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PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**BULK SERVICES FOR THE PROPOSED RATHWICK DEVELOPMENT,  
QUEENSTOWN, EASTERN CAPE, SOUTH AFRICA**

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*PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT*  
**BULK SERVICES FOR THE PROPOSED RATHWICK DEVELOPMENT,  
 QUEENSTOWN, EASTERN CAPE, SOUTH AFRICA**

## EXECUTIVE SUMMARY

### TERMS OF REFERENCE:

BESC has been appointed as independent environmental consultant by the project engineers, Element Consulting Engineers (Pty) Ltd, on behalf of the project proponent, the CHDM to conduct the EIA and prepare the SR, the EIR and the EMP for the *Bulk Services for the proposed Rathwick Development* project, in Queenstown, Eastern Cape. It is proposed to construct / upgrade the bulk water supply, sanitation and stormwater services for the proposed Rathwick Residential development, which will comprise of approximately 3,000 units. The *Bulk Services for the proposed Rathwick Development* project can briefly be summarized as:

- Bulk Water: A 10MI Reservoir and 4MI Sump at the Queenstown WTW; Bulk water alternative route A – 7.5km; and Bulk water alternative route B & C – 13.5km.
- Bulk Sewer: Pump stations with generators (new Enkhulukweni and Rathwick pump stations); Screen at existing Queenstown WWTW; and Rising main (sewer alternative route A, B & C) – 4.6km.
- Bulk Stormwater: Stormwater retention facility; and Stormwater conveyance infrastructure – 2.3km.

ArchaeoMaps Archaeological Consultancy has been appointed by BESC to conduct the Phase 1 AIA as specialist sub-section to the EIA.

### THE ARCHAEOLOGICAL IMPACT ASSESSMENT:

- PROJECT AREA** : Queenstown, Eastern Cape [1:50,000 map ref – 3126DD].
- GAP ANALYSIS** : The assessment was conducted across the proposed *Bulk Services for the proposed Rathwick Development* study site (with exclusions along the Water Line – Line Route A and the Water Line – Line Routes B & C)
- METHODOLOGY** : Desktop and pre-feasibility assessment. Three day Phase 1 AIA field assessment; GPS co-ordinates – Garmin GPSMap60CSx; Photographic documentation – Pentax K20D. Archaeological and cultural heritage site significance assessment and mitigation recommendations – SAHRA 2007 system.
- SUMMARY** : Four archaeological and cultural heritage sites / resources, as defined and protected under the NHRA 1999, were identified during the Phase 1 AIA.

Code	Site	Co-ordinates	Recommendations
RBS-01	Stone Age (MSA / LSA)	S31°56'35.0"; E26°51'28.4"	Phase 2 archaeological collection and test pitting
RBS-02	Stone Age (MSA)	S31°55'54.4"; E26°51'55.7"	Phase 2 archaeological mitigation (excavation)
RBS-03	Colonial Period – Structure	S31°56'06.6"; E26°53'26.6"	In situ conservation
RBS-04	Colonial Period – Structure	S31°56'09.9"; E26°53'45.2"	In situ conservation

### RECOMMENDATIONS:

It is recommended that, with reference to archaeological and cultural heritage, the proposed development, the *Bulk Services for the proposed Rathwick Development* project, Queenstown, Eastern Cape, proceeds as applied for provided the developer complies with the abovementioned recommendations.

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## 1) TERMS OF REFERENCE

Biotechnology & Environmental Specialist Consultancy (BESC) has been appointed as independent environmental consultant by the project engineers, Element Consulting Engineers (Pty) Ltd, on behalf of the project proponent, the Chris Hani District Municipality (CHDM) to conduct the Environmental Impact Assessment (EIA) and prepare the Scoping Report (SR), the Environmental Impact Report (EIR) and the Environmental Management Plan (EMP) for the *Bulk Services for the proposed Rathwick Development* project, in Queenstown, Eastern Cape. It is proposed to construct / upgrade the bulk water supply, sanitation and stormwater services for the proposed Rathwick Residential development, which will comprise of approximately 3,000 units. ArchaeoMaps Archaeological Consultancy has been appointed by BESC to conduct the Phase 1 Archaeological Impact Assessment (AIA) as specialist sub-section to the EIA.

### ❖ *Project Locality and Description*

The proposed project, the *Bulk Services for the proposed Rathwick Development*, is situated in and around the town of Queenstown, Eastern Cape [1:50,000 map reference – 3126DD]. The proposed project focuses on the construction and upgrading of bulk services, including water supply, sanitation and stormwater services for the proposed Rathwick Residential development which will comprise of approximately 3,000 units. The Rathwick Residential development does not form part of the project scope.

The Water Treatment Works (WTW) and Waste Water Treatment Works (WWTW) are existing and operational. The routing of the proposed pipelines runs mainly along road reserves and areas falling under various land uses including municipal, industrial, residential and communal. The proposed stormwater retention facility is located in an open field that falls under municipal / communal land use (BESC 2010).

The construction / upgrading of the bulk services will mainly comprise of the following:

1. Bulk Water – Provision of a 10MI Reservoir and 4MI Sump at the Queenstown WTW;
2. Bulk Sewer – Provision of pump stations with generators and a rising main as well as a screen at the existing Queenstown WWTW; and
3. Bulk Stormwater – Provision of stormwater conveyance infrastructure and a retention facility.

Key development co-ordinates describing the abovementioned proposed development aspects can be summarized as:

- |   |                                   |
|---|-----------------------------------|
| 1. Queenstown WWTW                            | – S31°54'08.0"; E26°51'02.8";     |
| 2. Queenstown WTW                             | – S31°53'38.2"; E26°53'30.0";     |
| 3. New Rathwick stormwater retention facility | – S31°56'39.2"; E26°51'28.6";     |
| 4. New Enkhulukweni pump station              | – S31°54'31.9"; E26°50'44.7"; and |
| 5. New Rathwick pump station                  | – S31°56'19.2"; E26°50'55.6".     |

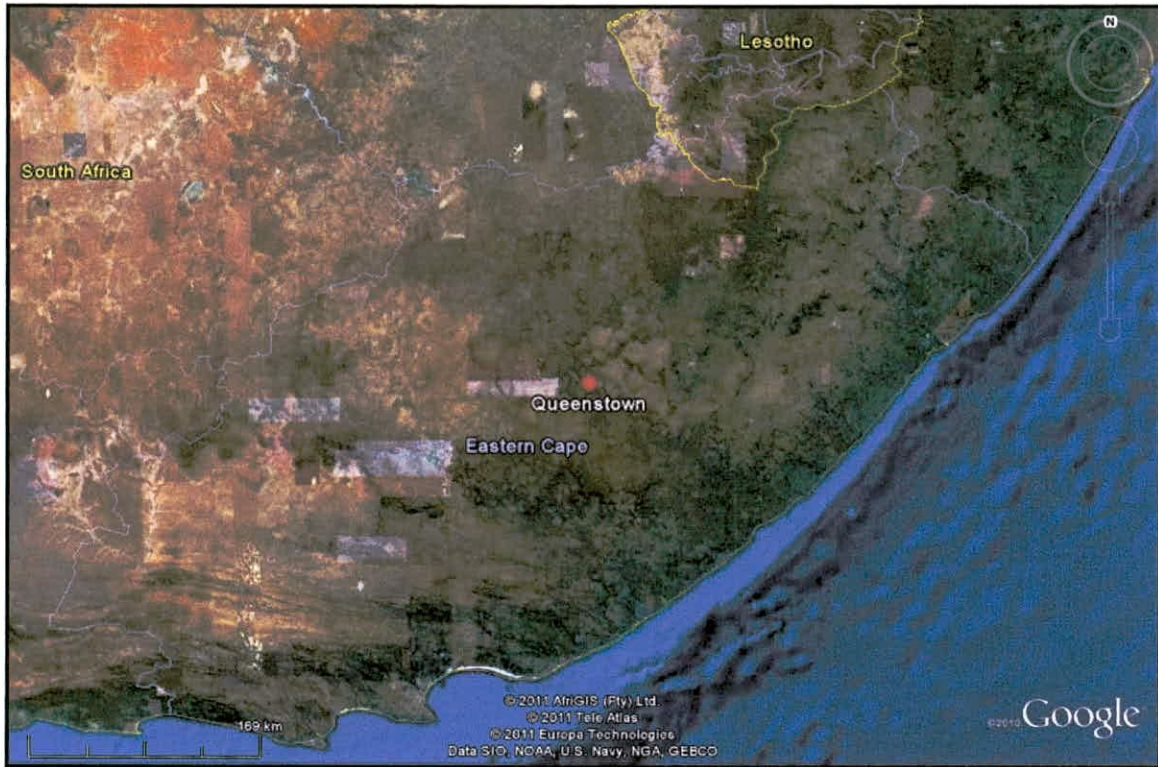


Figure 1: Queenstown, Eastern Cape

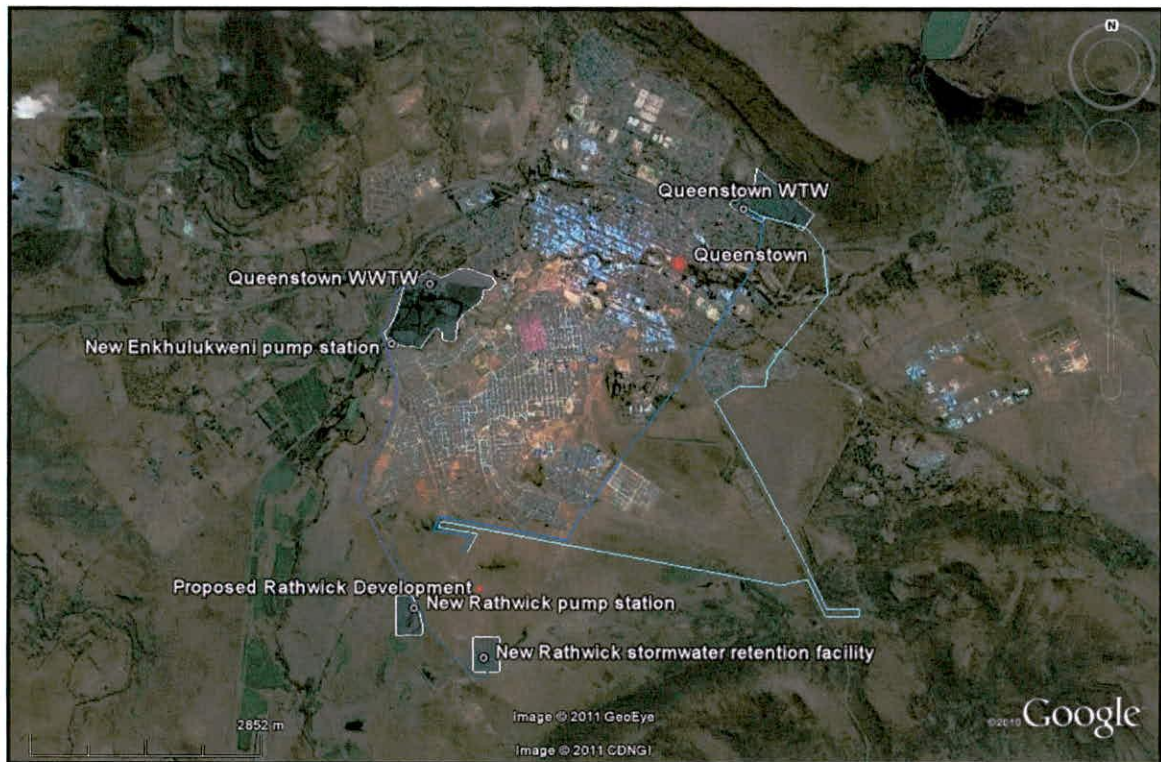
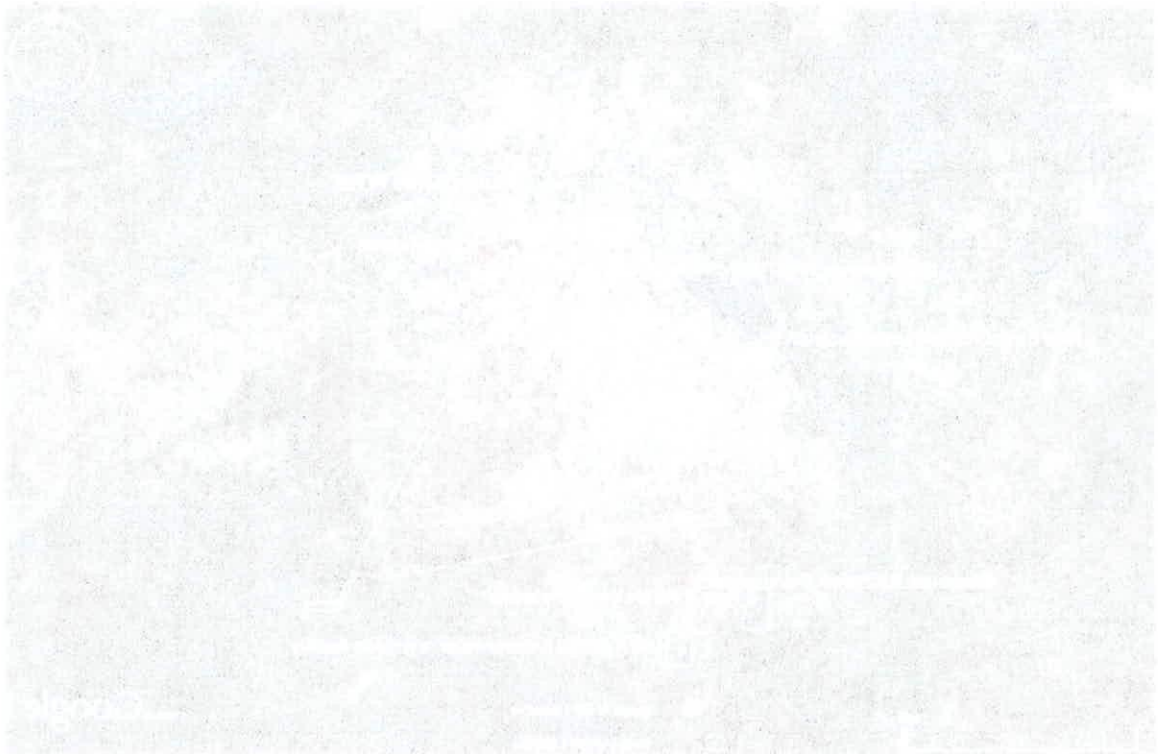


Figure 2: General locality of the Bulk Services for the proposed Rathwick Development project in relation to Queenstown and the Rathwick residential development site





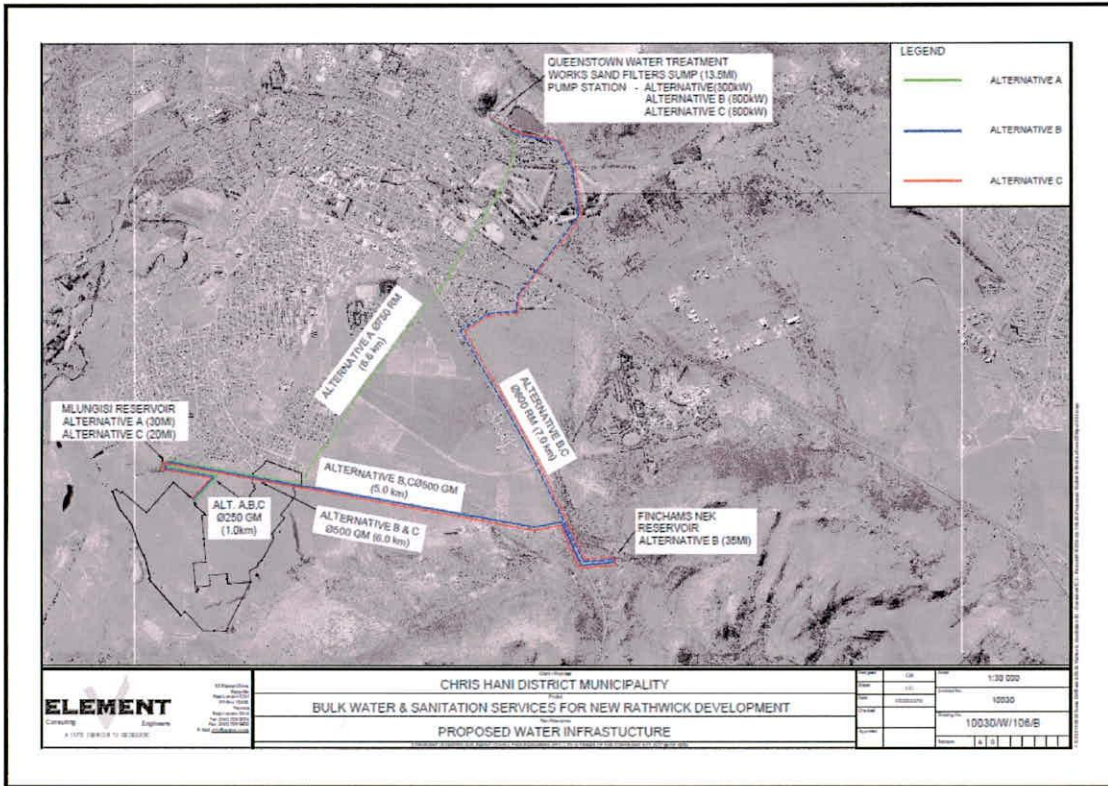


Figure 3: Rathwick bulk services – proposed water infrastructure (courtesy BESC and Element Consulting)

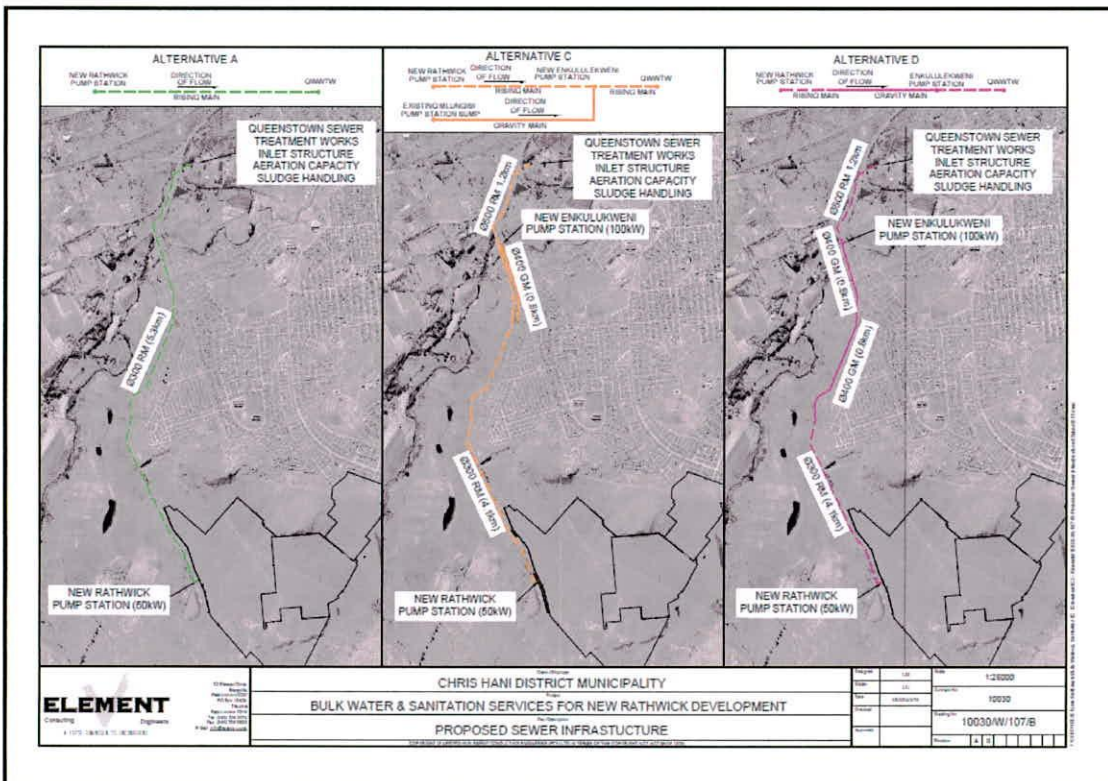


Figure 4: Rathwick bulk services – proposed sanitation infrastructure (courtesy BESC and Element Consulting)



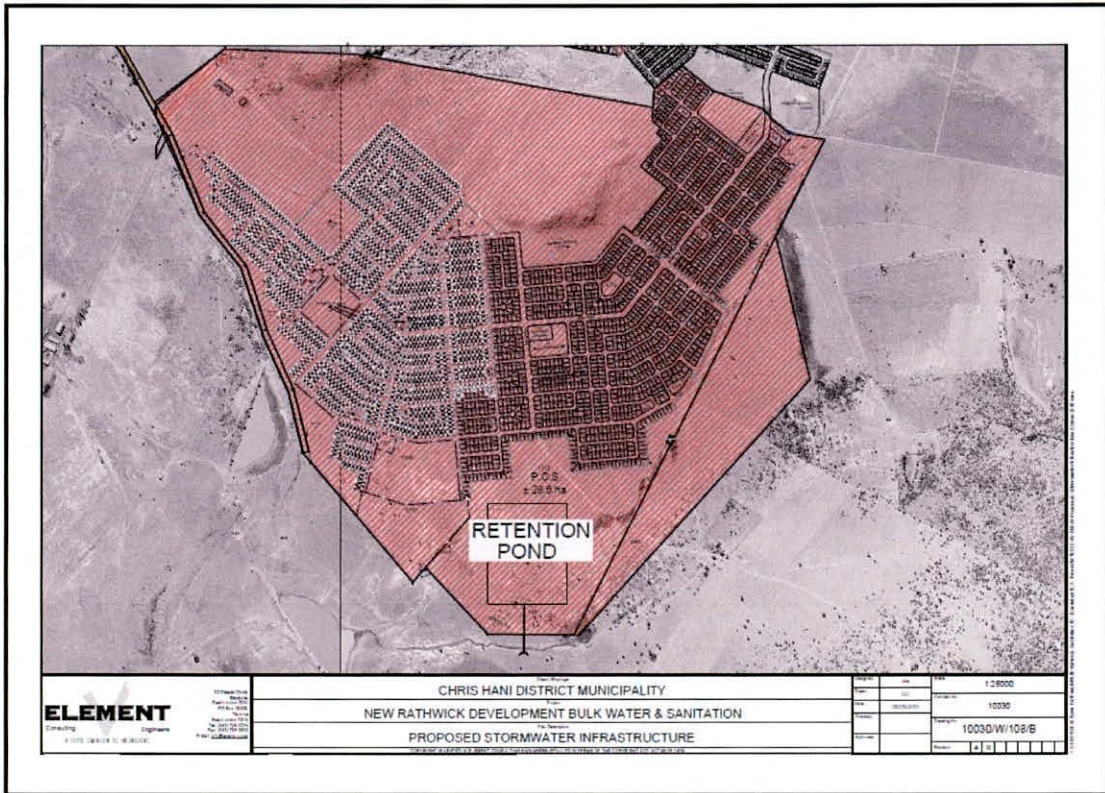


Figure 5: Rathwick bulk services – proposed stormwater infrastructure (courtesy BESC and Element Consulting)

## 2) THE ARCHAEOLOGICAL IMPACT ASSESSMENT

### ❖ *Archaeological Legislative Compliance*

The Archaeological Impact Assessment (AIA) was done for purposes of compliance to the South African Heritage Resources Agency (SAHRA) requirements in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to Section 38(1).

The AIA aimed to locate, identify and assess the significance of cultural heritage resources, inclusive of archaeological deposits / sites, built structures older than 60 years, burial grounds and graves, graves of victims of conflict and cultural landscapes or viewsapes as defined and protected by the NHRA 1999, that may be affected by the proposed development. The AIA comprises of:

1. A Pre-feasibility (or desktop) assessment; and
2. A Phase 1 Archaeological Impact Assessment (Phase 1 AIA).

[The study does not include any specialist cultural heritage studies, such as socio-cultural consultation (SCIA), historical architecture or cultural landscapes.]

- Palaeontological deposits / sites (Palaeontological Impact Assessment – PIA) as defined and protected by the NHRA 1999 are not included as subject to this report.

### ❖ *Methodology & Assessor Accreditation*

The Pre-feasibility (or desktop) study is based on a basic literature research to provide a background for discussion of archaeological and cultural heritage resources that may be identified during the Phase 1 AIA. Varying map series and selected databases were consulted and findings included for interpretive and reference purposes.

The Phase 1 AIA was conducted over a 3 day period (2011-09-27 to 09-29) by one archaeologist. The assessment was done by vehicle and foot, and limited to a Phase 1 surface survey; no excavation or sub-surface testing was done. GPS co-ordinates were taken with a Garmin GPSmap 60CSx GPS (Datum: WGS84). Photographic documentation was done with a Pentax K20D camera. A combination of Garmap and Google Earth software was used in the display of spatial information.

SAHRA ARCHAEOLOGICAL AND CULTURAL HERITAGE SITE SIGNIFICANCE ASSESSMENT			
SITE SIGNIFICANCE	FIELD RATING	GRADE	RECOMMENDED MITIGATION
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	Site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	-	Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	-	Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C	-	On-site sampling, monitoring or no archaeological mitigation required prior to or during development / destruction

**Table 1:** SAHRA archaeological and cultural heritage site significance assessment



Archaeological and cultural heritage site significance assessment and associated mitigation recommendations were done according to the system prescribed by SAHRA (2007).

The assessment was done by Karen van Ryneveld (ArchaeoMaps):

- Qualification: MSc Archaeology (2003) WITS University.
- Accreditation:
  1. 2004 – Association of Southern African Professional Archaeologists (ASAPA) – Professional Member.
  2. 2005 – ASAPA CRM Section: Accreditation – Field Director (Stone Age, Iron Age, Colonial Period).
  3. 2010 – ASAPA CRM Section: Accreditation – Principle Investigator (Stone Age).

Karen van Ryneveld is a SAHRA listed CRM archaeologist.

#### ❖ *Coverage and Gap Analysis*

The assessment was conducted across the proposed *Bulk Services for the proposed Rathwick Development* study site (with exclusions along the Water Line – Line Route A and the Water Line – Line Routes B & C), including:

- Bulk Water:
  1. A 10MI Reservoir and 4MI Sump at the Queenstown WTW;
  2. Bulk water alternative route A – 7.5km; and
  3. Bulk water alternative route B & C – 13.5km.
- Bulk Sewer:
  1. Pump stations with generators (new Enkhulukweni and Rathwick pump stations);
  2. Screen at existing Queenstown WWTW; and
  3. Rising main (sewer alternative route A, B & C) – 4.6km.
- Bulk Stormwater:
  1. Stormwater retention facility; and
  2. Stormwater conveyance infrastructure – 2.3km.

## 2.1) PRE-FEASIBILITY ASSESSMENT

Based on the basic introductory literature assessment of South African archaeology (see Appendix – A) the probability of archaeological and cultural heritage sites within the *Bulk Services for the proposed Rathwick Development*, Queenstown, study site can briefly be described as:

1. **EARLY HOMININ** : Probability – *None*
  
2. **STONE AGE**
  - a. ESA : Probability – *Medium - High*
  - b. MSA : Probability – *Medium - High*
  - c. LSA : Probability – *Medium* (Human remains may be expected; should they be identified they will be of both scientific and social significance)
    - i. Rock Art : Probability – *Low*
    - ii. Shell Middens : Probability – *None*
  
3. **IRON AGE**
  - a. Early Iron Age : Probability – *Low*
  - b. Middle Iron Age : Probability – *None*
  - c. Later Iron Age : Probability – *Low - Medium* (Human remains expected to be in direct association with archaeological and contemporary sites – of scientific / social significance)
  
4. **COLONIAL PERIOD**
  - a. Colonial Period : Probability – *High* (Human remains expected to be primarily associated with formal cemeteries)
    - i. Iron Age / Colonial Period Contact : Probability – *Medium*
    - ii. Industrial Revolution : Probability – *Medium - High*

Recorded Cultural Resources Management (CRM) projects in the Queenstown area are particularly limited: The SAHRA database (2009) has no record of projects done in the immediate Queenstown area. The 2 archaeological and cultural heritage studies in closest proximity to the *Bulk Services for the Rathwick Development*, Queenstown, study site can be referenced as:

- Van Schalkwyk, L.O. & Wahl, B. (eThembeni) 2008. *Heritage Impact Assessment of Qoboshane Road Bridge and Borrow Pits, Indwe, Eastern Cape Province, South Africa*. (SAHRA Reference: 2008-SAHRA-0547); and
- Anderson, G. (Umlando) 2007. *The Archaeological Survey of the Elitheni Mine, Indwe, Eastern Cape* (SAHRA Reference: 2007-SAHRA-0369).

[Both study sites are situated approximately 55km north-east of Queenstown.]

More CRM studies may well be inferred to have been done in the Queenstown area post-compilation of the SAHRA (2009) database. Studies done by ArchaeoMaps within an approximate 50km radius from Queenstown include:

- Van Ryneveld, K. (ArchaeoMaps). 2010a. *Phase 1 Archaeological Impact Assessment: Water Supply Backlog in the CHDM, Cluster 2, Phase 1, Schemes 27, 28 and 29, Cofimvaba, Eastern Cape, South Africa* (CRM report to BESC);

- Van Ryneveld, K. (ArchaeoMaps). 2010b. *Phase 1 Archaeological Impact Assessment: Qutubeni Villages Water Reticulation Scheme: Bulk Water Supply Backlog – Ngcobo Cluster 6 (Luqolweni, mareleni, Sidindi, Empindweni, Engxangxasi, Silidindi and Hala Villages), Qutubeni, Eastern Cape, South Africa* (CRM Report to AGES);
- Van Ryneveld, K. (ArchaeoMaps). 2010c. *Phase 1 Archaeological Impact Assessment: Water Supply Backlog in CHDM: Cluster 2, Phase 2, Regional Scheme 3 (near Lady Frere), Eastern Cape, South Africa* (CRM Report to BESC);
- Van Ryneveld, K. (ArchaeoMaps). 2010d. *Phase 1 Archaeological Impact Assessment: Water Supply Backlog in CHDM: Cluster 2, Phase 2, Regional Scheme 4 (near Cofimvaba), Eastern Cape, South Africa* (CRM Report to BESC);
- Van Ryneveld, K. (ArchaeoMaps). 2011a. *Phase 1 Archaeological Impact Assessment: Utilization of Borrow Pits – Chris Hani District Municipality, Eastern Cape, South Africa* (CRM Report to BESC); and
- Van Ryneveld, K. (ArchaeoMaps). 2011b. *Phase 1 Archaeological Impact Assessment: The Xashimba Abattoir, near Queenstown, Eastern Cape, South Africa* (CRM Report to isi-Xwiba Consulting).

[The ArchaeoMaps 2011a study focused on assessment of a number of borrow pits across the greater CHDM area. Of particular importance was the identification of the Stormsberg area, north-west of Queenstown, as noticeably rich in Stone Age resources, specifically Middle Stone Age (MSA) but including also Later Stone Age (LSA) sites / occurrences, while the 2011b assessment confirmed the significance of Stone Age resources in the area immediately west of Queenstown. The water related development assessments (ArchaeoMaps 2010a, 2010b, 2010c and 2010d) with study sites situated approximately 50km to the east of Queenstown highlighted Iron Age occupation of Colonial Period times, with some sites dating back to the early 1800's. Stone Age sites / occurrences seem to be less prominent, though not absent, from the east of Queenstown compared to the Stormsberg area towards the north-west of the town. Queenstown itself was officially founded in 1853 under the direction of Sir George Cathcart, who names the settlement and fort after Queen Victoria ([http://en.wikipedia.org/wiki/Queenstown\\_Eastern\\_Cape](http://en.wikipedia.org/wiki/Queenstown_Eastern_Cape)). The town is known to have prospered from its founding up to the world wide depression of the 1930's and again thereafter.]



## 2.2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

### ❖ Summary of the Phase 1 AIA Findings

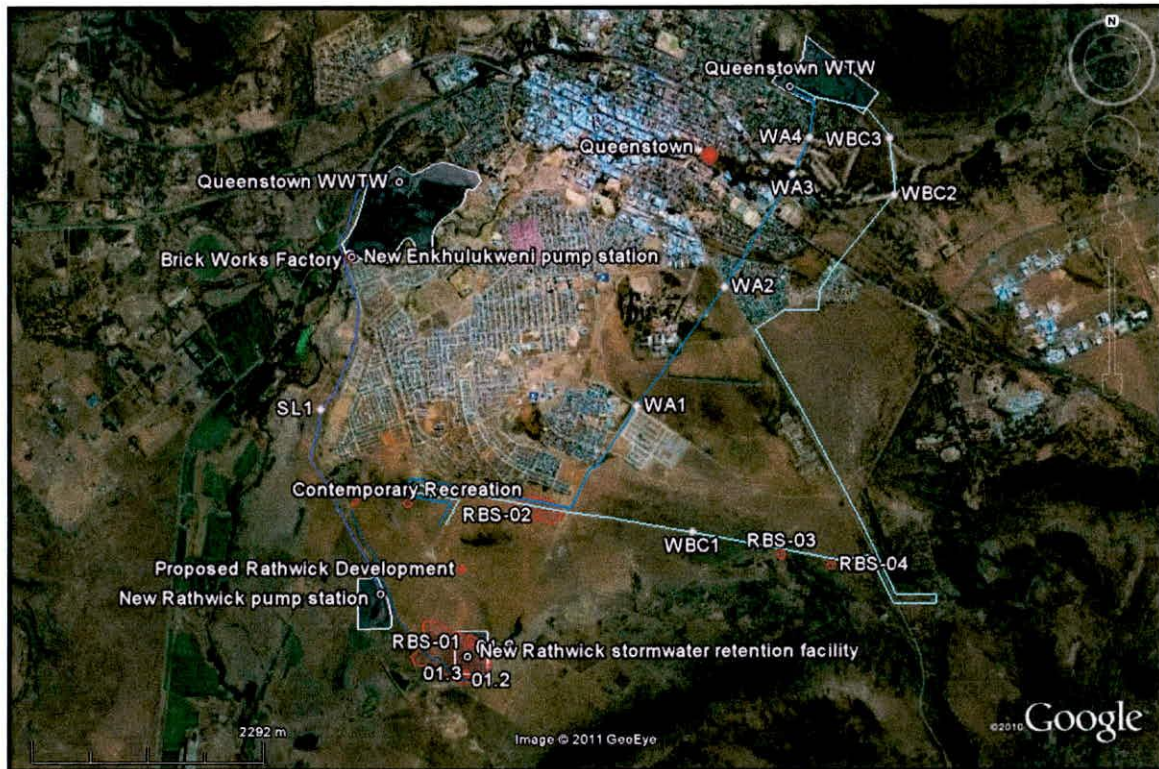


Figure 6: Summary of the Phase 1 AIA assessment findings

The southern portion of the *Bulk Services for the proposed Rathwick Development* study site proved particularly sensitive with regards to Stone Age resources. A very low density of lithic artefacts was discovered in the vicinity of the New Rathwick Stormwater Retention Facility (and further north thereof), with densities too low to ascribe an artefact ratio (artefacts: m<sup>2</sup>). Similar low densities of artefacts were discovered in the existing stormwater trench mound running north from the area, as far north as SL1, after which a change in the geological substrate is inferred to explain the absence of Stone Age artefacts. Site RBS-01, identified in the area of the New Rathwick Stormwater Retention Facility, is only identifiable in shallow sub-surface disturbance. Here Middle Stone Age (MSA) and macrolithic Later Stone Age (LSA) artefacts were identified in varying but high densities and in places associated with calcrete surfaces, a clear indication of a much wetter palaeo-environment. To the north-east of Site RBS-01 the Site RBS-02 rich concentrations of surface Middle Stone Age (MSA) artefacts were identified in a patched colored landscape, indicating associated sub-surface deposits. The Site RBS-02 deposits are also directly associated with a low density Stone Age occurrence, very typical of the Karoo landscape, recorded in the eroded dirt road to as far west as the WBS1 locality. The direct association between a low density Stone Age occurrence and a fairly prominent site is of particular importance.

The Iron Age is more indirectly represented; aside from settlement by people of Iron Age descent in the southern townships of Queenstown (Mlungisi, Aloveale and Victoria Park), no Iron Age archaeological site was identified. Towards the north of the Rathwick Residential development study site and south of Water Line – Line Routes A, B &

C, south of the geological outcrops, a number of stone circles, with average diameters of 2+m routinely with a hearth of fireplace in the middle were found. These do not constitute Iron Age archaeological or cultural heritage sites, as defined and protected by the NHRA 1999, and are interpreted as modern recreational spaces.

The Colonial Period is, towards the south of the development, represented by two inferred Colonial Period structures / structure complexes (Sites RBS-03 and RBS-04). Both sites are situated on neighboring properties, site specific inspection was thus not possible. Both sites will be conserved within their current context (in situ conservation). Documentation of each structure throughout the more urban portion of the study site was outside the scope of the project. Based on the Colonial Period establishment of Queenstown, both its layout and a number of structures are of Colonial Period origin. Development throughout the urban parts of Queenstown will not impact on any structures, of Colonial or contemporary origin, and will follow existing linear development corridors.

## 2.2.1) THE DEVELOPMENT

### ❖ *The Queenstown Waste Water Treatment Works (WWTW)*

The Queenstown Waste Water Treatment Works (WWTW) is situated at S31°54'08.0"; E26°51'02.8". Upgrade and development is proposed within the confines of the existing site, where surface areas are already largely disturbed due to extensive development impact. No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified on the surface of the study site and limited exposed sections yielded no anthropic material.

**RECOMMENDATIONS** – Proposed upgrade and development at the Queenstown WWTW poses no threat to any identified archaeological or cultural heritage resources. It is recommended that development proceeds as applied for without the developer having to comply with additional heritage compliance requirements.

### ❖ *The Queenstown Water Treatment Works (WTW)*

The Queenstown Water Treatment Works (WTW) is situated at S31°53'38.2"; E26°53'30.0". Upgrade and development is proposed within the confines of the existing site and may well be focused along the north-eastern boundary of the property. Surface areas, essentially already impacted on yielded no archaeological or cultural heritage resources; no in situ sub-surface sections were exposed. Staff at the WTW reported on a cave in the ridge running north of the site, believed to be a Stone Age archaeological site, but the exact location thereof is unknown and there was uncertainty onto whose property the reputed site may be situated. Despite the underlying geology of the immediate area, with the local raw material not the most suitable for knapping purposes, the possibility of archaeological sites along the nearby ridges and koppies may well be possible, but inspection of these, falling outside the property boundary of the WTW site was outside the scope of the project.

**RECOMMENDATIONS** – Proposed upgrade and development at the Queenstown WTW poses no threat to any identified archaeological or cultural heritage resources. It is recommended that development proceeds as applied for without the developer having to comply with additional heritage compliance requirements.

### ❖ *The New Rathwick Stormwater Retention Facility*

The number of shallow exposures in and around the vicinity of the New Rathwick Stormwater Retention Facility (S31°56'39.2"; E26°51'28.6") study site indicates that development will directly impact on identified Site RBS-01. Site RBS-01 is ascribed a SAHRA *Medium Significance* and a *Generally Protected B* Field Rating. The site is categorized as Middle Stone Age (MSA) / macrolithic Later Stone Age (LSA) site and development will need to be preceded by Phase 2 archaeological collection and test pitting (See Site RBS-01 for a full site description).

**RECOMMENDATIONS** – Site RBS-01, a Middle Stone Age (MSA) / macrolithic Later Stone Age (LSA) site, comprises of an archaeological and cultural heritage site as defined and protected by the NHRA 1999. Development of the New Rathwick Stormwater Retention Facility will need to be preceded by Phase 2 archaeological collection and test

Alternative site locations be identified and the study site subjected to a Phase I AIA prior to development impact. The alternative heritage site management option would be conservation of the site, implying that an

Minimum recommendations for Site RB2-01 Phase 2 archaeological collection and test pitting:

- The Phase 2 archaeology project should aim to collect a representative sample (systematic surface collection) of the lithic assemblage of site RB2-01. Test pitting should aim to validate stratigraphic depth and if present comparison between surface and sub-surface components of the collections.
- Phase 2 archaeological collection and test pitting should be done by an accredited SAHRA / ASARA archaeologist under a SAHRA permit.
- A Phase 2 archaeological collection and test pitting report should be submitted to SAHRA.
- Phase 2 archaeological collection and test pitting should be done prior to development impact in the vicinity of the New Rathwick Stormwater Retention Facility.
- Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA site Destruction Permit, which will allow legal destruction of the remainder of the site.

◊ The New Enkubukweni Pump Station

The New Enkubukweni Pump Station will be located in the vicinity of co-ordinates 231°54'31.9"; E26°20'44.7". The general surface area was largely disturbed, with the possibility of exposing archaeological material. If present, both in situ sections or in secondary context. Assessment of the area yielded no archaeological or cultural heritage resources as defined and protected by the NHA 1999.

A temporary brickworks factory is situated within the assessment area (231°54'32.6"; E26°20'43.8"). The factory is owned by Simon Nyakombi (Cell - 011 817 6190) whose business has been running for approximately 8 years from the premises. Despite the fact that BECC has not yet engaged in the full Public Participation Process (PPP) for the project, Mr Nyakombi was well aware of the proposed development. Despite the fact that his factory falls within the Phase I AIA area, development of the pump station will not impact on the exact locale of his factory. (Phase I AIA areas often exceed the exact footprint of a development); some disruptions are expected during the construction phase, but envisioned impact during the implementation phase will be welcomed. Mr Nyakombi pointed towards uncompromising pollution in the stream and associated hygienic and health concerns, with partial relief related directly associated with better infrastructure.

RECOMMENDATIONS – Proposed development of the New Enkubukweni Pump Station poses no threat to any identified archaeological or cultural heritage resources. It is recommended that development proceeds as applied for without the developer having to comply with additional heritage compliance requirements.

◊ The New Rathwick Pump Station

The New Rathwick Pump Station study site is situated at 231°58'19.7"; E26°20'22.6". No archaeological or cultural heritage resources were identified on the surface of the assessment area. The site is however situated west, north-west of the number of shallow exposures that have yielded the Site RB2-01 material. Site RB2-01, a Middle and Later Stone Age site (MSA / LSA) is sited a SAHRA Medium significance and a Generally Protected B Field Rating. In addition a low quantity of artefacts, directly associated with Site RB2-01, were identified in the stormwater

trench mounds running immediately east of the site. The particular low quantities of artefacts identified in the stormwater trench mounds may indicate the perimeter of the deposit. However, it may also be a simple reflection on the detail of the trench itself: the trench reaches levels below that of the anthropic member, implying that anthropic sterile churned soils overlies possible anthropic churned material resulting in only the odd artefact visible as a result of eroded churned sections. Further inspection would be necessary. It is recommended that development be preceded by Phase 2 archaeological collection and test pitting (See Site RBS-01 for a full site description).

**RECOMMENDATIONS** – Site RBS-01, a Middle Stone Age (MSA) / macrolithic Later Stone Age (LSA) site, comprises of an archaeological and cultural heritage site as defined and protected by the NHRA 1999. Development of the New Rathwick Pump Station will need to be preceded by Phase 2 archaeological collection and test pitting. The alternative heritage site management option would be conservation of the site, implying that an alternate site locale be identified and the study site subjected to a Phase 1 AIA prior to development impact.

Minimum recommendations for Site RBS-01 Phase 2 archaeological collection and test pitting:

- The Phase 2 archaeology project should aim to collect a representative sample (systematic surface collection) of the lithic assemblage of Site RBS-01. Test pitting should aim to validate stratigraphic depth and if present comparison between surface and sub-surface components of the collections.
- Phase 2 archaeological collection and test pitting should be done by an accredited SAHRA / ASAPA archaeologist under a SAHRA permit.
- A Phase 2 archaeological collection and test pitting report should be submitted to SAHRA.
- Phase 2 archaeological collection and test pitting should be done prior to development impact in the vicinity of the New Rathwick Pump Station.
- Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA Site Destruction Permit, which will allow legal destruction of the remainder of the site.

#### ❖ *The Rathwick Stormwater Retention Line*

The Rathwick Stormwater Retention Line comprises an approximate 2.3km line route from S31°56'45.0"; E26°51'29.8" in the south to S31°55'52.3"; E26°50'43.5" in the north, running from just south of the New Rathwick Stormwater Retention Facility west along the boundary of the proposed Rathwick Residential development study site. The southern portion of the line route intersects shallow exposed Stone Age occurrences comprising Site RBS-01, a Middle and Later Stone Age site (MSA / LSA) of SAHRA *Medium Significance* with a *Generally Protected B* Field Rating. The central and northern part of the line route runs adjacent to the existing stormwater trench where a low density of artefact were indentified in mound material; artefacts may thus well be expected to be uncovered during sub-surface impact along this portion of the alignment. Proposed development of the line route will need to be preceded by Phase 2 archaeological mitigation (systematic surface collection and test pitting).

**RECOMMENDATIONS** – Site RBS-01, a Middle Stone Age (MSA) / macrolithic Later Stone Age (LSA) site, comprises of an archaeological and cultural heritage site as defined and protected by the NHRA 1999. Development of the Rathwick Stormwater Retention Line will need to be preceded by Phase 2 archaeological collection and test pitting. The alternative heritage site management option would be conservation of the site, implying that an alternate line route be identified and the study site subjected to a Phase 1 AIA prior to development impact.

Minimum recommendations for Site RBS-01 Phase 2 archaeological collection and test pitting:

- The Phase 2 archaeology project should aim to collect a representative sample (systematic surface collection) of the lithic assemblage of Site RBS-01. Test pitting should aim to validate stratigraphic depth and if present comparison between surface and sub-surface components of the collections.
- Phase 2 archaeological collection and test pitting should be done by an accredited SAHRA / ASAPA archaeologist under a SAHRA permit.
- A Phase 2 archaeological collection and test pitting report should be submitted to SAHRA.
- Phase 2 archaeological collection and test pitting should be done prior to development impact in the vicinity of the New Rathwick Pump Station.
- Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA Site Destruction Permit, which will allow legal destruction of the remainder of the site.

❖ *The Sewer Line - Line Routes A, B & C*

The Sewer Line – Line Routes A, B & C comprises of an approximate 4.25km line route running from approximate co-ordinate S31°56'19.5"; E26°50'55.5" in the south (the New Rathwick Pump Station site) to the Queenstown WWTW in the north, at S31°54'05.5"; E26°50'56.9". Typical of the southern portion of the assessment area was the lack of surface archaeological material, but with the proposed line route running just west of the existing stormwater trench (largely a demarcated development area), where the odd artefact was routinely identified in the associated mounds, reflecting sub-surface archaeological continuation. It can reasonably be expected that artefacts will be uncovered once construction starts. The low density of artefacts were encountered only south of the SL1 locality (S31°55'20.6"; E26°50'32.7") where stone rich surface areas indicated an evident change in geological substrate, not suitable for artefact production. No further archaeological Stone Age material was encountered north of the SL1 co-ordinate.

Based on the position of the Sewer Line – Line Routes A, B & C primarily west of the existing stormwater trench, which have yielded only low densities of artefactual Stone Age material, directly associated with Site RBS-01, and inferred to indicate the perimeter of the site, low densities of artefacts associated with the identified site proper, Site RBS-01, and recommended Phase 2 archaeological collection and test pitting for Site RBS-01 it is proposed that development of this line route proceeds without the developer having to comply with additional heritage compliance requirements. Technically deposits will be destroyed under a SAHRA Site Destruction Permit associated with recommended mitigation of Site RBS-01.

**RECOMMENDATIONS** – Proposed development of the southern portion of Sewer Line – Line Route A, B & C will probably impact on low densities of artefacts associated with Site RBS-01. It is recommended that development of the line route proceeds as applied for. Technically deposits will be destroyed under a SAHRA Site Destruction Permit associated with recommended mitigation of Site RBS-01.

❖ *The Water Line - Line Route A*

The proposed Water Line – Line Route A starts just north of the proposed Rathwick Residential study site at S31°55'56.9"; E26°51'17.7" from where it follows a central route of approximately 7.5km through Queenstown to the Queenstown WTW at S31°53'39.8"; E26°53'29.9". Assessment of the line route excluded an approximate 1.4km

stretch through the Queenstown Airport property where access could not be obtained (WA1 – S31°55'19.7"; E26°52'32.3" to WA2 – S31°54'42.1"; E26°53'05.5") and again and approximate 400m area in length through the Queenstown Golf Course (WA3 – S31°54'06.0"; E26°53'31.2" to WA4 – S31°52'54.5"; E26°53'37.6") where a golfing tournament was hosted during the fieldwork period. Again the southern portion of the line route proved sensitive due to proximity to archaeological Stone Age resources. Unexpectedly rocky outcrops situated just north and south-east of the beginning of the line route yielded very little artefactual material, with only the odd artefact encountered from time to time and in that very similar to observations regarding the general surface of the greater area. The general lack of expected Stone Age artefacts may be ascribed to its already identified presence below the modern day surface, but it may also reflect a degree of palaeo-landscape use: Geological material from the outcrops were used for artefact production but earlier humans may have moved material from their original context before knapping started perhaps reflecting primary activity centers on the landscape, closely associated with calcrete reflecting a much wetter environment in the past where actual knapping was prioritized.

The Water Line – Line Route A starts south in the general low density Stone Age area associated with Site RBS-01 and shortly thereafter turns north just after passing north of the locality of Site RBS-02. Site RBS-02, a Middle Stone Age (MSA) occurrence and again perhaps associated with a macrolithic Later Stone Age (LSA) admixture, is ascribed a SAHRA *Medium Significance* and a *Generally Protected B* Field Rating. In situ depth of the deposit may well be expected and development of the Water Line – Line Route A will need to be preceded a small Phase 2 archaeological mitigation (excavation) project. Further north of the site RBS-02 locality no Stone Age or other cultural heritage resources were identified. Based on association no Stone Age occurrences are expected along the portion of the line route that runs through the Queenstown Airport property, while the Queenstown Golf Course comprises of a largely disturbed surface area. Consultation with Bob Hall (Cell: 072 464 9716 / Tel: 045 838 4099) indicated that a quite extensive system of water lines based on an 8 or infinity shape underlies the general golf course area for watering purposes while additional service lines already runs through the property. The proposed Water Line – Line Route A follows one of the major sub-surface development corridors through the golf course. Again, despite the fact that BESC has not yet entered into the formal Public Participation Process (PPP) for the project, management staff at the golf course were well informed regarding proposed development alignments through the property.

**RECOMMENDATIONS** – Site RBS-02, a Middle Stone Age (MSA) / macrolithic Later Stone Age (LSA) site, comprises of an archaeological and cultural heritage site as defined and protected by the NHRA 1999. Development of the Water Line – Line Route A will need to be preceded by Phase 2 archaeological mitigation (excavation). At present the alternative proposed water line routes do not pose a solution of conservation to the archaeological remains.

Minimum recommendations for Site RBS-02 Phase 2 archaeological mitigation (excavation):

- The Phase 2 archaeology project should aim at a small sample excavation to retrieve a representative sample of the lithic deposit.
- Phase 2 archaeological mitigation should be done by an accredited SAHRA / ASAPA archaeologist under a SAHRA permit.
- A Phase 2 archaeological mitigation report should be submitted to SAHRA.
- Phase 2 archaeological mitigation should be done prior to development impact in the vicinity of the Water Line – Line Route A.
- Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA Site Destruction Permit, which will allow legal destruction of the remainder of the site.

❖ *The Water Line - Line Routes B & C*

The Water Line – Line Routes B & C alignment comprises of an approximate 13.5km line route starting just north of the Rathwick Residential development site at S31°55'57.3"; E26°51'19.4", following an eastern route proposal to the Queenstown WTW at S31°53'38.3"; E26°53'30.7". The assessment excluded the approximate 550m portion of the alignment running through the Queenstown Golf Course, due to an ongoing golfing tournament during the fieldwork period.

Assessment findings again indicated that the southern portion of the proposed alignment, running in essence alongside proposed Water Line – Line Route A, proved to be archaeologically the most sensitive. Similarly the development alignment starts in the low density surface Stone Age occurrence area associated with Site RBS-01 and passes through the Site RBS-02, a Middle and macrolithic Later Stone Age site (MSA / LSA) assigned a SAHRA *Medium Significance* and *Generally Protected B* Field Rating and situated along the foothills of a rocky outcrops. Interestingly the assessment indicated that associated low densities of lithic artefacts occur at intervals along the proposed line route, most often in the slightly eroded road surface, roughly as far east as the WBC1 co-ordinate at S31°56'01.9"; E26°53'00.8". Phase 2 archaeological mitigation would be necessary prior to development impact.

In addition the development alignment passes 2 'structures' (Sites RBS-03 and RBS-04) that may pre-date 60 years of age, implying that these structures may be formally protected under the NHRA 1999. Structures are preliminary assigned a SAHRA *High Significance* with a *Provincial Grade 2* Field Rating. Both sites are situated on adjacent properties and site specific inspection was not possible – both sites will be conserved by development. (Recording of Colonial Period structures along the urban portions of the development was not within the scope of this assessment. The Colonial Period origin of Queenstown is well known and many of the structures, vernacular or formal, date to early times. Development through the urban portion of the study site will not impact on any structures and is planned mainly along existing linear development corridors).

**RECOMMENDATIONS** – Site RBS-02 (MSA / macrolithic LSA) and Sites RBS-03 and RBS-04 comprise of archaeological and cultural heritage sites as defined and protected by the NHRA 1999. Development of the Water Line – Line Routes B&C will need to be preceded by Phase 2 archaeological mitigation (excavation) with reference to Site RBS-02, while Sites RBS-03 and RBS-04 should be conserved in situ (as is). The alternative proposed water line route does not pose a solution of conservation to Site RBS-02.

Minimum recommendations for Site RBS-02 Phase 2 archaeological mitigation (excavation):

- The Phase 2 archaeology project should aim at a small sample excavation to retrieve a representative sample of the lithic deposit.
- Phase 2 archaeological mitigation should be done by an accredited SAHRA / ASAPA archaeologist under a SAHRA permit.
- A Phase 2 archaeological mitigation report should be submitted to SAHRA.
- Phase 2 archaeological mitigation should be done prior to development impact in the vicinity of the Water Line – Line Route A.
- Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA Site Destruction Permit, which will allow legal destruction of the remainder of the site.



Minimum recommendations for Site RBS-03 and Site RBS-04 conservation:

- In situ conservation implies conservation as is, without the developer having to comply with additional heritage conservation requirements. The proposed development will not impact on neighboring properties.

❖ *Notes on Proposed Phase 2 Archaeological Mitigation*

Cultural overlay is a well known reality throughout our pre-Colonial and Colonial past and extending to modern times, as evidenced also by the findings of the *Bulk Services for the Rathwick Development*, Queenstown's archaeological assessment. Cultural overlay can simply be explained as the tendency of people to settle in or use the same places on a landscape over periods of time, mainly as a result of resources that acts as cultural draw-cards, such as raw material during the Stone Age, water sources, fertile soils for agriculture and livestock keeping or mineral exploitation. The proposed *Bulk Services for the Rathwick Development* will directly overlay the Stone Age archaeological landscape towards the south of the study site, directly impacting thereon; resulting in the permanent loss of to this non-renewable heritage resource. Towards the central and northern parts of the study site development will more prominently intersect with modern settlement, dating back to Colonial Period times. The Mlungisi, Aloveale and Victoria Park townships towards the south of Queenstown are mainly inhabited by people of Iron Age descent, while Queenstown was officially founded in 1853 and associated with increasing Western cultural impact and development.

The purpose of archaeological assessment is to ensure that cultural sites are identified and responsibly managed or mitigated in the event of development, or alternatively permanently conserved. Where development will inevitably impact on an archaeological site or cultural landscape it is necessary to recover a sample of this non-renewable resource prior to impact, done by means of Phase 2 mitigation, analysis of recovered artefacts and reporting thereon before large scale impact or destruction thereof can be approved by government (SAHRA). Recommended Phase 2 mitigation is described above per development aspect of the *Bulk Services for the Rathwick Development*: However, it is only logical that a separate Phase 2 project for each of the development aspects will not add greater insight to our understanding of the past. Archaeological recommendations should be collectively interpreted to address the identified archaeological sites, not the individual development aspects. In that only a single Phase 2 mitigation project is recommended for Site RBS-01 and a single Phase 2 project for Site RBS-02.

Development of the Rathwick Residential project has already started: Low level impact including poles and associated linear line routes, but development was ceased at the time of archaeological fieldwork. The appointed environmental consultant for the *Bulk Services for the Rathwick Development*, BESC, has no knowledge of an EIA or EMP prepared for the Rathwick Residential development and no Phase 1 AIA could be located in the SAHRA register. It is at present inferred that environmental concerns for the development will be addressed retrospectively. It can reasonably be expected that Phase 2 mitigation will be recommended in the archaeological assessment for the Rathwick Residential project. SAHRA may decide to join Phase 2 archaeological mitigation requirements for the 2 projects (Site RBS-01) or wave recommendations of one study against that already prescribed for the other.









 <p>The Queenstown WWTW - 1</p>	 <p>The Queenstown WWTW - 2</p>
 <p>The Queenstown WWTW - 3</p>	 <p>The Queenstown WTW - 1</p>
 <p>The Queenstown WTW - 2</p>	 <p>The Queenstown WTW - 3</p>
 <p>New Rathwick Stormwater Retention Facility - 1</p>	 <p>New Rathwick Stormwater Retention Facility - 2</p>

Figure 7: The Development – Image Gallery 1



Figure 8: The Development - Image Gallery

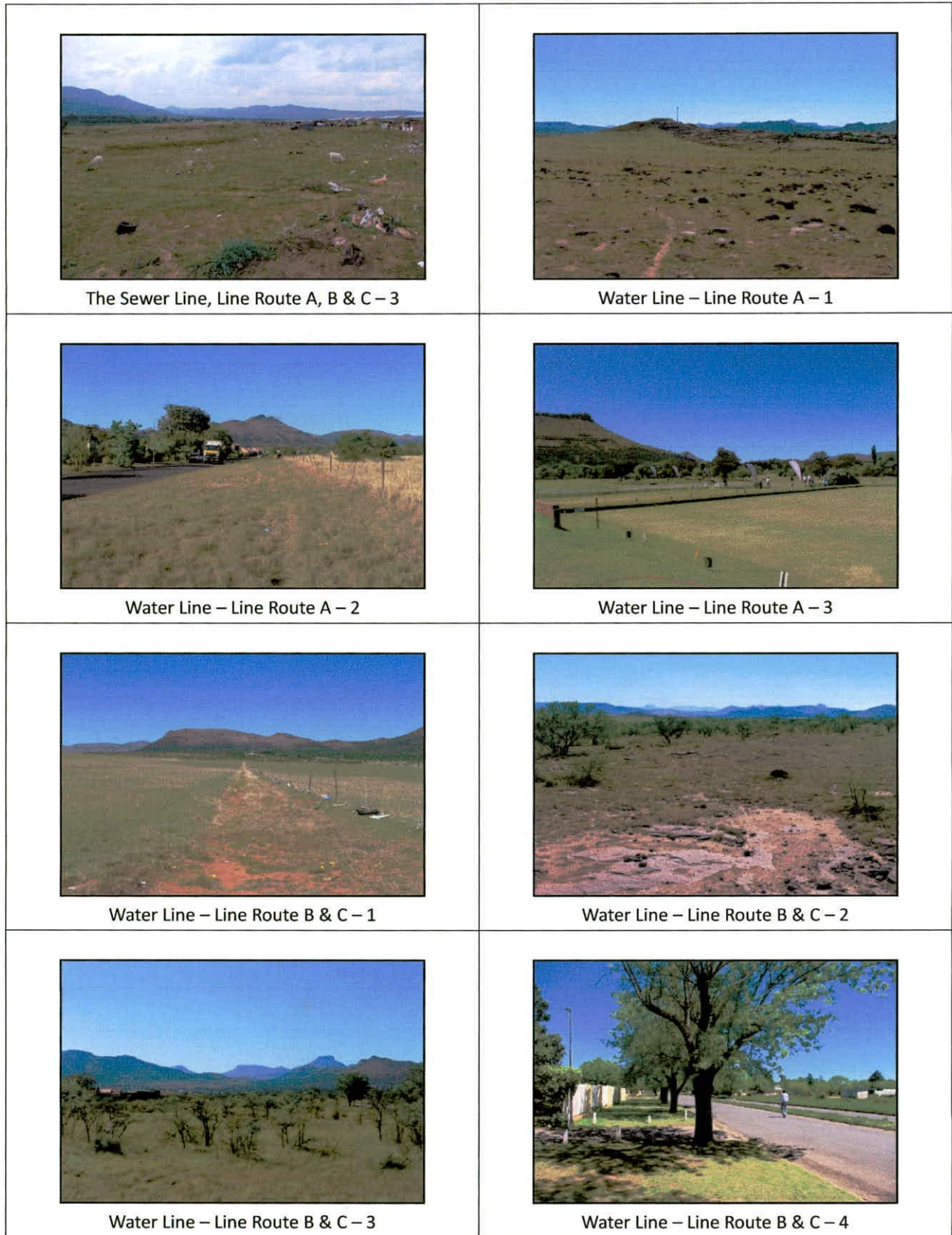


Figure 9: The Development – Image Gallery 3

## 2.2.1) ARCHAEOLOGICAL AND CULTURAL HERITAGE SITES

- ❖ Site RBS-01 - Stone Age (MSA / LSA) - S31°56'35.0"; E26°51'28.4"



Figure 10: General locality of Site RBS-01

Although the odd surface Stone Age artefact was discovered in the vicinity of the proposed New Rathwick Stormwater Retention Facility, artefact quantities were far too low to describe an artefact density, and in itself not of any heritage significance. A number of shallow sub-surface exposures however indicated that a significant Stone Age member underlies the modern surface. This Stone Age member, Site RBS-01 (S31°56'35.0"; E26°51'28.4), is situated between 10-20cm below the modern surface and identified only in a number of small shallow disturbed areas, in general between approximately 5x7m and 10x15m each in size. Eight such areas were identified in the vicinity of the New Rathwick Stormwater Retention Facility (01.1-01.8) and immediately east thereof, and another further north along the associated line routes (01.9). These 'find-spots' can briefly be described as:

1. Find-spot 01.1 – S31°56'46.0"; E26°51'27.5";
2. Find-spot 01.2 – S31°56'46.1"; E26°51'28.6";
3. Find-spot 01.3 – S31°56'44.0"; E26°51'27.7";
4. Find-spot 01.4 – S31°56'43.0"; E26°51'25.3";
5. Find-spot 01.5 – S31°56'34.6"; E26°51'23.3";
6. Find-spot 01.6 – S31°56'35.6"; E26°51'30.2";
7. Find-spot 01.7 – S31°56'48.5"; E26°51'26.5";
8. Find-spot 01.8 – S31°56'41.4"; E26°51'16.6"; and
9. Find-spot 01.9 – S31°55'49.8"; E26°50'46.1".

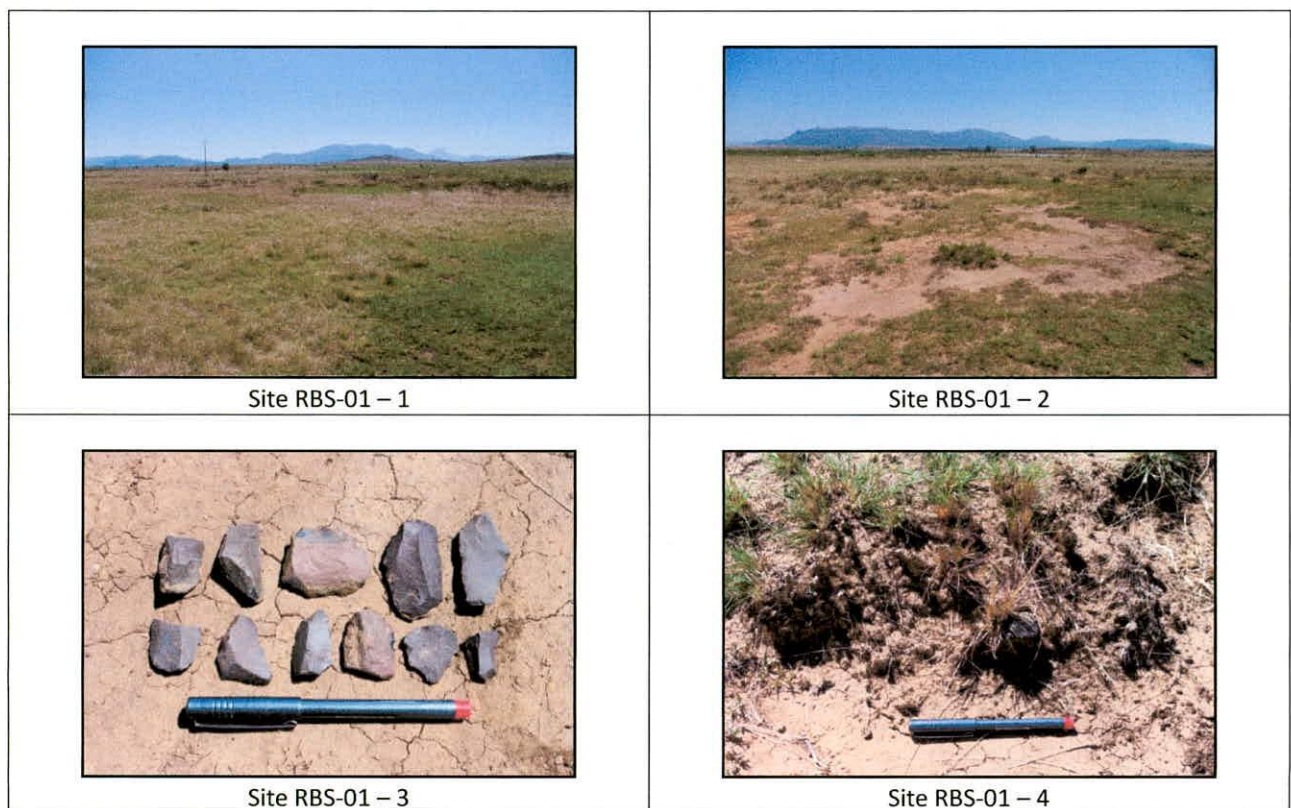
Find-spot localities lead to a preliminary southern site extent of approximately 760x470m, while the much smaller northern occurrence measures only 80x30m.

Artefacts were produced from a fine grained dolorite, a raw material ample in the immediate environment with two prominent granite hills situated to the north of the Site RBS-01 proper locality. Artefacts were produced by means of flake and blade technology with flakes, scrapers and bladelet types being the most common artefact types. On site knapping is evidenced by *debitage* remains; mostly comprising of cores. The absence of smaller waste is inferred to reflect on post depositional processes, where wind and water may well have taken its toll on

the original contexts of these exposed collections. On site use of the artefacts is witnessed by use-wear on edges and a number of broken artefacts. In addition specifically the western portion of the Site RBS-01 proper and the northern extension of the exposure is directly associated with artefacts on calcrete surfaces, proof of a much wetter paleo-environment. It is evident that the paleo-landscape was selectively used by these humans; with raw material sourced from the granite hills and activity areas concentrated along the banks of the local water source. Based on artefact size the site is preliminary classed as a Volman (1984) MSA3 / macrolithic Later Stone Age (LSA) site. Analysis of the lithic assemblage may shed more light on its actual classification.

A particularly low density of artefacts were identified in the existing stormwater trench mounds running north past the New Rathwick Pump Station site. Artefacts are inferred to be directly associated with the Site RBS-01 Stone Age occurrence, representing both site perimeter and a degree of post depositional disturbance. Artefacts were found roughly as far north as the SL1 locality, after which a change in the geological substrate is associated with the absence of lithic artefacts further north.

**RECOMMENDATIONS** – Site RBS-01 comprises of a Stone Age archaeological site, as defined and protected by the NHRA 1999. The site is ascribed a SAHRA *Medium Significance* and a *Generally Protected B* Field Rating. It is recommended that development in the vicinity of Site RBS-01 be preceded by Phase 2 archaeological mitigation (for specific recommendations refer to the section – ‘The Development’).



**Figure 11:** Site RBS-01 – Image Gallery 1

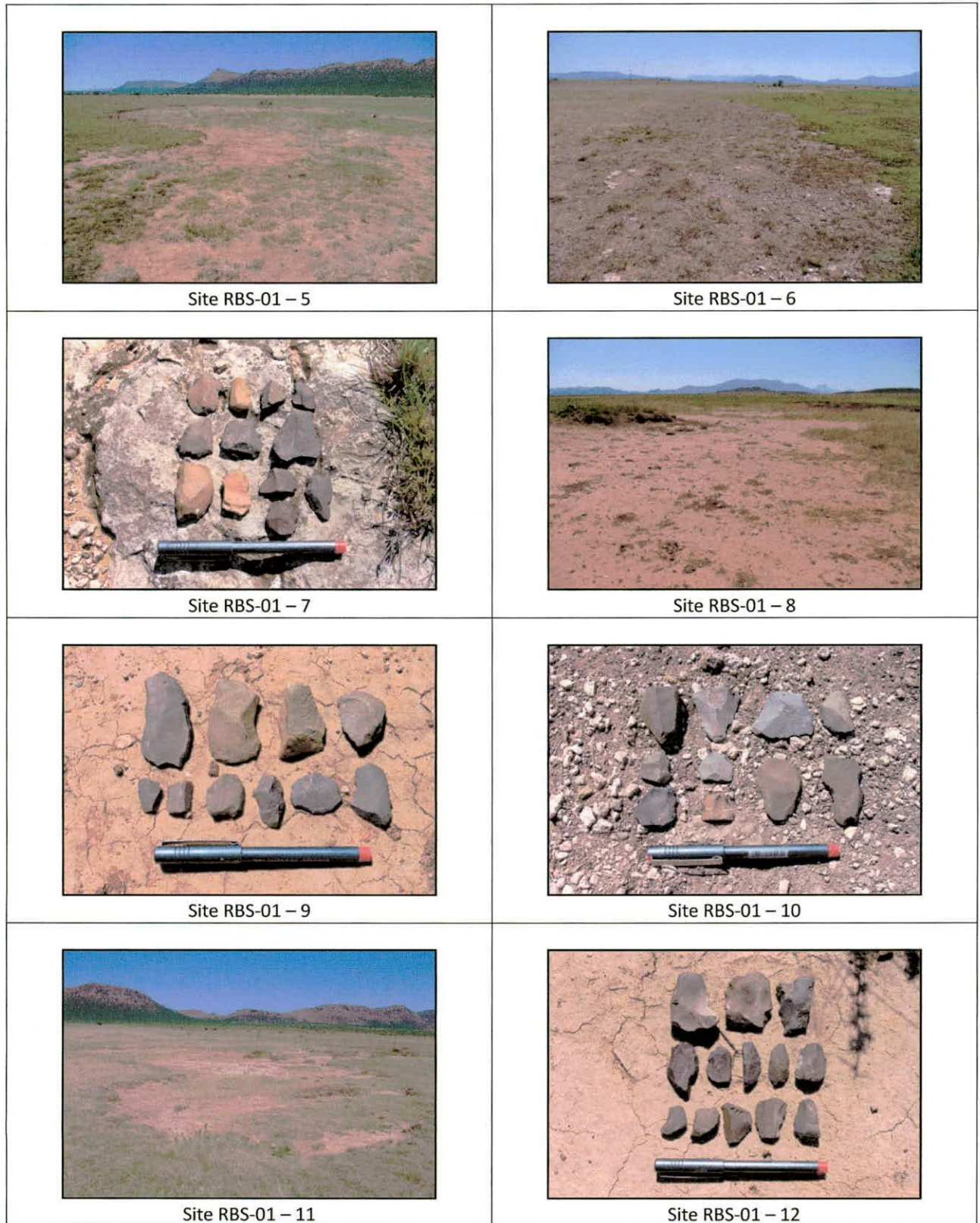


Figure 12: Site RBS-01 – Image Gallery 2

❖ *Site RBS-02 - Stone Age (MSA) - S31°55'54.4"; E26°51'55.7"*



**Figure 13:** General locality of Site RBS-02

Site RBS-02 (S31°55'54.4; E26°51'55.7") constitutes an approximate 400x200m area characterized by a mosaic colored patched landscape: Nearly black patches are representative of surface artefact exposures, various shades of darker areas may be representative of sub-surface archaeological layers and these are intersected by normal vegetation, defining spaces in between artefact concentrations, both surface and sub-surface. The Site RBS-02 site proper is roughly defined towards the south of the demarcated area (and south of the proposed development alignments), where surface artefact occurrences were most prominent.

Artefact densities can only be described for surface occurrences; at present similar densities are inferred for darker patches on the landscape and lesser densities associated with less intense landscape coloration, although cognizance need to be taken of the fact that this may also be a factor related to sub-surface depth of artefact members. In general surface occurrences concentrated around the site proper comprised of approximate 10x10m – 15x15m areas where particular high artefact ratios (artefacts: m<sup>2</sup>) were recorded, varying between 10-20:1. Lag may well have resulted in higher surface artefact ratios than actual artefact density – this remains to be verified by Phase 2 mitigation.

Artefacts were produced from a fine grained dolorite; raw material was directly obtainable from the hills towards the west and immediately south-west of the site. The use of fine grained dolorite resulted in the fairly good technological character of the assemblage. Typologically artefacts are assigned to the Middle Stone Age (MSA). Artefact types are dominated by flakes but with blade and bladelet types quite well represented, convergent flaking seems to have been less commonly used. Prepared platforms were visible on some artefacts, though knapping qualities of fine grained dolorite may explain this observation; less preparation is necessary to acquire a predetermined shaped flake when the raw material used have good flaking qualities. A fair association of knapping *debris* was found on site, including primarily cores and waste flakes. The lack of finer chips may well be the result of exposure to the elements (particularly water and wind) over extensive periods of time. Based on artefact size the Site RBS-02 assemblage is classed as a Volman (1984) MSA2/MSA3. Very few smaller artefacts were present, but the possibility of a later macrolithic Later Stone Age (LSA) admixture cannot be excluded. Artefacts often showed



signs of use-wear, including 'secondary retouch', notches and serrated edges. It remains rather interesting that assessment of the rocky outcrops yielded particularly low densities of lithic artefacts; this may be explained by overburden or vegetation, but may also imply selective use of the palaeo-landscape, where raw material were sourced from the outcrops and then brought to primary knapping and other activity areas. It is a well known fact in archaeology, dating from Acheulean times, that artefacts or raw material were sometimes carried over great distances, however the degree to which selective cultural space is here so visibly recognizable on the landscape does in itself make a significant comment on 'cultural modernity'.

Associated with Site RBS-02 is a low density Stone Age occurrence, typologically and technologically interpreted as a mere extension of the Site RBS-02 deposits that were identified primarily in the eroded gravel road that runs eastwards from the site. Artefacts, often directly associated with the shallow geological substrate, were found in small clusters to as far east as co-ordinate WBC1 (S31°55'59.3"; E26°52'53.2"). Low density Stone Age occurrences are a typical landscape feature across much of the Karoo, but interestingly seldom directly associated with a definite site, highlighting the rarity and importance of the relation between Site RBS-02 and low density occurrences in proximity thereto.

**RECOMMENDATIONS** – Site RBS-02 comprises of a Stone Age archaeological site, as defined and protected by the NHRA 1999. The site is preliminary ascribed a SAHRA *Medium Significance* and a *Generally Protected B* Field Rating. It is recommended that development in the vicinity of Site RBS-02 be preceded by Phase 2 archaeological mitigation (for specific recommendations refer to the section – 'The Development').

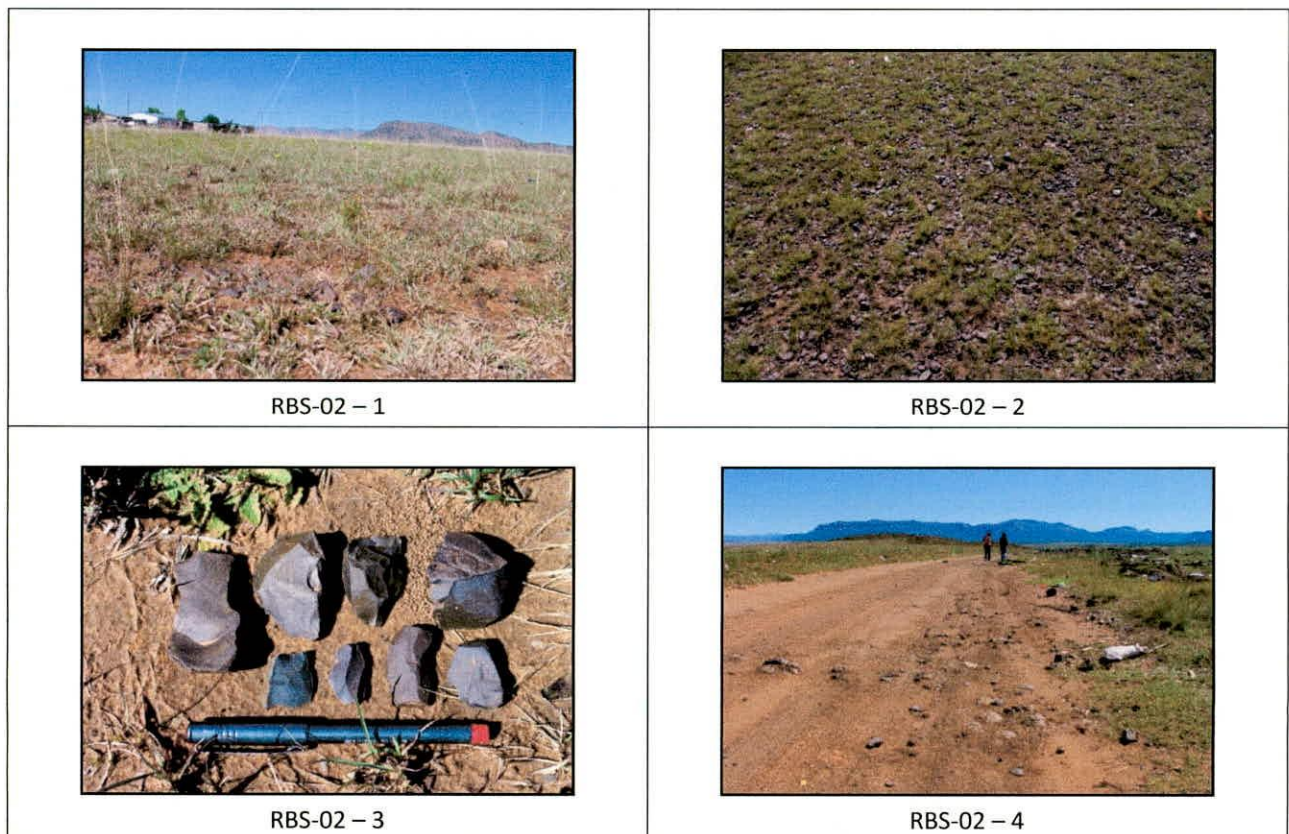
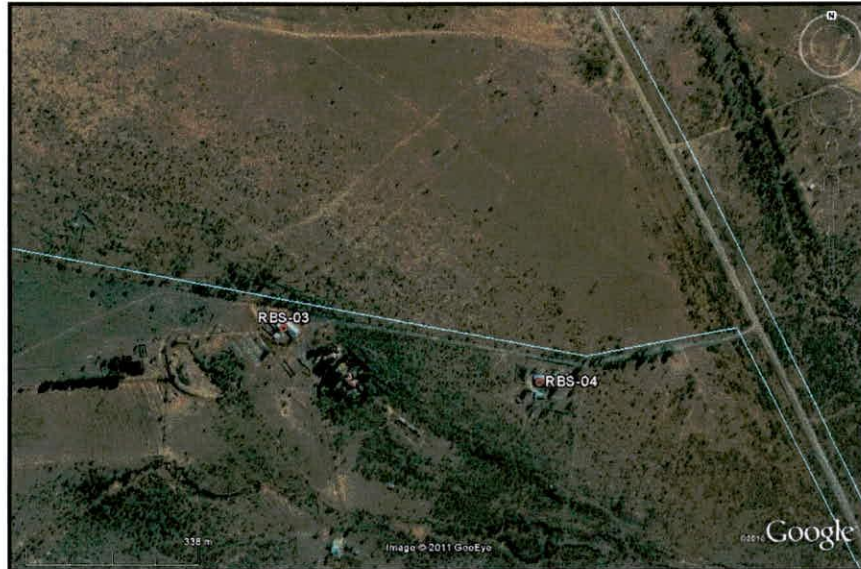


Figure 14: Site RBS-01 – Image Gallery 1

❖ *Site RBS-03 - Colonial Period (Structure) - S31° 56'06.6"; E26°53'26.6*



**Figure 15:** General locality of Site RBS-03

The Site RBS-03 Colonial Period structure / structure complex is situated at approximately S31°56'06.6"; E26°53'26.6". The site comprises of a farmstead complex, inferred to pre-date 60 years of age. The site may thus well be formally protection under the NHRA 1999. The site is situated on the neighboring property; access constraints did not allow site specific inspection. Site RBS-03 is ascribed a preliminary SAHRA *High Significance* with a *Provincial Grade 2* Field Rating. The site will not be impacted on by the development; development impact will be restricted to farms and farm portions directly affected by the development alignment only.

**RECOMMENDATIONS** – Site RBS-03 comprises of a Colonial Period structure / structure complex, as defined and protected by the NHRA 1999. The site is preliminary ascribed a SAHRA *High Significance* and a *Provincial Grade 2* Field Rating. Development will not impact on the site; development impact will be restricted to farms and farm portions directly affected by the development alignment only. It is recommended that development proceeds as applied for without the developer having to comply with additional heritage compliance requirements pertaining to the conservation of Site RBS-03.



Site RBS-03 – 1

**Figure 16:** Site RBS-03 – Image Gallery 1

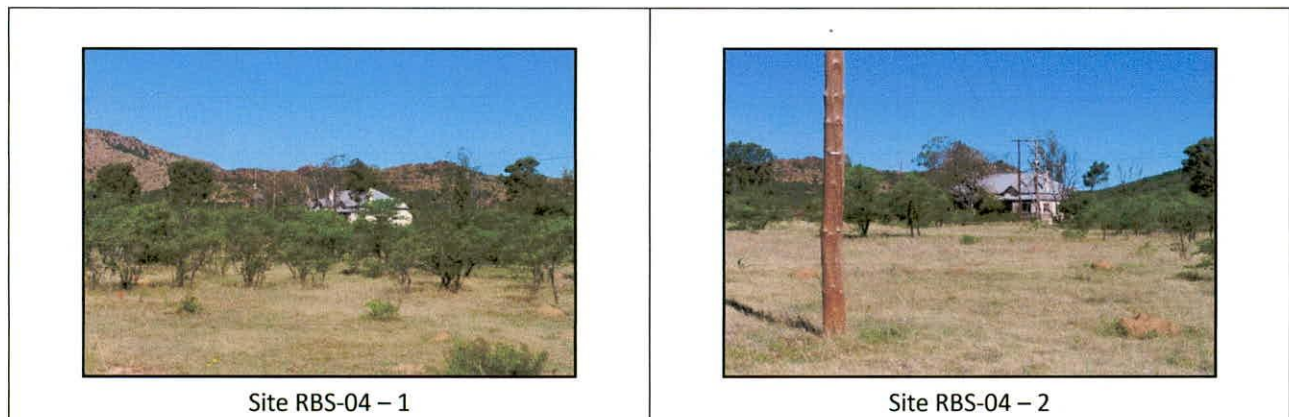
❖ *Site RBS-04 - Colonial Period (Structure) - S31° 56'09.9"; E26°53'45.2"*



**Figure 17:** General locality of Site RBS-04

Site RBS-04 is situated at approximately S32°56'09.9"; E26°53'45.2". The site comprises of a farmstead, inferred to pre-date 60 years of age implying formal protection under the NHRA 1999. The Site RBS-04 farmstead is situated on the neighboring property; access constraints did not allow site specific inspection. The site is preliminary ascribed a SAHRA *High Significance* with a *Provincial Grade 2* Field Rating. The site will not be impacted on by the development; development impact will be restricted to farms and farm portions directly affected by the development alignment only.

**RECOMMENDATIONS** – Site RBS-04 comprises of a Colonial Period structure as defined and protected by the NHRA 1999. The site is preliminary ascribed a SAHRA *High Significance* and a *Provincial Grade 2* Field Rating. Development will not impact on the site; development impact will be restricted to farms and farm portions directly affected by the development alignment only. It is recommended that development proceeds as applied for without the developer having to comply with additional heritage compliance requirements pertaining to the conservation of Site RBS-04.



**Figure 18:** Site RBS-04 – Image Gallery 1

### 3) CONCLUSION AND RECOMMENDATIONS

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the project, the *Bulk Services for the proposed Rathwick Development*, Queenstown, Eastern Cape, proceeds as applied for provided the developer comply with the following requirements:

- **Site RBS-01:**

1. Phase 2 archaeological collection and test pitting to be done prior to development impact. Only one Phase 2 project is necessary in the general area despite the number of development aspects that will impact on the general site locale and fair proximity thereto. Alternatively the site should be conserved, implying no development and relocation of relevant development aspects.
2. Minimum recommendations for Site RBS-01 Phase 2 archaeological collection and test pitting:
  - The Phase 2 archaeology project should aim to collect a representative sample (systematic surface collection) of the lithic assemblage of Site RBS-01. Test pitting should aim to validate stratigraphic depth and if present comparison between surface and sub-surface components of the collections.
  - Phase 2 archaeological collection and test pitting should be done by an accredited SAHRA / ASAPA archaeologist under a SAHRA permit.
  - A Phase 2 archaeological collection and test pitting report should be submitted to SAHRA.
  - Phase 2 archaeological collection and test pitting should be done prior to development impact in the vicinity of the New Rathwick Pump Station.
  - Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA Site Destruction Permit, which will allow legal destruction of the remainder of the site.

- **Site RBS-02:**

1. Phase 2 archaeological mitigation (excavation) to be done prior to development impact. Only one Phase 2 project is necessary, pending selection of either the Water Line – Line Route A or B & C options. Alternatively the site should be conserved, implying repositioning and alignment of proposed routes.
2. Minimum recommendations for Site RBS-02 Phase 2 archaeological mitigation (excavation):
  - The Phase 2 archaeology project should aim at a small sample excavation to retrieve a representative sample of the lithic deposit.
  - Phase 2 archaeological mitigation should be done by an accredited SAHRA / ASAPA archaeologist under a SAHRA permit.
  - A Phase 2 archaeological mitigation report should be submitted to SAHRA.
  - Phase 2 archaeological mitigation should be done prior to development impact in the vicinity of the Water Line – Line Route A.
  - Upon completion of the Phase 2 archaeology project the developer should apply for a SAHRA Site Destruction Permit, which will allow legal destruction of the remainder of the site.

- **Site RBS-03:**

In situ conservation (conservation 'as is' or in its current context)

- **Site RBS-04:**

In situ conservation (conservation 'as is' or in its current context)

BULK SERVICES FOR THE PROPOSED RATHWICK DEVELOPMENT					
QUEENSTOWN, EASTERN CAPE					
MAP CODE	SITE	TYPE / PERIOD	DESCRIPTION	CO-ORDINATES	PRELIMINARY RECOMMENDATIONS
<b>Development Aspects</b>					
WWTW	Waste Water Treatment Works			S31°54'08.0"; E26°51'02.8"	N/A
WTW	Water Treatment Works			S31°53'38.2"; E26°53'30.3"	N/A
NRSRF	New Rathwick Stormwater Retention Facility			S31°56'39.2"; E26°51'28.6"	N/A
NEPS	New Enkhulukweni Pump Station			S31°54'31.9"; E26°50'44.7"	N/A
NRPS	New Rathwick Pump Station			S31°56'19.2"; E26°50'55.6"	N/A
<b>Archaeology and Cultural Heritage</b>					
SL1	-	-	-	S31°55'20.6"; E26°50'32.7"	N/A
WA1	-	-	-	S31°55'19.7"; E26°52'32.3"	N/A
WA2	-	-	-	S31°54'42.1"; E26°53'05.5"	N/A
WA3	-	-	-	S31°54'06.0"; E26°53'31.2"	N/A
WA4	-	-	-	S31°53'54.5"; E26°53'37.6"	N/A
WBC1	-	-	-	S31°55'59.3"; E26°52'53.2"	N/A
WBC2	-	-	-	S31°54'12.8"; E26°54'09.4"	N/A
WBC3	-	-	-	S31°53'55.0"; E26°54'07.5"	N/A
BWF	N/A	Contemporary	Brick Works Factory	S31°55'50.4"; E26°51'06.0"	N/A
CR	N/A	Contemporary	Recreation	S31°54'32.6"; E26°50'43.8"	N/A
RBS-01	RBS-01	Stone Age	MSA & LSA	S31°56'35.0"; E26°51'28.4"	Site Conservation (redesign of development aspects) OR Phase 2 archaeological collection and test-pitting
-	-	-	01.1	S31°56'46.0"; E26°51'27.5"	
-	-	-	01.2	S31°56'46.1"; E26°51'28.6"	
-	-	-	01.3	S31°56'44.0"; E26°51'27.7"	
-	-	-	01.4	S31°56'43.0"; E26°51'25.3"	
-	-	-	01.5	S31°56'34.6"; E26°51'23.3"	
-	-	-	01.6	S31°56'35.6"; E26°51'30.2"	
-	-	-	01.7	S31°56'48.5"; E26°51'26.5"	
-	-	-	01.8	S31°56'41.4"; E26°51'16.6"	
-	-	-	01.9	S31°55'49.8"; E26°50'46.1"	
RBS-02	RBS-02	Stone Age	MSA	S31°55'54.4"; E26°51'55.7"	Site Conservation (redesign of development aspects) OR Phase 2 archaeological mitigation (excavation)
RBS-03	RBS-03	Colonial Period	Structure(s)	S31°56'06.6"; E26°53'26.6"	In situ Conservation
RBS-04	RBS-04	Colonial Period	Structure	S31°56'09.9"; E26°53'45.2"	In situ Conservation

**Table 2:** Development and Phase 1 AIA assessment findings – co-ordinate details

**NOTE:** Should any archaeological or cultural heritage resources, as defined and protected under the NHRA 1999, and not reported on in this report be identified during the course of development the developer should immediately cease operation in the vicinity of the find and report the site to SAHRA / an ASAPA accredited CRM archaeologist.



#### 4) REFERENCES CITED

BESC. 2010. *Background Information Document. Bulk Services for the proposed Rathwick Development, Queenstown. Chris Hani District Municipality.* Unpublished report.

South African Government. (No. 107) of 1998. *National Environmental Management Act.*

South African Government. (No. 25) of 1999. *National Heritage Resources Act.*

South African Heritage Resources Agency. 2007. *Minimum Standards for the Archaeological and Heritage Components of Impact Assessments.* Unpublished guidelines.

## INTRODUCTION TO THE ARCHAEOLOGY OF SOUTH AFRICA

Archaeologically the southern African cultural environment is roughly divided into the Stone Age, the Iron Age and the Colonial Period, including its subsequent Industrial component. This cultural division has a rough temporal association beginning with the Stone Age, followed by the Iron Age and the Colonial Period. The division is based on the identified primary technology used. The hunter-gatherer lifestyle of the Stone Age is identified in the archaeological record through stone being the primary raw material used to produce tools. Iron Age people, known for their skill to work iron and other metal, also practiced agriculture and animal husbandry. Kingdoms and civilizations associated with the Iron Age are indicative of a complex social hierarchy. The Colonial Period is marked by the advent of writing, in southern Africa primarily associated with the first European travelers (Mitchell 2002).

During the latter part of the Later Stone Age (LSA) hunter-gatherers shared their cultural landscape with both pastoralists and Iron Age people, while the advent of the Colonial Period in South Africa is marked by a complex cultural mosaic of people; including LSA hunter-gatherers, pastoralists, Later Iron Age farming communities and Colonial occupation.

### 1) Early Hominin Evolution

DNA studies indicate that humans and chimpanzees shared a common ancestor between 6-8Mya (Sibley & Ahlquist 1984). By 4Mya, based on fossil evidence from Ethiopia and Kenya, hominins (humans and their immediate fossil ancestors and relatives) had already evolved. The earliest fossils are ascribed to *Ardipithecus ramidus* (4.4Mya), succeeded by *Australopithecus anamensis* (4.2-3.9Mya). These fossils are inferred to lie at the base from which all other hominins evolved (Leakey *et al.* 1995; White *et al.* 1994).

In South Africa the later hominins are classed into 3 groups or distinct genera; *Australopithecus* (gracile australopithecines), *Paranthropus* (robust australopithecines) and *Homo*. South Africa has 3 major hominin sites: Taung in the North-West Province, where Raymond Dart identified the first *Australopithecus* fossil in 1924 (Dart 1925); The Cradle of Humankind (Sterkfontein Valley) sites in Gauteng, the most prolific hominin locality in the world for the period dating 3.5-1.5Mya which have yielded numerous *Australopithecus*, *Paranthropus* and limited *Homo* fossils (Keyser *et al.* 2000; Tobias 2000); and Makapansgat in the Limpopo Province, where several more specimens believed to be older than most of the Cradle specimens were discovered (Klein 1999).

*A. africanus*, represented at all 3 sites are believed to have been present on the South African landscape from about 3Mya. From approximately 2.8Mya they shared, at least in the Cradle area, the landscape with *P. robustus* and from roughly 2.3Mya with early forms of *Homo* (Clarke 1999). Global climatic cooling around 2.5Mya may have stimulated a burst of species turnover amongst hominins (Vrba 1992); the approximate contemporary appearance of the first stone tools suggests that this was a critical stage in human evolution. But exactly which early hominin population is to be accredited as the ancestor of *Homo* remains elusive.

*H. ergaster* is present in the African palaeo-anthropological record from around 1.8Mya and shortly thereafter the first exodus from Africa is evidenced by *H. erectus* specimens from China, Indonesia and even Europe (Klein 1999).

### 2) The Stone Age

#### 2.1) The Earlier Stone Age

In South Africa the only Earlier Stone Age (ESA) Oldowan lithic assemblage comes from Sterkfontein Cave. The predominant quartz assemblage is technologically very simple, highly informal and inferred to comprise exclusively of multi-purpose tools (Kuman *et al.* 1997). The latter part of the ESA is characterized by the Acheulean Industrial Complex, present in the archaeological record from at least 1.5Mya. Both *H. ergaster* and *P. robustus* may be accredited with the production of these tools. The association between stone tools and increased access to meat and marrow supporting the greater dietary breadth of *Homo* may have been vital to *Homo's* evolutionary success; and the eventual extinction of the robust australopithecines (Klein 1999).

Probably the longest lasting artefact tradition ever created by hominins, the Acheulean is found from Cape Town to north-western Europe and India, occurring widely in South Africa. Despite the many sites it is still considered a 'prehistoric dark age' by many archaeologists, encompassing one of the most critical periods in human evolution; the transition from *H. ergaster* to archaic forms of *H. Sapiens* (Klein 1999).

The Acheulean industry is characterized by handaxes and cleavers as *fosilles directeurs* (signatory artefact types), in association with cores and flakes. Handaxes and cleavers were multi-purpose tools used to work both meat and plant matter (Binneman & Beaumont 1992). Later Acheulean



flaking techniques involved a degree of core preparation that allowed a single large flake of predetermined shape and size to be produced. This *Victoria West technique* indicates an origin within the Acheulean for the *Levallois technique* of the Middle Stone Age (Noble & Davidson 1966). The lithic artefact component was supplemented by wood and other organic material (Deacon 1970).

### 2.2) *The Middle Stone Age*

The Middle Stone Age (MSA), dating from approximately 500kya to 40-27/23kya is interpreted as an intermediate technology between the Acheulean and the Later Stone Age (LSA) (Goodwin & van Riet Lowe 1929). The MSA is typologically characterized by the absence of handaxes and cleavers, the use of prepared core techniques and the production of blades, triangular and convergent flakes, with convergent dorsal scars and faceted striking platforms, often produced by means of the *Levallois technique* (Volman 1984). The widespread occurrence of MSA technology across Africa and its spread into much of Eurasia in Oxygen Isotope Stage (OIS) 7 is viewed as part of a process of population dispersal associated with both the ancestors of the later Neanderthals in Europe and anatomically modern humans in Africa (Foley & Lahr 1997).

After the riches offered by the Cradle sites and Makapansgat, southern Africa's Middle Pleistocene fossil record is comparatively poor. Early Middle Pleistocene fossil evidence suggests an archaic appearance and fossils are often assigned to *H. heidelbergensis* and *H. sapiens rhodesiensis* (Rightmire 1976). Modern looking remains, primarily from Border Cave (KwaZulu-Natal) and Klasies River Mouth (Eastern Cape) raised the possibility that anatomically modern humans had, by 120kya, originated south of the Sahara before spreading to other parts of the world (Brauer 1982; Stringer 1985). Subsequent studies of modern DNA indicated that African populations are genetically more diverse and probably older than those elsewhere (Cann *et al.* 1994). Combined, the fossil and genetic evidence underpins the so-called *Out of Africa 2* model (arguing that gene flow and natural selection led regional hominin populations along distinct evolutionary trajectories after *Homo's* expansion from Africa in the Lower Pleistocene *Out of Africa 1* model) of modern human origins and the continuing debate as to whether it should be preferred to its *Multiregional* alternative (arguing that modern humans evolved more or less simultaneously right across the Old World) (Mellars & Stringer 1989; Aitken *et al.* 1993; Nitecki & Nitecki 1994).

Persuasive evidence of ritual activity or bodily decoration is evidenced by the widespread presence of red ochre at particularly MSA 2 sites (after Volman's 1984 MSA 1-4 model; Hensilwood & Sealy 1997), while evidence from Lion Cave, Swaziland, indicates that specularite may have been mined as early as 100kya (Beaumont 1973). Evidence for symbolic behavioral activity is largely absent; no evidence for rock art or formal burial practices exists.

### 2.3) *The Later Stone Age*

Artefacts characteristic of the Later Stone Age (LSA) appear in the archaeological record from 40/27-23kya and incorporates microlithic as well as macrolithic assemblages. Artefacts were produced by modern *H. sapien* or *H. sapien sapien*, who subsisted on a hunter-gatherer way of life (Deacon 1984; Mitchell 2002).

According to Deacon (1984) the LSA can temporally be divided into 4 broad units directly associated with climatic, technological and subsistence changes:

1. Late Pleistocene microlithic assemblages (40-12kya);
2. Terminal Pleistocene / early Holocene non-microlithic assemblages (12-8kya);
3. Holocene microlithic assemblages (8kya to the Historic Period); and
4. Holocene assemblages with pottery (2kya to the Historic Period) closely associated with the influx of pastoralist communities into South Africa (Mitchell 2002).

Elements of material culture characteristic of the LSA reflect modern behavior. Deacon (1984) summarizes these as:

1. Symbolic and representational art (paintings and engravings);
2. Items of personal adornment such as decorated ostrich eggshell, decorated bone tools and beads, pendants and amulets of ostrich eggshell, marine and freshwater shells;
3. Specialized hunting and fishing equipment in the form of bows and arrows, fish hooks and sinkers;
4. A greater variety of specialized tools including bone needles and awls and bone skin-working tools;
5. Specialized food gathering tools and containers such as bored stone digging stick weights, carrying bags of leather and netting, ostrich eggshell water containers, tortoiseshell bowls and scoops and later pottery and stone bowls;
6. Formal burial of the dead in graves (sometimes covered with painted stones or grindstones and accompanied by grave goods);
7. The miniaturization of selected stone tools linked to the practice of hafting for composite tools production; and
8. A characteristic range of specialized tools designed for making some of the items listed above.

### ❖ Rock Art

Rock Art is one of the most visible and informative components of South Africa's archaeological record. Research into LSA ethnography (as KhoiSan history) has revolutionized our understanding of both painted and engraved (petroglyph) images, resulting in a paradigm shift in Stone Age archaeology (Deacon & Dowson 2001). Paintings are concentrated in the Drakensberg / Maluti mountains, the eastern Free State, the Cape Fold Mountains, the Waterberg Plateau and the Soutpansberg mountains. Engravings on the other hand are found throughout the Karoo, the western Free State and North-West Province (Mitchell 2002). Both forms of LSA art drew upon a common stock of motifs, derived from widely shared beliefs and include a restricted range of naturalistically depicted animals, geometric imagery, human body postures and non-realistic combinations of human and animal figures (anthropomorphic figurines). LSA Rock Art is closely associated with spiritual or magical significance (Lewis-Williams & Dowson 1999).

Aside from LSA or KhoiSan Rock Art, thus art produced by both hunter-gatherer and pastoralist and agro-pastoralist groups, Rock Art produced by Iron Age populations are known to be present towards the north of the country.

### ❖ Shell Middens ('Strandloper' Cultures)

South Africa's nearly 3,000km coastline is dotted by thousands of shell middens, situated between the high water mark and approximately 5km inland, bearing witness to long-term exploitation of shellfish mainly over the past 12,000 years. These LSA shell middens are easily distinguishable from natural accumulations of shells and deposits can include bones of animals eaten such as shellfish, turtles and seabirds, crustaceans like crabs and crayfish and marine mammal remains of seals, dolphins and occasionally whales. Artefacts and hearth and cooking remains are often found in shell midden deposits. Evidence exist that fish were speared, collected by hand, reed baskets and by means of stone fish traps in tidal pools (Mitchell 2002).

Shell midden remains were in the past erroneously assigned to 'Strandloper cultures'. Deacon & Deacon (1999) explain that '*no biological or cultural group had exclusive rights to coastal resources.*' Some LSA groups visited the coast periodically while others stayed year round and it is misleading to call them all by the same name. Two primary sources of archaeological enquiry serves to shed more light on the lifestyles of people who accumulated shell middens, one being the analysis of food remains in the middens itself and the other being the analysis of LSA human skeletal remains of people buried either in shell middens or within reasonable proximity to the coast.

Shell middens vary in character ranging from large sites tens of meters in extent and with considerable depositional depth to fairly small ephemeral collections, easily exposed and destroyed by shifting dune action. Shell middens are also found inland, along rivers where fresh water mussels occur. These middens are often fairly small and less common; in the Eastern Cape often dated to within the past 3,000 years (Deacon & Deacon 1999).

In addition shell middens are not exclusively assigned to LSA cultures; shellfish were exploited during the Last Interglacial, indicating that the practice was most probably continuous for the past 120,000 years (MSA shell middens). Along the coast of KwaZulu-Natal evidence exist for the exploitation of marine food resources by Iron Age communities. These shell middens are easily distinguished from Stone Age middens by particularly rich, often decorated ceramic artefact content. Colonial Period shell middens are quite rare and extremely ephemeral in character; primarily the result of European shipwreck survivors and reported on along the coast of KwaZulu-Natal and the Transkei, Eastern Cape.

## 3) The Iron Age

For close to 2 millennia people combining cereal agriculture with stock keeping have occupied most of southern Africa's summer rainfall zone. The rapid spread of farming, distinctive ceramics and metallurgy is understood as the expansion of a Bantu-speaking population, in archaeological terms referred to as the Iron Age.

### 3.1) The Early Iron Age

Ceramic typology is central to current discussions of the expansion of iron using farming communities. The most widely used approach is that of Huffman (1980), who employs a multidimensional analysis (vessel profile, decoration layout and motif) to reconstruct different ceramic types. Huffman (1998) argues that ceramics can be used to trace the movements of people, though not necessarily of specific social or political groupings. Huffman's Urewe Tradition coincides largely with Phillipson's (1977) Eastern Stream. A combined Urewe Tradition / Eastern Stream model for the Early Iron Age can be summarized as:

1. The Kwale branch (extending along the coast from Kenya to KwaZulu-Natal);
2. The Nkope branch (located inland and reaching from southern Tanzania through Malawi and eastern Zambia into Zimbabwe); and
3. The Kalundu branch (stretching from Angola through western Zambia, Botswana and Zimbabwe into South Africa).

In southern Africa, recent work distinguishes two phases of the Kwale branch: The earlier Silver Leaves facies (250-430AD) occurring as far south as the Northern Province. The later expression or Mzonjani facies (420-580AD) occurs in the Northern Province as well as along the KwaZulu-Natal coastal belt (Huffman 1998). Since the Silver Leaves facies is only slightly younger than the Kwale type site in Kenya, very rapid movement along the coast, perhaps partly by boat, is inferred (Klapwijk 1974). Subsequently (550-650AD) people making Mzonjani derived ceramics settled more widely in the interior of South Africa.

Assemblages attributable to the Nkope branch appear south of the Zambezi but north of South Africa from the 5<sup>th</sup> Century. Ziwa represents an early facies, with Gokomere deriving jointly from Ziwa and Bambata. A subsequent phase is represented by the Zhizo facies of the Shashe-Limpopo basin, and by Taukome (Huffman 1994). Related sites occur in the Kruger National Park (Meyer 1988). Zhizo (7<sup>th</sup> – 10<sup>th</sup> Century) is ancestral to the Toutswe tradition which persisted in eastern Botswana into the 13<sup>th</sup> Century.

Kalundu origins need further investigation; its subsequent development is however better understood. A post Bambata phase is represented by the 5<sup>th</sup> – 7<sup>th</sup> Century sites of Happy Rest, Klein Africa and Maunatlana in the Northern Province and Mpumalanga (Prinsloo 1974, 1989). Later phases are present at the Lydenburg Heads site (Whitelaw & Moon 1996) and by the succession of Mzuluzi, Ndongonwane and Ntshekane in KwaZulu-Natal (7<sup>th</sup> – 10<sup>th</sup> Centuries) (Prins & Grainger 1993). Later Kalundu facies include Klingbeil and Eiland in the northern part of the country (Evers 1980) with Kgopolwe being a lowveld variant in Mpumalanga (10<sup>th</sup> – 12<sup>th</sup> Century). Broadhurst and other sites indicate a still later survival in Botswana (Campbell 1991).

Despite the importance accorded to iron agricultural implements in expanding the spread of farming and frequent finds of production debris, metal objects are rare. Metal techniques were simple, with no particular sign of casting, wire drawing or hot working. Jewelry (bangles, beads, pendants etc.) constitute by far the largest number of finds but arrows, adzes, chisels, points and spatulae are known (Miller 1996).

Early Iron Age people were limited to the Miombo and Savannah biomes; excluded from much of the continent's western half by aridity and confined in the south during the 1<sup>st</sup> millennium to bushveld areas of the old Transvaal. Declining summer rainfall restricted occupation to a diminishing belt close to the East Coast and north of S33 (Maggs 1994); sites such as Canasta Place (800AD), Eastern Cape, mark the southern-most limit of Early Iron Age settlement (Nogwaza 1994).

#### ❖ The Central Cattle Pattern

The Central Cattle Pattern (CCP) was the main cognitive pattern since the Early Iron Age (Huffman 1986). The system can be summarized as opposition between male pastoralism and female agriculture; ancestors and descendants; rulers and subjects; and men and women. Cattle served as the primary means of transaction; they represented symbols exchanged for the fertility of wives, legitimacy of children and appeasement of ancestors. Cattle were also used as tribute to rulers confirming sub-ordination and redistribution as loan cattle by the ruler to gain political support. Cattle represented healing and fertilizing qualities (Huffman 1998; Kuper 1980).

This cognitive and conceptual structure underlies all cultural behavior, including the placement of features in a settlement. The oppositions of male and female, pastoralism and agriculture, ancestors and descendants, rulers and subjects, cool and hot are represented in spatial oppositions, either concentric or diametric (Huffman 1986).

A typical CCP village comprise of a central cattle enclosure (byre) where men are buried. The *Kgotla* (men's meeting place / court) is situated adjacent to the cattle enclosure. Surrounding the enclosure is an arc of houses, occupied according to seniority. Around the outer perimeter of the houses is an arc of granaries where women keep their pots and grinding stones (Huffman 1986). The model varies per ethnic group which helps to distinguish ethnicity throughout the Iron Age, but more studies are required to recognize the patterns.

### 3.2) The Middle Iron Age

The hiatus of South African Middle Iron Age activity was centered in the Shashe-Limpopo Valley and characterized by the 5-tier hierarchical Mapungubwe State spanning some 30,000km<sup>2</sup>. By the 1<sup>st</sup> millennium ivory and skins were already exported overseas, with sites like Sofala and Chibueni, Mozambique, interfacing between interior and transoceanic traders. Exotic glass beads, cloth and Middle Eastern ceramics present at southern African sites mark the beginning of the regions incorporation into the expanding economic system that, partly tied together with maritime trading links across the Indian Ocean, increasingly united Africa, Asia and Europe long before Da Gama or Columbus (Eloff & Meyer 1981; Meyer 1998).

Occupation was initially focused at Bambandanyalo and K2. The Bambandanyalo main midden (1030-1220AD) stands out above the surrounding area, reaching more than 6m in places and covering more than 8ha the site may have housed as many as 2,000 people (Meyer 1998). The CCP was not strictly followed; whether this is ideologically significant or merely a reflection of local topography remains unclear. The

midden, the size of which may reflect the status of the settlement's ruler, engulfed the byre around 1060-1080AD, necessitating relocation of the cattle previously kept there. The re-organization of space and worldview implied suggests profound social changes even before the sites' abandonment in the early 13<sup>th</sup> century, when the focus of occupation moved to Mapungubwe Hill, 1 km away (Huffman 1998).

Excavations at Mapungubwe Hill, though only occupied for a few decades (1220-1290AD), yielded a deep succession of gravel floors and house debris (Eloff & Meyer 1981). Huffman (1998) suggests that the suddenness with which Mapungubwe was occupied may imply a deliberate decision to give spatial expression to a new social order in which leaders physically removed themselves from ordinary people by moving onto more inaccessible, higher elevations behind the stone walls demarcating elite residential areas. Social and settlement changes speak of considerable centralization of power and perhaps the elaboration of new ways of linking leaders and subjects.

At Bambandanyalo and Mapungubwe elite burial grave goods include copper, bone, ivory and golden ornaments and beads. Social significance of cattle is reinforced by their importance among the many human and animal ceramic figurines and at least 6 'beast burials' (Meyer 1998).

Today the drought prone Shashe-Limpopo Valley receives less than 350mm of rainfall per annum, making cereal cultivation virtually impossible. The shift to drier conditions in the late 1200's across the Shashe-Limpopo basin and the eastern Kalahari may have been pivotal in the break-up of the Mapungubwe polity, the collapse of Botswana's Toutswe tradition and the emergence of Great Zimbabwe (1220-1550AD), southern Africa's best known and largest (720ha) archaeological site (Meyer 1998).

South of the Limpopo and north of the Soutpansberg, Mapungubwe derived communities survived into the 14<sup>th</sup> Century, contemporary with the establishment of Sotho-speaking makers of Maloko pottery.

### 3.3) *The Later Iron Age*

South African farming communities of the 2<sup>nd</sup> millennium experienced increased specialization of production and exchange, the development of more nucleated settlement patterns and growing political centralization, albeit not to the same extent as those participating in the Zimbabwe tradition. However, together they form the background to the cataclysmic events of the late 18<sup>th</sup> / early 19<sup>th</sup> Century *Mfecane* (Mitchell 2002).

Archaeological evidence of settlement pattern, social organization and ritual practice often differ from those recorded ethnographically. The Moloko ceramic tradition seems to be ancestral to modern Sotho-Tswana speakers (Evers 1980) and from about 1,100AD a second tradition, the Blackburn tradition, appears along South Africa's eastern coastline. Blackburn produced mostly undecorated pottery (Davies 1971), while Mpambanyoni assemblages, reaching as far south as Transkei, includes examples of rim notching, incised lines and burnished ochre slip (Robey 1980). At present, no contemporary farming sites are known further inland in KwaZulu-Natal or the Eastern Cape.

Huffman (1989) argues that similarities between Blackburn and early Maloko wares imply a related origin, presumably in the Chifumbaze of Zambia or the Ivuna of Tanzania, which contains a range of ceramic attributes important in the Blackburn as well as beehive grass huts similar to those made by the Nguni. This is one of the few suggestions of contact between Sotho-Tswana and Nguni speakers on the one hand and farming communities who, if Huffman is correct, were already long established south of the Limpopo. Both ethnographic and archaeological data demonstrate that Sotho-Tswana and Nguni are patrilineal and organize their settlements according to the CCP (Kuper 1980).

From 1,300AD there is increasing evidence for the beginning of agro-pastoralist expansion considerably beyond the area of previous occupation. It is also to this time that the genealogies of several contemporary Bantu speaking groups can be traced (Wilson & Thompson 1969). Associated with this expansion was the regular employment of stone, rather than wood, as building material, an adaptation that has greatly facilitated the discovery and identification of settlements. Maggs (1976) describes 4 basic settlement types all characterized by the use of semi weathered dolomite to produce hard binding *daga* for house floors and a wall building tradition employing larger more regular stones for the inner and outer faces and smaller rubble for the infill. As with the more dispersed homesteads of KwaZulu-Natal and the Eastern Cape, sites tend to be in locally elevated situations, reflecting a deep seated Sotho and Nguni preference for benign higher places rather than supernaturally dangerous riverside localities; another important contrast to both 1<sup>st</sup> millennium (Maggs 1976) and later Zulu Kingdom settlement patterns (Hall & Maggs 1979).

The lack of evidence for iron production in the interior and eastern part of South Africa emphasize exchange relationships between various groups and associated more centralized polities. By the 19<sup>th</sup> Century iron production in KwaZulu-Natal was concentrated in particular clans and lineages and associated with a range of social and religious taboos (Maggs 1992). South of Durban comparatively few smelting sites are known (Whitelaw 1991), a trend even more apparent in Transkei (Feely 1987). However, metal remained the most important and archaeologically evident item traded between later farming communities. (Other recorded trade items include glass and ostrich eggshell beads; Indian Ocean seashells; siltstone pipes; *dagga*, and later on tobacco; pigments including ochre, graphite and specularite; hides and salt.)

Rising polity settlements are particularly evident in the north of the country and dated to the 17<sup>th</sup> Century, including Molokwane, capital of the Bakwena chiefdom (Pistorius 1994) and Kaditshwene, capital of a major section of the Hurutshe, whose population of 20,000 in 1820 almost equals contemporary Cape Town in size (Boeyens 2000). The agglomeration of Tswana settlements in the north of the country was fuelled by both population growth and conflict over access to elephant herds for ivory and long distance trade with the East Coast. During this period ceramic decoration became blander and more standardized than the earlier elaborate decoration that included red ochre and graphite coloring.

The *Mfecane* refers to the wars and population movements of the early 19<sup>th</sup> Century which culminated in the establishment of the Zulu Kingdom and came to affect much of the interior, even beyond the Zambezi: The late 18<sup>th</sup> Century was marked by increasing demands for ivory (and slaves) on the part of European traders at Delagoa Bay; as many as 50 tones of ivory were exported annually from 1750-1790. As elephant populations declined, competition increased both for them and for the post 1790 supply of food to European and American whalers calling at Delagoa Bay (Smith 1970). Cattle raiding, conflict over land and changes in climatic and subsistence strategies characterized much of the cultural landscape of the time.

Competition for access to overseas trade encouraged some leaders to replace locally organized circumcision schools and age-sets with more permanently maintained military regiments. These were now used to gain access through warfare to land, cattle and stored food. By 1810 three groups, the Mthethwa, Ndwandwe and Ngwane dominated northern KwaZulu-Natal (Wright 1995). The Mthethwa paramountcy was undermined by the killing of its leader Dingiswayo in *circa* 1818, which led to a brief period of Ndwandwe dominance. In consequence one of Dingiswayo's former tributaries, Shaka, established often forceful alliances with chiefdoms further south. Shaka's Zulu dominated coalition resisted the Ndwandwe who in return fled to Mozambique. As the Zulu polity expanded it consolidated its control over large areas, incorporating many communities into it. Others sought refuge from political instability by moving south of the Thukela River, precipitating a further *domino effect* as far as the Cape Colony's eastern border (Wright 1995).

#### 4) The Colonial Period

In the 15<sup>th</sup> Century Admiral Zheng He and his subordinates impressed the power of the Ming Dynasty rulers in a series of voyages as far afield as Java, Sri Lanka, southern Arabia and along the East African coast, collecting exotic animals *en route*. But nothing more came of his expeditions and China never pursued opportunities for trade or colonization (Mote 1991).

Portuguese maritime expansion began around the time of Zheng He's voyages; motivated by a desire to establish a sea route to the riches of the Far East. By 1485 Diogo Cao had reached Cape Cross, 3 years later Bartolomeu Dias rounded the Cape of Good Hope and less than a decade later Vasco da Gama called at several places along South Africa's coast, trading with Khoekhoen (Khoi) at Mossel Bay before reaching Mozambique and crossing the ocean to India. His voyage initiated subsequent Portuguese bases from China to Iraq. In Africa interest was focused on seizing important coastal trading towns such as Sofala and gaining access to the gold of Zimbabwe. Following the 1510 Portuguese-Khoekhoen battle at Table Bay, in which the viceroy of India was killed, Portuguese ships ceased to call along the South African coast (Elphick 1985).

A number of shipwrecks, primarily along the eastern coast attest to Portuguese activity including the Sao Joao, wrecked in 1552 near Port Edward and the Sao Bento, destroyed in 1554 off the Transkei coast. Survivors' accounts provided the 1<sup>st</sup> detailed information on Africa's inhabitants (Auret & Maggs 1982).

By the late 1500's Portuguese supremacy of the Indian Ocean was threatened. From 1591 numerous Dutch and English ships called at Table Bay and in 1652 the Dutch East Indian Company (VOC) established a permanent base, with the intent to provide fresh food and water to VOC ships. In an attempt to improve the food supply a few settlers (free burghers) were allowed to establish farms. The establishment of an intensive mixed farming economy failed due to shortages of capital and labor, and free burghers turned to wheat cultivation and livestock farming. While the population grew slowly the area of settlement expanded rapidly with new administrative centers established at Stellenbosch (1676), Swellendam (1743) and Graaf-Reinet (1785). By the 1960's the Colony's frontier was too long to be effectively policed by VOC officials (Elphick 1985).

From the 1700's many settlers expanded inland over the Cape Fold Mountain Belt. The high cost of overland transport constrained the ability to sell their produce while settlement of the interior was increasingly made difficult by resident KhoiSan groups, contributing due to a lack of VOC military support to growing Company opposition in the years before British control of the Cape (1795 / 1806) (Davenport & Saunders 2000).

In 1820 a major British settlement was implanted on the eastern frontier of the Cape Colony, resulting in large numbers of the community moving into the interior, initially to KwaZulu-Natal, and then after Britain annexed Natal (1843), further into the interior to beyond the Vaal River. Disruptions of the *Mfecane* eased their takeover of African lands and the *Boers* (farmers) established several Republics. A few years later the 2<sup>nd</sup> South African War saw both the South African and Orange Free State Republics annexed by Britain, a move largely motivated by British desire to control the goldfields of the Witwatersrand. With adjacent regions of the sub-continent also falling, directly or indirectly, under

British rule and German colonization of Namibia, European control of the whole of southern Africa was firmly established before the 1<sup>st</sup> World War (Davenport & Saunders 2000).

#### ❖ **Xhosa Iron Age Cultures meets Colonists in the Eastern Cape**

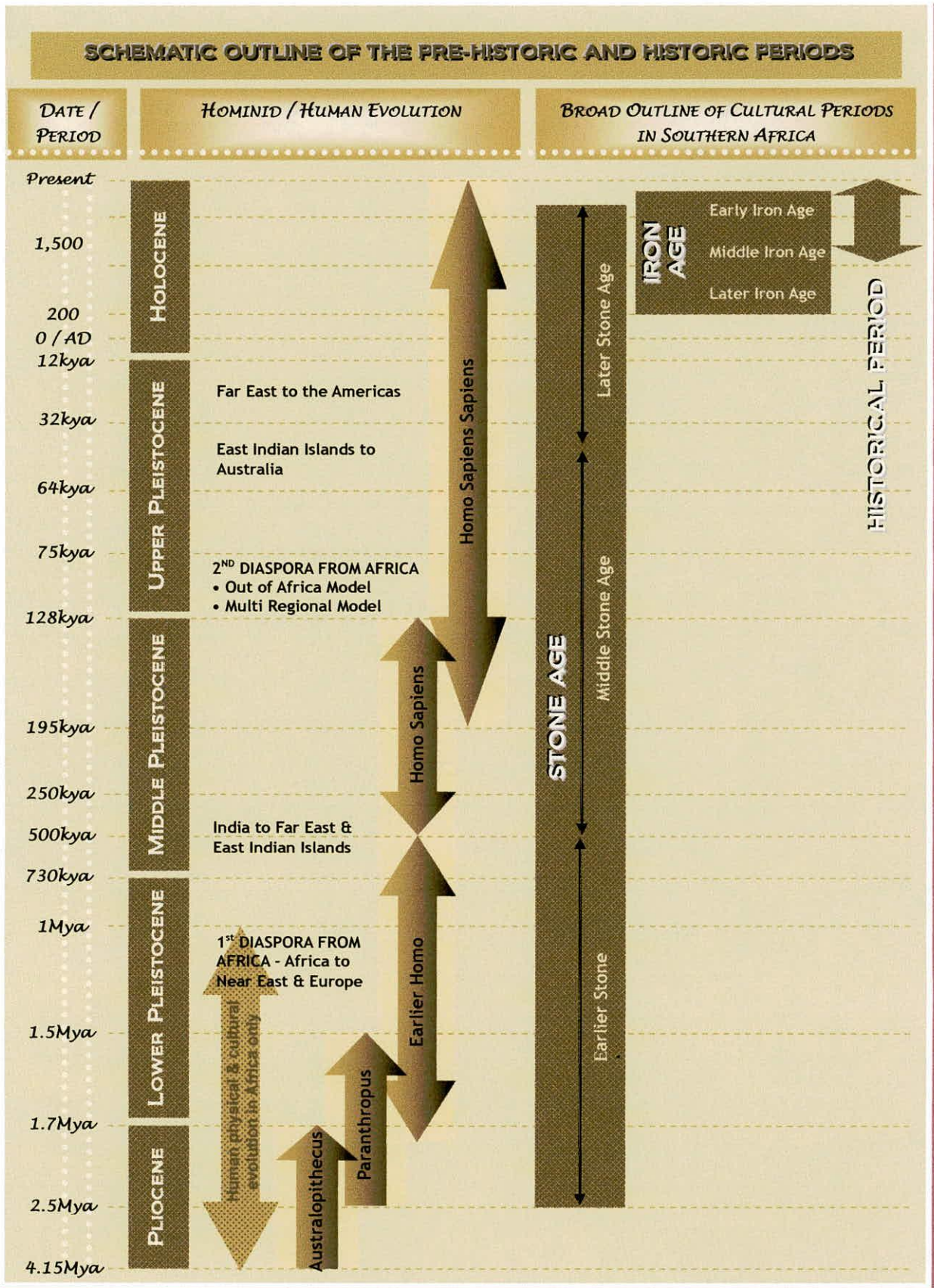
From the late 1600's conflict between migrants from the Cape (predominantly Boers) and Xhosa people in the region of the Fish River were strife, ultimately resulting in a series of 9 Frontier Wars (1702-1878) (Milton 1983). Both cultures were heavily based and reliant on agriculture and cattle farming. As more Cape migrants, and later settlers from Britain (1820) and elsewhere arrived, population pressures and competition over land, cattle and good grazing became intense. Cattle raiding became endemic on all sides, with retaliatory raids launched in response. As missionaries arrived with evangelical messages, confrontations with hostile chiefs who saw them as undermining traditional Xhosa ways of life resulted in conflicts which flared into wars.

As pressures between the European settlers and the Xhosa grew, settlers organized themselves into local militia, counteracted by Xhosa warring skills: But both sides were limited by the demands of seasonal farming and the need for labor during harvest. Wars between the Boers and the Xhosa resulted in shifting borders, from the Fish to the Sundays River, but it was only after the British annexed the Cape in 1806 that authorities turned their attention to the Eastern regions and petitions by the settlers about Xhosa raids. British expeditions, in particular under Colonel John Graham in 1811 and later Harry Smith in 1834, were sent not only to secure the frontier against the Xhosa, but also to impose British authority on the settlers, with the aim to establish a permanent British presence. Military forts were built and permanently manned. Over time the British came to dominate the area both militarily and through occupation with the introduction of British settlers. The imposition of British authority led to confrontations not only with the Xhosa but also with disaffected Boers and other settlers, and other native groups such as the Khoikhoi, the Griqua and the Mpondo. The frontier wars continued over a period of about 150 years; from the 1<sup>st</sup> arrival of the Cape settlers, and with the intervention of the British military ultimately ending in the subjugation of the Xhosa people. Fighting ended on the Eastern Cape frontier in June 1878 with the annexation of the western areas of the Transkei and administration under the authority of the Cape Colony (Milton 1983).

#### ❖ **The Industrial Revolution**

The Industrial Revolution refers roughly to the period between the 18<sup>th</sup> - 19<sup>th</sup> Centuries, typified by major changes in agriculture, manufacturing, mining, transport, and technology. Changing industry had a profound effect on socio-economic and socio-cultural conditions across the world: The Industrial Revolution marks a major turning point in human history; almost every aspect of daily life was eventually influenced in some way. Average income and population size began to exhibit unprecedented growth; in the two centuries following 1800 the world's population increased over 6-fold, associated with increasing urbanization and demand of resources. Starting in the latter part of the 18<sup>th</sup> century, the transition from manual labor towards machine-based manufacturing changed the face of economic activity; including the mechanization of the textile industries, the development of iron-making techniques and the increased use of refined coal. Trade expansion was enabled by the introduction of canals, improved roads and railways. The introduction of steam power fuelled primarily by coal and powered machinery was underpinned by dramatic increases in production capacity. The development of all-metal machine tools in the first two decades of the 19th century facilitated the manufacture of more production machines in other industries (More 2000).

Effects of the Industrial Revolution were widespread across the world, with its enormous impact of change on society, a process that continues today as 'industrialization'.



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## EXTRACTS FROM THE NATIONAL HERITAGE RESOURCES ACT, NO 25 OF 1999

### DEFINITIONS

#### Section 2

In this Act, unless the context requires otherwise:

- ii. *"Archaeological"* means –
  - a) material remains resulting from human activity 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;
  - b) 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 10 m of such representation;
  - c) 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,... 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.
- viii. *"Development"* means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
  - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
  - b) carrying out any works on or over or under a place;
  - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
  - d) constructing or putting up for display signs or hoardings;
  - e) any change to the natural or existing condition or topography of land; and
  - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. *"Grave"* means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. *"Living heritage"* means the intangible aspects of inherited culture, and may include –
  - a) cultural tradition;
  - b) oral history;
  - c) performance;
  - d) ritual;
  - e) popular memory;
  - f) skills and techniques;
  - g) indigenous knowledge systems; and
  - h) the holistic approach to nature, society and social relationships.
- xxxi. *"Palaeontological"* 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;
- xli. *"Site"* means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. *"Structure"* means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith;

### NATIONAL ESTATE

#### Section 3

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
  - a) places, buildings, structures and equipment of cultural significance;
  - b) places to which oral traditions are attached or which are associated with living heritage;
  - c) historical settlements and townscapes;
  - d) landscapes and natural features of cultural significance;
  - e) geological sites of scientific or cultural importance
  - f) archaeological and palaeontological sites;
  - g) graves and burial grounds, including –
    - i. ancestral graves;
    - ii. royal graves and graves of traditional leaders;
    - iii. graves of victims of conflict
    - iv. graves of individuals designated by the Minister by notice in the Gazette;
    - v. historical graves and cemeteries; and
    - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
  - h) sites of significance relating to the history of slavery in South Africa;
  - i) movable objects, including –
    - i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

## **STRUCTURES**

### *Section 34*

- 1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

## **ARCHAEOLOGY, PALAEOLOGY AND METEORITES**

### *Section 35*

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 4) No person may, without a permit issued by the responsible heritage resources authority –
  - a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
  - b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
  - c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
  - d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
  - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
  - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
  - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
  - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

## **BURIAL GROUNDS AND GRAVES**

### *Section 36*

- 3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority –
  - a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
  - b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
  - c) bring onto or use at a burial ground or grave referred to in paragraph a) or b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- 4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction of any burial ground or grave referred to in subsection 3a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- 5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection 3b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –
  - a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
  - b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

- 6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –
- carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
  - if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-internment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

## **HERITAGE RESOURCES MANAGEMENT**

### *Section 38*

- Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
  - the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
  - the construction of a bridge or similar structure exceeding 50 m in length;
  - any development or other activity which will change the character of a site –
    - exceeding 5 000 m<sup>2</sup> in extent; or
    - involving three or more existing erven or subdivisions thereof; or
    - involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
    - the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
  - the rezoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
  - any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
 must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
  - if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
  - notify the person concerned that this section does not apply.
- The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
  - whether or not the development may proceed;
  - any limitations or conditions to be applied to the development;
  - what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
  - whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
  - whether the appointment of specialists is required as a condition of approval of the proposal.

## **APPOINTMENT AND POWERS OF HERITAGE INSPECTORS**

### *Section 50*

- Subject to the provision of any other law, a heritage inspector or any other person authorised by a heritage resources authority in writing, may at all reasonable times enter upon any land or premises for the purpose of inspecting any heritage resource protected in terms of the provisions of this Act, or any other property in respect of which the heritage resources authority is exercising its functions and powers in terms of this Act, and may take photographs, make measurements and sketches and use any other means of recording information necessary for the purposes of this Act.
- A heritage inspector may at any time inspect work being done under a permit issued in terms of this Act and may for that purpose at all reasonable times enter any place protected in terms of this Act.
- Where a heritage inspector has reasonable grounds to suspect that an offence in terms of this Act has been, is being, or is about to be committed, the heritage inspector may with such assistance as he or she thinks necessary –
  - enter and search any place, premises, vehicle, vessel or craft, and for that purpose stop and detain any vehicle, vessel or craft, in or on which the heritage inspector believes, on reasonable grounds, there is evidence related to that offence;
  - confiscate and detain any heritage resource or evidence concerned with the commission of the offence pending any further order from the responsible heritage resources authority; and
  - take such action as is reasonably necessary to prevent the commission of an offence in terms of this Act.
- A heritage inspector may, if there is reason to believe that any work is being done or any action is being taken in contravention of this Act or the conditions of a permit issued in terms of this Act, order the immediate cessation of such work or action pending any further order from the responsible heritage resources authority.