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PLATREEF RESOURCES (PTY) LTD

Waste Rock Dump Site Selection Report

Submitted to:

Platreef Resources (Pty) Ltd
PO Box 68228
Bryanston
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REPORT



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1.0 INTRODUCTION

Platreef Resources (Pty) Ltd (Platreef) is currently undertaking an investigation to assess the feasibility of developing an underground platinum mine on the farms Turfspruit 241KR, Macalacaskop 243KR and Rietfontein 2KS in the Limpopo Province. Platreef holds prospecting rights for these farms which are located approximately 5 to 10 km North West of Mokopane in the Mogalakwena Local Municipality of the Waterberg District Municipal Area.

Golder Associates Africa (Pty) Ltd (Golder) has been appointed to develop an Integrated Waste Management Plan (IWMP) and to undertake a Waste Management Licence Application process in terms of the National Environmental Management Waste Act, 2008 (Act 59 of 2008).

During a review of the positioning of the waste rock dump, a possible alternative site was identified. The Client agreed that a formal site selection process be conducted, where alternative sites are rated and ranked.

1.1 Study Area

The study area was confined to be within the vicinity of main infrastructure associated with the proposed mining activities, which are indicated on the map in Figure 1. The original proposed site for the location of the waste rock dump is also indicated on this map.

2.0 SCOPE OF DOCUMENT

This document records the outcome of a site selection workshop that was held to compare different potential locations for the placement of a waste rock dump. The objectives, methodology, selection criteria, weighting and results of the site selection workshop are provided as required in support of submission of the Integrated Waste Management Licence Application Report.

3.0 OBJECTIVE OF THE SITE SELECTION STUDY

The key objective of the site selection process was:

To identify a suitable waste rock dump site that will pose minimal risk to the environment, public health and safety and private properties. The preferred site would be associated with acceptable cost of development, operation and closure and would comply with legal and regulatory requirements.

4.0 METHODOLOGY AND APPROACH

The methodology that was followed to find the preferred waste rock dump site is summarised in Figure 2.



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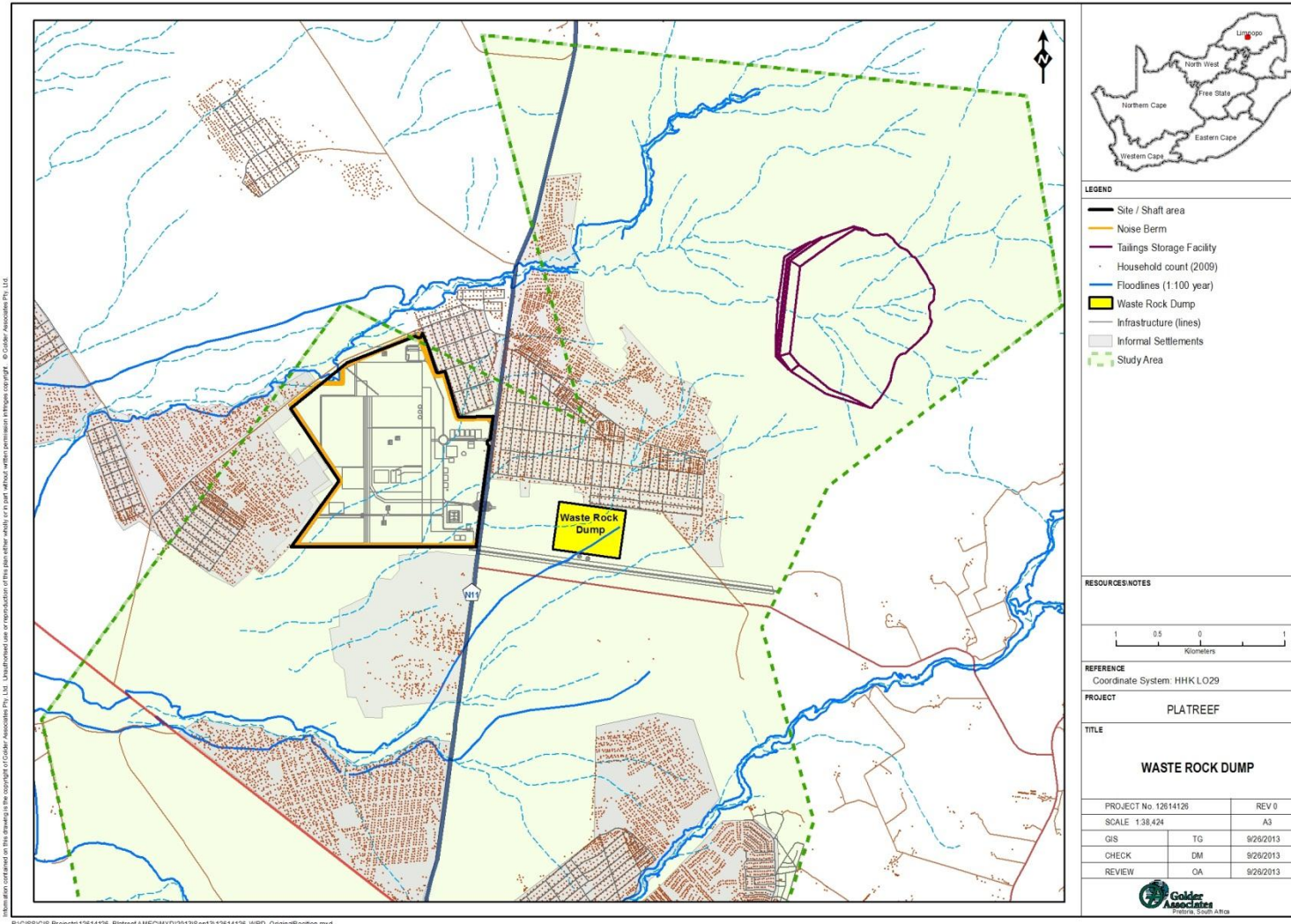


Figure 1: Study Area



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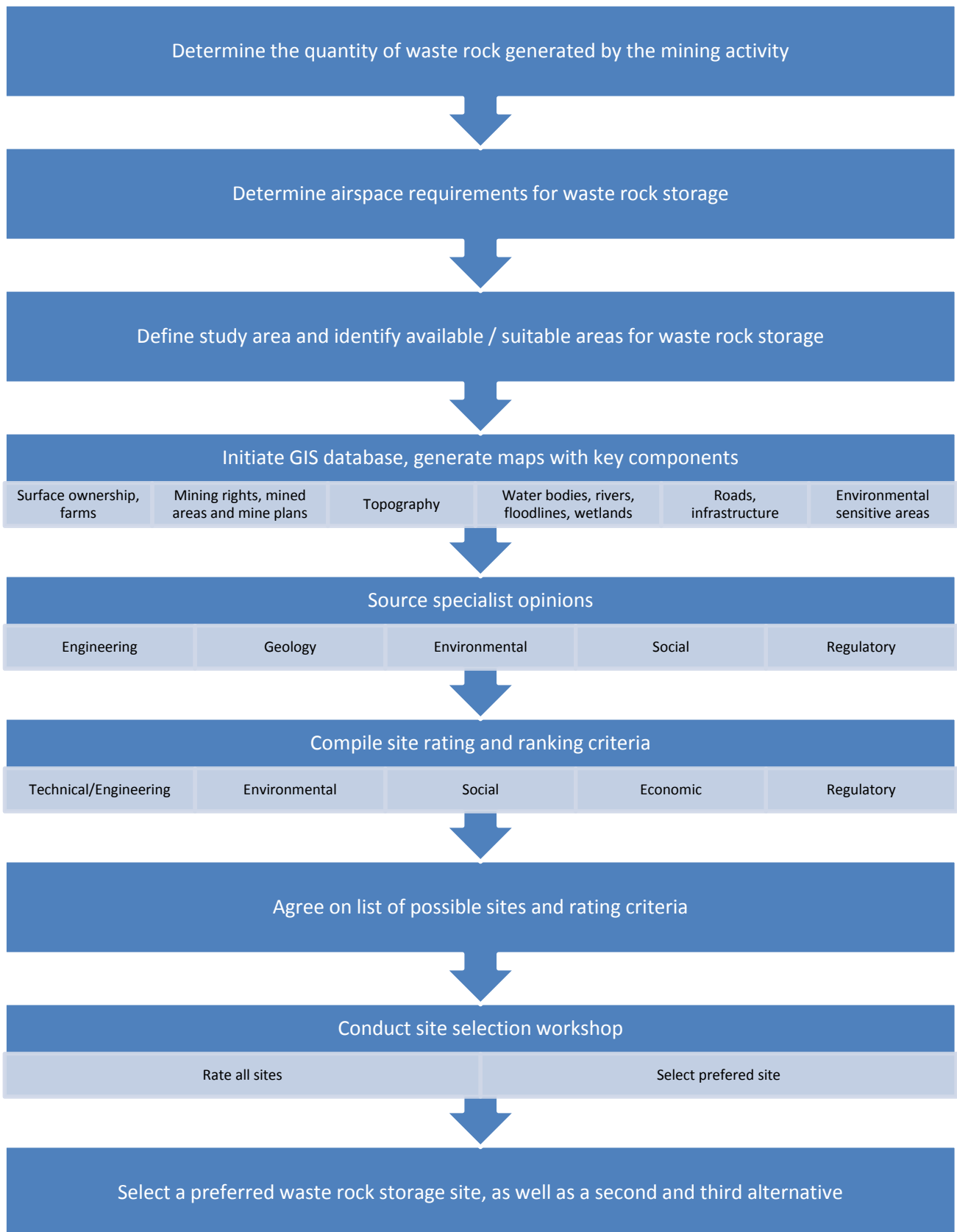


Figure 2: Platreef Waste Rock Dump - Site Selection Process Flow Chart



5.0 PREFERRED CANDIDATE SITES

During the site identification process, the following five (5) waste rock dump sites were identified within the study area (see Figure 3):

- Site 1 – North west of main shaft area and on Anglo Platinum property;
- Site 2 – South west of main shaft area, but inside Platreef prospecting rights;
- Site 3 – West of main shaft area and adjacent to a Tailings Storage Facility;
- Site 4 – Directly west of main shaft area (and pre-workshop location); and
- Site 5 – Located within the main shaft area.

6.0 SITE SELECTION PROCESS

6.1 Site Selection Criteria

The main site selection criteria were identified according to which the alternative candidate sites were evaluated. The criteria were grouped in the following categories:

- Technical/engineering;
- Environmental;
- Social/public acceptance;
- Economical; and
- Legal/regulatory.

The procedure that was followed for the rating and ranking of alternative sites in terms of the main criteria included the following:

- Assigning a relative weight to the main categories of criteria;
- Identification of various sub-criteria under the main categories of criteria;
- Defining the sub-criteria; and
- Rating and ranking based on the sub-criteria.

6.2 Weighting of the Main Criteria

Based on professional collective views, opinions and consensus of the site selection specialist team present at the workshop, the following weights were given to the main categories (refer to Table 1).

Table 1: Weighting allocated to main categories

Criterion category	Weighting
Technical/engineering	20
Environmental	15
Social/public	20
Economic	25
Legal/regulatory	20

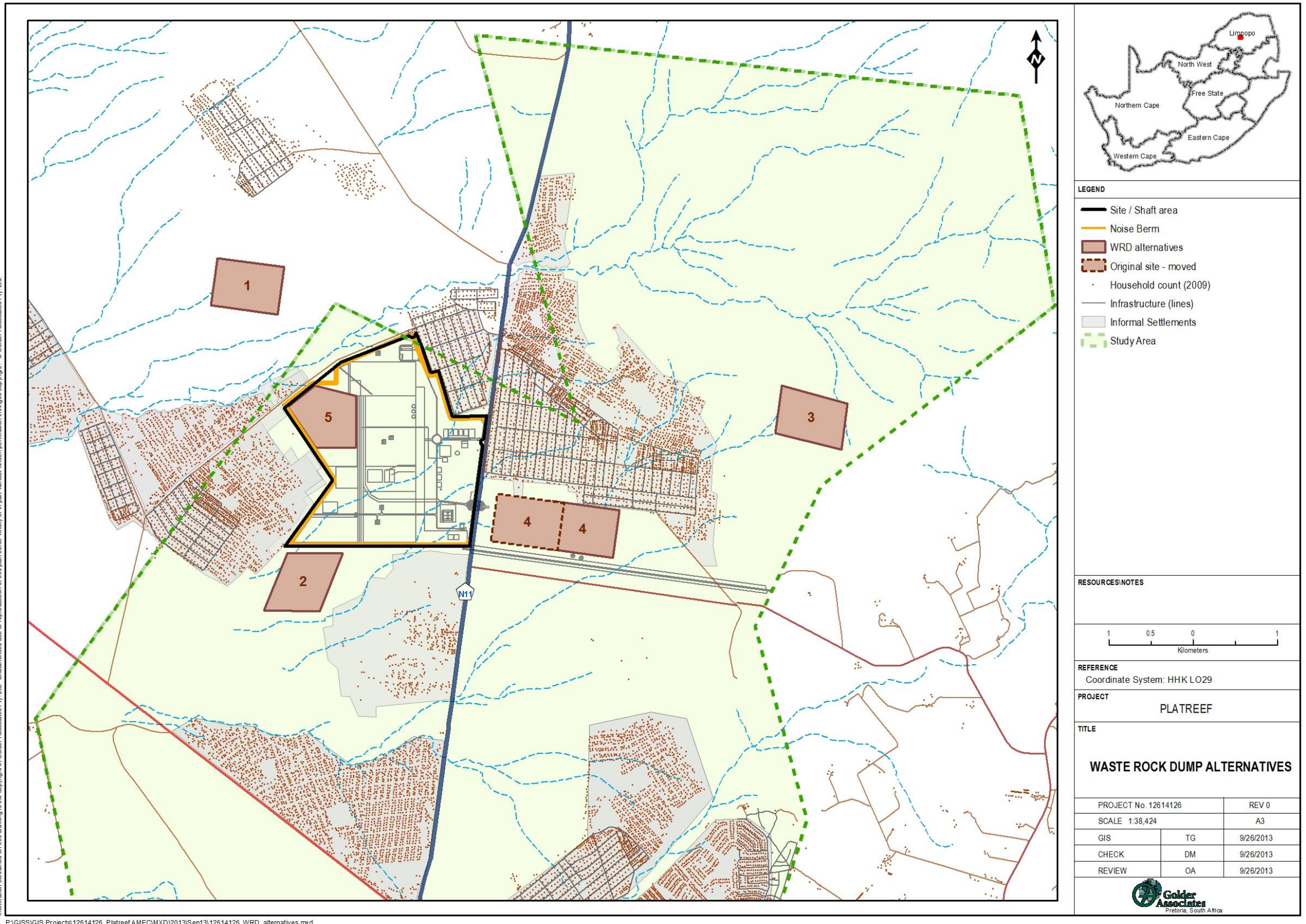


Figure 3: Proposed Waste Rock Dump (WRD) Sites



6.3 Identification of Sub-criteria

6.3.1 Technical/Engineering Criteria

The following **technical/engineering** sub-criteria were used to identify suitable criteria from to conduct the rating and ranking assessment:

- Mining Interface:
 - Potential impact of the mining activities (current and future) on the facility related to safety and stability; and
 - Risk of mine plan changes that may impact the size and volume of waste rock produced.
- Bulk services:
 - Proximity to bulk services (e.g. electricity, potable water); and
 - The need for relocating of bulk services.
- Access:
 - Site accessibility for transport by road or conveyor, with distance being the main driver.
- Safety and Security:
 - Is the site in an area with a high risk of theft (remote location, proximity to roads, within fenced area)?
- Ease of operations:
 - Consider transport of waste, planned mining activities, crossing provincial roads, length of corridor, where distance is the main driver.
- Geotechnical:
 - Extent of geological features, e.g. dykes, that could impact the geotechnical stability of the site; and
 - Suitability of the founding conditions.
- Storm water management:
 - Complexity of storm water management taking into account relative distances and the proximity of drains and Pollution Control Dams (PCDs).
- Closure liability:
 - Impact of mine closure on the waste rock dump infrastructure;
 - Disperse versus consolidated infrastructure entities;
 - Storm water management cost (maintenance of drainage); and
 - Ownership of facilities at mine closure.

Data sources:

General Site Selection Map generated by the GIS team which includes the following layers (with data obtained from DRA):

- Study Area;



- *Prospecting rights;*
- *Heritage;*
- *Infrastructure;*
- *Power lines;*
- *Bulk Pipelines;*
- *Tailings Storage Facility;*
- *Households;*
- *Floodlines;*
- *Services;*
- *TSF Corridor;*
- *Farm portions;*
- *Protected Areas;*
- *Informal Settlements; and*
- *Wetlands.*

6.3.2 Environmental Criteria

Environmental criteria relate to the potential threat to the ecosystem and the geophysical environment. They include the following considerations:

- Ecological Sensitivity:
 - Impact on vegetation, wildlife and aquatic life;
 - The sensitivity of the local ecosystem to impacts;
 - The impact of the change in land use on the local ecosystem;
 - Presence of and impact on endangered species;
 - Proximity to ecologically significant features such as a wetlands and pans; and
 - Rating:
 - 1 = High;
 - 3 = Moderate; and
 - 5 = Low.

Data source:

- *Eco survey map from Digby Wells, but because site 1 is outside of the surveyed area, SANBI guidelines were used: SANBI & SAMBF, 2012: Mainstreaming Biodiversity Into Mining: A Guideline For Practitioners And Decision Makers In The Mining Sector - Pre-publication Version, SANBI, Pretoria.*
- Floodlines and Wetlands:



Floodlines were used as primary criteria. It was noted that the demarcation of these floodlines is not fixed and could be subject to the positioning of the Tailings Storage Facility. Although no formal wetland data was available, satellite images were studied to identify areas where wetlands were likely to occur.

- Rating:
 - F = Within floodline (fatally flawed);
 - 3 = Possible infringement with wetland; and
 - 5 = Outside floodlines.

Data source:

- *Floodline data obtained from DRA; and*
- *Wetland data obtained from Nel, JL, Murray, KM, Maherry, AM, Petersen, CP, Roux, DJ, Driver, A, Hill, L, van Deventer, H, Funke, N, Swartz, ER, Smith-Adoa, LB, Mbona, N, Downsborough, L and Nienaber, S. (2011). Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. 18012/11.*
- Ground water:
 - The presence of geological structures (further investigation required to determine if they are water bearing aquifers and fatally flawed or not); and
 - Rating:
 - 1= Yes (confirms presence of geological structures); and
 - 5= No (no geological structures present).

Data source:

- *1:50 000 topography map, Council for Geoscience. 1:250 000 geology vectors and dykes.*
- Soils:
 - Potential impact and contamination of the soil due to the construction activities;
 - Possible soil contamination associated with spillages and failures of waste rock disposal facilities; and
 - Rating:
 - 1 = Very high potential arable land;
 - 2 = High potential arable land;
 - 3 = Moderate potential arable land;
 - 4 = Non-arable, grazing, woodland or wildlife;
 - 5 = Wilderness; and
 - 6 = Disturbed land (brownfields site).

Data source:

- *Schoeman, JL, van der Walt, M, Monnik, KA, Thackrah, A, Malherbe, J and Le Roux, RE. (2002). Development and application of a land capability classification system for South Africa. ARC-ISCW Report no GW/A/2000/57.*



- Air Quality:
 - Prevailing wind direction and dust impact from the facilities;
 - Potential dust generation from the project facilities that may impact the adjacent residents;
 - Proximity to communities/households/buildings;
 - This criteria is subject to air quality modelling that is being done (where a higher dump might benefit nearby communities as dust are carried over the top);
 - It was noted that all sites will require dust suppression; and
 - Rating (relative to proximity of residents/communities) :
 - 1 = Prevalent wind direction and within 500 m;
 - 2 = Prevalent wind direction and within 1 km;
 - 3 = Other direction and within 500 m;
 - 4 = Other direction and within 1 km; and
 - 5 = Further than 1 km (any direction).

Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on Households and Informal Settlements.*
- Heritage:
 - Presence of cultural heritage sites, graves, and archaeological sites; and
 - Rating
 - 1 = Yes, within the mine site boundary; and
 - 5 = No, outside the mine site boundary.

Data source:

- *Data obtained from DRA, except the Archaeological Sites (preliminary) which was obtained from Digby Wells.*
- Noise:
 - Proximity to communities/households/buildings; and
 - Rating:
 - 1 = within 400 m;
 - 2 = within 400 – 600 m;
 - 3 = within 600 - 800 m;
 - 4 = within 800 – 1 000 m; and
 - 5 = greater than 1 km.



Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on Infrastructure, Households, and Informal Settlements.*
- Visual:
 - Visibility (proximity to communities/households/buildings/roads); and
 - Rating:
 - 1 = High (high visibility to communities and road users, and isolated footprint);
 - 3 = Medium (medium visibility to communities and road users, and isolated footprint) ; and
 - 5 = Low (low visibility to communities and road users, and within other infrastructure footprint).

Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on National Roads, Mining Infrastructure, Households, and Informal Settlements.*

6.3.3 Social/Public Criteria

Social/public criteria relate to issues such as the possible adverse impacts on public health, quality of life, local land and property values. They also relate to potential public opposition to the development of a waste rock disposal site. The following are important considerations:

- Land use:
 - Acceptability of changing agricultural land to a waste disposal facility;
 - Acceptability of changing the mine owned land into waste rock disposal facilities;
 - Impact of the change in land use on neighbouring communities; and
 - Rating:
 - 1 = subsistence farming outside mine lease area; and
 - 5 = within mine area.

Data source:

- *Van den Berg EC, Plarre C., van den Berg, HM and Thompson, MW. 2008. The South African National Land Cover 2000. Agricultural Research Council-Institute for Soil, Climate and Water; Pretoria (report number GW/A/2008/86).*
- Restriction to Accessing Property:
 - In case of people being affected (pipelines, conveyors, haul roads) for access to rivers, highway, adjacent communities; and
 - Rating:
 - 1 = Yes (communities will be affected); and
 - 5 = No (communities will not be affected).



Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on Infrastructure, Power lines, Bulk Pipelines, Tailings Storage Facility, Households, Services, TSF Corridor, and Informal Settlements.*
- Land-ownership:
 - The need for land acquisition;
 - Whether the land is within or outside the mine lease area;
 - Whether the land is occupied by a community or unoccupied; and
 - Rating:
 - 1 = outside mine lease area;
 - 4 = within mine lease area, occupied by a community; and
 - 5 = within mine lease area, not occupied by a community.

Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on Prospecting rights, Informal Settlements and Mine Lease Area.*

6.3.4 Economic Criteria

Economic criteria relate to the cost of purchasing, developing and operating the site and its associated infrastructure. Among others, they include the following considerations:

- Capital cost:
 - Upfront surface infrastructure development (conveyor/haul road, footprint preparation, engineered barrier, stormwater management); and
 - Rating based on relative conveyance costs in relation to distance from the mine shaft area.
- Operational cost:
 - Cost of operating and maintaining the infrastructure for the transfer of material and pumping from PCD (which also serve other wastes infrastructure); and
 - Cost is relative to distance from the mine shaft area.

Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on Infrastructure, Power lines, Bulk Pipelines, Tailings Storage Facility, Services, TSF Corridor, data related to position of PCD and mine shaft relative to alternative positions of WRD.*

6.3.5 Legal and Regulatory Criteria

Legal and regulatory criteria include the following considerations:

- Complexity of permitting process:
 - Rating based on whether floodlines are crossed (1) or not (5).
- Rezoning of land use:



- One of the sites (Site 1) is located on Anglo property, who has refused access to this land;
- A government leasing agreement is introduced as an option and rezoning might not be required; and
- Rating:
 - 1 = outside current plant shaft area (separate rezoning application required);
 - 2 = outside current plant shaft area, but subject to leasing agreement with government; and
 - 5 = within current plant shaft area.

Data source:

- *General Site Selection Map (as defined under the Technical/Engineering Criteria), but with specific emphasis on Prospecting rights.*

6.4 Preliminary Footprint Size for the Waste Rock Dump

During the preparation for the site selection workshop, the size of the existing footprint (45 ha) based on a calculation of the air space required for the waste rock dump was used to base the footprint of the alternative waste rock dump sites upon.

The existing footprint area was used as a reference size and then fitted over candidate sites to find suitable alternatives. The optimal size and schematic for the waste rock disposal facility footprint was developed by the Engineering team.

6.5 Development of Site Selection Maps

Golder's GIS department developed site selection maps with superimposed waste rock dump footprint images for all the candidate areas for use during the workshop. Information regarding the following criteria was then superimposed onto the site selection maps using different layers:

- Ecological Sensitivity Map (see Figure 4);
- Sanbi Mining Guidelines Map (see Figure 5);
- Wetlands Map (see Figure 6);
- Archaeological, Graves and Heritage Map (see Figure 7);
- Informal Settlements Map (see Figure 8); and
- Land Use Map (see Figure 9).

In addition, a general Site Selection Map generated by the GIS team was created, which includes the following layers with data obtained from DRA (see Figure 10):

- Study Area;
- Prospecting rights;
- Heritage;
- Infrastructure;
- Eskom power lines;
- Bulk pipelines;



- Tailings Storage Facility;
- Households;
- Floodlines;
- Services;
- TSF Corridor;
- Farm portions;
- Protected Areas;
- Informal Settlements; and
- Wetlands.



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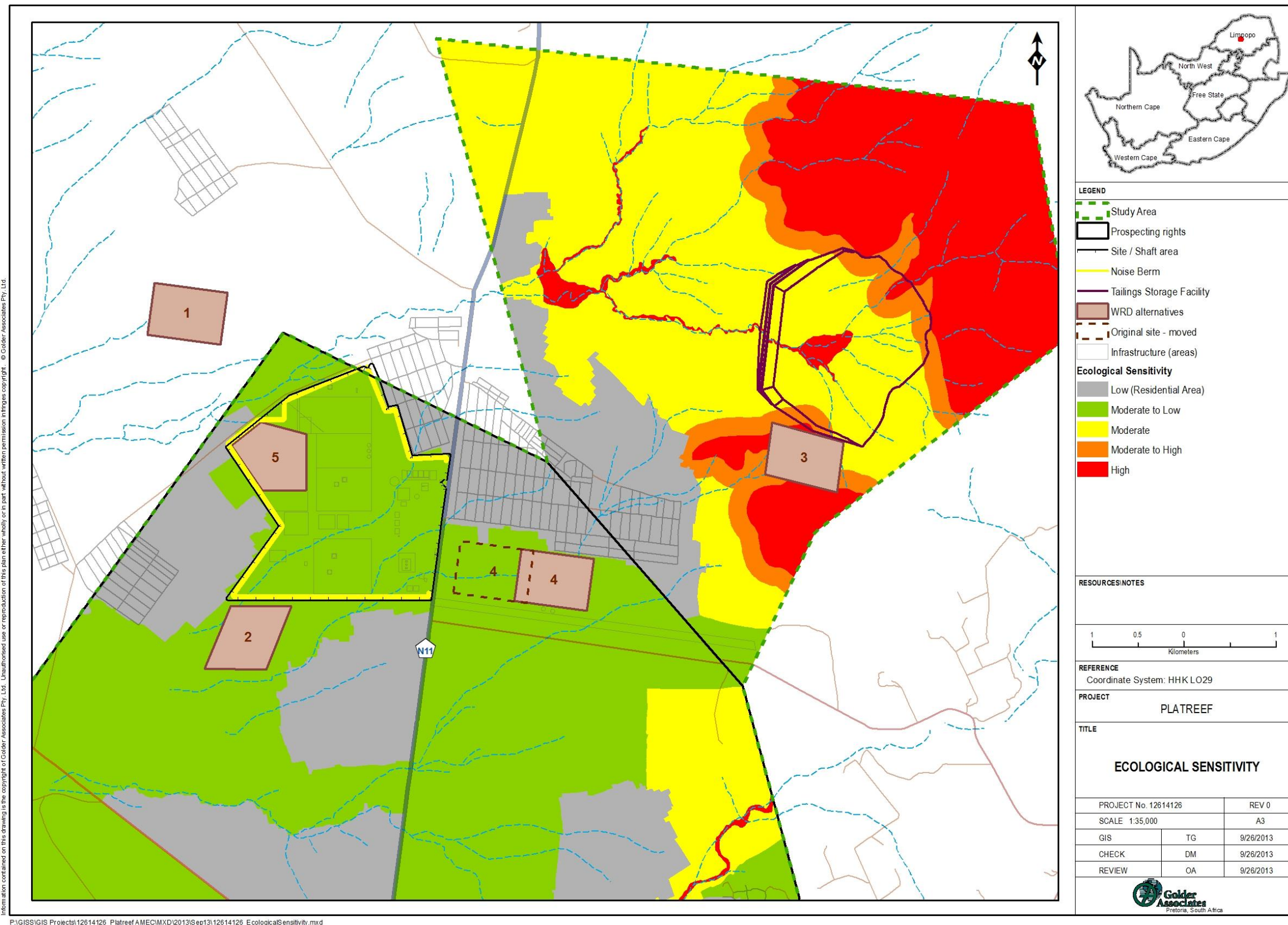


Figure 4: Ecological Sensitivity Map



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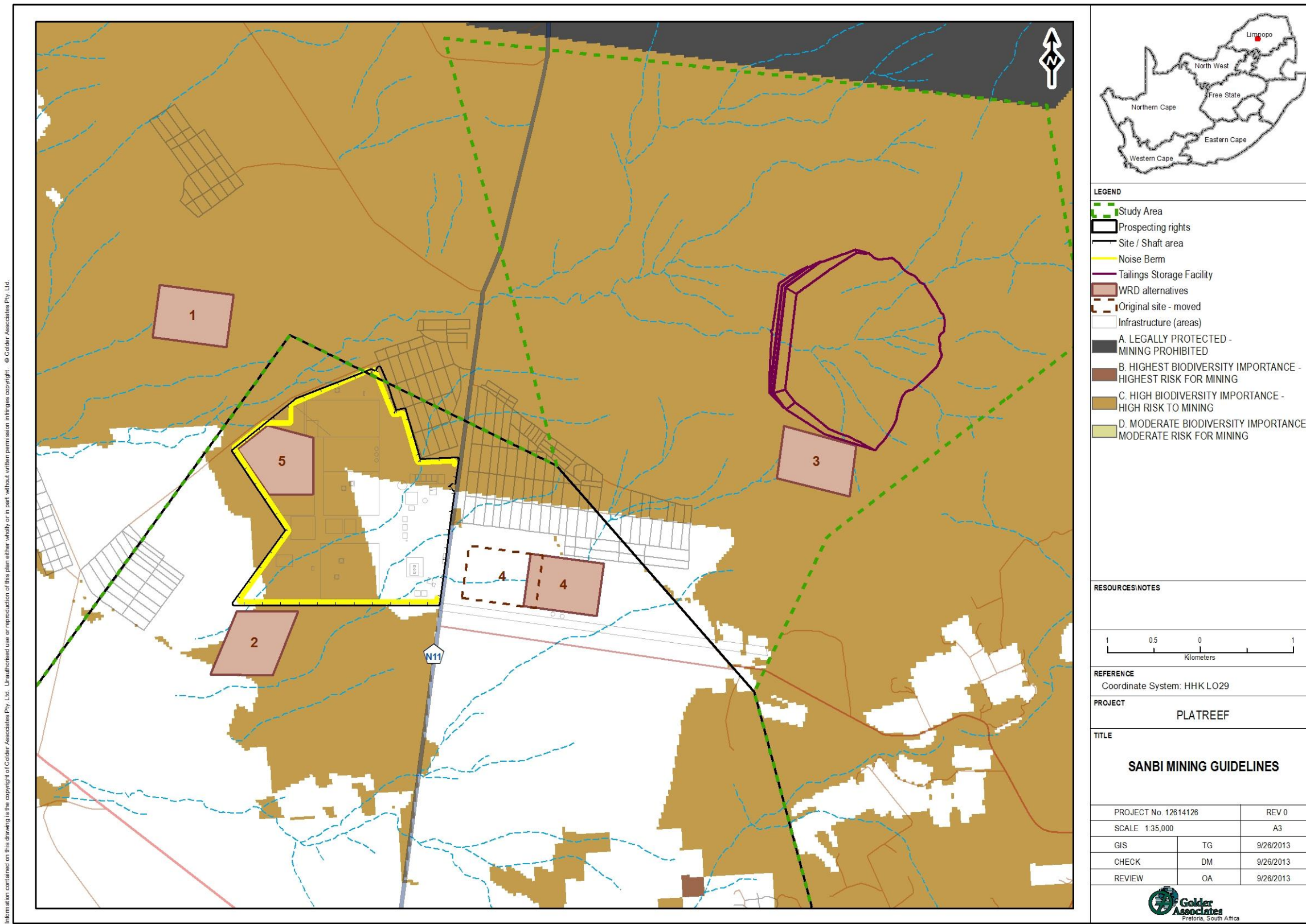


Figure 5: Sanbi Mining Guidelines Map



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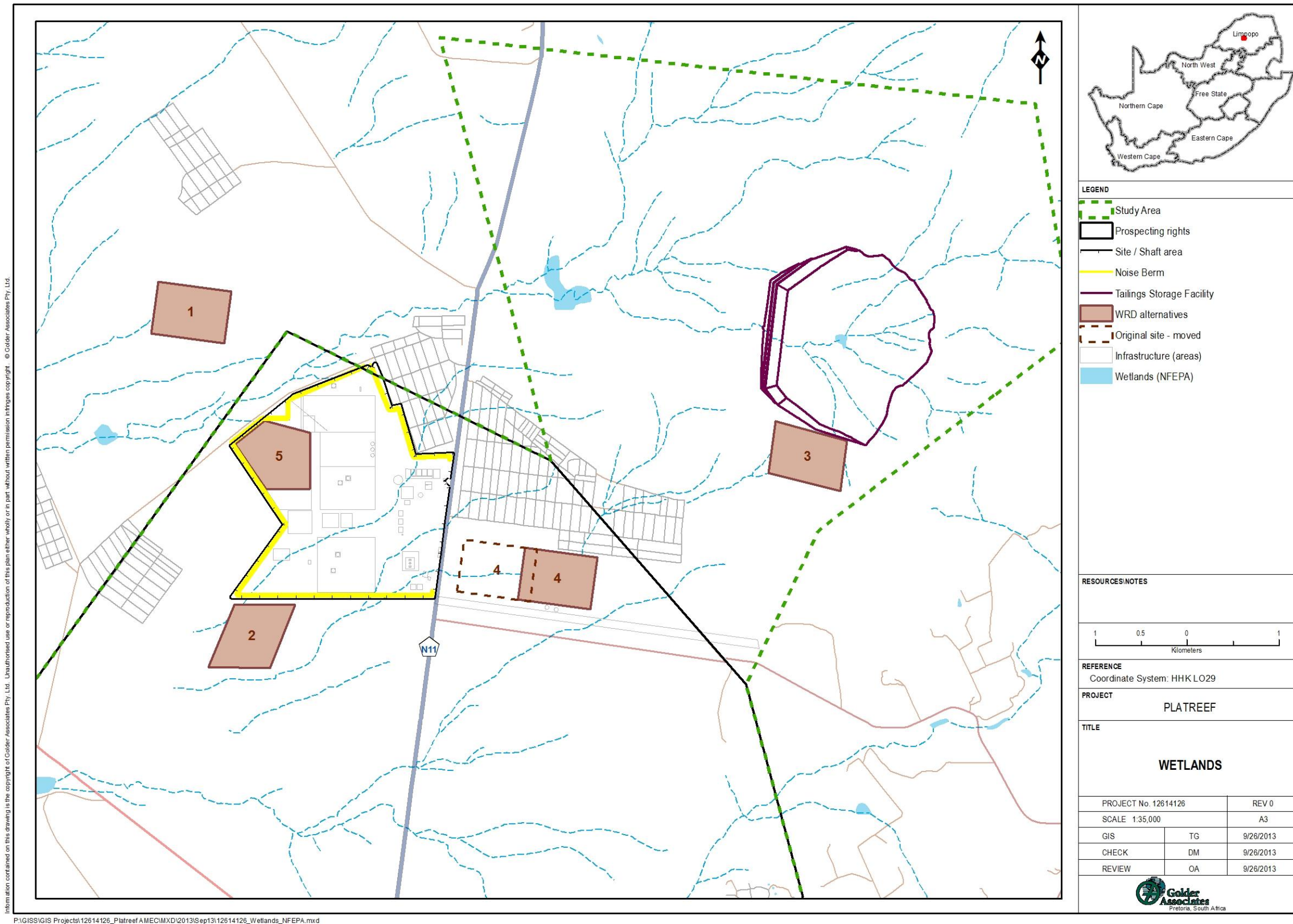


Figure 6: Wetlands Map



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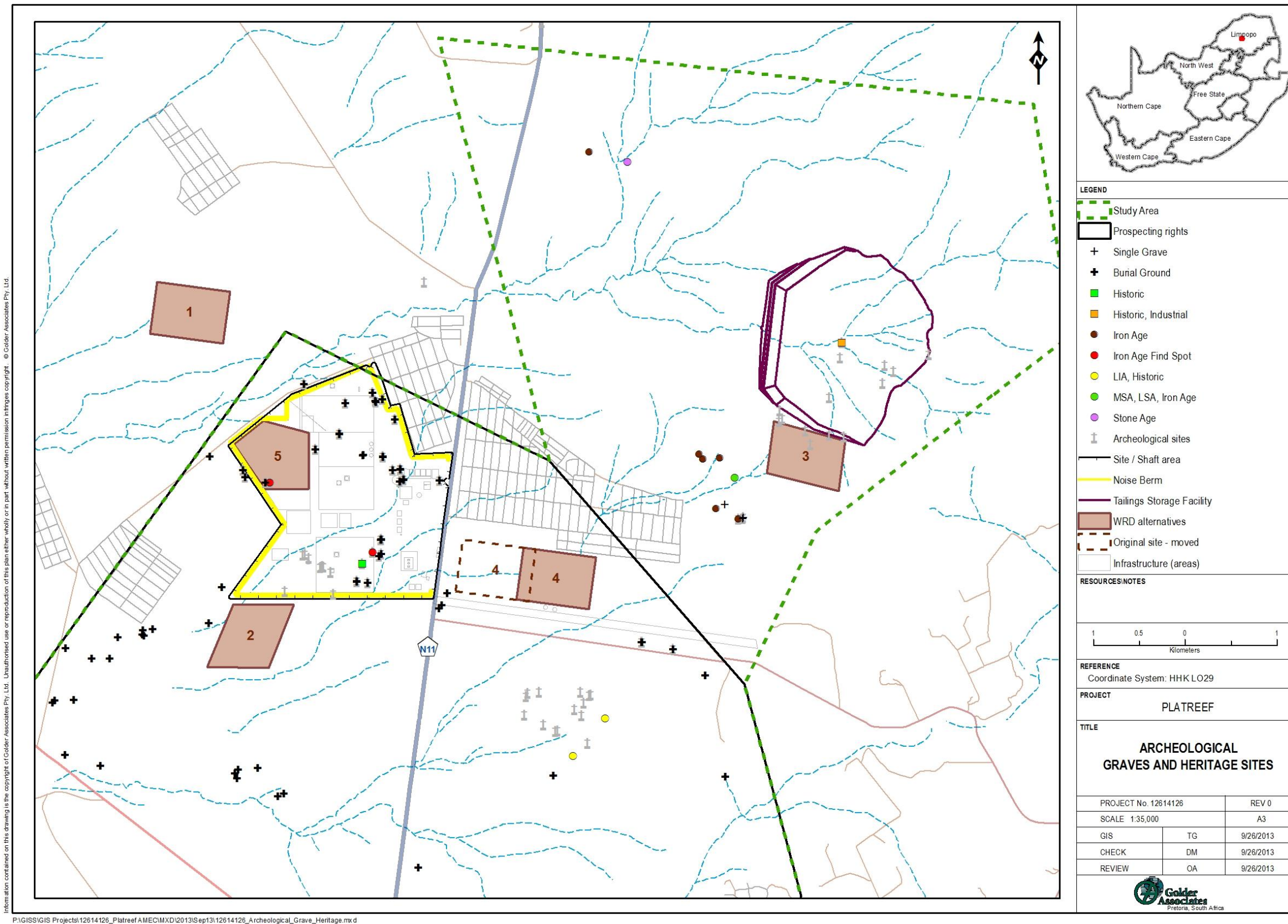


Figure 7: Archaeological, Graves and Heritage map



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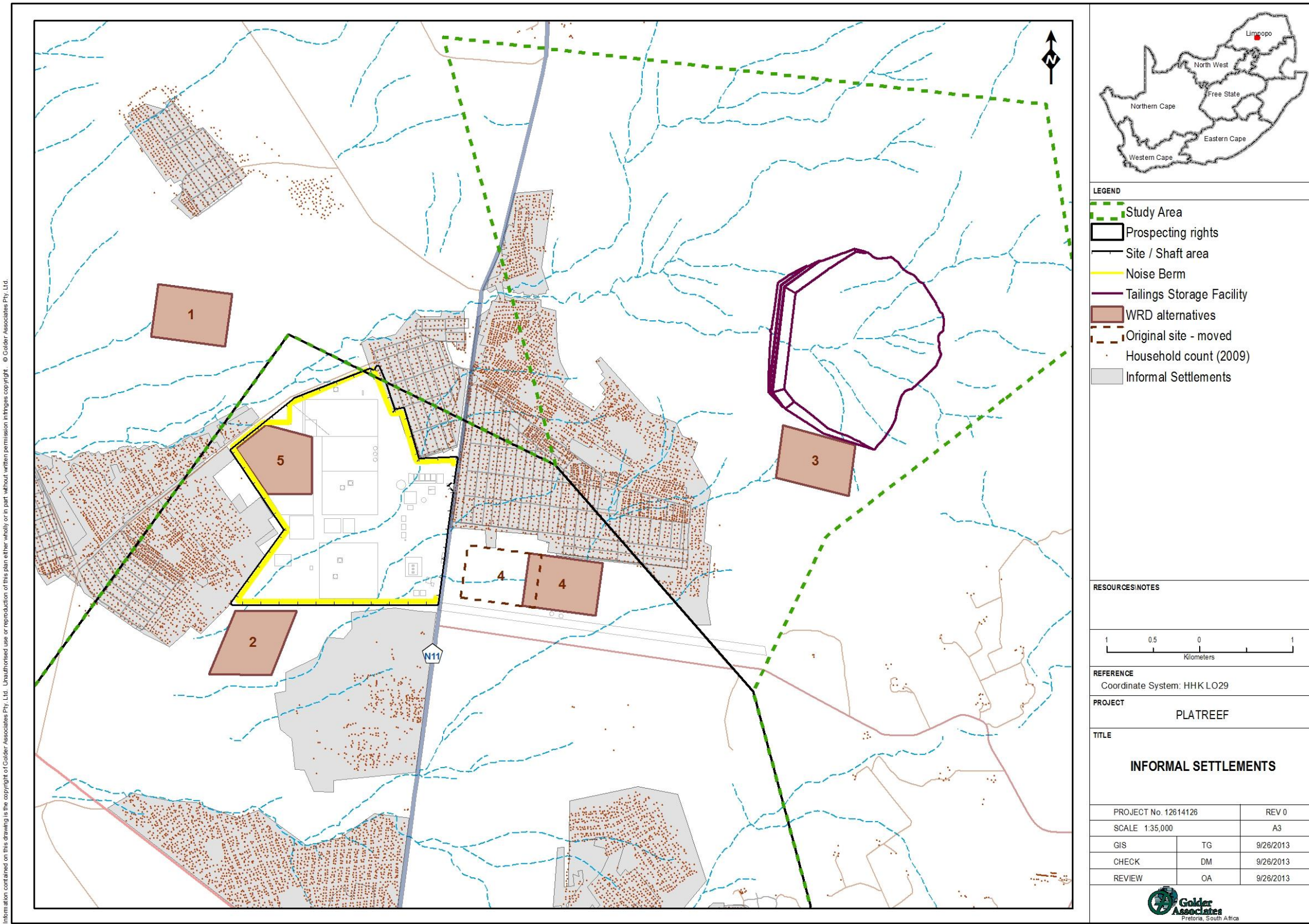


Figure 8: Informal Settlements Map



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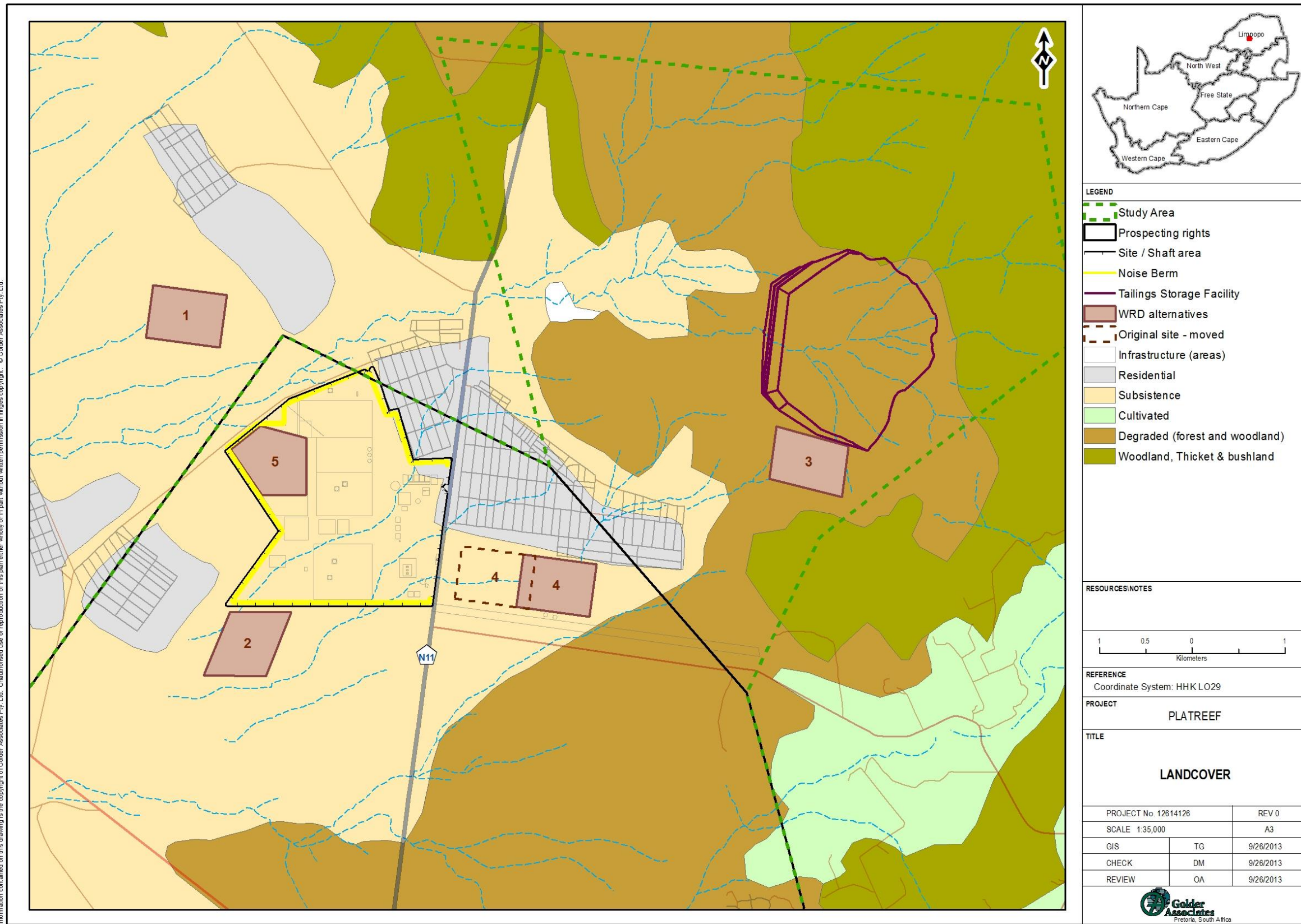


Figure 9: Land Use map



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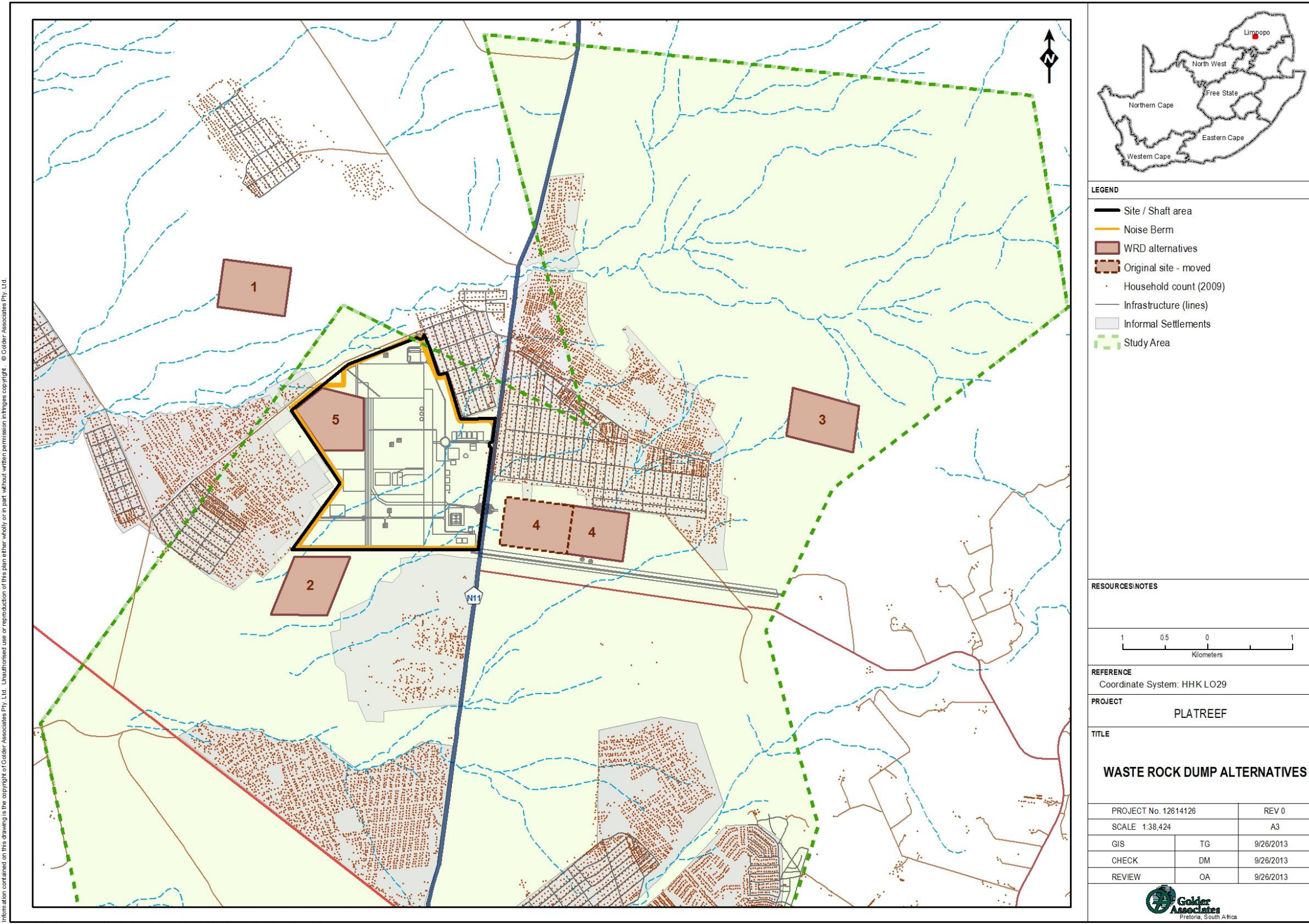


Figure 10: General Site Selection Map



6.6 Site Selection Matrix

A project specific site selection matrix was developed to assist with qualitative rating and ranking of the identified candidate sites. The criteria were already discussed in previous sections and are listed in Section 6.1. Except where otherwise indicated, the rating of the candidate sites was based on the values given in Table 2.

Table 2: Site Selection Rating Values

Rating:	
Excellent	5
Good	4
Average	3
Poor	2
Very poor	1
Fatal Flaw	F

Where different rating values were used, the values were scaled to a value between 1 and 5 before using them to calculate the total rating of each site. The site selection categories were weighted according to pre-determined weighting values as indicated in Table 1. Depending on the importance of specific criteria, the weights of individual criteria within each category were adjusted to either carry a weight of 1 (100%) or 0.5 (50%) as follows (refer to Table 3):

Table 3: Weighting of individual criteria within each category

Category	Criteria	Relative Weighting
Technical/engineering	Mining Interface	1
	Bulk services	0.5
	Access	1
	Security/safety	0.5
	Ease of operations	1
	Geotechnical	1
	Storm water management	0.5
	Closure liability	0.5
Environmental	Ecological sensitivity	0.5
	Floodlines	1
	Ground water	1
	Soils	1
	Air Quality	1
	Heritage	1
	Noise	1
	Visual	0.5
Social/public	Land use	1



Category	Criteria	Relative Weighting
	Restriction to Accessing Property	0.5
	Land-ownership	1
Economic	CAPEX	1
	OPEX	1
Legal/regulatory	Complexity of authorisation process	1
	Rezoning of land use	0.5

6.7 Site Selection Workshop

A Site Selection Workshop was conducted on Wednesday 11 September 2013. Minutes of this meeting is attached as APPENDIX A.

6.7.1 Site Selection Workshop Participants

The rating and ranking was carried out in a workshop held at the offices of Golder Associates in Pretoria on Wednesday 11 September 2013, with contributions from the people listed in Table 4.

Table 4: Participants in Site Selection Workshop

Name	Job description	Company
Lindsay Caine	Project Engineer	Ivanplats/Platreef Resources
Thys de Beer	Lead Project Engineer	DRA
Barbara Wessels	Environmental specialist	Digby Wells
David Marioni	Senior Waste Engineer	Golder Associates
Giancarlo Wingrave	Civil Engineer	Golder Associates
Johan Jordaan	Civil Engineer	Golder Associates
Henlo du Preez	Process Engineer (Workshop facilitator)	Golder Associates
Oliver Bonstein	Waste Management Consultant	Golder Associates
Talita Germishuysen	GISc Technologist	Golder Associates

6.7.2 Site Selection Rating/Ranking Outcome

The sites were first discussed in general terms to ensure that none of the sites were fatally flawed. It was agreed that the position of the sites are not absolute, but a relative indication with room to move within reason.

Fatal flaw criteria were discussed and it was agreed that even floodlines and groundwater issues might be engineered at a cost to retain viability and that none of the sites were deemed fatally flawed (in respect of floodlines and groundwater).

It was found that the original position of Site 4 crossed a floodline. As such, Site 4 was repositioned so as not to cross a floodline.

It was also mentioned that Site 1 was positioned on Anglo Platinum's property. Anglo had issued a letter eliminating use of the land in question subject to further investigation. It was agreed to fatally flaw Site 1 on



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that basis but to include the site for the Workshop to support the event of a change of status regarding Anglo's options.

Each site was rated and ranked within the site selection matrix by consensus of all present at the meeting. The final rating values for each criterion are given in Table 5.



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Table 5: Final Rating Values

Categories	Site Option	Site 1	Site 2	Site 3	Site 4	Site 5	Max Rating	Criteria Weighting	Normalised Weight
Technical/ engineering	Mining Interface	5.0	3.0	4.0	2.0	1.0	5.0	1.0	1.0
	Bulk services	1.0	1.5	0.5	1.0	2.5	5.0	0.5	0.5
	Access	2.0	3.0	1.0	2.0	5.0	5.0	1.0	1.0
	Security/safety	0.5	0.5	2.0	2.0	2.5	5.0	0.5	0.5
	Ease of operations	2.0	3.0	1.0	1.0	5.0	5.0	1.0	1.0
	Geotechnical	2.0	3.0	5.0	2.0	1.0	5.0	1.0	1.0
	Storm water management	0.5	1.0	2.0	2.0	2.5	5.0	0.5	0.5
	Closure liability	0.5	0.5	2.0	1.5	2.5	5.0	0.5	0.5
Environmental	Ecological sensitivity	1.5	2.5	0.5	2.5	2.5	5.0	0.5	0.5
	Floodlines	5.0	5.0	3.0	5.0	5.0	5.0	1.0	1.0
	Ground water	1.0	1.0	1.0	1.0	1.0	5.0	1.0	1.0
	Soils	2.5	2.5	3.3	2.5	2.5	6.0	1.0	0.8
	Air Quality	3.0	3.0	1.0	3.0	1.0	5.0	1.0	1.0
	Heritage	1.0	5.0	1.0	5.0	5.0	5.0	1.0	1.0
	Noise	3.0	1.0	3.0	1.0	1.0	5.0	1.0	1.0
	Visual	1.0	0.5	1.5	0.5	2.5	5.0	0.5	0.5
Social/public	Land use	1.0	5.0	1.0	5.0	5.0	5.0	1.0	1.0
	Restriction to Accessing Property	0.5	1.0	1.5	1.5	2.5	5.0	0.5	0.5
	Land-ownership	1.0	4.0	1.0	5.0	5.0	5.0	1.0	1.0
Economic	CAPEX	2.0	3.0	1.0	4.0	5.0	5.0	1.0	1.0
	OPEX	2.0	4.0	1.0	3.0	5.0	5.0	1.0	1.0
Legal/regulatory	Complexity of authorisation process	1.0	1.0	1.0	1.0	5.0	5.0	1.0	1.0
	Rezoning of land use	F	1.0	1.0	1.0	1.0	5.0	0.5	0.5



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After applying the relative contribution of each category, the outcome of the waste rock dump site selection is summarised in Table 6 as follows:

Table 6: Site Selection Rating and Ranking Outcome

Category	Weighting	Site 1	Site 2	Site 3	Site 4	Site 5
Engineering	20	1.69	1.94	2.19	1.69	2.75
Environment	15	2.25	2.56	1.79	2.56	2.56
Public/Social	20	0.83	3.33	1.17	3.83	4.17
Economic	25	2.00	3.50	1.00	3.50	5.00
Regulatory	20	Fatally Flawed	1.00	1.00	1.00	3.00
Total Weighted Rating		Fatally Flawed	2.51	1.39	2.56	3.62
Rank			3	4	2	1

The outcome of the waste rock dump site rating showed that **Site 5** is the preferred site. Site 4 as the next best option (NBO) and Site 2 is the third best option (see Table 6 above.)

The single biggest category score was obtained under Economic, where Site 5 top scored both in terms of Capex and Opex. When comparing the cost for conveyors (at R 21 361 per meter), the relative distance from the main shaft area to Site 5 compared to Site 4, provides an estimated saving of R 37.4 million.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The outcome of the site selection workshop indicated **Site 5** as the preferred site for the waste rock dump, with Site 4 as next best option and Site 2 as the third best option.

However, subsequent to the workshop, it was found that Site 4 is fatally flawed due to it being located in a future platinum opencast mining area; placing a waste rock dump in this locality will sterilise the reserve. Therefore, Site 2 then becomes the next best option (NBO).

The repositioning of the waste rock dump from Site 4 (fatally flawed) to Site 5, could result in an estimated **saving of R 37.4 million.**

GOLDER ASSOCIATES AFRICA (PTY) LTD.

Henlo du Preez
Process Engineer

David Marioni
Senior Waste Engineer

HDP/GW/js

Reg. No. 2002/007104/07

Directors: SAP Brown, L Greyling, RGM Heath

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[https://afpws.golder.com/sites/12614126amecdevelopiwmplatreef/reports/waste rock dump - site selection/12614126-11111-1_rep_siteselection_report_26sep13_hdp_dm.docx](https://afpws.golder.com/sites/12614126amecdevelopiwmplatreef/reports/waste%20rock%20dump%20-%20site%20selection/12614126-11111-1_rep_siteselection_report_26sep13_hdp_dm.docx)



APPENDIX A

Minutes of Site Selection Workshop Meeting



WASTE ROCK DUMP SITE SELECTION REPORT



PLATREEF WASTE ROCK DUMP SITE SELECTION WORKSHOP MINUTES

Project No: 12614126
Date: A: 11 September 2013; B: 19 September 2013
Revision: B

1.	PRESENT	
	Lindsay Caine - Ivanplats (IP)	LC
	Barbara Wessels - Digby Wells (DBW)	BW
	Thys de Beer - DRA	TdB
	Giancarlo Wingrave - Golder (GA)	GW
	Johan Jordaan - Golder	JJ
	Talita Germishuyse - Golder	TG
	David Marioni - Golder	DM
	Henlo du Preez - Golder	HdP
	Oliver Bonstein - Golder	OB
	<i>Attendance Registered Attached – Attachment #1</i>	
2.	APOLOGIES	
3.	MINUTES	ACTION
3.1	Introduction and Criteria of the Workshop	
	Golder (GA) provided a conference room venue with dual screens where the GA Matrix decision software was shown on the main screen and a scribe input the workshop outputs directly. GA GIS was presented on the second screen so that mapping support for the various criteria was simultaneously displayed. Breakfast snacks were served.	INFO
	Golder (GA) gave an introduction to the project and the context of the decision on waste rock dump location and a background on features of each preliminary selected site.	INFO
	<i>Preliminary Selected Waste Rock Dump Site Map Attached – Attachment #2</i>	
	GA provided a review of the GA Matrix decision software, selected categories, criteria per category and the weightings and overall scoring methodology.	INFO
	DRA advised that 2.7 mt before infrastructure to move waste rock off site (2014-2019) in uncrushed condition was still valid and was the basis for berm cross section and total volume. DRA advised that an additional 20 mt of waste rock, crushed by jaw crusher U/G to < 250mm, required a dump site. All agreed to proceed on this basis.	INFO
	DBW stated that air modelling was currently investigating the potential for waste rock dump height of 25 meters. All agreed that the outcome would impact all sites and be unlikely to change the outcome of multi-criteria analysis.	INFO
3.2	Fatal Flaws	
	DRA clarified that all potential sites were on State owned land except site#1 which was on Anglo land. Anglo had issued a letter eliminating use of the land in question subject to further investigation. All agreed to fatally flaw #1 on that basis but to maintain the site through the Workshop to support the event of a change of status regarding Anglo's options.	INFO
	DRA and DBW advised that the Dept of Rural Affairs would consider a single agreement for land allocation to the mine lease and would subsequently arrange recompense to any occupiers of the State land as appropriate.	INFO
	GA discussed other fatal flaw criteria and all agreed that even flood lines and groundwater issues might be engineered at a cost to retain viability. Hence none of the sites were deemed fatally flawed.	INFO
3.3	General Process	
	GA appointed chairman led the team through evaluation of the 5 sites by	INFO

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11 September 2013

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WASTE ROCK DUMP SITE SELECTION REPORT



PLATREEF WASTE ROCK DUMP SITE SELECTION WORKSHOP MINUTES

	considering each of 8 Technical / Engineering, 8 Environmental, 2 Social / Public, 2 Economic and 2 Legal / Regulatory criteria with a score of 1 to 5 for each site. Notes were made as to the justification of decisions on each criteria.	
3.4	Outcome	
	The output ranking of Sites #1, 2, 3, 4 & 5 were Ranking 5, 3, 4, 2, 1 respectively with Site #1.	INFO
	The detailed report is envisioned being delivered by COB Friday CO 20 September with References noted wherever applicable as to source material used in the Workshop.	GA
3.4	Information Needs	
	Information needs were transmitted following the meeting as follows:	
	<ul style="list-style-type: none"> ■ Cost of conveyance to each site (DRA) [all inclusive cost for conveyors per meter in our trade-offs. R 21 361.00 – received 16 September] 	Done
	<ul style="list-style-type: none"> ■ New flyover map with new housing analysis (Platreef) – expected in the week of 16-20 September [received 17 September] 	Done
	<ul style="list-style-type: none"> ■ Air quality model (Digby Wells) [Client reviewed WRD layout sent by GA to DBW 19 September as basis for air quality model height determination] 	DBW
	<ul style="list-style-type: none"> ■ Lease Area map (DRA) - received 11:00 11 September 	Done
	<ul style="list-style-type: none"> ■ SANBI ecological maps (Digby Wells) – received 12 September 	Done
	<ul style="list-style-type: none"> ■ Reference to Department of Rural Affairs regarding the single lease agreement (DBW / IP) 	DBW / IP
	<ul style="list-style-type: none"> ■ Waste Rock Output Schedule (Stantec – will DRA facilitate?) 	Stantec

END OF MOM

GOLDER ASSOCIATES AFRICA (PTY) LTD.

Oliver Bonstein
Waste Management Consultant

OB/DM/js

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WASTE ROCK DUMP SITE SELECTION REPORT



ATTENDANCE REGISTER

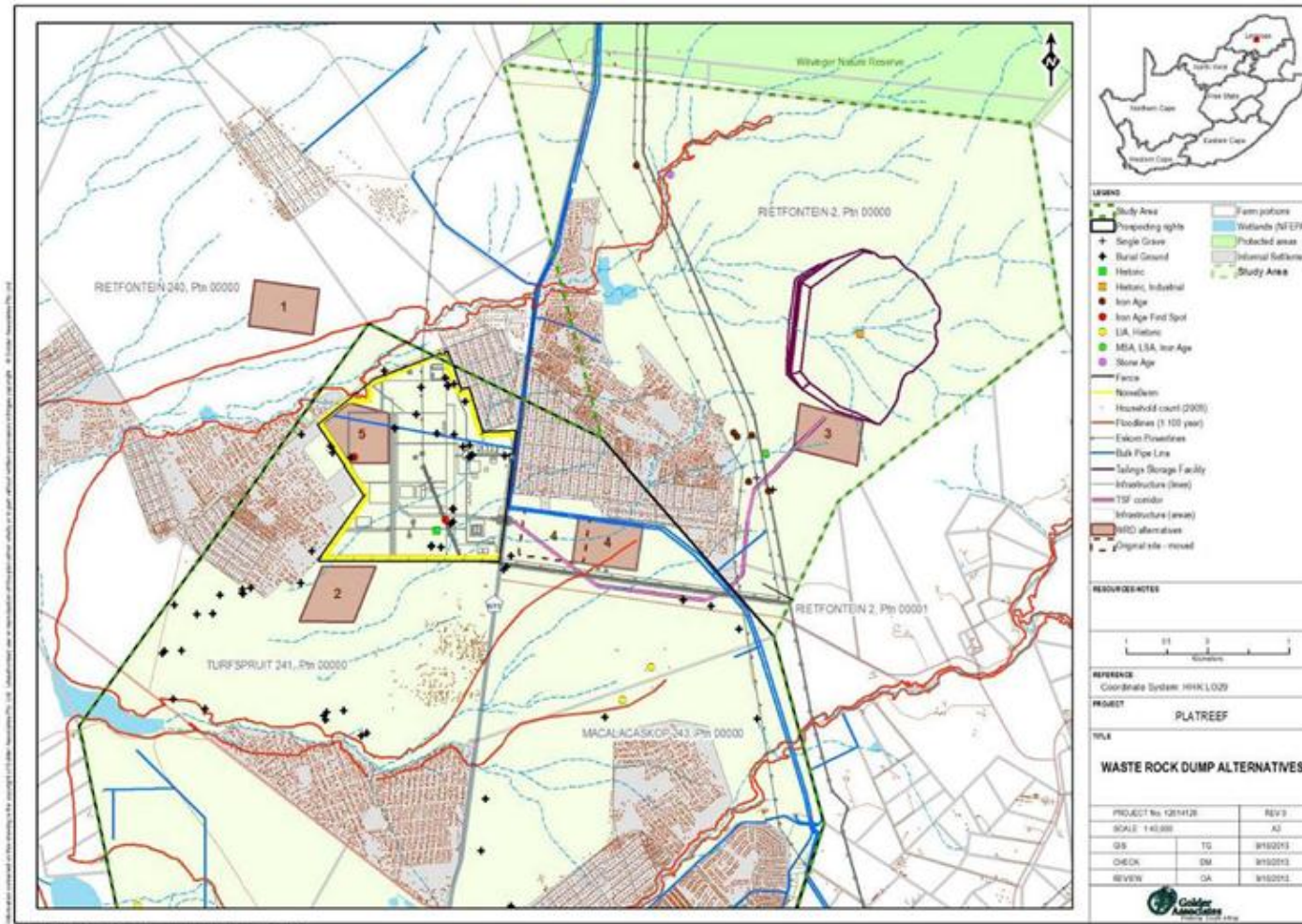
DATE: 11 September 2013	TIME: 08:00 – 12:00	VENUE: Golder Associates Pretoria
PROJECT NO: 12614126	PROJECT: Platreef Mokopane	DESCRIPTION: Site selection workshop for waste rock dump

NAME	REPRESENTING	TEL NO.	EMAIL	SIGNATURE
Barbara Wessels	Digby Wells	011 789 9495	barbarawessels@digbywells.com	<i>BW</i>
Giancarlo Wingrave	Golder	012 364 4000	gwingrave@golder.co.za	<i>[Signature]</i>
Johan Jordaan	Golder	012 364 4000	jjordaan@golder.co.za	<i>[Signature]</i>
Talita Germishuys	"	012 364 4000	tgermishuys@golder.co.za	<i>[Signature]</i>
David Marioni	"	012 628 4661	dmarioni@golder.co.za	<i>[Signature]</i>
Henlo du Preez	Golder	012 364 4070	hdupreez@golder.co.za	<i>[Signature]</i>
Lindsay Cairie	Ivanplats	072 592 9932	lindsay.cairie@ivanplats.com	<i>[Signature]</i>
Thys de Beer	PRA	082 770 8651	tdebeer@praesa.co.za	<i>[Signature]</i>
Oliver Bonstein	Golder	076 696 0125	obonstein	



WASTE ROCK DUMP SITE SELECTION REPORT

ATTACHMENT #2





APPENDIX B

Document Limitations



WASTE ROCK DUMP SITE SELECTION REPORT

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Africa	+ 27 11 254 4800
Asia	+ 86 21 6258 5522
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Africa (Pty) Ltd.
PO Box 13776
Hatfield, 0028
Ditsela Place
1204 Park Street
Hatfield
Pretoria
South Africa
T: [+27] (12) 364 4000

