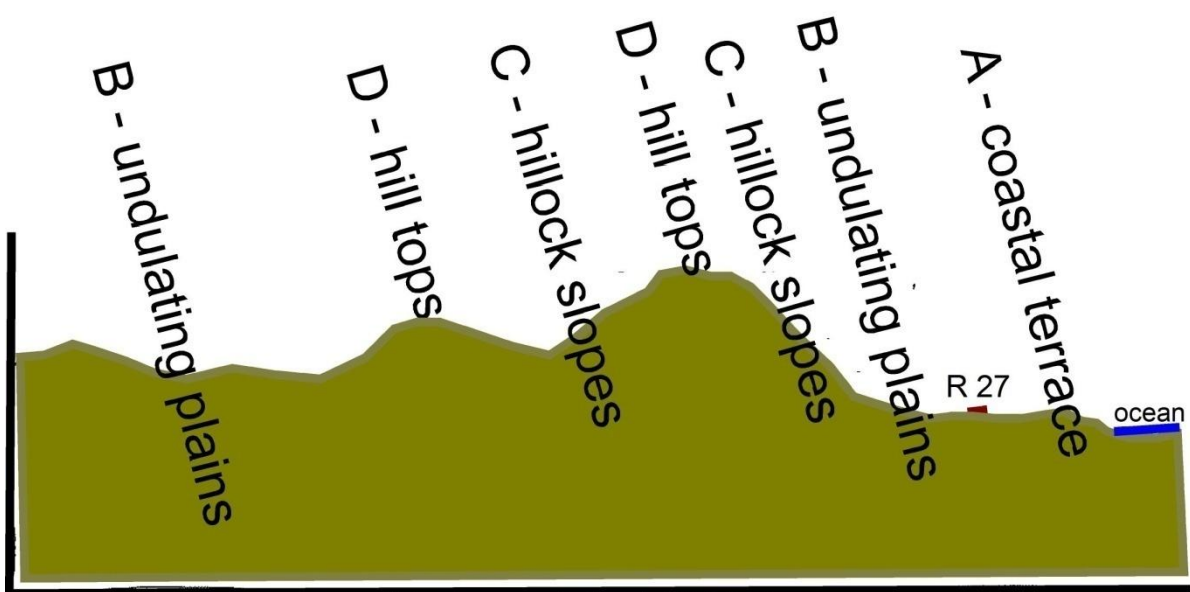


Figure 5: Cross section landscape types viewed from the north

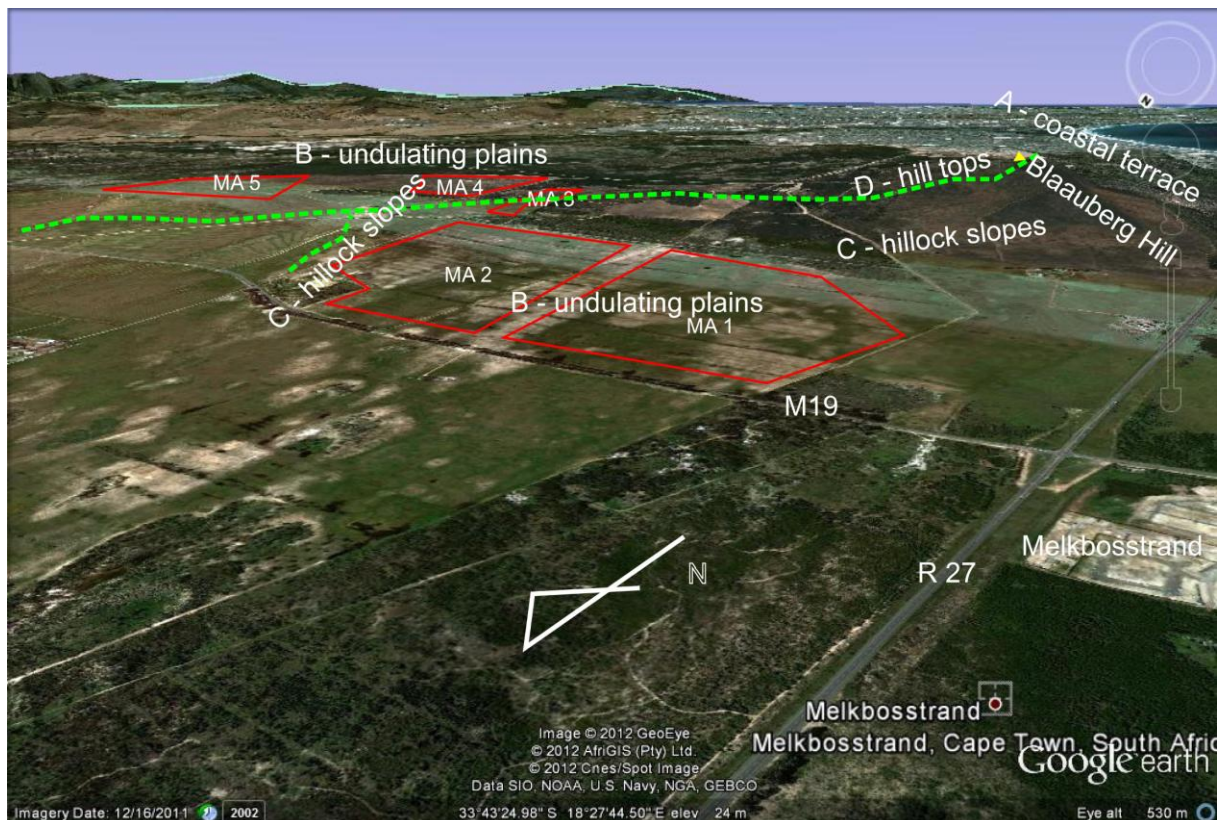


Figure 6: Oblique view of the site from the North West to the Southeast.

Table 2: Landscape types and visual characteristics

| Landscape | Characteristics | Proposed development |
|-----------------------|--|---|
| A – Coastal terrace | Highly dynamic coastal zone with marine sands with high scenic value that is visually exposed /sensitive. More recently stabilised by dense stands of alien vegetation and urban developed. | No mining development is proposed in this landscape type. |
| B – Undulating plains | Flattish sandy plains that gradually rise and fall. Some areas previously cultivated are very flat and sandy. These plains resemble what seem to be remnant dune formations. Flat areas are less visible than elevated areas. Sloped areas are generally visually sensitive. | Most of the mining development is proposed in this landscape type. All areas selected for mining were previously cultivated. |
| C – Hillock slopes | Moderately steep-sided hillsides covered in indigenous and alien vegetation, some slopes have been cultivated in the past, this zone is high visibility with scenic value. | Some of the mining areas encroach onto these slopes. In specific MA 2 is partly on a side slope and MA3 border slope and natural vegetated areas. |
| D – Hill tops | Consist of hill peaks prominent in the landscape. Blaauwberg hill is 223 meter, Grootberg is 231 meter and Kleinberg is 115 meters above sea level. The hill peak east of Blaauwberg Hill is 132 meter above sea level. These tops are rounded and covered in vegetation, the peaks on the application area was ploughed previously. This zone is high visibility with scenic value. | No development or mining areas cover these areas. |

2.3 Photo Report

2.3.1 MA 1 & MA 2

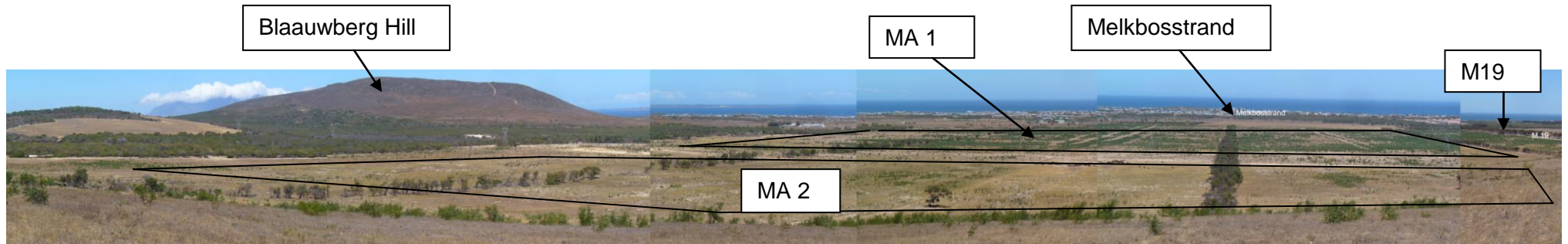


Photo 1: Taken from the viewshed towards the west, separating the application area in a distinct western and eastern area. MA 1 & MA 2 is located on the western side of the viewshed, closest to Melkbosstrand of the proposed mining areas.



Photo 2: Most north western corner of MA 1, with Blaauwberg Hill in picture



Photo 3: MA 1, viewed from the M19



Photo 4: taken from the M19, not mature blue gum lane and flat Nature of MA2



Photo 5: MA 2 with viewshed in background, note photo 1 was taken from this viewshed

2.3.2 MA 3



Photo 6: Taken with a view towards the south.

2.3.3 MA 4



Photo 7: Taken from the primary viewshed towards the east



Photo 8: On site status of MA 4

2.3.4 MA 5

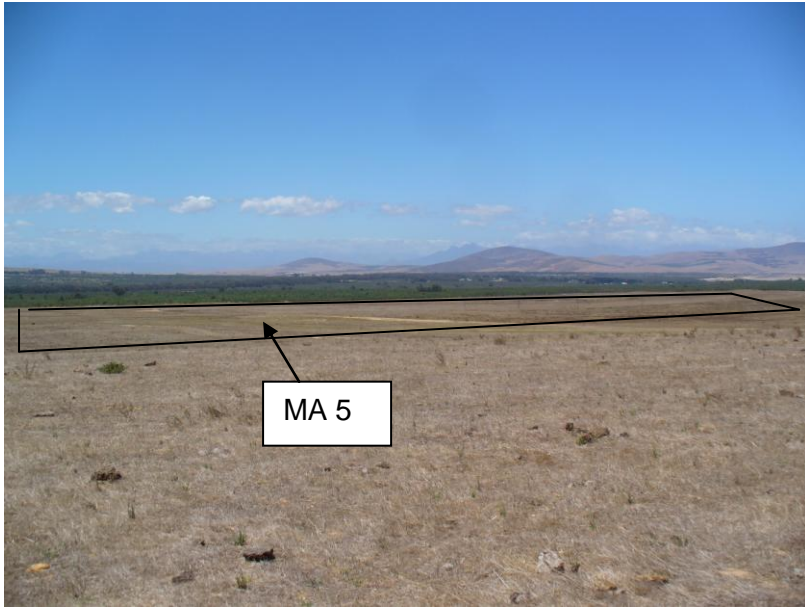


Photo 9: MA 5 with views towards the east

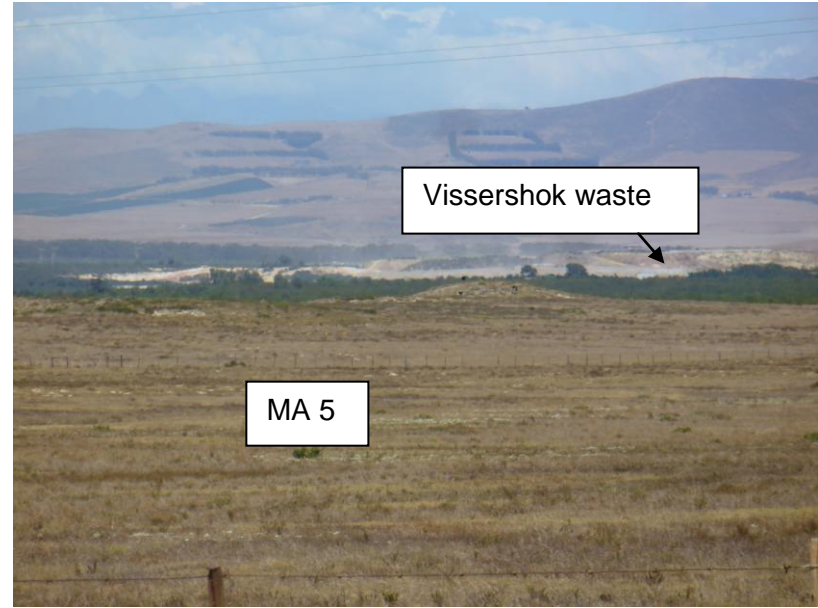


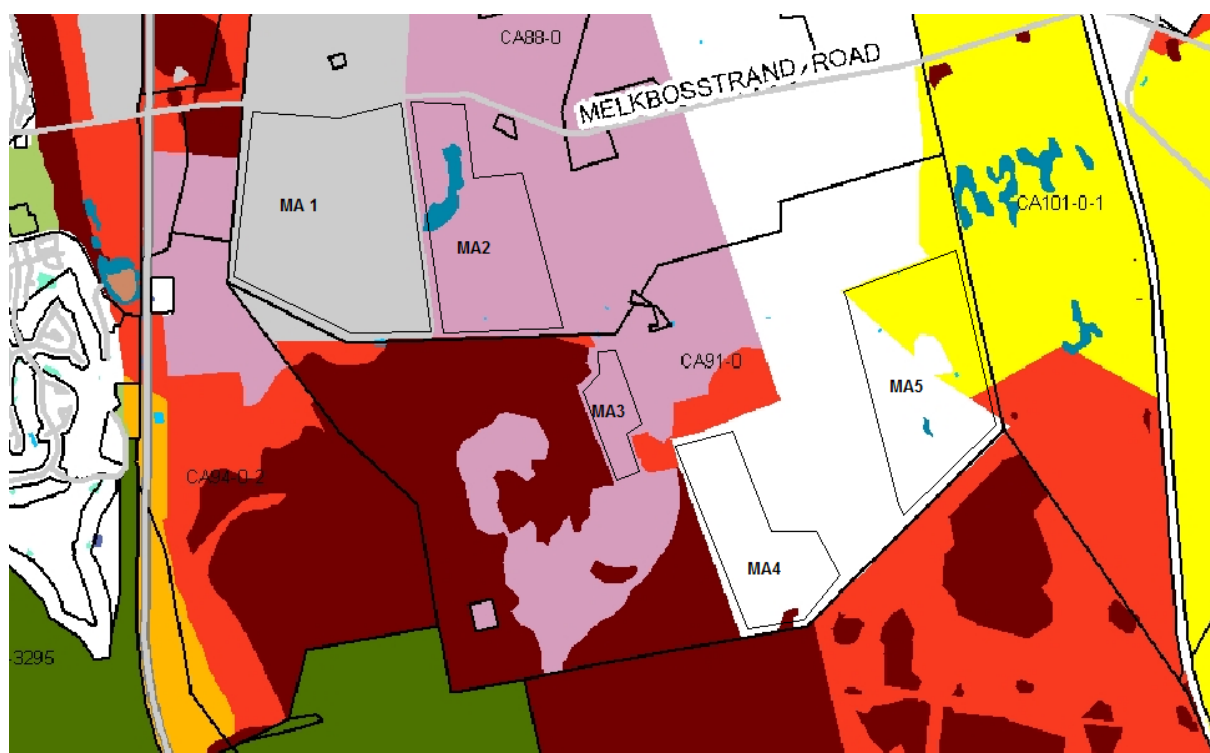
Photo 10: Views towards the south east from MA 5, with Vissershok in the background

2.4 Land Use

In recent years, the previously cultivated fields were utilised for grazing. Primarily beef cattle are present on the farm. Some of the ploughed areas are planted for supporting pastures or cereal crops. The farm consists of some areas not utilised for agriculture. These areas are potentially suitable for conservation initiatives as explained below.

2.5 Conservation Initiative

The Blaauwberg Conservation Area (BCA) is located to the south of the application area. Interim negotiations took place between the City of Cape Town and the landowner with respect to the acquisition of certain land in the application area for the BCA. The land portions required relate the City of Cape Town's Biodiversity Network plans. The City commented as per table 1 above, and provided a map showing proposed mining areas MA1 to MA5 in relation to the City's Biodiversity Network.



BIODIVERSITY NETWORK

Critical Biodiversity Area category:

| | |
|--------------------------|---|
| Protected Area | Conservation Area |
| CBA 1a | Irreplaceable Core Flora Site |
| CBA 1b | Irreplaceable High & Medium Condition Site |
| CBA 1d | Irreplaceable Consolidation Site |
| CBA 1c | Minset High & Medium Condition Site |
| CBA 1e | Connectivity Site |
| CBA 2 | Restorable Irreplaceable Site |
| CESA | Critical Ecological Support Area (Unselected Natural Habitat) |
| OESA | Other Ecological Support Area (No Natural Habitat) |
| Other Natural Vegetation | Unselected Natural Vegetation: High/Med/Restorable |
| No Natural Habitat | Transformed |

Figure 7: Proposed Mining Areas MA1 to MA5 in relation to City of Cape Town's Biodiversity Network (map and legend provided by the City of Cape Town)

The City of Cape Town's comments relate to the above map as follow:

Mining Area MA2 to MA5 impact on the City of Cape Town: Biodiversity Network in the following manner:

- MA2 - The possible presence of a wetland entity.
- MA3 - Located between a CBA 1b and a CBA 1d Irreplaceable site that forms part of land that the City of Cape Town has been attempting to acquire for inclusion to the Blaauwberg Conservation Area (BCA). As such the opinion is held that mining of MA3 and its potential detrimental associated edge effect of the CBA sites warrant this area to be excluded from mining activity.
- MA4 - The southern section impacts a CBA 1b remnant.
- MA5 - The north-eastern half of MA5 impacts a CBA 1d and CBA 2 remnant.

2.6 City of Cape Town Scenic Routes

With reference to the City of Cape Town, 2002 Scenic Drive Network Management Plan the M19 is described as Route 35: MELKBOSSTRAND ROAD, S1 (N7 to West Coast Road R27). This route is regarded as a S1 that refers to routes, which fulfil the definition of both “scenic”, and “drive”: limited access routes, which traverse areas of high scenic quality.

It is interesting to note that the R 27 is regarded as a class 1 road and not addressed as a scenic route in the management plan, however for the purpose of this study some attributes are relevant to the R 27 that will be addressed in another section of the report.

The Scenic Drive Study defines a **Scenic Corridor** as “The unfolding area defined by a major edge condition such as ridge lines and coastlines which constitute a visual entity”. **Scenic Road Envelope** is defined as “the carriageway, the road reserve, immediately adjacent public land and the first erven abutting any of these”. (Refer to Fig 5 below)

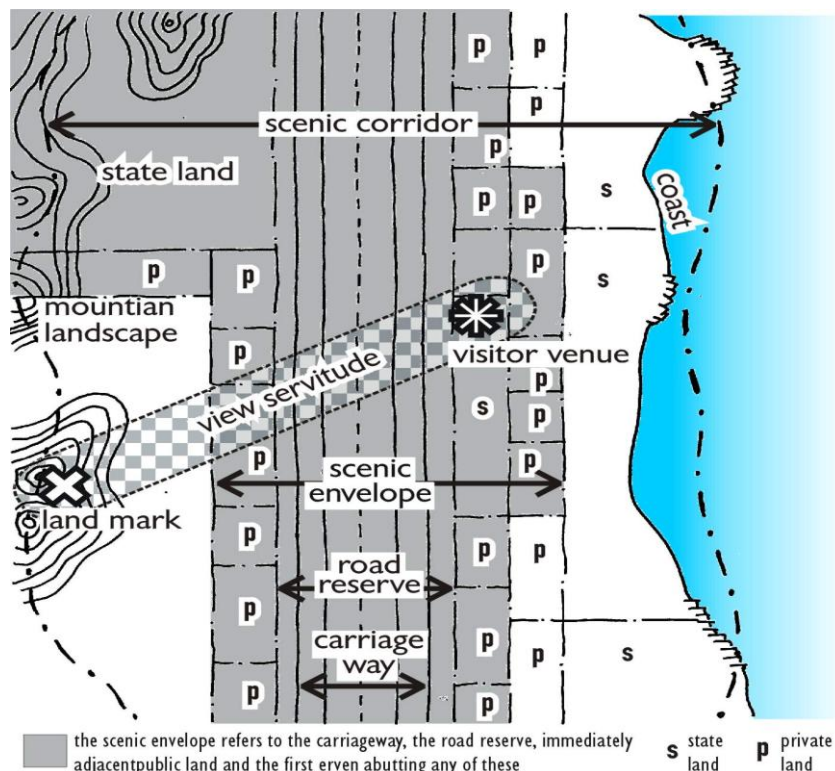


Figure 8: Scenic Corridor vs Scenic Envelope

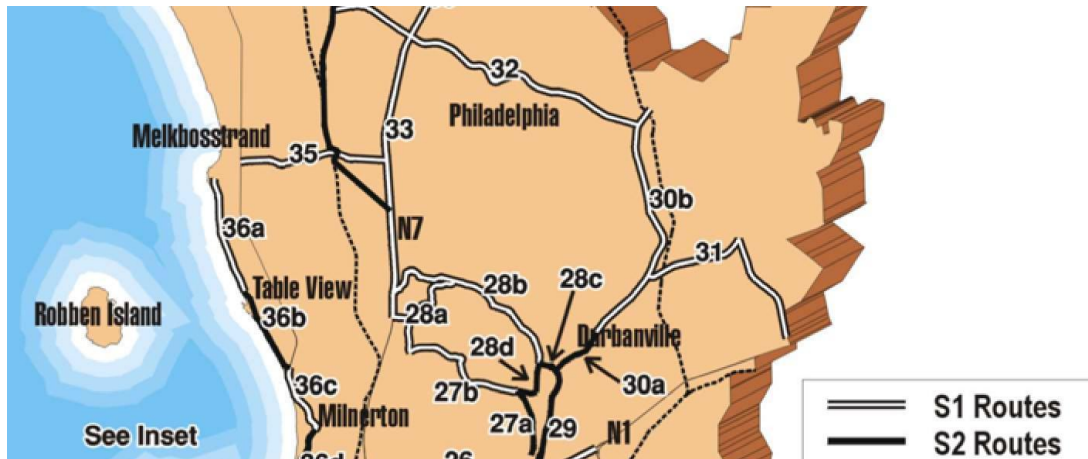


Figure 9: The M19 is indicated as Route 35 on the above map

This route provides **representative scenic views** of the Atlantic Ocean. An avenue of gum trees lined the route.

Policy/Land Use/Control Issues

- *Visual Quality*: Provides views of the countryside, distant Atlantic and mountains.
- *Image of the Route*: There are no major land use issues along this route. The transition from open road to gum lined avenue near the R27 contributes to the image of the route.
- *Availability of tourist facilities and amenities*: No facilities exist and it is desirable to retain the route unimpeded.
- *Creation of local tourism/recreation employment opportunities*: Opportunities for local employment do not exist.

Environmental Issues

- *Land use*: Extensive rural agriculture, mainly wheat.
- *Conservation status*: Proximity of Blaauwberg conservation area.
- *Biophysical elements*: Small section of eucalyptus-lined road.
- *Cultural resources*: Blaauwberg farm homestead.
- *Visual quality*: Elevated vistas of ocean and coastal plain. Middleground views of rolling farmland. High visual quality.
- *Viewpoints & interpretative opportunities*: Blaauwberg highpoint provides an opportunity.

Economic Issues

- *Economic function*: The economic value of this road is considered low as it only provides access to the West Coast Road, and to places such as Melkbosstrand, from the N7.
- *Land value*: The market value of the land can be considered low.
- *Availability of economic infrastructure*: There is no economic infrastructure of note along this route.
- *Resource base*: The value of the natural resource base can be considered low.

Transportation Issues

Route: M19

Class: 2

- *Points of Attraction*: The route provides a significant access route from the N7 west to the Melkbosstrand area, where recreational activities are provided.
- *Network Completion*: Recreational mobility bears medium traffic volume over weekends and holidays.
- *Operational Condition*: No major capacity problems exist.
- *Maintenance*: The road is in a fair condition. Road signage in places has been vandalised. Directional signage at the N7 intersection Road is currently being replaced.

- **Safety:** The only major safety issues along this route are the intersections at the start and end points. Fatal accidents occurred at both the N7 and West Coast Road intersections during the past few years.

As per the abovementioned management plan, this route forms an integral part of the scenic route network for this area. What is important to grasp is the scenic qualities in specific the road scenic envelope and the scenic corridors. The scenic corridor between Blaauwberg Hill and the ocean needs to be maintained, and the connection between the hilltops is essential. The roads scenic envelope as per definition above relate to the immediate area around the M19 and the R 27, and relate to approximately 300 meters on both sides of the roads. These scenic parameters are indicated on a constraints map in figure 7 below.

2.7 Viewshed and View Corridor

The viewshed, or view catchment area, is the zone within which the proposed development would be visible.

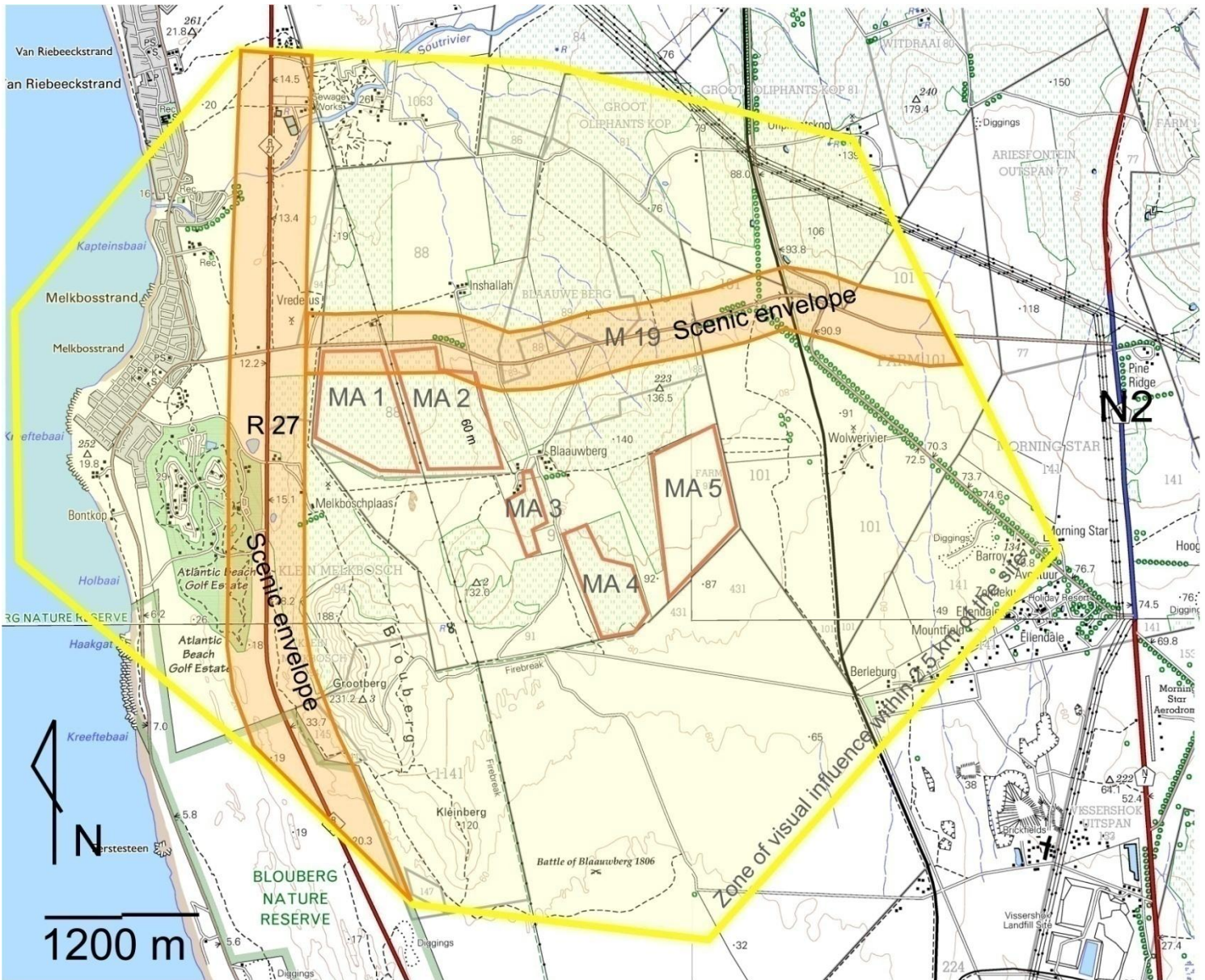


Figure 10: Zone of visual influence

A zone of visual influence within a 2.5 km radius of the site is indicated on Figure 7 above. Various primary and secondary viewsheds exist that was plotted on the A 3 map inserted after this page, which also indicates 'view shadows'.

Figure 7 also indicates a nominal 300 m view corridor, or scenic envelope on either side of the R 27 and M19 within the 2.5 km radius. More detailed Viewsheds and View corridors were drawn in Figure 8 below, to determine the anticipated visual impacts.

Various primary and secondary viewsheds exist that were plotted on Figure 8 below. Manmade viewsheds also exist in the form of houses, walls and mature trees that are established in a neighborhood. A viewshed create view shadows on the opposite side of a key observation point. A receptor is an individual likely to experience or receive visual impact. In other words, a receptor located in a view corridor will only see objects in front of the viewshed, the objects behind the viewshed will be in the view shadow and therefore not visible to a receptor.

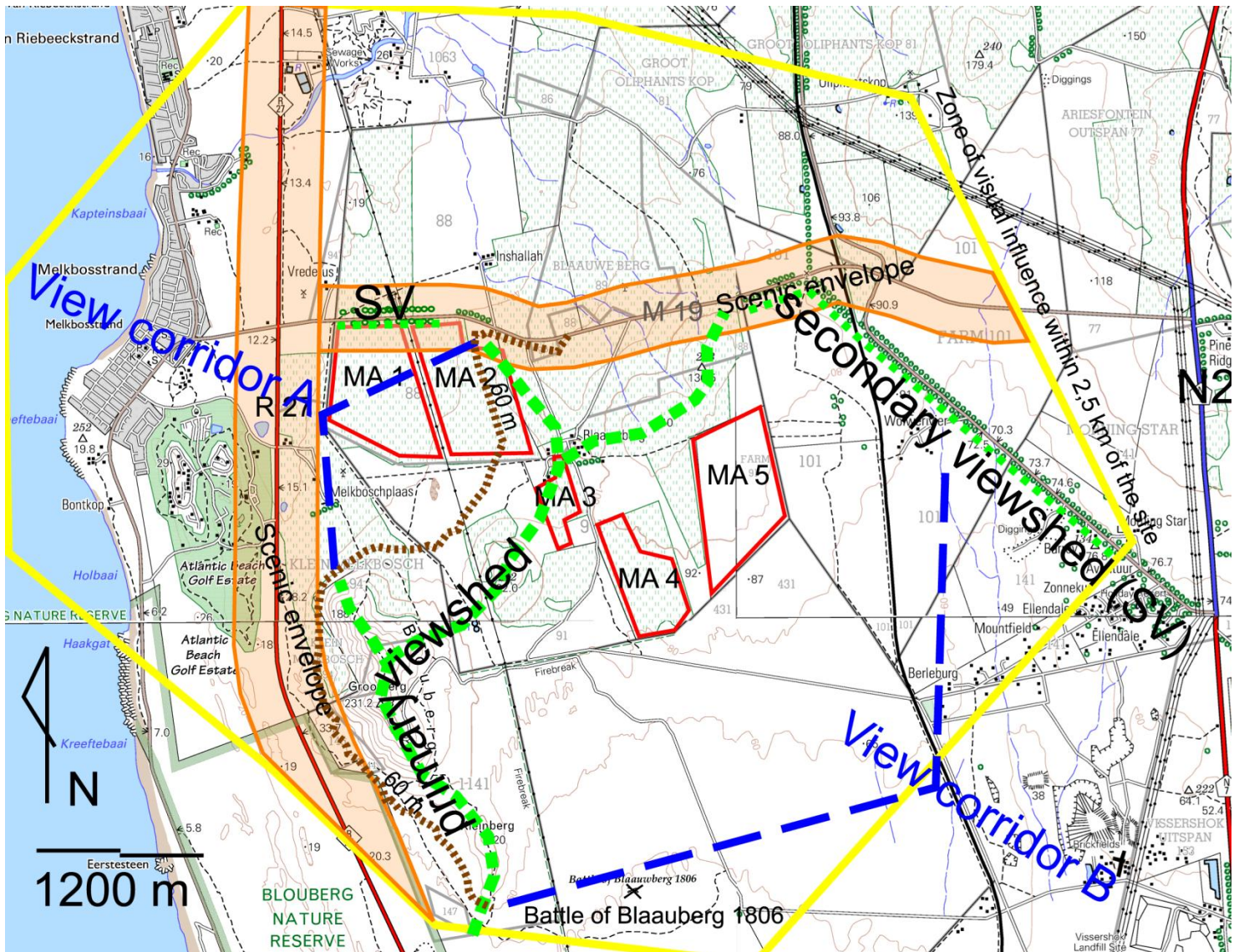


Figure 11: Viewsheds and view corridors

The assessment revealed that only two main view corridors exist.

View corridor A is potentially the most exposed corridor due to the proximity of the receptors. The corridor originates from the coastal terrace and the M19 and R 27. Residents, coastal users, tourist and general urban activities frequent these zones. MA1, MA2 and MA3 are located in close proximity to the receptors varying from 2, 5 km to within 100 meters. A secondary viewshed exist next to the M19 exist close to the intersection with the R 27. Mature gums occasionally block views of the proposed mining area and breaking the direct exposure of the site. MA4 and MA5 are not visible from this corridor due to the primary viewshed.

View corridor B is not as significant as A, due to the fact that very little urban activities are taking place within the 2, 5 km zone of visual influence. The visibility becomes negligible beyond 2, 5 km. Only MA3, MA5 and MA3 are visible in this corridor. No scenic routes or tourism activities take place in this corridor. Some smallholdings and the fringe activities relating to the Vissershok landfill site are present in this zone. The Battle of Blaauwberg site is located on the fringe but inside this view corridor.

2.8 Visual Significance of the Area

The significance rating for the area is based on its scenic value arising from the juxtaposition of the Blaauwberg Hill, the inter-leading hilltops and the connection with the ocean. The fact that it borders the Blouberg Conservation Area adds to this significance, as does its proximity to the R 27 and M19 scenic routes.

The area surrounding the site is furthermore one of the last remaining open spaces in close proximity to the Cape metropolis. The open spaces play an important role in giving the surrounding settlement its identity, especially where most of these are merging into almost continuous suburbia.

The open space / nature reserve plays an additional role in creating, not only a green conservation buffer and corridor between settlements, but also an important visual link between the urban and natural environment.

The proposed site was farmed and ploughed for many years and it is clear that the application areas are located on disturbed land. Man-built infrastructure exists on the farm and scars have been left by previous ploughed actions and access roads. Municipal bulk infrastructure in the form of overhead power lines, pipelines roads and reservoirs also contribute to the degraded nature of the area under investigation.

Due to the extent of the proposed site and the proximity of the primary viewshed, the site is divided into two distinct parts with a varying degree of significance. MA1 and MA2 are located on the ocean side of the viewshed, MA3 is located on the viewshed and MA4 and MA5 are located on the inland side of the viewshed.

Based on the landscape features and view corridors described above the MA1, MA2 and MA3 area can be regarded as having a "Moderate to High Landscape Significance" and a "High Landscape Significance" above the 60 meter contour line. The area on the inland side of the viewshed can be described as having a "Moderate Landscape Significance" throughout the area.

3. VISUAL ASSESSMENT CRITERIA

The description of the environment is undertaken with a view to presenting information for the VIA. A series of both quantitative and qualitative criteria, listed below, are used to measure the value and sensitivity of visual / scenic resources, and ultimately the potential impacts on these. When the criteria below are considered in combination, an indication of the visual sensitivity of the property, and the potential visual impacts can be determined. This in turn gives an indication of the type of mitigation measures required.

In order to categorise the proposed development, it is clear that it relates to low to medium scale infrastructure or activities. It therefore can be regarded as a category 3 development, adjacent to an area or route of medium to high scenic, cultural or historic significance. Theoretically, a moderate to high (noticeable change) visual impact is therefore expected that constitutes a Level 3 VIA.

3.1 Viewpoints (Corridors)

Viewpoints (key observation points), or view corridors, tend to be based on prominent viewing positions in the area, or sensitive viewers identified in the public participation

process. The application area was evaluated to determine from what public vantage points the development will be visible. Primary and secondary viewsheds were drawn in the landscape to determine where views of new development are possible. Receptors outside of the 300 meter zone both sides of the road and areas outside of the 2.5 km zone of visual influence around the development are unlikely to see the development. Only two major view corridors were identified as illustrated in Figure 8 above.

View corridor A is regarded as most relevant to potential visual impact. View corridor B does not pose the potential of negative visual impact.

3.2 Visibility

Visibility tends to be determined by distance between the development and the viewer. Visibility becomes negligible with distances over 2.5 km. Figure 7 indicate the 300 meter zone of visual influence on both sides of the R 27 and the M19. The receptors in View corridor A & B will experience visibility.

3.3 Visual Exposure

Visual exposure is determined by the 'viewshed' or 'view catchment (corridor)', being the geographic area within which development would be visible. The viewshed boundary follows ridgelines and high points in the landscape. A zone of visual influence and view corridors are indicated on Figure 8. MA1, MA2 and MA3 experience visually exposure.

3.4 Landscape Integrity

The Blouberg Conservation Area and surrounding landscape plays an important role as an area of landscape significance. It is one of the last remaining open spaces bordering a major metropolis. Visual quality is enhanced by intactness of the landscape, lack of visual intrusions, and the presence of a strong 'sense of place'. The adjacent area to the site especially those within the conservation area are intact and an attempt to expand and restore the surrounding environment is currently underway. The application area is a farming area with a variety of infrastructure that has degraded the integrity of the natural and scenic environment of the immediate mining areas.

3.5 Visual Absorption Capacity (VAC)

This is the ability of the landscape to conceal or screen structures, mainly by means of topography or vegetation cover, but in this case, the surrounding built-up area created manmade structures and gardens with tall trees, that allow the site to be less visible. The most visually absorptive area of the property in this case tends to be on the eastern side of the viewshed (MA4 and MA5), because it is out of site for most of the receptors using scenic routes and the limited receptors in this zone.

Windrows planted as windbreaks are evident in MA1 and MA2 due to previous agricultural practices. When the receptor is at ground level, these windrows tend to break the views of the area. Mature trees act as secondary viewsheds that conceals part of the proposed mining areas.

3.6 Visual Sensitivity

Visual sensitivity is determined by a number of factors in combination, such as prominent topographic or other scenic features. These include the following:

- An open exposed site with limited viewsheds;
- Higher elevations and ridges tend to be more prominent and visible; and
- Steep slopes are more visible from a distance than flatter slopes.

When the criteria above are considered in combination, an indication of the visual sensitivity of the property, and the potential visual impacts can be determined. This in turn gives an indication of the type of mitigation measures required.

4. SUMMARY OF VISUAL CONSTRAINTS

Based on the field trip and knowledge of the area, as well as the visual criteria set out above, preliminary visual constraints and suitability for development have been determined. These are summarized in the Table 3 below and illustrated in Figure 9 below.

| Type | Visual Constraints |
|----------------------|---|
| Corridors | A 300m setback along the M19 and R 27, which is scenic route. The setback can be relaxed because the site is already disturbed and the fact that windrows and mature trees exist that can conceal the proposed works. |
| | A setback of at least 300 meter needs to be provided, an existing windrow exists that can act as a berm for topsoil in the fist mining blocks |
| | MA3 is located along the axis that connects the hilltops and in line with the primary viewshed, this site is also within the identified Blouberg Conservation Area ecological support area. |
| Slopes | Avoid 1:4 slope encroachment, provide for a setback from these slopes |
| | No mining above the 60 meter contour line in View corridor A on the coastal side of the viewshed. |
| Hills and ridgelines | As a norm these areas should be avoided |
| | MA3 is located along the ridgelines and axial connection of the hill tops |
| Natural areas | MA5 needs to be omitted due to biodiversity reasons |
| | MA3 needs to be omitted due to the connectivity and landscape restoration possibilities associated with the site |

Table 3: Visual Constraints

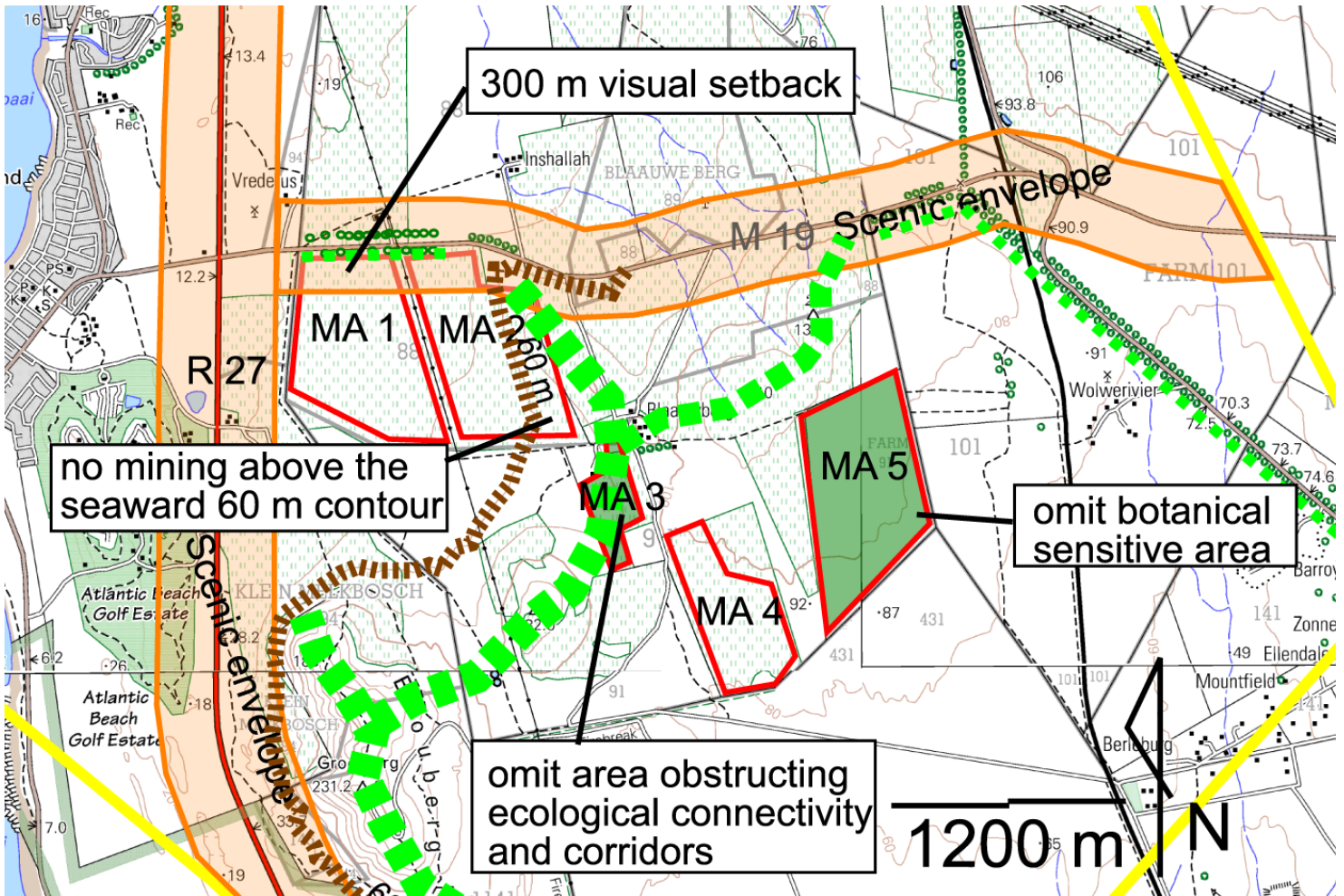


Figure 12: Visual and Aesthetic Constraints

5. VISUAL GUIDELINES

Visual guidelines have been proposed below to inform the layout of the mining areas. Please note that these are guidelines only, which will mitigate the moderate to high visual impact expected.

5.1 Layout

- Mining activities should ideally respect the R 19 scenic drive qualities to allow for continuation of the current open space and rural feel. A setback of 300 meter needs to be provided from the M19.
- The closest existing windrow to 300 meter should be selected in MA 1 and MA 2 to act as the most northern boundary of the mining area.
- Areas above the 60 meter contour in MA 2 should be avoided completely, this should act as the most eastern boundary of MA2.
- MA 3 should be omitted because it is located on the viewshed and along an ecological support area.
- MA 5 should also be omitted from the application based on botanical sensitivity.

5.2 Roads & Infrastructure

- Only existing access roads should be used.
- Access roads should be kept as narrow as feasible, in order to minimize the development or expansion of new roads.

- Due to the fact that mining of 1 ha and rehabilitation of 1 ha will run concurrently, limited to no infrastructure is required.

6. RESPONSES TO THE VISUAL GUIDELINES

The visual guidelines were provided to the applicant and to the environmental consultants. A “Revised Alternative” was produced and the following changes were made to the “Original Alternative”.

- MA 3 and MA 5 were omitted from the proposal, based on visual and ecological reasons.
- The remaining MA 1, MA 2 and MA4 were also amended and will be referred to as RA 1, RA 2 and RA 4 for the remainder of the assessment
- The biggest changes in RA1 & RA2 are illustrated below. The preferred areas are shaded in transparent red; note the original MA points are also shown. The northern boundary of RA1 & RA2 is now 340m south of the M19.
- The southern boundary of RA1 has been moved well away due to archaeological sites identified by Jonathan Kaplan (Site 475) and Orton’s Site 9.
- RA2 has also been adjusted so that no part of RA2 is above the 60m contour line. Only 2 corners touch the 60m contour line, & all the rest of the area is lower than 60m.
- Minor changes have been made to RA4 for botanical reasons. A small patch has been excluded in the south & a 30m buffer has been left in the north.

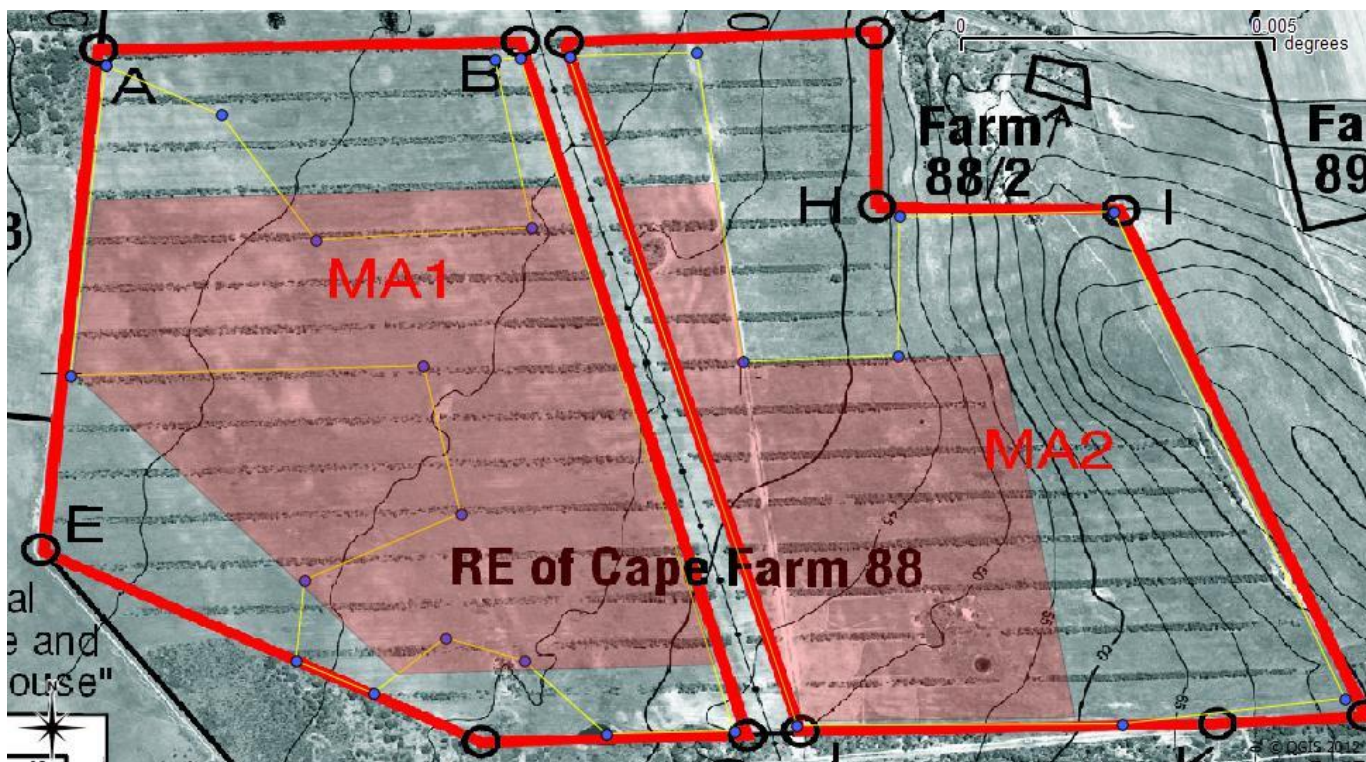


Figure 13; 2nd and Revised Alternative indicated in transparent red (MA 1 will be known as RA1 & MA 2 will be known as RA2)

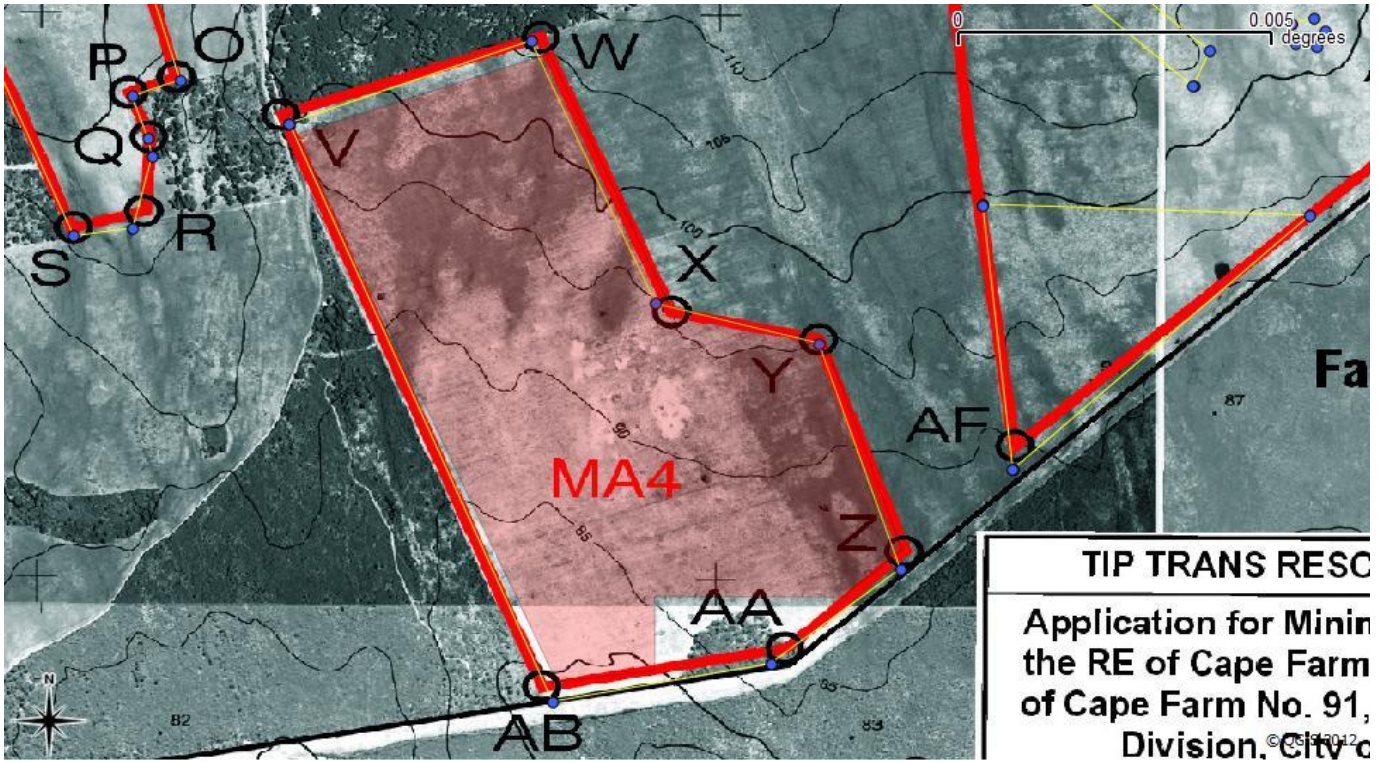


Figure 14; 2nd and Revised Alternative: MA4 will be known as RA4, a section in the south was removed due to botanical constraints.

7. REVISED ALTERNATIVE

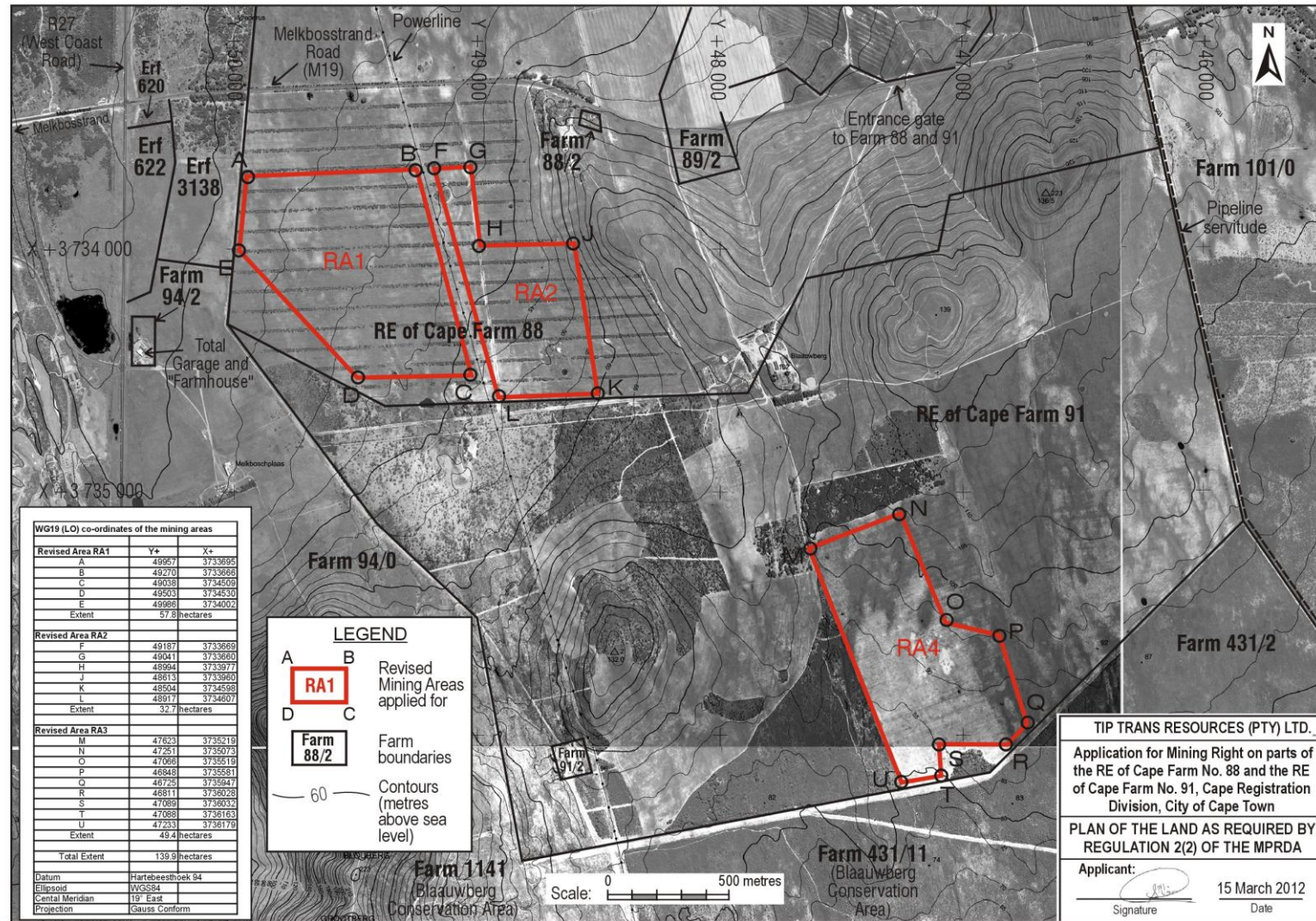


Figure 15: Revised and Preferred Alternative

8. VISUAL IMPACT ASSESSMENT

The Impact Assessment phase of the assessment will evaluate the impacts of both the Original (MA 1, MA 2, MA 3, MA 4 & MA 5) and Revise Alternative (RA 1, RA 2 & RA 4). **Rating the visual impact it was important to keep in mind that at any one time there should be approximately one hectare of land open in the active mining area, and one hectare of land that is being rehabilitated**

Based on the impact assessment criteria the following levels of visual impact will be experienced:

Original Alternative:

- MA 1 –** Some change in the visual character of the area; and adds to existing development in the area, a recognisable feature within the view frame of the receptors. A moderate impact can be expected.
- MA 2 –** Some change in the visual character of the area; and adds to existing development in the area, a recognisable feature within the view frame of the receptors. A moderate impact can be expected.
- MA 3 –** Potentially intrusion on protected landscapes or scenic resources, and clearly visible in the view frame of the receptors. A high impact can be expected.
- MA 4 –** Potentially low level of intrusion on landscapes or scenic resources; limited change in the visual character of the area, practically not visible. A minimal impact can be expected.
- MA 5 –** Potentially low level of intrusion on landscapes or scenic resources; but with intrusion on botanical features. A minimal visual impact can be expected.

Revised Alternative:

RA 1 (340 meter setback provided from the M 19) –

Limiting level of intrusion and due to mining methods (1ha at a time), limited change to the receptors immediate surrounds resulting in a minimal to moderate impact.

RA 2 (340 meter setback provided from the M 19 and no mining above the 60 meter contour) –

Limiting level of intrusion and due to mining methods (1ha at a time), limited change to the receptors immediate surrounds resulting in a minimal to moderate impact.

- RA 4 –** Potentially low level of intrusion on landscapes or scenic resources; limited change in the visual character of the area, practically not visible. A minimal impact can be expected.

8.1 Evaluation Matrix

Find the visual impact assessment matrix on the following page.

| Type | Impact | Original Alternative | Revised Alternative |
|-----------------------------|---|--------------------------|---------------------|
| Visual exposure of the area | High visual exposure – covers a large area (e.g. several square kilometres). | | |
| | Moderate visual exposure – covers an intermediate area (e.g. several hectares). | MA1, MA2, MA3, MA4 & MA5 | |
| | Low visual exposure – covers a small area around the project sites. | | RA1, RA2 & RA4 |
| Visual absorption capacity | High VAC – e.g. effective screening by topography and vegetation; | MA4 & MA5 | RA4 |
| | Moderate VAC – e.g. partial screening by topography and vegetation; | MA1 & MA2 | RA1 & RA2 |
| | Low VAC – e.g. little screening by topography or vegetation. | MA3 | |
| Landscape integrity | Low compatibility – visually intrudes, or is discordant with the surroundings; | MA3 & MA2 | |
| | Medium compatibility – partially fits into the surroundings, but clearly noticeable | MA1 | RA1 & RA2 |
| | High compatibility – blends in well with the surroundings. | MA4 & MA5 | RA4 |
| Visibility of the project | Highly visible – dominant or clearly noticeable | MA1, MA2 & MA3 | |
| | Moderately visible – recognisable to the viewer | | RA1 & RA2 |
| | Marginally visible – not particularly noticeable to the viewer | MA4 & MA5 | RA4 |
| Extent | Site-related: extending only as far as the activity; | MA4 & MA5 | RA1, RA2 & RA4 |
| | Local: limited to the immediate surroundings; | MA1, MA2 & MA3 | |
| | International: affecting areas across international boundaries. | | |
| Duration | Short term, (e.g. duration of the construction phase); | MA1, MA2, MA3, MA4 & MA5 | RA1, RA2 & RA4 |
| | Medium term, (e.g. duration for screening vegetation to mature); | | |
| | Long term, (e.g. lifespan of the project); | | |
| | Permanent, where time will not mitigate the visual impact. | | |
| Intensity | Low, where visual and scenic resources are not affected; | MA4 & MA5 | RA4 |
| | Medium, where visual and scenic resources are affected to a limited extent; | MA1 & MA2 | RA1 & RA2 |
| | High where scenic and cultural resources are significantly affected. | MA3 | |
| Probability | Improbable, where the possibility of the impact occurring is very low; | MA4 & MA5 | RA1 & RA2 |
| | Probable, where there is a distinct possibility that the impact will occur; | MA1 & MA2 | RA4 |
| | Highly probable, where it is most likely that the impact will occur; or | MA3 | |
| | Definite, where the impact will occur regardless of any prevention measures. | | |
| Significance | Low, where it will not have an influence on the decision; | MA4 & MA5 | RA1, RA2 & RA4 |
| | Medium, where it should have an influence on the decision unless it is mitigated; | MA1, MA2 & MA3 | |
| | High, where it would influence the decision regardless of any possible mitigation. | | |

Table 4: Visual Impacts

8.2 Impact Summary

Original Alternative – even though 1 ha will be mined and 1ha will be rehabilitate at one given time, the total area selected for the mining activity included visually and aesthetically sensitive areas. Intrusion into these areas will highlight the activities present that could result in the impact spreading beyond the local eye. The integrity of the BCA and biodiversity areas will also be impacted on.

Overall the impacts of this alternative can be rated as follow: A moderate visual exposure, moderate to low visual absorption, medium to low landscape compatibility and highly visible from the west.

| Potential visual impacts: | MA1 | MA2 | MA3 | MA4 | MA5 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|
| Nature of impact: | Direct | Direct | Direct | Direct | Direct |
| Extent of impact: | Local | Local | Local | Site specific | Site specific |
| Magnitude of impact; | Medium | Medium | High | Low | Low |
| Duration of impact; | Short-medium term | Short-medium term | Short-medium term | Short-medium term | Short-medium term |
| Probability of occurrence: | Possible | Possible | Definite | Possible | Possible |
| Confidence: | Certain | Certain | Certain | Certain | Certain |
| Degree to which the impact can be reversed: | Reversible | Reversible | Reversible | Reversible | Reversible |
| Degree to which the impact may cause irreplaceable loss of resources: | Replaceable | Replaceable | Replaceable | Replaceable | Replaceable |
| Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High) | Medium | Medium | Medium-high | Low | Low |
| Degree to which the impact can be mitigated: | Possible | Possible | Possible | Possible | Possible |
| Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High) | Medium-Low | Medium-Low | Medium | Low | Low |

Table 5: Original Alternative Impact Ratings

Revised Alternative – the degree to which this alternative adhered to visual and bio-physical constraints mitigates the impacts identified in the original alternative significantly. Two of the areas were omitted completely, and allowing for visual setbacks of 340 meter next to the M19, scenic route and no development above the 60 meter contour on the west of the hills also reduced the likely visual impacts.

Overall the impacts of this alternative can be rated as follow: A moderate to low visual exposure, moderate to high visual absorption, medium landscape compatibility and medium to low visibility from the west.

| Potential visual impacts: | RA1 | RA2 | RA4 |
|---|-------------------|-------------------|-------------------|
| Nature of impact: | Direct | Direct | Direct |
| Extent of impact: | Local | Local | Site specific |
| Magnitude of impact; | Low | Low | Low |
| Duration of impact; | Short-medium term | Short-medium term | Short-medium term |
| Probability of occurrence: | Possible | Possible | Possible |
| Confidence: | Certain | Certain | Certain |
| Degree to which the impact can be reversed: | Reversible | Reversible | Reversible |
| Degree to which the impact may cause irreplaceable loss of resources: | Replaceable | Replaceable | Replaceable |
| Significance rating of impact prior to mitigation | Medium-Low | Medium-Low | Low |

| | | | |
|---|-----------------|-----------------|-----------------|
| (Neutral, Very Low, Low, Medium, or High) | | | |
| Degree to which the impact can be mitigated: | Possible | Possible | Possible |
| Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High) | Low | Low | Low |

Table 6: Revised Alternative Impact Ratings

9. CONCLUSIONS AND RECOMMENDATIONS

Components of the site form a visual connection with Blaauwberg Hill and the hills on the application area. The adjacent Blouberg Conservation Area is largely undeveloped, and can be described as an area of high landscape significance. The area has scenic importance and is located on a scenic route. The surrounding property is currently an open space used for conservation purposes, and several of the landscape features on the property are visually sensitive.

On the other hand, the property is already impacted agricultural land, and is in very close proximity to urban development and bulk infrastructure. The large size of the property outside the urban context allows for some development, respecting corridors of open space, which could serve as visual buffers.

Furthermore, the significant size of the property with one owner provides an opportunity for controlled mining activities as per the proposed mining methods. It is imperative that mining is allowed on 1 ha at a time and that rehabilitation is successful before other areas are mined.

Visually sensitive features and visual constraints have been identified, together with preliminary visual guidelines for defining the preferred mining area. These guidelines were taken into consideration and the Revised Alternative was developed. The Revised alternative takes all the mitigating factors into consideration adhering to the proposed visual setback guidelines and omitting mining areas with a high landscape integrity that relate to conservation programmes. This has resulted in a much smaller extent, located on out of sight areas with a short to medium term activity that relates to 1 ha at a time, resulting in an overall low visual impact significance.