Phase 1 Heritage Impact Assessment Report

Forbes Coal (Pty) Ltd Haulage Road Project, near Dundee, KwaZulu Natal Province

Prepared By:

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Disclaimer; *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. G&A Heritage and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

SIGNED OFF BY: STEPHAN GAIGHER

MANAGEMENT SUMMARY

Site name and location: Forbes Coal (Pty) Ltd Haulage Road Project, Dundee, Kwa Zulu Natal.

Municipal Area: Umzinyathi District Municipality.

Developer: Forbes Coal (Pty) Ltd.

Consultant: G&A Heritage, PO Box 522, Louis Trichardt, 0920, South Africa. 38A Vorster St. Louis Trichardt, 0920

Date of Report: 10 October 2013

The purpose of the management summary is to distil the information contained in the report into a format that can be used to give specific results quickly and facilitate management decisions. It is not the purpose of the management summary to repeat in shortened format all the information contained in the report, but rather to give a statement of results for decision making purposes.

This study focuses on the construction of a new coal haulage road in Dundee. This road will connect the Forbes Coal Mine with its bulk deposit site on the eastern side of Dundee. This new road will alleviate several problems with the current use of public roads for the transport of coal between these two sites.

A preliminary alignment has been drawn to lead the study; however this could be altered to some extent to avoid any identified heritage sites.

The purpose of this heritage impact assessment is to outline the cultural heritage sensitivity of the proposed development area and to advise on mitigation should any heritage sites or landscapes be affected.

Findings

Some areas with heritage value were identified along the proposed alignment. None of these will however be negatively affected by the new road. The culturally sensitive heritage landscape of the Talana Hill Battle site is located to the north of the site, however this new road will not have any direct or visual influence on this landscape.

The existing historic railway bridge could possibly be used for crossing a small stream.

Recommendations

None of the first three sites will be affected by the proposed development. The historic railway bridge should be subjected to a structural integrity evaluation before it is considered to use it as part of the haulage road. This use should then be directed by a cultural resource management plan (CRMP).

Fatal Flaws

No fatal flaws were identified.

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List of Abbreviations

Bp ..... Before Present

EIA..... Early Iron Age

ESA ..... Early Stone Age

Fm ..... Femtometre (10^{-15}m)

GPS..... Geographic Positioning System

HIA ..... Heritage Impact Assessment

LIA ..... Late Iron Age

LSA ..... Late Stone Age

MYA ..... Million Years Ago

MSA ..... Middle Stone Age

NHRA..... National Heritage Resources Act no 22 of 1999

SAHRA..... South African Heritage Resource Agency

S&EIR ..... Scoping & Environmental Impact Reporting

Um..... Micrometre (10^{-6} m)

WGS 84 ..... World Geodetic System for 1984

Chapter 1

PROJECT RESOURCES

HERITAGE IMPACT REPORT

HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED FORBES COAL HAULAGE ROAD, KWAZULU NATAL.

INTRODUCTION

Legislation and methodology

G&A Heritage was appointed by GBS Environmental Consultants to undertake a heritage impact assessment for the proposed construction of a coal haulage road in Dundee. Section 38(1) of the South African Heritage Resources Act (25 of 1999) requires that a heritage study be undertaken for:

(a) construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
(b) construction of a bridge or similar structure exceeding 50 m in length; and
(c) any development, or other activity which will change the character of an area of land, or water –
(1) exceeding 10 000 m^2 in extent;
(2) involving three or more existing erven or subdivisions thereof; or
(3) involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years; or
(d) the costs of which will exceed a sum set in terms of regulations; or
(e) any other category of development provided for in regulations.

While the above describes the parameters of developments that fall under this Act., Section 38 (8) of the NHRA is applicable to this development. This section states that;

(8) *The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.*

In regards to a development such as this that falls under Section 38 (8) of the NHRA, the requirements of Section 38 (3) applies to the subsequent reporting, stating that;

(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:
(a) The identification and mapping of all heritage resources in the area affected;
(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7;
(c) an assessment of the impact of the development on such heritage resources;
(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
(g) plans for mitigation of any adverse effects during and after the completion of the

proposed development.

(1) ancestral graves,
(2) royal graves and graves of traditional leaders,
(3) graves of victims of conflict (iv) graves of important individuals,
(4) historical graves and cemeteries older than 60 years, and
(5) other human remains which are not covered under the Human Tissues Act, 1983 (Act No.65 of 1983 as amended);

(h) movable objects, including ;
(1) objects recovered from the soil or waters of South Africa including archaeological and paleontological objects and material, meteorites and rare geological specimens;
(2) ethnographic art and objects;
(3) military objects;
(4) objects of decorative art;
(5) objects of fine art;
(6) objects of scientific or technological interest;
(7) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings; and
(8) any other prescribed categories, but excluding any object made by a living person;

(i) battlefields;
(j) traditional building techniques.

A '**place**' is defined as:
(a) A site, area or region;
(b) A building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);
(c) a group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and (d) an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.

'**Structures**' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

'**Archaeological**' means:
(a) material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
(b) rock art, being a 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 is older than 100 years including any area within 10 m of such representation; and
(c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
(d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

'Paleontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency (SAHRA) will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned.

The removal of graves is subject to the following procedures as outlined by the SAHRA:

- Notification of the impending removals (using English, Afrikaans and local language media and notices at the grave site);

- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from the SAHRA;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

The limitations and assumptions associated with this heritage impact assessment are as follows;

- Limited field investigations were performed on foot and by vehicle where access was readily available.
- Sites were evaluated by means of description of the cultural landscape, direct observations and analysis of written sources and available databases.
- It was assumed that the site layout as provided by GBS Environmental Consultants is accurate.
- We assumed that the public participation process performed as part of the Scoping and Environmental Impact Reporting (S&EIR) process was sufficiently encompassing not to be repeated in the Heritage Assessment Phase.

Table 1. Impacts on the NHRA Sections

Act	Section	Description	Possible Impact	Action
National Heritage Resources Act (NHRA)	34	Preservation of buildings older than 60 years	Yes	CRMP
	35	Archaeological, paleontological and meteor sites	No impact	None
	36	Graves and burial sites	No impact	None
	37	Protection of public monuments	No impact	None
	38	Does activity trigger a HIA?	Yes	HIA

Table 2. NHRA Triggers

Action Trigger	Yes/No	Description
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.	Yes	Haulage road
Construction of a bridge or similar structure exceeding 50m in length.	No	N/A
Development exceeding 5000 m^2	No	N/A
Development involving more than 3 erven or sub divisions	No	N/A
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	N/A
Re-zoning of site exceeding 10 000 m^2	No	N/A
Any other development category, public open space, squares, parks or recreational grounds	No	N/A

Background Information

Proposed Forbes Coal Haulage Road Project

Project Description

Forbes Coal (Pty) Ltd has been using public roads up to present to haul coal through the town of Dundee. This has resulted in the low duty access roads being degraded to a large extent and has caused a high degree of dust pollution. This has had a negative effect on the company's public image as well as impacting on the required maintenance of haulage vehicles and delivery schedules; it also poses a realistic safety issue for the mine. As a result the mine has decided to reroute the haulage path, necessitating the construction of several new sections of road. This new alignment will result in speedier and safer transport of the mined coal.

Site Location

The proposed road runs through the town of Dundee. It starts on the north-western side of town and follows the power distribution lines on the southern side of the river (Steenkoolspruit) until it joins with the R68 (Craigside Street). It then follows the R68 north out of town up to the entrance of the Ingudlane Game Lodge. From here a new road will be constructed along the old railway alignment running around the base of the hill. The road then crosses the small stream either using the old railway bridge or at another more suitable point should the bridge prove unusable.

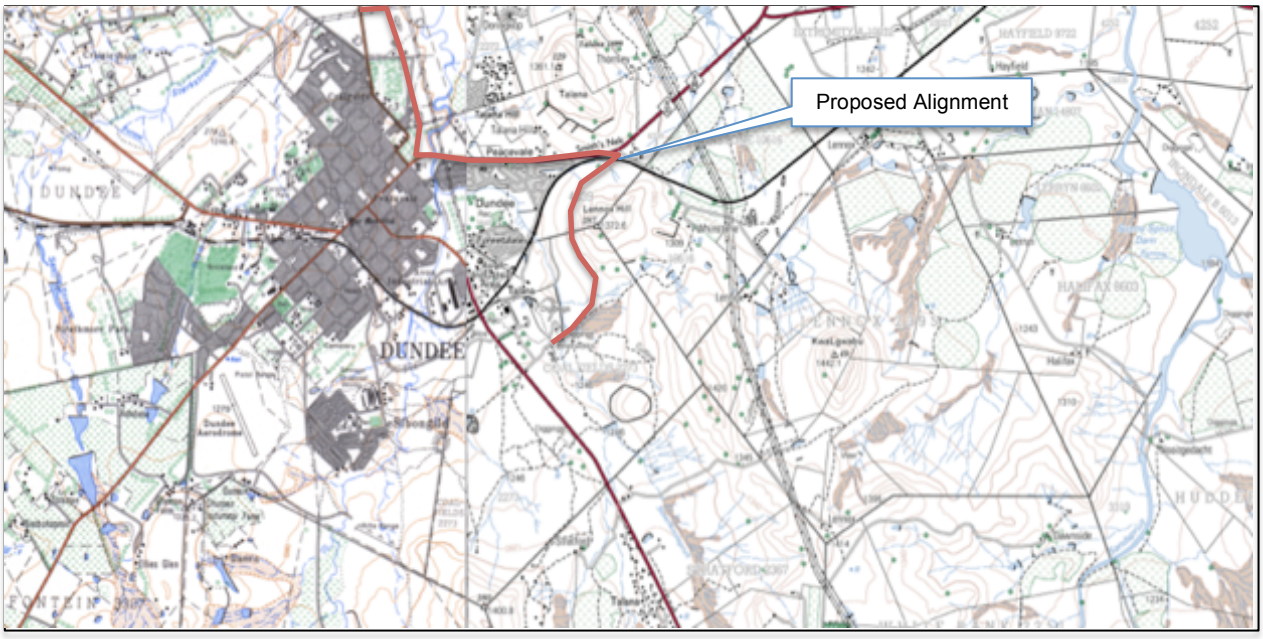


Figure 1. 1:50 000 Location Map

Figure 2. Aerial view of road segment

Alternatives Considered

One alternative was considered

- No-go option where no development takes place.

Figure 3. Landscape of new proposed route

Methodology

This study defines the heritage component of the S&EIR process being undertaken for the Forbes Coal Haulage Road. It is described as a first phase (HIA). This report attempts to evaluate both the accumulated heritage knowledge of the area as well as information derived from direct physical observations.

Evaluating Heritage Impacts

A combination of document research as well as the determination of the geographic suitability of areas and the evaluation of aerial photographs determined which areas could and should be accessed.

After plotting of the site on a GPS the areas were accessed using suitable combinations of vehicle access and access by foot.

Sites were documented by digital photography and geo-located with GPS readings using the WGS 84 datum.

Further techniques (where possible) included interviews with local inhabitants, visiting the Talana Museum and information centres and discussions with local experts. All this information was combined with information from an extensive literature study as well as the result of archival studies based on the SAHRA/SAHRIS provincial databases.

This Heritage Impact Assessment relies on the analysis of written documents, maps, aerial photographs and other archival sources combined with the results of site investigations and interviews with effected

people. Site investigations are not exhaustive and often focus on areas such as river confluence areas, elevated sites or occupational ruins.

The following documents were consulted in this study;

- South African National Archive Documents
- SAHRIS Database of Heritage Studies
- Talana Museum Information and specifically interviews with Ms P MacPhadden
- Internet Search
- Historic Maps
- 1936 and 1952 Surveyor General Topographic Map series
- 1952 1:10 000 aerial photo survey
- Google Earth 2011 & 2003 imagery
- Published articles and books
- JSTOR Article Archive

Fieldwork

Fieldwork for this study was performed on the 15th of August 2013. The area was found to be accessible by vehicle (4x4 was needed in places). Areas of possible significance were investigated on foot. The survey was tracked using GPS and a track file in GPX format is available on request.

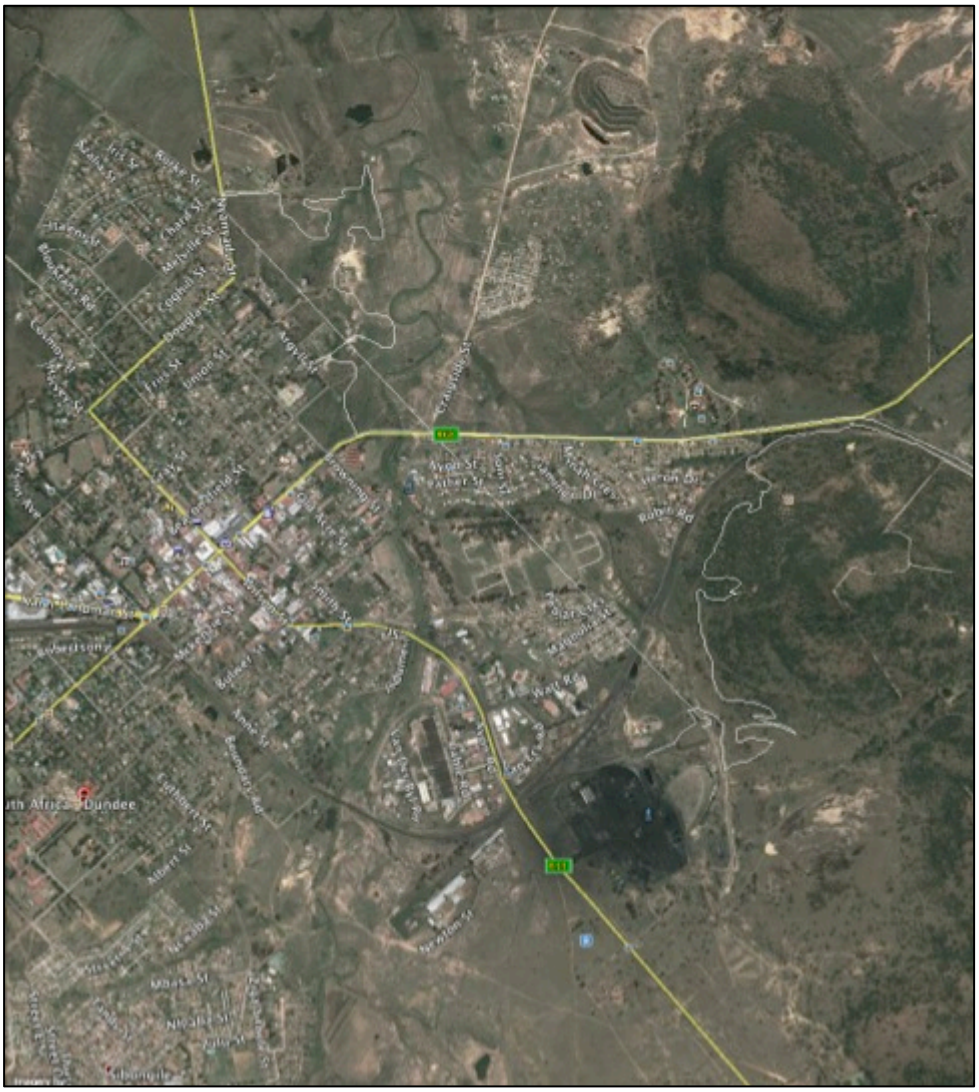


Figure 4. GPS track path ostensibly followed the route alignment (route in white)

Measuring Impacts

In 2003 the SAHRA compiled the following guidelines to evaluate the cultural significance of individual heritage resources:

TYPE OF RESOURCE

- Place
- Archaeological Site
- Structure
- Grave
- Paleontological Feature
- Geological Feature

TYPE OF SIGNIFICANCE

HISTORIC VALUE

It is important in the community, or pattern of history

- Important in the evolution of cultural landscapes and settlement patterns
- Important in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, province, region or locality.
- Important for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, province, region or community.
- Important as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period.

It has strong or special association with the life or work of a person, group or organisation of importance in history

- Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, province, region or community.

It has significance relating to the history of slavery

- Importance for a direct link to the history of slavery in South Africa.

AESTHETIC VALUE

It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

- Important to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
- Importance for its creative, design or artistic excellence, innovation or achievement.
- Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
- In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

SCIENTIFIC VALUE

It has potential to yield information that will contribute to an understanding of natural or cultural heritage

- Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.

- Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.
- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.
- It is important in demonstrating a high degree of creative or technical achievement at a particular period
- Importance for its technical innovation or achievement.

SOCIAL VALUE

- It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
- Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
- Importance in contributing to a community's sense of place.

DEGREES OF SIGNIFICANCE

RARITY

It possesses uncommon, rare or endangered aspects of natural or cultural heritage.

- Importance for rare, endangered or uncommon structures, landscapes or phenomena.

REPRESENTIVITY

- It is important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects.
- Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class.
- Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.

The table below illustrates how a site's heritage significance is determined

Spheres of Significance	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific Community			

What other similar sites may be compared to this site?

IMPACT STATEMENT

ASSESSMENT OF IMPACTS

Direct, indirect and cumulative impacts of the issues identified through the EIA phase are assessed in terms of the following criteria:

- The nature, which shall include a description of what causes the effect, what will be affected and how it will be affected.

- The extent, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The duration, wherein it will be indicated whether:

    - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
    - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
    - medium-term (5–15 years) – assigned a score of 3;
    - long term (> 15 years) - assigned a score of 4; or
    - permanent - assigned a score of 5;

- The magnitude, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

- The probability of occurrence, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

- The significance, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and

- The status, which will be described as either positive, negative or neutral.

- The degree to which the impact can be reversed.

- The degree to which the impact may cause irreplaceable loss of resources.

- The degree to which the impact can be mitigated.

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

S = (E+D+M)P
S = Significance weighting
E = Extent
D = Duration
M = Magnitude
P = Probability

The significance weightings for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),

- 30-60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),

- > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

Assessing Visual Impact

Visual impacts of developments result when sites that are culturally celebrated are visually affected by a development. The exact parameters for the determination of visual impacts have not yet been rigidly defined and are still mostly open to interpretation. CNdV Architects and The Department of Environmental Affairs and Development Planning (2006) have developed some guidelines for the management of the visual impacts of wind turbines in the Western Cape, although these have not yet been formalised. In

these guidelines they recommend a buffer zone of 1km around significant heritage sites to minimise the visual impact.

Chapter 2

PROJECT RESOURCES

HERITAGE INDICATORS WITHIN THE RECEIVING ENVIRONMENT

REGIONAL CULTURAL CONTEXT

PALAEONTOLOGY

Paleontological remains occur in the Cretaceous layer underlying the study area. These are of high significance but should not be impacted on as the ground intrusion is very limited and bedrock is not expected to be disturbed.

STONE AGE

This area is home to all three of the known phases of the Stone Age, namely: the Early- (2.5 million – 250 000 years ago), Middle- (250 000 – 20 000 years ago) and Late Stone Age (22 000 – 200 years ago). The Late Stone Age in this area also contains sites with rock art from the San and Khoekhoen cultural groups. Early to Middle Stone Age sites are uncommon in this area, however rock-art sites and Late Stone Age sites are much better known.

During the Middle Stone Age, 200 000 years ago, modern man or Homo sapiens emerged, manufacturing a wider range of tools, with technologies more advanced than those from earlier periods. This enabled skilled hunter-gatherer bands to adapt to different environments. From this time onwards, rock shelters and caves were used for occupation and reoccupation over very long periods of time.

The Middle Stone Age (MSA), as defined by Goodwin and Van Riet Lowe (1929), was viewed as a switch in technology from core tools to flake tools, and was thought to represent an intermediate technology between the Earlier and Later Stone Age (LSA). Triangular flakes with convergent dorsal scars and faceted butts distinguished the MSA, and radial and discoidal types, along with single and double platform examples, dominated cores. The 'type fossil' was considered to be the worked flake point. Due to both the relatively long time span encompassed by the MSA (c. 250 000-20 000BP) and the high degree of regional variation, it has proved difficult to include all MSA assemblages within Goodwin and Van Riet Lowe's criteria. More recent attempts have been made to revise the definition of the MSA (Klein 1970; Beaumont & Vogel 1972; Volman1984) and to establish a cultural sequence but with limited success. As a result identifying and understanding the end of the MSA is still difficult. Disagreement concerning the MSA/LSA transition in southern Africa centres on four issues: 1) the definition of what constitutes final MSA technology; 2) the existence of a transitional MSA/LSAindustry; 3) the dating of the MSA/LSA transition; and 4) the existence of an Early LSA (ELSA) which represents a distinct industry that is not part of the earliest recognized LSA, the Robberg (Clark, 1997).

1985 excavation at Umhlatuzana rock shelter in Natal by Kaplan yielded a long and detailed sequence of stone artefacts, which covered the time range from the Middle Stone Age (MSA) to the Later Stone Age (LSA), including the MSA/LSA transition, and early LSA microlithic bladelet assemblages. The change from the MSA to the beginning of the LSA took place between 35 000 and 25 000 BP. Robberg-like assemblages recovered from Umhlatuzana are the first to be positively identified in Natal. Pre-dating 18 000 BP and post-dating 12 000 BP, they show that assemblages of this nature were produced earlier and later in Natal than elsewhere in the country. Changes in the Umhlatuzana stone artefact assemblages were not the result of the introduction from elsewhere of new types of tools, but took place locally, as the result of a single evolving cultural tradition in a trajectory of cultural and social change (Kaplan, 1986).

Recent research by Wadley on the Middle Stone Age of Sibudu Cave north of Durban indicated that distinctions between the Middle Stone Age and the Late Stone Age based on backed blades could be misleading (Wadley, 2005). Although research on MSA sites is limited, this research illustrates the potential value of investigating Stone Age sites in KZN closer.

The Late Stone Age, considered to have started some 20 000 years ago, is associated with the predecessors of the San and Khoi Khoi. Stone Age hunter-gatherers lived well into the 19th century in some places in SA. Stone Age sites may occur all over the area where an unknown number may have been obliterated by mining activities, urbanisation, industrialisation, agriculture and other development activities during the past decades.

A large representation of Rock-Art sites is located in this area. During 1981 Mazel completed a survey of the Drakensberg and Southern Natal and documented over 400 rock art sites with more than 20 000 paintings (Mazel, 1981). The occurrence of these sites is however subject to very specific environmental parameters, none of which are present in the study area.

Iron Age

During the third century AD, several groups of farming peoples from eastern and south central Africa began to settle along the east coast and river valleys that drain into the Indian Ocean (Maggs 1984a, 1989; Mitchell 2002). In eastern South Africa, these early farmers display a strong preference for settling a savannah environment along major water bodies where annual precipitation from 400 to over 1000mm provided adequate moisture for grain production. Over thirty EIA identified settlements in the Thukela Basin are clustered on discontinuous patches of rich colluvial soils within a short distance of the edge of the Thukela River or its tributaries. EIA settlements were initially established in the coastal forest in the fifth century AD and later in the savannah woodland belt alongside rivers in the (seventh century AD). The opening of riverine forest and woodlands by EIA farmers is apparent from the palaeobotanical record, current vegetation distribution (Hall 1981) and settlement distribution in the Thukela Basin. All documented sites are found within 100m of the relic canopy fringe (van Schalkwyk 1992).

EIA sites averaging 7 hectares in size are consistently located on the most productive nodes of soils confined to confluences and colluvial slip-off slopes along the major drainage courses, which comprise only about 9 per cent of the landscape (Maggs 1980: 7).

"*Interpretations of the internal spatial organization of EIA sites in southern Africa are complicated by the relatively long use and frequent reoccupation of sites, often over several hundred years (Maggs 1984b, 1989). These reoccupations of the same places have created a palimpsest of flat, expansive settlements, with both superimposed and laterally displaced stratigraphy (Greenfield et al. 2000). Despite this situation, several large-scale horizontal excavations of settlements in the region have demonstrated a spatial layout of features that are similar to homestead spatial organization derived from nineteenth- and twentieth-century Nguni and Sotho-Tswana ethnography (Kuper 1982), called the Central Cattle Pattern (CCP). This pattern is characterized by domestic residences of the senior man's wives placed in ranked order in an arc or circle around a central area containing livestock pens, the burials of high-status individuals and a court or assembly area where men gather to discuss political matters (Huffman 2001). Archaeologically, a similar pattern is represented by a series of domestic complexes (hut floors, grain bins or pits, ash and other refuse middens) surrounding a series of non-domestic activity areas, including livestock enclosures and specialist activity areas separated by an open space devoid of cultural materials. There is some variation in the size of the open space. At Broederstroom in north-eastern South Africa, the distance between hut floors and a livestock enclosure was as little as 10m (Huffman 1993). At KwaGandaganda in the Mngeni valley in KwaZulu-Natal, the open space was 90m across (Whitelaw 1994), and at Ndondondwane this open space was 60-100m*" (Greenfield and van Schalkwyk 2003) (Huskel J, Greenfield, Kent, D, Fowler, & Leonard O, van Schalkwyk, 2005).

As well, faunal evidence suggests that certain species, such as nyala antelope, were forced to shift the range of their habitat after the woodland was opened (Maggs 1995:175). A considerable number of Late Iron Age, stone walled sites, dating from the 18th and the 19th centuries (some of which may have been occupied as early as the 16th century), occur along and on top of the rocky ridges here These settlements and features in these sites, such as huts, were built with dry stone, reed and clay.

Stone walled settlements are concentrated in clusters of sites and sometimes are dispersed over large areas making them vulnerable to developments of various kinds. A site consists of a circular or elliptical outer wall that is composed of a number of scalloped walls facing inwards towards one or more enclosures. Whilst the outer scalloped walls served as dwelling quarters for various family groups, cattle, sheep and goat were stock in the centrally located enclosures. Huts with clay walls and floors were built inside the dwelling units. Pottery and metal items are common on the sites. However, iron and copper were not produced locally on these sites.

Many of the Iron Age sites are also associated with Zulu encampments. Due to the often semi-nomadic nature of these and the use of removable beehive huts, these sites are often difficult to identify and short term occupational sites might only manifest in some stone circles, use to anchor these structures to the ground.

The Historic Era

British settlers first arrived at Port Natal (Durban) in 1824 when Shaka, King of the Zulu was firmly in charge of the hinterland. Thirteen years later a party of Boer families trekked in from the Free Sate. Between 1860 and 1911 shiploads of Indians arrived to work in the coastal sugar plantations. Since then, immigrants from around the world have brought with them different cultures, enriching the character of the province in many ways.

Northern and central KwaZulu-Natal is strewn with sites of battles between the Zulu, Boer and British during the 1800's and 1900's. The British final conquered the Zulu in the Anglo-Zulu War of 1879 and later the Boers in the First and Second Anglo Boer wars. These conflicts are now collectively known as the South African War. A result of these conflicts was the construction of many forts in the area. Several gravesites, monuments, stone cairns and statues are the legacy of this violent time in our history. These remains are found scattered throughout the study area.

The Battle of Talana Hill

On the outbreak of the War in South Africa the British authorities feared the Boers from the Transvaal and the Orange Free State would invade the British coastal colony of Natal, a triangular shaped area sharing a long common border with the two Boer republics, its northern apex remote and exposed to attack, situated on the Indian Ocean.

In early autumn 1899 British reinforcements rushed to South Africa from India under the command of Major General Penn Symons.

Voices of South African experience at the British War Office in London urged Symons to keep his outnumbered troops well back from the frontier, behind the Tugela River. Symons thought otherwise and advanced his lead brigade to Dundee north of the Tugela, where it would be outflanked by a Boer invasion along the length of the frontier.

On 20th October 1899 the Boer commando of General Meyer appeared on Talana Hill to the North East of Dundee, following a night approach march.
General Symons was not impressed by the readiness of the British troops in Natal and worked them hard. His battalions were falling in for a day's training when the first artillery rounds came in from Meyer's artillery on Talana Hill.

During the tense months leading to open war the Transvaal Republic had bought substantial quantities of weapons, including modern artillery pieces from the French manufacturer Creusot. The first of these, three 75 millimetre guns, came into action at Talana, firing on the British camp.

There was a delay before fire could be returned, the British artillery horses being at water. The batteries harnessed up and hurried through Dundee, coming into action in the open ground beyond the town, quickly silencing the outnumbered Boer guns.

As his artillery bombarded the Boers, Symons prepared to attack their positions on Talana Hill with his infantry, forming with the Dublin Fusiliers massed in the front rank, the Rifles in the second rank and the Royal Irish Fusiliers in the third rank. Penn Symons insisted his regiments attack in conventional close order, an unrealistic tactic against an enemy armed with modern magazine rifles.

The assault went in, the first lines reaching a wood at the base of Talana Hill where in the face of heavy fire the attack stalled. Symons arrived at the wood, dismounted and led the advance himself, until he was mortally injured.

The British infantry attack regained its momentum and continued up Talana Hill in the face of heavy fire, gathering below the peak for the final attack. As the troops stormed the top of the hill the Boers fell back. One of the British batteries firing from the open ground outside Dundee failed to identify the troops on the

top of Talana as British and continued to fire on the crest, inflicting unnecessary casualties and hindering the assault.

The Boers could be seen mounting their ponies and streaming away across the valley on the far side of the hill. Penn Symons had sent the 18th Hussars and Mounted Infantry around Talana Hill to take advantage of just such a situation, but there was no sign of them. The country was not familiar to the officers and they had become lost; straying away towards the main Boer force where later that day they were surprised by a larger contingent of Boers and captured.

The British batteries came forward but due to a misunderstanding of their orders or a failure to identify the Boers, did not open fire on the retreating commando (http://www.britishbattles.com/great-boer-war/talana-hill.htm).

Cultural Landscape

The urban landscape of Dundee is associated with industry and commerce. The route alignment runs through an area with diverse activities from farming to residential, tourism and mining. The area is very much dominated by the Talana Hill in the north. This is a significant heritage area with battle sites a museum, burial grounds of victims of conflict and associated structures. Further to the east are the remains of the original railway line from the 1890's. The most prominent remains of this activity is the steel rail bridge with its sandstone approach buttresses.

Previous Studies

G&A Heritage performed several similar studies on road upgrades in this general area in 2012 for the same client. These were referenced as follows;

- Busani Road Upgrade HIA
- Chibide Road Upgrade HIA
- Graig Millar Road Upgrade HIA
- Emahashini Road upgrade HIA
- Fahlaza Road Upgrade HIA
- Gazaneni Road Upgrade HIA
- Haladu Road Upgrade HIA
- Jikijiki Road Upgrade HIA
- Khuthalani Road Upgrade HIA
- Kwavumbu Road Upgrade HIA
- Nembeni Road Upgrade HIA
- Ngqungqula Road Upgrade HIA
- Nomafu Road Upgrade HIA
- Ntabampisi Road Upgrade HIA
- Nyoka Road Upgrade HIA
- Okhalweni Road Upgrade HIA
- Sigidisabeth Road Upgrade HIA
- Songela Road Upgrade HIA
- Sthozini Road Upgrade HIA

Chapter 4

FINDINGS

RESULTS AND HERITAGE SIGNIFICANCE

EVALUATING HERITAGE SIGNIFICANCE

In 2003 the SAHRA compiled the following guidelines to evaluate the cultural significance of individual heritage resources:

TYPE OF RESOURCE

- Place
- Archaeological Site
- Structure
- Grave
- Paleontological Feature
- Geological Feature

TYPE OF SIGNIFICANCE

1. HISTORIC VALUE

   It is important in the community, or pattern of history
   - Important in the evolution of cultural landscapes and settlement patterns
   - Important in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, province, region or locality.
   - Important for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, province, region or community.
   - Important as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period.

   It has strong or special association with the life or work of a person, group or organisation of importance in history
   - Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, province, region or community.

   It has significance relating to the history of slavery
   - Importance for a direct link to the history of slavery in South Africa.

2. AESTHETIC VALUE

   It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
   - Important to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
   - Importance for its creative, design or artistic excellence, innovation or achievement.
   - Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
   - In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

3. SCIENTIFIC VALUE

   It has potential to yield information that will contribute to an understanding of natural or cultural heritage

- Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
- Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.
- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.
- It is important in demonstrating a high degree of creative or technical achievement at a particular period
- Importance for its technical innovation or achievement.

4. SOCIAL VALUE
   - It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
   - Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
   - Importance in contributing to a community's sense of place.

DEGREES OF SIGNIFICANCE

1. RARITY

It possesses uncommon, rare or endangered aspects of natural or cultural heritage.

- Importance for rare, endangered or uncommon structures, landscapes or phenomena.

2. REPRESENTIVITY
   - It is important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects.
   - Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class.
   - Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.

The table below illustrates how a site's heritage significance is determined

Spheres of Significance	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific Community			

What other similar sites may be compared to this site?

After investigating the route alignment for the proposed haulage road, several sites of heritage significance were identified. None of these were directly on the route, however they were close enough to warrant their listing here. It is not expected that any of the sites will be affected by the proposed development.

Results and Heritage Significance

Site 1

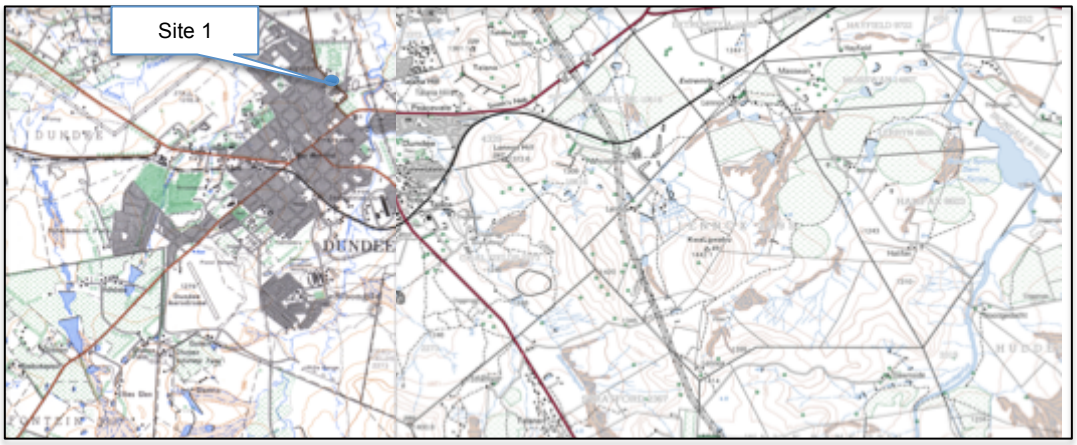
Town Cemetery Site

Heritage Significance: HIGH

GPS 28° 09' 09,6" S
30° 14' 28,4" E

This is the site of the original town cemetery of Dundee and it was used until the early 1980's. At present the site is enclosed with a concrete palisade fence due to severe vandalism that the site was subjected to in the past. All the historic headstones have been removed by the Talana Museum where they are kept in safe storage. The only grave coverings still visible are those of three graves of Asian origin. The site is approximately 30m x 30m in size. It is not sure whether the site has been deconsecrated or not. Due to the few remaining graves, the site is attributed a heritage value score of High.

Figure 5. Old cemetery with grave remains in front



Site 2

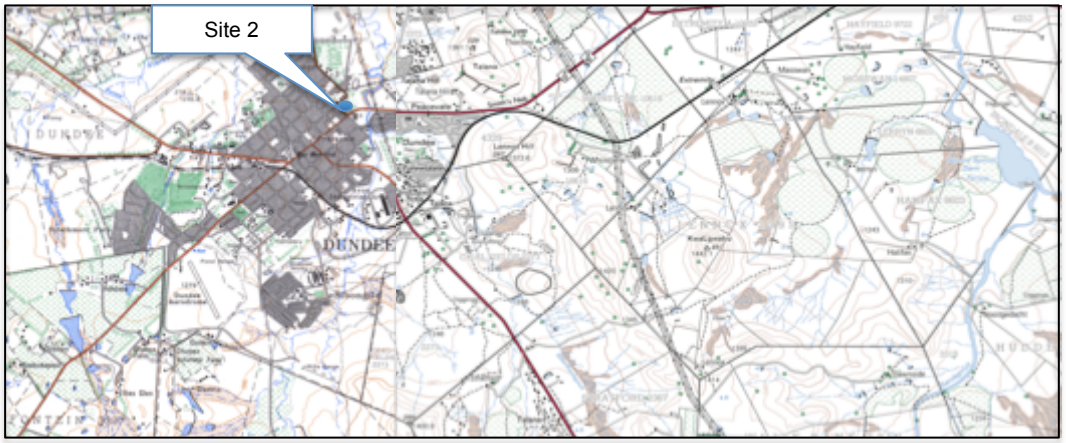
Indian Barracks

Heritage Significance: LOW

GPS 28° 09’ 23,1” S
30° 14’ 33,2” E

According to informants from the Talana Museum an undefined area to the south of the Steenkoolspruit was utilised as barracks for Indian troops during the Anglo-Boer War (P. MacPhadden, *pers. comm.*). The barrack would have been of temporary construction and little would have remained to identify the site. The area was investigated and proved to have been bulldozed several years ago. Currently a grove of *Eucalyptus* trees are located at the site. Due to the fact that there are no physical remains left on site, this location is attributed a heritage significance score of Low.

Figure 6. Area where possible Indian Barracks could have occurred.



Site 3

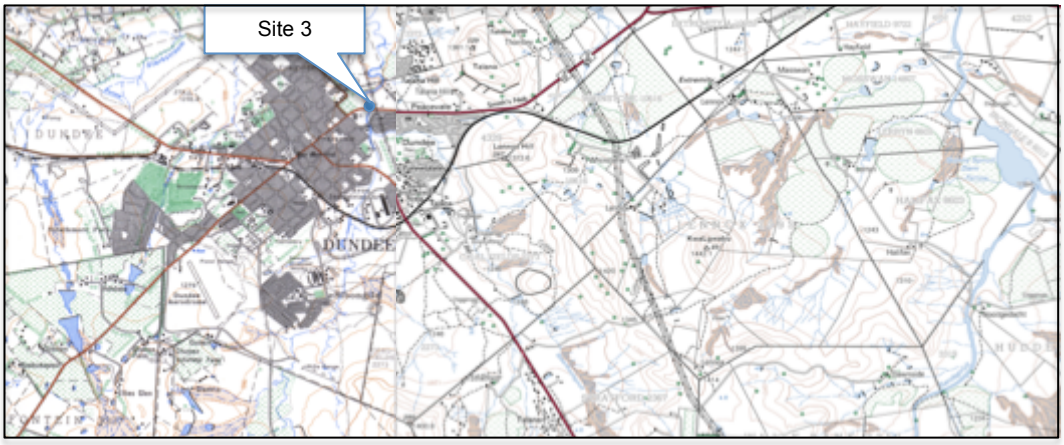
Gun Emplacements

Heritage Significance: LOW

GPS 28° 09' 24,6" S
30° 14' 43,9" E

According to informants at the Talana Museum original information indicated that there were artillery gun emplacements near the R68 Bridge over the Steenkoolspruit, close to the connection point with the new haulage road. These were only sites of placement and would not retain any other indicators once the artillery guns were moved. Recent research has however shown that the actual position of these emplacements was rather further downstream from this site (P. MacPhadden, *pers. comm.*). Due to the lack of any material remains and the possible incorrect identification of the site, this location is attributed a heritage significance score of Low.

Figure 7. Possible location of historic gun emplacement



Site 4

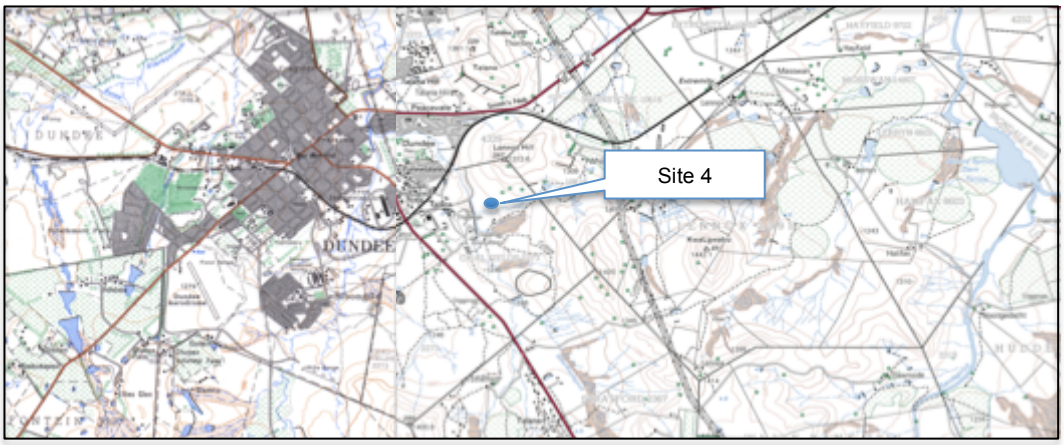
Railroad Bridge

Heritage Significance: MEDIUM

GPS 28° 10' 13,5" S
30° 15' 33,8" E

Close to the coal yard there is a riverbed, which has caused severe erosion in its run-off. This riverbed runs diagonally through the alignment of the original railway line. In the 1898 a railroad bridge was built over this riverbed to service the then railroad. This railroad was decommissioned in the early 1980's and the railway tracks and sleepers were removed at that time (the rail alignment itself holds very little heritage value), however the bridge was left in place. It consists of cut sandstone buttresses, which strengthens the approaches of the bridge while the bridge structure itself consist of steel girders and steel plating held together by rivets. The bridge is a classic example of late 1800's industrial engineering. While the main superstructure seems intact it is possible that the supporting structures have degraded to such an extent during the past 100 years that the bridge might be unsound. The bridge is protected under the NHRA and has some industrial archaeological value and therefore it's heritage significance is rated as Medium.

Figure 8. Historic Railway Bridge



Chapter 3

IMPACT ASSESSMENT

ASSESSING THE IMPACT OF THE DEVELOPMENT

ASSESSMENT OF IMPACTS

IMPACT STATEMENT

PALEONTOLOGICAL SITES

Paleontological sites will not be affected as bedrock is not to be disturbed by the proposed activities.

Mitigation

No mitigation needed.

HISTORIC SITES / BUILT ENVIRONMENT

Site 1

Nature of Impacts: The proposed road will pass close to the old Dundee cemetery site. Few impacts are expected on the site.

Extent of Impacts: The impacts are expected to be very restricted and limited to some dust and noise pollution.

Nature of Impact: Trucks moving close past the site could result in dust and noise pollution on site		
	Without Mitigation	With Mitigation
Extent	**Local (2)**	**Local (2)**
Duration	**Long term (5)**	**Long term (5)**
Magnitude	**Low (1)**	**Low (1)**
Probability	**Improbable (1)**	**Improbable (1)**
Significance	**Low (10)**	**Low (10)**
Status	**Negative**	**Negative**
Reversibility	**Reversible**	**Reversible**
Irreplaceable loss of resource	**No**	**No**
Can impacts be mitigated	**Yes**	**Yes**
Mitigation	**No mitigation required**	
Cumulative impacts	**Eventual further damage to site**	
Residual impacts	**Dust accumulation on remaining grave dressings**	

Site 2

Nature of Impacts: The road construction could pass close to the old Indian Barracks.

Extent of Impacts: The impacts are expected to be very limited due to the minimal remains left on site as well as the significantly altered state of the area in general.

Nature of Impact: Construction activities on the road could impact on this site		
	Without Mitigation	With Mitigation
Extent	**Local (1)**	**Local (1)**
Duration	**Long term (5)**	**Long term (5)**
Magnitude	**Low (1)**	**Low (1)**
Probability	**Improbable (1)**	**Improbable (1)**
Significance	**Low (5)**	**Low (5)**
Status	**Negative**	**Negative**
Reversibility	**Reversible**	**Reversible**
Irreplaceable loss of resource	**No**	**No**

Can impacts be mitigated	**Yes**	**Yes**
Mitigation	**No mitigation required**	
Cumulative impacts	**None**	
Residual impacts	**None**	

Site 3

Nature of Impacts: The road construction could pass close to the areas identified in the past as military gun emplacements.

Extent of Impacts: The impacts are expected to be very limited due to the high possibility that this site was not correctly identified in the past as the gun emplacement site as well as the significantly altered state of the area in general and the lack of any tangible remains on site.

Nature of Impact: Construction activities on the road could impact on this site		
	Without Mitigation	With Mitigation
Extent	**Local (1)**	**Local (1)**
Duration	**Long term (5)**	**Long term (5)**
Magnitude	**Low (1)**	**Low (1)**
Probability	**Improbable (1)**	**Improbable (1)**
Significance	**Low (5)**	**Low (5)**
Status	**Negative**	**Negative**
Reversibility	**Reversible**	**Reversible**
Irreplaceable loss of resource	**No**	**No**
Can impacts be mitigated	**Yes**	**Yes**
Mitigation	**No mitigation required**	
Cumulative impacts	**None**	
Residual impacts	**None**	

Site 4

Nature of Impacts: The road construction could impact on the railway bridge should it be decided to utilise it as part of the haulage road.

Extent of Impacts: Increased vibrations and pressure on the road could impact on the abutments of the bridge should they prove to be structurally degraded. Changes to the historic design of the bridge could impact on the heritage value of the bridge.

Nature of Impact: Paleontological sites could be affected if bedrock was to be disturbed during the excavation activities associated with the construction.		
	Without Mitigation	With Mitigation
Extent	**Local (2)**	**Local (2)**
Duration	**Short term (2)**	**Long term (5)**
Magnitude	**High (8)**	**Low (1)**
Probability	**Probable (3)**	**Improbable (1)**
Significance	**Medium(36)**	**Low (8)**
Status	**Negative**	**Positive**
Reversibility	**Irreversible**	**Reversible**
Irreplaceable loss of resource	**Yes**	**No**
Can impacts be mitigated	**Yes**	**Yes**
Mitigation	**It is recommended that the bridge undergoes structural integrity evaluation and that it be subjected to a heritage resource management plan and SAHRA permitting before it could be used**	
Cumulative impacts	**Continuous vibrations and use of bridge could result in degradation of the structural integrity of the bridge**	
Residual impacts	**Loss of a historic structure**	

Heritage Management Actions

Site 4

Objective 1: Minimising the impact on the historic railway bridge at Site 4
Unidentified or sub-surface sites could still be encountered during the construction phase

Project Component	Forbes Coal Haulage Road
Potential Impact	Damage or destruction of the railway bridge
Activity/Risk source	Use of the bridge for the haulage road
Mitigation Target	Protection and preservation of the bridge

Mitigation: Action	Responsibility	Time Frame
1. Evaluation of the structural integrity of the bridge. 2. Conservation management plan to be compiled	1. Structural engineer 2. Contracted heritage practitioner	1. Before construction 2. Before construction and monitoring during construction phase

Performance Indicator	Complete preservation of bridge
Monitoring	Monitoring during construction phase to ensure no damage to the bridge

Cultural Landscape

The following landscape types were identified during the study.

Landscape Type	**Description**	**Occurrence still possible?**	**Identified on site?**
1 Paleontological	Mostly fossil remains. Remains include microbial fossils such as found in Baberton Greenstones	Yes, sub-surface	No
2 Archaeological	Evidence of human occupation associated with the following phases – Early-, Middle-, Late Stone Age, Early-, Late Iron Age, Pre-Contact Sites, Post-Contact Sites	No	No
3 Historic Built Environment	- Historical townscapes/streetscapes - Historical structures; i.e. older than 60 years - Formal public spaces - Formally declared urban conservation areas - Places associated with social identity/displacement	Yes	Yes, railway bridge
4 Historic Farmland	These possess distinctive patterns of settlement and historical features such as: - Historical farm yards - Historical farm workers villages/settlements - Irrigation furrows - Tree alignments and groupings - Historical routes and pathways - Distinctive types of planting - Distinctive architecture of cultivation e.g. planting blocks, trellising, terracing, ornamental planting.	No	No
5 Historic rural town	- Historic mission settlements - Historic townscapes	No	No
6 Pristine natural landscape	- Historical patterns of access to a natural amenity - Formally proclaimed nature reserves - Evidence of pre-colonial occupation	No	No

	- Scenic resources, e.g. view corridors, viewing sites, visual edges, visual linkages - Historical structures/settlements older than 60 years - Pre-colonial or historical burial sites - Geological sites of cultural significance.		
7 Relic Landscape	- Past farming settlements - Past industrial sites - Places of isolation related to attitudes to medical treatment - Battle sites - Sites of displacement,	Yes	Yes, gun emplacements
8 Burial grounds and grave sites	- Pre-colonial burials (marked or unmarked, known or unknown) - Historical graves (marked or unmarked, known or unknown) - Graves of victims of conflict - Human remains (older than 100 years) - Associated burial goods (older than 100 years) - Burial architecture (older than 60 years)	Yes	Yes, Dundee historic cemetery
9 Associated Landscapes	- Sites associated with living heritage e.g. initiation sites, harvesting of natural resources for traditional medicinal purposes - Sites associated with displacement & contestation - Sites of political conflict/struggle - Sites associated with an historic event/person - Sites associated with public memory	No	No
10 Historical Farmyard	- Setting of the yard and its context - Composition of structures - Historical/architectural value of individual structures - Tree alignments - Views to and from - Axial relationships - System of enclosure, e.g. defining walls - Systems of water reticulation and irrigation, e.g. furrows - Sites associated with slavery and farm labour - Colonial period archaeology	No	No
11 Historic institutions	- Historical prisons - Hospital sites - Historical school/reformatory sites - Military bases	No	No
12 Scenic visual	- Scenic routes	No	No
13 Amenity landscape	- View sheds - View points - Views to and from - Gateway conditions - Distinctive representative landscape conditions - Scenic corridors	No	No

Cultural Landscape Mitigation

It is recommended that the development designs take into account the positive and negative characteristics of the existing cultural landscape type and that they endeavour to promote the positive aspects while at the same time mitigating the negative aspects.

Resource Management Recommendations

Although unlikely, sub-surface remains of heritage sites could still be encountered during the construction activities associated with the project. Such sites would offer no surface indication of their presence due to the high state of alterations in some areas as well as heavy plant cover in other areas. The following indicators of unmarked sub-surface sites could be encountered:

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate);
- Bone concentrations, either animal or human;
- Ceramic fragments such as pottery shards either historic or pre-contact;
- Stone concentrations of any formal nature.

The following recommendations are given should any sub-surface remains of heritage sites be identified as indicated above:

- All operators of excavation equipment should be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures should they be encountered.
- All construction in the immediate vicinity (50m radius of the site) should cease.
- The heritage practitioner should be informed as soon as possible.
- In the event of obvious human remains the South African Police Services (SAPS) should be notified.
- Mitigation measures (such as refilling etc.) should not be attempted.
- The area in a 50m radius of the find should be cordoned off with hazard tape.
- Public access should be limited.
- The area should be placed under guard.
- No media statements should be released until such time as the heritage practitioner has had sufficient time to analyse the finds.

Conclusion

Four sites of heritage significance and one significant heritage landscape was identified during this study. The first site is an old cemetery that has possibly been deconsecrated and will not be impacted on in any significant way. The second and third sites are locations of historic features that have either been removed or possibly erroneously described and the road would therefore have little or no impact on these. The final site is a historic railway bridge built in the late 1800's. One possibility is the use of the railway bridge for the haulage road. This will however be subject to a structural integrity evaluation and if it is decided to utilise the bridge the development will have to be led by a cultural resource management plan. The structural integrity evaluation will have to be performed by a qualified structural engineer and the CRMP should be formulated implemented and monitored by a suitably qualified heritage practitioner.

The Talana Hill and museum forms the backdrop for the significant historic landscape. Although visible from the route alignment it is not anticipated that the new proposed road would impact negatively on this cultural landscape feature due to the already severely modified nature of the surrounding area. The part of the alignment that would pass close to the museum would be routed on the surfaced R68 road and therefore no dust pollution is anticipated.

Provided the above recommendations are followed there should be no reason from a heritage point of view why the construction of the road could not continue.

References Cited and Researched

Ahler, S.A. 1977. Functional analysis of nonobsidian chipped stone artefacts: terms, variables and quantification. In: Hayden, B. (ed.). Lithic use-wear analysis: 301-328. New York: Academic Press.

Aikman, H, Baumann, N, Winter, S and Clift H. 2005. A state of the cultural historical environment study: Unpublished report compiled by Overstrand Heritage and Landscape Consortium for the Overstrand District Municipality.

Booth, A. R. ed. 1967. Journal of the Rev. George Champion. Cape Town: Struik.

Cory, Sir G. E. 1926. The Diary of the Rev. Francis

Cronin, M. 1975. Mgungundlovu. Unpublished B.A. (Hons.) thesis: University of Cape Town.

Gardiner, Allen F. 1966. Narrative of a Journey to the Zoolu Country in South Africa. Cape Town: Struik (Reprint).

Greenfield, H. J., van Schalkwyk, L. O. and Jongsma, T. L. 2000. Surface and subsurface reconnaissance at Ndondondwane: preliminary results of the 1995-97 field seasons. Southern African Field Archaeology, 9: 5-16.

Greenfield, H. J. and van Schalkwyk, L. O. 2003. Intr a- settlement social and economic organization of Early Iron Age farming communities in southern Africa: view from Ndondondwane. Azania, 38: 121-37.

http://www.britishbattles.com/great-boer-war/talana-hill.htm

Huffman, T. N. 1993. Broederstroom and the Central Cattle Pattern. South African Journal of Science, 89: 220-26.

Huffman, T. N. 2001. The Central Cattle Pattern and interpreting the past. Southern African Humanities, 13: 19-35.

Isaacs, N. 1970. Travels and Adventures in Eastern Africa. Cape Town: Struik (Reprint).

Kirby, P. R. 1955. Andrew Smith and Natal. Cape Town: Van Riebeeck Society.

Krige, E. J. 1936. The social system of the Zulus. Pietermaritzburg: Shuter and Shooter.

Kent, S. 1998. Invisible gender-invisible foragers: hunter-gatherer spatial patterning and the southern African archaeological record. In: Kent, S. (ed.) Gender in African prehistory: 39-67. California: Altamira Press.

Lombard, M. 2003. Closer to the point: macro-fracture, micro-wear and residue analyses of Middle Stone Age lithic points from Sibudu Cave, KwaZulu-Natal, South Africa. Unpublished M.Sc. thesis, University of the Witwatersrand.

Lombard, M., Parsons, I. & Van der Ryst, M.M. 2004. Middle Stone Age lithic point experimentation for macro-fracture and residue analysis: the process and preliminary results with reference to Sibudu Cave points. South African Journal of Science 100: 159-166

Maggs, T. O. 1980. The Iron Age sequence south of the Vaal and Pongola Rivers: some historical implications. Journal of African History, 21: 1-15.

Maggs, T. O. 1984a. Ndondondwane; a preliminary report on an Early Iron Age site on the lower Tugela River. Annals of the Natal Museum, 26: 71-94.

Maggs, T. O. 1984b. Iron Age settlement and subsistence patterns in the Tugela River Basin, Natal. In Frontiers of Southern African Archaeology Today (eds M. Hall, G. Avery, D. M. Avery, M. L. Wilson and A. J. B. Humphreys). Cambridge Monographs in African Archaeology 10. Oxford: British Archaeological Reports, International Series 207, pp. 194-206.

Maggs, T. O. 1984c. The Iron Age south of the Zambezi. In Southern African Prehistory and

Maggs, T. O. 1989. The Iron Age farming communities. In Natal and Zululand: From Earliest Time to 1910: A New History (eds A. Duminy and B. Guest). Pietermaritzberg: University of Natal Press/Shuter & Shooter, pp. 28 (8).

Maggs, T. O. 1995. The Early Iron Age in the extreme south: some patterns and problems. Azania, 29/30: 171-8.

Maggs, T. and Ward, V. 1984. Early Iron Age sites in the Muden area of Natal. Annals of the Natal Museum, 26: 105-40.

Maggs, T., Oswald, D., Hall, M. and Ruther, H. 1986. Spatial parameters of Late Iron Age settlements in the upper Thukela Valley. Annals of the Natal Museum, 27: 455-79. Owen, M.A. Cape Town: Van Riebeeck Society.

Spenneman, D. 2006. Gauging community values in Historic preservation. CRM: The Journal of Heritage Stewardship 3(2):6-20.

Oberholster, J. J. & Walton, J. n.d. Dingane's Kraal - Mgungundlovu. National Monuments Commission Booklet.

Retief, P. in litt. Letter dated November 18, 1837. In Campbell, K. n.d.: Vmgungundlovu- Dingaans Kraal: 41. Unpublished MS. Killie Campbell Africana Library, Durban.

Stuart, J. n.d. Unpublished papers. Killie Campbell African Library, Durban.

Stuart, J. & McMalcolm, D. eds. 1969. The diary of Henry Francis Fynn. Pietermaritzburg: Shuter and Shooter.

Wadley, L & Jacobs, Z. 2004. Sibudu Cave, KwaZulu-Natal: Background to the excavations of Middle Stone Age and Iron Age occupations. South African Journal of Science 100: 145-151.

Webb, C. de B., & Wright, J. 1977. The Stuart Archives, Vol. I. Pietermaritzburg: Natal University Press.

Whitelaw, G. D. 1994. KwaGandaganda: settlement patters in the Natal Early Iron Age. Natal Museum Journal of Humanities, 6: 1-64.

Wood, W. 1840. Statements respecting Dingaan, King of the Zoolahs, with some particulars relative to the massacres of Messrs. Retief and Biggars, and their parties. Cape Town: Collard & Co.