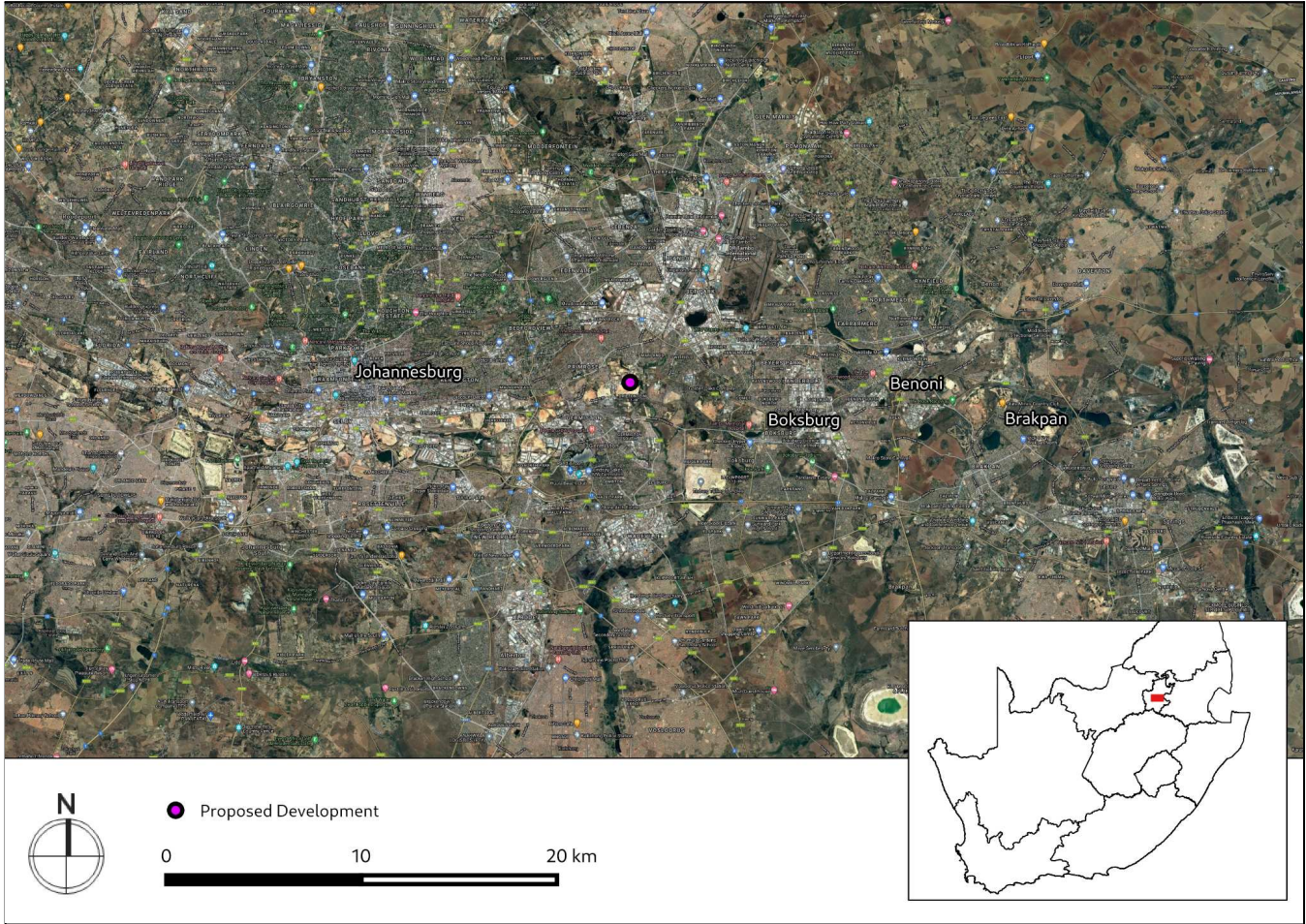




CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	CTS21_123	
SAHRIS Ref:		
Client:	ACRM	
Date:	January 2022	
Title:	Proposed development of a new foundry in Germiston, Gauteng	<p>Figure 1a. Satellite map indicating the location of the proposed development in the Eastern Cape Province</p>
Recommendation by CTS Heritage Specialists	<p>RECOMMENDATION: Based on the available information, it is unlikely that the proposed development will impact on significant heritage resources. As Such it is recommended that no further studies are required in terms of section 38 of the NHRA. Should any heritage resources such as archaeological material, unmarked burials or fossil material be unearthed during excavations, work must cease in this area and SAHRA must be contacted regarding an appropriate way forward.</p>	



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1. Proposed Development Summary

The proposed new foundry will entail the following infrastructure and activities:

- Renovation of an existing building to house the foundry.
- Installation of a scrap pre-treatment system (sorting, separating, shredding, pre-heating)
- Installation of two 8 tonne reverberatory furnaces, each with a 10 tonne holding furnace, as well as one Vortex pump furnace with a 10 tonne holding furnace for scrap aluminium melting. 2000 tonnes per month of aluminium alloy will be produced from approximately 2400 tonnes of scrap. This will also involve a more targeted extraction of emissions.
- Aluminium alloy casting will use a belt conveyor mould system.
- Construction of a building on the eastern portion of the property for the recovery and storage of dross[1]. Approximately 10 - 15 % of the residual aluminium in the dross will be recovered and returned back to the alloying process. The remaining, unusable dross, is then further processed off-site before being disposed of.
- The dross recovery system will entail milling, screening and magnetic separation.
- A pollutant emissions abatement system will be installed. The system will include localized hood extraction above each of the furnaces, as well as an apex extraction system to extract fumes within the foundry building. The extracted fumes will pass through a bag filter before discharging via a stack of appropriate height to atmosphere.
- A 4 tonne furnace for melting scrap copper will be installed. 250 tonnes per month of scrap will be melted in order to produce 200 tonnes per month of copper.
- Weatherproof storage areas for the raw material, product and cool dross.
- A cooling tower to cool the water used to release the ingots from the moulds. This water is continuously reused in a closed loop.
- A weighbridge and scale for weighing receiving raw material.

In terms of engineering services (water supply, stormwater management, electricity supply, sewerage reticulation), the facility will utilize existing municipal services and the existing site access points from Shaft Road. Importantly, no change of character to the site is anticipated.

2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision making authority(s)	GDARD

3. Property Information

Latitude / Longitude	26°11'48.13"S 28°11'3.51"E
Erf number / Farm number	REMAINDER OF PORTION 1 OF FARM DRIEFONTEIN NO. 87-IR, GERMISTON
Local Municipality	City of Ekurhuleni Metropolitan Municipality
District Municipality	City of Ekurhuleni Metropolitan Municipality

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Province	Gauteng
Current Use	Existing industry/foundry
Current Zoning	Industrial

4. Nature of the Proposed Development

Total Surface Area of development	Approximately 8ha
Depth of excavation (m)	No excavation anticipated
Height of development (m)	1 x 30m stack, 1 x 24m stack, Buildings height: 11m

5. Category of Development

x	Triggers: Section 38(8) of the National Heritage Resources Act
	Triggers: Section 38(1) of the National Heritage Resources Act
	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
	a) exceeding 5 000m ² in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m ²
	5. Other (state):

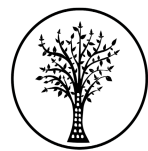
6. Additional Infrastructure Required for this Development

The facility will utilize existing municipal services and existing access roads

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7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)

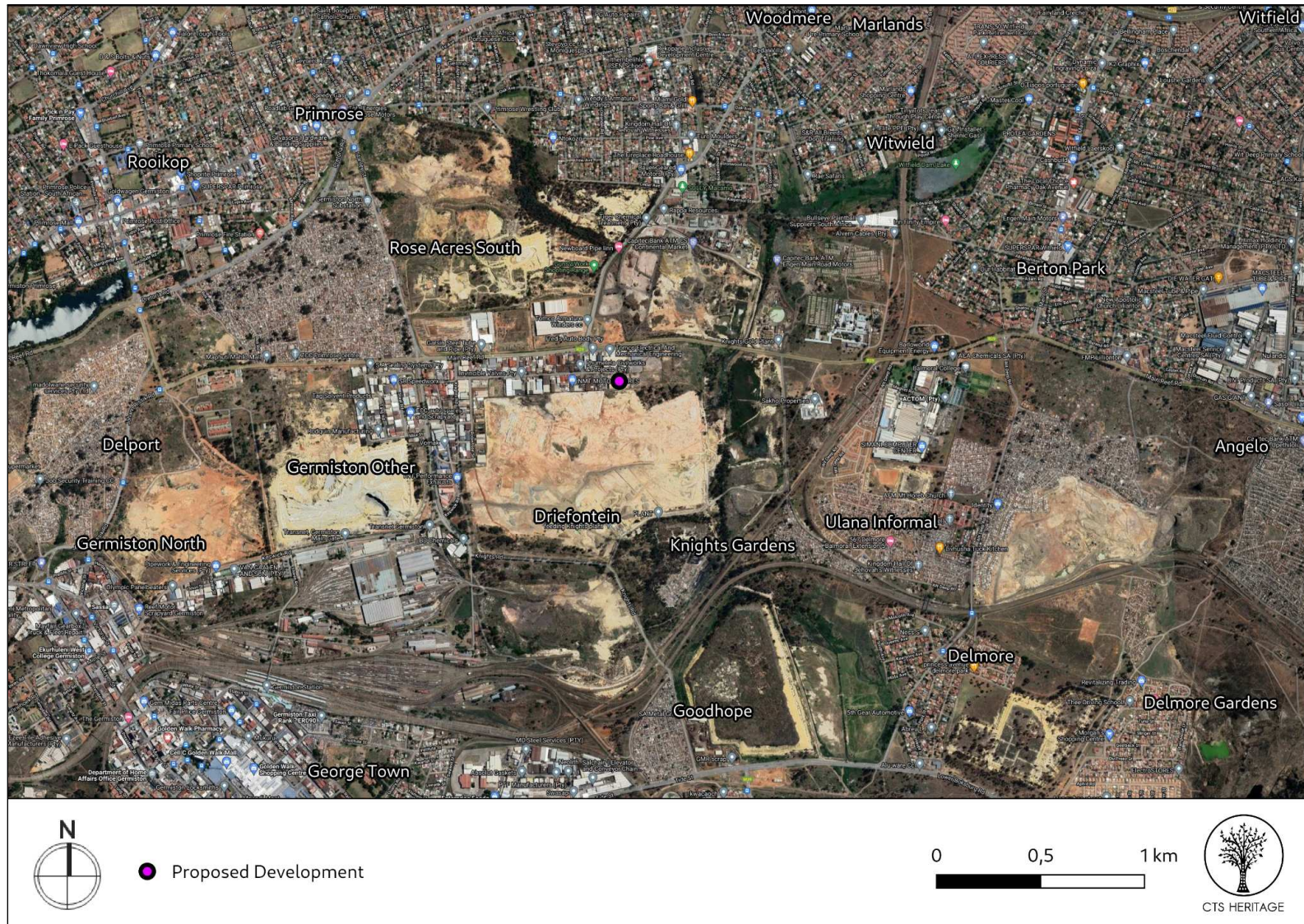


Figure 1b Overview Map. Satellite image (2021) indicating the proposed development area at closer range.

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 Area proposed for development

0 250 500 m



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Figure 1c. Overview Map. Satellite image (2021) indicating the proposed development area at closer range.

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 Area proposed for development

0 50 100 m



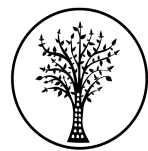
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Figure 1d. Overview Map. Satellite image (2021) indicating the proposed development area at closer range.

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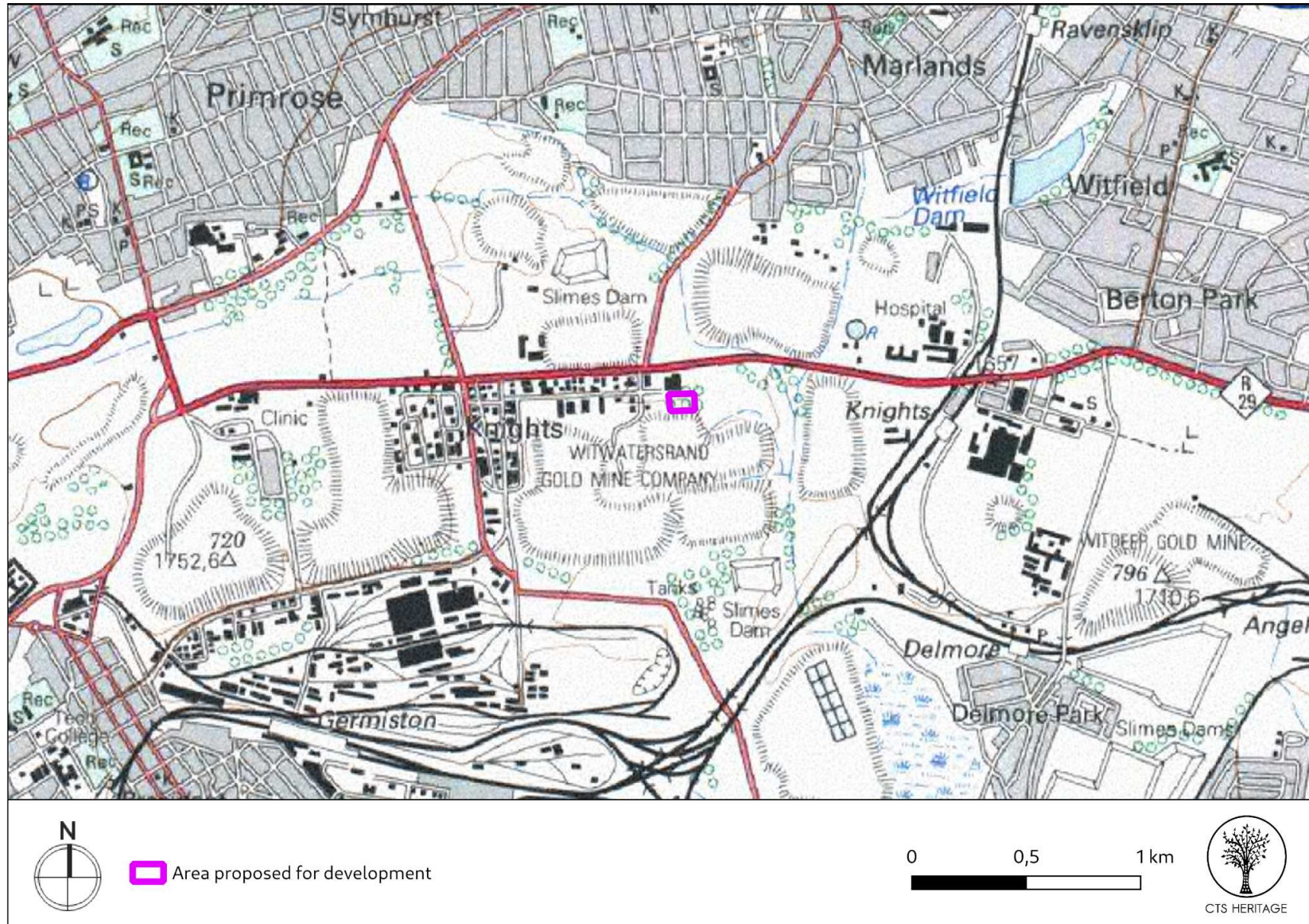


Figure 1c. Overview Map. 1:50 000 Topo Map indicating the proposed development area

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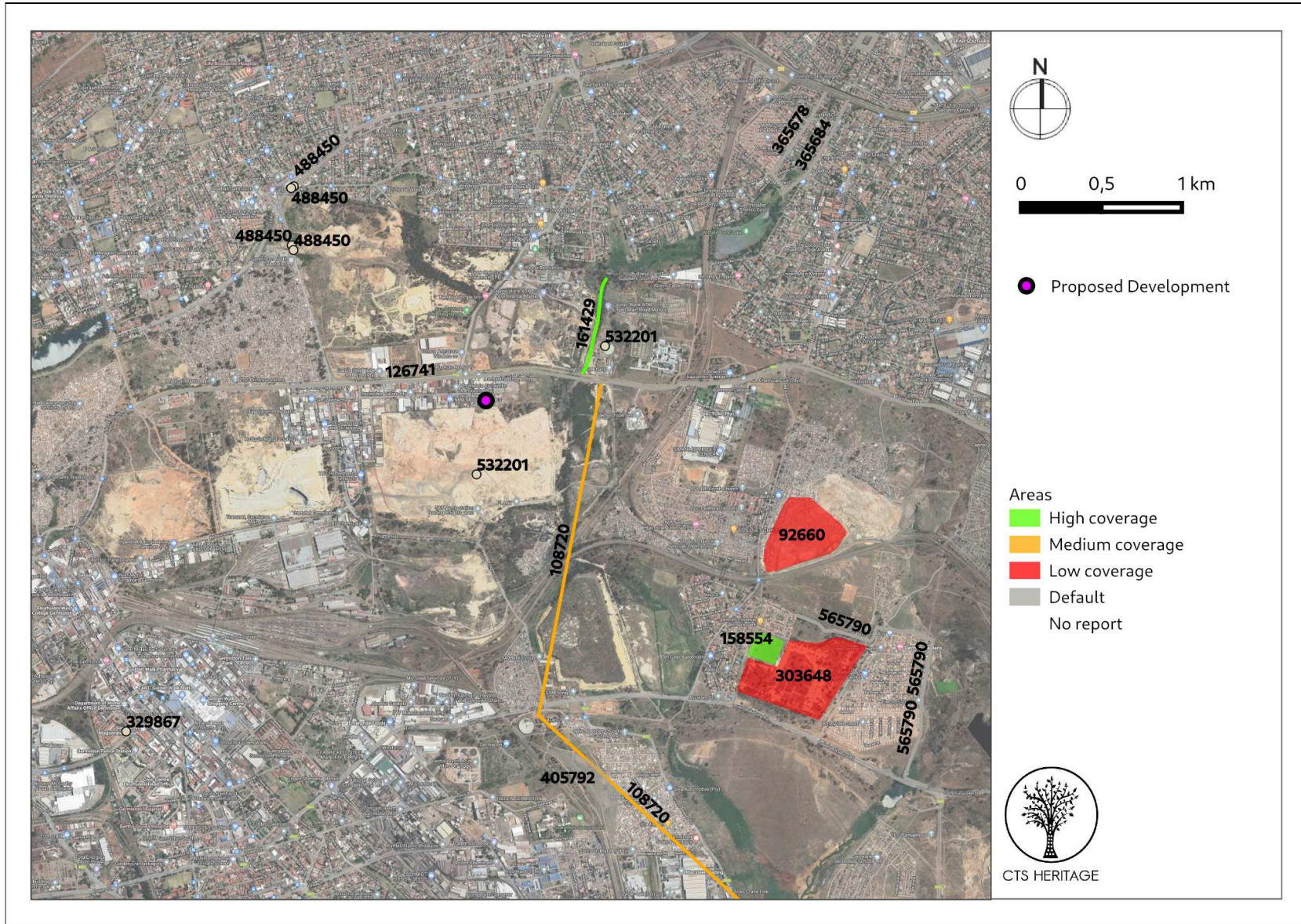


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

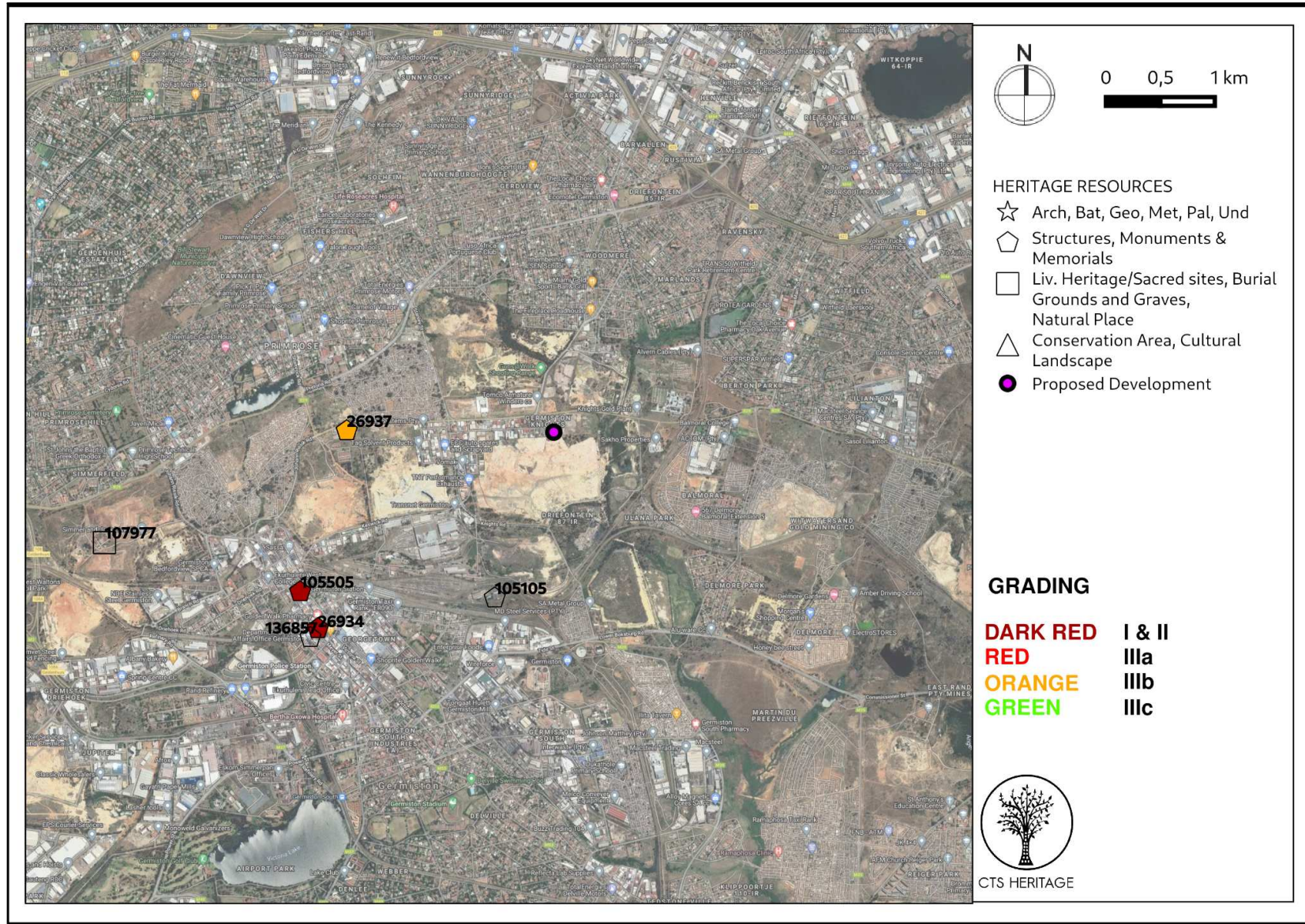


Figure 3a. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.



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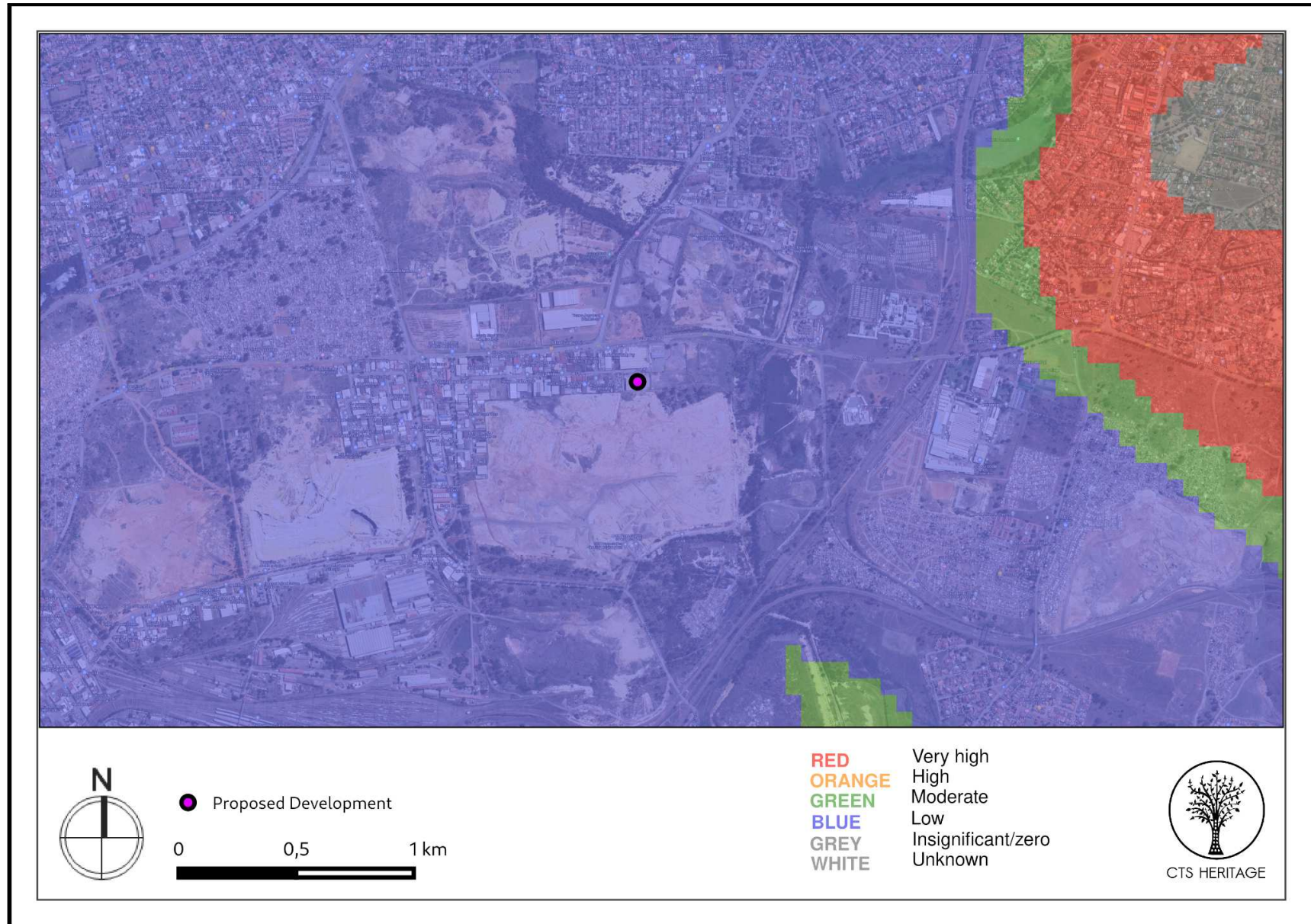


Figure 4. Palaeosensitivity Map. Indicating Zer, Moderate and High fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

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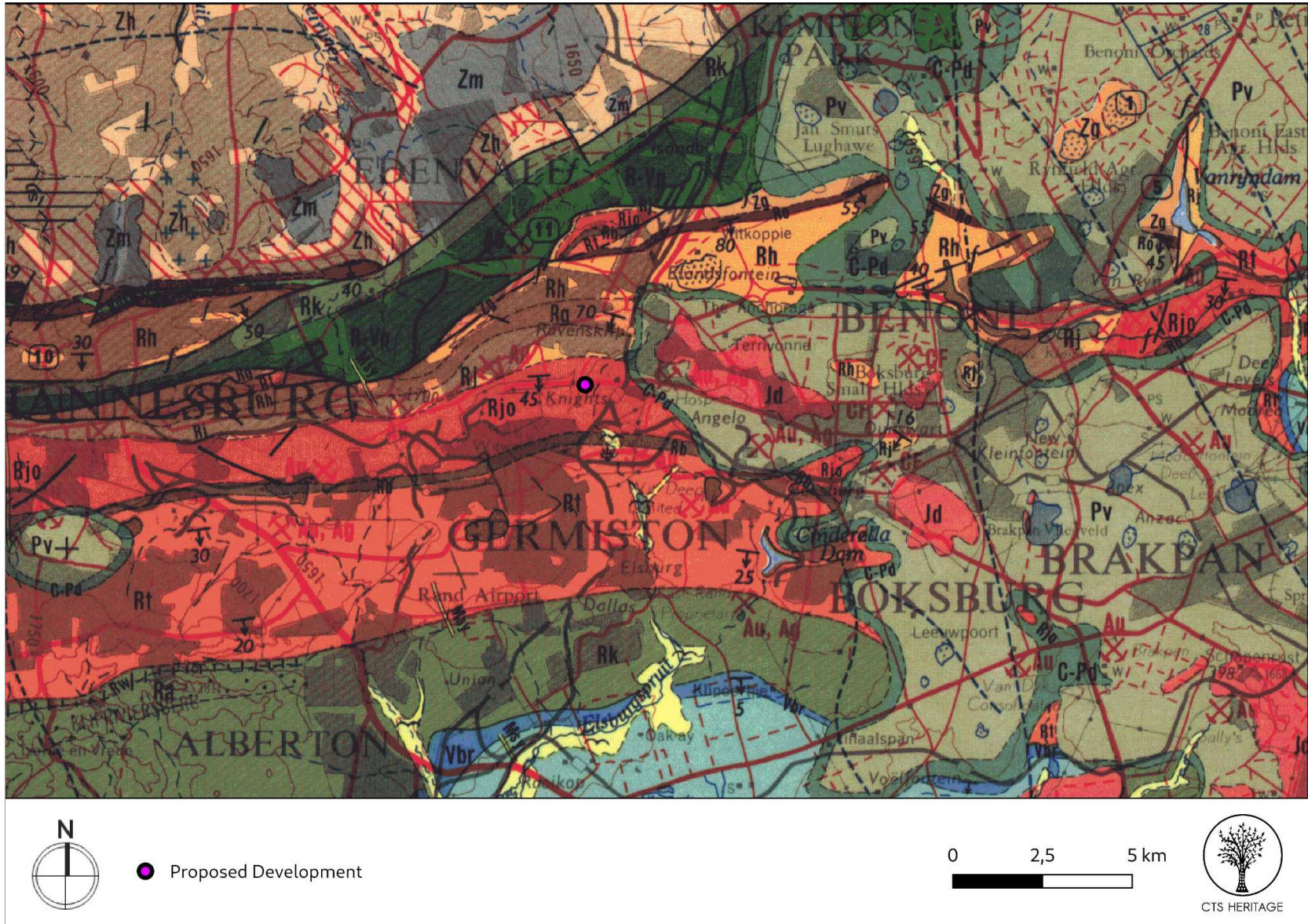


Figure 5. Geology Map. Indicating the underlying geology across the study area through overlaying the geology maps from the CGS series 2628 East Rand - Rjo: Johannesburg Subgroup of the Central Rand Group



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8. Heritage statement and character of the area

Background

This application is for the proposed upgrade and development of additional structures within an already-developed erf located in the industrial area of Germiston in Gauteng. was established in the early days of the gold rush when two prospectors, John Jack from the farm of Germiston near Glasgow and August Simmer from Vacha in Germany, struck paydirt on the farm of *Elandsfontein*. In August 1887, the pair were on their way to the Eastern Transvaal when they *outspanned* on the farm *Elandsfontein* and decided to stay and buy the land. Both men made fortunes and the town sprang up 2 km from the Simmer and Jack mine named after Jack's fathers farm. In 1921 the world's largest gold refinery, the Rand Refinery, was established at Germiston.

Built Environment Heritage and Cultural Landscape

Germiston has a number of historic buildings. Among these are the St Andrew's Presbyterian Church which was built in 1905, and St Boniface Church designed by Sir Herbert Baker, which was built in 1910 (this is the second church on the site, as the Anglican Parish was founded in 1897). The church also houses the historic 1910 English Romantic Norman and Beard Organ. The Alexander Hotel was also partly designed by Baker, using his traditional stone appearance. This building has recently been completely renovated and now houses a well-known law firm. The builder of the hotel, Alexander Stuart, some of whose descendants still live in Germiston, died when the RMS Lusitania was torpedoed in the First World War on 7 May 1915. The hotel thus remains a memorial to his pioneer work in the city over a hundred years ago. As per Figure 3, none of the known significant architecture from Germiston is located near to the area proposed for development and no negative impact is anticipated to any significant built environment heritage resources or any significant cultural landscapes.

Archaeology

Van Ryneveld (2015) has drafted a summary of the archaeological heritage known from the Germiston area. She notes that "Stone Age records seem to have a secondary presence in archaeological CRM reports despite the fact that the range of broad temporal Industries have been reported on. Fourie (2006) reported on a lag Earlier (ESA) and Middle Stone Age (MSA) deposit at Albertsdal, Palmietfontein, while Huffman (2000) commented on the widespread presence of surface MSA occurrences at Roodekop, Germiston, with at least 1 significant MSA site with fairly substantial stratigraphic depth recorded. In addition the Roodekop survey yielded 2 ESA sites as well as mixed MSA / Later Stone Age (LSA) occurrences. MSA and LSA lithic occurrences were also reported on from the Klipriviersberg Nature Reserve (Van Schalkwyk & Pelsler 1999).

Iron Age records are limited to the Later Iron Age (LIA), with the vast number of reported sites further defining LIA activity and specifically indigenous socio-political complexity of the greater terrain. Huffman (1999, 2002) identified 3 basic types of LIA sites, all being Stone Settlement type sites of the Central Cattle Pattern (CCP). According to Huffman (1999, 2002) Type III sites dominate the Klipriviersberg Nature Reserve area, with a few Group II sites identified. Many a Group I site have been identified, but largely impacted on by later LIA cultural overlay, mainly by Group III sites. Both Group II and Group III sites are inferred to have been abandoned in the 1820's when Mzilikazi conquered the area. Records of Group II and Group III Stone Settlement sites are complemented by single homestead and cattle outpost sites. At least 3 additional cattle outpost sites, also situated in the Klipriviersberg Nature Reserve were reported on by Coetzee (2006)."

Based on the already transformed nature of the area proposed for development, and considering that no additional excavation is anticipated, it is not expected that any significant archaeological heritage will be impacted by the proposed development.

Palaeontology

According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments of low palaeontological sensitivity. According to the extract from the Council of GeoScience Geology Map of the area, the property is underlain by sediments of the Johannesburg Subgroup belonging to the Witwatersrand Supergroup. According to a report from Almond (2015), "Incontrovertible macrofossil remains have not been recorded from the Archaean sediments of the Witwatersrand Supergroup that are of Archaean /

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Randian age (c. 2.9-2.7 Ga = billion years old). Columnar kerogen and fly speck carbon associated with some gold reefs has been interpreted as an inorganic precipitate induced by radioactive uranium minerals by some authors. However, a strong case for the in situ microbial origin of the patchy but extensive gold-bearing “carbon seam reefs” within the Witwatersrand succession - including microstromatolitic and filamentous structures of probable cyanobacterial affinity – has been made by Mossman et al. (2008) and several earlier authors (See, for example, Hallbauer & Van Warmelo 1974, Hallbauer 1975, Hallbauer 1986, as well as discussion and illustrations in MacRae 1999, pp. 64-72). The overall palaeontological sensitivity of the Central Rand Group bedrocks as well as the residual mine tailings remaining in the study area is assessed as VERY LOW.”

Based on the information available, and considering that no additional excavation is anticipated, it is not expected that any significant palaeontological heritage will be impacted by the proposed development.

RECOMMENDATION:

Based on the available information, it is unlikely that the proposed development will impact on significant heritage resources. As such it is recommended that no further studies are required in terms of section 38 of the NHRA. Should any heritage resources such as archaeological material, unmarked burials or fossil material be unearthed during excavations, work must cease in this area and SAHRA must be contacted regarding an appropriate way forward.

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9. Impact Table

Development Proposal - Proposed development of the new foundry	
CONSTRUCTION, DECOMMISSIONING & CLOSURE PHASE	
Potential impact and risk:	Impact on historical / cultural / heritage resource
Nature of impact:	Destruction of or negative impact to significant heritage resources
Extent and duration of impact:	Low (limited to the site boundary) with and without mitigation. Permanent with and without mitigation.
Intensity / severity / magnitude	Low with and without mitigation
Consequence of impact or risk:	Low with and without mitigation
Probability of occurrence:	Low with and without mitigation
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Low
Indirect impacts:	No indirect impacts to heritage anticipated
Cumulative impact prior to mitigation:	No cumulative impacts to heritage anticipated
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Probability of impact is low
Residual impacts:	Minor; acceptable

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Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low

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APPENDIX 1

List of heritage resources within close proximity to the development area from SAHRIS

Site ID	Site no	Full Site Name	Site Type	Grading
26937	9/2/223/0004	Simmer and Jack Mine Houses, Main Reef Road, Germiston	Building	Grade IIIb
26934	9/2/223/0011	St Andrew's Presbyterian Church, F H Odendaal Street, Germiston	Building	Grade II
107977	simmer and Jack landfill	Simmer and Jack landfill	Burial Grounds & Graves	Grade IIIa
105105	Germiston steam locomotive depot and repair workshops		Transport infrastructure	
105505	NZASM_RT_009	Victoria Street Bridge	Bridge	Grade II
136857	EKU/NAMM/0002	Germiston Cenotaph, Germiston Theatre, Germiston	Monuments & Memorials	

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APPENDIX 2

Reference List from SAHRIS

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
104611	AIA Phase 1	Jaco van der Walt, Polke Birkholtz	23/05/2012	Phase 1 Heritage Impact Assessment for the Proposed Development of the ERPM Mine Village, Boksburg, Gauteng
158554	Heritage Impact Assessment Specialist Reports		03/09/2008	CULTURAL HERITAGE IMPACT ASSESSMENT OF THE DELMORE PARK, EXTENSION 7 DEVELOPMENT
303648		Natasha Higgitt, Johan Nel	12/06/2015	Prospecting Right and Environmental Authorisation Application for the 4L40 Slimes Dam on R/E Driefontein 85 IR: Notification of Intent to Develop
92660	AIA Desktop	Guy Thomas, Johan Nel	01/02/2012	Heritage Statement for Lycaste Sand Dump
329867	Heritage Impact Assessment Specialist Reports	Natasha Higgitt	09/2015	Notification of Intent to Develop for the Development of Block E, corner Jack and Queen Street, Germiston, Ekurhuleni Metropolitan Municipality
108720	Heritage Statement	Shahzaadee Karodia Khan, Johan Nel	16/08/2012	Heritage Statement for the Central Basin, Witwatersrand AMD Project
126741	HIA Phase 1	Makhosazana Mngomezulu	05/08/2013	THE PROPOSED REPLACEMENT OF J8 SHAMROCK ROAD-LEEUEWPOORT PIPELINE
161429	HIA Letter of	Wouter Fourie	25/03/2014	Request for Exemption from an Archaeological Impact Study: Prevention of Water Ingress into Mined out Areas of

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	Exemption			the Witwatersrand Mining Basin, Gauteng Province
365678	Heritage Statement	Johnny Van Schalkwyk	28/06/2016	CULTURAL HERITAGE STATEMENT FOR THE PROPOSED WITFIELD STORMWATER NETWORK, EKURHULENI METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE
365684	PIA Desktop	Marion Bamford	07/06/2016	Palaeontological Impact Assessment for the proposed Witfield Stormwater Management project, Gauteng Province.

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APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEA	Department of Environmental Affairs (National)
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

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APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

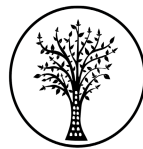
(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

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- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area
- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

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