REPORT IN MOTIVATION IN TERMS OF THE OVERSTRAND MUNICIPALITY: AMENDMENT BY-LAW ON MUNICIPAL LAND USE PLANNING, 2020 TO PERMIT THE EXTENSION OF SAND AND GRAVEL MINING ON PORTION OF THE REMAINING EXTENT OF ERF 210 GANSBAAI SITUATED IN THE OVERSTRAND MUNICIPAL AREA, REGISTRATION DIVISION OF CALEDON, WESTERN CAPE PROVINCE

(i) SECTION 16 (2)(d):	**SUB-DIVISION OF A PORTION OF REM ERF 210 GANSBAAI**
(ii) SECTION 16 (2)(a):	**REZONING OF SUB-DIVIDED PORTION OF REM ERF 210 GANSBAAI FROM UNDETERMINED ZONE TO AGRICULTURAL ZONE 1: AGRICULTURE (AGRI)**
(iii) SECTION 16 (2)(o):	**CONSENT USE TO PERMIT MINING IN AGRICULTURAL ZONE 1: AGRICULTURE (AGRI) OF THE SUB-DIVIDED AND REZONED PORTION OF REM ERF 210 GANSBAAI**
(iv) SECTION 16 (2)(b):	**PERMANENT DEPARTURE TO REDUCE THE "COMMON BUILDING LINE" FROM 30.0M TO 9.0M TO PERMIT MINE EXCAVATION ALONG THE NORTHERN BOUNDARY OF THE MINING RIGHT AREA (REM ERF 210 – FARM STRANDFONTEIN 712 BOUNDARY)**
(v) SECTION 16(2)(g):	**A POST-MINING SITE DEVELOPMENT PLAN FOR THE SUB-DIVIDED AND REZONED PORTION OF REM ERF 210 GANSBAAI**

Prepared for:

- **Sizika Ukhanyo Trading 410 CC**
- **Overstrand Municipality**

Prepared by:

Motivation Report 1647/R1

October 2021

Refer Appendices and Annexures Report 1647/R2

dated October 2021

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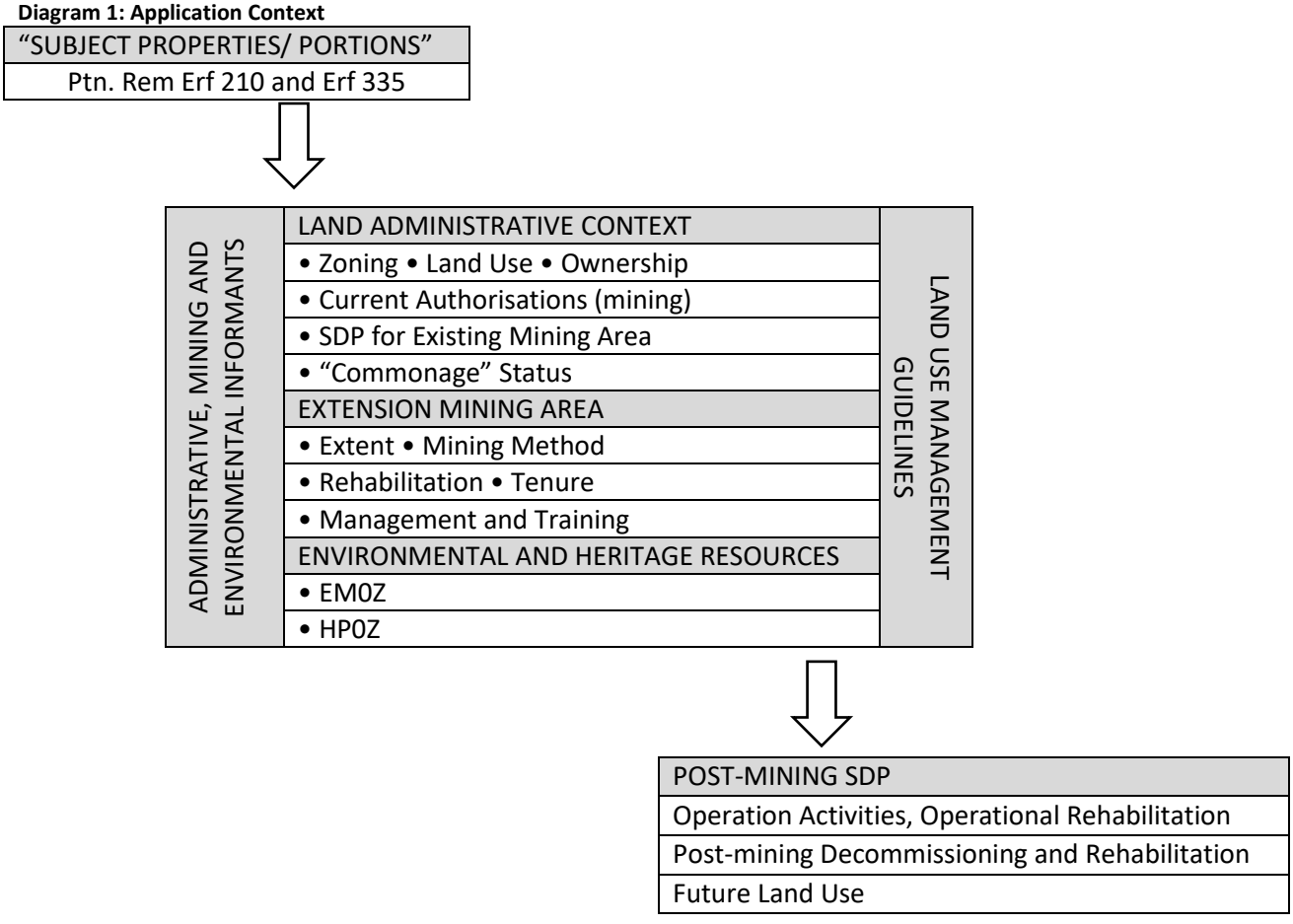
1. INTRODUCTION

1.1. Purpose of this Report

The purpose of this application has as its objective the putting in place of a Post-Mining Site Development Plan/ SDP to manage operational and post-mining rehabilitation of the recently approved Mining Right Extension on a portion of the Remaining Extent of Erf 210 Gansbaai. Figure 1 illustrates the Erf 210 boundary, Erf 335 and the existing approved Mining Right Area, as well as the existing approved Mining Permit Area incorporated into the Mining Right extension and the proposed Extension Area. The "subject portion", that is Rem Erf 210 located abutting the north-east boundary of Rem Erf 210, some 1.5km north-east of the Gansbaai and Masakhane urban areas, and accessed by a gravel road from the south.

Furthermore such mining objective will seek a rationalisation and restructuring of the current land use management (i.e. "undetermined" land use/ zoning) insofar mining within the aforementioned cadastral context through alignment with the current Land Administrative Context, the recent Mining Right Extension and EIA approval, the Municipal Spatial Development Framework and Environmental Management Framework (EMF), notably the Environmental Management Overlay Zones (i.e. HPOZ and EMOZ), together with other land use planning and management informants (e.g. LED) (refer Diagram 1).

Diagram 1: Application Context



1.2. Demand for Construction Sand and Gravel

Siziko Ukanyo Trading 140 CC have operated the sand and gravel mine on Erf 335 and portion of Remainder Erf 210 Gansbaai since 2005, with the previous owner having licenced the mine in 2000, noting that aerial photography of the area indicates mines operative in 1986, albeit illegally. Such continuous operation over 21 years and support of the Overstrand construction industry clearly demonstrates the demand for construction sand and gravel in the Overstrand, the built product of which is reflected in the significant scale of urban development growth in the Overstrand during the same period. It is noted also that the sand and gravel mine required expansion to meet such materials demand, in 2000 including a

gravel mining permit for 1.4ha and the 7.38ha Mining Right for sand mining on Rem Erf 210, with the current application given that both the existing mining areas and reserves of sand and gravel have been depleted by over eighty (80) percent.

Overstrand, as recognised in and promoted through its forward vision and planning, needs to maintain, refurbish and continue to grow its development, with eco-and marine tourism and education, medical services and retirement underpinning it as a regional, national and international sought-after destination and investment. Critical to maintaining and growing its economy is "*construction sand and gravel availability*", fundamental inputs to any development, its maintenance and refurbishment, irrespective of building technology and material type, with accommodation, road, harbour and services infrastructure development essential to Overstrand's on-going development and investment attraction.

The depletion of material reserves at the current mining area and a growing demand for sand and gravel in the general construction industry and for road building and upgrading prompted the consideration of expanding the existing construction sand/ gravel mining venture on Rem Erf 210 Gansbaai or the securing of such material from other sites. While the most suitable source of material would be through an extension of the existing excavation, assumed restrictions (e.g. subsurface water flow) resulted in the following alternative sites being explored, including the north-west coastal belt, the southern coastal belt, inland sands and Danger Point. While presenting quality material in certain instances, such sites also comprised inherent environmental or nuisance constraints to surrounding communities and environs. Accordingly, the pursuance of extension of the existing sand excavation, including the gravel excavation extension, given that the existing mine is ideally placed to continue to support the Overstrand development initiative given the following:

- The mine being established, with an existing and mitigated footprint disturbance of its logistical facility (i.e. Erf 335) accommodating its workshop, mine office, loading and dispatch area, together with its access road;
- Having significant reserves of construction sand and gravel; and
- Being located relatively central and in close proximity to its Overstrand customers.

Accordingly, the extension of the existing sand and gravel mine on portion of Rem Erf 210 has a competitive edge over any alternative existing and potential mine sites, given the following:

- Uninterrupted and continued supply of sand and gravel to the wider Overstrand and Overberg construction industry (both having growing construction sectors) at a competitive price given the proximity of Gansbaai customers.
- Continued employment of existing staff and benefits to the labour sending community in terms of the mine's Social and Labour Plan which contributes financially to municipal IDP identified community-based properties.
- A shorter delivery route due to its location relative to consumers, offering a road maintenance cost saving and increased public road user safety insofar heavy truck movement.
- Reserves of construction sand (543648m³; tight) and gravel (29724m³; tight) supported by an existing logistical facility and access.

1.3. Application

The land use authorisation application is lodged by Settlement Planning Services (Western Cape) trading as Setplan (Reg. No. CK2004/012906/23) on behalf of Dynavest Thirteen (Pty) Ltd (Reg. No 19990/692607), owner of Erf 335 Gansbaai and the mining company Sizika Ukhanyo Trading 140 CC, and Overstrand Municipality, owner of Rem Erf 210 Gansbaai. Refer Annexure A for a Company Resolution and Power of Attorney from Dynavest Thirteen (Pty) Ltd and Annexure B for a Power of Attorney from the Overstrand Municipality.

The application, having its purpose the extension of the existing sand and gravel mine onto a portion of the remaining extent of Erf 210 Gansbaai situated in the Overstrand Municipal Area, Registration Division

Caledon, is submitted in terms of the Overstrand Municipality: Amendment By-Law on Municipal Land Use Planning, 2020 and includes the following:

(i) Section 16 (2)(d): Sub-division of a Portion of Rem Erf 210 Gansbaai
(ii) Section 16 (2)(a): Rezoning of Sub-divided Portion of Rem Erf 210 Gansbaai from Undetermined Zone to Agricultural Zone 1: Agriculture (AGRI)
(iii) Section 16 (2)(o): Consent Use to Permit Mining in Agricultural Zone 1: Agriculture (AGRI) of the Sub-divided and Rezoned Portion of Rem Erf 210 Gansbaai
(iv) Section 16 (2)(b): Permanent Departure to Reduce the "Common Building Line" from 30.0m to 9.0m to Permit Mine Excavation along the Northern Boundary of the Mining Right Area (Rem Erf 210 – Farm Strandfontein 712 boundary)
(v) Section 16(2)(g): A Post-Mining Site Development Plan for the Sub-divided and Rezoned Portion of Rem Erf 210 Gansbaai

A Pre-Application Consultation was scheduled and held on 6 August 2020 at the Overstrand Municipal Offices in Onrusrivier (refer Annexure C for Minutes and Attendance Register).
The Pre-Application Meeting highlighted and confirmed the following:

(i) Zoning of Erf 210 being Undetermined;
(ii) Setplan to clarify Erf 210 portion location relative to GIS mapping of HPOZ
(iii) Setplan to produce a post-mining SDP as a land use management tool
(iv) Setplan to confirm Provincial status of access road
(v) Commonage status to be confirmed as well as title deed restrictions and servitudes over the "subject property". Setplan to submit a Status Report to SG's Office re "closure of public open space".
(vi) Land use application to reference EMP specialist reports and include such in application as annexures
(vii) Parallel application in terms of LUPA (Section 53) to be clarified with DEADP Land Development

The content of this Report, prepared in motivation of the abovementioned applications, also augments the information required in the "*Land Use Management Application Form*". The completed and signed Application Form is attached to the application, with a copy thereof in Annexure D.

This report is supported by the Appendices and Annexures Report (Report 1647/R2 dated October 2021), inclusive of Appendices 1-10 and Annexures A -P.

While this application has as its primary purpose meeting the requirements of the Overstrand Municipality Land Use Scheme (OMLUS) 2020, it will draw heavily on the following:

(i) The Environmental Impact Assessment and Environmental Management Programme Report (Report 2461/MR/EMP dated July 2020) for Gansbaai Sand and Gravel Mine as submitted for Environmental Authorisation in terms of the National Environmental Management Act, 1988 and the National Environmental Management Waste Act, 2008 in respect of Listed Activities that have been triggered by applications in terms of the Mineral and Petroleum Resources Act, 2002 (MPRDA) (as amended). Such application was lodged with the Department of Mineral Resources (File Ref.no. WC30/5/1/2/2(397)MR) and approved, including an Environmental Authorisation approval on 23 February 2021 (refer Annexure E) and the Extension of Mining Right Area being valid for 28 years.
(ii) Authorisations and comment received to date as part of the abovementioned EIA/ EMP process include:
   - Approved Environmental Authorisation (EA) and Extended Mining Right Area letter dated 23 February 2021 (refer Appendix 1)
   - Heritage Western Cape (HWC) letter dated 20 November 2019 (refer Appendix 2)

- DEA&DP: Directorate Development Facilitation letters dated 11 November 2019 and 20 April 2020 (refer Appendix 3)
- Western Cape Department of Agriculture: Land Use Management letter dated 24 December 2019 (refer Appendix 4)
- Overstrand Municipality: Property Administration Section letter dated 9 June 2020 (refer Appendix 5)
- CapeNature: Conservation Intelligence letter dated 19 June 2020 (refer Appendix 6)
- Commission on Restitution of Land Rights letter dated 16 October 2019 (refer Appendix 7)
- Town Planning; Overstrand Municipality email dated 1 October 2020 (refer Appendix 8)
- District Roads Engineer: Paarl email dated 18 May 2021 (refer Appendix 9)
- Surveyor General's Office email dated 14 May 2021 (Refer Appendix 10)

(iii) Other compliances, including:

- SPLUMA Section 52 not being applicable as this land development does not materially impact on national matters, policy objectives or functional areas, neither will it be prejudicial to the economic, health or security interests of one or more provinces or the Republic as a whole, or impede the effective performance of the functions of one or more municipalities or provinces insofar matters within their functional area of legislative competence.
- LUPA Section 53 and the Western Cape Land Use Regulations (2015) Section 10 not being applicable to the proposed mining extension area on portion of Rem Erf 210 given that such portion is zoned for purposes other than agriculture and thus cannot be defined as "agricultural land as per the definition contained in the Regulations. Such having been confirmed at a Pre-Application Meeting held on 15 April 2021, with WCDoA concurring that a **Section 53 application is not required** (refer Annexure L).

The balance of this motivation report is structured as follows:

- Section 2 puts forward the administrative and land use context
- Section 3 identifies the environment affected by the extension mining area
- Section 4 puts forward the mine development and rehabilitation
- Section 5 focusses on impact management and mitigatory measures to address impacts
- Section 6 puts forward the Mine Site Development Plan (SDP)
- Section 7 assesses the desirability of the mining, with specific reference to the following:
  - Consistency with the Municipality's Spatial Development Framework and Zoning Regulations (Development Management Scheme)
  - Economic impact
  - Social impact
  - Capital investment
  - Compatibility with surrounding land uses
  - Impact on existing services
  - Impact on safety, health and well-being of the surrounding community
  - Impact on existing use rights
  - Impact on heritage
  - Impact on the biophysical environment
  - Traffic impacts and related considerations
- Section 8 draws conclusions and makes a recommendation on the application.

Specialist studies and supporting documentation are contained in Annexures to the motivation report, including:

- Annexure G: Botanical Assessment; Fynbos Ecoscapes (March 2020)
- Annexure H: Freshwater Habitat Impact Assessment, Sharples Environmental Services (October 2019)
- Annexure N: Updated Wetland Specialist Study
- Annexure O: Rehabilitation Plan

– Annexure P: Alien Clearing Programme

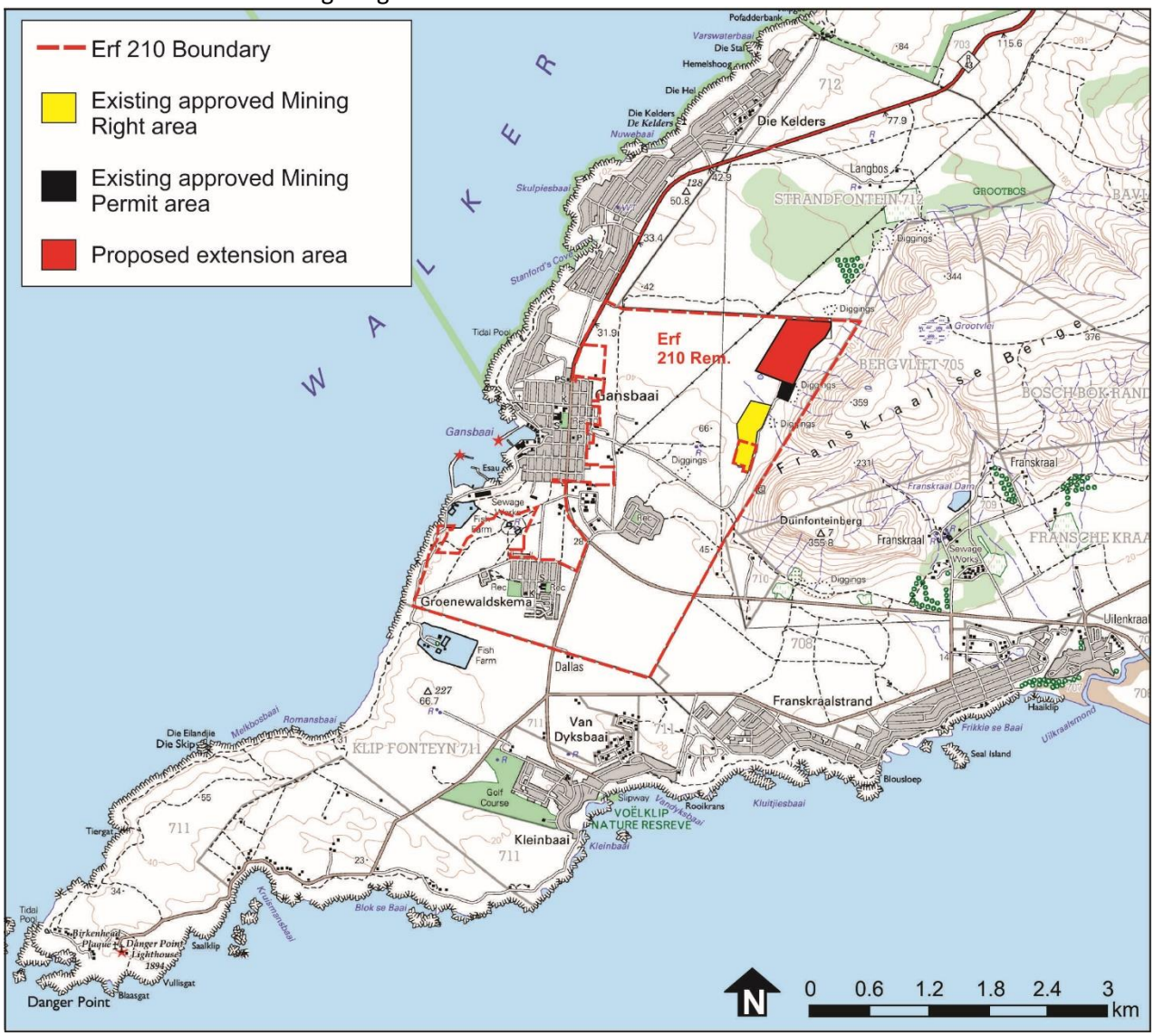


Figure 1: Locality Plan

2. ADMINISTRATIVE AND LAND USE CONTEXT

This section serves to outline the current land use management insofar mining within the "cadastral context" and seeks a rationalization and restructuring of such land use within the current "land administration context" (i.e. Municipal Land Use Scheme, 2020).

2.1. Property Description

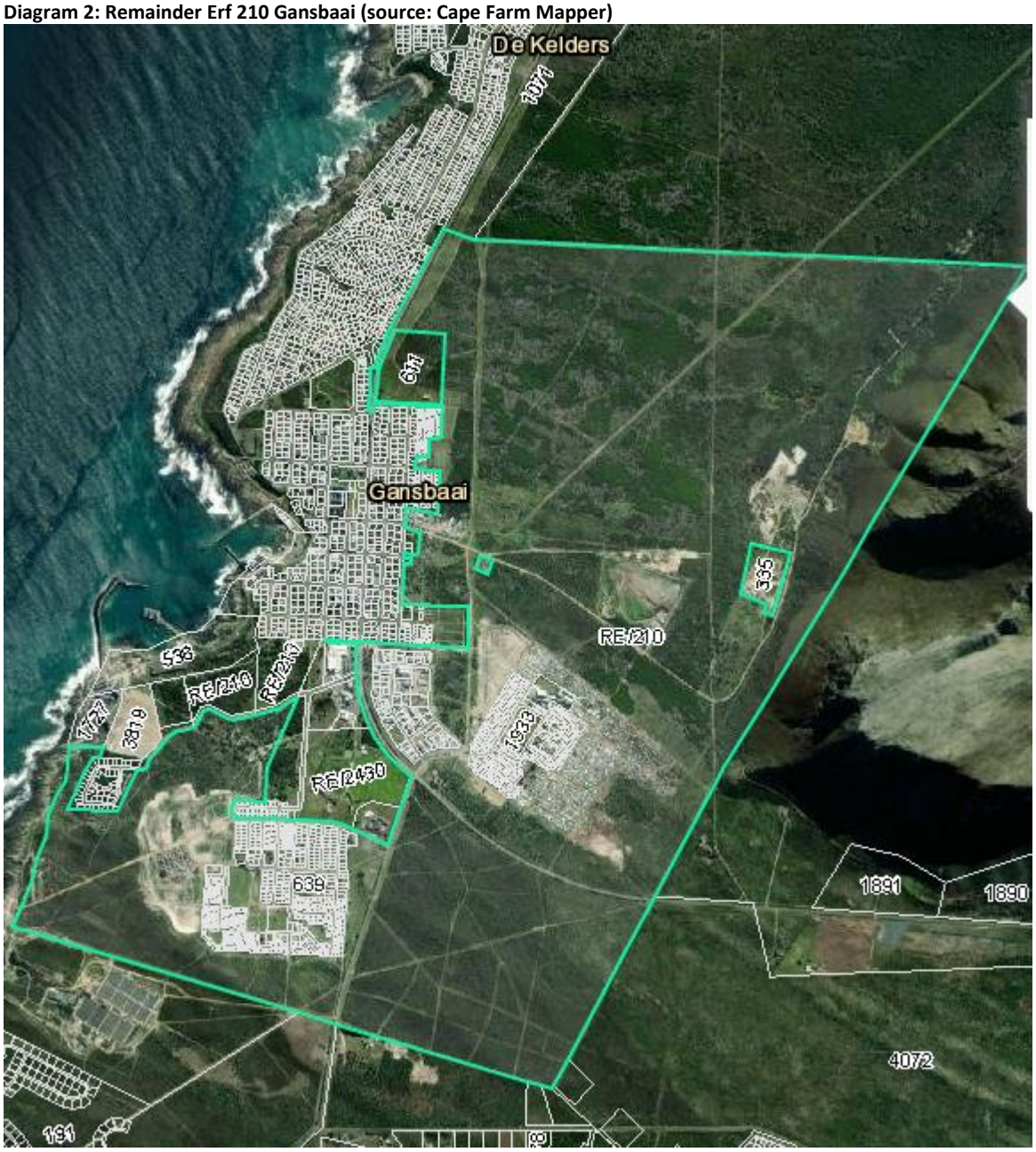
The "subject property/ portion" of this application as depicted in Figure 2 includes:

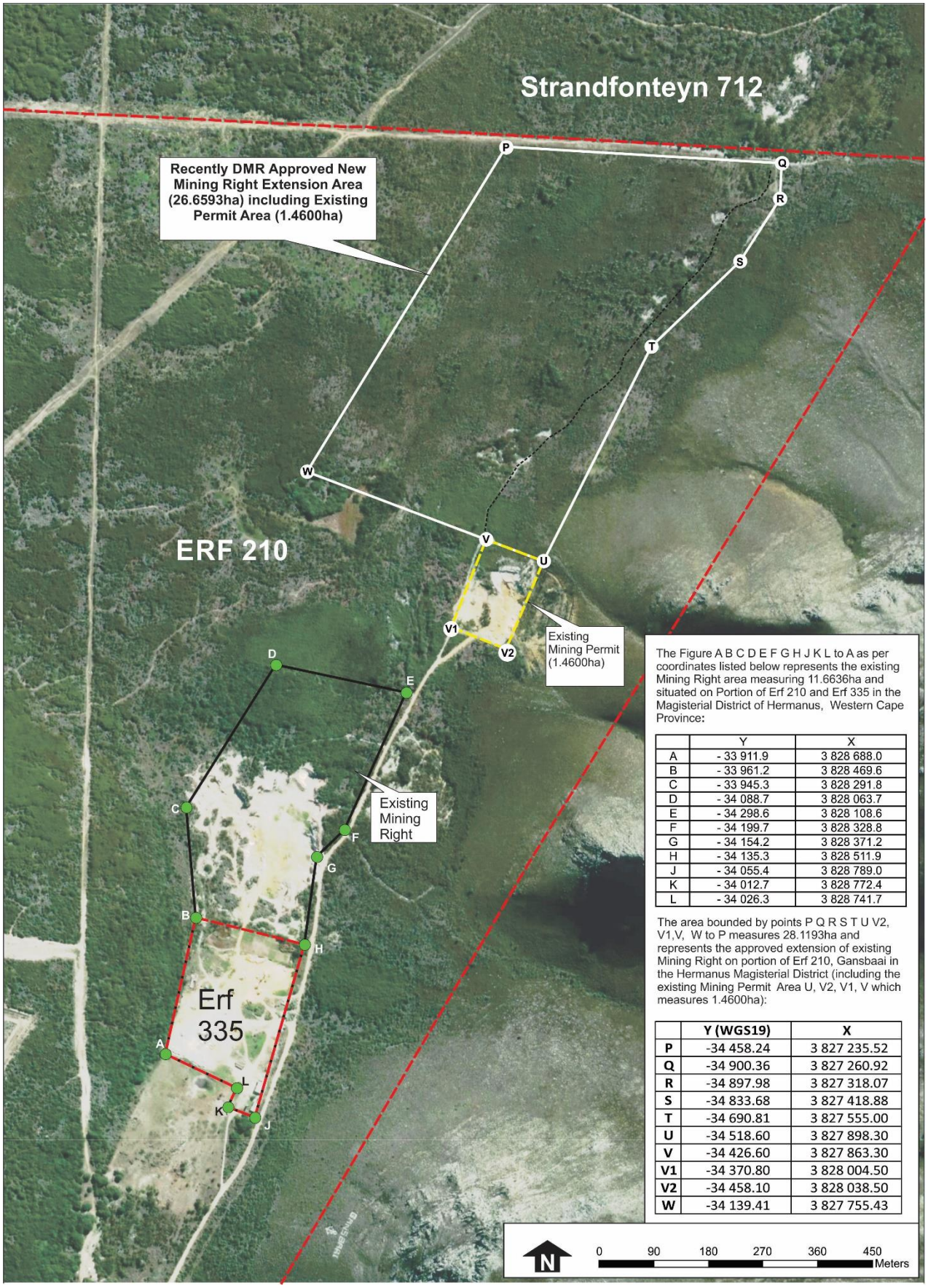
(i) Remaining Extent of Erf 210 measuring 721.7214ha in extent (refer Diagram 2), with the "subject portion" including:
   – Existing Mining Permit: U, V_2, V_1 and V measuring 1,4600ha

(ii) Proposed "mining extension" P, Q, R, S, T, U, V and W measuring 26,6593ha (excluding the Mining Permit Area) **or** measuring 28,1193ha (including the Mining Permit Area) (i.e. P,Q,R,S,T,U,V2,V1,V,W)

Note: while this application is for the extension of mining as depicted in Figure 2, Erf 335 is referenced given such property, which accommodates the logistical support (e.g. crusher, sand screen, workshop, etc.) for the existing mining, will continue to accommodate such support for the mining of the extension area, its use remaining unaltered.

Diagram 2: Remainder Erf 210 Gansbaai (source: Cape Farm Mapper)





The Figure A B C D E F G H J K L to A as per coordinates listed below represents the existing Mining Right area measuring 11.6636ha and situated on Portion of Erf 210 and Erf 335 in the Magisterial District of Hermanus, Western Cape Province:

	Y	X
A	- 33 911.9	3 828 688.0
B	- 33 961.2	3 828 469.6
C	- 33 945.3	3 828 291.8
D	- 34 088.7	3 828 063.7
E	- 34 298.6	3 828 108.6
F	- 34 199.7	3 828 328.8
G	- 34 154.2	3 828 371.2
H	- 34 135.3	3 828 511.9
J	- 34 055.4	3 828 789.0
K	- 34 012.7	3 828 772.4
L	- 34 026.3	3 828 741.7

The area bounded by points P Q R S T U V2, V1,V, W to P measures 28.1193ha and represents the approved extension of existing Mining Right on portion of Erf 210, Gansbaai in the Hermanus Magisterial District (including the existing Mining Permit Area U, V2, V1, V which measures 1.4600ha):

	Y (WGS19)	X
P	-34 458.24	3 827 235.52
Q	-34 900.36	3 827 260.92
R	-34 897.98	3 827 318.07
S	-34 833.68	3 827 418.88
T	-34 690.81	3 827 555.00
U	-34 518.60	3 827 898.30
V	-34 426.60	3 827 863.30
V1	-34 370.80	3 828 004.50
V2	-34 458.10	3 828 038.50
W	-34 139.41	3 827 755.43

Figure 2: "Subject Property/ Portion"

2.2. Property Ownership

2.2.1. Remaining Extent of Erf 210 Gansbaai

Ownership of the "subject property/ portion" within Rem Erf 210 vests in the Overstrand Municipality in terms of Crown Grant No. G160/1938 (Registration date 1938/12/15) and Diagram Deed T13083/1938 (refer Annexure I). It is noted that Erf 335 is owned by Dynavest Thirteen Eiendoms Beperk and that Dynavest Thirteen (Pty) Ltd is an owned subsidiary of Siziko Ukhanyo Trading 140 CC, the current mine owner and operator. (Refer Annexure J)

Insofar Rem Erf 210, the following title deed restrictions and currently registered servitudes are noted.

(i) **Crown Grant No. G160/1938** includes the following restrictions:
"*(a)(4): Die hierby toegekende grond of enige gedeelte daarvan, of enige aandeel daarin, mag nie te eniger tyd onderverdeel, verkoop, oorgemaak, geskenk, oorgedra of belemmer word, sonder dat die toestemming van die Minister van Lande eers daartoe verkry is nie*"
"*(b): Dat geen premanente strukture op hierby toegekende grond apgerig mag word tensy die toestemming van die Minister van Lande eers daartoe verkry is nie*"

(ii) **Registered electrical power transmission servitude**, extending 11 meters on each side of the centerline as depicted on SG No. 1061/2010 and SG No. 7941/91 (refer Annexure K). Such servitude and overhead powerline is located well west to the proposed mine extension, with no interference to either the powerline or the proposed mining.

2.2.2. Abutting Cadastral Portions and Ownership

Abutting/ surrounding properties include the following cadastral portions, which together with their ownership, are depicted in Figure 3 and Table 1, also noting the proximity of the Gansbaai (1,5km), Masakhane (0.85km), and Blompark (2,0km), Kleinbaai (3,5km), Franskraal (3,0km) and De Kelders (1,7km) communities.

Table 1: Surrounding Property Ownership

Property Description	Owner
Strandfontein 712	Overstrand Municipality
Berg Vliet 705 Rem	Grootvlei Beleggings cc
Klipshuur 1007 (formerly Bergvliet 705/3 and Farm 709/15)	Klipshuur cc
Suikerbosrand 710	Hendriekus Kotze Familie Trust
Fransche Kraal 708/43	B and VG Chetty
Fransche Kraal 708/9	Overstrand Municipality
Erf 335 Gansbaai	Dynavest Thirteen (Pty) Ltd

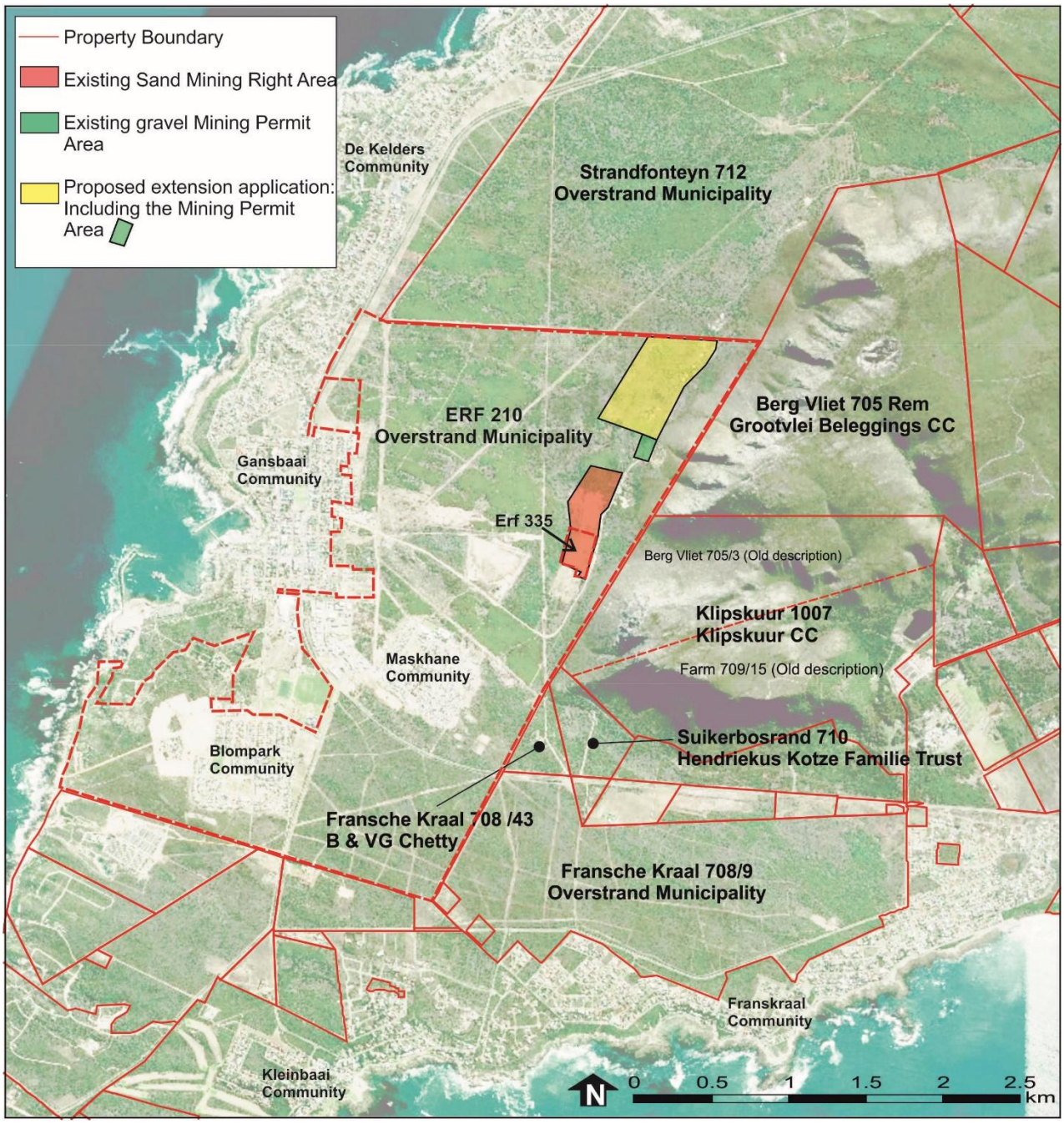


Figure 3: Surrounding Properties and Ownership

2.3. Municipal "Commonage": Rem Erf 210 Gansbaai

The following considerations and informants insofar the Municipal "Commonage" for the proposed mining extension on a portion of Rem Erf 210 Gansbaai.

2.3.1. Background: "Commonage" and Erf 210

As put forward in Crown Grant No. G160/1938, the following two portions of land held by the Government of the Union of South Africa were sold/ transferred at nominal value to the "Gansbaai Plaaslike Bestuur" as per Certificate of Amended Title on Consolidation No. 13083 dated 15 December 1938.

(i) "Gansbaai Commonage" measuring 1099.825 morgen or 942.220ha

(ii) Registered portion at land forming part of the Farm Strandfontein measuring 27.394 morgen or 23.648ha

The attached Diagram for Certificate of Amended Title on Consolidation No. 13083 (15 December 1938) (refer Annexure I) depicts the 1099.825 morgen or 942.2200ha "Gansbaai Commonage". It is noted that such Diagram Title is amended to reference "Gansbaai Commonage" as "Gans Baai 210", later becoming "Erf 210 Gansbaai" on Deduction Plan No. 3890/1937 in Annexure I.

2.3.2. "Commonage" Deductions

The Deduction Plan No. 3890/1937 (Annexure I), the diagram of which (Diagram No. 3890/1938) is annexed to the Certificate of Amended Title on Consolidation No. 13083 dated 15/12/1938, puts forward the extent of Erf 210 Gans Baai (1099.825 morgen) and serves as the record of deductions from such erf.

During the period 1938 to current date, land deductions have taken place to facilitate the urban development of Gansbaai and its municipal services support, required servitudes and leasehold areas as depicted in Crown Grant G160/1938, Diagram Deed 13083/1938 and Deduction Plan No. 3890/1937, with the last recorded deductions as at 2018 (refer Annexure I). The current Windeed (2020) records a total residual extent of 721.7214ha (refer Annexure K), that reflecting a 220.4986ha deduction during the period 1938-2020, noting that Erf 335 was subdivided and deducted in 1951.

On 22 February 2000 the dissolution of the Municipality for the Area of Gansbaai and the putting in place of the Municipality of Overstrand included the Remainder of Erf 210 Gansbaai, Municipality of Overstrand, Caledon Division, Province of the Western Cape, Rem Erf 210 being 785.7476ha. Diagram 2 illustrates the current extent of Rem Erf 210/ "Commonage" as per WCDoA Land Mapper, measuring 755,0709.1ha.

2.3.3. Municipal "Commonage" Informants

The "Programme for Land and Agrarian Studies; PLAAS (Megan Anderson, Kobus Pienaar; 2003)" in its overview of Municipal Commonage highlights the following characteristics and requirements of municipal commonages, several of which are also reflected in the title deed and conditions of the "Gansbaai Commonage", and also being applicable to the proposed sand and gravel mining.

(i) **Definition of commonage**:
"*Commonage or common pasture lands are lands adjoining a town or village over which the inhabitants of such town or village either have a servitude of grazing for their stock, and, more rarely, the right to cultivate a certain portion of such lands, or in respect of which the inhabitants have conferred upon them by regulation certain grazing rights (Dönges & Van Winsen; 1953)*"

(ii) The Gansbaai Commonage being a "***traditional municipal commonage***", as opposed to a new "*newly acquired*" commonage, "*the former referring to land set aside by the state at the establishment of the town, usually granted to the municipality by the state in the 1800's, in ownership and free of charge*", reflecting the Gansbaai Commonage's origin.

(iii) "*Traditional*" commonages "*being characterized by **stringent legislative and title conditions***", notably those in the Crown Grant No. G160 of 1938 governing the Gansbaai Commonage. Anderson and Pienaar particularly noting that "*the land be for the use and benefit of the public and the municipality could not sell the land, commonages being "set aside" for public use*".

(iv) **Leasing portion of "Traditional" Commonage** to a tenant "*will require approval of the Premier as such lease would allow the tenant to use land at the exclusion of other members of the public, in other words, privatizing such portion and making it available for commercial purposes rather than commonage or public purposes*", also noting "*that income derived from such lease must be used for the promotion of a special purpose and may not be used to subsidize the ordinary expenditure of the municipality.* Furthermore, Anderson and Pienaar note that "*in the past access to such land (i.e. commonage) was regulated either by way of servitude registered as a title deed condition against a residential site, or by way of a municipal regulation".* The former "arrangement" is currently being

employed in small-farmer establishment on commonages through a "Notarial Deed of Perpetual Servitude" for such farming being endorsed against the title deed to encumber the farming use.

The **current performance of the "Gansbaai Commonage"** insofar the above mentioned characteristics raised by the Programme for Land and Agrarian Studies, as well as other commonage requirements, is summarized as follows:

(i) A significant **deduction of the extent of the commonage** between 1938 and the current day, including transference of land portions to private owners for a multitude of uses, albeit such uses being in support of the local and regional economy.
(ii) The "**commonage" not being reserved as "*public place*"** in the Municipal Land Use Scheme (2020) and having an "*undetermined*" zoning, with current uses thereon (e.g. mining) having "non-conforming" use status. Furthermore, the "commonage" is generally referenced as Erf 210 Gansbaai, with previous map annotations reading "Gansbaai Commonage" being replaced with Erf 210 Gansbaai (e.g. SG Sheets, Deduction Plan (1937))
(iii) **No tangible record of "*public place*" closure** when commonage land has been deducted, rezoned or subdivided.
(iv) The lack of a **Municipal "Commonage Management Plan"** being in place, resulting in past commonage use practices in several instances negating the function and purpose of a "municipal commonage"

Correspondence with the Surveyor General's Office, Western Cape dated 14 May 2021 (refer Appendix 10) solicited the following response to questions posed:

(i) Insofar subdivision versus a Notarial Deed of Perpetual Servitude to facilitate the rezoning/ future use of the mining portion on the "commonage": "*This office cannot advise on the merits of subdivision versus leases/ servitudes*"
(ii) Insofar a requirement re "*closure of a public space*" given no land ownership change, an Undetermined zoning and the proposed mining use not being permanent (+-28 years): "*Yes a closure would be necessary if the land parcel is confirmed as public place*"
(iii) Current status of the "commonage" given deductions and multiple use: "*A request for a status report will incur a cost of R270.00 and must be accompanied by a plan indicating the portion to be closed."*

2.4. Zoning

Zoning of the "subject property/ portion" and abutting properties, as sourced from the Overstrand Municipality Land Use Scheme (2020): De Kelders-Gansbaai sheet and confirmed by the Overstrand Municipality: Town and Spatial Planning Department email dated 1 October 2020 (refer Appendix 8) is reflected in Figure 4: Zoning, with the following qualification:

(i) Rem Erf 210; **Undetermined Zone**, with the following partial combination of Undetermined Zone, Rural Zone 1: Agricultural Small Holdings (R1) and Industrial Zone 1: General Industry (IND1) within the existing Mining Right Area and existing gravel Mining Permit Area
(ii) Erf 335; **Rural Zone 1: Agricultural Small Holdings (R1)**

The following **development parameters** being applicable to mining on Rem Erf 210 are noted insofar **Agricultural Zone 1: Agriculture (AGRI)**:

(i) Common Building Line: 30.0m for a land unit >10.0ha
10.0m for a land unit 10ha≥1ha
(ii) Building Height: 8.0m, with Council permission to 12.0m

Insofar the current zoning of the "subject property/ portion" the following is noted:

- Apart from Industrial Zone 1: General Industry (IND1) area which designated a former mine for gravel mining purposes in terms of the then Gansbaai Zoning Scheme Regulations, 2003, the current sand and gravel mining activities are not permitted in terms of any appropriate zoning or consent use in terms of the current Land Use Scheme (2020), with such uses being "legal" or "permitted" non-conforming uses within the Undetermined Zone

- The Rural Zone 1: Agricultural Small Holdings (R1) designated areas (strips) reflect no reference to cadastral areas or existing small-holding development areas, except for within Erf 335 where a horticultural activity area (+-5000m²) (i.e. vegetable cultivation) has been developed as part of the post-mining rehabilitation of the mined-out area on Erf 335, such activity also being part of the Mining Right Holder's "social and labour plan" to support food security of the mine staff and their families (refer Photos 1 and 10).

As illustrated in Figure 4: Zoning, a Utility Zone: Utility Services (UT) denotes the existing land-fill site and the electrical sub-station (Erf 1545), with the Authority Zone: Authority Usage (AU) zoning of the Municipal Yard/ Store and Open Space Zone 3: Private Open Space zoning of the cemetery (Erf 1179) along the western urban interface, with the majority of Rem Erf 210 being Undetermined Zone. Abutting properties to the east of Rem Erf 210 being Agricultural Zone 1: Agriculture, while Erf 1071 abutting the R43 is zoned Undetermined and Erf 712 to the north is zoned Subdivisional Area.

Insofar mining, the Minerals and Petroleum Resources Act, 2001 (MPRDA, 2002) and the Overstrand Municipality Land Use Scheme (OMLUS) 2020 development rules/ parameters, the following alignment of land unit (>10.0ha) common building line is required between the northern boundary of the proposed Mining Right area and the Farm Strandfontein 712 boundary, with the building line to be reduced from 30,0m (Municipal Land Use Scheme) to 9.0m (MPRDA)

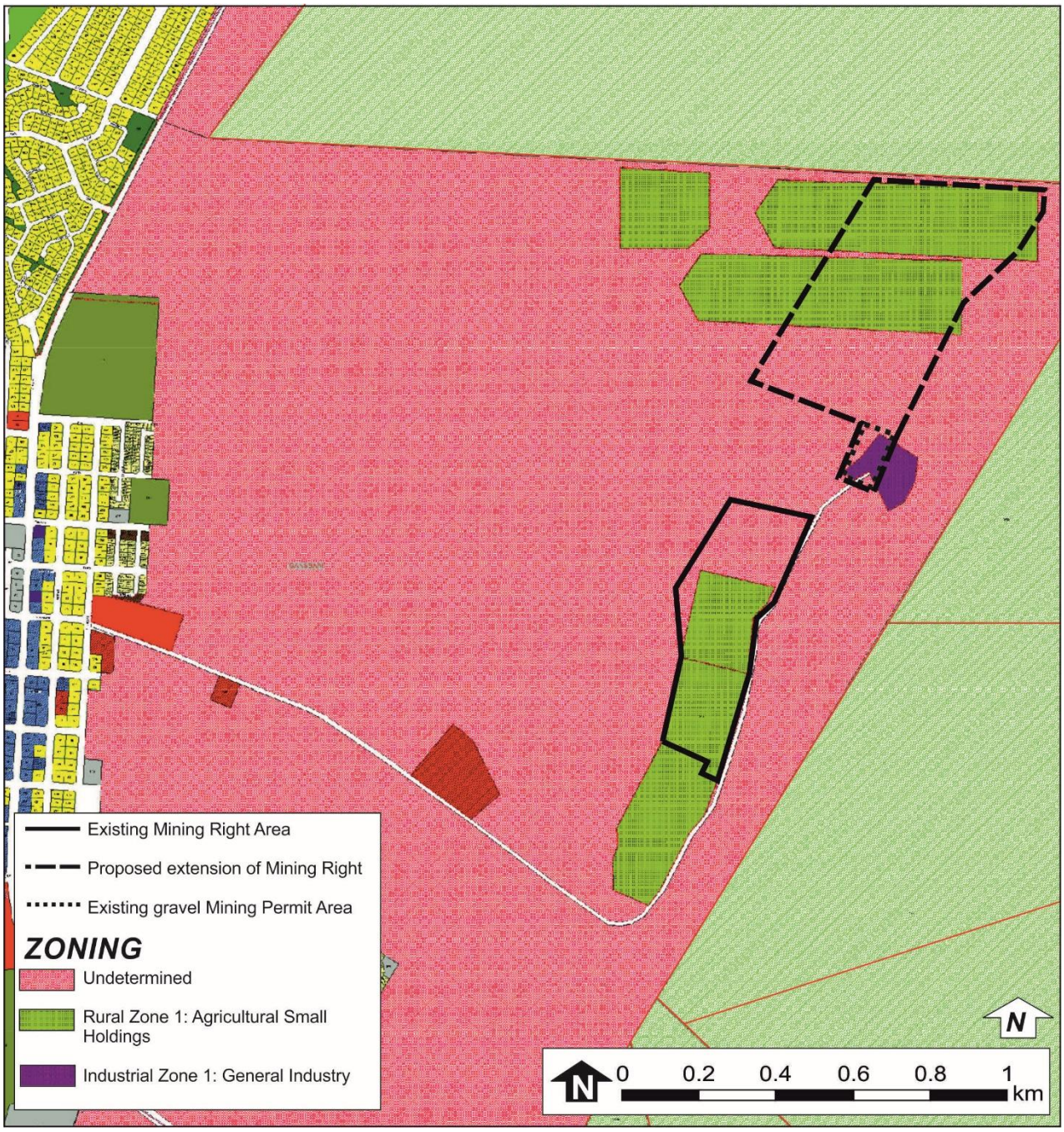


Figure 4: Zoning

2.5. Land Use and Engineering Services

As depicted in Figure 5: Land Use, the land use of the "subject property/ portion" and nearby/ abutting properties is clearly visible in the aerial photography, including:

(i) Erf 335; Existing mine office/ workshop/ dwelling, sand screening plant area and material stockpiling and dispatch area, given Erf 335 being a mined-out area (refer Photos 2, 3, 4 and 5). A single-stage crusher (mobile plant) is located at the site of the gravel excavation. The northern portion (+-5000m²) of Erf 335 includes the previously noted vegetable cultivation garden, which forms part of the mine's rehabilitation and "social and labour plan" (refer Photos 1 and 10).

(ii) The existing Mining Right Area accommodates the existing sand mining, with the mineable sand resource and area approaching its limit, 80% of both having been mined.

(iii) The Mining Permit Area depicts the current gravel mining, with the upslope excavation of a previous gravel mine clearly visible.

Erf 335 : Logistical Support to Mining Extension Area

Photo 1: Vegetable Cultivation Garden

Photo 2: Mine Workshop

Photo 3: Mine Office and Dwelling

Photo 4: Sand Screening Plant Area

Photo 5: Material Stockpiling and Dispatch Area

Photo 6: Existing Gravel Access Road and Access to Mine Logistical Area

(iv) Other noteworthy land uses within and abutting Rem Erf 201:
- Municipal utilities, including the land-fill site, reservoir/ waterworks and electrical substation (Erf 1545), all abutting the gravel access road (0.35km-1.5km) which accesses the mine.
- The municipal yard/ store at the eastern end of Voortrekker Street (1.5km)
- Residential development and a cemetery (Erf 1179) abutting the western edge of Rem Erf 201 (1.5km)
- The Masakhane urban development south of the gravel access road (0.8km)
- Farmsteads on Fransche Kraal 708/43 and Suikerbosrand 710 (1.2km and 1.1km)
- Limited agricultural practices to the east and north of the R43

(v) Traffic movement (i.e. sand/ gravel delivery) from the existing mine along the existing gravel access road (refer Photo 6) via Voortrekker Street to Main Road (R43 or MR 28/2), averaging 55 truck return delivery trips per day, five-days per week.

District Roads Engineer: Paarl email dated 18 May 2021 (refer Appendix 9) confirms that ***"The relevant access road is not indicated as a proclaimed provincial road. Nevertheless any applications for/ proposals for amendment to, land use for land being accessed from a proclaimed road (R43/ MR28) will need to be routed via the CD: Planning at Head Office"***.

(vi) Existing engineering services utilized by the existing sand and gravel mine are all located on Erf 335 which accommodates the logistical activities for the mine operation (e.g. sand screening, workshop, office and dwelling). Such engineering services include the following
- Overhead electrical supply (Eskom-municipal) to the workshop, office and dwelling, as well as a power-point for operation of the sand screen, and for security lighting
- Water supply from an on-site borehole, with such non-potable water utilized for dust suppression and sanitary purposes, with potable water delivered to the site
- Sanitation comprises a septic tank, while a portable contract managed chemical toilet is employed in the mining area
- Stormwater, while limited due to highly permeable sands, requires ponding management in trafficked (hardened) areas through sand infilling and surface cut-off drains to disperse any water accumulation, which occurrence is restricted to the loading and dispatch area on Erf 335 and along the gravel road from the existing sand mining area to the existing gravel mining area.

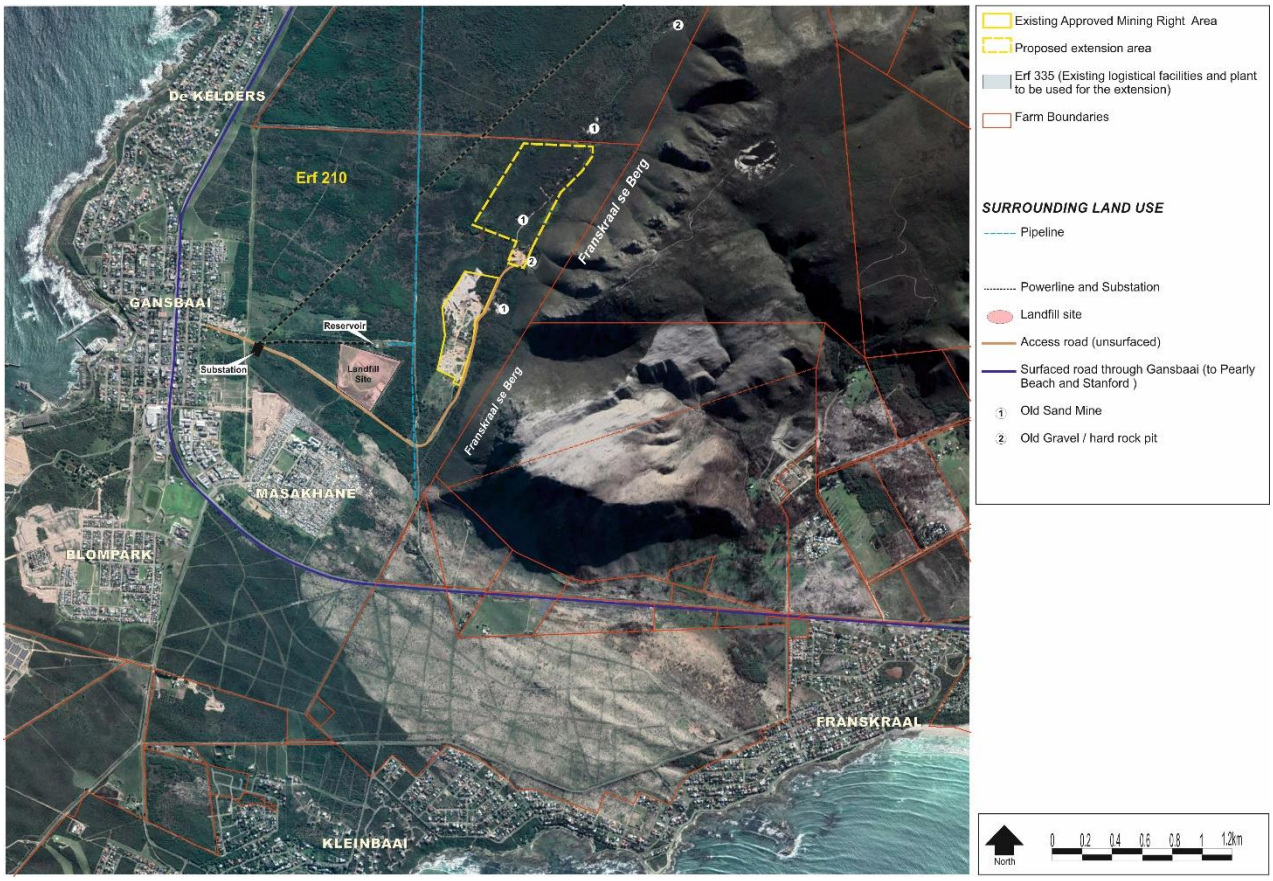


Figure 5: Land Use

2.6. Remainder Erf 210 Land Use Management

The following informs land use management of Rem Erf 210 and the "point of departure" for this land use authorisation application.

2.6.1. "Commonage" Land Deduction and Undetermined Zoning

As noted in Section 2.3.2 the period 1938 to present has witnessed land deductions from the commonage to facilitate the urban development of Gansbaai and its municipal services support, such deductions reflecting a total of 220.4986ha during the period 1938-2020 (refer Diagram 2).

While the majority of deductions and their subsequent development were managed through subdivision and rezoning, management of the residual portion of Rem Erf 210 has been in terms of the Undetermined Zone, with several current uses, including the current sand and gravel mining, being "legal" or "permitted" non-conforming uses within such Zone. The following is noted regarding "non-conforming use" and Undetermined Zone in terms of the Overstrand Municipal Land Use Scheme (2020):

(i) While the current sand and gravel mining qualifies as a "non-conforming use", **any alteration or extension of the use**, given that the use right is limited to the areas of the land on which the proven use right is in existence, **will require a land use application to a more appropriate zone in which mining is a primary or consent use**.

(ii) The Undetermined Zone, having no primary rights or consent uses, **will trigger a subdivision and rezoning** to accommodate any mining extension.

2.6.2. "Mining" Land Use Management

Insofar mine land use management, the following two dates have significance insofar land-use authorisation:

- Ordinance 15 of 1985: 1 June 1986 commencement date
- Maccsand Constitutional Court Ruling: 12 April 2012

Accordingly the following time-line captures sand/ gravel mining land use on portion of Rem Erf 210 and Erf 335, the latter noted due to such property including the logistical support of the existing mining operation:

(i) 15-12-1938: **Transfer of Erf 210 (Commonage) to Gansbaai Management Board**; TG610/ 1938

(ii) 1951: Cadastral subdivision/ **deduction of Erf 335 from Erf 210**

(iii) Aerial Photos clearly indicate mining (i.e. sand/ gravel) on Rem Erf 210 (commonage) **prior to 1986**, particularly along the pediment slope abutting the eastern boundary north-east of Erf 335.

(iv) **Recent ownership of Erf 335**

1982 T3501/1982; Transfer to F.A. Snyman
1986 T4021/1986; Transfer to M.H. Murray
1989 T6463/1987; Transfer to Pretkor Beleggings cc
1990 T19212/1990; Transfer to Wilfred Chivell
1999 T75870/1999; Transfer to Frikkie Heyns
2008 T26548/2008; Transfer to Esmé Heyns (on passing of Frikkie Heyns)
2016 T50111/2016; Transfer to Dynavest Thirteen Eiendoms Beperk (current owner)

(v) **Mining Company/CC**

2000-2005: Mining Authorisation in the name of Frikkie Heyns
1/9/2005: Transfer of mining authorisation to Sizika Ukhanyo Trading cc of which the Heyns Family were the main members
2006/2007-2016: On the passing of Frikkie Heyns, Dirk Jacobus Heyns replaced his father as Managing Director of Sizika Ukhanyo Trading 410 cc
2016-present: Transfer of mining authorisation to new owners, with continued trading of Sizika Ukhanyo Trading 410 cc, and the Director being Stephen Du Mont

(vi) **Mining Authorisation**

16/8/1999; Application lodged with DMR for sand "old order" Mining Authorisation for Erf 335 measuring 4.2877ha
19/9/2000; DMR issuing Mining Licence ML 27/2000 for 5 years for Erf 335
1/9/2005; Application lodged to DMR for conversion of "old order" Mining Authorisation as well as transfer of ownership to Sizika Ukhanyo Trading 410 cc
1/8/2010; Application lodged with DMR for a gravel mining permit (5-years) for 1.4600ha (current mining authorisation given renewal applications)
6/12/2011; Concurrent with a withdrawal of the conversion application, an application lodged with DMR for a Mining Right for sand mining measuring 7.3809ha on Rem Erf 210 and 4.2827ha on Erf 335 (logistics) (15 years) (current mining authorisation)
2021; Recent DMR approval for extending the Mining Right for sand and gravel mining by 26.6593ha on Rem Erf 210, totalling 28.1193ha including the existing permit area of 1.4600ha. Such Mining Right extension also includes the existing Mining Right on Rem Erf 210 and Erf 335.

Accordingly, the following land use status:

(i) While 1986 aerial photography reflects several sand/ gravel mines on Rem Erf 210, many of these could have been unauthorised as per the 2007 press copy (refer attached in Annexure M). What is certain is that mining commenced on Erf 335 as per Mining Licence ML 27/2000 shortly after Frikkie

Heyns purchased Erf 335in 1999. Such land use commencement date is notably after June 1986 (LUPO).

(ii) Mining on Erf 335 (up to +- 2009) and commencement on Rem Erf 210 in 2011, that being in place prior to the Maccsand Constitutional Court ruling, with such Mining Right including Erf 335 on which the mining logistical support functions has been established (e.g. crusher, screen, office, workshop, etc.) on 12 April 2012 re mining requiring land use authorisation. While mining on Erf 335 ceased in+- 2009 due to the available reserve, mining on the portion of Rem Erf 210 has continued to this current day on the portion approved as per the Mining Right granted in 2012, with such Mining Right including Erf 335 on which the mine's logistical support functions had been established (e.g. crusher, office, etc.). The recent approval to extend such mining portion over Rem Erf 210, covering an additional 28.1193ha by DMR. Such mining commencement being subject to the Maccsand ruling and approval in terms of the Overstrand Municipality Land Use Scheme (2020).

As per the Overstrand Municiality Land Use Scheme (2020), the mining on Rem Erf 210 has been continuous on the DMR approved 7.3809ha Mining Right area and the 1.4600ha Mining Permit area within the Undetermined Zone put in place to manage land use on Rem Erf 210 (commonage).

During such 9-year period since the Maccsand ruling, such continuous mining has not exceeded the approved area of the Mining Right/ Permit Area, or any mining specifications (e.g. depth, etc.), therefore complying with the Undetermined Zone development parameter for a legal "non-conforming" or "permitted" use.

The recent Mining Right approval however, including a further extension onto Rem Erf 210 will, as per the Overstrand Municipality Land Use Scheme: Undetermined Zone, require a rezoning to another zone permitting mining as a consent use, thus this land use authorisation application for the necessary subdivision and rezoning from Undetermined Zone to Agricultural Zone I: Agriculture (AGRI), together with a Consent Use permitting mining, insofar the portion of Rem Erf 210 to accommodate the mining extension and be Land Use Scheme and Maccsand ruling compliant.

It is noted that a separate land use authorisation application is being lodged to afford the necessary similar compliance of the existing mining area on Rem Erf 210 and Erf 335.
Past mining applications on portion of Rem Erf 210 and Erf 335 raised public and "other sand supplier" concerns re access to the sand/ gravel resource on Rem Erf 210 (commonage) and unfair mining sector practice, these again (2020) being raised (refer Annexure M).
Accordingly, the following statements reflect the "legal" status of such issues:

(i) **Access to minerals**; all minerals (including sand and gravel) are held under custodianship of the State, irrespective of land ownership. Any "*natural person*" or "*legal persona*" has the right to make application to the DMR to mine these minerals, including the municipality, any community group, building supplier, etc. Sizika Ukhanyo Trading 140 CC, subsequent to having lodged an application to the DMR for a Mining Right informed by an EIA, Development Plan, Rehabilitation and Financial Guarantee, having been awarded such Right

(ii) **Trading in minerals**: sand and gravel are traded on the "open-market" in South Africa. Accordingly any interference in the market supply or demand of such minerals, to conspire to work together, to gain unfair market advantage or disrupt its equilibrium will be regarded as collusion in terms of the Competitions Act.

(iii) **Minerals are place-bound:** including sand and gravel, requiring prospecting to demonstrate a proven mineable reserve of a sand or gravel, a fact often overlooked in "ownership claims" of mineral resources by individuals or groups.

3. ENVIRONMENT AFFECTED BY THE EXTENSION MINING AREA

The section puts forward the recently approved extension of the existing sand and gravel mine on Rem Erf 210 in terms of Section 102 of the Mineral and Petroleum Resources Development Act (MPRDA, 2002). Given the recent issuing of the approved Environmental Authorisation (EA) on 23 February 2021 (refer Annexure E for EA), selective extracts from the approved Environmental Impact Assessment Report and Environmental Management Programme Report for Gansbaai Sand and Gravel Mine; Report 2461/MR/EMP dated July 2020 as well as the approved Environmental Authorisation of the EIA/ EMPr will be presented in this section, with an emphasis on the following:

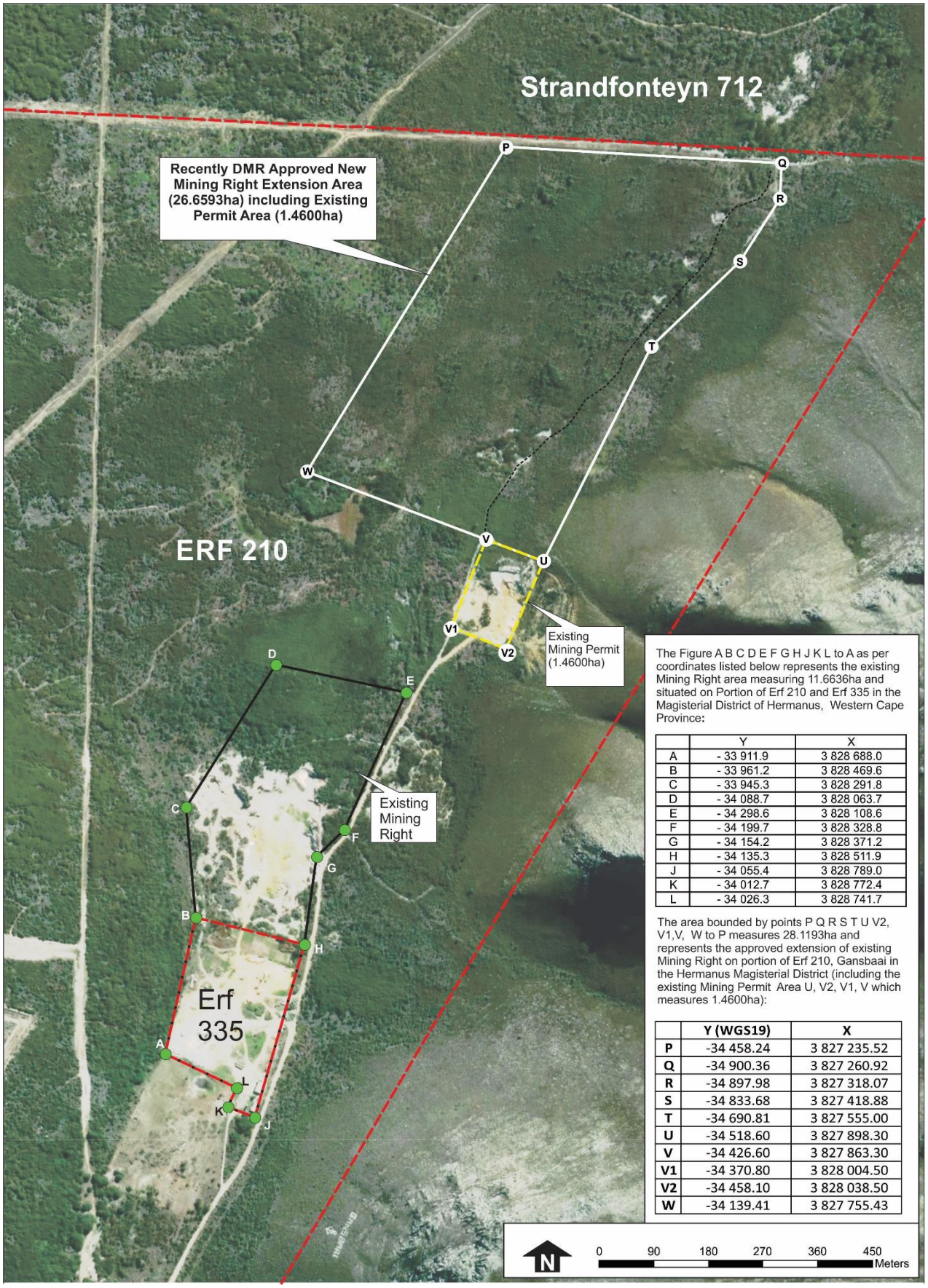
- Natural resources; including topography and land capability, soils, fauna and flora, surface and groundwater
- Disturbance; including visual, noise and dust

It is noted that the preparation of the EIA/ EMP preceded the promulgation of the 2020 MSDF and the Environmental Management Overlay Zone Regulations 2020 (EMOZ) and the Heritage Protection Overlay Zone Regulations 2020 (HPOZ), accordingly the alignment of the proposed mining with such SDF and Regulations is demonstrated in Section 5.2.10.

3.1. Existing and Extension Mine Extent and Footprint

The existing sand mining (refer Figure 6) in terms of an existing Mining Right (area of 11.6636ha) is situated on portion of Rem Erf 210 and Erf 335 (i.e. ABCDEFGHJKL in Figure 6), and the existing gravel mining on a portion of Rem Erf 210 (i.e. U, V_2, V_1 and V in Figure 6) in terms of an existing Mining Permit. The expansion of the existing Mining Right Area (i.e. sand and gravel mining; refer Figure 6) approved on 23 February 2021 in terms of Section 102 of the Mineral and Petroleum Resources Development Act (MPRDA, 2002), includes the existing Mining Permit Area (U, V_2, V_1 and V) and the new mining area denoted by P, Q, R, S, T, U, V and W as depicted in Figure 6, with the extension of the Mining Right on Portion of Erf 210 totaling 28.1193ha. It is noted that Erf 335 (i.e. A, B, H, J, K and L) is utilized for mine support activities (e.g. gravel crusher and sand screen, dispatching area, office, staff amenities).

While the total Mining Right Area (existing and extension) equals 39.7829ha, this application will only focus on the extension area totaling 28.1193ha denoted by P, Q, R, S, T, U, V_2, V_1, V and W in Figure 6. Such area is inclusive of the existing gravel mining (Mining Permit Area) measuring 1.4600ha in extent.



The Figure A B C D E F G H J K L to A as per coordinates listed below represents the existing Mining Right area measuring 11.6636ha and situated on Portion of Erf 210 and Erf 335 in the Magisterial District of Hermanus, Western Cape Province:

	Y	X
A	- 33 911.9	3 828 688.0
B	- 33 961.2	3 828 469.6
C	- 33 945.3	3 828 291.8
D	- 34 088.7	3 828 063.7
E	- 34 298.6	3 828 108.6
F	- 34 199.7	3 828 328.8
G	- 34 154.2	3 828 371.2
H	- 34 135.3	3 828 511.9
J	- 34 055.4	3 828 789.0
K	- 34 012.7	3 828 772.4
L	- 34 026.3	3 828 741.7

The area bounded by points P Q R S T U V2, V1,V, W to P measures 28.1193ha and represents the approved extension of existing Mining Right on portion of Erf 210, Gansbaai in the Hermanus Magisterial District (including the existing Mining Permit Area U, V2, V1, V which measures 1.4600ha):

	Y (WGS19)	X
P	-34 458.24	3 827 235.52
Q	-34 900.36	3 827 260.92
R	-34 897.98	3 827 318.07
S	-34 833.68	3 827 418.88
T	-34 690.81	3 827 555.00
U	-34 518.60	3 827 898.30
V	-34 426.60	3 827 863.30
V1	-34 370.80	3 828 004.50
V2	-34 458.10	3 828 038.50
W	-34 139.41	3 827 755.43

Figure 6: Existing Mining Right Area, Existing Mining Permit Area and Approved Mining Right Extension Area

3.2. Environment Affected by the Proposed Activity

3.2.1. Topography

The proposed sand mining site is located on a generally level portion of land (the coastal plain) sloping very gently to the west, with an average maximum altitude of about 40m amsl. The site lies 300m below the peak of Franskraal se Berge as shown in Figures 1 and 6, while Diagram 3 and Photo 7 illustrate the very flat topography of the coastal plain immediately west of the existing gravel borrow pit. As depicted in Diagram 3, the proposed mine extension is located at its highest point at 65m amsl (i.e. the gravel mine in southern portion), with the greater remainder (i.e. the sand mine) of the 28.1ha site being at 40m amsl. (refer Section 4.1.5 and Figure 19 for Sand Mine Plan).

The proposed gravel extension (refer Photos 7 and 8) is located on the very lower west-facing slopes of Franskraal se Berge, below the existing scar of a previous excavation by others. Such excavation will have a bench height of below 60.0m amsl and a mine face height of 65m amsl, that being lower than the visible scar at 80.0m amsl as shown in Photos 7 and 8. The slope is west-facing, with the current gravel mining upper contour being at level 63m amsl (refer Section 4.1.5 and Figure 20 for Gravel Mine Plan). The inset in Diagram 3 depicts the elevation cross-section of the existing gravel mine elevation (up to 65.0m amsl), together with the elevation of the previous partly rehabilitated gravel borrow pit which extended to 80.0m amsl.

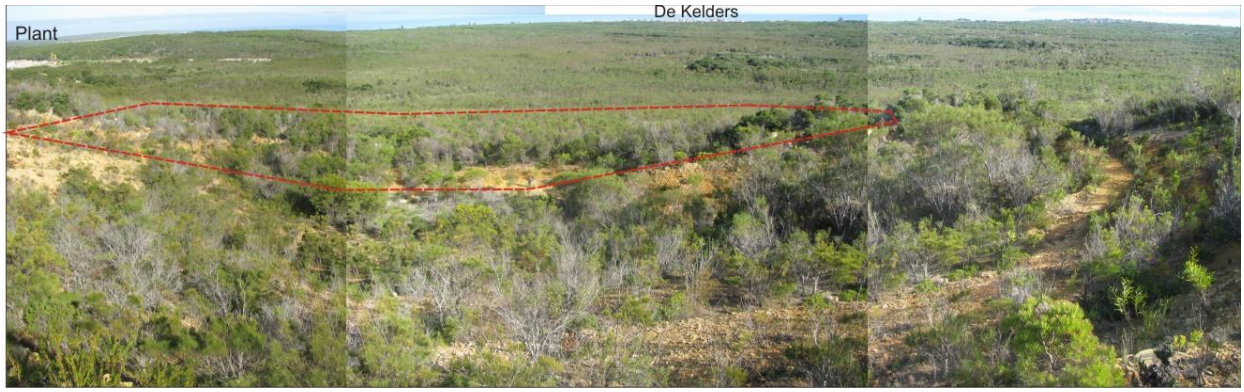


Photo 7: Coastal Plain west of previous gravel pit (by others) and the existing gravel mine, looking west towards De Kelders

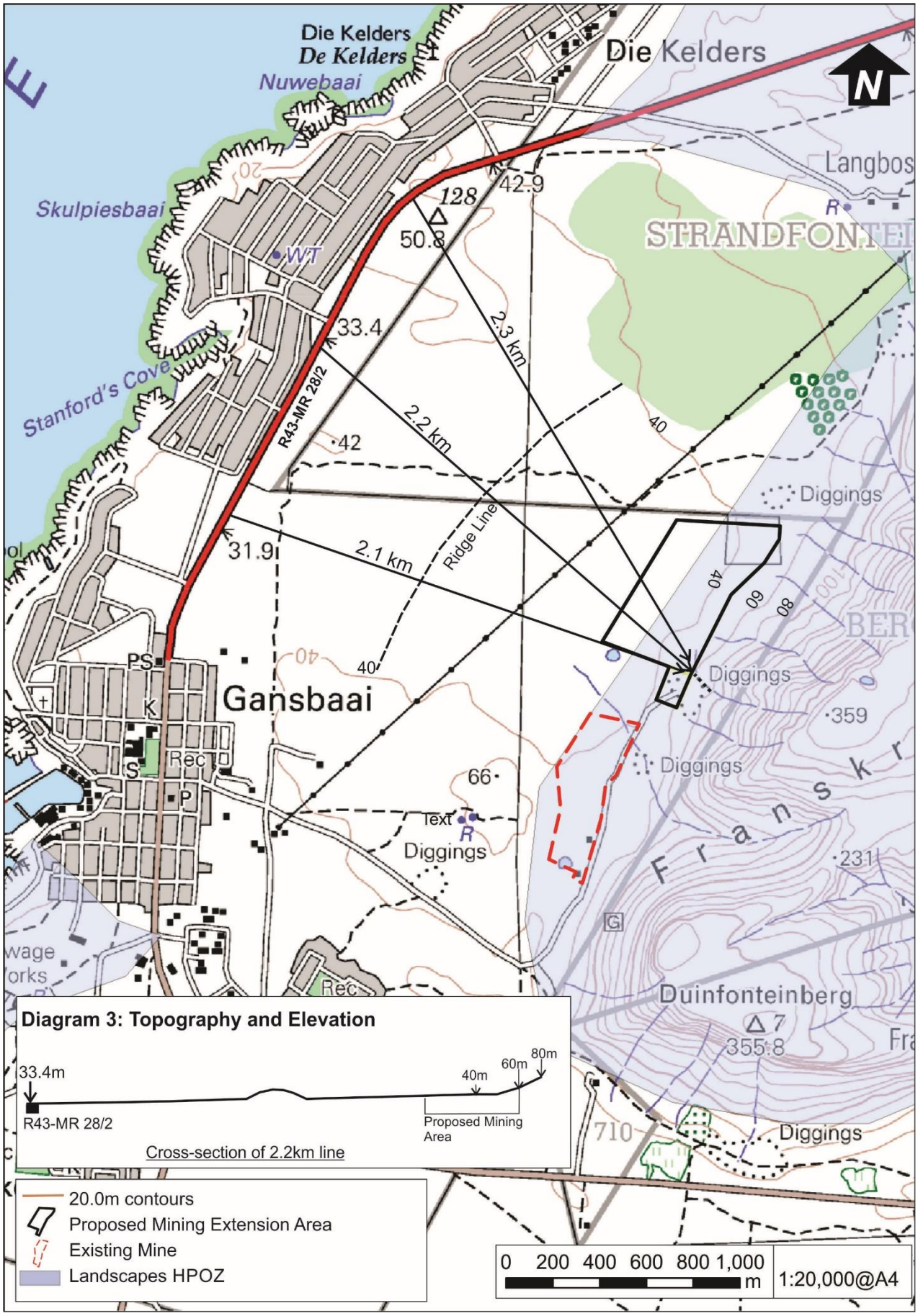


Diagram 3: Topography and Elevation

3.2.2. Visual Impact

Sand Mining Section:

The site (surface) is not visible from any of the surrounding land uses given the flat topography and almost total absence of surrounding roads or sensitive land uses which at eye-level do not expose the site.

As 90% of the activities are conducted at pit floor levels, with machinery and haul trucks in the pit and no elevated plant on site, the visual impact on surrounding land use will be low.

Current sand mining activities further south have no visual impact on surroundings given the above which is further eliminated by dense alien vegetation on the property and adjacent properties.

Furthermore, both the sand mining method and rehabilitation reduces visual impact insofar the following excavation shaping and topographical controls (refer Section 5.2.4)

- Sand excavation through "trench" or "windrow" mining limits the excavation exposure time, with topsoil/ vegetation material replacement following soon after excavation (refer Photo 13)
- Top-soil berm height restricted to 2,0m height
- Excavation edges sloped to a maximum of 1:3 with sharp top edges being rounded to mimic contours (refer Photo 14 and Section 5.2.4)
- At least 1,5m sandy fill material above the water table, thereby reducing the depth of rehabilitated areas
- Post-mining rehabilitation including pasture establishment for grazing, or horticultural development to reduce the exposed mined "white" sand's reflective surface.

Gravel Mining Section:

The existing upper partially unrehabilitated borrow pit mined by others in the past is visible from short sections of the main access road (R43-MR 28/2)to Gansbaai as well as portions of De Kelders residential area (although most of these houses are built with a seaward focus). Note that this is above the level of the existing gravel mining which is not visible from this point and also above the proposed extension which will not be visible form this point. Photo 8 illustrates the maximum exposure of the upper borrow pit (mined by others) from the R43 road adjacent to De Kelders, the current scar-line being at 80.0m amsl. Ridgelines to the south and north preclude any further visual impact of the existing borrow pit.

The proposed extension excavation is to be developed to 63.0m amsl and a level lower than the borrow pit shown in Photo 8, and as such will not be visible from any residence or section of R43 – MR 28/2 main road (even when the Rooikrantz in the foreground of the photo is removed).

Furthermore, both the gravel mining method and rehabilitation reduces visual impact through the following excavation sloping and topographical controls (refer Section 5.2.4):

- Excavation edge shaping including a maximum overall slope of 1:2, with either 5m faces on 10m-wide benches or a 1.0m bench every 5 vertical meters to eliminate a single high face
- Growing-medium (soft overburden and topsoil) placing on benches to provide and establish growth on the benches, with the spraying of an oxidising agent (e.g. "Permeon") on the limited height faces to break the dominant face/rock colour and blend it with the background landscape
- Rounding/ sloping the top edge to soften the excavation edge-line and mimic local contours.

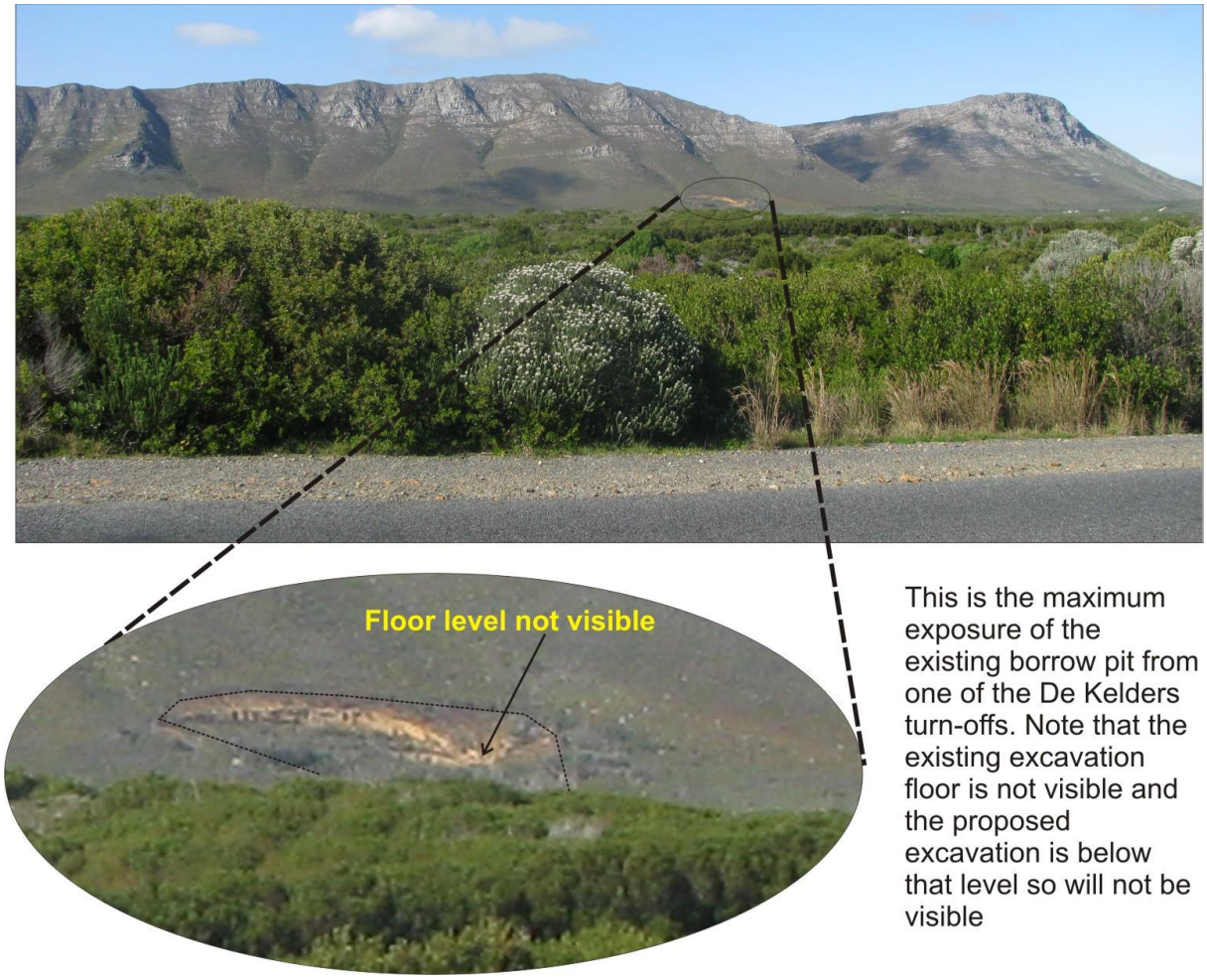


Photo 8: Visual Impact of Upper Gravel Excavation (mined by others)

3.2.3. Soil

Prior to the 2010 application, detailed profiling of the soil was conducted by Site Plan Consulting using an excavator with a 5m reach. The applicable logs (with photos) of such profiling are contained in Figure 18. The logs showed the following with regards to soil profile:

- The soils were much coarser and of better quality (in terms of mining / construction materials) closer to the mountain slopes (i.e. further east). This is to be expected as these sands consist of scree material mixed with the Aeolian sands.
- The sands varied greatly in colour and texture with colours varying from white through orange / brown to black (probably through oxide staining). Texture of the sand was always fairly coarse, with some holes including coarse angular gravel material, whilst others showed layers of rounded alluvial pebble. This is typical of a colluvial mixed Aeolian soil of this nature.
- Topsoil varied in depth from 0.2m to 0.45m in thickness. Topsoil thickness increased to the west (away from the mountain) as shown in Figure 7 topsoil colour however varied from north to south with the light grey (Aeolian sands) to the south and dark grey in the older sands to the north.

Photo 9 illustrates the typical soil profile in the south (as evident in the existing mine on Erf 335).

Photo 9: Typical Soil Profile

It is important to note at this stage that the topsoil is heavily seeded with alien vegetation (Port Jackson and Rooikrantz) seeds.

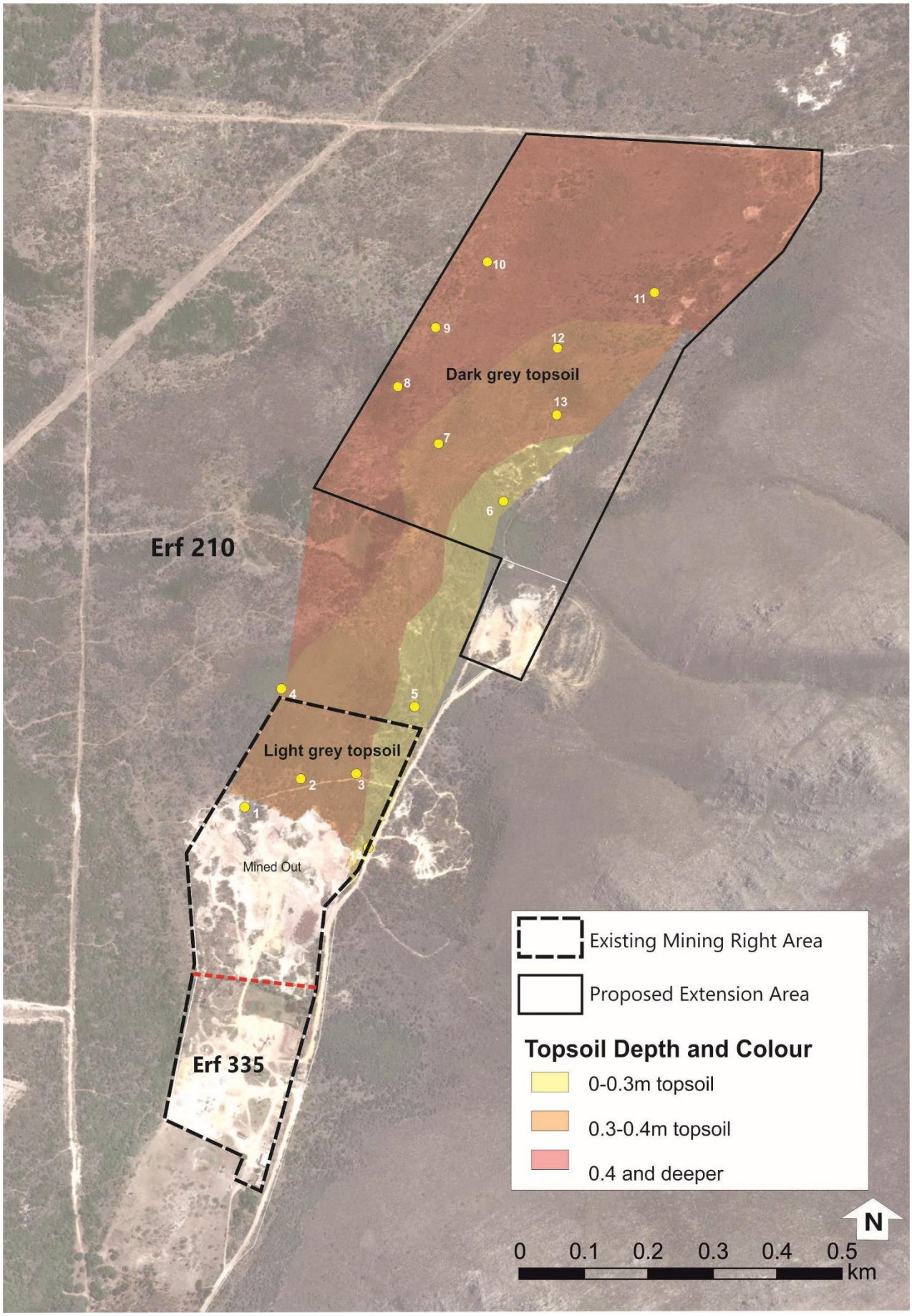


Figure 7: Topsoil Profile

3.2.4. Land Capability / Agriculture

The land capability of the entire Mining Right application area is generally being acknowledged as being wilderness area despite the Undetermined Zone and partial Rural Zone 1: Agricultural Small Holdings (R1). The smallholding areas in the north have never come to pass, but there is cultivation taking place on Erf 335 in the mined-out excavation area (refer Photo 1 and Photo 10). Such ascribed wilderness capability therefore relates largely to the limited dry-land agricultural potential due to low rainfall combined with deep extremely well drained sands with low water retention. Consequently as in the Cape Flats Philippi areas, the only agricultural potential of any significance would lie in the option of reducing the natural ground level (dune sand area) to approximately 1.5m above maximum winter perched water table level, with sprinkler irrigation from the underlying aquifer via a well-point as practiced on Erf 335.

Soil and water retention characteristics restrict dryland agriculture or grazing from being economically practiced.

Photo 10: Small to medium scale cultivation currently taking place on the mined-out area on Erf 335 (as part of a Social and Labour Plan initiative by the Mining Right Holder).

Western Cape Department of Agriculture: Land Use Management letter dated 24 December 2019 (refer Appendix 4) states that the Department "***Has no objection against the proposed application, with the following requirements****:*

- *Put all measures in place to ensure proper post-mining rehabilitation of affected areas to as close to the original condition as possible*
- *Limit the visual impact associated with mining*

- *Be careful not to damage agricultural infrastructure*
- *Allow day-to-day farming activities to continue unrestricted*"

3.2.5. Natural Vegetation

The main sources of information typically used at Scoping Stage included:

- Mucina and Rutherford mapping (2006): Vegetation of South Africa, Lesotho and Swaziland.
- CBA mapping from SANBI's mapping of the 2017 Western Cape Biodiversity Spatial Plan (WCBSP).
- The classification of the vegetation types according to Critically Endangered, Endangered, Vulnerable or Least Threatened classification in terms of NEM: BA.

The Mucina and Rutherford Mapping showed the proposed extension area to be located within Overberg Dune Strandveld with a very small sliver in the south east being within the Overberg Sandstone Fynbos. This area of Fynbos coincides with the proposed gravel pit's northward extension (refer Figure 8).

According to National Environmental Management Biodiversity Act's schedule in respect of the National List of Ecosystems that are Threatened and in Need of Protection published in GN1002 (9/12/12), the Overberg Dune Strandveld is classified as least threatened and the Overberg Sandstone is classified as Critically Endangered.

Conservation Targets:

Overberg Sandstone Fynbos (Gravel Mining Area) – Conservation target is 30%. Currently 6% conserved in Agulhas National Park, Fernkloof, Babilonstoring, Heuningberg, Maanschynkop, Salmonsdam and Caledon Nature Reserve as well as Private Nature Reserves such as Vogelgat, etc.

Overberg Dune Strandveld (in which sand mining is proposed) – Target 36%. Currently conserved 30% in De Hoop, Walker Bay and De Mond Nature reserves and Agulhas National Park. A further 11% in Private Nature Reserves (meaning the conservation target has been reached).

Of importance in this case is that the Dune Strandveld is heavily infested with alien species (mostly Port Jackson, but also Rooikrantz and Myrtle).

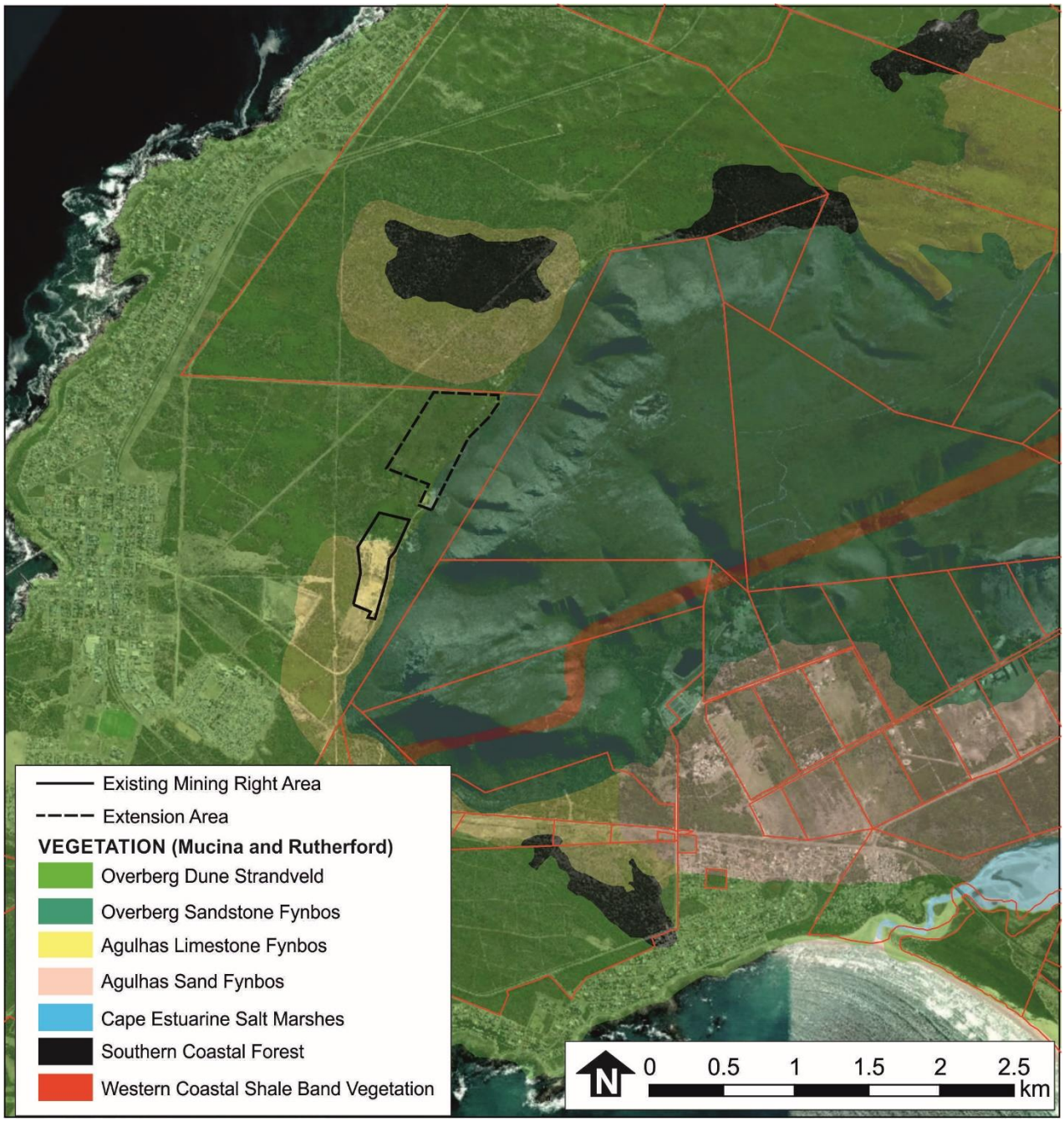


Figure 8: Vegetation Classification (Mucina and Rutherford)

Figure 9 illustrates the CBA mapping according to SANBI's 2017 WCBSP. It shows that the proposed extension is located within Ecological Support Area 1 and 2 and Other Natural Area. None of the proposed extension area is located in a Critical Biodiversity Area.

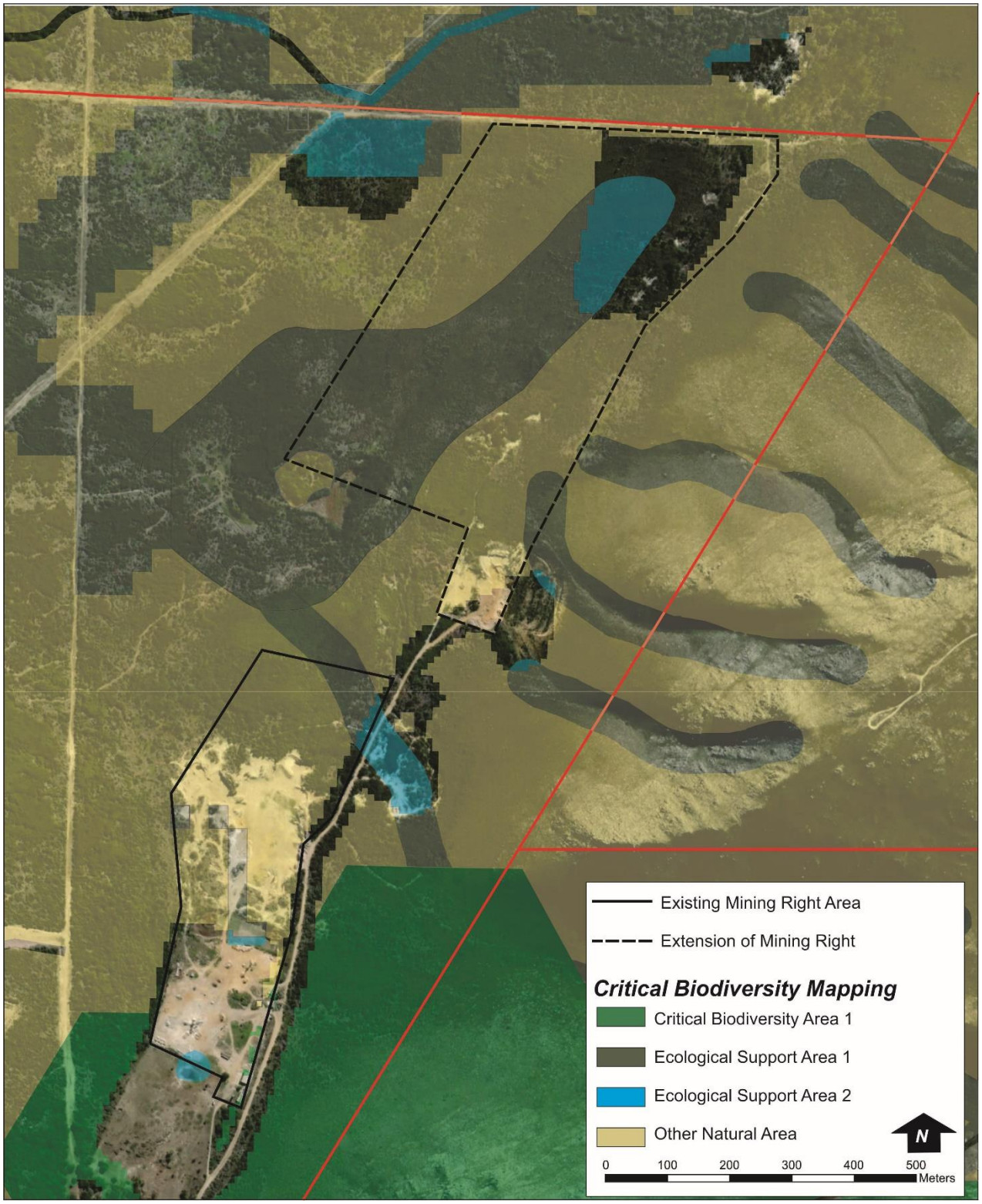


Figure 9: CBA Data (2017) WCBSP

Given the acknowledged sensitivities of the area, a specialist Botanist / Biodiversity Impact Assessor was employed post-scoping. The "*Botanical Assessment for the Extension of Mining Operations on Erf 210 Gansbaai; Fynbos Ecosystems, March 2020*" is contained in full in Annexure G.
That study, conducted in 2019, revealed the following existing situation as summarised in the Executive summary:

"The majority of the area proposed for the expansion is characterised by Overberg Dune Strandveld (least threatened), while there are smaller areas of Agulhas sand fynbos (endangered), Overberg sandstone fynbos (critically endangered), Western Cape milkwood forest (endangered) and wetland (Pool-Stanvliet, et al. 2017). The natural vegetation on site is generally in very poor condition as it is heavily invaded by alien invasive species, most notably Acacia saligna (port Jackson), Leptospermum laevigatum (Cape myrtle) and Acacia longifolia (long leaf wattle). With the exception of the Western Cape milkwood forest and wetland areas, the vegetation has Moderate-Low regional conservation value. There are areas included in the proposed mining extension that are designated Ecological Support Area: Aquatic CBA wetland and Ecological Support Area (restored). The major vegetation type (approx.. 80% of the proposed area) Overberg Dune Strandveld is regarded as least threatened in terms of the NSBA , and only one Red Data species was recorded within the area (there is a however a reasonable likelihood of more Red Data species being present) that will be impacted by the proposed layout".

The following paragraphs are copied directly from that report:

The original natural **Overberg dune strandveld** vegetation in the area of the proposed mining extension is in relatively poor condition as it has been impacted by past agricultural activities and subsequently become infested with alien invasive plant species (refer Plates 1, 2 and 3).

Plates 1 & 2. Dense stands of *Acacia saligna* (left) and evidence of old disturbed lands (right) characterise the expansion area.

<u>*Conservation value*</u>

Overberg Dune Strandveld has been classified as least threatened at a national scale (Pool-Stanvliet *et al.* 2017), with some 95% of its original extent remaining and some 30% statutorily conserved in De Hoop, nearby Walker Bay Nature Reserve, De Mond Nature Reserve and in the Agulhas National Park. A further 11% of this vegetation type is conserved in private conservation areas such as Grootbos, Andrewsfield, Brandfontein-Rietfontein, Groot Hagelkraal and Wolwefontein.

Plate 3. Drone footage of the proposed mining extension area showing a very high cover of alien vegetation across the site. The taller trees are Eucalyptus sp., while the lower canopy is dominated by Acacia saligna.

The vegetation vulnerability has been rated as medium vulnerability and protection level as well protected (Mucina and Rutherford 2006). The site could potentially contribute to meeting local conservation targets for both biodiversity pattern (species) and ecological process. However, the vegetation is in poor condition and will cost considerable resources to restore. Regional targets for the vegetation type have already been fully met by provincial, national and private nature reserves.

The conservation value of the vegetation in the study area is low in local (Gansbaai) and regional (Overstrand) terms, as it is heavily impacted by past human activities, most notably alien vegetation.

Overberg sandstone fynbos

Overberg sandstone fynbos is characterized by very high numbers of rare and endemic species and is spread irregularly from Bot River and Hawston in the northwest to the Soetanysberg and Bredasdorp in the southeast including amongst others the Kleinriviersberg range. The vegetation is restricted to low mountains, undulating hills and moderately undulating plains supporting moderately tall, dense restioid, ericoid-leaved and proteoid shrublands. The geology is acidic soils derived from Table Mountain Sandstone (Cape Supergroup). Overberg sandstone fynbos is characterized by a very high diversity and rapid species turnover, over short distances. As a result there is high endemism and high numbers of rare and endangered species.

Plate 4. Erica subdivaricata

Species composition

Dominant species in the Overberg sandstone fynbos community on site include *Leucadendron salignum, Leucadendron xanthoconus, Mimetes cucullatus, Protea longifolia* (vulnerable)*, Protea repens, Aulax umbellata* (near threatened)*, Erica plukenetii, Erica coccinea, Erica muscosa, Pelargonium cucullatum, Staavia radiata, Lobelia pinifolia, Lobelia sp., Pennaea mucronata*, *Aspalathus microphylla, Gerbera crocea*, the graminoids *Elegia filacea, Hypodiscus albo-aristatus, Thamnochortus lucens, Cymbopogon marginatus*, and the geophytes *Bobartia gladiata, Aristea glauca, Watsonia cf. barbonica,* and *Lanaria lanata*.

Current condition

The Overberg sandstone fynbos on the property is in reasonably good condition, although it is invaded by alien plants. Overall the proposed mining area has only moderate to light infestation levels with intact veld.

Plate 5. Drone footage of Overberg sandstone fynbos (left of path), with high alien infestation.

Conservation value

Overberg sandstone fynbos is characterized by high local and geographical diversity and has been classified as critically endangered on the basis of threatened plant species associations (very high numbers of rare and threatened species). The Overberg sandstone fynbos within the proposed expansion area has moderate alien infestation and has medium to high conservation value.

Agulhas sand fynbos

There is evidence that there may have been some Agulhas sand fynbos in the past along the interface between the Overberg sandstone fynbos and Overberg dune strandveld. Unfortunately, this area is now completely (100%) infested with alien vegetation with only a few clues as to the original nature of the natural vegetation. Agulhas sand fynbos is restricted to the Agulhas forelands from around Gansbaai and

Uilkraalsmond to west of Arniston. It is found on neutral to acidic tertiary sands and is classified as vulnerable (Pool-Stanvliet et al. 2017).

Species of Conservation Concern

Leucadendron coniferum (Proteaceae – vulnerable). This species has a limited distribution from the Cape Peninsula to the Soetanysberg. Its population is declining as a result of invasive alien species (direct effects), habitat degradation, habitat loss and over – harvesting.

Protea longifolia (Proteaceae – vulnerable). This species is restricted to the area from the Hottentots Holland Mountains to Agulhas.A population loss of at least 30% is estimated as a result of over-harvesting, habitat loss, changes in native species dynamics and invasive alien species.

There is a strong likelihood that the ground orchid *Satyrium carneum* (pienktrewwa; ewwa trewwa, near threatened, B1 (Raimondo et al 2009)) is present within the proposed extension area. This species is dormant during the summer months and only seasonally visible during winter and spring. It is restricted to stabilised coastal dune sands in the south-western Cape from the Cape Peninsula to Stilbaai and is thus vulnerable to destruction by coastal development and invasion by rooikrans (*Acacia cyclops*).

It can be successfully removed and transplanted to other areas on site as part of a search and rescue program. Ideally the search and rescue should be timed to take place in late October/early November.

There is a possibility that other species of conservation concern are present but could not be identified or were not observed due to the time of sampling. These include *Lampranthus fergusoniae* (vulnerable), *Agathosma geniculata (vulnerable), Lampranthus explanatus* (endangered), *Heliophila linearis var. reticulata* (vulnerable) and *Galdiolus variegatus* (vulnerable); all of which have been recorded in similar habitats. However, the likelihood of any of these species being present on site is low owing to the past disturbance over much of the site and high density of alien invasive tree species.

Site sensitivities:

There are wetland and Western Cape Milkwood forest areas included in the proposed mining extension area (refer Plates 6 and 7).

Plates 6 & 7. Western Cape Milkwood forest with very old *Sideroxylon inerme* and other thickets elements within the proposed mining extension area.

Western Cape Milkwood forests are classified as endangered according to the Western Cape Biodiversity Spatial Plan (Pool-Stanvliet *etal*. 2017). These sensitive forests must be protected and will need to be excluded from the proposed mining extension area. In addition, it is proposed that a minimum of 50m buffer of natural vegetation be conserved around the milkwood thickets[1].

Plate 8. Wetland area within the proposed mining extension area.

The wetland area shown in Figure [14] and Plate 8 above is situated on the south western boundary of the proposed mining extension area. The scope of this study does include an analysis of the hydrology and how any proposed mining in the vicinity of this wetland will influence water flow. Purely from a botanical

[1] Note that the Freshwater Ecology Study recommended a 40m buffer. In the interests of the precautionary principle, the most conservative option (i.e. 50m) will be employed as the buffer from the wetland areas as delineated by the Freshwater ecologist as well as 50m from the Milkwood groves as delineated by the botanist.

perspective, a buffer of natural vegetation of at least 50m should be maintained around this wetland area.

Plate 9. Drone footage of wetland/seep area (demarcated with star) on the eastern boundary of the proposed mining extension area at the interface of the Overberg sandstone fynbos and Overberg dune strandveld.

Figure 10: Site Sensitivities Identified in the Botanical Assessment

Alien Clearing Programme

In a letter dated 9 June 2020 (refer Appendix 5) the **Overstrand Municipality: Property Administration Section** in response to the draft EIA/ EMP put forward the following:

"***2.5.2 The applicant must submit a detailed alien clearing programme that indicates alien plant management on the mining areas, which study must be to the written satisfaction of the Senior Manager: Environmental Services***"

An Alien Vegetation Management Plan is a "living" document and is updated from time to time with the information represented further below. At this stage, a detailed alien vegetation management plan is possibly premature, given the acknowledgement that the site is very significantly invaded and all approvals have not yet been granted (refer Annexure P).

The specialist botanist was tasked to consider alien vegetation management method/ protocol and plan. Whilst chipping and composting of the alien vegetation is included in the Devegetation and Revegetation Protocol in Section 5.2.2, the following comment is pertinent from the specialist botanist:

(i) "*The issue is not so much with the concern of how to handle the alien vegetation canopy seed, but rather how to deal with the massive soil stored seed bank.*

(ii) *The percentage of alien seed that will be contributed by the current standing stock of aliens is minimal compared to the alien seed bank already in the ground, awaiting disturbance for a massive post-mining germination flush.*

(iii) *Therefore, while it will perhaps be beneficial to mulch and compost the alien material as it is cleared, it will make virtually no difference to the post mining alien flush. It will be much more important to focus on making financial resources available for follow-up clearing post spreading of topsoil after mining*."

The specialist agrees that an alien vegetation management plan should be drawn up by a suitably qualified expert to ensure the long term maintenance of the site, including appropriate methodology and annual follow-up clearing operations.

Such alien vegetation management plan has not yet been drawn up but must be made available for comment by landowner (Municipal Senior Environmental Manager), DMR and specialist botanist, as soon as all approvals are in place and prior to mining commencement.

Annexure P puts forward the necessary "steps" and information required in the compilation of an Alien Vegetation Management Plan.

3.2.6. Animal Life

Vast expanses of the same vegetation surrounding the site provide a habitat suitable for species typical of the area. These include rodents (rats, mice, shrews etc.), reptiles (snakes) birds and insects. The large scale of the habitat type when compared to the extent of the proposed activities negates any significance of any impact in this regard.

In this regard it is noted that as per the Mine Layout Plan, the mining will take place in strips and mine blocks with concurrent operational rehabilitation over a period of some 25-30 years thereby enabling internal migration of most species ahead of advancing operations, to remaining undisturbed areas and re-topsoiled operationally rehabilitated areas.

In order to further reduce the risk posed to animal life, a chase and rescue operation will be conducted prior to the topsoil removal in each new mine block. It is note that given the use of a bulldozer with high ground vibration and noise levels that most species will migrate away, ahead of this initial activity in each mine drive.

3.2.7. Surface Water

Findings of the 2010 Application process

In the 2010 application, it was noted that "*one drainage line shown on the 1:50 000 sheet extends into the proposed Mining Right area and localised depressions that more or less align with the channel were noted on site. These will become more discernible once the vegetation has been removed and survey has been undertaken".*

The alignment of that stream channel more or less aligns with the subsurface flow presented as a possible "recharge" to the vlei (identified by Privett 2010 and 2019 and by Bekker 2019)) and indicated in Figure 12.

The 1:50 000 (3419CB) shows that there are a few blind stream channels from Franskraal se Berg in the East that *do not extend* into the proposed sand mining extension area. This is further ratified by the 2010 Geotechnics Africa groundwater assessment:

"Indications are that concentrated water that flows onto the site disperses and infiltrates the loose surface horizons. The drainage channels are therefore unlikely to continue much further into the area as shown on the aerial photograph [*refer Figure 5*]" Geotechnics Africa, 2010.

Note that the present alteration of the area east of the road (east of the Mining Right Area) for use as a track combined with the "raised" roadway has prevented any possible surface flow which may have occurred. The site was visited during the heaviest rainfall month in years in order to determine whether there was any surface flow on site – *There is no surface water flow on site*. (Site Plan, 2006).

Findings of the 2019 Application Process:

Figure 11 shows a synthesis of the FEPA (Freshwater Ecosystem Priority Areas) wetland mapping as well as the indicated aquatic Ecological Support Area published in the Biodiversity Spatial Plan of 2017. It is important to remember that these polygons are based on remote sensing and computerised interpretation of contours and not in-field assessment of conditions. However, the location of the red FEPA wetland (in Figure 11) would represent a fatal flaw in the proposed sand mining. SES (Sharples Environmental Services) specialists in surface water related issues, were tasked with a rapid review (to be followed by full study) to determine whether such FEPA wetland actually existed on site.

The findings of the rapid review were as follows:

- The extensive area mapped by national and provincial databases as wetland habitat, on desktop investigations, was not identified on-site.
- There are some small depressions containing wetland habitat (*typha* vegetation, mottled soils etc.). These could be artificial in origin as the site has experienced past disturbance (potential excavated livestock watering areas) and present impacts from dense alien plant infestation.
- These areas are of low ecological value but should be avoided as far as possible (or maybe rehabilitated?). These will be mapped and discussed in full specialist report.
- It needs to be confirmed that water use authorisations will not be required for the artificial habitat.
- The two Aquatic CBA drainage lines north of the site are confirmed as natural drainage lines. They are likely to serve as important water source area (potentially replenishing groundwater). These will be studied further and it will likely be recommended that these areas are avoided.

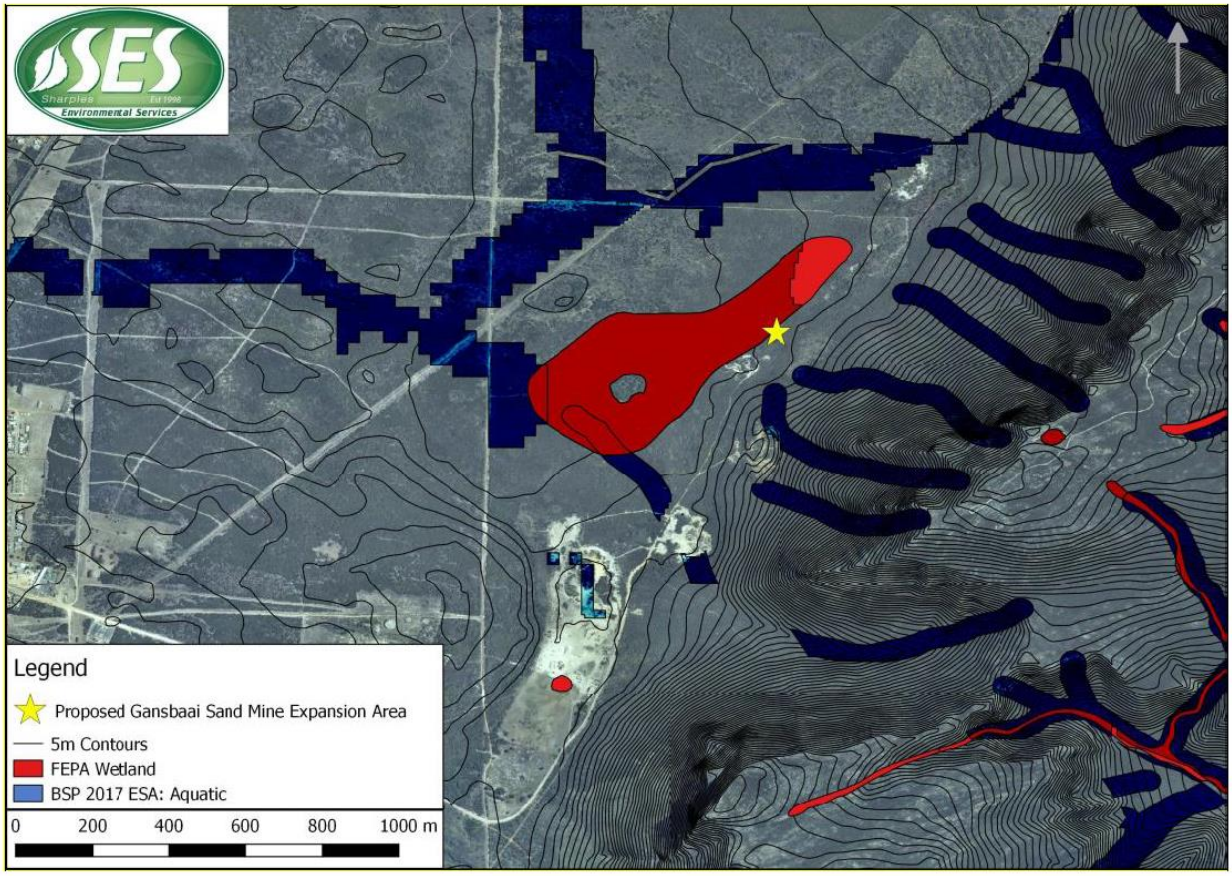


Figure 11: Published Surface Water Features (map compiled by SES)

The rapid review described above was followed by a full study; Freshwater Habitat Impact Assessment for Gansbaai Sand Mine, Western Cape; Sharples Environmental Services, October 2019 (refer in Annexure H). The following paragraphs are copied directly from such full study.

The vegetation, soil, hydrological, and morphological characteristics of the proposed site were investigated using observation, soil augering, and GPS coordinates, amongst other methods detailed above. The desktop data had identified a substantial portion of the site as containing aquatic habitat and therefore such areas were especially focused upon and investigated in detail for the presence of aquatic habitat indicators. The groundtruthing exercise determined that there is a large discrepancy between the extent of aquatic habitat identified by the various spatial databases and that which was identified and delineated onsite. There is far less wetland habitat onsite than that identified by NFEPA and WCBSP data. This inaccuracy could be due to the disturbed nature of the landscape and cryptic features.

Three features of aquatic interest were identified during field assessment within the area, namely:

- A wetland partially within the south western portion of the site,
- Non perennial mountain streams flowing toward and slightly into the site from the east, and
- Small depressions seemingly scattered in the landscape.

The wetland and non-perennial streams are assessed in detail below. The small depressions found at the base of the mountain foothills on the coastal plain did not have sufficient wetland indicators to be classified as wetland habitat. These depressions are discussed below but were not assessed further. Figure 12 below shows the delineated extent of each feature in the landscape in relation to the site.

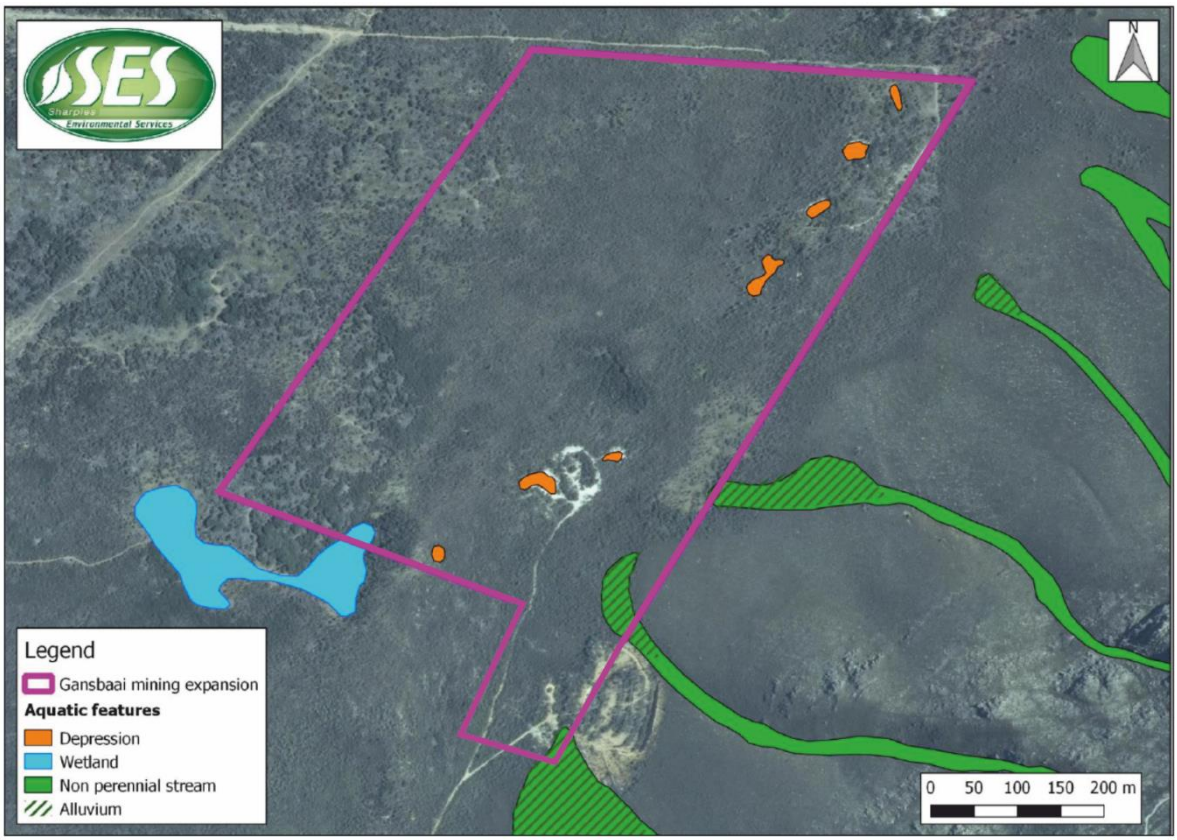


Figure 12: Delineated Surface Water Features (Source, SES, 2019)

Depression Features:

The depressional features identified (Figure 12) are situated upon the coastal plain, and although the surface relief of this area is relatively flat, there is local variability in the site topography. There are small and shallow low-lying features interspersed by sand mounds forming an undulating micro-topography. It is possible that this has resulted as a response to abiotic processes such as wind action. However photographic records provide evidence that these features may be formed by past human excavations and are therefore artificial in nature.

The soil profile was assessed (through augering to a depth of at least 50 cm) and no morphological indicators of prolonged saturation were found. The sediment is entirely composed of coarse sand that may interact with the groundwater table at a depth of approximately 100cm, but contained no mottles. The hollows are sparsely vegetated amongst dense alien trees. They consist of a few facultative individuals such as grass and restio species.

Apart from the likelihood of these depressions being created by human excavations they also lack the necessary indicators to be classified as wetland ecosystems. There is however one larger depression on site that does contain wetland habitat. The smaller features form part of the terrestrial habitat and were not included in further aquatic assessment. However, rehabilitation should attempt to restore the land surface as closely as possible to the pre-mining form.

The Wetland Habitat

The larger depression to the south west of the study area was identified and delineated as wetland habitat. The definition of a depression wetland is "a wetland or aquatic ecosystem with closed (or at least near-closed) elevation contours, which increases in depth from the perimeter to a central area of greatest depth and within which water typically accumulates". The wetland identified is not connected to the river network and the water source is likely to be sub-surface water dominated. The permanent zone is entirely vegetated by *Phragmites australis* reeds and the periphery contains Kikuyu grass (*Pennisetum clandestinum*) leading into the terrestrial Milkwood Thicket habitat. Soil augering within the depression showed evidence of prolonged and frequent soil saturation with the presence of gleying and mottling within 50cm of the surface.

It is unclear as to how this wetland habitat originated as it could be a result of natural processes or human disturbance. The shape and form suggest that the area was dammed in the past and has since formed wetland characteristics. There is evidence of a berm on the eastern edge of the wetland. Potentially humans made such alterations to the existing low-lying area rather than excavation. A detailed survey and groundwater investigation would be needed to determine this. If the wetland is a natural feature it has deviated from the reference condition and undergone significant habitat disturbance, mainly from soil disturbance for agriculture in the past and currently due to alien invasive plant encroachment. The system can be classified as moderately modified and obtained a 'C' Category from PES assessment indicating a good/ fair condition.

It has a moderate level of ecological importance and sensitivity as it is a source of freshwater and refuge for local biota on the coastal plain. However, it has limited habitat diversity and is no longer used for its water by society. It is in a disturbed ecological state and has little research potential. Although surrounded by a band of indigenous Milkwood Thicket the general area is densely invaded by Port Jackson (*Acacia saligna*) and Rooikrans (*Acacia cyclops*) trees. It is recommended that the wetland be avoided by the mining so as to cause no habitat loss and to maintain the system in its current state. Within the proposed sand mining area this avoidance would affect Block No. 2. (*EAP NOTE: Block 2 as contained in the draft Scoping Report has been removed from the area proposed for sand mining and the number of mining blocks has changed from 27 to 26 – refer Figure 19.*).

Non-perennial streams

Non-perennial mountain streams drain down the steep slope towards the proposed site. The drainage lines will only flow intermittently during rainfall events. The riparian area is vegetated by natural fynbos vegetation with few alien invasive plants present. The shallow channels become less defined at the mountain foothills and deposit alluvial material. Alluvial fans are created when the gradient decreases and the valley opens out towards the plain on the mountain foothills. This results in the deposition of the majority of the sediment load to form alluvial fans. The channel disappears and the systems become disconnected from the surface drainage network. However, their influence upon groundwater recharge is likely to be significant. These non-perennial mountain streams support important ecological processes and are in natural or near natural condition. The systems should be maintained in their current state.

Two of the alluvial fans are within the study site and a portion of these features is proposed to be mined for gravel. However, the alluvial material must be seen as part of the drainage line and avoided as far as

possible. It has a strong geomorphological relationship with the mountain streams and impacting it could cause degradation upslope into the channels.

Gravel Mine

Figure 13 depicts the 10,0m gravel pit buffer/ setback from the assumed sub-surface flow.

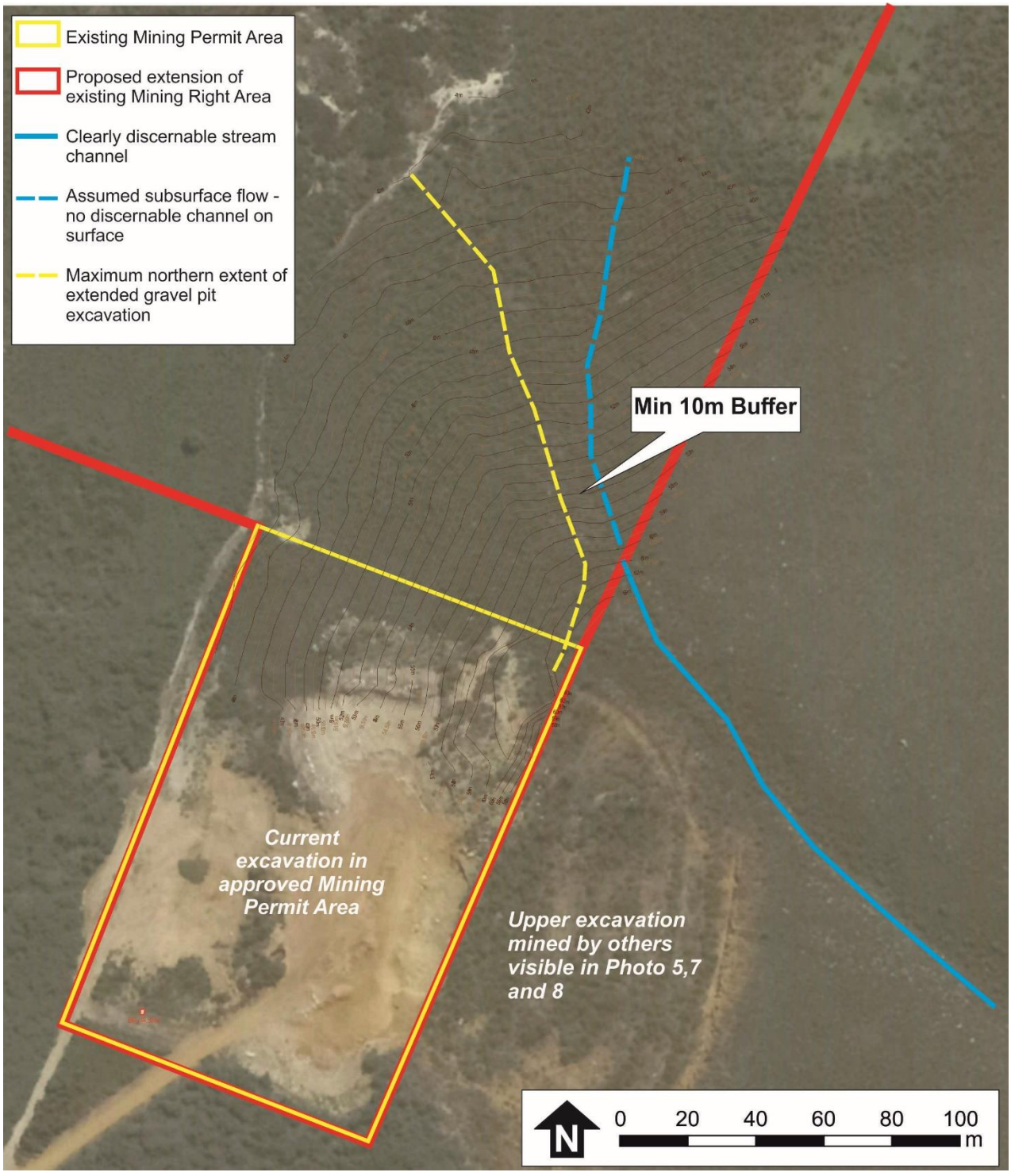


Figure 13: Gravel Mine: Surface Water Consideration

3.2.8. Groundwater

The results from the 2010 groundwater investigation by Geotechnics Africa are summarised in Figure 14 and table hereafter:

The table below shows the measured results from the piezometers placed in that study area. Be aware that the study area did not include the currently applied for extension of sand mining area and this study will need to be replicated for that area.

In the table below, the shaded rows are the piezometers that were placed in the floor of the then excavation area and showed depth to groundwater below excavated depth. It is noted that the reading obtained for GSM8 and GSM10 (in Feb 2011) were close to surface but would exceed 1m through eventual replacement of topsoil.

	Sep-10	Oct -10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11
GSM1	Dry	Dry	2.1	Dry	Dry	Lost				
GSM2	2.77	2.58	2.4	2.6	2.65	Lost				
GSM3	Dry	2.6	2.6	2.5	Dry	Dry	Dry	Dry	Dry	
GSM4	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
GSM5	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
GSM6*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
GSM7*	Dry	No Standpipe								
GSM8*	0.8	0.8	0.7	0.8	0.8	Dry	Dry	Dry	Dry	
GSM9*	1.28	1.15	1.5	Dry	Dry	Dry	Dry	Dry	Dry	
GSM10*	1.1	1.1	1.3	1.15	1.1	0.5	Dry	Dry	Dry	
GSM11*	1.85	1.9	1.7	1.3	1.2	1.6	2.0	2.2	2.5	
GSM12*	0.75	0.98	1.10	1.15	1.30	1.1	1.3	1.20	1.30	
GSM13	3.7	3.5	3.2	3.8	Dry	Dry	4.1	4.0	4.0	
GSM14	3.75	3.56	3.24	3.44	3.61	3.8	3.8	4.0	4.1	
GSM15	3.2	3.4	3.4	3.3	3.15				Dry	
GSM16	3.4	3.4	3.4	3.6	3.7				2.8	
GSM17	2.3	2.2	2.05	2.6	2.8				2.8	
GSM18	3.2	2.8	2.55	2.65	2.9	3.0	3.2	Lost in fire		
GSM19	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Lost in fire		
GSM20	3.5	3.2	2.9	2.82	2.75	2.90	3.0	Lost in fire		

The important point is that during the trial pits dug by Site Plan Consulting in 2017 and later by the Mining Right holder, no groundwater was located to depths in excess of 4m in the proposed extension area.

A system of piezometers must in any event be installed to measure water table depth ahead of mining as described in Section 5.2.8 and Figure 22, as well as Annexure P: Updated Wetland Specialist Study.

Note that in terms of groundwater use, the site is located in Quaternary Basin G40L. In accordance with the 2016 Govt Gazette No 40243, within such basin it is permissible by General Authorisation to withdraw 275kl per hectare of land per annum (Erf 335 measures 4.2827ha allowing for total abstraction of 1 182m³ per annum). Current water use is on average 2.5m³ per working day resulting in a total approximate use of 660m³ water per 264 working day year.

It is however required that the water use / borehole be registered and SES has been tasked with obtaining all registrations and General Authorisations in terms of surface and groundwater use.

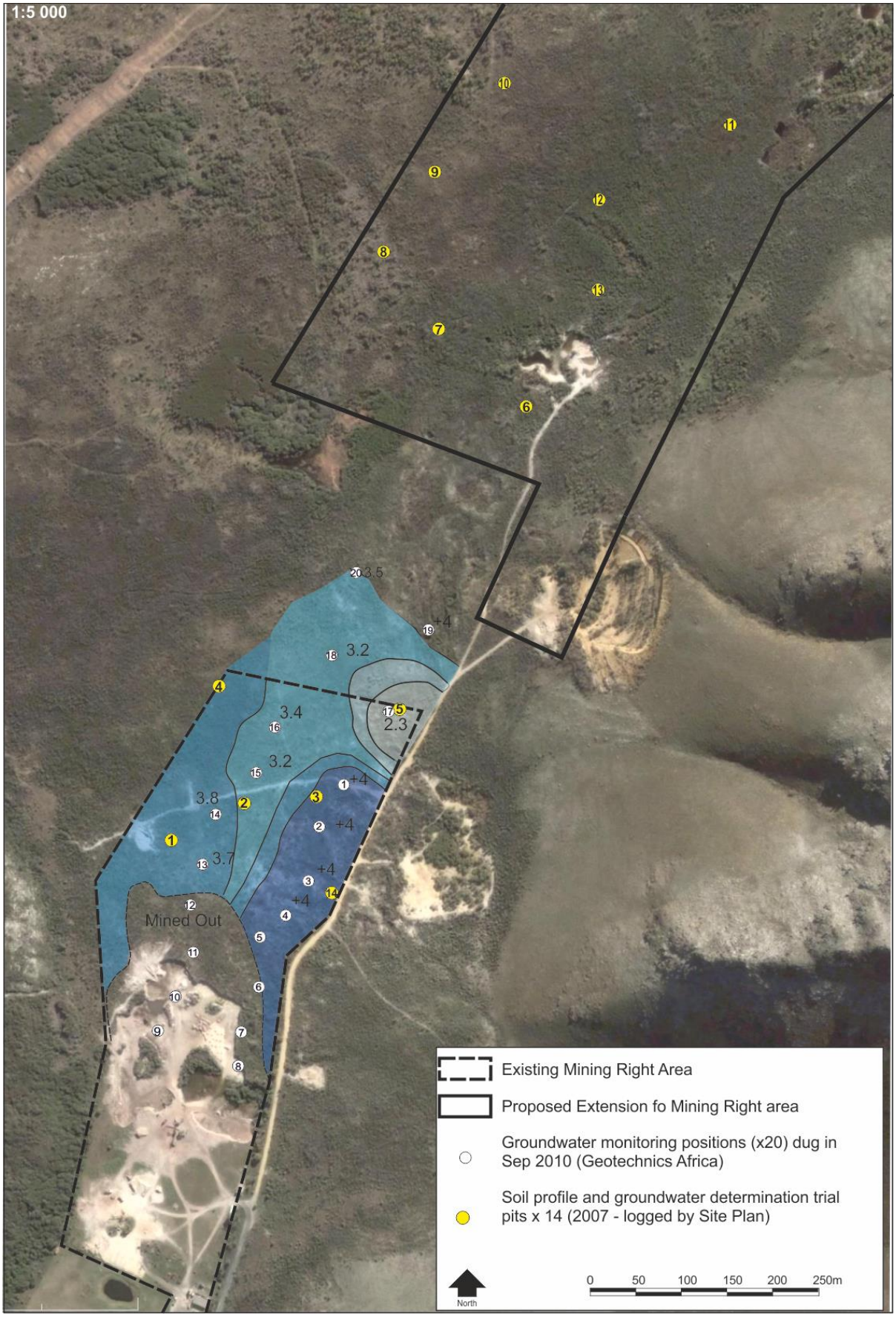


Figure 14: 2010 Groundwater Study

Please note that the water use application is being conducted as a General Authorisation by SES Consulting. They have had communication from DWS to continue as a GA:

From: Ewulaas_Do_Not_Reply@dws.gov.za <Ewulaas_Do_Not_Reply@dws.gov.za>
Sent: Wednesday, 12 February 2020 1:59 PM
To: debbie@sescc.net
Subject: Application have been returned to you (WU15735)

Dear Ms Debbie Bekker

The following application have been returned to you:

Sizisa Ukhanyo Trading 410 CC Proposed expansion of Gansbaai sand mine in Gansbaai, Western Cape. (WU15735)

The reason for the return is as follows :

APPLICATION FOR REGISTRATION OF WATER USE(S) WITHIN THE AMBIT OF A GENERAL AUTHORISATION IN TERMS OF SECTION 40 OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998)

The Department of Water and Sanitation has assessed your Pre Water Use Licence application enquiry. Please continue to apply for registration of water uses(s) authorized in terms of General Authorization.

You received this email from :

Name : Ms Vhengani Ligudu (Assessor)
e-Mail : vligudu@bgcma.co.za
Tel : 0233468047

Thank you,
The e-WULAAS Team

CapeNature: Conservation Intelligence in their letter dated 19 June 2020 requested that "***a full Geohydrological Study be compiled to determine the groundwater model / functioning in the area***".

In response it is noted that while this has been somewhat concurred with by the Freshwater Specialist but only in that it would help to ascertain the Groundwater Model in the area and is thus not necessary. The aim of the mining method, which entails regular monitoring of groundwater depths by Piezometers (refer Section 5.2.8 and Figure 22 for detail description), is precisely to eliminate any impact on the groundwater of the area by avoiding contact with such groundwater by at least 1.5m. The determination of the groundwater model would be academic and serve no purpose in respect of this project proposal.

In a letter dated 9 June 2020 (refer Appendix 5), the **Overstrand Municipality: Property Administration Section** in response to the draft EIA/ EMP put forward the following:
"***2.5.1 The applicant must submit an updated wetland specialist study that shows water depth monitoring during summer as well as winter which study must be to the written satisfaction of the Senior Manager: Environmental Services***."

In response, Annexure N: Updated Wetland Specialist Study puts forward the following:
Possible impact on groundwater is acknowledged as potentially significant and all efforts must be made to eliminate / avoid such impact. Therefore, the aim of the piezometer water level monitoring is to ensure no contact with groundwater, thus there is absolutely no impact on the groundwater regime.

The piezometers can however only be installed once Environmental and Land Use Authorisations or compensation agreements have been obtained. The result is that depending on timing of excavation development, there is a possibility that initial mining may not have full information available. Bearing in mind however that mining progress is very slow and any initial exceedance of water table levels (unlikely) can be rectified through backfilling over that small area.

Reporting of groundwater levels will be submitted to the project Environmental Control Officer and the Municipal Senior Manager: Environmental Services. In addition, the MPRDA requires that Environmental Audit be submitted at regular intervals by independent party. Furthermore, it required in terms of the EIA/EMP that an Environmental Monitoring Committee (EMC) be set up with representation by the Municipality (as landowners). The EMC will conduct site visit and discuss / recommend additional environmental mitigation required as well as monitor environmental issues on site.

Also refer Section 5.2.8 and Figure 22.

3.2.9. Air Quality (Dust)

(i) Dust standard applied.

NEM:AQA

The stipulations in the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) with revisions in Government Notice R.827, published in Government Gazette No. 36974 of 1 November 2013 were used in this dust fall monitoring programme and report.

A Standard for the acceptance dust fall rate is set out in Table 1 for residential and non-residential areas.

Restriction Area	Dust fall rate (D) (mg.m-2.day-1 , 30-day average)	Permitted frequency of exceeding dust fall rate
Residential	D < 600	Two within a year, no sequential months
Non- Residential	600 < D < 1 200	Two within a year, no sequential months

SANS1929:2004

Attention is drawn to paragraph 4.8.4 of the extract from SANS regarding recognition that certain enterprises need to operate within "band 3" by virtue of "the practical operation of the enterprise..." provided that the best available control technology is applied for the duration".

"DUST FALL STANDARDS SANS 1929:2004

4.8 Dust Deposition

4.8.1 General

The four-band scale to be used in the evaluation of dust deposition is given in 4.8.2 and target, alert and action levels indicated in 4.8.3. Permissible margins of tolerance are outlines in 4.8.4 and exceptions noted in 4.8.5

4.8.2 Evaluation Criteria for Dust Deposition

Dust deposition rates shall be expressed in units of mg m² day-1 over a 30-day averaging period. Dust deposition shall be evaluated against a four-band scale as presented in Table 9.

Table 9 – Four-band scale evaluation criteria for dust deposition

Band number	Band description label	DUSTFALL RATE (D) (*mg* /m² /day [1] 30-day average)	Comment
1	Residential	D < 600	Permissible for residential and light commercial.
2	Industrial	600< D < 1 200	Permissible for heavy commercial and industrial.
3	Action	1 200 < D < 2 400	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in a year.
4	Alert	2 400 < D	Immediate action and remediation required following the first exceedance. Incident report to be submitted to relevant authority.

4.8.3 Target, Action and Alert Thresholds are given in Table 10

Table 10 – Target, action and alert thresholds for dust deposition

Level	DUSTFALL RATE (D) (mg/ m² /day [1] 30-day average)	Averaging period	Permitted frequency of exceedances
Target	300	Annual	
Action residential	500	30 days	Three within any year, no two sequential months
Action industrial	1 200	30 days	Three within any year, no two sequential months.
Alert threshold	2 400	30 days	None. First exceedance requires remediation and compulsory report to authorities.

4.8.4 Margin of Tolerance

An enterprise may submit a request to the authorities to operate within Band 3 (ACTION Band), as specified in Table 9, for a limited period, providing that this is essential in terms of the practical operation of the enterprise (for example

the final removal of a tailings deposit) and provided that the best available control technology is applied for the duration.

No margin of tolerance will be granted for operations that result in dustfall rates which fall within Band 4 (ALERT Band) as specified in Table 9.

4.8.5 Exceptions

Dustfalls that exceed the specified rates but that can be shown to be the result of some extreme weather or geological event shall be discounted for the purpose of enforcement and control. Such event might typically result in excessive dustfall rates across an entire metropolitan region, and not be localised to a particular operation. Natural seasonal variations, such as dry windy period during the Highveld spring will not be considered extreme events for this definition"

(ii) Dust generation

Probably the most representative windrose is the windrose for Hermanus in Figure 15 for 2014 and 2015 (*Source: State of Air Quality: 2015- Department of Environmental Affairs and Development Planning Project Team*). The wind regime as reflected in the wind rose has the following implications for dust:

- A high incidence and high speed of south/south-easterly winds (in the dry months) indicating that dust generation could be high
- The other main sector is the north/northwest winter regime which is less threatening give its lower incidences and speeds and the fact that it occurs during the wetter winter months
- Absence of both easterly and westerly winds holds a positive implication that no dust will be carried towards the town of Gansbaai

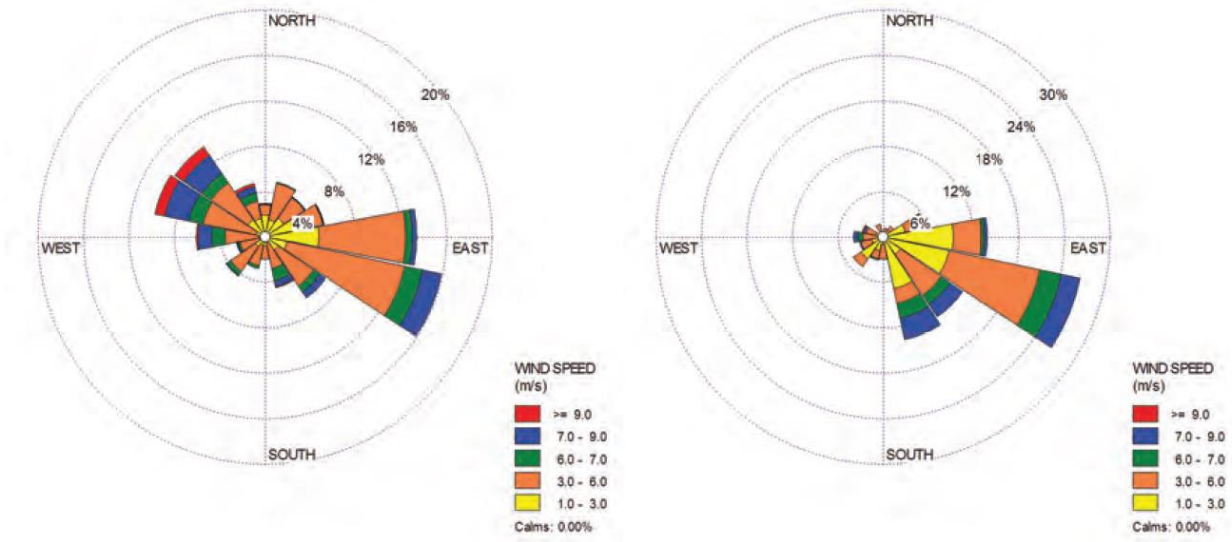


Figure 15: Windrose for Hermanus (2014 left and 2015 right)

Dust generation from this site is very low and no dust impact will occur on any surrounding land user or land use.

The current mining operation uses on average 2.5kl of non-potable water per day for dust suppression (as mist spray at plant and wetting of activity areas by water bowser when required).

DEA&DP: Directorate Development Facilitation letters dated 11 November 2019 and 20 April 2020 (refer Appendix 3) notes that **"*The use of potable water for dust suppression purposes is not supported and should be avoided*".**

3.2.10. Noise

(i) Standards to be applied

National standards / recommendations:

SANS 0103 titled "The Measurement and Rating of Environmental Noise with regard to Land Use, Health, Annoyance and Speech……" and its recommended levels shall apply.

Recommended limits: Assuming working hours of between 06h00 and 19h00 which classifies as daytime, a recommended maximum noise level of **45dBA** is set in terms of the table below, row b.

Type of district	Equivalent Continuous Rating Level for Noise ($L_{AEQ,T}$) - (dBA)					
	Outdoors			Indoors		
	Day-night ($L_{R,dn}$)	Daytime ($L_{Req,d}$)	Night-time ($L_{Req,N}$)	Day-night ($L_{R,dn}$)	Daytime ($L_{Req,d}$)	Night-time ($L_{Req,N}$)
RESIDENTIAL DISTRICTS						
Rural districts	**45**	**45**	**35**	**35**	**35**	**25**
Suburban districts (little road traffic)	**50**	**50**	**40**	**40**	**40**	**30**
Urban districts	55	55	45	45	45	35
ON-RESIDENTIAL DISTRICTS						
Urban districts (some workshops, business premises, main roads)	60	60	50	50	50	40
Central business districts	65	65	55	55	55	45
Industrial districts	70	70	60	60	60	50

Expected community response

In terms of community response to noise, SANS recommendations are to be used as follows:

Excess dB above ambient	Estimated Community / Group Response	
	Category	**Description**
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Wide spread complaints
15	Strong	Threats of community / group action
20	Very Strong	Vigorous community / group action

In addition, the general noise industry rule of "ambient +7 dB" shall serve as a good indicator above which levels are generally "not acceptable".

(ii) Noise sources on site

The following equipment/activities generate noise. Given the current on-going mining all of these activities currently take place and there have been no complaints in respect of noise (and none are anticipated):

Sand Mining

- Dozing of topsoil at ground level which will occur generally for two days per month.
- Excavator digging/loading material to temporary stockpile and loading stockpile material to haul truck, with excavator standing on the floor of the excavation and noise dispersion reduced by adjacent face and stockpiles
- Haul trucks and delivery vehicles
- Sand screening when contemplated

Gravel Mining

- Dozing of topsoil at ground level which will occur generally for two days every 6 months
- Excavator removal of material to mobile plant and operation of mobile plant (up to 2 weeks every 6 months)
- Loading of material from stockpile on floor to delivery vehicle

As the material being moved is soft sand and the modern equipment employed has electronic control of its hydraulic system to reduce engine power to a minimum, all these machines will operate in the lower range of their noise generation

Mining may only take place during daylight hours in order to limit impact on surrounding land users (highly unlikely as that may be).

4. MINE DEVELOPMENT AND REHABILITATION

4.1. Mine Layout Plan

4.1.1. Background to Material Sourcing and Demand

A growing demand for sand and gravel in the general construction industry and for road building and upgrading prompted the consideration of expanding the existing construction sand/ gravel mining venture on Rem Erf 210 Gansbaai or the securing of such material from other sites. While the most suitable source of material would be through an extension of the existing excavation, assumed restrictions (e.g. subsurface water flow) resulted in the following alternative sites being explored, including the north-west coastal belt, the southern coastal belt, inland sands and Danger Point. While presenting quality material in certain instances, such sites also comprised inherent environmental or nuisance constraints to surrounding communities and environs. Accordingly, the pursuance of extension of the existing sand excavation, including the gravel excavation extension, as put forward in the following sections.

4.1.2. Geology

Figure 16 is sourced from Council of GeoScience published data and shows the sand mine extension to be located in Quaternary aeolian sands whilst the proposed gravel extension is located in Peninsula Formation of the Table Mountain Group.

Exploration results

(i) *Sand:*

Sand underlies the entire mining right application area except where mining has taken place to date (Refer Figures 16 and 17). The sand deposit extends southwards, northwards and westwards outside of the mining application area, although further west there is evidence of calcrete nodules and soilcrete (duripan) horizon developing in the sand (best seen in the floor of the land fill site to the south west) and the gravel scree of Franskraal se Berg delineate the eastern extent of the surficial sands.

The depth of sand has been determined by two (2) previous rounds of prospecting by excavator (with ±4.0m reach). Figure 17 shows the trial pit positions while Figure 18 contains logs of the holes taken on site during the Site Plan Consulting round of prospecting in 2010 (Holes A-H). Figure 17 also shows the location of the trial pits dug later by the Mining Right Holder (1-9). Such excavator trial pits also revealed sand to depth of 4m and according to the mine manager, no water was located.
Although the sand cover is generally homogenous, the sand does show variations as described below:

- The main body of sand mined to-date is a medium grade sand formed by erosion / weathering of the mountain to the east. This is mixed with aeolian windblown sand from the west.

- To the west the sand becomes finer as the aeolian sand plays more of an impact in the origin. Calcrete nodules and surficial duripan (soil-crete) sheets also occur towards the west.

(ii) *<u>Gravel:</u>*

The proposed northern extension of the mining permit area is a logical and clear extension of the existing northern face of the mining permit excavation up to 3-4m deep as seen in Photo 11:

Photo 11: Existing northern face of gravel quarry. Note that this face has not yet reached its final position in terms of the existing mining permit, but the plan is to further advance it northwards as part of the Section 102 application.

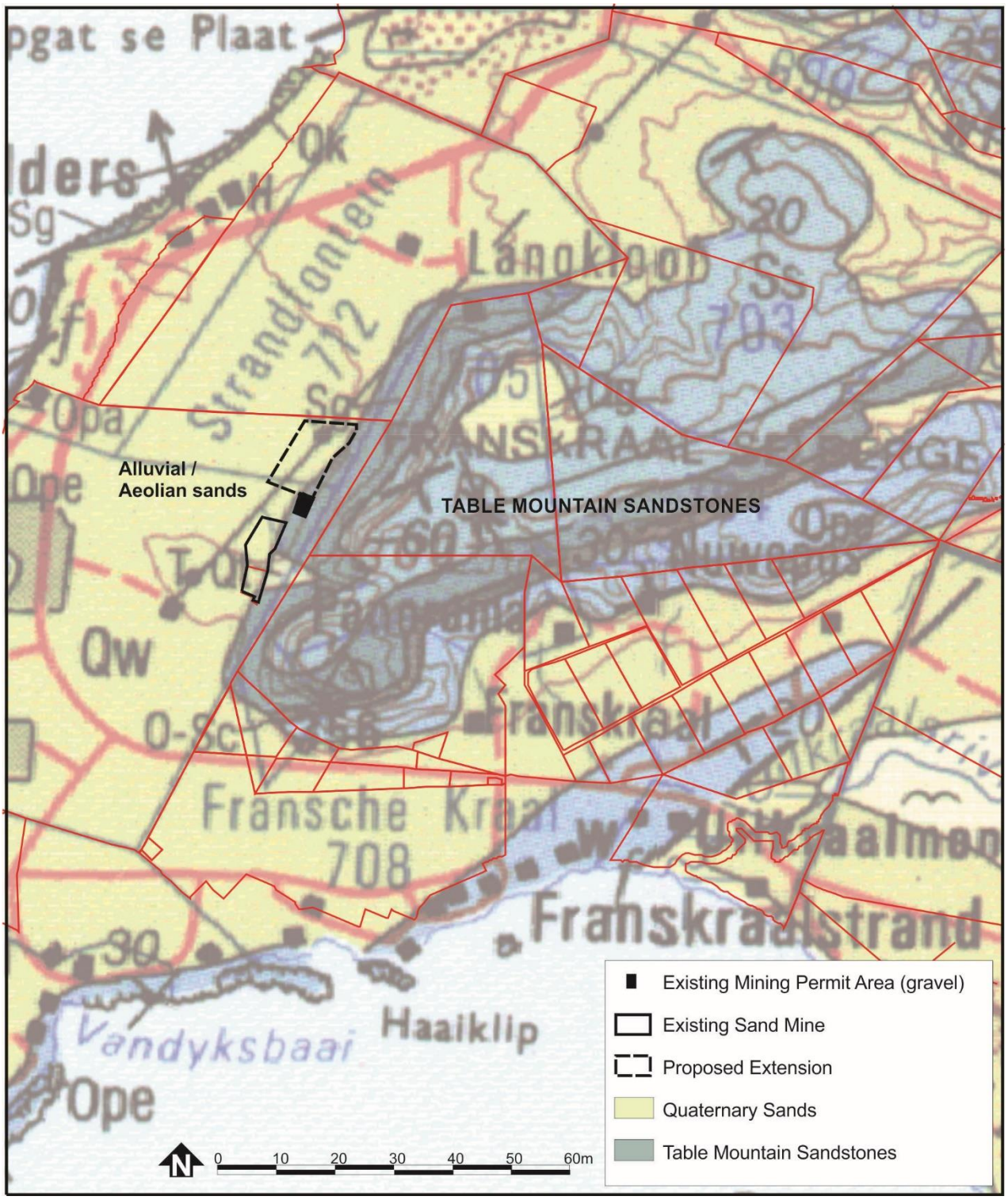


Figure 16: Geology

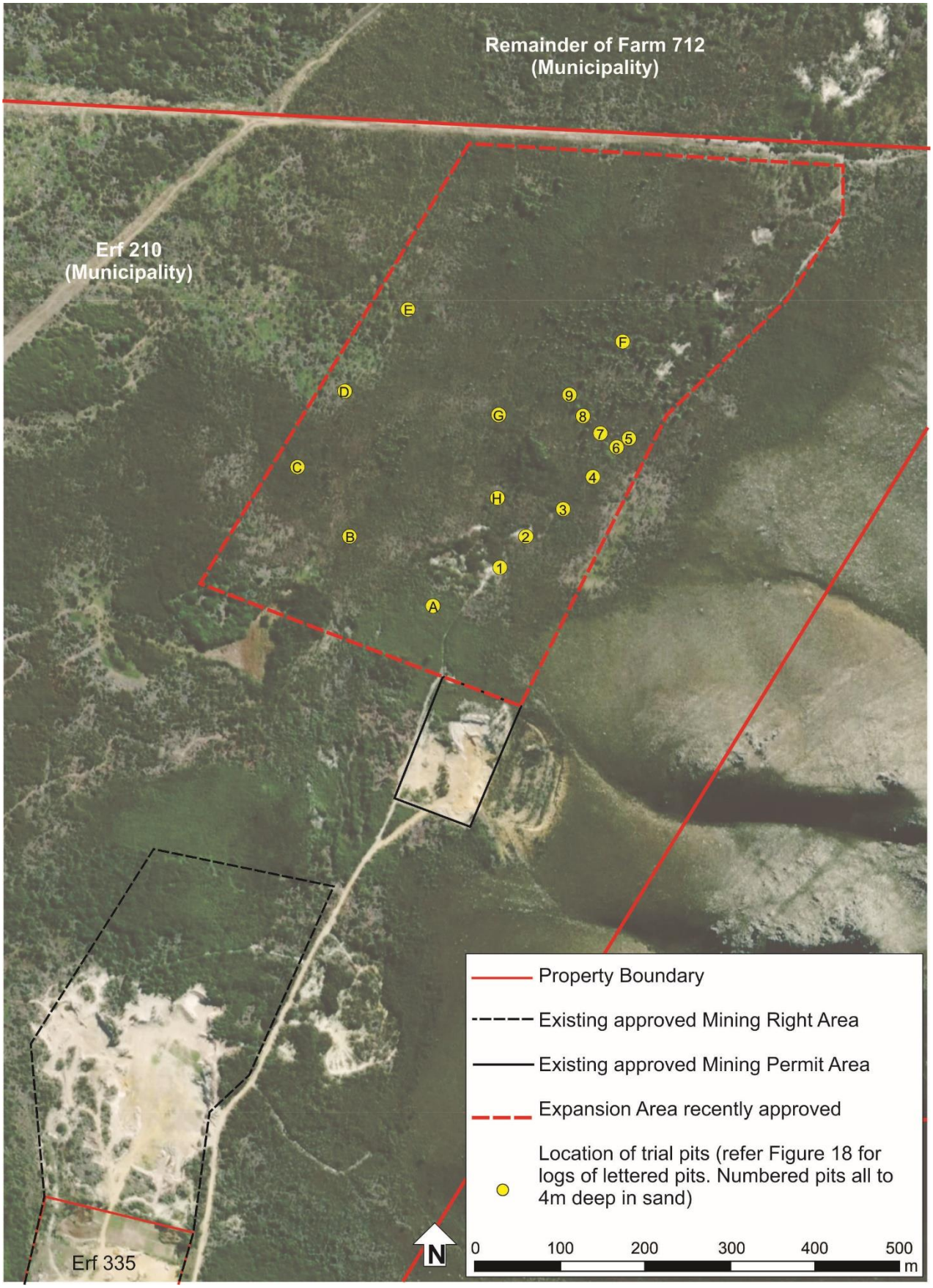


Figure 17: Trial Pit Locations

Hole A:Next to old pit
0-0.2: Dark grey topsoil
0.2-1.8: Grading dark grey to light grey (with subordinate semi angular boulders.
1.8-2.0: Dark brown
2.0-2.5: Gravel layer - angular
2.5-3.5: Light grey /white sands
3.5-4.6m: Light grey grading to Orange...No Water

Hole B: No photo
0-0.3m: Dark grey topsoil
0.3 - 4m: Dark grey homogenous colour and quality to 4m. Although sand is damp there is no water in the bottom of the pit. Pit wall slumps at level 3.0m
No water

Hole C:
0-0.4m: Dark grey topsoil
0.4-2.0m: Orange white mixed sandy material with semi angular pebble content.
2.0-4.0m: Brown coarse sand
Hole ends at 4.8m in light brown/orange sand
No water

Hole D:
0-0.4m: Dark grey topsoil
0.4-0.6: Hardened layer- possibly calcrete
0.6-1.6m: Orange and white mixed material ...very hard...with calcrete nodules. Excavator battles.
1.6-3.8m: Light orange / white material to bottom of hole. Excavator struggles to dig further. **No water.**
No water

Hole E:
0-0.4m: Dark grey topsoil
0.4-1.1m: Coarse white sand
1.1-2.5m: White to orange (graded)
2.5-2.7: Dark grey band of sand (still coarse)
2.7-3.6m: Light grey b/ white sands
All excellent quality material
No water.

Hole F:
0-0.4m: Light grey (lighter than all holes on this N portion)
0.4-4m: Consistent grey sands with orange and white discolouration in the upper 2m
No water

Hole G: NO Photo - Layered material
0-0.35: Dark grey topsoil
0.35-1.0: Light grey sand
1.0-1.5: Orange sand (coarse material)
1.5 - 2m: White sands (coarse)
2-4m: Dark grey sand
Hole ends at 4m in good sand...No water

Hole H:
0-0.3m Topsoil dark grey
0.3-1.5: Dark grey sand
1.5-1.8m: White band of coarse sand
1.8-4.0m: Dark grey sand
No water

Figure 18: 2010 Trial Pit Logs in the Extension Area

4.1.3. Reserves

Sand: The excavator used for trial pitting had a reach of between 4 and 4.5m. All trial pits found sand to a full depth of the excavator and no water was found in any of the pits. It is however at this stage deemed prudent to mine no deeper than 3m. The maximum sand excavation area west of the track is 201 351m². At a depth of 3m, that yields a total reserve of 604 053m³ sand.
Gravel: Refer Figure 20 which shows the current surveyed contours and the proposed floor at adjacent level 45m yielding a total reserve of 35 670m³ in the proposed extension area.

4.1.4. Lifespan

Sand Mine: The area available for mining is 201 351m². At a conservative mining recoverable depth of 2.7m, this yields a total reserve of 543 648m³ tight. Tight to loose ratio in sand is 1.2, resulting in sales of 652 377m³ loose. At a production rate of 24 000m³ per annum, **this results in a lifespan of 27 years 2 months**.
Gravel: The gravel reserve has been calculated by polygon analysis in ArcGis and CorelDraw vector measurement to total 29 724m³ tight. The tight to loose ratio of the material is 1:2 after single stage crushing yielding a total saleable volume of 35 670m³ loose. At the current sales rate of 2000m³ per annum, **this results in a lifespan of 18 years**.

The mining of the sand and gravel will run concurrently, therefore the **lifespan of the operation is 28 years**.

4.1.5. Mine Layout Informants, Site Layout Plans and Proposed Mining Method

(i) Informants:

The overriding informants to developing the mine plan include the following:

- Geology; the soil profiles were invaluable in determining the depths of sand available for mining and enabled the determination of the volumes available.
- Contours; the contours which have been provided in the mapping of the sand mine are from Surveyor General published data whilst the pre-mining contours in the proposed gravel mining area were surveyed by a land surveyor.
- Google Earth and Bing aerial photography are invaluable planning tools in mine design for sand mines.
- The surface water specialist has provided a delineation of freshwater habitats as well as recommended 40m buffers to each of the habitats (such buffer extended to 50m by specialist botanist).
- The vegetation specialist has also demarcated areas (wetland and milkwood grove), with a buffer of 50m from Wetland areas (refer Figure 19). Note that the more conservative 50m wetland buffer has been used.

(ii) Mine Site Layout Plans:

Figures 19 and 20 put forward the sand and gravel mine layout plans respectively:

Sand Mine Layout Plan

Figure 19 clearly indicates the informants to the layout and its response (e.g. buffers) to such informants, including:

- 50m buffer to the freshwater habitats
- 10m buffer to the alluvial fan
- 50m buffer to the Milkwood Grove/ Forest
- The on-site track delineating the eastern sand mining edge

Figure 19 sets out the twenty six (26) sand mining blocks within the mine extension area (20,1ha), as well as the final sand mining area in the existing Mining Right Area. It is noted that given a 30.0m "common boundary building line", the sand excavation along the northern boundary of the Mining Right Area abutting Farm Strandfonteyn 712 is setback 9.0m from the boundary in order to align with the 9.0m-wide "mining collar" requirement of the MPRDA (2002) to ensure stability along mining property boundaries and prevent destabilising of adjoining properties. Accordingly, a departure application to reduce the building line requirement from 30.m to 9.0m (refer Section 2.3). Also indicated is the logistical support area including the existing office/ despatch, staff amenities and sand screening plant on Erf 335, as well as the existing gravel access road.

Refer Section 6.2.2(i) and Figure 27(a) for the Sand Mine Operation Activity Areas and Operational Rehabilitation Site Development Plan (SDP).

Gravel Mine Layout Plan

Figure 19 indicates the existing Mining Permit Area which includes the current gravel mining, as well as its extension northwards. Figure 20 puts forward the detail mine layout plan for the extension of the gravel mining (0.81ha), including:

- Maximum north-easterly extent of gravel pit as determined by a 10,0 buffer to an assumed sub-surface channel, with maximum pit excavation height being 63.0m abmsl
- Proposed mining phasing in 25m-wide strips
- Resultant 5m faces on 10m-wide benches resulting in a 1:2 slope
- Contour drainage channels at 5m vertical intervals

Refer Section 6.2.2 (ii) and Figure 27(b) for Gravel Mine Operation Activity Areas and Operational Rehabilitation Site Development Plan (SDP).

(iii) Mining Method

- **Sand**: Photo 12 depicts the removal of topsoil to topsoil berms, with the cleared mining block ready for mining, while Photo 13 illustrates the mining (removal of sand). As the entire deposit consists of soft, unconsolidated (loose) sands, the material is suitable for direct loading by excavator into either delivery trucks for direct delivery of fill and selected horizon materials, or to stockpile (refer Photo 5). There is a provision for screening of the sand, with a small mobile screen within existing Mining Right area (i.e. on Erf 335) (refer Photo 4).
- **Gravel:** Based on past methods, the gravel is removed by excavator in trenches and processed through a single stage crusher (mobile plant) at the site of the gravel mine. The material is then sold from stockpile (refer Photo 5).

Photo 12: Currently cleared mining block ready for mining. Note the topsoil has been dozed off the affected area along with the vegetation content to perimeter topsoil berms

Photo 13: Sand Mining Method Indicating Sand Excavation and Topsoil Berms

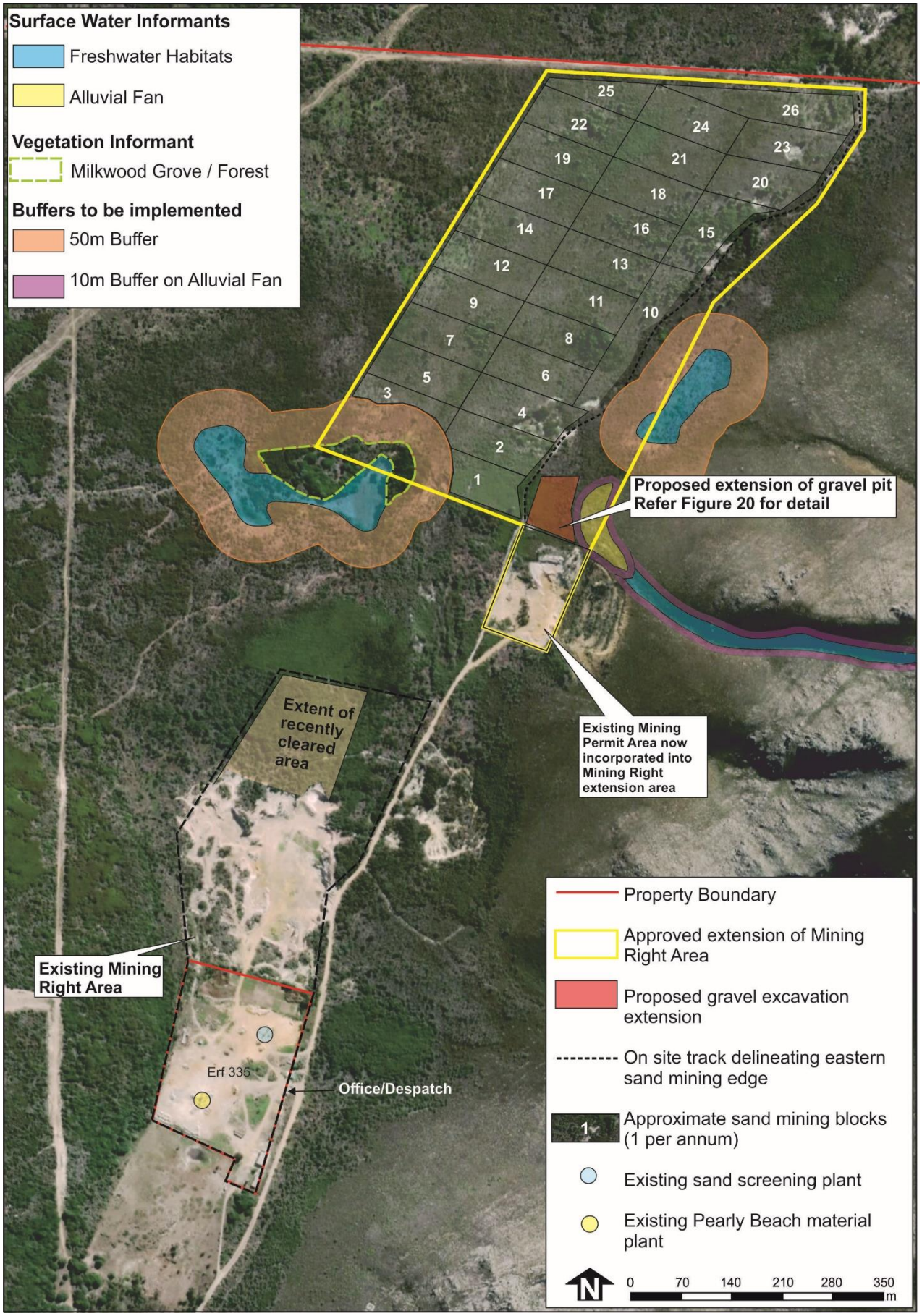


Figure 19: Site Layout Plan: Sand Mine, Measuring 20.1ha.

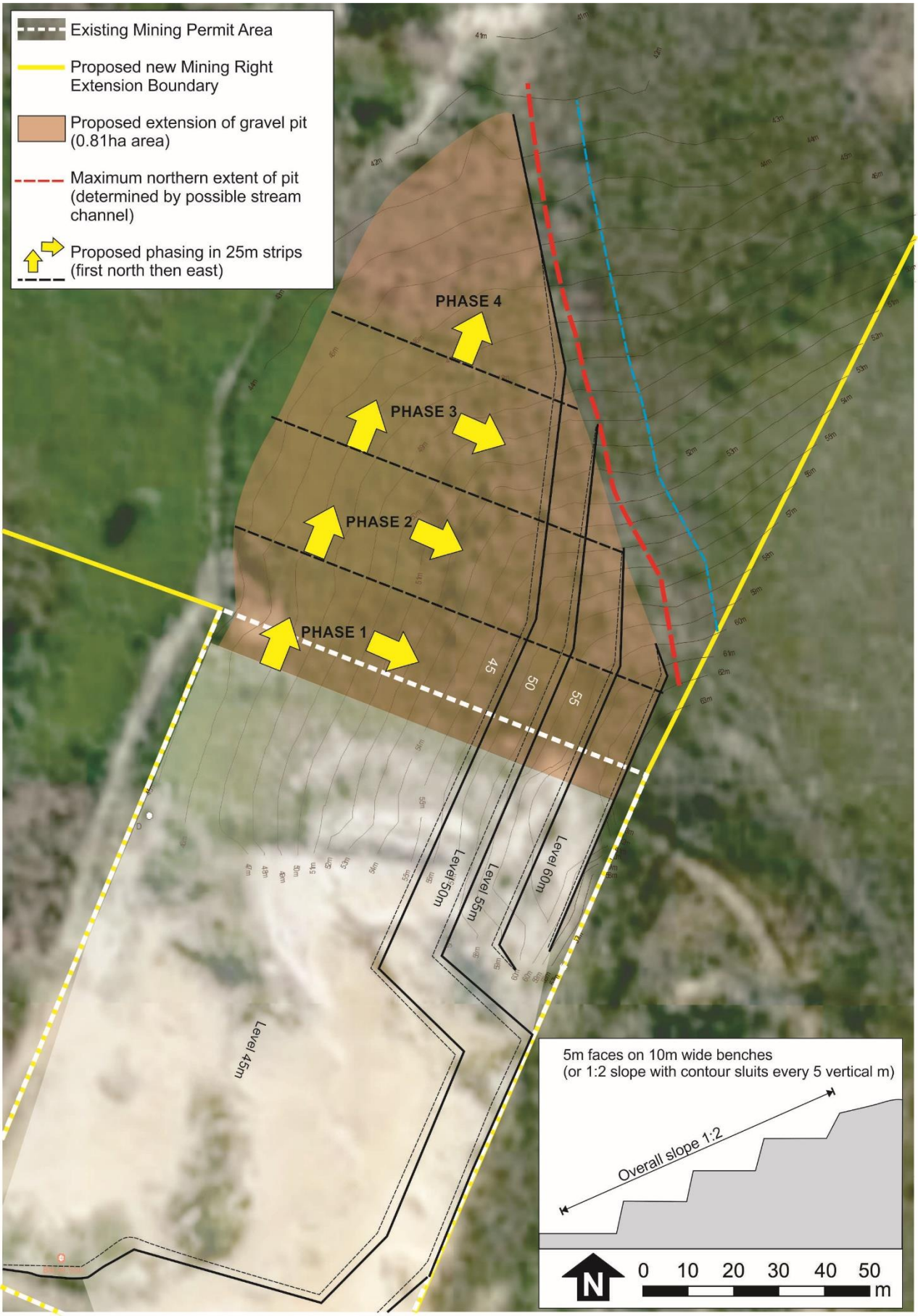


Figure 20: Site Layout Plan; Gravel Mining, Measuring 0.81ha

4.2. Rehabilitation and Proposed End-Use

(i) Closure Objectives:

- The overall objective is to leave portions of the site that can form part of the surrounding wilderness area, with an area reserved for possible agricultural development (refer Figure 21). The botanist has suggested that an implementable post-mining land use plan that incorporates agricultural and natural rehabilitation components be developed for the site. Owing to the past disturbance and heavy alien invasion on this site, it is suggested that fynbos rehabilitation and alien vegetation clearing be focused on the lower mountain slopes and seeps as well as around the Milkwood forest and wetland on the site. There also needs to be a natural conservation corridor maintained between the mountainous area and the wetland, Milkwood forest conservation node. All invasive species should be removed from the eastern edge of the mine and on the surrounding mountain slopes to the east as well as in an area of at least 50m around the Milkwood forest/wetland node and conservation corridor area. This will provide a functional buffer of manageable dimensions. Consideration should then be given to utilising the remainder of the mining rehabilitation area for agricultural purposes.
- The site must be shaped to mimic natural contours.
- There must be no impact on the local surface and groundwater regime (specifically the wetland, the scree recharge area and the buffer to the winter water table).
- There must be no impact on the Milkwood forest.

(ii) Rehabilitation Plan and Proposed End-Use

Figure 21 puts forward the rehabilitation and proposed end-use for the Mining Right Extension area, inclusive of the existing Mining Permit Area (existing gravel mine), noting that the existing sand mining area (i.e. existing Mining Right area) will be rehabilitated in terms of the existing approved EMP for such areas.

The rehabilitation responds directly to both the mined (disturbed) areas and the environmental features which informed the mine layout and mining areas, with the end-use to address the impacted footprint and reinforce the environmental features, including the following proposed end-uses:

- Buffer zones to be restored to Fynbos/ Strandveld habitat during mining operations
- Rehabilitation of mined-out gravel mine to Fynbos
- Development of a corridor linking the wetlands and their buffer zones, Milkwood Grove and the mountainous hinterland
- Retention of the access road

Photo 14 depicts a fully rehabilitated 1,5m depth sand-mined area, illustrating shaped pit sides and reinstated agricultural use.

Photo 14: Rehabilitation Post-Sand Mining

Refer Sections 6.2.2.3, 6.2.2.4 and Figures 28(a) and 28(b) for the Sand Mine Post-Mining Decommissioning and Rehabilitation Site Development Plan (SDP) and the Gravel Mine Post-Mining Decommissioning and Rehabilitation Site Development Plan (SDP) respectively, as well as Figure 29: Future Land Use Site Development Plan (SDP). Also refer Annexure O: Rehabilitation Plan.

In a letter dated 9 June 2020 (refer Appendix 5) the **Overstrand Municipality: Property Administration** in response to the draft EIA/ EMP put forward the following:
"*2.5.3 The applicant must submit a detailed rehabilitation plan of the mining area, which plan must be to the written satisfaction of the Senior Manager: Environmental Services*"

The implementation of the rehabilitation, both operational and post-mining, is to be conducted in terms of the Rehabilitation Plan as put forward in Annexure O, comprising the following main components:

- Mine closure objectives
- Future land use
- Operational rehabilitation
- Decommissioning rehabilitation (Closure Plan)
- Aftercare

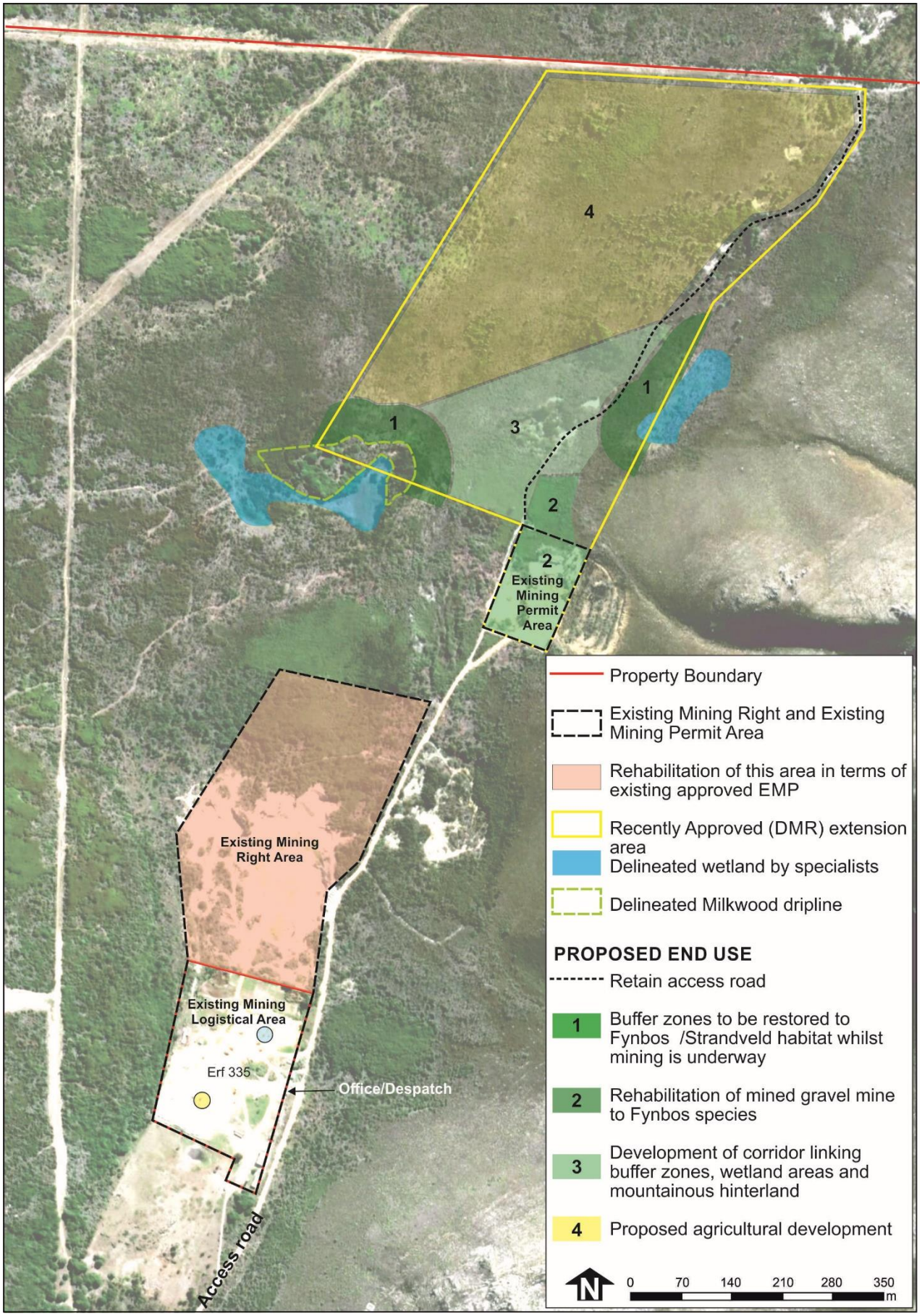


Figure 21: Rehabilitation Plan and End-use

5. IMPACT MANAGEMENT AND PROTOCOLS

5.1. Impact Management

Notwithstanding the measures prescribed in the following methodologies and protocols, the applicant is reminded of its "duty of care" prescribed in section 28 of the NEMA, 1998 which states that "*Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment*."

Accordingly, the EIA/ EMPr puts forward the following **Environmental Impact Statement:**

5.1.1. Impact Management Objectives

- To minimise impact on biodiversity operation at the site, bearing in mind the current poor state of the site (in terms of alien vegetation)
- To ensure that the proposed operation does not contravene policies of local / municipal SDF, IDF and other policy documentation
- Elimination of any possible impact on surface water and groundwater regime
- Limit any environmental nuisance factors resulting from sand removal at this site
- To have community representation in the Environmental Management System to ensure adherence the prescriptions of the EMP
- To have a high level of internal and independent monitoring (particularly in respect of groundwater levels, avoidance of buffer zones and topsoil/vegetation management)
- To eliminate / reduce alien vegetation infestation in the area especially as part of a holistic plan incorporating the surrounding areas.
- The specialist botanist has suggested that an implementable post-mining land use plan that incorporates agricultural and natural rehabilitation components be developed for the site. Owing to the past disturbance and heavy alien invasion on this site, it is suggested that fynbos rehabilitation and alien vegetation clearing be focused on the lower mountain slopes and seeps as well as around the Milkwood forest and wetland on the site. There also needs to be a natural conservation corridor maintained between the mountainous area and the wetland, Milkwood forest conservation node. All invasive species should be removed from the eastern edge of the mine and on the surrounding mountain slopes to the east as well as in an area of at least 50m around the Milkwood forest/wetland node and conservation corridor area. This will provide a functional buffer of manageable dimensions. Consideration should then be given to utilising the remainder of the mining rehabilitation area for agricultural purposes.

5.1.2. Impact Management Outcomes

- Ensure that mine plans and integrated concurrent rehabilitation takes place as per Mine plan phasing.
- Ensure that specialist specified buffers are in place to prevent impact on water regime and Milkwood grove
- To eliminate alien vegetation within the Mining Right extension area and possibly allow for the site to be suitable for agricultural and natural habitats post-mining, except for the buffers and eastern slopes as indicated in Section 5.2.2.
- General site husbandry must be of the highest order and management must be fully *au fait* with content and measures prescribed in the final EIA/EMP.
- A transparent Environmental Management System with community representation on a Monitoring Committee.

5.1.3. Summary Key Findings of Environmental Impact Assessment

Monitoring and buffer zones are critical to elimination of impacts in respect of this proposed operation.

It cannot be stressed enough how effective monitoring, particularly at this site is essential to eliminate impacts with the most important aspects requiring monitoring being:

- Piezometer monitoring of groundwater levels must be setup as soon as feasible and measurements of water tables must take place on at least monthly basis. This is critical to the determination of the maximum mining depth. There can be no exposure of groundwater permitted. Refer Section 5.2.8.
- Monitoring of topsoil removal / replacement is critical to effective rehabilitation of the site.

In terms of demarcation and buffer zones:

- It is critical that the 50m buffer from the wetland and milkwood grove be delineated and demarcated, as with the 10m buffer from the assumed sub-surface flow channel north-east of the gravel section. This should be done in conjunction with the specialist who compiled the specialist report.
- Formal monitoring and reporting must be undertaken to ensure that these buffers are never breached.

Should these overarching measures be implemented then the impact of the proposed mining will be minimal / acceptable.

5.1.4. Environmental Authorisation

Department of Mineral Resources letter dated 23 February 2021 (refer Appendix 1): "***The Department has decided to grant an environmental authorisation in terms of Section 24L of the National Environmental Management Act (Act 107 of 1998) as amended. The environmental authorisation and reason for the decision are attached herewith***" (refer copy of EA in Annexure E).

The following summary of approved listed activities and EA site specific conditions of the approval, as relating to the following EA activities; clearance of vegetation, surface trench mining, development of roads and rehabilitation.

(i) Approval to undertake the following listed activities:
- The decommissioning of any activity requiring a closure certificate in terms of the MPRDA
- The clearance of an area of 20ha or more of indigenous vegetation
- An activity including the operation of that activity which requires a mining right in terms of the MPRDA, 2002
- The development of a road wider than 4,0 meters with a reserve less than 13,5m
- The clearance of an area of 300m² or more of indigenous vegetation
- The transformation of land bigger than 1000m²

(ii) EA site specific conditions, notably relating to land use and management and spatial reservation:
- Employees and contractor be informed through the environmental awareness programme of measures to prevent loss of biodiversity. Mining company to collaborate and co-operate with regulations and management authority during validity of EA
- Mining be conducted in a manner of conserve habitats/ species in Ecological Support Areas, where necessary being guided by Biodiversity Management Plans as per the Biodiversity Act (2004)
- Protected plan species must not be removed unless necessary permission is granted by the relevant competent authority

- Mining development footprint and impacted area to remain as small as possible and not encroach surrounding sensitive areas. Therefore a buffer zone of at least 50m should be maintained (e.g. Milkwood Forest)
- Existing borehole abstraction, if exceeding authorized use, must be authorized by DWS prior to mining commencement
- Groundwater depth to be determined by piezometer measuring prior to mining and to ensure groundwater is not affected by mining
- Groundwater seepage to be avoided and prevented, with levels monitored re TDS concentration and plumes are kept at acceptable DWS levels
- Wetland and riverine areas are to be considered "No-Go" zones unless authorized. A buffer area of at least 40m shall be monitored
- Alluvial fan to be protected, with the maintenance of a minimum 10m buffer
- Applicable requirements re legislation pertaining to occupational health and safety be adhered to
- A integrated waste management approach be employed, with any solid waste to be disposed of at an appropriately licensed landfill
- Harmful waste substances storage facility to comply with NEMA Waste Act (2009) insofar construction and safety regulations and instructions
- EA holder to ensure sufficient and competent staff to undertake hazardous waste management activities
- Dust generation at haul roads to meet requirements of NEMA Air Quality Act (2004)
- Recommendation and mitigatory measures emanating from the specialist studies to be implemented by the EA holder
- Any threatened or red listed species in the area to be reported by the EA holder to SANBI or the appropriate national and provincial department, with the implementation of recommendations made by SANBI to be implemented to avoid any further biodiversity depletion, unless approved by the EMPr or EA approval conditions
- Hunting, entering of dogs and cats prohibited in mining area, with encountered animals being removed/ relocated, but not killed or injured

5.2. Methodologies and Protocols

5.2.1. Topsoil Handling Methodology

The management of topsoil is of utmost importance. Without topsoil management, the disturbed area is subject to several other potential long term impacts such as lack of revegetation or extended revegetation time, dust generated off denuded areas and prolonged visual scarring.

"*The storage of topsoil, however done, is problematic because soil fauna and michorrhiza in the topsoil decline with storage time (Haigh, 2000). The storage of the topsoil is, however, important in terms of the composition of the organic material, however old, which will be needed to "kick-start" the rehabilitation process with the addition of some kind of organic mulch. Topsoil must be stored in long, low berms, rather than in huge piles. Wetting (rainfall) and aeration of the stored topsoil must be maximised*" – K Coetzee, 2015.

It is critical to the successful rehabilitation at this site that the prescribed sand profile above the water table is maintained. This is also critical to ensure no impact on the groundwater quality and quantity to users downstream as well as to maximise the potential agricultural land use mooted for portions of the rehabilitated areas. The minimum amount of sand to be retained above the water table level is

1.5m (consisting of 1.25m in situ sand and 0.25m topsoil). To ensure this post-mining profile, the following is required:

- Understand the depth to water table ahead of mining by a grid system of piezometers (refer Section 5.2.8).
- Remove at least 0.25m topsoil ahead of mining as per description below
- Only mine to 1.25m above the max water table level
- Replace topsoil to full depth
- Monitor the sand profile post-mining. Any shortcomings must be remedied through backfill.

Topsoil handling is integral to the mining layout and mining method as contained in Figures 19 and 20.

Topsoil stripping

Successful rehabilitation is dependent on careful management of topsoil. Generally some 70-80% of all plant species found on site can return if topsoil is conserved and replaced following mining, but in this case, the soil also contains a significant seedbank of alien vegetation (refer alien vegetation management; Section 5.2.2).

Topsoil stripping is to takes place ahead of mining by excavator/dozer. The process will entail:

- The selection of area where topsoil is to be removed; should be no more than 40-50m ahead of mining
- The initial removal of all alien vegetation, with no use of herbicide (only mechanical means).
- Conduct sweep of proposed topsoil removal area for plant species to be relocated (refer Section 5.2.2)
- Conduct sweep for any archaeological artefacts and slow-moving animals.
- Removal of topsoil to full depth along with all remaining vegetation content.

Topsoil will initially be stored either in berms ahead of final face advance per excavation for use in rehabilitation of the final mining block, or in immediate rehabilitation, subject to equipment availability, or for a previously mined-out and shaped mining block. This method of topsoil removal will unfortunately require double handling especially if the excavation is more than 50m from the final excavation edge, therefore all efforts must be geared to limiting the handling of topsoil by removing topsoil to final edge of mining as soon as practically possible.

The principle behind topsoil handling is that all topsoil removed subsequent to the initial block's topsoil removal is utilised immediately (or as soon as feasible given machinery requirements) in the rehabilitation of mined out, shaped and prepared areas.

Topsoil storage:

NO TOPSOIL MAY BE STORED OUTSIDE OF THE MINING RIGHT AREA (and especially not so as to disturb natural vegetation not for future mining adjacent to the pit)

As described above, some topsoil will be stockpiled in berms along excavation upper edge for use in rehabilitation of the final mining block. Such topsoil berms are to be restricted to 2m height and may be as wide as required. The reason for the 2m height restriction is to preserve as much of the natural seed bank as viable. Side slopes of the berms must be sloped to minimum 1:2 to prevent wind and water erosion of the slopes. Should wind erosion become an issue, it is imperative that brushwood packing take place on the topsoil heap or use of shade cloth netting be put in place.

The theory of topsoil management in this document is that topsoil removed ahead of mining be used simultaneously in the rehabilitation of subsequent mining blocks. However, in practice this cannot happen because of machinery constraints. In practice, the topsoil will be stockpiled ahead of mining within the proposed excavation area or on the excavation floor for replacement on mined-out and prepared areas as soon as feasible.

Returning topsoil

Topsoil to be replaced over prepared areas to a minimum of 25cm depth. The preparation of such areas entails the following:

- Excavation side slopes: When the face has reached its final position, the slope will be dozed to the required edge slope and all sharp edges will be rounded to mimic natural contours. The topsoil berm above the slope will merely be spread over the sloped and prepared slope and revegetation to take place as per para below.
- Excavation floor: As soon as excavation floor has reached its final configuration / level with minimum 1.25m in situ sand buffer from water table, then topsoil must be spread over affected areas from stockpile or directly from topsoil removal area.

It is critical that returned topsoil be subject to revegetation methodology below.

5.2.2. Devegetation and Revegetation Protocol

Introduction

In normal Fynbos or Strandveld revegetation:

Approximately 70% of fynbos plant species have soil stored seed banks (Esler et al, 2014). This means that if the topsoil is correctly stripped prior to mining and correctly stored, at least 70% of the original plant species required for the rehabilitation of the site will be available as seed when the topsoil is spread over the subsoil when the rehabilitation process is started.

The balance of the fynbos species can be introduced into the rehabilitation sites by applying a seed-bearing mulch of locally cut indigenous vegetation patchily over the rehabilitation site (Esler et al, 2014).

However, in this case the site is very significantly invaded by alien species and the seedbank in the soil will consist mostly of alien species. It is highly unlikely that the site can be restored to Strandveld vegetation type without significant cost, time and effort. The specialist botanist has stated the following:

"Owing to the past disturbance and heavy alien invasion on this site, it is suggested that fynbos rehabilitation and alien vegetation clearing be focused on the lower mountain slopes & seeps as well as around the Milkwood forest and wetland on the site. There also needs to be a natural conservation corridor maintained between the mountainous area and the wetland, Milkwood forest conservation node. All invasive species should be removed from the eastern edge of the mine and on the surrounding mountain slopes to the east as well as in an area of at least 50m around the Milkwood forest/wetland node and conservation corridor area. This will provide a functional buffer of manageable dimensions. Consideration should then be given to utilising the remainder of the mining rehabilitation area for agricultural purposes". Refer Figure 21 for proposed final rehabilitation and post-mining land use plan, as well as SDP: Rehabilitation Plans (Figures 28(a) and 28(b) and SDP: Future Land Use (Figure 29)), and Annexure O: Rehabilitation Plan.

Proposed Mitigation measures:

The following paragraph by the specialist botanist has a direct bearing on the mitigation measures required in terms of revegetation at this site:

"Mitigation must include exclusion of sensitive areas including a minimum of a 50 m buffer of natural vegetation, a full search and rescue operation prior to top-soil stripping (preferably in late spring),

careful stockpiling and spreading of topsoil after mining and an effective, long-term alien vegetation management (land use) plan and implementable program for the site".

This requires that the following measures be implemented in terms of devegetation and revegetation of the site.

(i) Exclusion of **sensitive areas** including a minimum of a 50m **buffer** of natural vegetation:
- The 50m buffers from wetland areas and Milkwood grove are delineated in Figure 19.
- There also needs to be a natural conservation corridor maintained between the mountainous area and the wetland, Milkwood forest conservation node.
- All invasive species should be removed from the eastern edge of the mine and on the surrounding mountain slopes to the east.

(ii) Full **search and rescue operation** prior to top-soil stripping (preferably in late spring):
Prior to topsoil removal, a search and rescue operation must be undertaken by an experienced botanist/horticulturalist to collect the succulent plants and bulbs that can be easily transplanted (De Villiers, 2005). These plants can be planted in a nearby safe site in one of the "sensitive areas" described in (i) above. All alien vegetation must be felled and removed from the area into which search and rescued plants will be transplanted.

Note that the timing of the search and rescue operation is important given the possible geophytes on site. The dates for search and rescue must be determined by specialist botanist and mining must be scheduled around this. It is therefore imperative that the Mining Right holder and specialist botanist liaise early in the mining process.

If any endangered or protected species, listed in Schedules 3 and 4 respectively of the Western Cape Nature Conservation Laws Amendment Act, 2000 (Act No. 3 of 2000) are found on site, a permit for the collection of such species must be obtained from CapeNature before any such species may be removed. This is also to ensure that rescued plant material is accounted for and used in the rehabilitation or relocation process

(iii) Careful stockpiling and spreading of **topsoil** after mining
The key to rehabilitation success in mining in fynbos areas is the proper management of topsoil. The majority of fynbos plants are reliant on soil-stored seed or underground organs within the top 300 mm of soil for regeneration following fires. As such, careful topsoil management is an essential component of any fynbos rehabilitation project.

(iv) Long-term **alien vegetation management** (land use) plan
This will require felling, stump treatment with herbicide where necessary and chipping/burning of piles to remove all material from the site. All alien clearing must be implemented by suitably qualified and experienced alien clearing team according to the norms as prescribed by the Working for Water Program. If piles of felled materials are to be burnt, they should be burnt in mined but unrehabilitated excavation areas. An alien vegetation management plan should be drawn up by a suitably qualified expert to ensure the long term maintenance of the site, including appropriate methodology and annual follow-up clearing operations.
Such alien vegetation management plan must be drawn up for comment by landowner, DMR and specialist botanist as soon as all approvals are in place and prior to mining commencement (refer Annexure P: Alien Clearing Programme).

(v) **Implementable program for the site**:

- **Vegetation re-establishment**

  In areas where the restoration of the fynbos is to be considered after mining, it will consist of the application of seed bearing topsoil, the natural colonization of plants from the adjacent undisturbed fynbos as well as the selective application of a seed-bearing mulch in patches throughout the area. The reintroduction of key species such as *Protea obtusifolia*, *Leucadendron coniferum* and *Protea repens* will require active seed sowing in autumn prior to winter rains. Annual alien clearing operations will be required to remove invasive tree species re-growth. It is expected that owing to the density and long time-frame of invasion on this site that at least ten years of annual clearing will be required to get the site to a maintenance phase.

  The aim of the rehabilitation process will be to attain 80-100% cover within three years with moderate species diversity (at least 50% of current diversity on site). A major threat to long term rehabilitation will be the potential for alien plant infestations, which are reasonably common in the vicinity.

- **Possible agricultural development**

  After topsoil replacement, prior to agricultural development, the site can be grassed according to the following methodology: A mixture of indigenous grasses can be seeded directly onto the soil surface or into the mulch, noting that the seed must not be buried. Sow seed immediately after the first rains of the peak rain season. This will probably be May in the study area. A quick crop of oats can also be used to help build up a topsoil mulch. It can be mixed into the grass seed mix. Grass species to use are:

  - *Chloris guyana*
  - *Cynodon dactylon*
  - *Digitaria eriantha*
  - *Ehrharta calcine*
  - *Eragrostis curvula.*

  Sow at a rate of about 6 kg/hectare.

  Subject to horticultural project identification and planning, a community-based pilot project be initiated on the rehabilitated mining area. Photo 10 Illustrates the successful introduction of horticulture (vegetable production) within the rehabilitated sand mining area on Erf 335 (existing mining area).

5.2.3. Hydrocarbon Management and Domestic and Industrial Waste Management Protocol

Section 16(1) of National Environmental Management: Waste Act reads:

1) A holder of waste must, within the holder's power, take all reasonable measures to—

- *a) avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;*
- *b) reduce, re-use, recycle and recover waste;*
- *c) where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;*
- *d) manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;*
- *e) prevent any employee or any person under his or her supervision from contravening this Act; and prevent the waste from being used for an unauthorised purpose.*

Taking cognisance of the framework of waste management as described above, the following waste management protocols must be put in place:

(i) *Domestic Waste handling*

There will be no buildings or facilities on site. The operators (probably not more than two (2)) must be trained to keep their domestic waste (in the form of lunch wrappers, cigarette boxes, etc.), in their cab for the day. When collected from the working place domestic waste to be transferred to a suitable receptacle off-site.

(ii) *Sewage handling*

There is to be a contract supplied and maintained chemical toilet on site near the place of work.

(iii) *Fuel receipt, storage and dispensing:*

In the management of fuel supply, receipt, storage and use, the following procedures will be followed, cautions taken and facilities built to properly manage this operational sector:

- The fuel delivery bowser driver will be cautioned to adhere to safe driving speeds and drive cautiously at the mine and along the access road.
- There will be no diesel tank installation at the site and fuel is brought in by diesel bowser.
- During dispensing of fuel to field vehicles via fuel trailer, the dispensing vehicle is to be fitted with suitable pumps and funnel extensions to reduce the risk of spillage in the transfer of fuels.

(iv) *On-site repairs:*

Routine servicing of vehicles as well as major overhauls will be conducted off site.

(v) *Emergency repairs on site:*

In the event of a breakdown with repair being required in the field, the staff should be trained in use of drip trays and suitable funnels (not to drain oil into the sand) for filling and draining of lubricants and the staff shall be provided with such equipment to prevent soil contamination.

In addition:

- Used/replaced filters, hoses, belts, cloths, etc. are to be placed in a bin for disposal at a regional industrial waste handling facility. Used filters are not to be buried at the site of repair (nor discarded in the excavation to be backfilled).
- In the event of soil contamination, the oil and contaminated soils are to be placed in black disposal bags and transported to a suitable facility.

All staff involved in mobile plant operation and maintenance are to be made aware of these oil and lubricant procedures. Staff will require instruction in the:

- Deleterious effects of oil / fuel on the environment
- Handling method and reporting procedure (also in terms of emergency plan readiness in case of large oil spill

(vi) *General Provisions*

- All operators are to check their equipment for leaks and report such leaks on a daily basis.
- No used oils are to be used as dust suppressants on maneuvering areas.
- All receptacles must be inaccessible to animals.

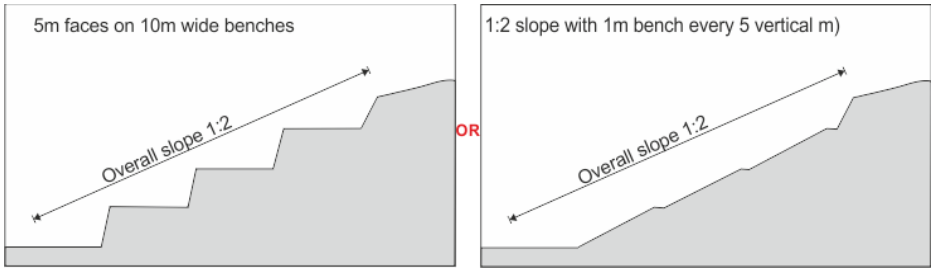
- In the event of a significant spill or leak of hazardous substances (e.g. petrol, diesel, etc.), such an incident(s) must be reported to all relevant authorities, in accordance with section 30 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") pertaining to the control of incidents.

5.2.4. Excavation Shaping and Topographical Controls

The following factors will determine the eventual excavation shape in the case of the sand mine:

- No slopes must be steeper than 1:3
- All sharp edges are to be rounded
- There must be at least 1.5m sandy material above the water table

In the case of the gravel excavation, the following edge shaping options apply. Either one is satisfactory:



5.2.5. Demarcation of "No-Go Areas" and "No-Go Area Management"

The applicant is required to demarcate the following areas:

(i) Each mining block prior to mining
(ii) The 50m edge of buffer from the delineated wetland and/or 50m from the dripline of the Milkwood Grove
(iii) The edge of excavation of the proposed gravel extension
(iv) The 10m buffer from the "alluvial fan" beyond the gravel excavation area

The issue is that in respect of the items (i) and (ii) above, no pegs would be visible through the very dense alien vegetation and it is recommended that a 5m wide strip of vegetation be cleared along that boundary. The 5m wide strip must:

- In the case of the 50m buffer around the wetland/ Milkwood grove, the cleared 5m strip must not encroach on the 50m buffer but must be located within the mining block
- In the case of the mining block, the 5m wide strip must be within the mining block to be mined and must not encroach on the next mining block.

In the case of items (i) and (ii) demarcation, this can be achieved by semi-permanent brightly coloured posts or 220l drums visible from each other. Avoid danger-tape as a method of demarcation.
The "No-Go Areas" must form part of the Environmental Induction Training (which forms part of the Environmental Awareness Programme).

5.2.6. Dust Reduction Measures

The wetting of haul roads and activity areas by water cart will continue as required, noting the use of non-potable water for such purposes.

Although it is unlikely that dust would ever impact on any surrounding land use or user, dust can be continually monitored and analysed through the use of a "*DustWatch*" system at any location which is the source of a complaint in this regard. Such system consists of a series of directional dust monitoring units. The four-bucket units are used to monitor prevailing wind directions with opposing winds as controls. This allows for an assessment of import / export fall-out dust quantification (in other words, the dust generated by the sand mine can be quantified as well dust generated by other sources in the

area) and standard services include the regular sample collection, filtration and data analysis as well as data reporting of the findings (Monthly Fallout and Trends Analysis).

The required dust control, in the highly unlikely event that dust is determined to be arising from the site, will depend on the source of the dust but will generally be controlled by wetting or revegetation.

No mining activities are to be conducted during extreme windy days (weather conditions to be considered by management upon commencement of daily operations).

5.2.7. Stormwater Management Plan

DEA&DP: Directorate Development Facilitation letters dated 11 November 2019 and 20 April 2020 (Appendix 3) **"*It is therefore recommended that a stormwater management plan be compiled for the mining areas*".**

It is highly unlikely that stormwater control will be required at this site given the sand buffer to the existing groundwater resource and the high permeability of the sand. The 1.5m sand buffer above the water table also means that most rainfall will soak away.

However, the following stormwater management actions may be required:

(i) If erosion becomes apparent on the 1:3 sand mining excavation rehabilitation slopes, while highly unlikely, then the following must be undertaken:
   - Develop a 30cm x 30cm cut-off trench above the slope
   - Initiate stabilisation of slopes using geotextile and mulch.

(ii) Stormwater run-off on the side slopes of the gravel excavation be managed by excavation shaping, notably 10m-wide benches or a 1:2 slope with contour run-off sluits every 5 vertical meters.

(iii) Where ponding of stormwater occurs on hardened movement areas (i.e. loading and dispatch area, gravel access road surface) such ponding areas be sand/ gravel-filled to displace ponding and maintain a run-off slope (e.g. 1:100), with cut-off trenches installed to manage stormwater drainage from the road.

(iv) Groundwater pollution via ponded water also needs to be addressed through the Hydrocarbon Management Protocol (refer Section 5.2.3), through eliminating/ reducing any fuel/ oil spills on hardened vehicle manoeuvring and plant operating areas.

(v) The floor of the gravel excavation must be sloped (e.g. 1:100) to facilitate drainage of stormwater from the gravel excavation to prevent ponding.

5.2.8. Groundwater Depth Determination

The aim of the groundwater depth determination is to ensure that no mining progresses less than 1.5m above the winter water table. Noting that the soil profiles that were dug on this site showed no water to depths exceeding 4-5m and the proposed provisional expected mining depth in terms of this report is 3m, it is unlikely that groundwater will be encountered.

However, to ensure that no groundwater is exposed, the applicant must initiate a system of piezometers to measure groundwater depths at regular intervals. The methodology behind the monitoring of water depth is the use of piezometers to measure the water depth. The piezometer is simply a pipe (±15cm diameter) with fine mesh wrapped around the base and dug into the proposed mining advance area on a grid pattern to the maximum reach of the excavator (refer Figure 22) to a depth of 5m (minus 4.5m). The depth to water is measured in the pipe on monthly or quarterly basis and used to determine the depth of mining. Sand must be retained to minimum 1.5m above the highest winter water table.

Figure 22 includes coordinates for surveyor placement of these piezometers. Access to these will be particularly difficult and it will be required that paths be cut to the piezometer locations and that such paths be regularly cleared for the monthly reading of the groundwater depths.

No sand mining to take place closer than 1.5m to any groundwater encountered.

5.2.9. Components for Monitoring Compliance and Performance Assessment

In order to ensure that all aspects of the operation are monitored effectively, the following components will be put in place:

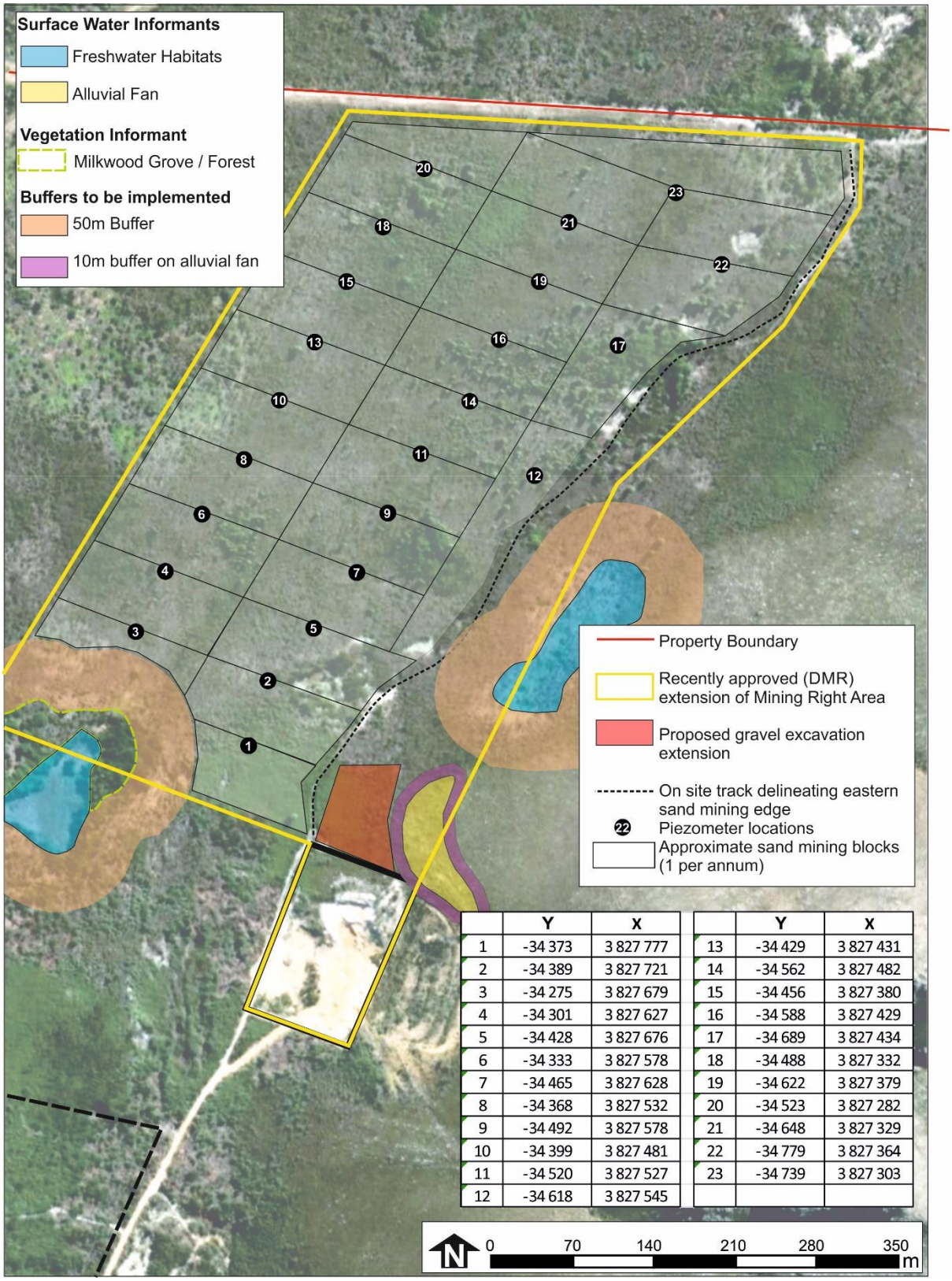
(i) **Legally required Environmental Audit:** All mines are required by law to conduct Environmental Audits every two (2) years or as per EMP prescribed interval. Such audits are compiled in terms of Reg. 34 and Appendix 7 of NEMA and must be compiled by independent party.

(ii) **Appointment of ECO:** It is required that an ECO be appointed for the site. Such ECO need not be in the permanent employ of the applicant but must visit the site at least once per months and monitor and record at least the following :
- Mining taking place within approved excavation area and no advance into buffer areas
- Ensure that piezometer readings are taken at least two monthly basis
- Retention of 1.5m sand above water table in mined out and rehabilitated areas
- Topsoil removal and management in accordance with prescriptions of EMP
- Vegetation handling and revegetation success

(iii) **Internal Monitoring and its formalisation:** Internal monitoring is required in terms of the EMP. The issue that typically arises out of the system is that no formal record of internal monitoring takes place. It is required that management design forms/ reports containing details of the monitoring as required. These must be made available to the DMR, the ECO, independent Environmental Auditor and the Monitoring Committee to be established in terms of (iv) below.

(iv) The final component is the **Environmental Monitoring Committee** to comprise a Mining Right representative, a community representative, surrounding landowners, a municipal representative and an independent environmental consultant (if required). This provision has been used very successfully at other sites (in Grabouw, George, Yzerfontein and Plettenberg Bay). The committee must meet at least once per year at the mine for physical visual inspection / tour of the site followed by a meeting to discuss issues noted. Minutes are taken and included in the Environmental Audits. Note that although the attempt must be made to establish such committee, it has often been found that such committee does not get established because of lack of interest, particularly if the perceived impacts of the operation are low.

Note further that the requirement for monitoring must be impressed upon all **staff members** during their **environmental training.** Specific staff members must be assigned areas of responsibility in terms of monitoring and their reporting must form part of the formal reporting by the mine manager.



	Y	X
1	-34 373	3 827 777
2	-34 389	3 827 721
3	-34 275	3 827 679
4	-34 301	3 827 627
5	-34 428	3 827 676
6	-34 333	3 827 578
7	-34 465	3 827 628
8	-34 368	3 827 532
9	-34 492	3 827 578
10	-34 399	3 827 481
11	-34 520	3 827 527
12	-34 618	3 827 545

	Y	X
13	-34 429	3 827 431
14	-34 562	3 827 482
15	-34 456	3 827 380
16	-34 588	3 827 429
17	-34 689	3 827 434
18	-34 488	3 827 332
19	-34 622	3 827 379
20	-34 523	3 827 282
21	-34 648	3 827 329
22	-34 779	3 827 364
23	-34 739	3 827 303

Figure 22: Piezometer Locations

5.2.10. Alignment with the 2020 Municipal Spatial Development Framework, Environmental Overlay Zone Regulations (2020) and Heritage Protection Overlay Zone Regulations (2020)

Insofar the proposed sand and gravel mining extension on Rem Erf 210 Gansbaai, the following spatial planning frameworks and policy informants are relevant.

5.2.10.1. 2020 Municipal Spatial Development Framework

The 2020 MSDF (refer Figure 26), and to a large extent the 2006 SDF, make note of three (3) land uses which are noteworthy in terms of the proposed mine extension namely:

(i) "**Mining activities** in the Municipal area include clay, **gravel**, kaolin, stone aggregate and **sand mining**, with the last being the most predominant. Sand mines are situated not only in isolated areas, but also in environmentally sensitive and visually prominent areas"

(ii) "A small number of **small-scale farming activities** exist in the Municipal Area, with an increasing need therefore based on the fact that it provides income to several groupings of previously disadvantaged communities. These communities lease **portions of commonage** from the local authority for this purpose"

(iii) **Tourism activity destinations** (e.g. Shark Alley, De Kelders fresh water caves), which while making Gansbaai an attractive region, require protection of the mountainous zones (e.g. Franskraal se Berge), their **view-sheds** and **the regional system of corridors** originating in the upper mountain areas and terminating at the coastline where they support coastal tourist nodes (e.g. Franskraal).

Such **land uses, operational mining and post-mine farming and conservation** resonate as follows in the Environmental Objective (EO) of an "***Environmentally Sustainable and Resilient Overstrand***" as put forward **in the MSDF (2020) and the EMF (2014)**:

(i) "*EO2: Protect Biodiversity and Agricultural Resources*" through:

- **Preventing unsustainable change** in land use of biodiversity rich rural areas, agricultural activity and soil with agri-potential
- The **desirability of designating mining areas** taking into account the worth of the material to be extracted against the long-term costs to the visual quality of the area, the potential loss in agri-potential, as well as impacts on existing rights of neighbouring property owners.

(ii) "*EO3: Overstrand's Rural Areas and Settlements are Integrated by Natural Environment or Green Corridors that Connect Ecosystems and Contribute to Biodiversity Conservation*", through:

- Encouraging and supporting the **development of networks of open space** that sustain and enhance eco-system functioning, connecting fragments of indigenous and/ or conservation-worthy vegetation, protecting waterways and regenerating the natural environment.

5.2.10.2. Environmental Management Overlay Zone Regulations, 2020

The Environmental Management Overlay Zone (EMOZ) Regulations 2020, which have as their objective providing a mechanism for land use management to give effect to specific guidelines or address a special management issue, noting that such regulations do not invalidate any land use rights or authorisation that existed when such regulations came into effect, but may place additional constraints on existing rights.

The area of the existing and proposed gravel and sand mine vests within the **Urban Conservation Environmental Management Overlay Zone** ("*Urban Conservation EMOZ*") (refer Figure 23) which has as its **purpose**: To protect and manage undeveloped conservation-worthy public-owned land

within the Overstrand's urban edge, and adjacent buffer areas, while promoting the retention of viable priority ecological corridors in areas that are to be developed, to ensure an integrated "*conservation and development*" approach that will enhance living conditions for the communities of the Overstrand. The Urban Conservation EMOZ within which the existing and proposed sand and gravel mine extension is located is a **Category C: Modified Ecosystem**, that is with a **limited biodiversity function** to be **managed as a recreation area** with **medium to high impact**, with the Regulations identifying the following uses/ developments within an operational management plan for such area:

- IAV Management
- Fire Management
- Vegetation Management
- Hiking trails/ Biking trails
- Bird watching/ Bird hides
- Public amenities
- Environmental facilities
- Day camps
- Braai facilities/ Picnic facilities
- Play parks

It is noted that the Schedule A "prohibited activities" and Schedule B "Council permitted activities" by consent, permit or authorisation, do not specifically list mining, but include activities or impacts which could result from mining, if not mitigated.

5.2.10.3. Heritage Protection Overlay Zone Regulations, 2020

The Heritage Protection Overlay Zone (HPOZ), Regulations 2020 have a similar objective as the EMOZ Regulations insofar providing specific guidelines, not invalidating any existing land use rights or authorizations and providing for additional constraints on existing rights, etc. Within the context of the HMOZ, the existing and proposed extension of the sand and gravel mine vests within the "*Landscapes of Very High Natural, Scenic and Heritage Significance, Heritage Protection Overlay Zone*" ("*Landscapes HPOZ*")(refer Figure 24).

Such Landscapes HPOZ has as its **purpose**: To ensure that any land use application resulting in additional rights complies with the existing character and contextual significance, in order to:

- Protect and enhance landscapes identified as having high natural, scenic and heritage significance and which contribute to the character and sense of place in the Overstrand and its economic base; and
- To promote the cultural, tourism, environmental and amenity potential of significant Overstrand landscapes

It is noted re Figures 23 and 24 that the Urban Conservation EMOZ and Landscapes HPOZ overlay each other within the location of the proposed extension of the sand and gravel mine.

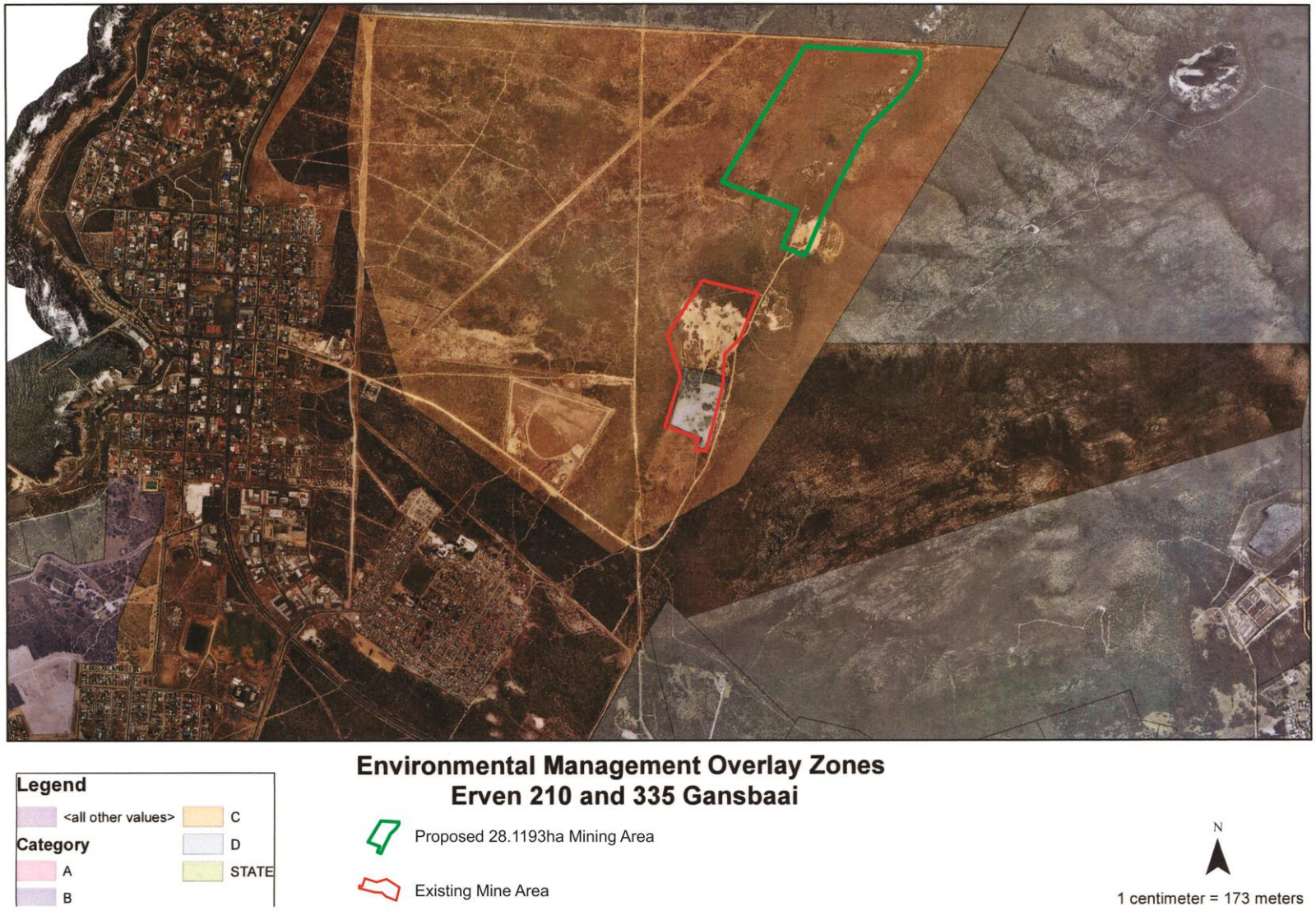


Figure 23: Urban Conservation EMOZ (2020)

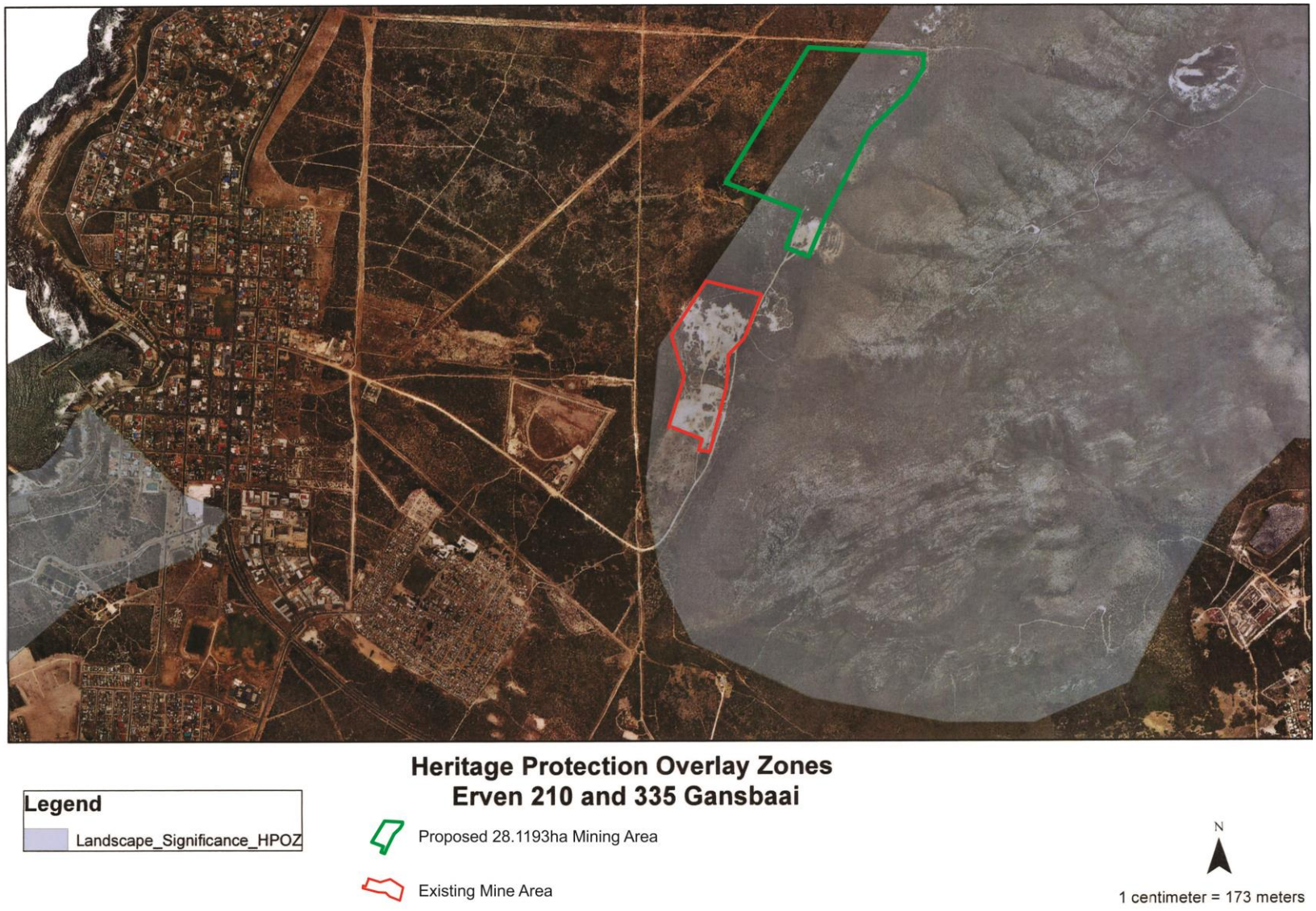


Figure 24: Landscapes HPOZ (2020)

5.2.10.4. Alignment with MSDF 2020, EMOZ (2020) and HPOZ (2020)

Given that the mining EIA/ EMPr was compiled prior to the promulgation of the 2020 Municipal SDP and the Regulations of the Urban Conservation EMOZ (2020) and the Landscapes HPOZ (2020), the following brief demonstration of the alignment of the proposed sand and gravel mine extension on Rem Erf 210 insofar with the abovementioned framework and regulations. Such alignment also having as its purpose the informing a Site Development Plan (SDP) in Section 6 and Figures 26, 27 and 28 of this report for the proposed mine extension.

(i) **Alignment with the MSDF (2020)**

The current proposed mining extension end-use/ post-mining modeling (refer Figure 28) demonstrates the following:

- Representing a small-scale demonstration project for peri-urban agriculture to reinforce household food security in Gansbaai urban settlements (e.g. Masakhane), as well as to access development inputs from the Department of Agriculture, Land Reform and Rural Development (DALRRD) through its Integrated Food Security and Nutrition Programme (IFSNP) and give effect to an Overstrand Commonage Policy, in so doing underpinning EMOZ through protecting agri-resources.
- The mine's proposed mountain to wetland corridor, Milkwood grove protection, alien plant removal and protection of the alluvial fan being a catalyst for a commonage-wide conservation initiative (EMOZ "operational management plan") underpinned by reinstating ecosystem functioning and indigenous vegetation enhancement and reinstatement
- Realising an increasing positive balance between the benefits derived from mining (environmental protection/ enhancement, food security etc.) and its environmental cost, the latter also being reduced through appropriate mine location, managed mitigation and awareness, and a sustainable end-use.

(ii) **Alignment with the EMOZ**

The Urban Conservation EMOZ parallels with the 2006 SDF, the latter having put forward an equivalent "Conservation-Agriculture Buffer" for modified landscapes. The proposed mine extension, given its favourable location (not exceeding 60m geographic altitude), reservation of environmental elements (Milkwood grove), features (wetlands) and systems (mountain to wetland corridor), as well as its agricultural potential enhancement through creating a shallower cultivation level to counteract the highly permeable soils demonstrates a positive, supporting and enabling alignment to the Urban Conservation EMOZ and an integrated and sustainable "commonage", potentially including several additional uses and management (e.g. fire and alien vegetation management, environmental facility, hiking trail, bird hides, etc.).

(iii) **Alignment with the HPOZ** (refer Diagram 3)

The relevance of the "Landscapes HPOZ" as depicted in Diagram 3, in the opinion of the applicant, does not adequately align with the topography (i.e. geographic height) and land use (i.e. an existing mine) insofar the existing character and contextual significance of the landscape requiring protection and enhancement (i.e. Franskraal se Berge, particularly its pediment slopes). Diagram 3 (Section 3.2.1) clearly illustrates that the major portion of the proposed mining area is located on "flat" land, noting that no mining will occur above 60m amsl, with the major portion of the total excavation area being below 50m amsl and even 40m amsl. By comparison the Landscape HPOZ does not include the nearby land-fill and reservoir sites which are located up to 60m amsl within a prominent elevated area. As demonstrated in Section 3.2.1 and 3.2.2, the viewshed from surrounding areas and the R43 – MR 28/2 will not be eroded, with

the topography, mine site location and altitude, and mine rehabilitation protecting the visual envelope.

Despite the above concern, the mining extension proposal includes full operational and post-mining rehabilitation of the mining land use (excavation and support uses), the retention, enhancement and reinstatement of environmental elements (Milkwood grove), features (wetland) and systems (mountain to wetland and coastal corridor), as well as the removal of all alien vegetation on the abutting lower slopes of Franskraal se Berge and abutting the wetland and Milkwood grove, all building blocks to the environmental and amenity potential of "*significant Overstrand landscapes*".

Conclusion:

Accordingly, this section concludes the following:

(i) That the land use (operational and post-mining) of the proposed extended mining aligns with the 2020 MSDF's "Sensitive Development Area" (Composite: HPOZ and EMOZ) as depicted on Figure 25.

(ii) That alignment with MSDF (2020), the HPOZ (2020) and the EMOZ (2020) reinforces the integration of the mine operation and its post-mining rehabilitation with the built, socio economic and environmental setting of the coastal plain and inland pediment slopes, with the Site Development Plan (SDP) confirming such alignment and integration (refer Section 6 and Figures 26, 27 and 28.

(iii) Alignment of the proposed mine extension with the 2006 SDF's "Conservation-Agriculture Buffer" for modified landscapes, an equivalent of the 2020 Urban Conservation EMOZ, given the mine's operational land use including conservation-worthy area reservation (e.g. Milkwood grove, wetlands, biodiversity corridor) and its post-mining use including enhanced agri-potential (lowered planting surface) and sustainable conservation areas, all underpinning the core principles of the 2006 "Conservation-Agricultural Buffer".

In a letter dated 9 June 2020 (refer Appendix 5) the **Overstrand Municipality: Property Administration** in response to the draft EIA/ EMP put forward the following:
"***2.8: The applicant must demonstrate that the proposed mining activities are consistent with the Overstrand Municipality's 2006 Spatial Development Plan's core principles as the additional mining portion is situated within the "conservation/ agricultural buffer*"**.**

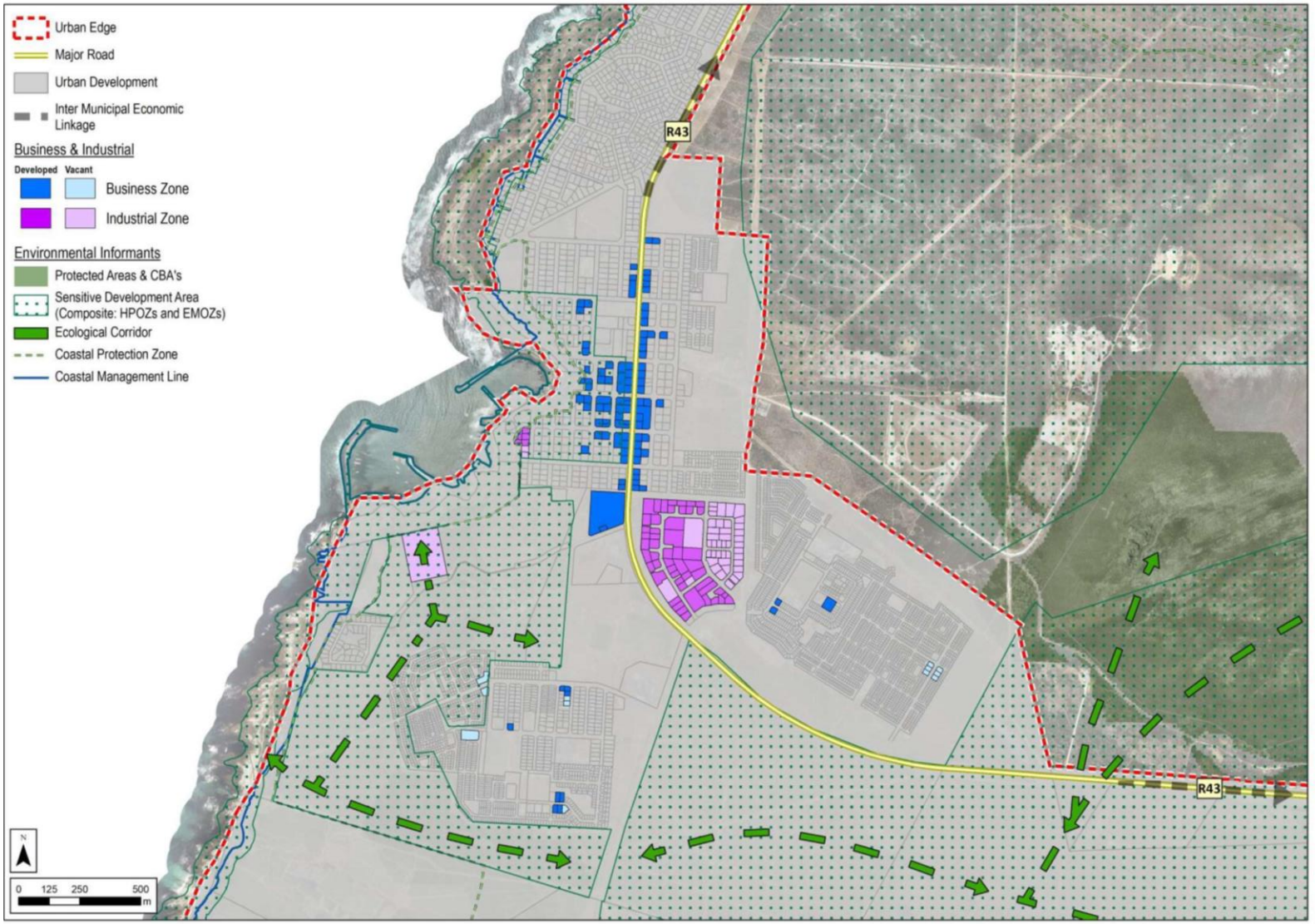


Figure 26: 2020 MSDF; Spatial Proposal Gansbaai

6. MINE SITE DEVELOPMENT PLAN (SDP)

Section 6 presents the Site Development Plan for the proposed extension of the sand and gravel mine on portion of Rem Erf 210 Gansbaai, commencing with the informants to such plan, followed by the mining and conservation land use and their supporting services during the mine's development, operation, decommissioning and post-mine rehabilitation, concluding with its future use.

6.1. Informants to the SDP

This section comprises the SDP informants emanating from existing ecosystem sensitivities (e.g. groundwater, Milkwood grove, etc.), physical features (e.g. wetlands), administrative restrictions (e.g. building lines), mining parameters and rehabilitation requirements as identified during current mining and put forward in the approved EIA/ EMPr and approved EA conditions, and as forthcoming from municipal regulations and policy (e.g. MSDF, Environmental Overlay Regulations, etc.) as documented in previous sections of this report.

Table 2 puts forward the spatial policy and environmental sensitivity restrictions and opportunities to the sand and gravel mine extension, notably its development, operation and rehabilitation.

Table 2: Spatial and Other Restrictions and Opportunities

Areas Presenting Restrictions and/ or Opportunities	Description/ Locality	Spatial and Other Restrictions and Opportunities
(i) Indigenous and Alien Vegetation	– Critically Endangered remnants of Overberg fynbos and Endangered remnants of Agulhas sand fynbos amongst invasive alien vegetation areas within the proposed mining area, as well as along its eastern periphery	– Retention of all indigenous vegetation in the 50m wetland and Milkwood buffers and in the 10m alluvial fan buffer, as well as eastward of the sand mining limit to allow for Fynbos/ Strandveld restoration during mining. Post-mining rehabilitation of the gravel mine area and the proposed ecological corridor with fynbos species
	– Western Cape Milkwood forest (Endangered) in the south-western corner of the sand mining area	– 50m-wide buffer around the Milkwood forest
	– Invasive alien vegetation within the proposed mining area and proposed buffer areas	– Alien vegetation management in buffer areas during the mining period, with such vegetation management also during the post-mining rehabilitation "after-care" period.
(ii) Freshwater Habitats/ Wetlands/ Ground Water and Streams	– Two (2) wetlands within the Ecological Support Area 2, with such wetlands located just outside the south-west	– Putting in place 50m-wide buffers around both of the wetlands, supported by alien vegetation removal from the

	corner and abutting the eastern boundary of the proposed mining area respectively, with such "wetlands" supporting wetland habitats	wetland habitats
	– Non-perennial mountain streams (Ecological Support Area 1) draining westward downslope on the Franskraal se Berge pediment slopes, one of which disperses into/ through an alluvial fan located in the south-eastern corner of the mining area. Within the mining area, surface flow of such streams/ watercourses is not discernable, with run-off feeding a perched groundwater table, notably within Ecological Support Area 1, within the mining area.	– Support reinstatement and maintenance of non-perennial streams and their ecological process in order to retain their natural or near natural condition, including a 10m-wide buffer where such streams occur within the proposed mining area
	– Water table depth and local perched water table flows parallel to gradient noted within Ecological Support Area 1 within the mining area	– Mining depth to be limited to 1.5m above water table depth, with such restriction being informed by on-going piezometer monitoring pre-mining and during mining.
	– An ecological corridor, albeit its functioning being above and/ or below ground surface as evidenced in the southern portion for the proposed mining area requires to be considered post-mining	– Post-mining, a mountain to wetland corridor be put in place, linking the mountain streams, the alluvial fan, wetlands and Milkwood grove, with such corridor traversing the southern portion of the mining area
	– View-sheds from the R43 and Gansbaai informing the Franskraal se Berge regional landscape need to be respected in terms of mitigating visual impacts emanating from the proposed mining	– Mining of the lower pediment slopes of the Franskraal se Berge be restricted by a setback delineating the sand mining area west of the eastern boundary. The gravel mining to be restricted to the 60m contour level in order to reduce mine excavation scarring of such lower slope. Additionally, ridgelines west of the mining area be

		retained to reduce visual impact of the mining area. Furthermore, given that the operation of equipment will be mainly in the mining pit (lower level), visual impact of activities will be reduced significantly
(iii) Administrative Restrictions	– Building lines and Setbacks • Building Line; "common building line" of 30.0m in terms of Overstrand Municipality Land Use Scheme (2020) • MPRDA 9.0m-wide "mining collar" requirement of MPRDA (2002) to ensure stability along mining property boundaries and prevent the destabilizing of adjoining properties	– An application for a "permanent departure" to reduce the "common building line" abutting the northern boundary of the mine extension area from 30.0m to 9.0m
	– Fire management on mine property	– Existing mine staff induction training in fire and HAZMAT incident management, possibly also including participation in a commonage-wide fire management plan (EMOZ Regulations)
	– Vegetation management on mine property	– Invasive alien management in buffer areas during mining, with post-rehabilitation alien vegetation management during the "after-care" period. Possible participation in a commonage-wide alien vegetation management programme/ plan in terms of the EMOZ Regulations (2020)
	– Pollution and nuisance	– Pollution and Nuisance being addressed by: • Hydrocarbon and grey water; as per existing mine "hydrocarbon protocol" requiring on-site domestic and industrial waste collection and off-site disposal, and no on-site disposal of untreated grey-water within 50m of

		any watercourse • Dust; as per current dust suppression programme, including mist spray at plant and wetting of activity/ movement areas by water bowser when required • Noise; mining restricted to daylight hours in order to limit impact on surrounding land uses, with existing mining not having raised any complaints to-date
	– Utility plant and services	– The mining extension area will be serviced by the existing mine management and logistics area on Erf 335 which accommodates a management office, workshop, staff accommodation and amenities, gravel crusher and sand screening plant. Existing services include water supply, electrical power and sanitation
(iv) Mining Parameters	<u>Sand Mining:</u> – Layout informants – Mining Method – Setback	 – Buffer requirements: • 50m buffer to freshwater habitats • 50m buffer to Milkwood Grove • Eastern edge delineated by on-site track – Mining block extent: 20.1ha (26 blocks) – 9.0m “mining pillar” on “common” property boundary
	<u>Gravel Mining:</u> – Layout Informants	– Buffer requirements: • 10.0m buffer to assumed below-surface flow stream channel • 10m buffer to alluvial fan • Maximum excavation height: 60.0m contour • Contour drainage channel at 5m vertical contours • Mine extent: max

	– Mining Method	0.81ha: – Mine phasing in 25m-wide strips – 5m faces on 10m-wide benches and a 1:2 slope
(v) Rehabilitation Requirements	<u>Rehabilitation:</u> – Operational:	– <u>Sand Mining</u> Operational rehabilitation, including: • Programmed topsoil stripping of individual mining blocks, to peripheral topsoil berms • Programmed rehabilitation of mined-out blocks with topsoil replacement and levelling • Excavation edge slope be established, with a max 1:3 slope • Rounding of excavation edges, with all sharp edges to be rounded to mimic natural contours – <u>Gravel Mining</u> rehabilitation: • Topsoil stripping to peripheral berms • Edge shaping every 5m vertical • Topsoil replacement on mined-out benches and levelling – Buffer area rehabilitation including removal of alien vegetation
	– Decommissioning:	– Decommissioning, including: • Maintenance of rehabilitated mined-out area (i.e. sand and gravel extension areas) insofar invasive vegetation removal (e.g. 12-month period) • Decommissioning of the extension area will include parallel decommissioning of Erf 335 as part of the existing mine area rehabilitation programme including: o Removal of all fixed-plant and/ or

		concrete footings on Erf 335 ○ Retention of all structures in support of Erf 335 future land use (e.g. dwelling, office, etc.) as well as garden allotment and irrigation system ○ Scarifying of the compacted surface of Erf 335 to reinstate as a "small-holding"/ agricultural unit
	– Future Land Use:	– Alignment of rehabilitated portions on Rem Erf 210 with commonage-wide conservation, agri-allotment, alien vegetation and fire management plans/ programmes.

6.2. Mine SDP

This section puts forward the Mine Site Development Plan (SDP) to accommodate the proposed mine extension as per the Mine Layout Plans in Section 4.1.5 and Figures 19 and 20, and the post-mining rehabilitation of the mine extension area and its future use as per Section 4.2 and Figure 21.

6.2.1. SDP Area

Accordingly, the SDP will serve to define and align the following Mining Right and land use portions within the cadastral context of Rem Erf 210:

(i) The recently approved Environmental Authorisation in terms of Section 102 of the MPRDA as issued by the DMR on 23 February 2021 and valid for 28 years (refer Annexure E), comprising the following portions:
   - The new 26.6593ha portion of land for sand and gravel mining located north of the current gravel mining area, with such portion extending up to the Rem Erf 210 boundary with Farm Strandfontein 712
   - The existing 1.4600ha existing gravel mining area (Mining Permit), with such portion extending into the new extension area by 0.81ha

(ii) The total SDP (2021) mining area encompassing a total extent of 28.1193ha on portion of Rem Erf 210.

(iii) The individual SDP Plans denote the extent of each land use during each mining phase (i.e. operational, decommissioning and rehabilitation, and future land use)

6.2.2. SDP Plans

Accordingly, in terms of this application and the minutes of the Pre-Application Consultation Meeting held on 6 August 2020 (refer Annexure C), the Mine SDP comprises the following plans:

- Figure 27(a): SDP; Sand Mine Operation Activity Area
- Figure 27(b): SDP; Gravel Mine Operation Activity Area
- Figure 28(a): SDP; Sand Mine Post-Mining Decommissioning and Rehabilitation

- Figure 28(b): SDP; Gravel Mine Post-Mining Decommissioning and Rehabilitation
- Figure 29 : SDP; Future Land Use

6.2.2.1. SDP: Sand Mine Operation Activity Area

Figure 27(a): SDP; Sand Mine Operation Activity Area depicts the sand mining area, inclusive of the following mine operational and environmental components:

a) Sand Mining Area, including:
   - Sand mining extension area (+-26.6593ha) including 26 mining blocks (+-0.78ha/block), with indicated mining sequence.
   - Access road extension from the existing gravel access road.

b) Identified and Secured Environmental Features, including:
   - Two (2) freshwater habitats
   - A Milkwood grove
   - Non-perennial streams draining from the lower mountain slopes
   - An alluvial fan located within one of the stream-beds

c) Buffers and Cadastral Restrictions to Put Forward "No-Go" Areas to Protect Environmental Features and Manage the Extent of Mining, including:
   - 50m-wide buffers around freshwater habitats and the Milkwood grove
   - 10m-wide buffer around the alluvial fan and upstream water course
   - Delineation of the Milkwood dripline to secure domain of the grove
   - Fixing the eastern-most extent of the sand mining edge along an existing track
   - Putting in place a 9m-wide "mining pillar" to prevent the mine excavation undercutting/ destabilizing the adjacent property

   The demarcation of such buffers/ cadastral restrictions be demarcated as "No-Go" Areas in terms of Section 5.2.5: Demarcation of "No-Go" Areas and "No-Go" Management.

Note: Mine Logistical support and access will be via the existing logistical support on Erf 335 and the existing gravel access road, noting the following services to the new sand and gravel mining areas:

- In-vehicle storage of domestic waste material (e.g. lunch wrappers, drinks containers) for disposal at the refuse disposal container on Erf 335 at end-of-work shift.
- Dust attenuation along the sand and gravel access road through road wetting
- On-site provision of contractor managed and maintained portable chemical toilets at place of work

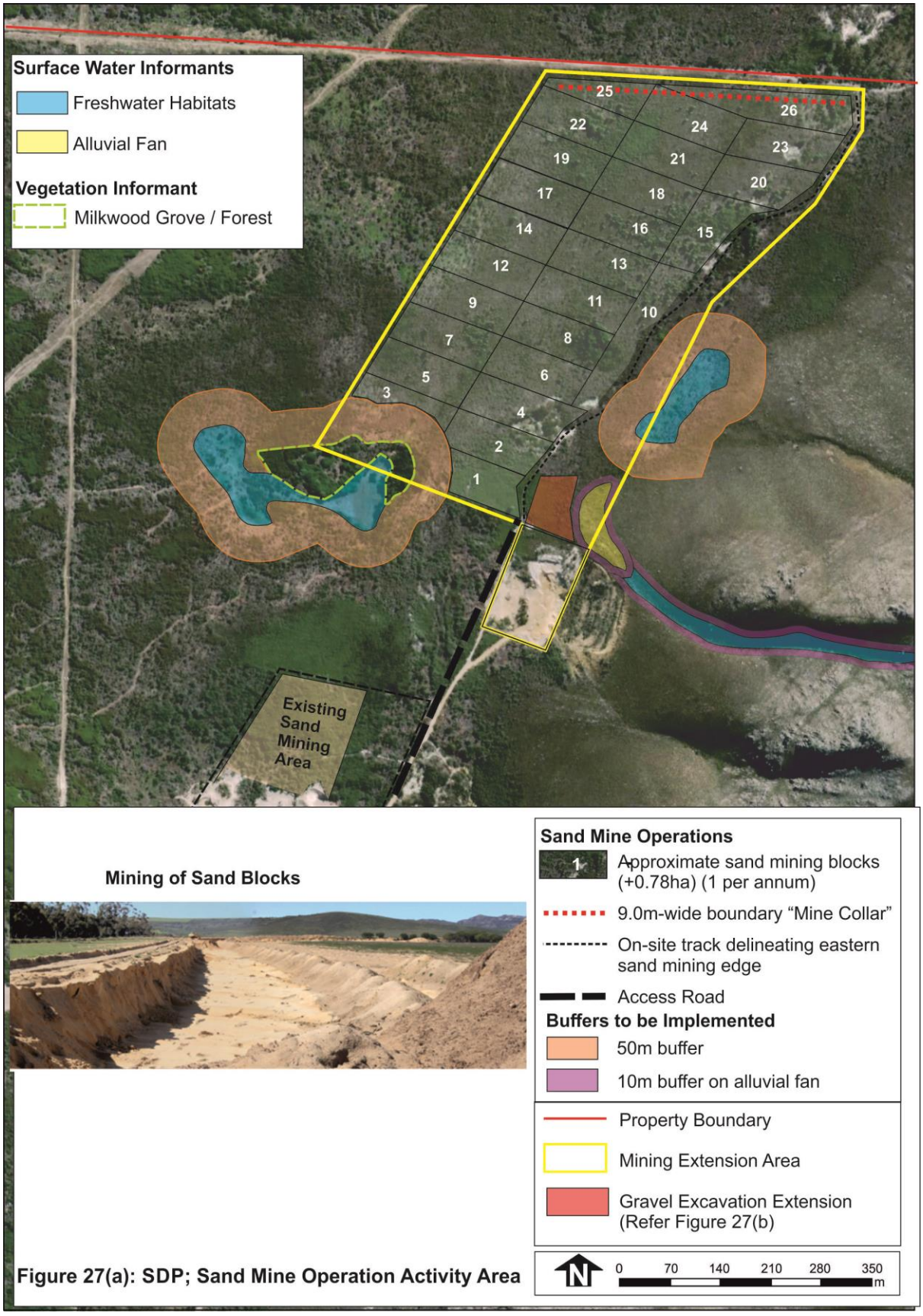


Figure 27(a): SDP; Sand Mine Operation Activity Area

6.2.2.2. SDP: Gravel Mine Operation Activity Area

Figure 27(b); SDP; Gravel Mine Operation Activity Area depicts the gravel mining activity areas, the securing of environmental features, and buffers and cadastral restrictions to protect such features.

a) Gravel Mining Areas, including:
   - Current gravel mining area (1.46ha)
   - Gravel mining extension area (0.81ha)
   - Mining method comprising benching of 5m-high faces on 10m-wide benches, or on a 1:2 slope with contour sluits every 5 vertical m.
   - Mine phasing in 25m strips up to the 60m contour, with a maximum northern extent of the mine pit.

b) Identified and Secured Environmental Features, including:
   - Adjacent alluvial fan (scree recharge area), located within the channel of an up-slope non-perennial stream
   - Non-perennial stream draining from the lower mountain slopes

c) Buffers and Mining Restrictions to put forward "No-Go" Areas to Protect Environmental Features and Manage the Extent of Mining, including:
   - 10m-wide buffer around alluvial fan
   - Maximum demarcation of such buffers/ mining restrictions as "No-Go" Areas and "No-Go" Management as per Section 5.2.5.

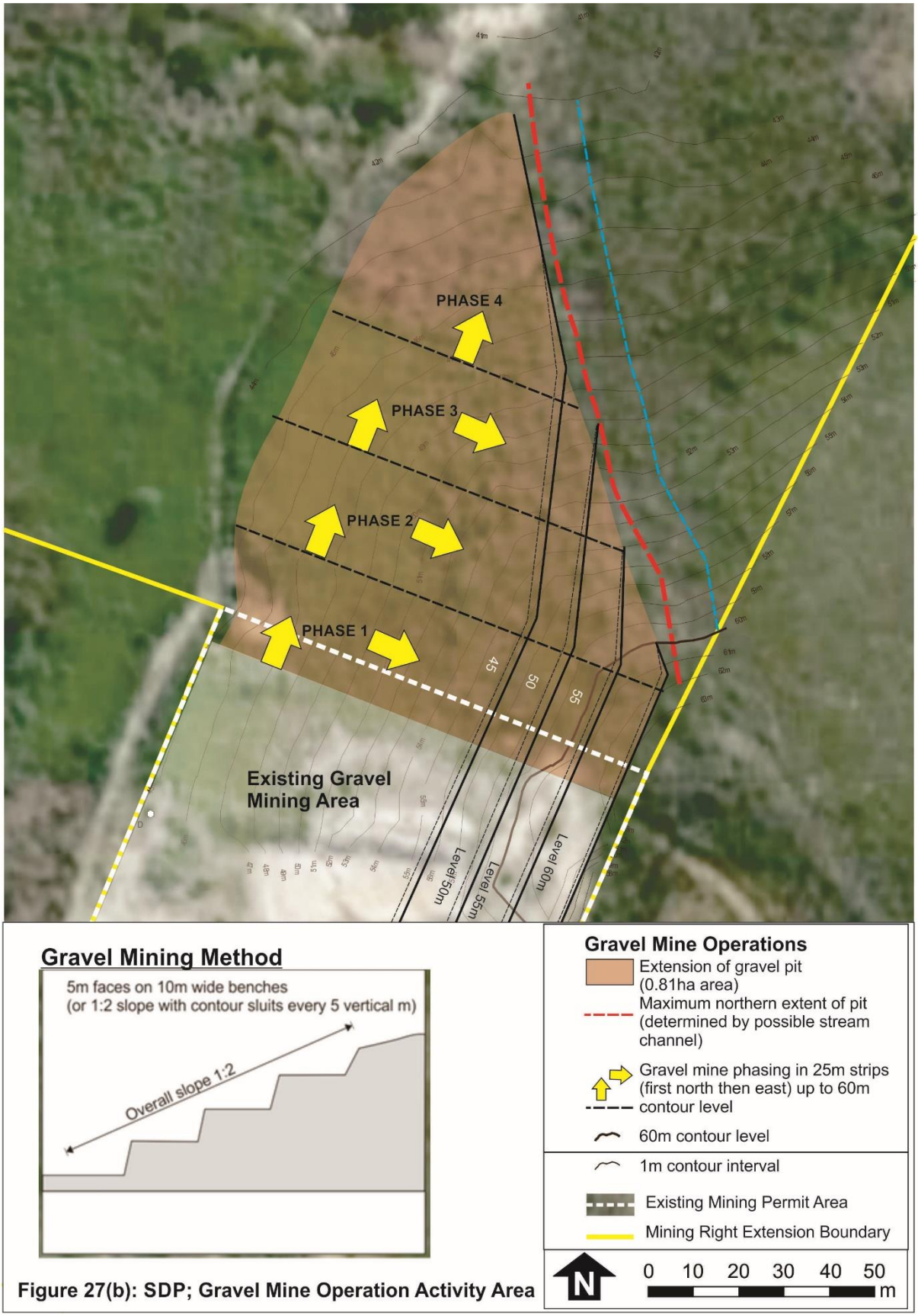


Figure 27(b): SDP; Gravel Mine Operation Activity Area

6.2.2.3. SDP; Sand Mine Post-Mining Decommissioning and Rehabilitation

Figure 28(a): SDP; Sand Mine Post-Mining Decommissioning and Rehabilitation puts forward the following required operational and post-mining decommissioning and rehabilitation of the sand mining area to achieve mine closure and to move towards a future land use, inclusive of the following:

(i) Operational rehabilitation and maintenance commensurate with production within the sand mining area
   - On-going rehabilitation of sand mining area to support agricultural development and/or Strandveld habitat reinstatement as per Sections 5.2.1, 5.2.2 and 5.2.4, as well as per Rehabilitation Plan in Annexure O and Figure 29: SDP; Future Land Use
   - Rehabilitation of the gravel mining area to support Fynbos habitat reinstatement as per Sections 5.2.1, 5.2.2 and 5.2.4, as well as per Rehabilitation Plan in Annexure O.
   - Restoration/maintenance of Buffer Zones to Fynbos/Strandveld habitat, commensurate with the final rehabilitation of the sand mining area, with such restoration/maintenance targeting the removal of invasive alien vegetation.
   - Invasive alien vegetation management of the sand mining area in accordance with a Post-Mining "after-care" programme (1-year)

(ii) Post-Mining Sand Mine Area decommissioning and closure
   - Restoration of buffer zone to Fynbos/ Strandveld habitat through alien vegetation management protocol
   - Rehabilitation of the sand mining extension blocks to support agricultural development/ Strandveld habitat as per Section 5.2.4; Excavation Shaping and Topographical Controls, Section 5.2.1; Topsoil Handling Methodology and Section 5.2.2; Devegetation and Revegetation Protocol
   - Invasive alien vegetation management throughout the Mining Right Extension Area, with the removal of all invasive species from the eastern edge of the sand mining area and on the directly abutting lower mountain slopes to the east to allow for Fynbos reinstatement
   - Maintenance of the gravel road from Erf 335 to the new gravel and sand mining areas, inclusive of sand/ gravel filling of the road wearing surface erosion to reduce ponding, together with road-side stormwater drainage management via cut-off drains

Figure 28(a) includes the respective buffer and cadastral delineations to effect final mine rehabilitation and closure.

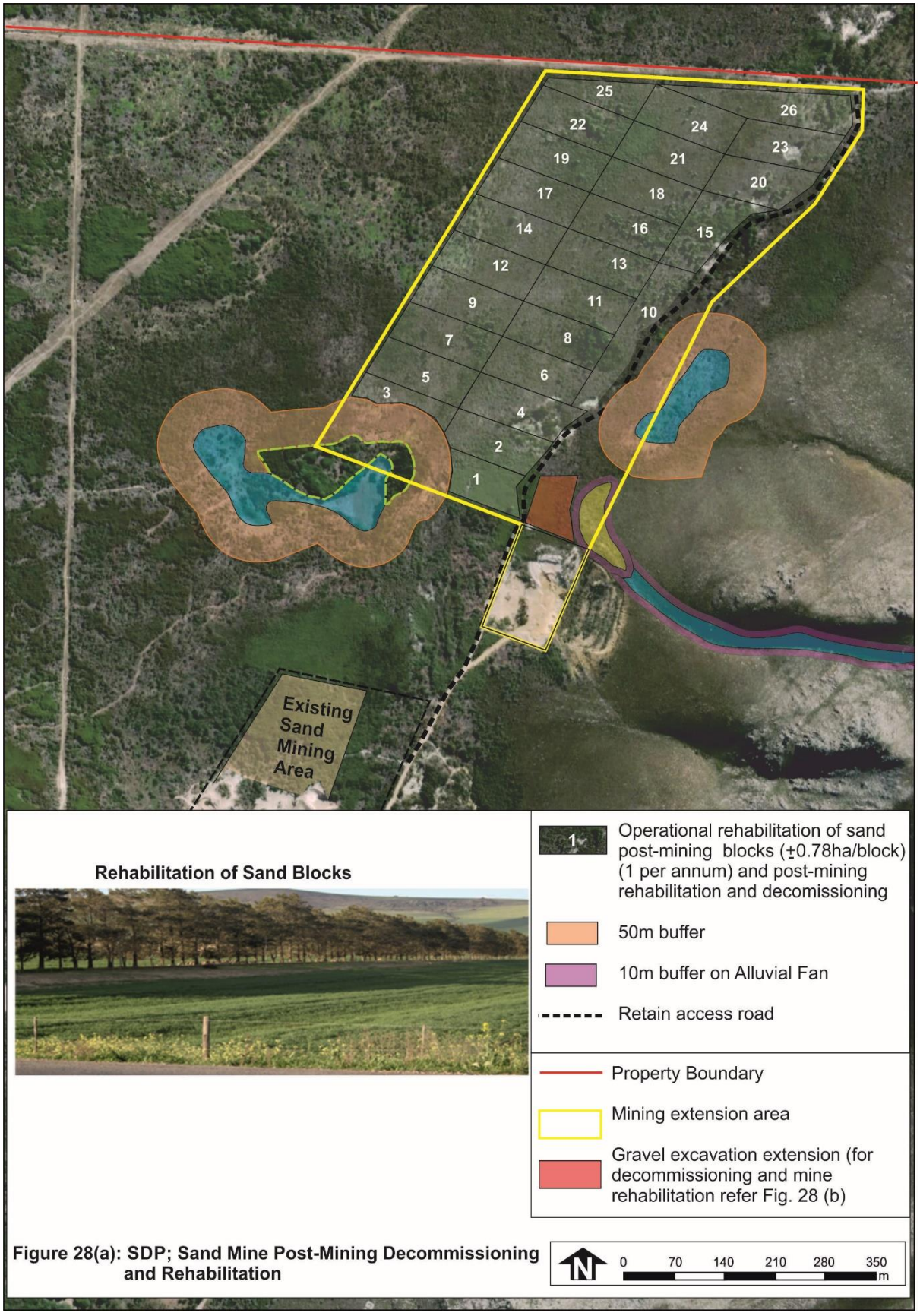


Figure 28(a): SDP; Sand Mine Post-Mining Decommissioning and Rehabilitation

6.2.2.4. SDP; Gravel Mine Post-Mining Decommissioning and Rehabilitation

Figure 28(b): SDP; Gravel Mine Post-Mining Decommissioning and Rehabilitation puts forward the following required post-mining decommissioning and rehabilitation of the gravel mine areas to achieve mine closure and move towards a future land use, inclusive of operational rehabilitation and maintenance, and decommissioning for closure:

- Rehabilitation of the existing gravel mining area (1.46ha) and the gravel mining extension area (0.81ha) to support Fynbos reinstatement as per Section 5.2.4; Excavation Shaping and Topographical Controls, Section 5.2.1; Topsoil Handling Methodology and Section 5.2.2; Devegetation and Revegetation
- Invasive alien vegetation management in areas abutting the gravel borrow pit, as well as abutting and within the alluvial fan, lower mountain slope and lower reaches of the non-perennial mountain stream channel to allow for Fynbos reinstatement
- Excavation floor mining slope of 1:100 to be maintained to ensure stormwater run-off and prevention of floor ponding
- Maintenance of gravel roads from Erf 335 to the new gravel and sand mining areas, inclusive of sand/ gravel filling of the road wearing surface erosion to reduce ponding, together with road-side stormwater drainage management via cut-off drains

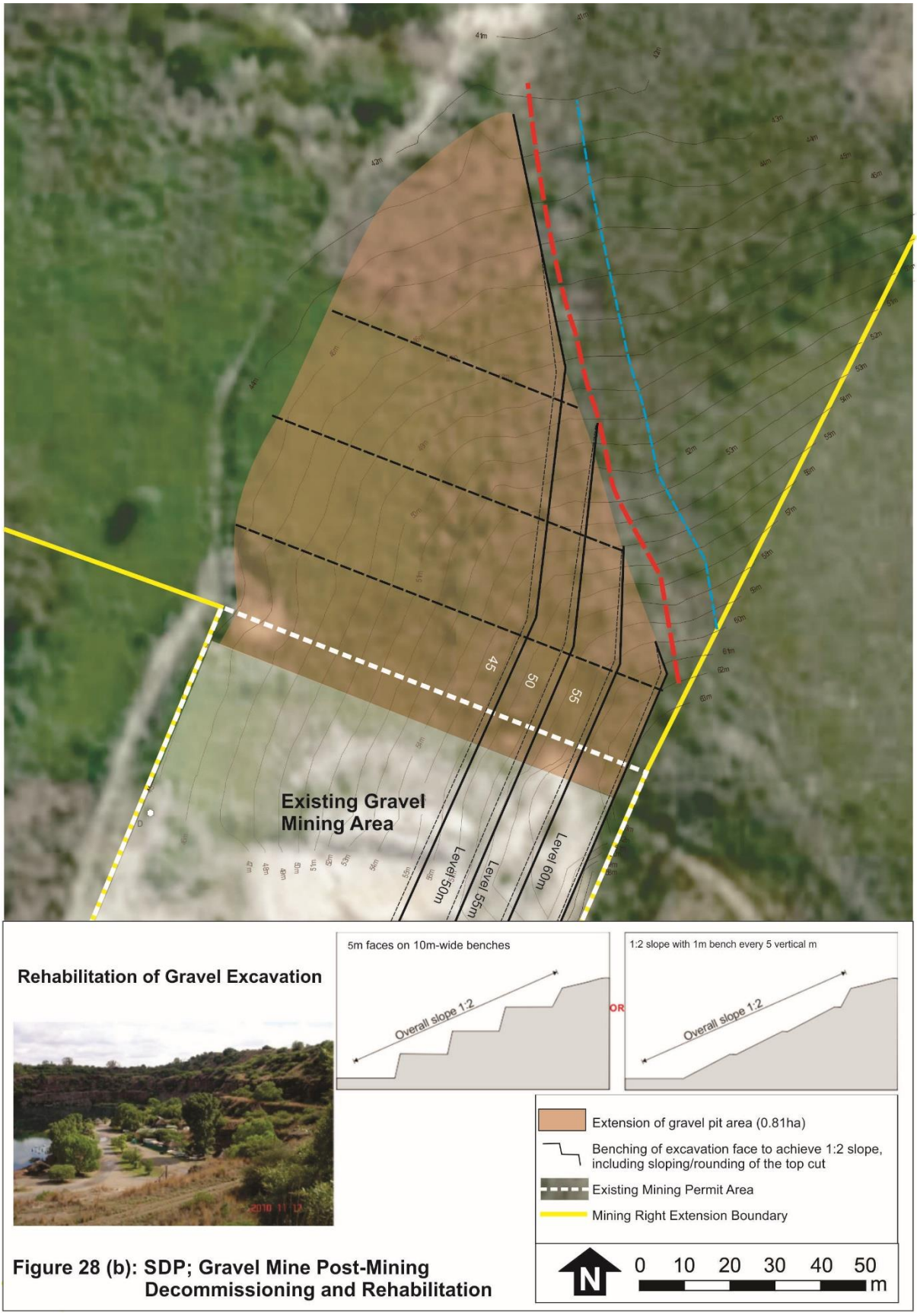


Figure 28(b): SDP; Gravel Mine Post-Mining Decommissioning and Rehabilitation

Final Closure

Subsequent to the completed rehabilitation of the sand mining area and the gravel mining areas, the following final decommissioning/ rehabilitation:

- Final maintenance of the gravel road from Erf 335 to the new gravel and sand mining areas, inclusive of sand/ gravel filling of the road wearing surface erosion to reduce ponding, together with road-side stormwater drainage management via cut-off drains.
- The decommissioning of the logistical support area (i.e. Erf 335), such decommissioning being in terms of the existing mining area EMP, with the retention of infrastructure being at the discretion of the land owner.
- Making application to the DMRE for mine "closure".

6.2.2.5. Future Land Use

Figure 29: SDP; Future Land Use spatially presents the proposed future post-mining land use within the Mining Right Extension Area, as per the overall objective in Section 4.2: Closure Objectives being to retain portions of the site that can form part of the surrounding wilderness area, with an area reserved for possible agricultural development. Furthermore, the need for a natural conservation corridor to be retained and maintained between the mountainous area and the wetland/ Milkwood grove conservation node is identified, with such corridor including the wetland and Milkwood buffer zones and noting the following insofar the corridor rehabilitation and agricultural development:

- The site must be sloped to mimic natural contours
- Be no impact on the local surface and groundwater regime (specifically the wetland, the scree recharge area i.e. alluvial fan, and the buffer to the winter water table – 1.5m soil retention)
- Be no impact on the Milkwood grove

Accordingly, **Figure 29** puts forward the following **"future land use":**

a) **Conservation Corridor: Mountain to Wetland/ Milkwood Grove Node**, inclusive of:
   - Non-perennial mountain streams
   - Wetland habitats in the east and south-west (Milkwood grove)
   - Alluvial fan
   - Restored Fynbos habitat within the Buffer Zones
   - Milkwood grove
   - Reinstated Fynbos/ Strandveld through rehabilitation of the sand and gravel mining areas

   Such "conservation/ecological corridor" being +-4.03ha in extent

b) **Agriculture**

   As per Section 4.2, the use of portions of the commonage for intensive vegetable garden allotments to address both food insecurity amongst local communities through supporting the household food-basket and to provide income through surplus sales has been noted, together with the opportunity that the lowering the growing/ cultivation level relative to the ground-water level offers for vegetable growing within a traditional dry-condition given soil depth and its poor moisture retention. The current vegetable garden allotment (refer Photos 1 and 10) on Erf 335 demonstrates successful vegetable production on a rehabilitated mined-out area by staff members and their families as part of the mine's "social and labour plan", such development drawing a parallel with the Philippi Horticultural Area, also established on mined-out land (sand mining) appropriately rehabilitated to ensure adequate winter water table depth and topsoil replacement.

   Accordingly **Figure 29** identifies the following insofar **agricultural post-mining land use**:

   - Intensive irrigated vegetable garden allotments on rehabilitated sand mining areas not forming part of conservation/ corridor areas. Section 5.2.2: Devegetation and Revegetation

Protocol puts forward a proposal for grassing the future agricultural area to ensure sand stability

- The extent of such agricultural use (+-16.14ha) being informed by an "agricultural SDP" insofar detailed agri-potential, water availability, farmer demand and conservation requirements
- Access road retention to agricultural and conservation areas

Critical to the success of the post-mining land use sustainability is the need for their integration within a "commonage-wide" conservation plan and an Agricultural SDP, supported by management programmes (e.g. fire, invasive alien vegetation) and facilitated within the context of the Environmental Management Overlay Zone Regulations (2020) to address the Category C: Modified Ecosystem of the broader commonage and the need to manage and protect undeveloped conservation-worthy public-owned land.

c) **SDP Spatial Budget**

Subject to any required detailed feasibility assessments per land use, the SDP puts forward the following "spatial budget" for the future land use of the 28.12ha Mining Right Area as depicted in Figure 29.

Land Use/Activity/Objective	**Extent (ha)**
Restoration of Fynbos/Strandveld habitat in Buffer Zones	2.49
Rehabilitation of gravel mine to Fynbos	1.94
Development of "ecological corridor"	4.03
Retention of peripheral natural areas and alluvial fan	3.52
Agricultural development	16.14
TOTAL EXTENT:	**28.12**

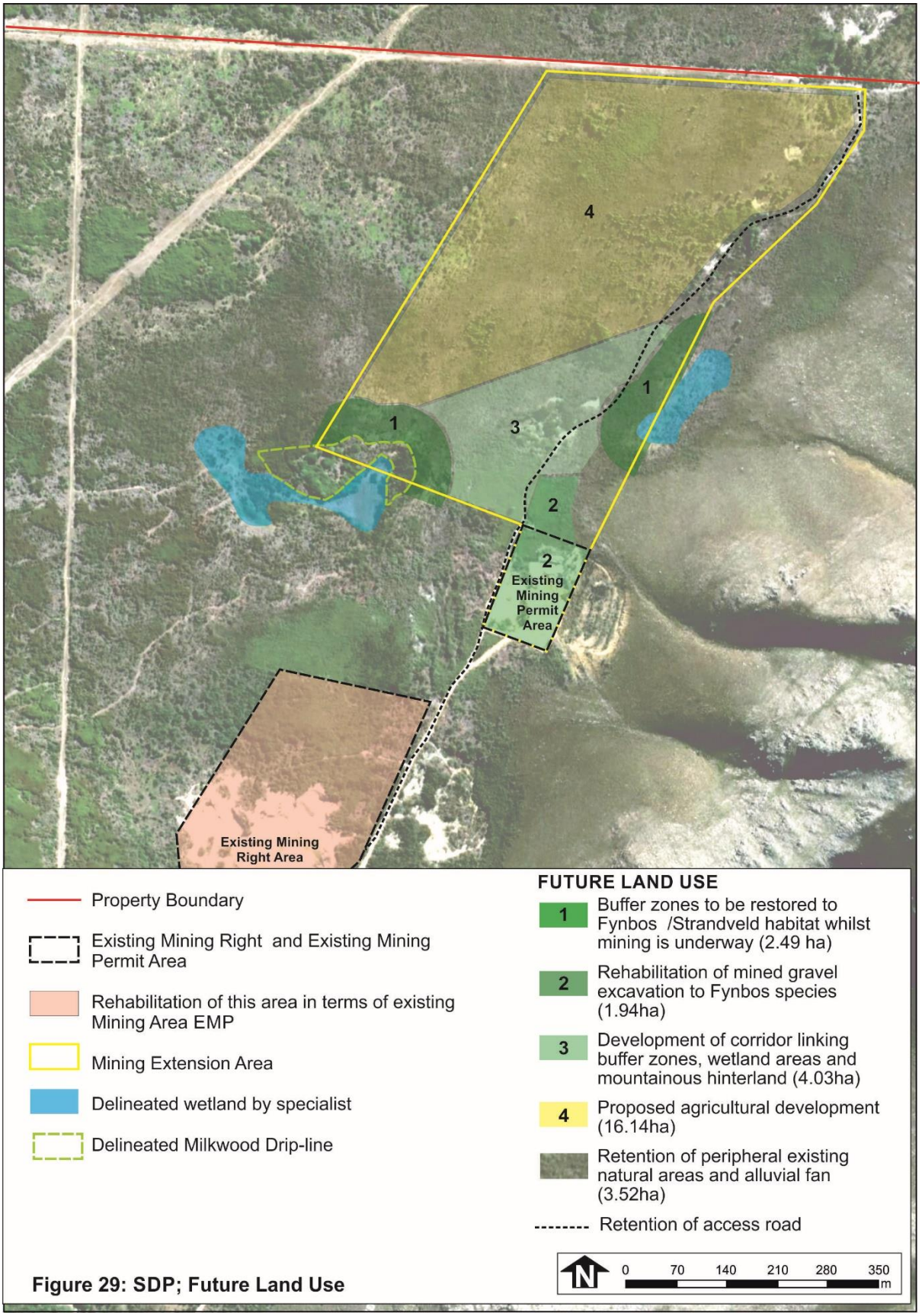


Figure 29: SDP; Future Land Use

7. DESIRABILITY

This section puts forward the desirability of the proposed SDP depicting the proposed mining extension footprints of sand and gravel mining on portion of Rem Erf 210 Gansbaai to permit an extension of such footprints to address the local Overstrand demand for construction sand and gravel. Such desirability is informed by the consistency of the proposed land use with Overstrand's spatial policies, including the Overstrand Municipality: Amendment By-Law on Municipal Land Use Planning (2020) and criteria for deciding on applications (i.e. Section 68 of the By-Law).

7.1. Consistency with Overstrand Municipality Policy

(i) Consistency with the Overstrand Municipality Spatial Development Framework (MSDF, 2020), the Overstrand Integrated Development Framework (2014) (IDF, 2014), the Overstrand Environmental Management Framework (2014)(EMF, 2014), HPOZ (2020) and EMOZ (2020).

Section 5.2.10 sought the relevant informants for the proposed sand and gravel mine extension from Overstrand Municipal Spatial and Environmental Policy, notably the 2020 Municipal Spatial Development Framework, the Environmental Management Overlay Zone Regulations, 2020 and the Heritage Protection Overlay Zone Regulations, 2020, together with Municipality's Environmental Management Framework (2014), the recent Overstrand SDF (2016) and the Overstrand Integrated Development Framework (2016).

As put forward in Section 5.2.10.4, key land uses as noted in the MSDF 2020, including mining activities, small-scale farming activities on commonage land and the significance of view-sheds and regional corridors (mountain to sea) for coastal tourism activities, together with the proposed post-mine land uses of the mining extensions (i.e. small-scale farming, conservation and ecological corridor) resonate positively with several of the Municipality's Environmental Objectives (EOs), notably:

- "*Mining development not resulting in unsustainable change in land use of biodiversity rich rural areas, agricultural activity and soil with agri-potential*;
- *The desirability of designating mining areas where the benefit of mining does not outweigh the loss of environmental integrity or environmental services; and*
- *Mining encouraging and supporting the development of networks of open space that sustain and encourage eco-system functioning, connect fragments of indigenous and conservation-worthy vegetation, protect wetland habitats and reinstate the natural environment*"

Section 5.2.10.4 demonstrates the alignment of the mining extension with the MSDF (2020), the EMOZ and HPOZ, and such extension having the potential to serve as a catalyst for peri-urban farming on the commonage, exploring a commonage-wide conservation initiative including mountain to sea corridor, alien vegetation and fire management, and tipping the benefit of mining in the favour of environmental enhancement. Furthermore the mine extension demonstrates support for "modified landscapes" as addressed by the "Conservation-Agriculture Buffer" of the 2006 SDP, the "modified ecosystems" as addressed by the "Urban Conservation Zone" of the EMOZ and "Landscapes of Significance" addressed by "Landscapes HPOZ".

Accordingly, it is concluded that the land use (operational and post-mining) of the proposed extended mining:

a) Aligns with the 2020 MSDF's "*Sensitive Development Area*" (Composite: HPOZ and EMOZ); and
b) That such alignment with the MSDF (2020), the HPOZ (2020) and the EMOZ (2020) reinforces the integration of the mine operation and its post-mining rehabilitation with the built, socio economic and environmental setting of the commonage, with the Site Development Plan (SDP) put forward in Section 6 confirming such alignment and integration.

(ii) Consistency with the Overstrand Land Use Scheme (2020).
Both the nuisance/ environmental impact of sand/ gravel mines and given such resources being place-bound has resulted in such land use being allocated either a "use departure" or legal "permitted use" within the "Undetermined Zone" of zoning schemes to-date. Furthermore, state or municipal land (including commonages) has traditionally been allocated an "Undetermined" zoning. Both such "anomalies" are being rectified with the introduction of "integrated" zoning schemes, with rectification further being required re the Maccsand Constitutional Court ruling (2012) insofar mining requiring land use authorisation in addition to only a Mining Right or Permit.

Accordingly, in terms of the Overstrand Land Use Scheme (2020) the subject portion of Rem Erf 210 will be subdivided and rezoned to Agricultural Zone 1: Agriculture (AGRI), with a "consent" to allow mining for life-of-mine, hereby achieving consistency with the Land Use Scheme. Furthermore, such application will demonstrate and achieve a rationalisation and restructuring of the current land use management insofar mining re "undetermined" land use, as well as align the land administrative context of the "commonage" with the Land Use Scheme.

7.2. Consideration Criteria

There is compelling evidence as to the proposed sand and gravel mining extension meeting/ addressing the necessary criteria in consideration of the SDP, the required subdivision, rezoning, consent use and departure, as presented below and detailed in previous sections of this report:

(i) Economic Impact

The sand and gravel mine, since its commencement in 2000 to present, has had a **positive** economic impact given the following:

- Continued employment of two (2) permanent staff and a team of eighteen (18) staff who conduct the necessary excavation, crushing, and sieving, loading and stockpiling on a rotational basis between two of the operator's sand mines.
- Continued supply of sand and gravel to the wider Overstrand and Overberg construction industry (both having growing construction sectors) at a competitive price given the proximity of Gansbaai to customers.
- Support of local communities through the DMR's required Social and Labour Plan through which the mine's operator contributes financially to municipal IDP identified community projects.

Socio-Economic Impact

- Securing Employment
  While the mining operation will only result in the continued employment of existing employees (i.e. excavator operator(s), truck drivers, etc.), the purpose of the mine is to provide a continued locally sourced "strategic resource" in support of the Overstrand construction industry, a significant employer in the district

- Contributing to and Facilitating Socio-economic and Development Opportunities
  The Social and Labour Plan (SLP) for the period 2018-2022 puts forward the Socio-Economic and Development Opportunities available from Sizika Ukhanyo Trading 410 cc to its staff and labour-sending communities as required by the Mineral and Petroleum Resources Development Act (MPRDA, 2000). Through its registration with the relevant SETA, the Mining Qualification Authority, its in-house appointed Skills Development Facilitator and submission of its workplace Skills Development Plan, the following is offered to its employees:
  - 5000m² vegetable garden allotment on Erf 335 is made available to staff and their families to cultivate vegetables to augment their household food basket and for sale of surplus production. Irrigation water, together with implements and seed are provided by the employer, as well as transport of product to employee home or point of sale
  - Income Generating Project: Local Economic Development: Funding of Grootbos Foundation
  - Internship and Bursary Plan: Boland Collage (Caledon): Student Studying Management
  - Training and Formal Education: ABET: 2 Students Grade 11 and 12
  - Career Progress (path) Plan: Skills Development: Computer skills training for all employees, excavation equipment training for operators and drug and alcohol awareness training for all employees
- Resolution of Social Conflict
  Negative social impact of the proposed mine land use is negligible given the following:
  - Only essential staff currently overnight on the mine site
  - No agricultural labour will be displaced from the mining extension area, given it being commonage and that no additional staff will be employed due to the extension
  - The Environmental Management System (EMS) provides for an independent monitoring committee, the Environmental Monitoring Committee, which could (if there is sufficient interest) meet on site on a pre-determined basis to discuss issues relating to environmental management, with members comprising representatives of the mining company, the Town and Environmental Planning Sections of Overstrand Municipality, the landowner representative and other environmental/ community-based organisations.

(ii) Capital Investment

While the extension sand and gravel excavations will utilise existing logistical facilities on Erf 335, it will result in on-going replacement investment in machinery/ plant and maintenance thereof to undertake such operation. Furthermore, the extended mining will generate a land rental income for the lease holder (i.e. Overstrand Municipality) and royalty payments to the State.

(iii) Compatibility with Surrounding Land Uses

As illustrated in Figure 5, the impact on surrounding land uses is limited given the general isolation of the existing and extension mine areas from surrounding land uses, noting the following:

- Closest uses being utility installations at 0.25km (e.g. landfill site, reservoir, etc.)
- Residential development in Gansbaai and Masakhane being 1.5km and 0.85km distant respectively
- Closest farmsteads on Fransche Kraal 708/43 and Suikerbosrand 710 being 1.2km and 1.1km distant respectively

- Limited intensive agricultural practices to the north and east, given municipal land and mountainous terrain, the use being mainly wilderness and livestock grazing
- No complaints from surrounding land owners during the past 20-year period
- Mitigatory measures being in place to reduce any impact on surrounding properties (e.g. hydrocarbon management, dust and noise abatement, and restricting/ reducing visual impact, etc.).

(iv) Impact on Existing Services

- The on-going operation of the mine will not impact on services given that such services have been in place for the past 20 or more years, including:
  - Water obtained from an on-site borehole and tank storage, uses being potable, for road and plant area wetting and for sanitation
  - Electrical power; Gansbaai Municipality
  - Sewage treatment; on-site septic tank
  - Waste (domestic); removal to municipal disposal facility by mine management
  - Waste (industrial e.g. oil spill); removed by specialist contractor

(v) Impact on Safety, Health and Well-being of Surrounding Communities

The relative isolation and distance from surrounding homesteads (minimum of 0.85km), as well as the mine operation being restricted to week-days 07h00-17h00 Monday to Thursday and 07h30 – 14h30 on Friday, negates impacts emanating from mine operations (e.g. dust, noise, etc.), with mitigatory measures in place should impact occur, including:

- Road and plant area wetting to reduce the impact of dust from truck movement.
- Truck washing on departure to reduce dust/ soil deposition on Voortrekker Street and Main Road (R43)
- Vehicle mechanical compliance (e.g. silencers) to restrict noise impact
- Regulatory provision (e.g. safety/ warning signage at the mine access road/ Voortrekker Street intersection) to reduce delivery vehicle traffic speed, improve road safety and improve awareness to public road users of heavy truck movement
- Hydrocarbon Management Programme in place to avoid and manage any fuel/ oil spills by mine vehicles and plant, and thereby avoid groundwater pollution
- Furthermore, the on-going daily mine operations and presence of personnel on Erf 335 and Rem Erf 210 will continue to contribute to the security of the area.

(vi) Impact on Existing Use Rights

The extension mining area use, if approved, will not impact on existing surrounding land use rights given that such approval in terms of section 69 of the Overstrand Municipality: Amendment By-Law on Municipal Land Use Planning (2020) will be subject to specific conditions ensuring appropriate operation of the mine extension as well as its closure, rehabilitation and post-mine use. Furthermore, the mine has a rehabilitation fund in place (i.e. security lodged with DMR) to ensure reinstatement of the land (mine) in the event of failure by the lessee (i.e. mine operator). Additionally, the land owner (Overstrand Municipality) and the mine's operator should be mutually protected by a lease agreement in respect of the right to mine, lease period and ancillary rights and responsibilities.

(vii) Impact on Heritage

Heritage Western Cape letter dated 20 November 2019 (refer Appendix 2) states that "**since there is no reason to believe that the proposed development will impact on heritage resources, and accordingly no further action under Section 38 of the NHRA (Act 25 of 1999) is required**".

(viii) Impact on the Biophysical Environment

Impact Management Protocols put forward in Section 5 purposely address impact on the biophysical environment as may be experienced in the proposed mine extension and highlighted in the environmental assessments undertaken. Mitigation as per such protocols will reduce any impact to acceptable levels, particularly when supported by strict monitoring, a highest order of site maintenance and a transparent environmental management system with community representation or a monitoring committee.

(ix) Traffic Impact and Access Related Considerations

The sand and gravel mine access over Rem Erf 210 (the commonage) for the past 20-years has been via a gravel municipal road extending from Voortrekker Street in Gansbaai to the access gate of Erf 335. Such gravel road extends further north over Rem Erf 210 giving access to the existing gravel pit and the proposed sand mining extension. It is noted that to the south of the sand and gravel mine, the gravel road also provides access to the sub-station, the reservoir and the land-fill site of the municipality.

Given the existing truck movement (55 per workday) via the gravel access road to Voortrekker and Main Road (R43) in Gansbaai, and the fact that such current truck movement will not increase with the proposed extension, traffic volume increase post-extension will be negligible on the gravel road, Voortrekker Street and Main Road (R43). However, mitigating measures are in place to reduce the impact of sand and gravel delivery trucks, including:

- Road wetting in the vicinity of the gravel road/ Voortrekker Street intersection during high dust periods
- Speed and road safety management (e.g. signage) and driver education/ awareness, including heavy vehicle movement warning signage in the vicinity of Voortrekker Street
- Vehicle compliance (e.g. silencer noise), removal of sand and debris prior to trucks leaving the mine and covering of loaded material to prevent windblown dust and material spillage

(x) Compliance with Overstrand Town and Spatial Planning Department's Application Requirements

This motivation report addresses all items raised during the Pre-Application Consultation Meeting held with the Town and Spatial Planning Department of Overstrand Municipality on 6 August 2020 (refer Annexure C for Minutes of such meeting).

8. CONCLUSIONS

8.1. Conclusions

As per Section 16(2)(h) of the Overstrand Municipality: Amendment By-Law on Municipal Land Use Planning, 2020, and structured in terms of the criteria for deciding on an application (Section 68 of the By-Law), this application is motivated on the following grounds:

(i) Complies with the requirements of the **Overstrand Municipality: Amendment By-Law on Municipal Land Use Planning (2020)**

(ii) Comprises a reasonable and permissible deviation from the **Overstrand** M**SDF** (2020), and aligns with the **Overstrand Municipality Environmental Management Overlay Zone Regulations, 2020** and the **Heritage Protection Overlay Zone Regulations (2020)**

(iii) Constitutes a desirable amendment of Zoning approval as per Section 16(2) of the Overstrand Municipality: Amendment By-Law Municipal Land Use Planning (2020) and the **Overstrand Land Use Scheme (2020)**

(iv) **The Western Cape Provincial Spatial Development Framework**, 2014 (PSDF)

The PSDF recognises the importance of mineral resource assets, especially where such resources can contribute to, or support economic growth, often requiring trade-offs and coherent land use planning. The PSDF puts forward the safeguarding of strategic minerals through municipal SDFs and applying land use policy to reserve these resources for possible use.

(v) Complies with **Chapter 2 of the Western Cape Land Use Planning Act (2014)** insofar the proposed mine extension, operation and rehabilitation is guided by and promotes the following "**development principles**" put forward in the Act:

- ***Spatial sustainability***; through site selection in order to limit impact on agriculture, biodiversity and culturally significant land , with such development and reinstatement (rehabilitation) consistent with land use measures in accordance with environmental management instruments (e.g. EIA/ EMP process, appointment of an Environmental Control Officer, and conducting regular Environmental Performance Assessments (EPAs)). Furthermore, the rehabilitation will restore the mined land to wilderness and agriculture, thereby ensuring land use sustainability and limiting the impact on adjoining agriculture, resource conservation, and other uses.
- ***Sustained protection of the environment***; through the mine extension site selection having regard for natural habitats, systems (CBA's, water courses) and view-sheds, and re-establishing wilderness use, together with ensuring protection of water courses and wetlands through land use buffering, ecological corridors and environmental services maintenance.
- ***Realising the economic potential of the area***; through the supply of a strategic material (i.e. construction material) in support of the local construction industry, thereby unlocking the latent benefit and synergy vested in the non-renewable mineral resource to create a positive socio-economic benefit through capital earning, job creation and socio-economic development, including supporting and growing tourism.
- ***Employing the principle of efficiency,*** though optimising the strategic resource (i.e. construction material) by sourcing the mineral deposit in close proximity to its end-use (Overstrand and environs) and thereby reducing the carbon footprint (i.e. delivery/ distance) and reducing impact on roads (i.e. maintenance) and impact on road user safety, compared to if such mineral sourcing was from further afield deposit reserves.

(vi) The location, land development and rehabilitation of the proposed mine extension on Rem Erf 210 and Erf 355 Gansbaai promotes the following **SPLUMA "principles" put forward in the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013):**

- The end-use of the mined material contributes to addressing ***past spatial injustice*** in improving socio-economic conditions in Gansbaai and environs, as well as being a catalyst to foster rural, peri-urban and urban development and community facility establishment and support.

- While no mineral resource use is sustainable, the unlocking of the latent benefit and synergy vested in the non-renewable mineral resource through employment creation and stability contributes to ***spatial sustainability***.
- The location of the mine and its extension relative to the proximity of its product use (Overstrand and environs) ensures ***efficiency*** through reduced transport cost, limiting the carbon footprint and reducing impact (i.e. road maintenance and public road safety).
- The mine's contribution to rural and urban development improves ***spatial resilience*** through ensuring improved sustainable community livelihoods and addressing the impact of economic and environmental shocks (e.g. climate change) on communities.
- The EIA/ EMP and Land Use Authorisation planning and management processes applied to the mine extension location, its operation and rehabilitation reflects ***good administration***, being inclusive of all spheres of government (National, Provincial and Municipal).

It is therefore concluded, as demonstrated in this application, that through the effective implementation of the mitigation measures provided, the extension, operation, rehabilitation and future use of the sand and gravel mining extension on Rem Erf 210 Gansbaai can deliver a **sustainable and efficient contribution to socio-economic development and transformation** without the **rehabilitation "legacy costs"** and **loss of land capability** (botanical and agricultural) historically and traditionally associated with sand and gravel mines. Furthermore, the mining, rehabilitation and future use of the mining area can be a **catalyst for "integrated" and "sustainable" commonage management and development, underpinned by safeguarded and improved environmental services.**

8.2. Recommendation

As motivated in this report, the approval of the following to permit the extension of existing sand and gravel mining on portion of the Remaining Extent of Erf 210 Gansbaai in terms of the Overstrand Municipality: Amendment By-Law on Municipal Land Use Planning, 2020.

(i) Section 16 (2)(d): Sub-division of a 28.1193ha Portion of Rem Erf 210 Gansbaai as depicted in Diagram 4

(ii) Section 16 (2)(a): Rezoning of Sub-divided 28.1193ha Portion of Rem Erf 210 Gansbaai from Undetermined Zone to Agricultural Zone 1: Agriculture (AGRI) as illustrated on Diagram 4

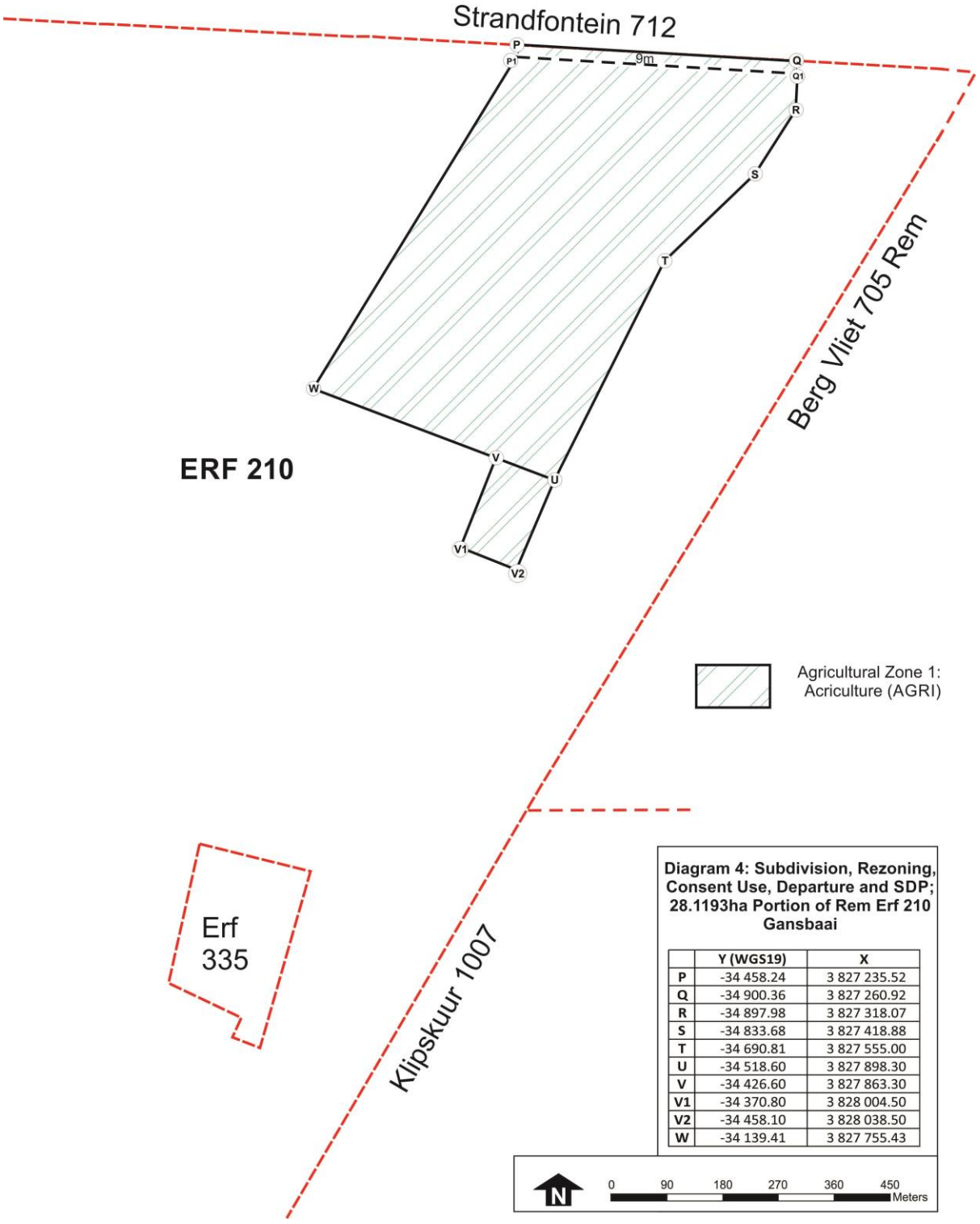
(iii) Section 16 (2)(o): Consent Use to Permit Mining in Agricultural Zone 1: Agriculture (AGRI) of the Sub-divided and Rezoned 28.1193ha Portion of Rem Erf 210 Gansbaai as per Diagram 4

(iv) Section 16 (2)(b): Permanent Departure to Reduce the "Common Building Line" from 30.0m to 9.0m to Permit Mine Excavation along the Northern Boundary of the Mining Right Area (Rem Erf 210 – Farm Strandfontein 712 boundary) as depicted by line P1 – Q1 on Diagram 4.

(v) Section 16(2)(g): A Post-Mining Site Development Plan for the Sub-divided and Rezoned 28.1193ha Portion of Rem Erf 210 Gansbaai as put forward on Figures 27(a), 27(b), 28(a),28(b) and 29, within the spatial extent of Diagram 4.

Diagram 4 depicts the spatial context (28.1193ha) of the above sub-division, rezoning, consent use, departure and the SDP as per diagram P, Q, R, S, T, U, V_2, V_1, V and W, which also defines the area of the Mine Site Development Plan (SDP).

Furthermore, such approval to be applicable to the period of the "life-of-mine".



	Y (WGS19)	X
P	-34 458.24	3 827 235.52
Q	-34 900.36	3 827 260.92
R	-34 897.98	3 827 318.07
S	-34 833.68	3 827 418.88
T	-34 690.81	3 827 555.00
U	-34 518.60	3 827 898.30
V	-34 426.60	3 827 863.30
V1	-34 370.80	3 828 004.50
V2	-34 458.10	3 828 038.50
W	-34 139.41	3 827 755.43

Diagram 4: Subdivision, Rezoning, Consent Use, Departure and SDP: 28.1193ha Portion of Rem Erf 210 Gansbaai