



A HERITAGE IMPACT ASSESSMENT STUDY FOR THE PROPOSED FORTUNE METALIKS
SOUTH AFRICA NIGEL STEEL PROCESSING PLANT, PRETORIUSSTAD, NIGEL,
EKURHULENI METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE, SOUTH AFRICA.



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DECLARATION OF INDEPENDENCE

This report has been compiled by Nkosinathi Tomose, leading archaeologist and heritage consultant for NGT Project and Heritage Consultants. He was assisted in this regard by Mr. Lwazi Bhengu, assistant archaeologist and heritage specialist from NGT Projects & Heritage Consultants. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision making process for the project.

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EXECUTIVE SUMMARY

NGT Projects and Heritage Consultants (Pty) Ltd was been contracted by Fortune Metaliks South Africa (Pty) Ltd to conduct an Heritage Impact Assessment(HIA) (exclusive of Palaeontological desktop study) for the proposed Fortune Metaliks Nigel Steel Processing Plant located in Pretoriusstad, Nigel, Ekurhuleni Metropolitan Municipality, Gauteng Province, South Africa as part of specialists inputs impact assessment studies required to fulfil the Environmental Impact Report. Nkosinathi Tomose, the lead archaeologist and heritage consultant of NGT Projects and Heritage Consultants, conducted the field survey and HIA study for the proposed development. He was assisted in this regard, in terms of back information and report compilation, by Mr. Lwazi Bhengu (assistant archaeologist and heritage specialist from NGT Projects & Heritage Consultants).

The survey yielded a total of four built environment and landscape feature such as railway sleepers, railway line, goods ramp and foundation. The identified features were allocated the following Unique IDs: Ni-01, Ni-02, Ni-03 and Ni-04. The identified feature were assessed in terms of their significance to addressing heritage related questions such as the need to protect or conserve and the impact of proposed development on them. None of the four built environment and landscape feature were deemed worthy enough to be conserved and as such the following recommendation and conclusion are made about these features:

- All four feature are of low heritage significance
- Development can proceed as planned from a heritage resources management point
- It is conclude that there are no objections to the project and no negative perceptions about the project.
- It is also recommended that both SAHRA and PHRA-G approve the project in terms of cultural resources management since there were no significant heritage resources found within and immediately outside the project area.



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ABBREVIATIONS

Acronyms	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
ARCH	Archaeological
BA	Basic Assessment
BEL	Built Environment and Landscape
BGG	Burial Grounds and Graves
BGG	Proven not to be Burial Ground and Grave
CBD	Central Business District
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
DoE	Department of Energy
EAP	Environmental Assessment Practitioner
EIR	Environmental Impact Report
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
K.y.a	Thousand years ago
LHRA	Limpopo Province Heritage Resources Authority
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NHRA	National Heritage Resources Act
NEMA	National Environmental Management Act
NWA	National Water Act
PHRA	Provincial Heritage Resources Authority
PHRA-G	Provincial Heritage Resources Authority Gauteng
PSSA	Palaeontological Society of South Africa
ROD	Record of Decision

PDAFP	Proposed Development Area Footprint
SAHRA	South African Heritage Resources Agency

TERMS AND DEFINITIONS

Archaeological resources

This includes:

- material remains resulting from human activities which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- carrying out any works on or over or under a place;
- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or boards;
- any change to the natural or existing condition or topography of land; and
- any removal or destruction of trees, or removal of vegetation or topsoil

Heritage resources

This means any place or object of cultural significance



1. INTRODUCTION

1.1. Project Background

The study is for the proposed Fortune Metaliks, South Africa steel manufacturing plant (8MT Melting Furnace and Ingot Production) located in Nigel Industrial Zone, Nigel, Ekurhuleni Metropolitan Municipality, Gauteng Province, South Africa. Fortune Metaliks is an Indian company based in South Africa specialising in scrap metal procurement and processing. The company buys a wide range of ferrous metal scrap from a range of sources which include: the public, meta dealers, auto wreckers, demolition firms and manufactures who generate industrial metal. It also processes the ferrous metals for resale through methods like sorting, shearing, cutting, torching, bailing and/or breaking. Following these two processes (i.e. buying and processing) the ferrous metal is ready and available for export and for domestic sale to the customer.

1.1.1. Proposed Project Aims

The aim of the proposed project is to construct a steel manufacturing plant which will utilise scrap metals to produce refine steel product. The proposed development will comprise an induction furnace, storage facility for scrap metals as well as offices. It will also include borehole and water purification facility.

1.1.2. Terms of Reference for the Appointment of Archaeologist and Heritage Specialist

Because of the nature and size of the proposed development - construction of a steel manufacturing plant and associated infrastructure exceeding a total area of 5000m² on an area covering approximately 3.22 hectares a need to conduct an EIA developed. The overall environmental application process developed in terms of EIA Notice 545 (Listing No.2: activities 5 and 26) NEMA and it required a Scoping and EIR (Environmental Impact Reporting)

as required by the provincial environmental authority - GDARD. The environmental process involves the identification and assessment of environmental impacts through specialist studies.

Strategic Environmental Focus (Pty) Ltd was appointed by Fortune Metaliks South Africa (Pty) Ltd as a lead Environmental Assessment Practitioner to manage the Scoping and the EIR process and other associated impact studies for the proposed development. In order to fulfil all the requirements for a complete and the EIR process Fortune Metaliks South Africa (Pty) appointment of NGT Projects & Heritage Consultants (Pty) Ltd as an independent and lead CRM firm to conduct an HIA (exclusive of Palaeontological desktop study) for the proposed development as part of specialists (inputs) impact assessment studies. Nkosinathi Tomose, the lead archaeologist & heritage consultant from NGT Projects & Heritage Consultants, conducted the field survey and HIA study for the proposed Fortune Metaliks Nigel Steel Processing Plant located in Nigel, Ekurhuleni Metropolitan Municipality, Gauteng Province, South Africa (Figure 1). He was assisted by Mr. Lwazi Bhengu, assistant archaeologist and heritage specialist from NGT Project & Heritage Consultants, in terms of background information search and report compilation for the study.

The appointment of NGT Projects & Heritage Consultants (as an independent CRM firm) is in terms of the NHRA, No. 25 of 1999 (as amended), the NEMA, No.107 of 1998 (as amended & the applicable 2010 Regulations), as well as other applicable legislations.

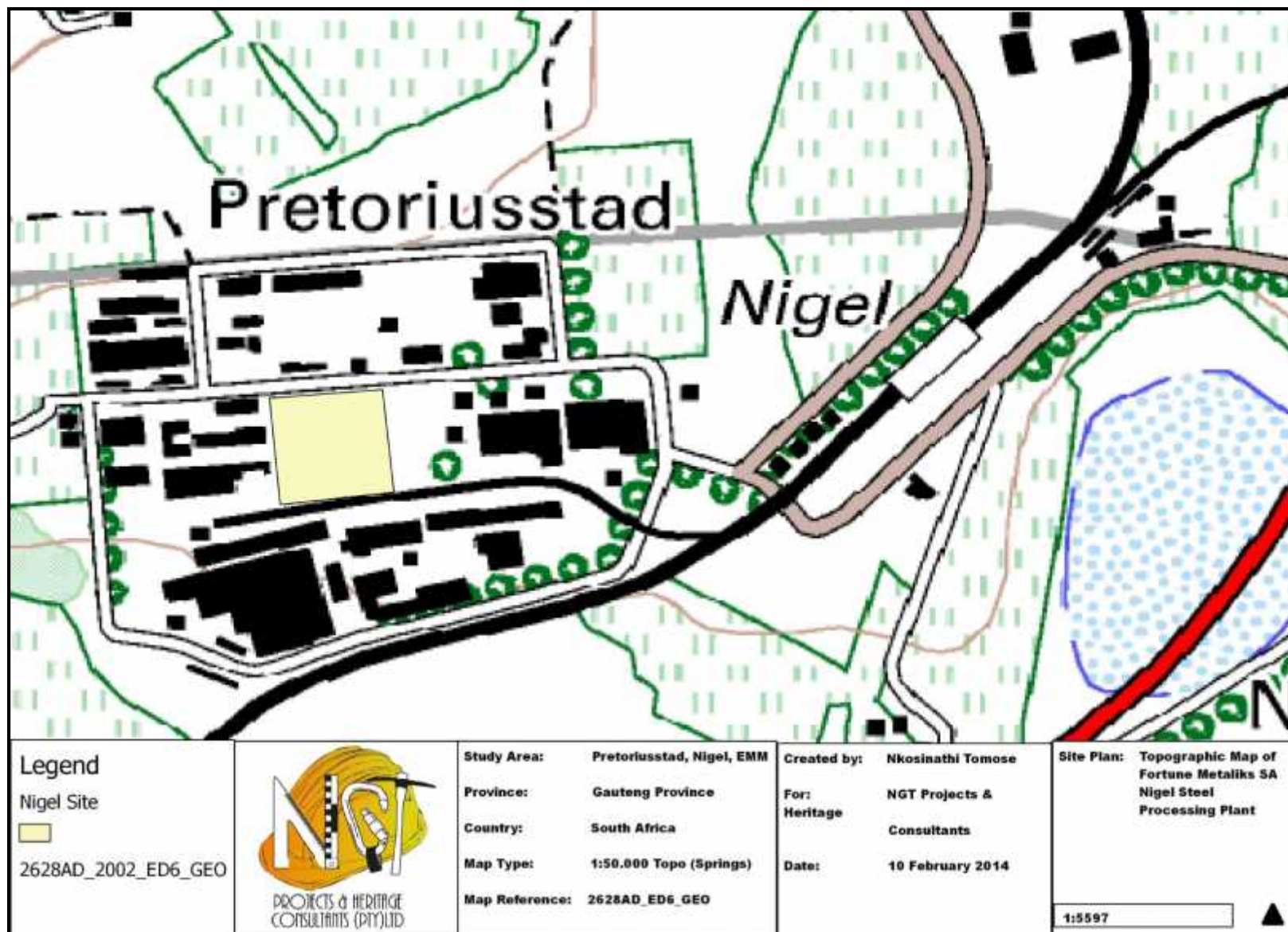




Figure 1- A 2001 Topographic Map of Springs showing Pretoriusstad and the proposed development footprint in yellow. Note the built environment and landscape feature (black boxes) and the existing railway line south of the development footprint.

2. BACKGROUND OF THE STUDY AREA

2.1. Historical Background

South Africa is rich in diverse forms and types of heritage, ranging from natural to cultural heritage. The natural heritage includes among other things: Geological, Palaeontological, and the various plant and animal species that define the country. The cultural heritage, which dates as far back as 2.5 million years ago (m.y.a), includes - the different periods of Stone Age Archaeology, the Iron Age Archaeology, Historical and Industrial Archaeology, as well as the "Political/Historic" geographies of South Africa (reference - Tomose, 2013a, b, c, d). The region in which the study area (i.e. Nigel) is located is known for Sotho-Tswana and Ndebele Iron Age activities and the late historical period activities (e.g. associated with settlers) which includes among other things the industrialization of the Transvaal which came about with the discovery of mineral resources such as gold in 1886 and coal in the mid 1800s (Fair & Mallows 1959). The former Central Transvaal region, now Gauteng Province, is historically and hitherto characterized by a high degree of industrialization which stems, amongst other factors, from the mining activities associated with it (Fair & Mallows 1959). This high level of industrialization is intricately linked to the politics, economics and the social dimensions of the area (Ibid). It is through these three principal facets that Nigel is being investigated , because it did not operate in isolation.

The establishment and proclamation of Nigel (and many other towns of the then Central Transvaal such as Germiston, Boksburg and Johannesburg) came about because of the discovery of gold in the Transvaal (Ibid). Nigel is located in the East Rand (now Ekurhuleni Metropolitan Municipality) and is the only area where the gold bearing reef of the Witwatersrand large basin-shaped rock system crops out which then resulted in an isolated town which still, nevertheless, operated within the larger socio-political and socio-economic network of the Transvaal (Ibid.).

Nigel was declared as a public digging space by the then state president of the Transvaal Republiek, Paul Kruger in 1888, under notice no. 331. (Nigel Business Directory 2014). The town of Nigel was, however, only proclaimed in the 1930's. In the same year, Mr C. L. Mackle was elected the first Mayor of the town (Ibid.). The dominant economic activity of the town has been mining (Ibid); other activities associated with the town and its surroundings include the development of factories that supported the gold and coal mining industry such as steel processing factories, meat abattoirs and wool processing factories. Nigel was therefore situated in such a socio-political and economic milieu that shaped its history and its contemporary state.

With the decline of the gold mining industry in the Gauteng province, some of these old mining towns have adopted new forms of economy such as the expansion of factories like glass processing, polymerization and steel processing plant (s) through recycling and the use of furnaces. These industries characterise our study area - on which Fortune Metaliks South Africa has proposed its Metal Processing Plant. It is therefore in this background, which highlights the historical significance of Nigel, that we assess the site.

2.2. Description of the affected environment

Table 1 -Fortune Metaliks South Africa Nigel Steel Processing Plant, Pretoriusstad, Nigel, Ekurhuleni metropolitan Municipality, Gauteng Province, South Africa

Location	<ul style="list-style-type: none"> The project area is located in Pretoriusstad, approximately 2.6 km west of Nigel Central within Ekurhuleni Metropolitan Municipality, Gauteng Province of South Africa. It covers approximately 3.22 hectares. The site centre GPS Coordinates are: 26° 25' 26.76"S 28° 26' 19.59" E (Figure 1).
Surrounding Towns/Townships/Industrial Zones/Villages	<ul style="list-style-type: none"> The site is located to the North West of Noycedale and South Easterly to the Greater Nigel. It is also in a South Westerly direction from Sub Nigel. Towards the North of the site, there are high agricultural activities and some towards the south. Mining activities can be seen north-east of the project area (Figure 2)
Land Uses in and around the study	<ul style="list-style-type: none"> Industrial (e.g. Supreme Spring Plant 2) (Figure 3 & 4) Agricultural (e.g. agricultural activity North of the site, within the

area	Greater Nigel and some agricultural activity South of Bickley Road) (Figure 2)
Land Owner(s)	<ul style="list-style-type: none"> Fortune Metaliks South Africa (Pty) Ltd Private - industrial sites.
Current Conditions (on site)	<ul style="list-style-type: none"> The site is densely vegetated with grass and small gum-tree (trees) on the western end of the site (Figure 5). There are also some old built environment and landscape feature on site from previous industrial activities.
Applicant	<ul style="list-style-type: none"> Strategic Environmental Focus on behalf of Fortune Metaliks South Africa (Pty) Ltd
Proposed Development	<ul style="list-style-type: none"> Upgrade and maintenance of Wolmerton PRASA depot
Access	<ul style="list-style-type: none"> Existing national, provincial and local roads, routes and human foot paths. <p><u>Local roads:</u></p> <p>the site is ensconced between Johnson Road (north), Kariba Road (west) and Bickley Road (south and east of the site) (Figure 3).</p> <p><u>Provincial Roads:</u></p> <p>The R42 Road is found south and east of the study area (Figure 2). North of the study area are R550 and R551 (Figure 2).</p> <p>A railway line system is found south and east of the study area . This include Nigel Railway Station on the east of Pretoriusstad (Figure 1 & 6).</p>
Defining natural features	There were no natural features observed within the perimeter of the study area or the development footprint. The only natural or manmade feature that can be defined in terms of the natural environment is the Nigel Dam located north-east of the site (Figure 2).
Zoned for	<ul style="list-style-type: none"> Industrial Zone

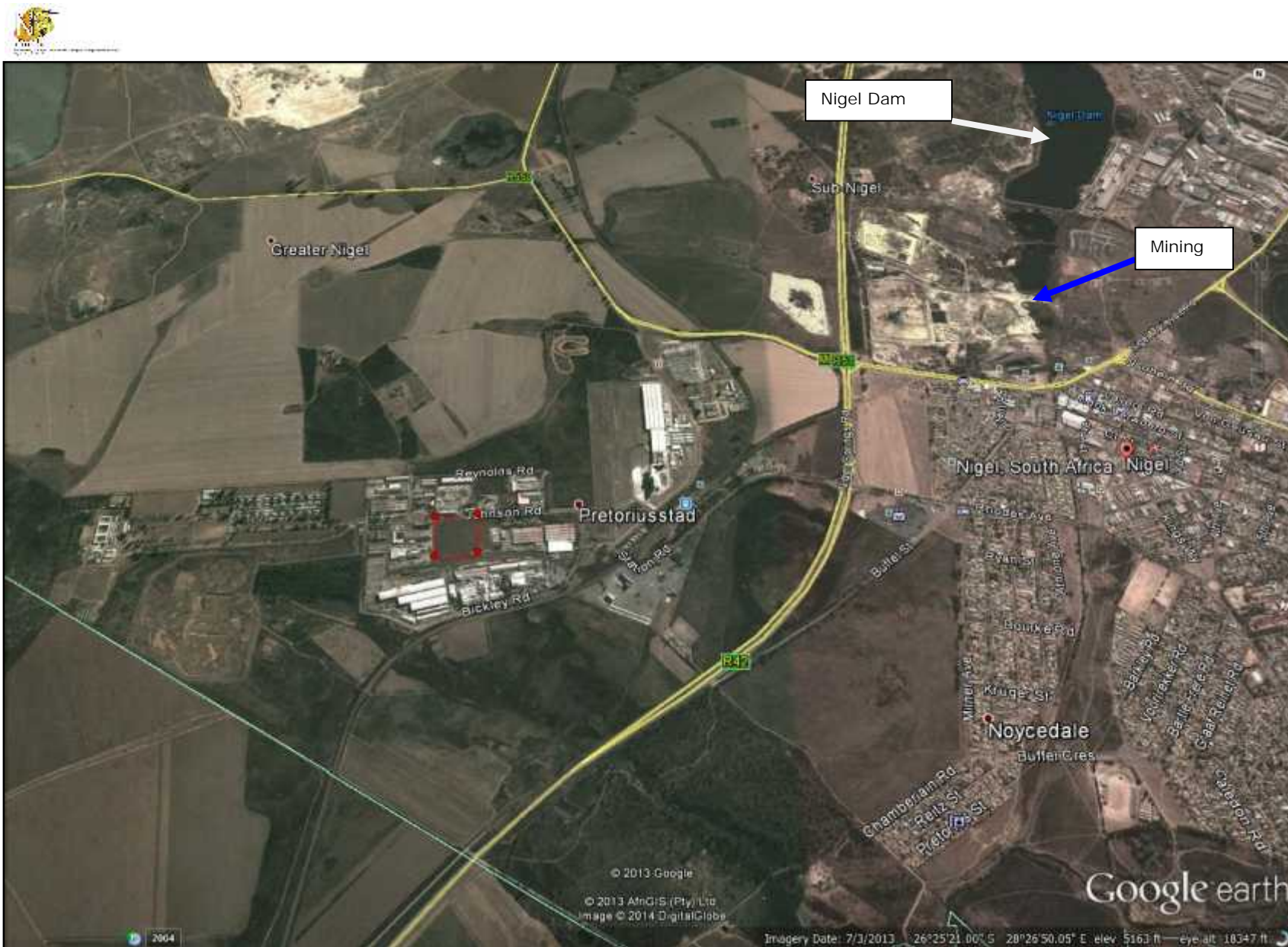


Figure 2- Location of the study area in relation to the broader Nigel landscape



Figure 3- Proposed development footprint in relation to existing industries that surround it.



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2.2. Description of proposed activities: Proposed Infrastructure

Table 2 - List of Activities

Activity 1	<ul style="list-style-type: none">• Construction of steel processing plant and associated infrastructure on a land covering approximately 3.22 hectares
Activity 2	<ul style="list-style-type: none">• Clearing of vegetation and preparation of the site to support the newly proposed Fortune Metaliks South Africa Nigel Steel Processing Plant.

2.3. Needs and Desirability

Table 3 –List of activities in-line with the project scope

Activity 1	<ul style="list-style-type: none">• Desktop study of the heritage value and integrity of the area under consideration and its surrounding with a particular focus on resources within Fortune Metaliks South Africa Nigel Steel Processing Plant project footprint (refer to 2.4 below for detailed overview of resources in the region under consideration).• Physical identification, documentation and recording of cultural resources within the proposed development site
Activity 2	<ul style="list-style-type: none">• The mapping, assessment and evaluation of the heritage value and integrity of the identified heritage resources and assessment of potential impacts as a result of the proposed development on these resources.
Activity 3	<ul style="list-style-type: none">• Proposing heritage management measures for inclusion in the EIR and later EMP document• Making recommendations to SAHRA and provincial heritage resources authority - PHRA-G

3. METHODOLOGY

This chapter outlines the methodologies used in conducting the HIA study for the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant. The study area is located within Pretoriusstad, Nigel Industrial Zone, Ekurhuleni Metropolitan Municipality. This is done in

accordance to the Terms of Reference provided by the client for the completion of this study. However, some areas of the report follow minimum standards for completion of professional HIA as stipulated in SAHRA minimum standard (2012) such as detailed account to the archaeological and historical background of the study area or region.

3. 1. Step I – Literature Review (Desktop Phase):

- Sources used in this study included, but not limited to published academic papers, books and internet publications.
- There was limited use of archival maps -two historical maps and a recent industrial zone map showing the proposed development area and its surround were assessed to aid information about the proposed area of development and its surrounding.
- The above also included a review and assessment of relevant environmental and heritage legislations such as the NEMA (together with the 2010 EIA Regulations) and the NHRA.

3.2. Step II – Physical Survey:

The physical survey of the study area aimed to address the following main areas of concern raised by the client in the specialist Terms of Reference:

- To conduct an onsite verification survey for the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant project area.
- To identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites), built environment and landscape features located on the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant project footprint. Use will be made of an notated maps where appropriate.
- In order to address these concerns:
- The physical survey of the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant was conducted on the 6 February 2014.
- The survey covered an area of approximately 3.22ha - on foot and track logs of the survey were recorded using Garmin GPSmap 62s.
- The objective of the survey was to locate and identify archaeological and heritage resources and/or sites and objects, occurrence and built environment and landscape features within and immediately outside the proposed development footprint. To record and map them using necessary and applicable tools and technology.
- The physical survey was deemed necessary since the desktop phase of the project yielded few known archaeological resources and other heritage/historic resources about the region in which the current study area is located. The survey also paid special

attention to disturbed and exposed layers of soils as such as eroded surfaces because these areas are more likely to exposed or yield archaeological and other heritage resources that may be buried underneath the soil and be brought to the earth surface by animal and human activities such as animal barrow pits and human excavated grounds.

The following technological tools and platforms were deemed important for documenting and recording located and/or identified sites:

- Garmin GPSmap 62s – to take Lat/Long coordinates of the identified sites and to take track logs of each of the three corridors.
- Lenovo ThinkCentre aided with Garmin Basecamp Software, Google Earth – to plot the propose development area.
- Quantum GIS Lisboa (1.8.0) was used to plot all the identified features and/or resources and to develop heritage maps in order to inform the heritage analysis of the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant project area.
- Project plan schedule provided by the client before the survey also proved invaluable
- Survey coordinates and data provided by the client were used to map the development area footprint.
- Samsung camera – was used to take photos of the affected environment and the identified heritage sites.

3.3. Step III – Data Consolidation and Report Writing:

During field work and on the return from the field the following were addressed:

- Assessment of the significance of the cultural resources in terms of their archaeological, built environment and landscape, historical, scientific, social, religious, aesthetic and tourism value"
- Description of possible impact of the proposed development on these cultural remains, according to a set of standard and conventions for the management of the cultural environment;
- Proposal of suitable mitigation measures to minimize possible negative impacts on the cultural resources;
- Review of applicable legislative requirements - Section 3.1. of this Chapter (i.e. Chapter 3) addresses this concern as well as Section 5.5 of Chapter 5 discusses Sections of the NHRA, No. 25 triggered by the current study findings
- Highlighting of assumptions, exclusions and key uncertainties". Chapter 4 (below) of this report address this concern.

- The final step involved the consolidation of the data collected using the various sources as described above. This involved the manipulation of data through Quantum GIS. Assessing the significance and potential impact of the identified sites, discussing the finds, report writing and making recommendation on the management and mitigation measures of the identified sites and resources as well as the impact and influence of these sites and resources on the proposed corridor.

3.3. Assessment of Site Significance in Terms of Heritage Resources Management Methodologies

The significance of heritage sites was based on four main criteria:

- Site integrity (i.e. primary vs. secondary context)
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures)
 - Density of scatter (dispersed scatter)
 - Low - $<10/50\text{m}^2$
 - Medium - $10-50/50\text{m}^2$
 - High - $>50/50\text{m}^2$
- Uniqueness and
- Potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

- A - No further action necessary;
- B - Mapping of the site and controlled sampling required;
- C - No-go or relocate pylon position
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site
- F - Impacts on these sites by the development will be evaluated as follows:

Measure of Heritage Sites Significance

The following site significance classification minimum standards as prescribed by the SAHRA (2006) and approved by the ASAPA for the SADC region were used for the purpose of this report.

Table 4: Site significance classification standards as prescribed by SAHRA

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP.A)	-	Low Significance	Destruction

3.4. Methodology for Impact Assessment in terms of Environmental Impact Assessment Methodologies including Measures for Environmental Management Plan Consideration

The determination of the effects of environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the environmental practitioner through the process of the EIR. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts. This is in line with specialist requirements as required by the client. For example, the request that: -

The impact methodology [should] concentrate on addressing key issues. This methodology to be employed in the report thus results in a circular route, which allows for the evaluation of the efficiency of the process itself. The assessment of actions in each phase [that should] be conducted in the following order:

- Assessment of key issues;
- Analysis of the activities relating to the proposed Wolmerton PRASA depot upgrade and

maintenance project area;

- Assessment of the potential impacts arising from the activities, without mitigation, and
- Investigation of the relevant mitigation measures for both the construction and operational phases.

The following Assessment Criteria is Used for Impact Assessment

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities related to alternatives under study for meeting a project need. The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

Probability: describes the likelihood of the impact actually occurring

- Improbable: the possibility of the impact occurring is very low, due to the circumstances, design or experience.
- Probable: there is a probability that the impact will occur to the extent that provision must be made therefore.
- Highly Probable: it is most likely that the impact will occur at some stage of the development.
- Definite: the impact will take place regardless of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.

Duration: the lifetime of the impact

- Short Term: the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- Medium Term: the impact will last up to the end of the phases, where after it will be negated.
- Long Term: the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
- Permanent: the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: the physical and spatial size of the impact

- Local: the impacted area extends only as far as the activity, e.g. footprint
- Site: the impact could affect the whole, or measurable portion of the above mentioned properties.
- Regional: the impact could affect the area including the neighbouring residential areas.

Magnitude/Severity: Does the impact destroy the environment, or alter its function

- Low: the impact alters the affected environment in such a way that natural processes are not affected.
- Medium: the affected environment is altered, but functions and processes continue in a modified way.
- High: function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance:

This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

- Negligible: the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- Low: the impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
- Moderate: the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
- High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability (Table -2)

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

Table 5 -The significance weightings for each potential impact are as follows:

Aspec	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severit	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	20
	Low	>20 40
	Moderate	>40 60
	High	>60

The significance of each activity was rated without mitigation measures(WOM) and with mitigation(WM) measures for both construction, operational and closure phases of the proposed development. To address the question of Heritage Management Plan the following table is used for Measures to be included in the EMP. This table is relevant in that it addresses key issues at the various stages of the project by also addresses how some of the key concerns that develop from a heritage point of view can be mitigated.

Table 6 -Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: Description of the objective, which is necessary in order to meet the overall goals; these take into account the findings of the environmental impact assessment specialist studies		
Project component/s	List of project components affecting the objective	
Potential Impact	Brief description of potential environmental impact if objective is not met	
Activity/risk source	Description of activities which could impact on achieving objective	
Mitigation: Target/Objective	Description of the target; include quantitative measures and/or dates of completion	
Mitigation: Action/control	Responsibility	Timeframe
List specific action(s) required to meet the mitigation target/objective described above	Who is responsible for the measures	Time periods for implementation of measures
Performance Indicator	Description of key indicator(s) that track progress/indicate the effectiveness of the management plan.	
Monitoring	Mechanisms for monitoring compliance; the key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting	

4. ASSUMPTIONS, EXCLUSIONS AND UNCERTAINTIES

The assumptions, exclusions and uncertainties that exist in terms of the present study are discussed in the following sub-sections.

4.1. Assumptions

The current study is Phase 1 HIA. As such, a historical and archival desktop study as well as a field survey were undertaken to identify tangible heritage resources located in and around the proposed development area footprint. The assumption is that a heritage social consultative process would have taken place with existing industries ascertain known archaeological and heritage sites or resources in their properties such as presence or existence of graves and cemeteries, historic built environment and landscape features etc. However, there was no formal heritage social consultation that took place as part of the study. The study assumes that the amount of built environment and landscape features located in and around Fortune

Metaliks South Africa Nigel Steel Processing Plant represents the total amount of physical or tangible resources distributed in and around it.

4.2. Exclusions

The following exclusions or limitations have direct consequence to the study and its results:

- There was no deeds search for the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant - the study area is owned by the developer, Fortune Metaliks South Africa and the assumption is that it is the rightful developer
- The survey was conducted in Summer - as such there was high level of vegetation cover within the project footprint which would have posed a constraint in terms of identification of archaeological sites such as unmarked graves if it was not an already disturbed industrial site
- This would have formed one of the major limitation in terms of observing and recording all forms of archaeological and heritage sites within the proposed development area.

4.3. Uncertainties

Heritage studies like most other specialist studies often experience many challenges during and after the physical survey of the proposed development area. From an archaeological and general heritage perspective, the assumption is often made that, the amount of identified archaeological and heritage resources during physical survey of the proposed development area represent some of the total amount of resources that exist within the development area. This is not often true because the nature of some the archaeological and heritage resources are subterranean in nature and as such, one cannot totally rule out their presence or existence within the proposed development area even though they are not recorded and map as part of the current study. These resources may be exposed or brought to the surface of the earth during the construction phase of the project which will involve excavation for infrastructure development and clearing of vegetation and top soil in some instances. This presents one of the major uncertainties regarding the 'holistic' management of archaeological and heritage resources within and around the proposed development area.

Archaeologist and heritage specialist alike refer to discovery of such resources as chance finds and to mitigate such uncertainty, it is advisable that should such chance finds be made of archaeological and heritage resources on site, the Environmental Control Officer (ECO)

responsible for the site should report them to the nearest SAHRA and PHRA office or the nearest museum or call an archaeologist and heritage specialist to investigate the finds make necessary recommendations.

5. FINDINGS

5.1. Cadastral Search

No historic cadastral search took place for the project area. Pretoriusstad was proclaimed an industrial zone of Nigel in 1954 which makes it 60 years today (2014). This would have been necessary in the case where the exact date of the industrial zone or township establishment predated 1950s for relative dating of the infrastructure and features on site.

5.2. Deeds Search:

No deeds search was conducted as part of the study. The project footprint is shown in one of Ekurhuleni Metropolitan Municipality industrial zone maps dated 1989 as being owned by John Deere - a mine and agriculture machine/plant supplier and rental company. The property is currently owned by Fortune Metaliks South Africa.

5.3. Field Survey and Identified Archaeological/Heritage Resources

The physical survey of the project area took place on the 6 February 2014. The survey did not yield any archaeological (from Stone Age to industrial archaeology), burial grounds and graves, and other cultural features such as places or spaces of prayer both within and immediate outside the site -as well as the general surrounding landscape as described in the 'affected environment' section above. It yielded historic built environment and landscape features such as foundations, ramps, railway sleepers (concrete) and tracks. In total the survey yielded 4 such sites and they were given Unique Site Identifiers - Ni-01 to Ni-04 (for Nigel 1 to Nigel 4):

Site	Ni-01
Type	Concrete and cement railway sleeper
Density	Approximately 1 structures in total
Location/Coordinates	S26° 25' 25.9" E28° 26' 23.7"
Approximate Age (More than 60 Or Less than 60 years old)	+/- 60 years old
Applicable Section of the NHRA, No 25 of 1999:	Section 34
Description: This is not a site rather two rows of railway concrete sleepers (Figure 7) that would have supported factory train/tramp of the old John Deere industry (e.g. Figure 6).	
Location in relation to project footprint	Outside (Figure 11)
Heritage Significance	Low - this does not provide us with any information because these sleepers are out of context. Not in their primary context or in <u>situ</u> .
Proposed Mitigation Measure	Destruction



Figure 7- Concrete sleeper

Site	Ni-02
Type	Structure
Density	1 structure (foundation)
Location/Coordinates	S26° 25' 27.8" E28° 26' 24.0"
Approximate Age (More than 60 Or Less than 60 years old)	+/- 60 years old
Applicable Section of the NHRA, No 25 of 1999:	Section 34
Description: The site is an old storage foundation from John Deere operations on site (Figure 8).	
Location in relation to project footprint	Outside (Figure 11)
Heritage Significance	Low- the foundation cannot yield any

	information regarding the architectural vernacular or language of the old industry. Nor can it assist us in terms of scientific research.
Proposed Mitigation Measure	Destruction



Figure 8- Foundations of an old storage facility from John Deere

Site	Ni-03
Type	Structures - goods ramp
Density	1 ramp feature
Location/Coordinates	S26° 25' 28.9" E28° 26' 22.7"
Approximate Age (More than 60 Or Less than 60 years old)	+/- 60 years old
Applicable Section of the NHRA, No 25 of 1999:	Section 34
Description: This is a good ramp that would have been used to load goods to and from John Deere industry using goods train.	
Location in relation to project footprint	Inside on the eastern corner of the development footprint (Figure 11)
Heritage Significance	Low- it's not a unique industrial feature that warrants it to be conserved.
Proposed Mitigation Measure	Destruction



Figure 9- old goods ramp on the south end of the site

Site	Ni-04
Type	Structure
Density	1 structure
Location/Coordinates	S26° 25' 29.9" E28° 26' 18.7"
Approximate Age (More than 60 Or Less than 60 years old)	Less than 60 years old
Applicable Section of the NHRA, No 25 of 1999:	Section 34
Description: The site is a guard house (Figure 16).	
Location in relation to project footprint	South and outside the proposed of the development footprint (Figure 11)
Heritage Significance	Low - because the line has been high vandalised
Proposed Mitigation Measure	Destruction



Figure 10-Old railway line system located south of the project development footprint

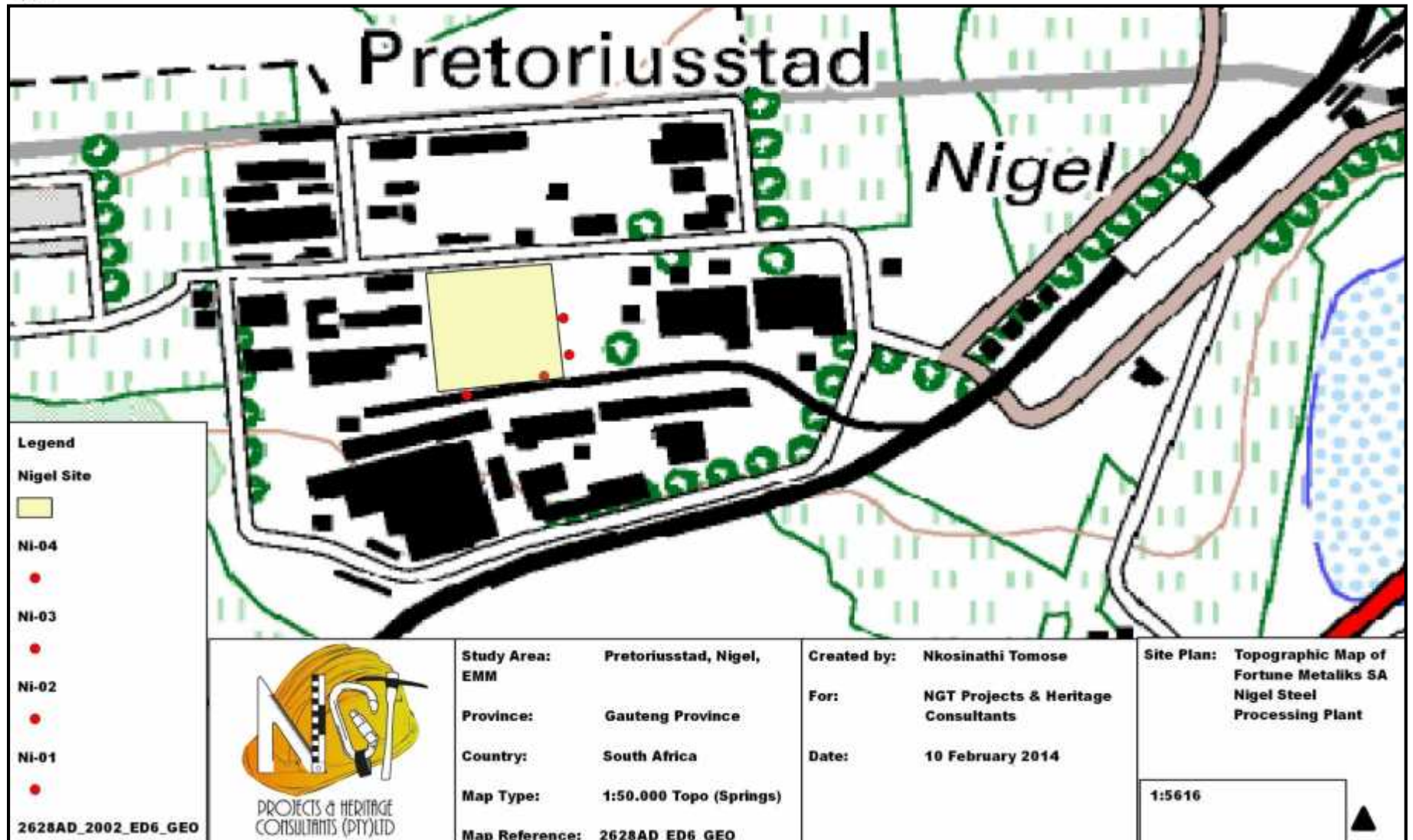




Figure 11 - Distribution of identified built environment and landscape features within and immediately outside the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant, Pretoriusstad, Nigel, Ekurhuleni Metropolitan Municipality, Gauteng Province

6. FIELD SURVEY RESULTS AND PROPOSED INFRASTRUCTURE

The physical survey of the proposed Fortune Metaliks South Africa Nigel Steel Processing Plant did not yield any sites of heritage or historic significance. A total of four none significant built environment and landscape features were yielded by the survey and were allocated Unique IDs Ni-01 to Ni-04 (Figures 7-10). Also refer to Figure 11 for their distribution in relation to the proposed development footprint as marked in the map produced by NGT Projects & Heritage Consultant. The industrial zone in which the study area is located was developed in 1954 - meaning that it would be exactly 60 years today (2014). Therefore all the built environment and landscape features located within and immediately outside the site would be 60 years and younger. The 60 year bench mark is stipulated in the heritage legislation for historical structures in term of Section 34 of the NHRA, No. 25 of 1999. However, none of the identified built environment and landscape features are worthy to be considered for protection and conservation. There was also absence of archaeological, burial grounds and graves, and other places of cultural significance such as sites of gathering, worship and prayer or initiation sites within the development footprint. It is recommended that development may proceed as planned. However, it has to be noted that some archaeological and heritage resources such as unmarked graves are subterranean in nature and might have been missed by the current study. The developer should take note of this. In cases such resources are unearthed during the excavation processes for infrastructure development at Fortune Metaliks South Africa Nigel Steel Processing Plant a qualified archaeologist and heritage specialists should be called on site to investigate the finds.



7. CONCLUSIONS

In conclusion, from a cultural resources management point of view, there are objections to the proposed project and there are no negative perceptions about the project, Fortune Metaliks South Africa Nigel Steel Processing Plant.

8. RECOMMENDATIONS

- Base on the fact that the survey did not yield any heritage resources, it is recommended that SAHRA approves the project in terms of archaeological resources and burial grounds and graves management since there were no such sites identified within and immediately outside the project area.
- It is also recommended that PHRA-G allows the project to go ahead in terms of the management of historical built environment and landscape resources - because there were no significant historical built environment and landscape features identified by the study with exception to the four sites mentioned above whose significance is low.

9. REFERENCES

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