

CTS HERITAGE

## HERITAGE SCREENER

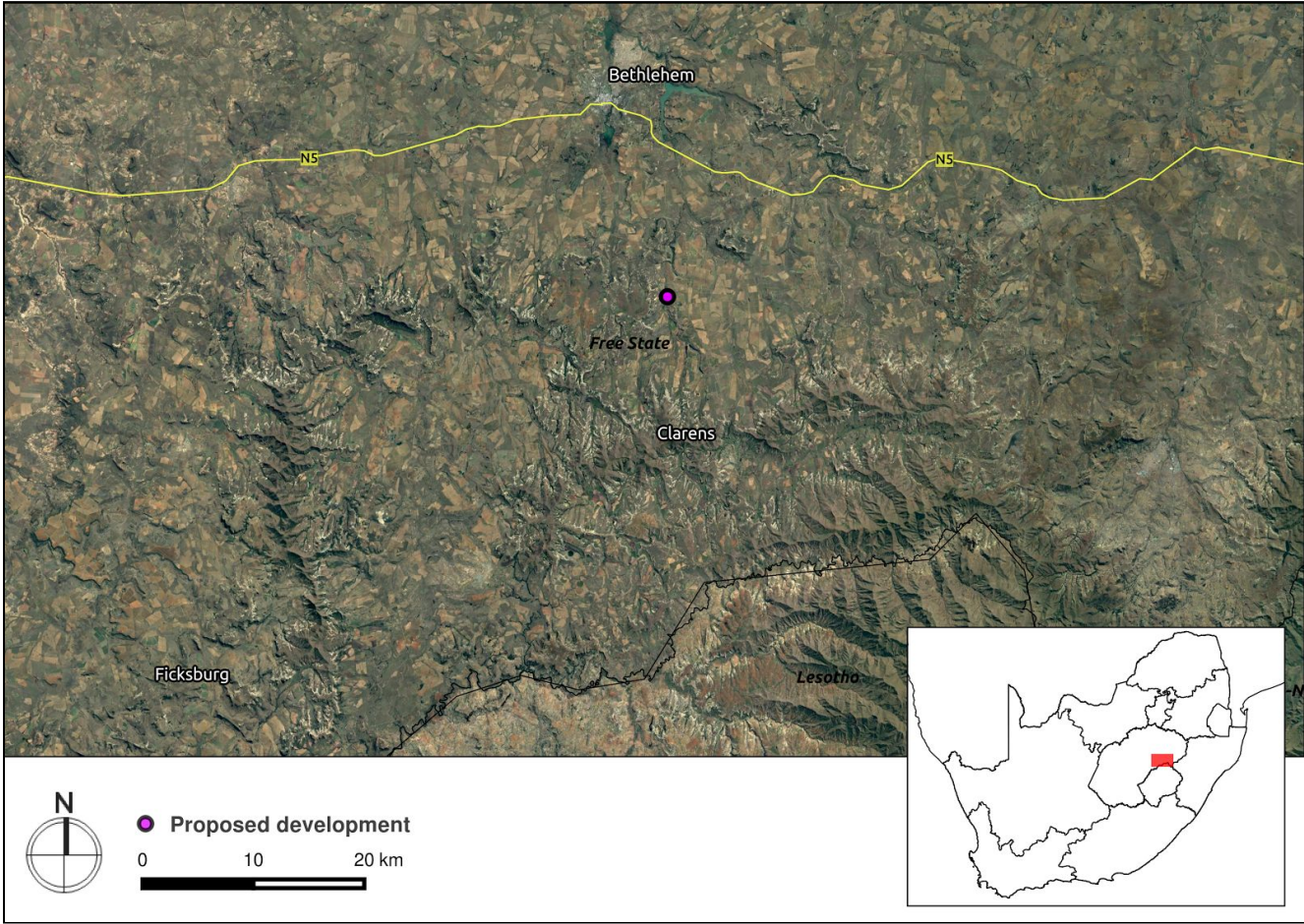
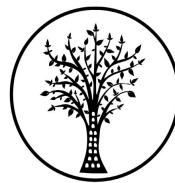
CTS Reference Number:	CTS17_029
SAHRIS Case ID	9/2/300/0023
Client:	Savannah Environmental
Date:	29 August 2017
Title:	Kruisvallei Hydroelectric Power Generation Scheme, Free State Province
	
Recommendation by CTS Heritage Specialists: (Type 1)	<b>The heritage resources in the area proposed for development are sufficiently recorded - The disturbed nature of the development area suggests that heritage resources are unlikely to be impacted by this development. A HIA has already been undertaken in this specific region.</b>

Figure 1a. Satellite map indicating the location of the proposed development in the Free State Province

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## 1. Proposed Development Summary

Building Energy South Africa (Pty) Ltd is currently developing a hydroelectric power generation scheme on the Ash River in the Free State Province. The project has been selected as a Preferred Bidder in Round 4 of the REIPPP Programme. The hydroelectric power generation scheme will include:

- construction of two Power Houses, one at the Middle Kruisvallei (MK) and one at the Lower Kruisvallei (LK);
- inlet works at a position behind the existing weir;
- removal and/or infilling of material for the activities at this site.

## 2. Application References

<b>Name of relevant heritage authority(s)</b>	South African Heritage Resources Agency
<b>Name of decision making authority(s)</b>	Department of Economic Development, Tourism and Environmental Affairs

## 3. Property Information

<b>Latitude / Longitude</b>	28.3657915147 E -28.3806084598 S (northern centroid); 28.3648164896 E -28.4036190508 S (southern centroid)
<b>Erf number / Farm number</b>	Farm Kruisvallei 190 Farm Middelvallei 130
<b>Local Municipality</b>	Dihlabeng
<b>District Municipality</b>	Thabo Mofutsanyane
<b>Previous Magisterial District</b>	Bethlehem
<b>Province</b>	Free State
<b>Current Use</b>	Agricultural
<b>Current Zoning</b>	Agricultural
<b>Total Extent</b>	663,69 ha

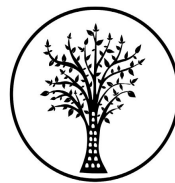
## 4. Nature of the Proposed Development

<b>Total Surface Area</b>	Approximately 900m (as taken from length of channel shapefiles provided)
<b>Depth of excavation (m)</b>	Unknown
<b>Height of development (m)</b>	NA
<b>Expected years of operation before decommission</b>	NA

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## 5. Category of Development

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

## 6. Additional Infrastructure Required for this Development

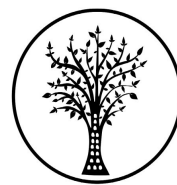
Moving of inlet works, and listed activities not previously applied for.

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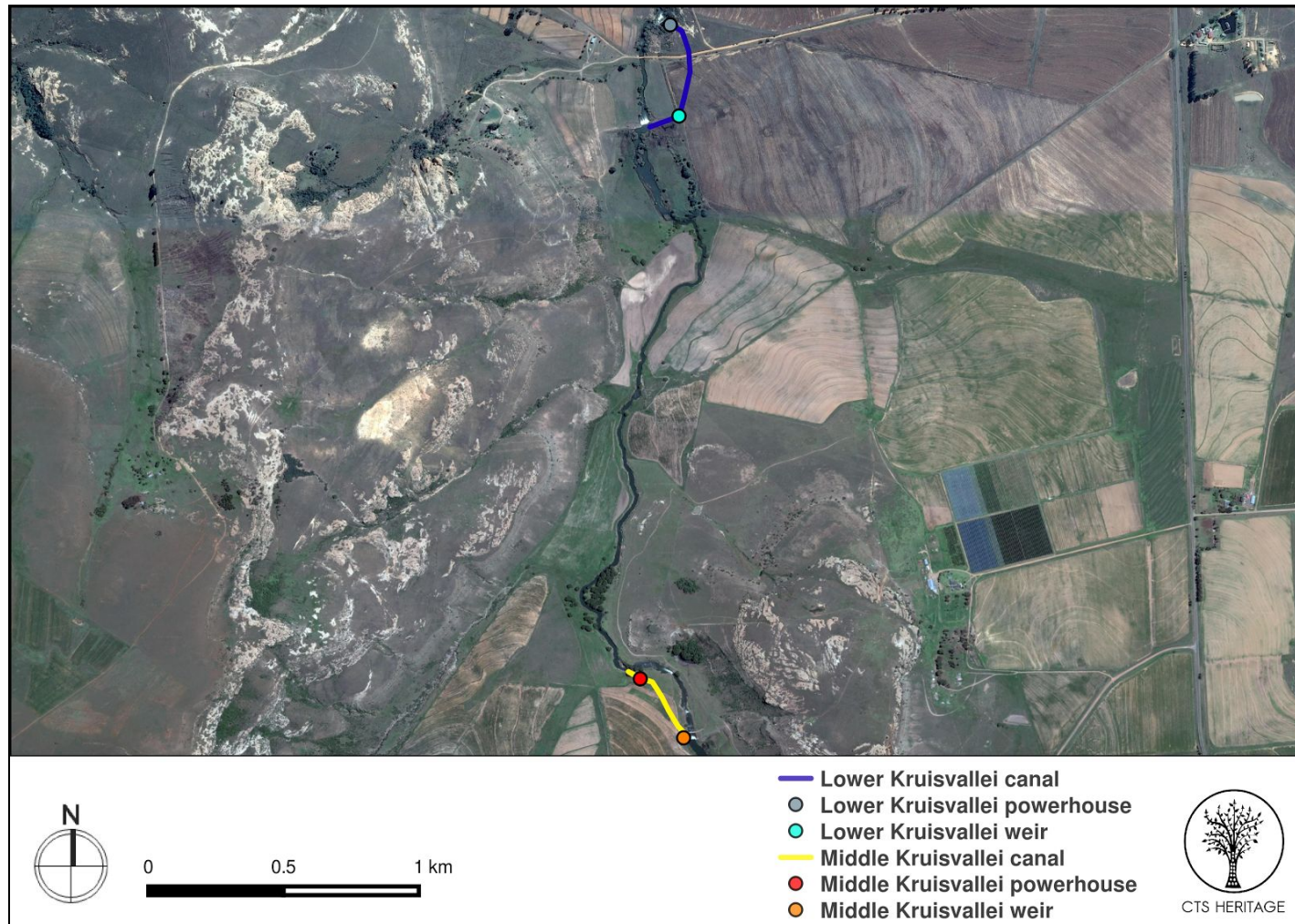
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## 7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



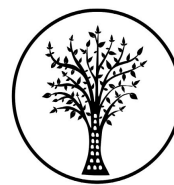
**Figure 1b. Close up Map.** Close up satellite image (2017) indicating Scenario A along the Ash River.

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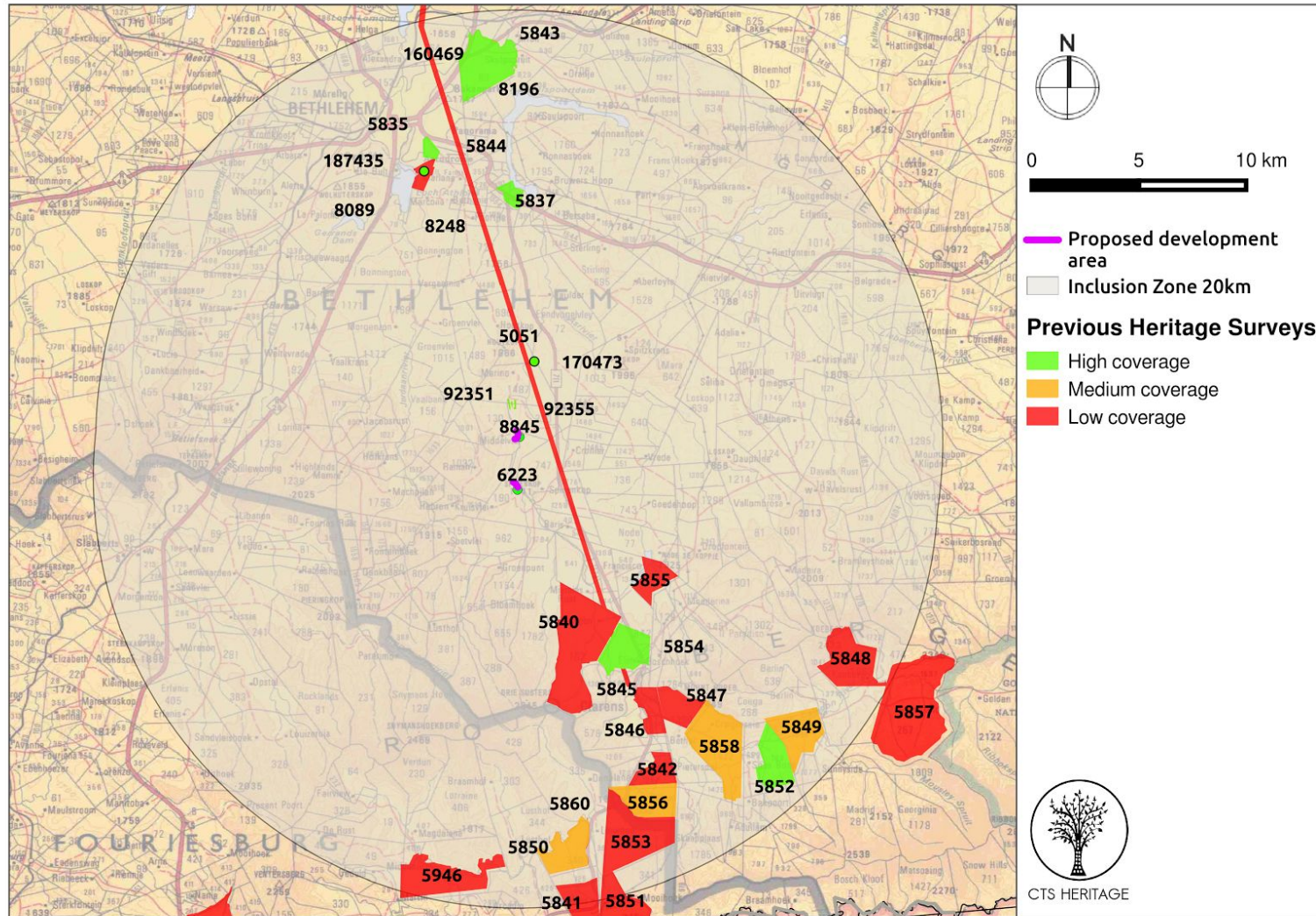


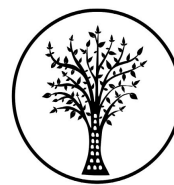
Figure 2. Heritage Reports map. Previous Heritage Impact Assessments surrounding the proposed development area within 20kms, with SAHRIS NIDs indicated (please see Appendix 2 for full reference list).

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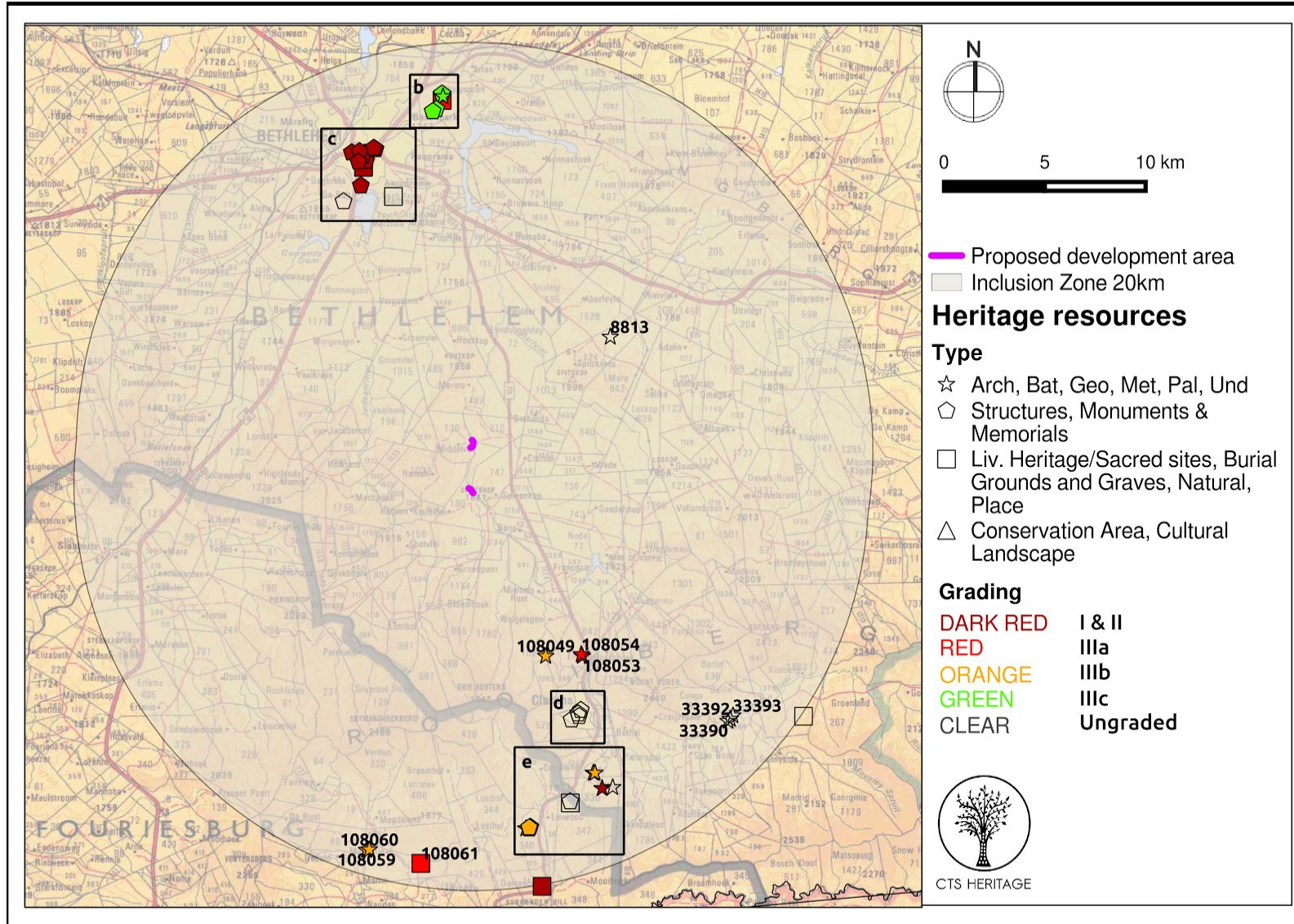
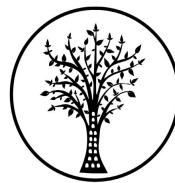


Figure 3a. Heritage Resources Map. Heritage resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figures 3b-e for insets). See Appendix 4 for full description of heritage resource types.

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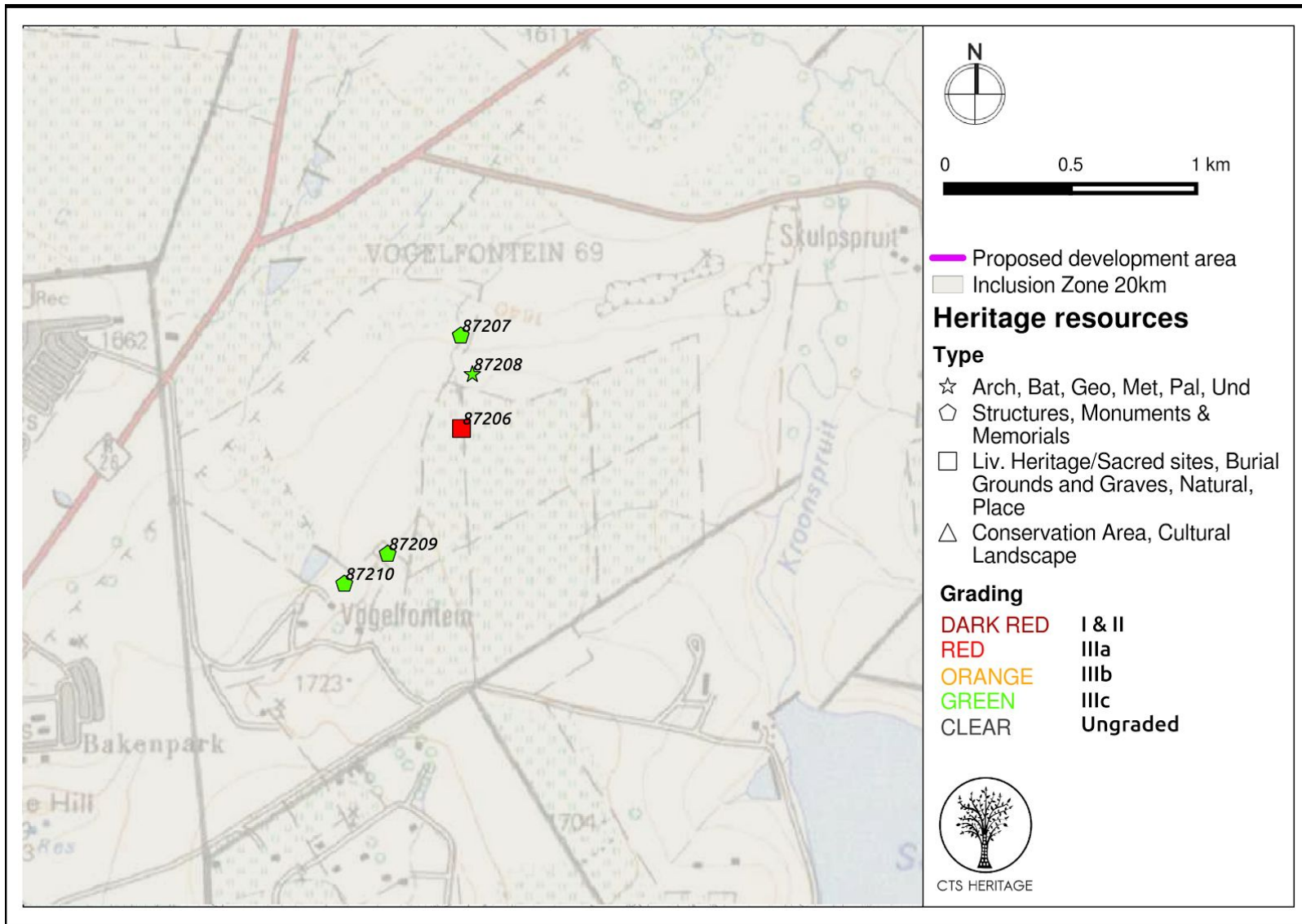


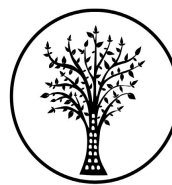
Figure 3b. Heritage Resources Map. Inset Map.

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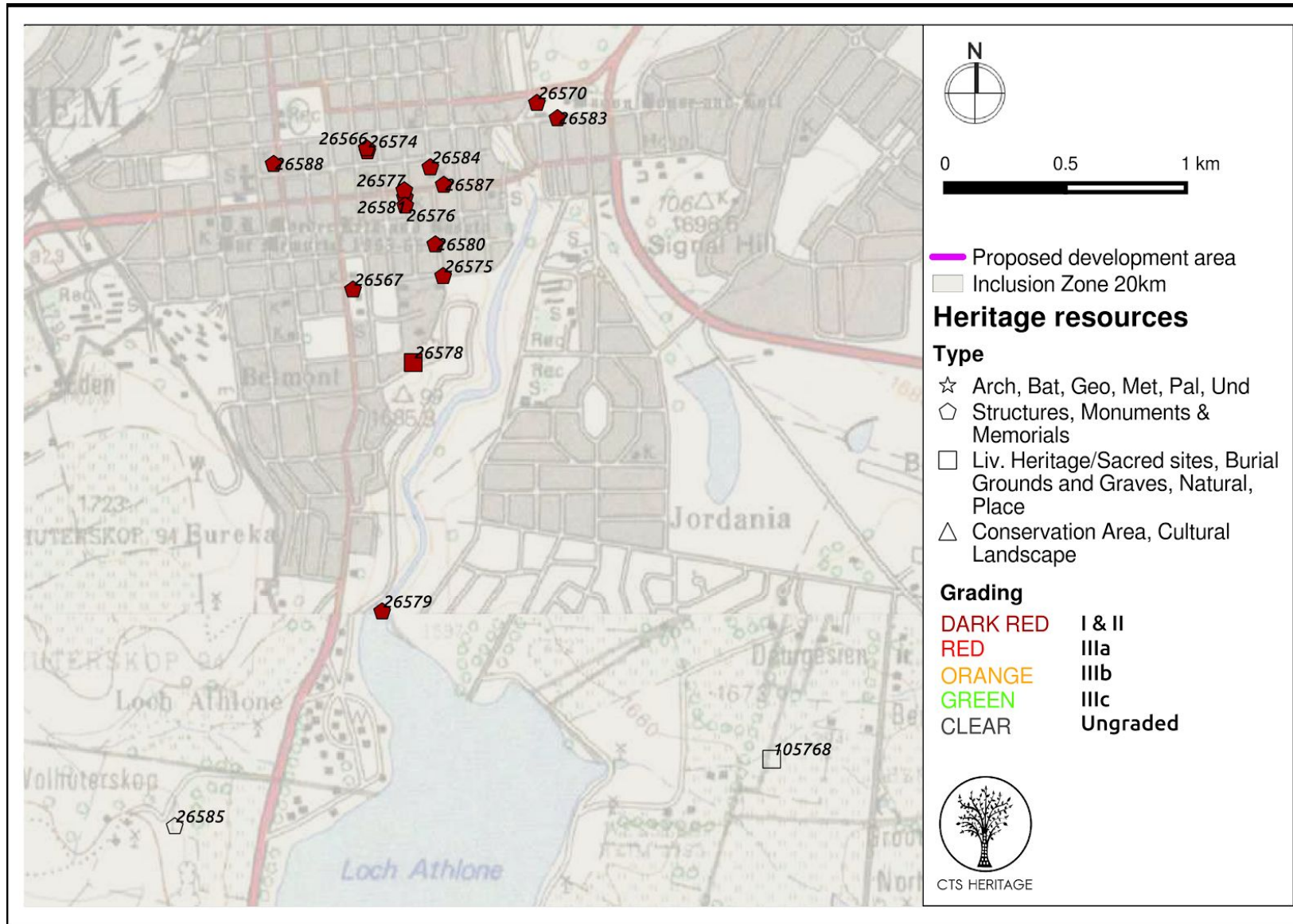


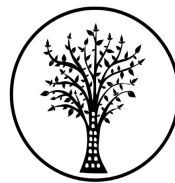
Figure 3c. Heritage Resources Map. Inset Map.

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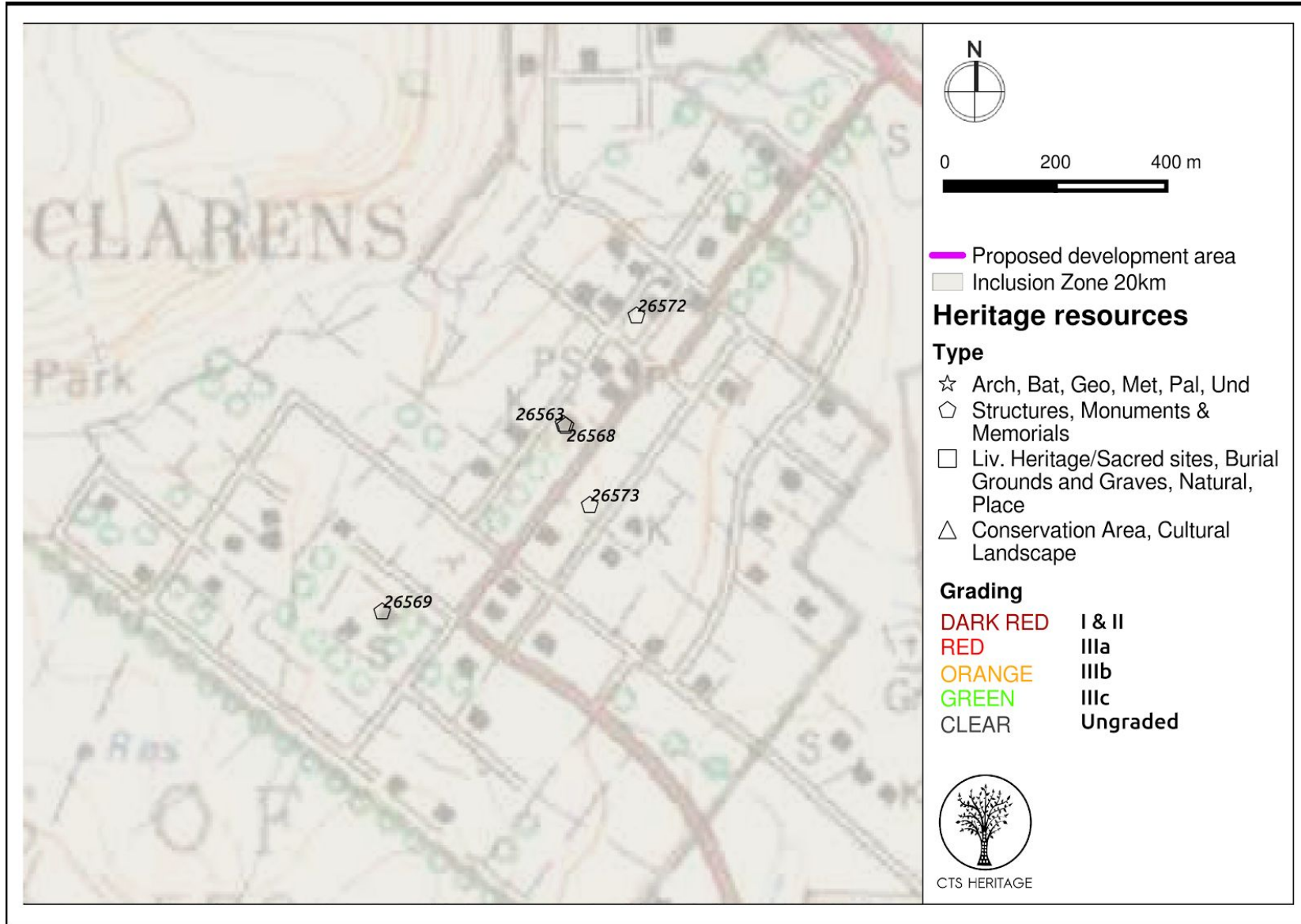
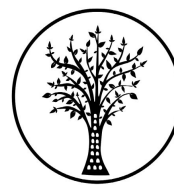


Figure 3d. Heritage Resources Map. Inset Map.

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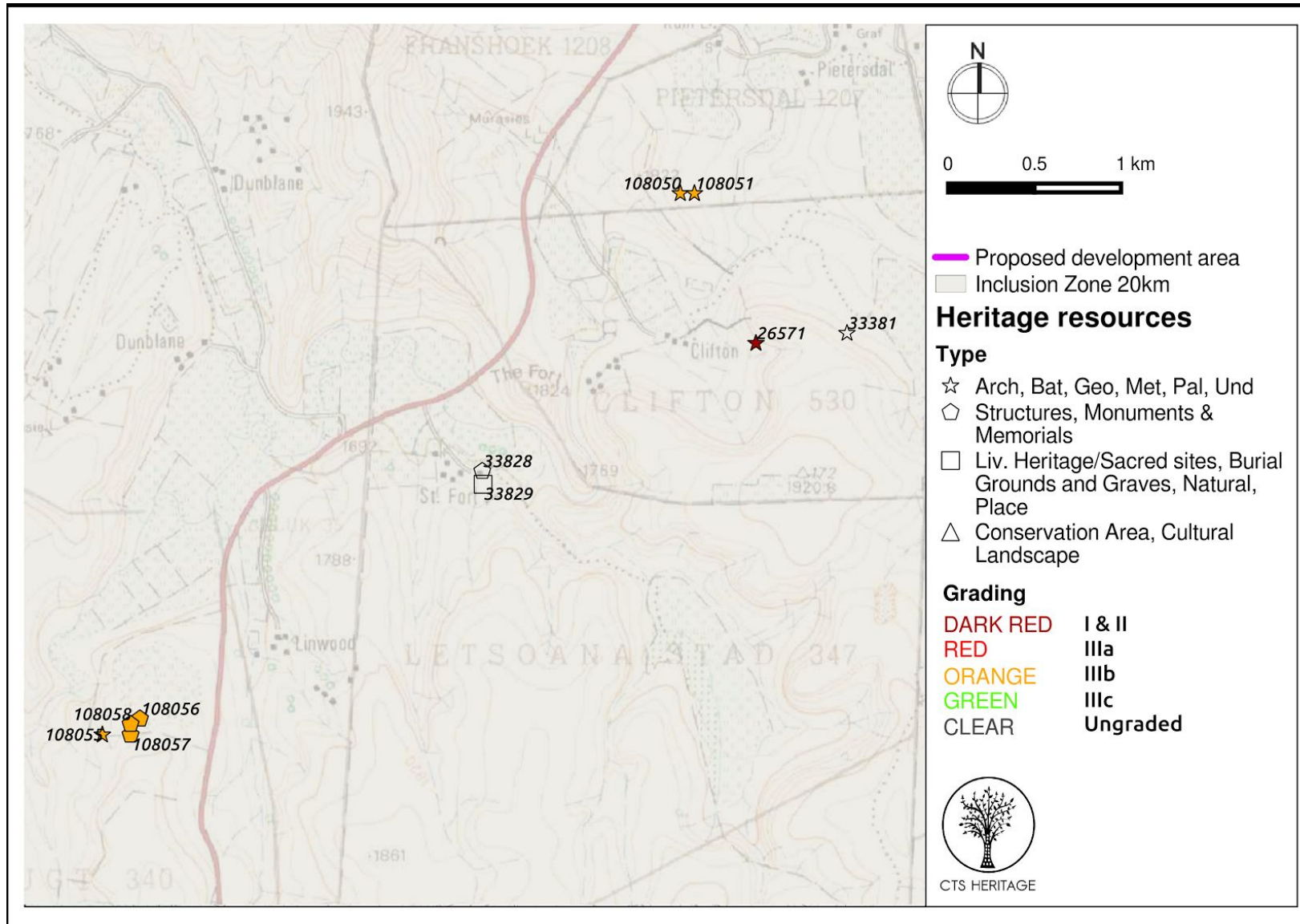


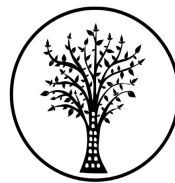
Figure 3e. Heritage Resources Map. Inset Map.

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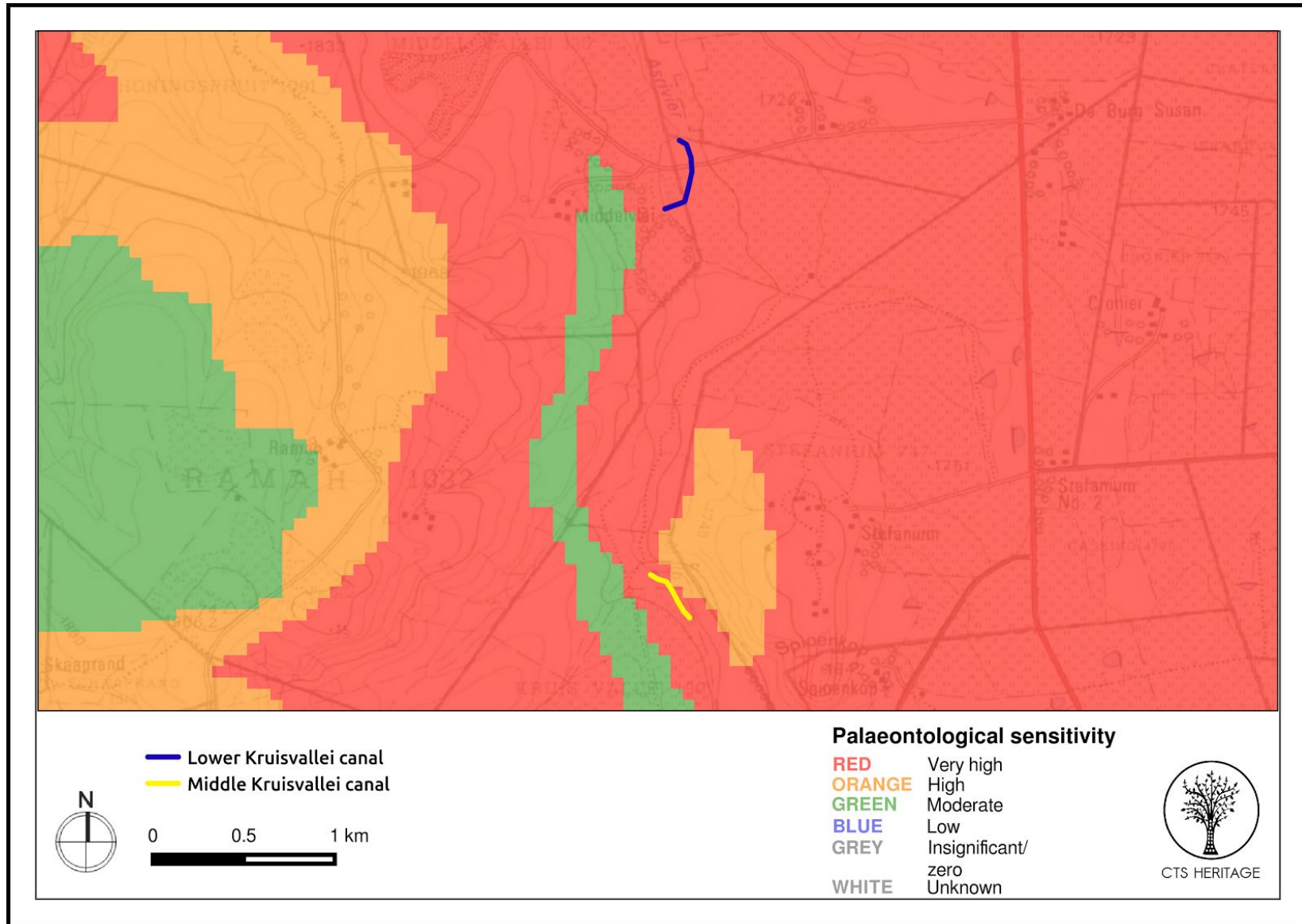
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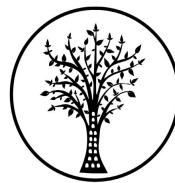


**Figure 4. Palaeosensitivity Map**, indicating very high and high fossil sensitivity underlying the study area.

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## 8. Heritage statement and character of the area

### INTRODUCTION

Building Energy South Africa (Pty) Ltd is currently developing a hydroelectric power generation scheme on the Ash River in the Free State Province. The project has been selected as a Preferred Bidder in Round 4 of the REIPPP Programme.

The project comprises the Lower Kruisvallei (LK) scheme and the Middle Kruisvallei (MK) scheme. Environmental Authorisations (EAs) for these project components were issued under the 2006 EIA Regulations. Through the modelling and analyses undertaken in final design for the scheme, a number of necessary changes have been identified. These changes would result in changes to the currently authorised projects, necessitating the EAs to be supplemented with a new application for authorisation. The proposed project will involve the construction of two Power Houses, one each at Lower Kruisvallei (LK) and Middle Kruisvallei (MK), resulting in a total generating capacity of 3.99MW. It will also include the relocation of the inlet works at LK to a position behind the existing weir, a position not previously considered in the Basic Assessment undertaken for the scheme.

### HERITAGE RESOURCES

As can be seen in Figure 1b, the proposed canals, weirs and powerhouses are proposed to be constructed in areas that have been previously disturbed by agricultural activities. There are 16 Provincial Heritage Sites located within a 20km radius of the proposed development, 14 of which are structures located within the nearby town of Bethlehem, and, as such, will not be impacted by the proposed development. In the general vicinity, according to Pelsler (2011) (NID 8196), "Rock painting sites are known to exist in the Bethlehem region, such as at Aasvogelkrans, Barnea and Broodkop. These sites are normally found near sandstone cliffs and rock shelters." According to Dreyer (2012) (NID 92351), "Iron Age stone-walled sites are normally restricted to higher ground or hilly parts of the northern and eastern Free State and are normally not found in the low-lying open areas along the rivers. Stone Age lithic material is similarly not likely to be found on alluvial clay deposits of the flood plains or along water drainage courses." According to Van Schalkwyk and Van den Bos (1999) (NID 5051), "It should be noted that there might be any number of cemeteries, formal as well as informal, occurring in a random manner all over the area. Most are easily visible, but some are marked only with small cairns of stone, making their detection difficult...The north-eastern Free State...was also the scene for some heavy fighting that took place during the Second Anglo-Boer War (1899-1902). Some of the battlefields are located in the area under discussion. Although it is doubtful if much evidence of such battles remains, it is possible that artifacts and even graves can be found on these sites. Some heavy fighting took place in the vicinity of Bethlehem, eg. Spitskop and Wolhuterskop."

In 2010, Dreyer (NID 6223) conducted an archaeological field assessment for the first iteration of this proposed development. Dreyer (2010) found that the proposed development is located on a floodplain on the banks of the Asrivier, with plough lands to one side. He identified no cultural and historical materials along the river and determined that the development of two hydro-electric power plants and white water rafting facilities will have no impacts on the cultural and historical environment of the area.

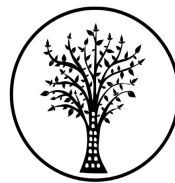
The proposed development area is likely to impact geology of very high (Molteno and Elliot Formations) and high (Clarens Formation) palaeontological sensitivity according to the SAHRIS palaeosensitivity map. These three formations form part of the Stormberg Group. According to Groenewald (2012) (NID 92355), the "Triassic Molteno Formation...consists of coarse grained grey sandstone and dark grey mudstone. Soils are derived from the underlying rock and are generally deep and relatively high in fertility. The Triassic Molteno Formation can have a moderate to high potential for plant fossils from the *Dicroidium* assemblage. The *Dicroidium* assemblage is an extinct genus of fork-leaved seed ferns that were distributed over Gondwanaland during the Triassic Period. Invertebrate fossils are restricted to trace fossils. Tracks of dinosaurs have been recorded from outcrops of the Molteno Formation." In addition, according to the SAHRIS Fossil Heritage Layer Browser, the Elliot Formation is known for its important early dinosaur fauna (prosauropods, sauropods, ornithischians, tetrapod trackways etc), amphibians, turtles, crocodylians, advanced therapsids and fossils of primitive mammals. The rich fossil reptile fauna from this formation is dominated by early dinosaurs (principally sauropodomorphs like *Massospondylus*, "*Euskelesaurus*"), ornithischians, rare theropods and crocodylomorphs as well as rare amphibians, turtles, fish, advanced mammal-like reptiles (cynodont therapsids) including early mammals. Other fossil elements include petrified woods, phyllopod crustaceans (conchostacans or

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“clam shrimps”), insects, and trace fossils, principally tetrapod trackways, root casts, possible termitaria. The Clarens Formation is known for its silicified wood, plant remains, freshwater crustaceans, primitive bony fish, invertebrate trace fossils, rare dinosaurs (e.g. *Massospondylus*), crocodylomorphs, advanced cynodonts including early mammals (e.g. *Erythrotherium*), trackways of dinosaurs and mammals, coprolites and eggshell fragments.

In 2010, Loock (NID 8845) conducted a palaeontological field assessment for the first iteration of this proposed development. Loock investigated two of the sites previously proposed for development and found “Maroon mudstones of the Elliot Formation. Due to a lack of outcrops of the mudstones, no fossils were seen. The river flows in a channel cut in Quaternary deposits namely mud and silt. A few lenses of ferruginous conglomerate rest directly on the bedrock exposed in places in the river channel. No fossils were seen in the Quaternary deposits.” Loock concluded that “The construction of dams and a hydroelectric plant will cover a miniscule portion of the outcrop area and will not impact on our knowledge of the palaeontology of the (Elliot) formation.”

In response to the studies conducted by Dreyer (2010) and Loock (2010), SAHRA issued a Review Comment dated 14 February 2011 stating that: “As there is apparently no evidence of any significant archaeological or palaeontological material in this area, the SAHRA Archaeology, Palaeontology and Meteorites Unit has no objection to the development on condition that, if any new evidence of archaeological sites or artefacts, palaeontological fossils or graves or other heritage resources are found during development, construction or mining, SAHRA or an archaeologist must be alerted immediately”.

#### **RECOMMENDATION**

Based on the available information, it is very unlikely that the proposed amendments to the Kruisvallei Hydroelectric Power Generation Scheme will impact on significant heritage resources. The areas proposed for development have previously been subject to archaeological and palaeontological field assessments, both of which determined that impacts to significant heritage resources are unlikely. SAHRA agreed with these assessments.

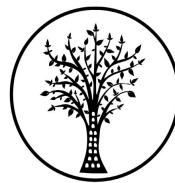
**As such, it is recommended that no further heritage studies are required for the proposed amendments to the Kruisvallei Hydroelectric Power Generation Scheme.**

## **APPENDIX 1**

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### List of heritage resources within the 20km Inclusion Zone

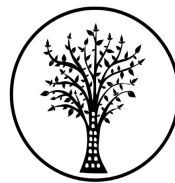
Site ID	Site no	Full Site Name	Site Type	Grading	Declaration
26587	9/2/300/0004	Wooden Spoon Braairestaurant, 12 Church Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26588	9/2/300/0005	St Andrew's Presbyterian Church, 144 Cambridge Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26583	9/2/300/0008	A B Baartman Wagon House, Muller and Landdrost Streets, Bethlehem	Building	Grade II	Provincial Heritage Site
26584	9/2/300/0009	Nederduitse Gereformeerde Mother Church, Church Square, Bethlehem	Building	Grade II	Provincial Heritage Site
26580	9/2/300/0010	14 President Burgers Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26581	9/2/300/0013	St Augustine Anglican Church, 34 Louw Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26577	9/2/300/0017	Strapp's Shop, 18 Church Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26578	9/2/300/0018	Pretoriuskloof Nature Reserve, Bethlehem	Place	Grade II	Provincial Heritage Site
26579	9/2/300/0018-001	Loch Athlone Dam Wall, Pretoriuskloof Nature Reserve, Bethlehem	Building	Grade II	Provincial Heritage Site
26574	9/2/300/0019	Town Hall, 20-22 Muller Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26575	9/2/300/0020	The Seminary, Wessels Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26576	9/2/300/0021	Old Magistrate's Court, Louw Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26571	9/2/300/0022	Rock paintings, Schaapplaats, Bethlehem District	Archaeological	Grade II	Provincial Heritage Site
26570	9/2/300/0026	Old Nederduitse Gereformeerde Mission Church, Muller Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26566	9/2/300/0031	Old Nederduitse Gereformeerde Mission Church parsonage, President Boshoff Street, Bethlehem	Building	Grade II	Provincial Heritage Site
26567	9/2/300/0032	Main Building, Technical College Bethlehem, Wessels Street, Bethlehem	Building	Grade II	Provincial Heritage Site
87206	VOGE001	Vogelfontein-96/ 001	Burial Grounds & Graves	Grade IIIa	NA
108053	ELIM01	Elim 842 - 01	Stone walling	Grade IIIa	NA
108054	ELIM02	Elim 842 - 02	Stone walling	Grade IIIa	NA
108061	MIDD03	Middenin 333 - 03	Burial Grounds & Graves	Grade IIIa	NA
108049	WELG01	Welgelegen 01	Rock Art	Grade IIIb	NA
108050	PIET01	Pietersdal 01	Stone walling	Grade IIIb	NA
108051	PIET02	Pietersdal 02	Stone walling	Grade IIIb	NA
108055	DEVLU 01	De Vlucht 340 - 01	Stone walling	Grade IIIb	NA
108056	DEVLU 02	De Vlucht 340 - 02	Structures	Grade IIIb	NA
108057	DEVLU 03	De Vlucht 340 - 03	Structures	Grade IIIb	NA
108058	DEVLU 04	De Vlucht 340 - 04	Structures	Grade IIIb	NA
108059	MIDD01	Middenin 333 - 01	Stone walling	Grade IIIb	NA

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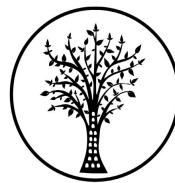
108060	MIDD02	Middenin 333 - 02	Stone walling	Grade IIIb	NA
87207	VOGE002	Vogelfontein-96/ 002	Structures	Grade IIIc	NA
87208	VOGE003	Vogelfontein-96/ 003	Stone walling	Grade IIIc	NA
87209	VOGE004	Vogelfontein-96/ 004	Structures	Grade IIIc	NA
87210	VOGE005	Vogelfontein-96/ 005	Structures	Grade IIIc	NA
105768	WHG001	Wesselheim Graves 001	Burial Grounds & Graves	Ungraded	NA
26585	9/2/300/0001	Farmhouse and outbuildings, Wolhuterskop-Zuid, Bethlehem District	Building	Ungraded	Provisional Protection
26572	9/2/300/0023-001	Library, Market Street West, Clarens	Building	Ungraded	Heritage Register
26573	9/2/300/0023-002	Methodist Church, Bester Street, Clarens	Building	Ungraded	Heritage Register
26568	9/2/300/0023-003	Nederduitse Gereformeerde Church, Main Street, Clarens	Building	Ungraded	Heritage Register
26569	9/2/300/0023-004	Primary school building, Main Street, Clarens	Building	Ungraded	Heritage Register
26563	9/2/300/0033	Old Nederduitse Gereformeerde Church parsonage, Main Street, Clarens	Building	Ungraded	Heritage Register
33390	DMLE2	De Molen 2	Stone walling	Ungraded	NA
33392	DMLE3	De Molen 3	Stone walling	Ungraded	NA
33393	DMLE4	De Molen 4	Stone walling	Ungraded	NA
33829	LETS2	Letsoanastad 2	Burial Grounds & Graves	Ungraded	NA
33381	CLIFT1	Clifton 1	Stone walling, Ruin > 100 years, Settlement	Ungraded	NA
33828	LETS1	Letsoanastad 1	Building	Ungraded	NA
8813	2832AD 074	OFFICE	Artefacts	Ungraded	NA

## APPENDIX 2

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## Reference List

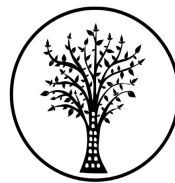
Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
170473	HIA	Frans Prins	15/05/2014	Cultural Heritage Impact Assessment Of The Proposed Upgrading Of The Clarens Water Treatment Works, Free State Province
187435	HIA	Lloyd Rossouw	23/07/2015	Phase 1 Heritage Impact Assessment for a proposed township establishment on the Farm Wesselsheim 1793, Bethlehem, FS Province.
5051	AIA	Johnny Van Schalkwyk, J van den Bos	01/12/1999	Scoping Report on Cultural Resources for the Proposed Clarens to Suikerbosrand Pipeline
5835	AIA	Cobus Dreyer	24/11/2004	First Phase Archaeological and Historical Investigation of the Proposed Developments on Erf 2559, Bethlehem, Free State
5837	AIA	Cobus Dreyer	15/10/2005	First Phase Archaeological and Historical Investigation of the Proposed Developments at the Remainder of Portion 4 of the Farm Rendezvous 1491, Bethlehem, Free State
5840	AIA	Cobus Dreyer	25/05/2006	First Phase Archaeological and Cultural Heritage Investigation of the Proposed Housing Developments on the Farm Welgelegen 102, Clarens, Free State
5841	AIA	Cobus Dreyer	25/05/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Damascus 24, Clarens, Free State
5842	AIA	Cobus Dreyer	10/07/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Pietersdal 1207, Clarens, Free State
5843	AIA	Karen Van Ryneveld	16/02/2007	Phase 1 Archaeological Impact Assessment: Baken Park Ext 5, 6 & 7 Residential Development, Portion of the Farm Vogelfontein 69, Bethlehem, FS, SA
5844	AIA	Cobus Dreyer	10/04/2008	First Phase Archaeological and Historical Investigation of the Proposed Commercial & Residential Developments at Pretoriuskloof 152, Bethlehem, Free State
5845	AIA	Cobus Dreyer	19/04/2004	First Phase Archaeological and Historical Investigation of the Proposed Residential Developments at Clarens, Free State
5846	AIA	Cobus Dreyer	19/04/2004	First Phase Archaeological and Historical Investigation of the Proposed Residential Developments at the Golf Estate, Clarens, Free State
5847	AIA	Cobus Dreyer	24/11/2004	First Phase Archaeological and Historical Investigation of the Proposed Moving of Eskom Power Line at the Golf Estate, Clarens, Free State
5848	AIA	Cobus Dreyer	09/11/2005	Archaeological and Historical Investigation of the Proposed Residential Developments on a Portion of the Farm Koeberg 1663, Clarens, Free State
5849	AIA	Cobus Dreyer	22/03/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments on the Farm De Molen 1808,

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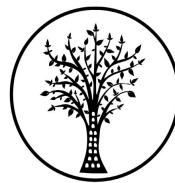
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				Clarens, Free State
5850	AIA	Cobus Dreyer	23/03/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments on Subdivision 1 of the Farm De Vlucht 340, Clarens, Free State
5851	AIA	Cobus Dreyer	23/03/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments on the Farm Mooihoek 348, Clarens, Free State
5852	AIA	Cobus Dreyer	25/05/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Jouberts Vallei 266, Clarens, Free State
5853	AIA	Cobus Dreyer	29/06/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments on the Farm Letsoanastad 347 (St. Fort), Clarens, Free State
5854	AIA	Cobus Dreyer	30/06/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Elim (842) 1853, Clarens, Free State
5855	AIA	Cobus Dreyer	30/06/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Ararat 916, Clarens, Free State
5856	AIA	Cobus Dreyer	10/07/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Clifton 530, Clarens, Free State
5857	AIA	Cobus Dreyer	19/07/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at Groenland 267, Clarens, Free State
5858	AIA	Cobus Dreyer	24/07/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments on the Farm Craig Rossie 1422, Clarens, Free State
5860	AIA	Cobus Dreyer	13/03/2007	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Developments on the Farm De Vlucht 340 (Linwood), Clarens, Free State
5946	AIA	Cobus Dreyer	15/02/2006	First Phase Archaeological and Cultural Heritage Investigation of the Proposed Housing Developments on the Farm Middenin 333, Fouriesburg
8089	AIA	Cobus Dreyer	20/04/2005	First Phase Archaeological and Heritage Assessment of the Proposed Residential Developments on the Remainder of the Tredenham 2153, Bethlehem
8196	AIA	Anton Pelsler	01/05/2011	A Report on a Heritage Impact Assessment for residential development on the farm Vogelfontein 69, Dihlabeng Local Municipality (Bethlehem), Free State.
8248	AIA	Cobus Dreyer	08/06/2005	First Phase Archaeological and Heritage Assessment of the Proposed Residential Developments on the Remainder of the Farm Wesselheim 1793, Bethlehem
6223	AIA	Cobus Dreyer	15/02/2010	First Phase Archaeological and Heritage Assessment of the proposed Asrivier Hydro-Electricity Power Installations between Bethlehem & Clarens, Free State
92351	AIA	Cobus Dreyer	21/02/2012	First Phase Archaeological and Heritage Assessment of the proposed PV Solar Power Installations at Marino 1487 near Bethlehem,

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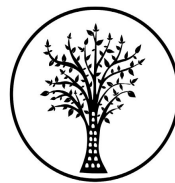
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				Free State
160469	AIA	Munyadziwa Magoma	17/03/2014	Archaeological Impact Assessment Specialist Study Report For The Proposed New Abersethin Substation And Loop In Loop Out Lines In Bohlokong Township Of Dihlabeng Local Municipality Within Thabo Mofutsanyana District Municipality. Free State Province.
<b>Palaeontological Impact Assessments</b>				
92355	PIA	Gideon Groenewald	24/02/2012	Palaeontological Impact Assessment Report: Proposed Merino PV Facility, Bethlehem, Free State Province of South Africa
8845	PIA	Johan Loock	01/03/2010	The Geology and Palaeontology of Two Sites on the Asrivier on Kruis Vallei 190, Bethlehem

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## APPENDIX 3: Keys/Guides

### Key/Guide to Acronyms

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

### Full guide to Palaeosensitivity Map legend

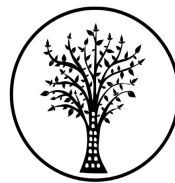
	<b>RED:</b>	VERY HIGH - field assessment and protocol for finds is required
	<b>ORANGE/YELLOW:</b>	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	<b>GREEN:</b>	MODERATE - desktop study is required
	<b>BLUE/PURPLE:</b>	LOW - no palaeontological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

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## **APPENDIX 4 Methodology**

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

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

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

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

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

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

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

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

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

### **DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY**

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

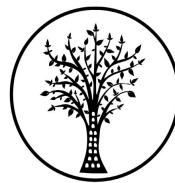
- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

### **DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON**

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

**Low coverage** will be used for:

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

**Medium coverage** will be used for

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

**High coverage** will be used for

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

## RECOMMENDATION GUIDE

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

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

This recommendation is made when:

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

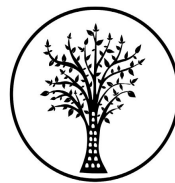
**(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for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

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

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

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

**Note:**

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

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