



An EOH Company

AGES EASTERN CAPE: PROPOSED CATHCART WATER AND SEWER SUPPLY PROJECT, CATHCART, AMAHLATI LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

Archaeological Impact Assessment

A 3D rendering of a globe with water splashing over it, symbolizing sustainability and environmental impact.

Innovation in
Sustainability

The logo for EOH, consisting of the letters "EOH" in a bold, white, sans-serif font with a small triangle above the letter 'O'.

Prepared for: **AGES Eastern Cape**
Prepared by: **Exigo Sustainability**



Email info@exigo3.com
Tel +27 012 751 2160
Fax +27 086 607 2406

The Village Office Park (Block E),
309 Glenwood Road, Faerie Glen,
Pretoria, 0043

Postnet Suite 74,
Private Bag X07,
Arcadia, 0007

An EOH Company

Innovation in
Sustainability

www.exigo3.com

ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF AREAS DEMARCTED FOR THE PROPOSED CATHCART WATER AND SEWER SUPPLY PROJECT, CATHCART, AMAHLATI LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

November 2015

Conducted on behalf of:

AGES Eastern Cape
Exigo Sustainability

Compiled by:

Nelius Kruger (BA, BA Hons. Archaeology Pret.)

Reviewed by:

Roelof Lindeque (AGES Eastern Cape)

Document History

Document Version 1 (Draft) – 30 November 2015



An EOH Company

Email info@exigo3.com
Tel +27 012 751 2160
Fax +27 086 607 2406

The Village Office Park (Block E),
309 Glenwood Road, Faerie Glen,
Pretoria, 0043

Postnet Suite 74,
Private Bag X07,
Arcadia, 0007

Innovation in
Sustainability

www.exigo3.com

Although Exigo Sustainability exercises due care and diligence in rendering services and preparing documents, Exigo Sustainability accepts no liability, and the client, by receiving this document, indemnifies Exigo Sustainability and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by Exigo Sustainability and by the use of the information contained in this document.

This document contains confidential and proprietary information equally shared between Exigo Sustainability and AGES Eastern Cape, and is protected by copyright in favour of these companies and may not be reproduced, or used without the written consent of these companies, which has been obtained beforehand. This document is prepared exclusively for AGES Eastern Cape and is subject to all confidentiality, copyright and trade secrets, rules, intellectual property law and practices of South Africa.

Exigo Sustainability promotes the conservation of sensitive archaeological and heritage resources and therefore uncompromisingly adheres to relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980). In order to ensure best practices and ethics in the examination, conservation and mitigation of archaeological and heritage resources, Exigo Sustainability follows the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment as set out by the South African Heritage Resources Agency (SAHRA) and the CRM section of the Association for South African Professional Archaeologists (ASAPA).

DECLARATION

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Cathcart Bulk Water and Sewer Line Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.



Signature of specialist

Company: Exigo Sustainability

Date: 30 November 2015

EXECUTIVE SUMMARY

This report details the results of an Archaeological Impact Assessment (AIA) study on surface portions around the town of Cathcart, subject to an Environmental Impact Assessment (EIA) process for the proposed Cathcart Bulk Water and Sewer Line Project in the Amahlali Local Municipality, Amathole District Municipality, Eastern Cape Province. The project entails the construction of a sewer line of approximately 3.7km as well as water supply pipelines measuring approximately 44.4km. This report includes background information on the area's archaeology, its representation in southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed.

The cultural landscape of the Eastern Cape encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. The landscape around Cathcart is primarily well known for the occurrence of Stone Age and Historical Period as well as Rock Art occurrences. The Cathcart Bulk Water and Sewer Line Project area is situated in environments that have, in places been altered where informal settlements, homesteads, crop fields, roads and other infrastructure have been established. However, large parts of the project area remain pristine and a number of heritage occurrences and features were noted in the project infrastructure footprint areas.

- The remains of a concrete foundation structure (**Exigo-CWS-HP01**) was documented near the Cathcart Water Treatment Works in close proximity of water pipeline routes. This occurrence is of low significance due to the loss of historical context as a result of poor preservation. In addition, a recent-period stone walling feature and cattle drinking trough (**Exigo-CWS-FT01**) was documented in Cathcart in close proximity of water pipeline routes. This feature is also of low significance. It is recommended that these sites be frequently monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- The remains of a Historical Period stone enclosure and terracing of medium significance (**Exigo-CWS-HP02**) was documented on a high ridge east of Cathcart and the site occurs in close proximity of an alternative route for the water pipeline alignment. It is primarily recommended that the alternative be excluded for consideration for the proposed project and as such, that the site be avoided. However, should impact on the site prove inevitable, the structures should be adequately documented (mapped, described and contextualised by means of a desktop study) and the necessary destruction permits should be obtained from the relevant Heritage Resources Authorities). Generally, the site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- A large communal cemetery occurs at Katikati (**EXIGO-CWS-BP01**). The burial site situated in close proximity of proposed sewer line alignments and the unmitigated impact on the sites by the proposed activity is anticipated to be peripheral. Since human burials are generally of high heritage significance at all levels for their spiritual, social and cultural values, it is primarily recommended that any applicable infrastructure components in the vicinity of the cemeteries be designed in such a way as to avoid impact on the heritage resources at all times. In addition, a conservation buffer zone of at least 100m

around the cemeteries, as well as the fencing off of the graveyard is recommended. However, should impact on any of the graves in the cemeteries or the proposed 30m buffer zone prove inevitable, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.

- In terms of general heritage management actions for the proposed Cathcart Bulk Water and Sewer Line Project footprint areas, site monitoring during development, by an ECO or the heritage specialist is recommended in order to ensure that no previously undetected heritage remains are destroyed.

Cathcart Bulk Water and Sewer Line Project - Documented Site Locations:

Site Code	Short Description	Coordinate S E	Mitigation Action
Exigo-CWS-HP01	Historical foundation structures.	S32.292673° E27.136322°	No further heritage action required, general site monitoring.
Exigo-CWS-HP02	Historical stone enclosure and terracing	S32.300980° E27.186126°	Site monitoring, avoidance. Documentation & destruction permitting if impacted on.
Exigo-CWS-FT01	Recent period structures.	S32.293868° E27.147381°	No further heritage action required, general site monitoring.
Exigo-CWS-BP01	Communal Cemetery (north)	S32.287074° E27.162089°	Site monitoring, avoidance, site management. Grave relocation subject to authorisations and permitting if impacted on.
Exigo-CWS-BP01	Communal Cemetery (south)	S32.288328° E27.162280°	
Exigo-CWS-BP01	Communal Cemetery (east)	S32.287642° E27.163584°	
Exigo-CWS-BP01	Communal Cemetery (west)	S32.287728° E27.161348°	

Heritage Resources occur within close proximity of routes proposed for development of the Cathcart Bulk Water and Sewer Line infrastructure. In the opinion of the author of this Archaeological Impact Assessment Report, the proposed Cathcart Bulk Water and Sewer Line Project may proceed from a culture resources management perspective, provided that mitigation measures provided in the AIA as endorsed by the relevant Heritage Resources Agency are implemented.

According to the South African Heritage Resources Agency Information System (SAHRIS) Palaeo Map¹, Mthatha falls within a sensitive fossiliferous zone and a Palaeontological Impact Assessment should be considered where bedrock is to be impacted on, subject to recommendation by the relevant heritage authorities. Should fossil remains such as fossil fish, reptiles or vitrified wood be exposed during construction, these objects should be carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.

It is essential that cognisance be taken of the larger archaeological landscape of the Eastern Cape Province and the Kathu region in order to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage resources be exposed or uncovered during construction phases of the proposed project, these should immediately be reported to SAHRA. Since the intrinsic heritage and social value

¹ <http://www.sahra.org.za/sahris/map/palaeo>

of graves and cemeteries are highly significant, these resources require special management measures. Should human remains be discovered at any stage, these should be reported to the Heritage Specialist and relevant authorities (SAHRA) and development activities should be suspended until the site has been inspected by the Specialist. The Specialist will advise on further management actions and possible relocation of human remains in accordance with the Human Tissue Act (Act 65 of 1983 as amended), the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the National Heritage Resources Act (Act no. 25 of 1999) and any local and regional provisions, laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

NOTATIONS AND TERMS/TERMINOLOGY

Absolute dating:

Absolute dating provides specific dates or range of dates expressed in years.

Archaeology:

The study of the human past through its material remains.

Archaeological record:

The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact:

Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage:

A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

¹⁴C or radiocarbon dating:

The ¹⁴C method determines the absolute age of organic material by studying the radioactivity of carbon. It is reliable for objects not older than 70 000 years by means of isotopic enrichment. The method becomes increasingly inaccurate for samples younger than ±250 years.

Ceramic Facies:

In terms of the cultural representation of ceramics, a facies is denoted by a specific branch of a larger ceramic tradition. A number of ceramic facies thus constitute a ceramic tradition.

Ceramic Tradition:

In terms of the cultural representation of ceramics, a series of ceramic units constitutes as ceramic tradition.

Context:

An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

Culture:

A contested term, "culture" could minimally be defined as the learned and shared things that people have, do and think.

Cultural Heritage Resource:

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape:

A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM):

A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Ecofact:

Non artefactual material remains that has cultural relevance which provides information about past human activities. Examples would include remains or evidence of domesticated animals or plant species.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and the other material covering and accompanying it.

Feature:

Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

GIS:

Geographic Information Systems are computer software that allows layering of various types of data to produce complex maps; useful for predicting site location and for representing the analysis of collected data within sites and across regions.

Historical archaeology:

Primarily that aspect of archaeology which is complementary to history based on the study of written sources. In the South African context it concerns the recovery and interpretation of relics left in the ground in the course of Europe's discovery of South Africa, as well as the movements of the indigenous groups during, and after the "Great Scattering" of Bantu-speaking groups – known as the *mfecane* or *difaqane*.

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Iron Age:

Also known as "Farmer Period", the "Iron Age" is an archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture.

Lithic:

Stone tools or waste from stone tool manufacturing found on archaeological sites.

Management / Management Actions:

Actions – including planning and design changes - that enhance benefits associated with a proposed development, or that avoid, mitigate, restore, rehabilitate or compensate for the negative impacts.

Matrix:

The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Megalith:

A large stone, often found in association with others and forming an alignment or monument, such as large stone statues.

Midden:

Refuse that accumulates in a concentrated heap.

Microlith:

A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith:

A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Oral Histories:

The historical narratives, stories and traditions passed from generation to generation by word of mouth.

Phase 1 CRM Assessment:

An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study:

In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including

historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure:

A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Prehistoric archaeology:

That aspect of archaeology which concerns itself with the development of humans and their culture before the invention of writing. In South Africa, prehistoric archaeology comprises the study of the Early Stone Age, the Middle Stone Age and the greater part of the Later Stone Age and the Iron Age.

Probabilistic Sampling:

A sampling strategy that is not biased by any person’s judgment or opinion. Also known as statistical sampling, it includes systematic, random and stratified sampling strategies.

Provenience

Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling:

A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Relative dating:

The process whereby the relative antiquity of sites and objects are determined by putting them in sequential order but not assigning specific dates.

Remote Sensing:

The small or large-scale acquisition of information of an object or phenomenon, by the use of either recording or real-time sensing device(s) that is not in physical or intimate contact with the object (such as by way of aircraft, spacecraft or satellite). Here, ground-based geophysical methods such as Ground Penetrating Radar and Magnetometry are often used for archaeological imaging.

Rock Art Research:

Rock art can be "decoded" in order to inform about cultural attributes of prehistoric societies, such as dress-code, hunting and food gathering, social behaviour, religious practice, gender issues and political issues.

Scoping Assessment:

The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site (Archaeological):

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

Slag:

The material residue of smelting processes from metalworking.

Stone Age:

An archaeological term used to define a period of stone tool use and manufacture.

Stratigraphy:

This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Stratified Sampling:

A probabilistic sampling strategy whereby a study area is divided into appropriate zones – often based on the probable location of archaeological areas, after which each zone is sampled at random.

Systematic Sampling:

A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

Tradition:

Artefact types, assemblages of tools, architectural styles, economic practices or art styles that last longer than a phase and even a horizon are describe by the term *tradition*. A common example of this is the early Iron Age tradition of Southern Africa that originated ± 200 AD and came to an end at about 900 AD.

Trigger: A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

Tuyère:

A ceramic blow-tube used in the process of iron smelting / reduction.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
CRM	Culture Resources Management
NC-PHRA	Northern Cape Provincial Heritage Resources Agency
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

TABLE OF CONTENTS

EXECUTIVE SUMMARY	4
1 BACKGROUND.....	15
1.1 SCOPE AND MOTIVATION	15
1.2 PROJECT DIRECTION	15
1.3 PROJECT BRIEF	15
1.4 TERMS OF REFERENCE	17
1.5 CRM: LEGISLATION, CONSERVATION AND HERITAGE MANAGEMENT.....	17
1.5.1 <i>Legislation regarding archaeology and heritage sites</i>	17
1.5.2 <i>Background to HIA and AIA Studies</i>	19
1.6 ASSESSING THE SIGNIFICANCE OF HERITAGE RESOURCES.....	20
- CATEGORIES OF SIGNIFICANCE	21
2 REGIONAL CONTEXT.....	23
2.1 AREA LOCATION	23
2.2 AREA DESCRIPTION: RECEIVING ENVIRONMENT.....	23
2.3 SITE DESCRIPTION.....	23
3 METHOD OF ENQUIRY.....	26
3.1 SOURCES OF INFORMATION	26
3.1.1 <i>Desktop Study</i>	26
3.1.2 <i>Aerial Representations and Survey</i>	26
3.1.3 <i>Field Survey</i>	26
3.2 LIMITATIONS.....	27
3.2.1 <i>Access</i>	27
3.2.2 <i>Visibility</i>	27
3.2.3 <i>Limitations and Constraints</i>	33
3.3 IMPACT ASSESSMENT	34
4 ARCHAEO-HISTORICAL CONTEXT.....	34
4.1 THE ARCHAEOLOGY OF SOUTHERN AFRICA.....	34
4.1.1 <i>The Stone Ages</i>	34
4.1.2 <i>The Iron Age Farmer Period</i>	36
4.1.3 <i>Pastoralism and the last 2000 years</i>	37
4.1.4 <i>Historical and Colonial Times and Recent History</i>	38
4.2 THE CATHCART AREA: SPECIFIC THEMES.....	38
4.2.1 <i>The Stone Ages</i>	38
4.2.2 <i>Rock Markings</i>	39
4.2.3 <i>Hunters-gatherers, Herders and Shell Middens</i>	40
4.2.4 <i>The Iron Age / Farmer Period in the Eastern Cape Province</i>	41
4.2.5 <i>Eastern Cape Later History: Reorganization, Colonial Contact and living heritage</i>	43
4.2.6 <i>Around Cathcart: History and Research</i>	44
4.2.7 <i>Burial Sites / Human Remains</i>	45
5 RESULTS: ARCHAEOLOGICAL SURVEY.....	45
5.1 THE STONE AGE	45
5.2 THE IRON AGE FARMER PERIOD	45
5.3 HISTORICAL / COLONIAL PERIOD AND RECENT TIMES.....	45
5.4 OTHER FEATURES	48
5.5 GRAVES	49

6	RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING	52
6.1	POTENTIAL IMPACTS AND SIGNIFICANCE RATINGS	52
6.1.1	<i>General assessment of impacts on resources</i>	<i>52</i>
6.1.2	<i>Direct impact rating</i>	<i>52</i>
6.1.3	<i>Discussion: Evaluation of Results and Impacts</i>	<i>54</i>
6.2	MANAGEMENT ACTIONS	55
7	RECOMMENDATIONS.....	57
8	GENERAL COMMENTS AND CONDITIONS	58
9	BIBLIOGRAPHY	60
9.1	ACADEMIC RESEARCH PUBLICATIONS.....	60
9.2	UNPUBLISHED CRM AND OTHER REPORTS	61
9.3	LEGISLATION AND INTERNET RESOURCES	61
10	ADDENDUM 1: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE.....	62
10.1	SITE SIGNIFICANCE MATRIX	62
10.2	IMPACT ASSESSMENT CRITERIA.....	62
10.3	DIRECT IMPACT ASSESSMENT CRITERIA	64
10.4	MANAGEMENT AND MITIGATION ACTIONS.....	65

LIST OF FIGURES

Figure 1-1: Aerial representation of the general locality and layout of the Cathcart Bulk Water and Sewer Line Project..... 16

Figure 2-1: 1:50 00 Map representation of the location of the Cathcart Bulk Water and Sewer Line Project Area (sheet 3227AC). 24

Figure 2-2: Panorama view of the Cathcart Bulk Water and Sewer Line Project Area at the time of the field survey, looking west towards Cathcart (November 2015)..... 25

Figure 2-3: Panorama view of the Cathcart Bulk Water and Sewer Line Project Area at the time of the field survey (November 2015)..... 25

Figure 3-1: View of general surroundings near the Sam Meyer Dam in the proposed Cathcart Bulk Water and Sewer Line Project Area. 27

Figure 3-2: View of a small pump station at the Sam Meyer Dam wall in the proposed Cathcart Bulk Water and Sewer Line Project Area. 28

Figure 3-3: View of general surroundings in a western portion of the proposed Cathcart Bulk Water and Sewer Line Project Area. 28

Figure 3-4: View of general surroundings along a small valley in the western portion of the proposed Cathcart Bulk Water and Sewer Line Project Area. 29

Figure 3-5: View of reservoir near the farm Thorn Meadows, the western offset of the proposed Cathcart Bulk Water and Sewer Line Project Area..... 29

Figure 3-6: View of general surroundings along a small valley in the western portion of the proposed Cathcart Bulk Water and Sewer Line Project Area. 30

Figure 3-7: View of sparsely vegetated surroundings in Cathcart where the proposed Cathcart Bulk Water and Sewer Line Project follows a small stream..... 30

Figure 3-8: View of general surroundings north of Katikati in the northern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area..... 31

Figure 3-9: View of general surroundings and a borehole, the northern offset of the proposed Cathcart Bulk Water and Sewer Line Project Area..... 31

Figure 3-10: View of general surroundings in the eastern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area. 32

Figure 3-11: View of general surroundings in the eastern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area near Katikati. 32

Figure 3-12: View of water treatment works in the southern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area. 33

Figure 4-1: Hunter-Gatherer Rock Art from southern Lesotho..... 40

Figure 4-2: Early Iron Age farmer period sites in the Eastern Cape around Mthahta (after Feely & Bell-Cross 2011). 42

Figure 5-1: Two poorly preserved concrete foundation structures at Site EXIGO-CWS-HP01..... 46

Figure 5-2: A small stone enclosure at site EXIGO-CWS-HP02. 47

Figure 5-3: Stone terracing at site EXIGO-CWS-HP02. 47

Figure 5-4: Scattered stones and dilapidated stone wall structures at site EXIGO-CWS-FT01. 48

Figure 5-5: A concrete cattle drinking trough at site EXIGO-CWS-FT01..... 49

Figure 5-6: View of a large communal cemetery near Katikati Village at site EXIGO-CWS-BP01..... 50

Figure 5-7: Map indicating the locations of sites discussed in the text. 51

1 BACKGROUND

1.1 Scope and Motivation

Exigo Sustainability was commissioned by AGES Eastern Cape for an Archaeological Impact Assessment (AIA) study on surface portions around the town of Cathcart, subject to an Environmental Impact Assessment (EIA) process for the proposed Cathcart Bulk Water and Sewer Line Project in the Amahlati Local Municipality, Amathole District Municipality, Eastern Cape Province. The rationale of this AIA is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance in previously unstudied areas, to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

1.2 Project Direction

Exigo Sustainability's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

1.3 Project Brief

The proposed Cathcart Bulk Water and Sewer Line Project entails the following:

- The construction of a new Water Supply and Sewer line to supplement the current water supply from the Kogh and Sam Meyer Dams, while also upgrading the sewer line.
- The construction of a sewer line of approximately 3.7km.
- A number of water supply pipelines measures roughly 44.4kmm which includes suggested alternatives.

Large sections of the water supply lines run along secondary roads, although the sewer line and small sections of the water supply lines is through natural veld areas. Access to the Thorn Meadows farm was denied and alternatives were also investigated for this specific area.

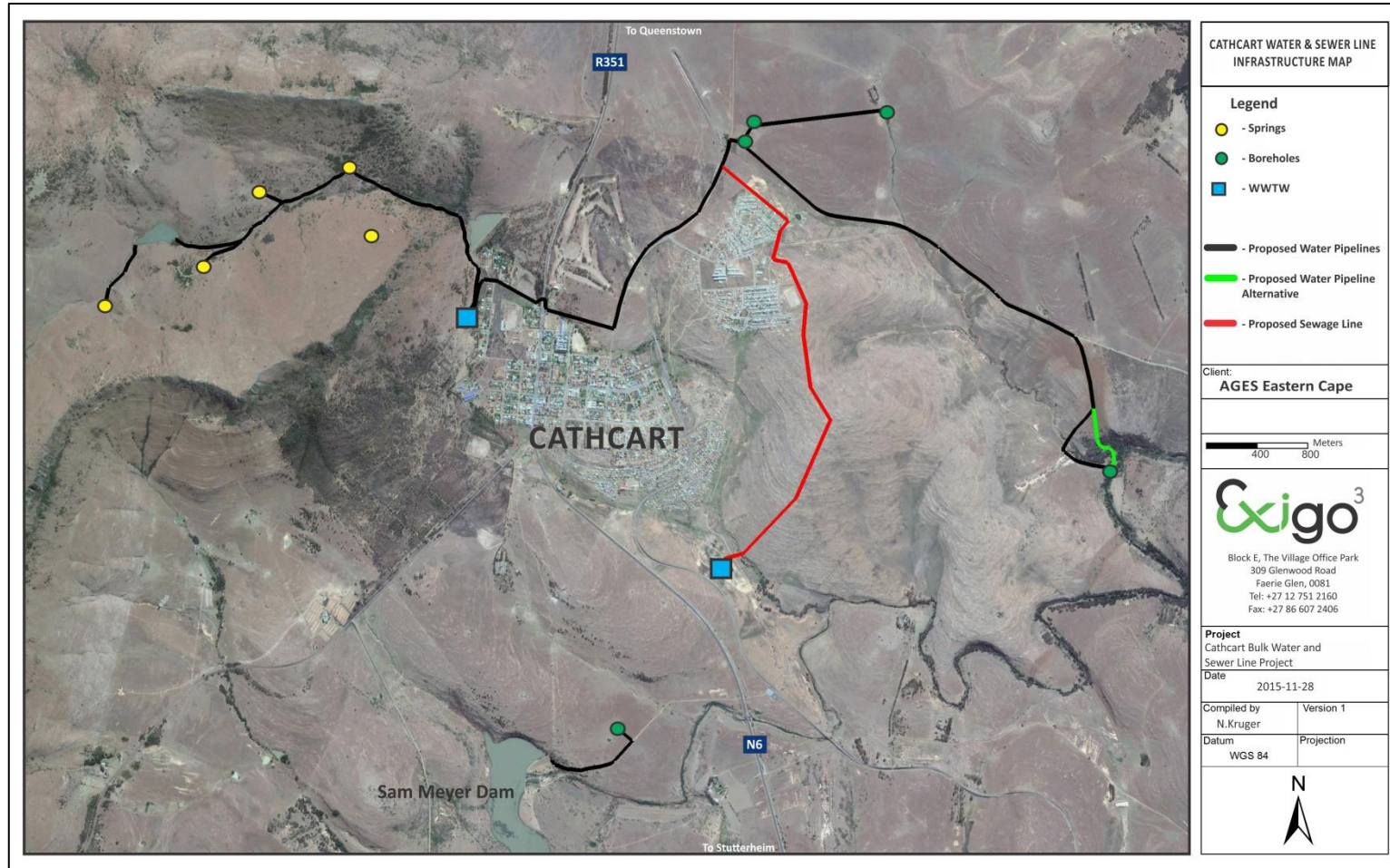


Figure 1-1: Aerial representation of the general locality and layout of the Cathcart Bulk Water and Sewer Line Project.

1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that through the management of change, developments still conserve our heritage resources. Heritage specialist input in EIA processes can play a positive role in the development process by enriching an understanding of the past and its contribution to the present. It is also a legal requirement for certain development categories which may have an impact on heritage resources (Refer to Section 2.5.2).

Thus, EIAs should always include an assessment of Heritage Resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)** and the **KwaZulu-Natal Heritage Act (KZNHRA - Act of 2008)**. In addition, the NHRA and the KZNHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources. Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide detailed updated description of all additional archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance.*
- *Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Obtain a comment from the EC-PHRA.*

1.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known

as the “60-years clause”. Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. “Tell” refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

and

“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 assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”*

and

“No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (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;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

1.5.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. (1) *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:*

- (a) *the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) *the construction of a bridge or similar structure exceeding 50m in length;*
- (c) *any development or other activity which will change the character of a site:*
 - (i) *exceeding 5 000 m² in extent; or*
 - (ii) *involving three or more existing erven or subdivisions thereof; or*
 - (iii) *involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - (iv) *the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

- (d) the re-zoning of a site exceeding 10 000 m² in extent; or*
- (e) 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.”

And:

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (a) The identification and mapping of all heritage resources in the area affected;*
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;*
- (c) an assessment of the impact of the development on such heritage resources;*
- (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
- (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (g) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64).”*

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation

1.6 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities.

Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

- Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

- *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

- *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

- *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

- *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

Formally protected sites:

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (EC-PHRA).

- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 70 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, augering), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

A fundamental aspect in assessing the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information, which would otherwise be lost.

2 REGIONAL CONTEXT

2.1 Area Location

The proposed Cathcart Bulk Water and Sewer Line Project site is situated within, and around the town of Cathcart in the Amathole District Municipality of the Eastern Cape Province. Cathcart lies approximately 125km north-west of East London. The proposed Cathcart springs and Upper Dam water supply is located some 4 km North-west within the Cathcart Town. The development area is generally situated at:

- Western Offset: S 32.29219° E 27.10716 °
- Eastern Offset: S 32.30352° E 27.18755°

The study area appears on 1:50 000 map sheet 3227AC (see Figure 2-1).

2.2 Area Description: Receiving Environment²

The development site lies within the Grassland Biome. The most recent classification of the area by Mucina & Rutherford (2006) indicates that the western section of the water supply pipeline represent Amathole Montane Grassland, while most of the central and eastern sections of the site is representative of the Tsomo Grassland. The Tsomo Grassland occurs on flat or gently undulating lowland plains intersected by mountains. The Amathole Montane Grassland occurs on low mountain ranges and moderately undulating landscapes characterised by short grassland with high species richness of forbs. The soil types in the study area are mostly determined by position on the landscape, and the most dominant soils on the development site are shallow Misaph and Glenrosa soils on the undulating landscape and foothills of the mountainous terrain, while the lower lying plains are dominated by red-yellow apedal soils of the Hutton soil form derived from mudstone. An alluvium cover, and deeper soils, particularly along the non-perennial river courses and valley bottoms are prominent.

2.3 Site Description

The Study Area is situated along mountainous terrain and gradually rolling hills and plains. The eastern section of the site consists predominantly of flatter parcels of developable land. The Katikati Township holds informal and formal housing, schools, shops, homesteads, crop fields, roads and other infrastructure. Small sections of original vegetation remain intact along rivers and water courses where pioneer plant species are prevalent. Other disturbances as a result of urbanisation, agriculture and erosion activity are also prevalent in the area. The farms in the area is mostly used for livestock grazing or game farming, with agricultural activity in the larger area varied and arable soils in the area associated with the major rivers and low-lying areas. The major land uses of the study area as classified by the Environmental Potential Atlas of South Africa (2000) are vacant / unspecified land.

² See Henning 2015. A wetland delineation report for the proposed Cathcart Water Supply Project

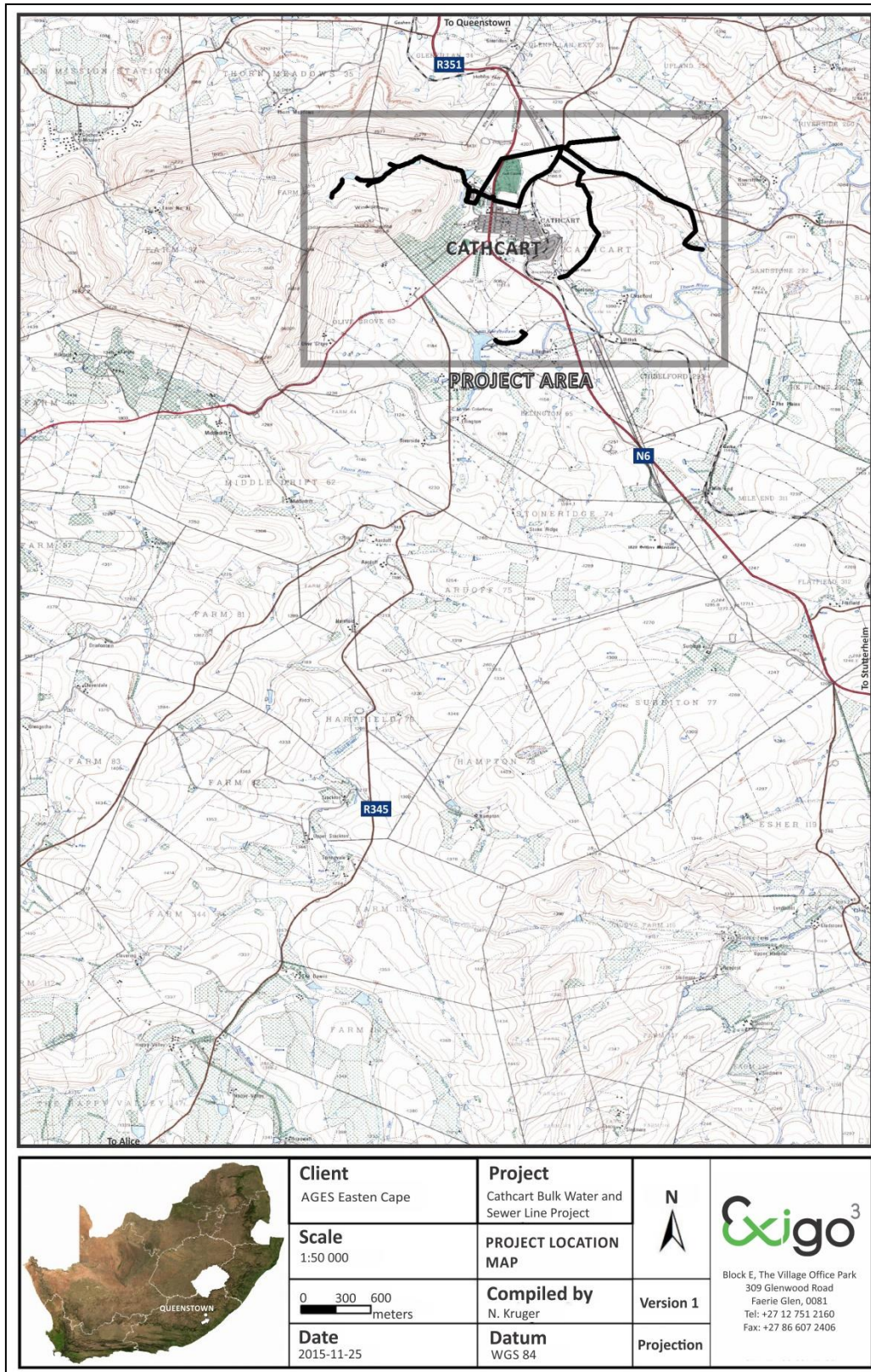


Figure 2-1: 1:50 00 Map representation of the location of the Cathcart Bulk Water and Sewer Line Project Area (sheet 3227AC).



Figure 2-2: Panorama view of the Cathcart Bulk Water and Sewer Line Project Area at the time of the field survey, looking west towards Cathcart (November 2015).



Figure 2-3: Panorama view of the Cathcart Bulk Water and Sewer Line Project Area at the time of the field survey (November 2015).

3 METHOD OF ENQUIRY

3.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

3.1.1 Desktop Study

A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies, archaeological and archival sources, aerial photographs, historical maps and local histories, all pertaining to the Cathcart area and the larger landscape of this section of the Eastern Cape Province.

3.1.2 Aerial Representations and Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to assist the foot site surveys where depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. By superimposing high frequency aerial photographs with images generated with Google Earth, potential sensitive areas were subsequently identified, geo-referenced and transferred to a handheld GPS device. These areas served as referenced points from where further vehicular and pedestrian surveys were carried out. From the aerial survey it is evident that some surface areas subject to the Cathcart Bulk Water and Sewer Line Project have been subjected to historical and more recent disturbances and impacts as a result of natural agents as well as cattle grazing.

3.1.3 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of the footprint areas proposed for the Cathcart Bulk Water and Sewer Line Project was conducted in November 2015. The process encompassed a systematic field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. Large sections of the water supply lines run along secondary roads, although the sewer line and small sections of the water supply lines is through natural veld areas. Access could not be obtained to the Thorn Meadows farm towards the extreme west of the study area and alternatives were thus investigated for this specific area. In order to sample surface areas systematically and to ensure a high probability of site recording, all alignments and alternatives were surveyed were systematically surveyed on foot. GPS reference points identified during the aerial survey were also visited and random spot checks were made (see detail in previous section). Using a Garmin E-trex Legend GPS objects and structures of archaeological / heritage value were recorded and photographed with a Canon 450D Digital camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey.

3.2 Limitations

3.2.1 Access

The project areas are accessed directly from public and farm roads in and around Cathcart. Access to the farm Thorn Meadows towards the extreme west of the study area was denied and alternatives were investigated for water pipeline alignments in this specific area. Access control is not applied to other areas relevant to this assessment and no further access restrictions were encountered during the site visit.

3.2.2 Visibility

The surrounding vegetation in the larger Cathcart area is mostly comprised out of mixed grasslands and riverine bush. The general visibility at the time of the survey (November 2015) was moderate due to relatively dense surface cover in the region, particularly along drainage lines in mountainous areas. However, visibility along disturbed areas such as erosion gullies and along settlements was moderate to high (see Figures 3-1 to 3-12). In single cases during the survey sub-surface inspection was possible but where applied, this revealed no substantial archaeological deposits.



Figure 3-1: View of general surroundings near the Sam Meyer Dam in the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-2: View of a small pump station at the Sam Meyer Dam wall in the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-3: View of general surroundings in a western portion of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-4: View of general surroundings along a small valley in the western portion of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-5: View of reservoir near the farm Thorn Meadows, the western offset of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-6: View of general surroundings along a small valley in the western portion of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-7: View of sparsely vegetated surroundings in Cathcart where the proposed Cathcart Bulk Water and Sewer Line Project follows a small stream.



Figure 3-8: View of general surroundings north of KatiKati in the northern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-9: View of general surroundings and a borehole, the northern offset of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-10: View of general surroundings in the eastern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area.



Figure 3-11: View of general surroundings in the eastern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area near Katikati.



Figure 3-12: View of water treatment works in the southern portion of the proposed Cathcart Bulk Water and Sewer Line Project Area.

3.2.3 Limitations and Constraints

The pedestrian site survey for the AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the aerial survey) as well as areas of high human settlement catchment. The project area is situated in a landscape that has, in places been altered where informal settlements, homesteads, crop fields, roads and other infrastructure have been established. However, the following constraints were encountered:

- **Visibility:** Visibility proved to be somewhat of a constraint in more pristine areas where documented sites proved to be densely overgrown and obstructed by surface vegetation.

It should be noted that, even though it might be assumed that survey findings are representative of the heritage landscape of the project area for the Cathcart Bulk Water and Sewer Line Project, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

3.3 Impact Assessment

For consistency among specialists, impact assessment ratings by Exigo Specialist are generally done using the Plomp³ impact assessment matrix scale supplied by Exigo. According to this matrix scale, each heritage receptor in the study area is given an impact assessment. A cumulative assessment for the proposed project is also included.

4 ARCHAEO-HISTORICAL CONTEXT

4.1 The archaeology of Southern Africa

Archaeology in southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

Table 1 Chronological Periods across southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

4.1.1 The Stone Ages

- The Earlier Stone Age (ESA)

The Earlier Stone Age from between 1.5 million and 250 000 years ago refers to the earliest that *Homo sapiens sapiens* predecessors began making stone tools. The earliest stone tool industry was referred to as the Olduvai Industry originating from stone artefacts recorded at Olduvai Gorge, Tanzania. The Acheulian Industry, the predominant southern African Early Stone Age Industry, replaced the Olduvai Industry

³ Plomp, H.,2004

approximately 1.5 million years ago, is attested to in diverse environments and over wide geographical areas. The hallmark of the Acheulian Industry is its large cutting tools (LCTs or bifaces), primarily handaxes and cleavers. Bifaces emerged in East Africa more than 1.5 million years ago but have been reported from a wide range of areas, from South Africa to northern Europe and from India to the Iberian coast. Earlier Stone Age deposits typically occur on the flood-plains of perennial rivers. These ESA open sites sometimes contain stone tool scatters and manufacturing debris ranging from pebble tool choppers to core tools such as handaxes and cleavers. These groups seldom actively hunted and relied heavily on the opportunistic scavenging of meat from carnivore kill sites. The most well-known Early Stone Age site in southern Africa is Amanzi Springs, situated about 10km north-east of Uitenhage, near Port Elizabeth (Deacon 1970). In a series of spring deposits a large number of stone tools were found in situ to a depth of 3-4m. Wood and seed material preserved remarkably very well within the spring deposits, and possibly date to between 800 000 to 250 000 years old.

- **The Middle Stone Age (MSA)**

The Middle Stone Age (MSA) spans a period from 250 000-30 000 years ago and focuses on the emergence of modern humans through the change in technology, behaviour, physical appearance, art and symbolism. Various stone artefact industries occur during this time period, although less is known about the time prior to 120 000 years ago, extensive systemic archaeological research is being conducted on sites across southern Africa dating within the last 120 000 years (Thompson & Marean 2008). The large handaxes and cleavers were replaced by smaller stone artefacts called the MSA flake and blade industries. Surface scatters of these flake and blade industries occur widespread across southern Africa although rarely with any associated botanical and faunal remains. It is also common for these stone artefacts to be found between the surface and approximately 50-80cm below ground. Fossil bone may in rare cases be associated with MSA occurrences (Gess 1969). These stone artefacts, like the Earlier Stone Age handaxes are usually observed in secondary context with no other associated archaeological material. The MSA is distinguished from the ESA by the smaller-sized and distinctly different stone artefacts and chaîne opératoire (method) used in manufacture, the introduction of other types of artefacts and evidence of symbolic behaviour. The prepared core technique was used for the manufacture of the stone artefacts which display a characteristic faceted striking platform and includes mainly unifacial and bifacial flake blades and points. The Howiesons Poort Industry (80 000-55 000 years ago) is distinguished from the other MSA stone artefacts: the size of tools are generally smaller, the range of raw materials include finer-grained rocks such as silcrete, chalcedony, chert and hornfels, and include segments, backed blades and trapezoids in the stone toolkit which were sometimes hafted (set or glued) onto handles. In addition to stone artefacts, bone was worked into points, possibly hafted, and used as tools for hunting (Deacon & Deacon 1999). Other types of artefacts that have been encountered in archaeological excavations include tick shell beads, the rim pieces of ostrich eggshell (OES) water flasks, ochre-stained pieces of ostrich eggshell and engraved and scratched ochre pieces, as well as the collection of materials for purely aesthetic reasons. The majority of MSA sites occur on flood plains and sometimes in caves and rock shelters. Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Tools may have been hafted but organic materials, such as those used in hafting, seldom remain preserved in the archaeological record. Limited drive-hunting activities are associated with the MSA.

- **The Later Stone Age (LSA)**

The Later Stone Age (LSA) spans the period from about 20 000 years ago until the colonial era, although some communities continue making stone tools today. The period between 30 000 and 20 000 years ago is referred to as the transition from the MSA to LSA; although there is a lack of crucial sites and evidence that represent this change. By the time of the Later Stone Age the genus *Homo*, in southern Africa, had developed into *Homo sapiens sapiens*, and in Europe, had already replaced *Homo neanderthalensis*. The LSA is marked by a

series of technological innovations, new tools and artefacts, the development of economic, political and social systems, and core symbolic beliefs and rituals. The stone toolkits changed over time according to time-specific needs and raw material availability, from smaller microlithic Robberg, Wilton Industries and in between, the larger Albany/Oakhurst and the Kabeljous Industries. Bored stones used as part of digging sticks, grooved stones for sharpening and grinding and stone tools fixed to handles with mastic also become more common. Fishing equipment such as hooks, gorges and sinkers also appear within archaeological excavations. Polished bone tools such as eyed needles, awls, linkshafts and arrowheads also become a more common occurrence. Most importantly bows and arrows revolutionized the hunting economy. It was only within the last 2000 years that earthenware pottery was introduced, before then tortoiseshell bowls were used for cooking and ostrich eggshell (OES) flasks were used for storing water. Decorative items like ostrich eggshell and marine/fresh water shell beads and pendants were made. Hunting and gathering made up the economic way of life of these communities; therefore, they are normally referred to as hunter-gatherers. Hunter-gatherers hunted both small and large game and gathered edible plant foods from the veld. For those that lived at or close the coast, marine shellfish and seals and other edible marine resources were available for the gathering. The political system was mainly egalitarian, and socially, hunter-gatherers lived in bands of up to twenty people during the scarce resource availability dispersal seasons and aggregated according to kinship relations during the abundant resource availability seasons. Symbolic beliefs and rituals are evidenced by the deliberate burial of the dead and in the rock art paintings and engravings scattered across the southern African landscape. Sites dating to the LSA are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

4.1.2 The Iron Age Farmer Period

- Early Iron Age (Early Farming Communities)

The Early Iron Age (also Early Farmer Period) marks the movement of Bantu speaking farming communities into South Africa at around 200 A.D. These groups were agro-pastoralists that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Artefact evidence from Early Farmer Period sites is mostly found in the form of ceramic assemblages and the origins and archaeological identities of this period are largely based upon ceramic typologies and sequences, where diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. Early Farmer Period ceramic traditions are classified by some scholars into different “streams” or trends in pot types and decoration that, over time emerged in southern Africa. These “streams” are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). More specifically, in the northern regions of South Africa at least three settlement phases have been distinguished for prehistoric Bantu-speaking agropastoralists. The first phase of the Early Iron Age, known as Happy Rest (named after the site where the ceramics were first identified), is representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of Diamant is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the Eiland tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. Early Farmer Period ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. The Early Iron Age continued up to the end of the first millennium AD.

- Middle Iron Age / K2 Mapungubwe Period (early Later Farming Communities)

The onset of the middle Iron Age dates back to ±900 AD, a period more commonly known as the Mapungubwe / K2 phase. These names refer to the well known archaeological sites that are today the

pinnacle of South Africa's Iron Age heritage. The inhabitants of K2 and Mapungubwe, situated on the banks of the Limpopo, were agriculturalists and pastoralists and were engaged in extensive trade activities with local and foreign traders. Although the identity of this Bantu-speaking group remains a point of contestation, the Mapungubwe people were the first state-organized society southern Africa has known. A considerable amount of golden objects, ivory, beads (glass and gold), trade goods and clay figurines as well as large amounts of potsherds were found at these sites and also appear in sites dating back to this phase of the Iron Age. Ceramics of this tradition take the form of beakers with upright sides and decorations around the base (K2) and shallow-shouldered bowls with decorations as well as globular pots with long necks. (Mapungubwe). The site of Mapungubwe was deserted at around 1250 AD and this also marks the relative conclusion of this phase of the Iron Age.

- **Later Iron Age (Later Farming Communities)**

The late Iron Age of southern Africa marks the grouping of Bantu speaking groups into different cultural units. It also signals one of the most influential events of the second millennium AD in southern Africa, the difaqane. The difaqane (also known as "the scattering") brought about a dramatic and sudden ending to centuries of stable society in southern Africa. Reasons for this change was essentially the first penetration of the southern African interior by Portuguese traders, military conquests by various Bantu speaking groups primarily the ambitious Zulu King Shaka and the beginning of industrial developments in South Africa. Different cultural groups were scattered over large areas of the interior. These groups conveyed with them their customs that in the archaeological record manifest in ceramics, beads and other artefacts. This means that distinct pottery typologies can be found in the different late Iron Age groups of South Africa.

- **Bantu Speaking Groups in the South African interior**

It should be noted that terms such as "Nguni", "Sotho", "Venda" and others refer to broad and comprehensive language groups that demonstrated similarities in their origins and language. It does not imply that these Nguni / Sotho groups were homogeneous and static; they rather moved through the landscape and influenced each other in continuous processes marked by cultural fluidity.

Ethnographers generally divide major Bantu-speaking groups of southern Africa into two broad linguistic groups, the Nguni and the Sotho with smaller subdivisions under these two main groups. Nguni groups were found in the eastern parts of the interior of South Africa and can be divided into the northern Nguni and the southern Nguni. The various Zulu and Swazi groups were generally associated with the northern Nguni whereas the southern Nguni comprised the Xhosa, Mpondo, Thembu and Mpondomise groups. The same geographically based divisions exist among Sotho groups where, under the western Sotho (or Tswana), groups such as the Rolong, Hurutshe, Kwena, Fokeng and Kgatla are found. The northern Sotho included the Pedi and amalgamation of smaller groups united to become the southern Sotho group or the Basutho. Other smaller language groups such as the Venda, Lemba and Tshonga Shangana transpired outside these major entities but as time progressed they were, however to lesser or greater extend influenced and absorbed by neighbouring groups.

4.1.3 Pastoralism and the last 2000 years

Until 2000 years ago, hunter-gatherer communities traded, exchanged goods, encountered and interacted with other hunter-gatherer communities. From about 2000 years ago the social dynamics of the southern African landscape started changing with the immigration of two 'other' groups of people, different in physique, political, economic and social systems, beliefs and rituals. One of these groups, the Khoekhoe pastoralists or herders entered southern Africa with domestic animals, namely fat-tailed sheep and goats, travelling through the south towards the coast. They also introduced thin-walled pottery common in the interior and along the coastal regions of southern Africa. Their economic systems were directed by the accumulation of wealth in domestic stock numbers and their political make-up was more hierarchical than

that of the hunter-gatherers.

4.1.4 Historical and Colonial Times and Recent History

The Historical period in southern Africa encompass the course of Europe's discovery of South Africa and the spreading of European settlements along the East Coast and subsequently into the interior. In addition, the formation stages of this period are marked by the large scale movements of various Bantu-speaking groups in the interior of South Africa, which profoundly influenced the course of European settlement. Finally, the final retreat of the San and Khoekhoen groups into their present-day living areas also occurred in the Historical period in southern Africa.

4.2 The Cathcart Area: Specific Themes.

The cultural landscape of the Eastern Cape encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power.

4.2.1 The Stone Ages

The earliest evidence for humanity in the Eastern Cape comes from a period known archaeologically as the Early Stone Age. The Early Stone Age sites of the Eastern Cape Province are for the most part open air scatters of stone tools with little other remains. A general problem when studying the Early Stone Age is that is usually only these tools which survive the immense periods of time. However, archaeological sites with good deposits dating back to Early Stone Age times are scarce in the Eastern Cape. Stone tools characteristic of the Early Stone Age have been found on the coastal belt around East London, in the Sundays River Valley closer to the coast, and Geelhoutboom and Amanzi Springs near Uitenhage. According to Binneman (Albany Museum, Grahamstown) some Early Stone Age open air sites have been reported in the foothills of the Sneeuberge Mountains. Amanzi Springs has been the only Early Stone Age site in the Eastern Cape systematically investigated by archaeologists. These springs obviously provided an attractive locality around which early man chose to camp. Sediment deposited by the springs sealed his artefacts within well-defined layers. These artefacts are mostly large, bifacially flaked handaxes and cleavers shaped from locally available quartzite cobbles. Archaeologists agree that these tools were probably used in the hand and were not mounted on shafts in any way. They were most probably used to remove meat from and prepare hides from the carcasses they had either hunted themselves or scavenged from other predators. Although plant material is not preserved, bulbs, roots and berries probably provided the bulk of their food. It is not possible to measure directly the age of the Early Stone Age in the Eastern Cape but comparison between dated sites in Gauteng, and the Northern Cape Provinces as well as Eastern Africa suggests that these sites fall somewhere between 200 000 and 1 million years ago. Little technological change is evident during this long period of time. No human remains have been found in the Eastern Cape which would indicate who the makers of the Early Stone Age tools were. Again evidence from elsewhere in Africa, such as at the Cradle of Humankind near Krugersdorp, suggests that they were an upright walking people called *Homo erectus* and *Homo ergaster*. Present archaeological understanding is that an early dispersal of *Homo erectus* out of Africa, around 2 million years ago, led to parts of Eurasia being populated by this hominin. In Western Europe *Homo erectus* eventually developed into *Homo neanderthalensis* whereas this species developed directly into early forms of *Homo sapiens* in Africa.

These archaic *Homo sapiens* eventually developed into *Homo sapiens sapiens* (or anatomically modern

humans) somewhere in eastern or Southern Africa. In fact, southern Africa boast some of the earliest evidence in the world for the presence of early *Homo sapiens sapiens* and for early symbolic behaviour and the development of human cognition (Mitchell 2007). The archaeological site industry associated with early *Homo sapiens sapiens* is called the Middle Stone Age. The start of the Middle Stone Age around 200 000 years ago was marked by technological advances relative to the Early Stone Age. Middle Stone Age Tools are smaller and more refined. Whereas Early Stone Age hand axes were shaped by removing flakes, Middle Stone Age tools were made from flakes and the larger stones or cores from which they were struck were discarded. These flakes are often finely pointed and recent research has indicated that some were mounted on wooden or bone hafts in order to make spears, arrows, and knives. The raw material for these tools was mostly quartzite, except for a brief time around 94 000 years ago, when finer grained silcretes were used to manufacture a wider range of tools. An important feature during the later time periods of the Middle Stone Age, from about 80 000 years ago was the fluctuating but progressive drop in world temperatures. As the ice caps expanded the sea levels dropped and retreated. These cooler conditions would also have brought about changes in the more inland areas such as the project area. During the initial stages of the Middle Stone Age the vegetation would have been similar than today. However, as temperatures dropped the vegetation became more open with large areas been given to grassland. Grazing animals came to dominate the diets of the people located inland from the coastal zones. It was during the Later Stone Age that the full range of material culture which can be readily identified with that made by the Bushmen or San of the historical period, developed. Although skeletal material belonging to the period between 40 000 years and 20 000 years ago are very scarce in South Africa human skulls dated from about 15 000 years ago onwards clearly suggests a Khoisan affinity to the makers of later Stone Age tools. More than 200 Later Stone Age sites are known from the Eastern Cape Province and many more are awaiting discovery. The majority of the known sites have been recorded in the coastal areas, the greater Grahamstown area and the Baviaanskloof by archaeologists from the Albany Museum in Grahamstown. Various caves and rock shelters containing Later Stone Age deposit have been located in the Suurberg and Winterhoekberg extension of the Cape folded mountains around Grahamstown, Alicedale and Uitenhage (Hall 1988). This area has been systematically surveyed by professor Garth Sampson and his team over a period of thirty years. The vast majority of the 16 000 Stone Age sites located here are open air sites. However, Garth Sampson also located a handful of rock shelters that were excavated (1985). These include Driekoppen, Volstruisfontein, Lame Sheep, Leeuhoek, Abbot's Cave, Van Zyl Rus, and Boundary shelter (Close & Sampson 1998). Further south most thoroughly investigated Later Stone Age rock shelters occur at Edgehill and Welgeluk. These sites are situated near Fort Beaufort to the immediate north of the Cape folded mountains. Further north the sites of Fairview and Waterval, situated in the Winterberg, have also been excavated by archaeologists (Hall & Binneman 1985). All the above mentioned sites were inhabited by the San - some as late as the final years of the 19th century. Most archaeological research on the Khoekhoen are focussed on the coastal areas of the Eastern Cape region.

4.2.2 Rock Markings

The Eastern Cape and Lesotho regions are renowned for their rich rock art heritage. The majority of these rock markings can be associated with Later Stone Age hunter-gatherers, more specifically a group known locally as the Maloti San. This group was probably widespread in Lesotho and adjacent areas over the last few thousand years, but they may have retreated into mountainous areas year-round when farmers moved into the region. The rock art is found in different densities in various parts of Lesotho and the Eastern Cape, mostly in areas with appropriate rock shelters. This rock art images are composed of very finely drawn polychromatic images with narrow lines, small dots and gradated colouring. The images usually depict eland, rhebok, or humans in various states, activities, or postures. Occasionally, lions, other carnivores, other antelope, baboons, cattle, horses, horseback riders, snakes, and extraordinary creatures with human and animal features (known as therianthropes) are depicted. This imagery is associated with

the religious, spiritual and healing activities of the Maloti San groups. Some examples of non-hunter-gatherer rock art also occur in the area. Historical “farmer rock art” for example, is characterized by large figures in a single colour made with broad blocky lines and are uniformly filled with colour. This tradition is characterized by large geometric designs, usually in either red or white, or both. “Farmer” and “herder” rock art traditions are not as common as hunter-gatherer rock art but they are equally important as they are probably records of the historical period of the larger region during which many social and political transformations occurred.



Figure 4-1: Hunter-Gatherer Rock Art from southern Lesotho.

The central Eastern Cape Province is unique in South Africa in that San rock art here consists of both paintings as well as engravings. The vast majority of rock paintings in the Eastern Cape are attributed to the Later Stone Age period or to the San hunter-gatherers and their immediate predecessors. Nevertheless schematic finger paintings do occur near Queenstown (Derricourt 1971) and these may be attributed to Khoekhoen pastoralists rather than San. Today researchers agree that most of the San art depicts the religious world of the San. The art is highly symbolic rather than narrative and contains metaphors relating to the spirit-world as experienced by San medicine people or shamans.

4.2.3 Hunters-gatherers, Herders and Shell Middens

Hunter-gatherer and herder sites occur widely in the Eastern Cape. It is sometimes difficult to distinguish between hunter-gatherer and herder sites, because the former may have acquired stock through theft or herder clientship and the latter largely relied on hunting and gathering to supplement pastoral resources. Both groups collected shellfish and used other food sources from the sea, and both groups hunted and gathered plant food. Excavations at sites indicate that shellfish and marine animals, and in particular seals, specifically formed a major part of their diet. The intensive utilization of shellfish manifests in the archaeological record through hundreds of shell middens (large piles of marine shell) dating to the terminal Pleistocene and Holocene that litter the coastal areas of southern Africa. These were campsites of San, Khoisan and Bantu-speakers who lived along the immediate coast. Human remains are frequently found in the middens, mixed with shell, other food remains and cultural material. A large number of shell middens were situated east of Coega River Mouth and numerous middens, ceramic pot sherds (from Later Stone Age Khoekhoen pastoralist origin - last 2 000 years) and other archaeological material, occur between the

Coega and Sunday's River Mouths. These remains date mainly from Holocene Later Stone Age (last 10 000 years). Human remains have also been found in the dunes along the coast.

Mega-middens which accumulated in coastal and inland areas probably represent alternative seasonal food resources and the shellfish species from middens reflect the species available in the immediate vicinity and also provide information on the environment. Inland shell middens are also found in the Eastern Cape and these shell accumulations date to the last 3000 years. The existence of these features implies the use of alternative food sources as a result of the spread of pastoralists and Iron Age people (Deacon 1984b). Various researchers have observed that the occurrence of seasonally restricted food remains in archaeological deposits could be linked to historically known seasonal movements by the early Khoisan and Khoekhoen hunters and herders of the Cape. In other places, those Khoi who had lost their stock (to drought, disease or raiders), as well as San who had none, may have subsisted mainly or entirely on seafood, but for the rest pastoralism, involving cattle and perhaps fat-tailed sheep, was the principal focus of subsistence, accompanied by a few crops in the fertile river valleys (Elphick 1977). This pattern of subsistence was continued - with different emphases and eventually on a larger scale - by those who succeeded the Khoi on this coast, the Cape Nguni, or Xhosa. By the 16th century, the Khoi peoples of the Wild Coast had been largely displaced or absorbed by Nguni speakers (Peires 1976).

4.2.4 The Iron Age / Farmer Period in the Eastern Cape Province

Archaeological evidence shows that Bantu-speaking agriculturists first settled in southern Africa around AD 300. Bantu-speakers originated in the vicinity of modern Cameroon from where they began to move eastwards and southwards, some time after 400 BC, skirting around the equatorial forest. An extremely rapid spread throughout much of sub-equatorial Africa followed: dating shows that the earliest communities in Tanzania and South Africa are separated in time by only 200 years, despite the 3 000 km distance between the two regions. It seems likely that the speed of the spread was a consequence of agriculturists deliberately seeking iron ore sources and particular combinations of soil and climate suitable for the cultivation of their crops.

The earliest agricultural sites in KwaZulu-Natal date to between AD 400 and 550. All are situated close to sources of iron ore, and within 15 km of the coast. Current evidence suggests it may have been too dry further inland at this time for successful cultivation. From 650 onwards, however, climatic conditions improved and agriculturists expanded into the valleys of KwaZulu-Natal, where they settled close to rivers in savanna or bushveld environments. There is a considerable body of information available about these early agriculturists.

Seed remains show that they cultivated finger millet, bulrush millet, sorghum and probably the African melon. It seems likely that they also planted African groundnuts and cowpeas, though direct evidence for these plants is lacking from the earlier periods. Faunal remains indicate that they kept sheep, cattle, goats, chickens and dogs, with cattle and sheep providing most of the meat. Men hunted, perhaps with dogs, but hunted animals made only a limited contribution to the diet in the region.

Metal production was a key activity since it provided the tools of cultivation and hunting. The evidence indicates that people who worked metal lived in almost every village, even those that were considerable distances from ore sources.

The beginnings of the Iron Age (Farmer Period) in southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture

of pottery. Iron Age farming communities generally preferred to occupy river valleys within the eastern half of southern Africa owing to the summer-rainfall climate that was conducive for growing millet and sorghum. According to Huffman (2007) an eastern migration stream, known as the Chifumbaze Complex spread southwards from East Africa south into southern Africa during the period of about AD 200–300 where several KwaZulu-Natal and north-Eastern Cape sites were occupied. Evidence of numerous Early Iron Age (EIA) sites or material occurs in the area surrounding Mthatha and the Eastern Cape (Feely & Bell-Cross 2011). Evidence in the form of thick-walled well-decorated pot sherds are present along other parts of the Transkei coast as is evident from sites that were excavated at Mpame River Mouth (Cronin 1982) and just west of East London (Nongwaza 1994). Research in the adjacent Kei River Valley area indicates that the first mixed farmers were already settled in the Eastern Cape region between A.D. 600 -700 (Binneman 1994, Feely & Bell-Cross 2011). Thus far the closest documented and well-researched Early Iron Age site is located within the Great Kei River Valley. The site is situated some 200 m below the plateau and 60 km inland from the coast, within the borders of the Transkei, approximately 100 km up the coast towards Durban. There has in the past been some speculation that EIA populations may have spread well south of the Transkei into the Ciskei, possibly up to the Great Fish River (Binneman et al. 1992), however, no further research has been undertaken to confirm these statements. Two closer EIA sites have been documented, one to the south of East London (Cronin 1982) and the other is situated 12 km west of East London on the west bank of the Buffalo River (Nogwaza 1994). Thicker and decorated pottery sherds, kraals, possible remains of domesticated animals, upper and lower grindstones and storage pits are associated for identifying Early Iron Age sites. The sites are generally large settlements, but the archaeological visibility may in most cases be difficult owing to the organic nature of the homesteads. Metal and iron implements are also associated with Early Iron Age communities.

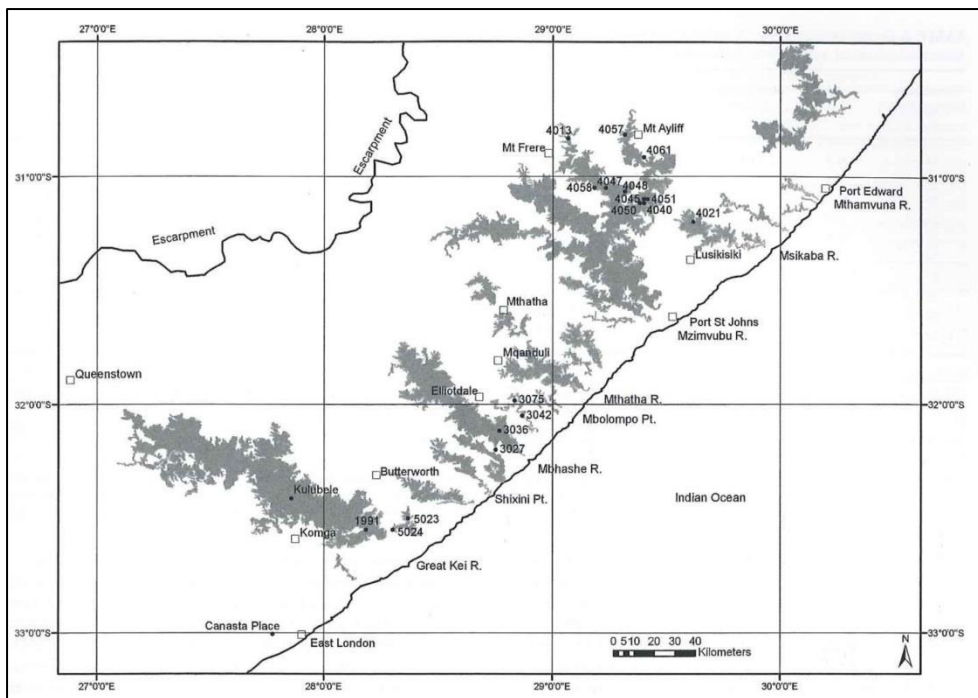


Figure 4-2: Early Iron Age farmer period sites in the Eastern Cape around Mthatha (after Feely & Bell-Cross 2011).

Relatively little research has been conducted on the archaeology of later farmer communities of the Eastern Cape and adjacent areas. According to research in adjacent parts of South Africa, there was little or no settlement in the dry high-altitude grasslands of the north-western parts of the Eastern Cape and Lesotho until after AD 1600 (e.g. Walton 1956; Maggs 1976; Hall 1990; Mitchell 2002). In many instances, Later Iron Age farmer communities moved from river valleys to the hilltops, such settlements have been formally recorded by the Albany Museum and cover a relatively extended area in comparison to the Early

Iron Age settlement patterns (Binneman et al. 2010). As such, Later Iron Age communities gradually expanded into the grasslands of the KwaZulu-Natal and north Eastern Cape interior. An early phase of the Late Iron Age has been uncovered in KwaZulu-Natal which transpired in a ceramic style known as “Blackburn”. This ceramic style represents a break with that of the Early Iron Age. Since there is a resemblance between Blackburn pottery and Nguni pottery, Huffman (1989) postulates that Blackburn reflects the migration of the Nguni to KwaZulu-Natal and later to the Transkei. Consequently, sites belonging to the final phase of the Late Iron Age can often be linked with historically known Nguni groups. The most southern Iron Age site, Kulubele, excavated by archaeologists from the Albany Museum during the 1990’s, is situated along the banks of the Kei River in the Kei River Valley. The earliest date for the site is 1250 BP yielded numerous settlement areas, thick-walled pottery, animal bones, and most importantly chicken bones that illustrates contact between the first farming communities and European seafarers. Contact with the Cape Colony initially stimulated an already flexible and dynamic characteristic of the Cape Nguni political economy. When trade opportunities developed in the late 18th century, the Xhosa would exchange cattle (and permission for and guidance in hunting elephants) in return for copper, iron, beads (Peires 1981:95); they would then exchange these goods at a profit for cattle with their African neighbours to the east, bringing about a kind of speculation in cattle

4.2.5 Eastern Cape Later History: Reorganization, Colonial Contact and living heritage.

The Eastern Cape region is typically viewed by historians as a frontier zone. This area was the meeting place between an aggressively expanding colonial frontier and the southernmost distribution of black Bantu-speaking farming communities in Africa (Huffman 2007). It is well known in the historical literature for the nine frontier wars that were fought here between the settlers of the Cape colony and the Xhosa nation between 1779 and 1879 (see below). Whereas white colonial settlement expanded north and eastwards from Table Bay, in modern Cape Town, some 350 years ago Bantu-speaking agro pastoralists, the predecessors of the Xhosa nation, inhabited areas to the east of the Sundays river already since 1300 years ago (Binneman et al 1992). For many centuries their movement further west and south were hindered by a climatic frontier that prevented these small-scale subsistence farmers from cultivating summer-rainfall crops, such as millet and sorghum, their main source of food. Adding to climatic constraints, the first Bantu speaking pioneers encountered other indigenous population groups in these more marginal areas as did colonial agents many centuries later. These were the Khoisan - the direct descendants of the first modern people to have emerged in Africa some 200 000 years ago. These people had from the time of van Riebeeck become popularly known as the San or Bushmen and Khoekhoen or Hottentots. Whereas the Khoekhoen typically lived closer to the coastal areas where they could find adequate grazing for their cattle and sheep the San hunter-gatherers lived further inland in areas not favoured by either Khoekhoen pastoralists or Bantu-speaking agropastoralists. Nevertheless, the Eastern Cape became the contact zone between these different cultures both in the historical and prehistoric past.

By the closing decades of the 18th century, South Africa had fallen into two broad regions: west and east. Colonial settlement dominated the west, including the winter rainfall region around the Cape of Good Hope, the coastal hinterland northward toward the present-day border with Namibia, and the dry lands of the interior. Trekboers moved into, and occupied Khoekhoe and remnant hunter-gatherer land. Indigenous farmers controlled both the coastal and valley lowlands and the Highveld of the interior in the east, where summer rainfall and good grazing made mixed farming economies possible. A large group of British settlers arrived in the eastern Cape in 1820; this, together with a high European birth rate and wasteful land usage, produced an acute land shortage, which was alleviated only when the British acquired more land through massive military intervention against Africans on the eastern frontier. Until the 1840s the British vision of the colony did not include African citizens and most of these groups were expelled across the Great Fish River, the unilaterally proclaimed eastern border of the colony. The first step in this process included

attacks in 1811–12 by the British army on the Xhosa groups, the Gqunukhwebe and Ndlambe. An attack by the Rharhabe-Xhosa on Graham's Town in 1819 provided the pretext for the annexation of more African territory, to the Keiskamma River. Various Rharhabe-Xhosa groups were driven from their lands throughout the early 1830s. They counterattacked in December 1834, and Governor Benjamin D'Urban ordered a major invasion the following year, during which thousands of Rharhabe-Xhosa died. The British crossed the Great Kei River and ravaged territory of the Gcaleka-Xhosa as well; the Gcaleka chief, Hintsas, invited to hold discussions with British military officials, was held hostage and died trying to escape. The British colonial secretary, Lord Glenelg, who disapproved of D'Urban's policy, halted the seizure of all African land east of the Great Kei. D'Urban's initial attempt to rule conquered Africans with European magistrates and soldiers was overturned by Glenelg; instead, for a time, Africans east of the Keiskamma retained their autonomy and dealt with the colony through diplomatic agents. However, after further fighting with the Rharhabe-Xhosa on the eastern frontier in 1846, Governor Colonel Harry Smith finally annexed, over the next two years, not only the region between the Great Fish and the Great Kei rivers (establishing British Kaffraria) but also a large area between the Orange and Vaal rivers, thus establishing the Orange River Sovereignty. These moves provoked further warfare in 1851–53 with the Xhosa (joined once more by many Khoes), with a few British politicians ineffectively trying to influence events. Between 1811 and 1858 colonial aggression deprived Africans of most of their land between the Sundays and Great Kei rivers and produced poverty and despair. From the mid-1850s British magistrates held political power in British Kaffraria, destroying the power of the Xhosa chiefs. Following a severe lung sickness epidemic among their cattle in 1854–56 the Xhosa killed many of their remaining cattle and in 1857–58 grew few crops in response to a millenarian prophecy that this would cause their ancestors to rise from the dead and destroy the whites. Many thousands of Xhosa starved to death, and large numbers of survivors were driven into the Cape Colony to work. British Kaffraria fused with the Cape Colony in 1865, and thousands of Africans newly defined as Fingo resettled east of the Great Kei, thereby creating Fingoland. The Transkei, as this region came to be known, consisted of the hilly country between the Cape and Natal. It became a large African reserve and grew in size when those parts that were still independent were annexed in the 1880s and '90s.

4.2.6 Around Cathcart: History and Research

The town Cathcart was named after Sir George Cathcart, governor of the Cape of Good Hope 1852-1853. In 1850 the British established a military post at Windvogelberg, in the division of Queenstown. Although the site was chosen primarily for its defensive potential, a number of civilians soon settled in its vicinity. The village was formally laid out in 1858, and initially consisted of only one inhabited dwelling. However it followed a steady pattern of growth, and on 24 October 1876 a sale of new erven was held in the village. On the same day it was renamed in honour of Sir George Cathcart, Governor of the Cape Colony from 1852 to 1854. The 1891 census indicated that Cathcart had a population of 601. By 1904 this number had risen to 1,714. In 1877 the amaNgqika, who occupied the territory immediately east of Cathcart, rose in rebellion against the colonial government. They were soon joined by their amaGcaleka and the amaThembu neighbours. By May 1878 the uprising had been crushed by British forces, and those Ngqika groups who had taken part in the uprising were resettled in the Kentani region. Although their lands were confiscated for European settlement, this move proved to be a serious financial setback for the economy of the village whose retailers depended heavily upon the rural trade. Work on Cathcart's railway connection to East London on the coast was begun by the Cape government of John Molteno in 1876 and the line was officially opened on 3 November 1879. Further afield, the town of Queenstown was founded in 1853 as a military outpost designed to protect the British subjects from attack during the time of the Frontier wars. The town was laid out around a central hexagon, which was to be the lager to which the citizens would flee in time of trouble. Although still a distinguishing feature of the town today, the hexagon was never used for its intended purpose. Queenstown became a service town for farmers in the district. It was known for

the quality of its wagon building and for the general quality of its imported merchandise. In the late 19th century, Queenstown prospered, and number noteworthy local sand stone buildings were built, some of which remain today e.g. the Town Hall façade, the Methodist Church, the Anglican Church and the Dutch Reformed Church. After the world wide depression in the 1920's, Queenstown once again entered a period of prosperity while still acting as a supply and educational centre for surrounding farmers and smaller towns. After 1948, and the beginning of the Apartheid era, the district changed character as white owned farms were bought out and the land incorporated in the Transkei and Ciskei and settled with people. Queenstown has since then been a service centre for these communities. Mlungisi, the traditionally African settlement has been incorporated into Queenstown since 1984. Mlungisi was perhaps best known as a training ground for political activists, and also for the dedication of its school teachers. Many of the leaders of the present government have had links with the town through its political connections over the years. The political clout of Mlungisi was demonstrated by the resident's participation in a consumer boycott in 1985 resulting from conditions in the township. Ezibeleni was a town established near Queenstown in the 1960's as part of a master plan to move all Black people to the homelands. It was incorporated into Queenstown after 1984. The Lukhanji Municipality came into being on 5 December 2000 and includes Queenstown, Whittlesea, Sada and Lesseyton.

4.2.7 Burial Sites / Human Remains

Human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from either SAHRA (for pre-colonial burials as well as burials later than about AD 1500).

5 RESULTS: ARCHAEOLOGICAL SURVEY

The history and archaeology of the larger Eastern Cape Province is relatively well known and the landscape around Cathcart is primarily well known for the occurrence of Stone Age and Historical Period as well as Rock Art occurrences. The Cathcart Bulk Water and Sewer Line Project area is situated in environments that have, in places been altered where informal settlements, homesteads, crop fields, roads and other infrastructure have been established. However, large parts of the project area remain pristine and a number of heritage occurrences and features were noted in the project infrastructure footprint areas.

5.1 The Stone Age

No Stone Age occurrences were observed in the survey area.

5.2 The Iron Age Farmer Period

No Iron Age (Farmer Period) occurrences were observed in the survey area.

5.3 Historical / Colonial Period and recent times

Two features and structures possibly dating to the Historical Period were identified in close proximity of pipeline alignments in the study areas. Even though temporal contexts for the structures could not be ascertained, it might be assumed that, generally the features probably date to the early to mid-20th

century.

- **Site Exigo-CWS-HP01 S32.292673° E27.136322°**

Two dilapidated square foundation structures, constructed out of concrete were documented directly north of the Cathcart Water Treatment Works west of the town. The structures measures approximately 3m x 3m each. A clear temporal context for the structures is not known but the remains might be older than 60 years considering the general appearance and poor preservation thereof. No material culture was observed in association with the features. The site, which is of low heritage significance due to its poor preservation, occurs in close proximity of the water pipeline alignment and peripheral impact on the site is anticipated.



Figure 5-1: Two poorly preserved concrete foundation structures at Site EXIGO-CWS-HP01.

- **Site Exigo-CWS-HP01 S32.300980° E27.186126°**

A small circular stone wall enclosure occurs along a high ridge west of Cathcart in the vicinity of power lines. The collapsed walls of the enclosure were roughly constructed out of round stones and the structure measures approximately 3m x 5m. The enclosure probably functioned as large a stock kraal. In addition, a small stone terrace occurs directly west of the kraal on a decline. A clear temporal context for the structures is not known but the remains is probably older than 60 years as it differs in general appearance from other stone enclosures in the area. The presence of rock lichens on many of the stones is also indicative of an older age for the feature. No material culture was observed in association with the remains and the wall structures are not well preserved. The feature, which is of medium heritage significance due to a possible significant historical context, occurs in close proximity of an alternative route for the water pipeline alignment and direct impact on the site is anticipated should the alternative be selected for development.



Figure 5-2: A small stone enclosure at site EXIGO-CWS-HP02.



Figure 5-3: Stone terracing at site EXIGO-CWS-HP02.

5.4 Other Features

One feature of more recent age was identified in the study area.

- **Site Exigo-CWS-FT01 S32.293868° E27.147381°**

A surface feature consisting out rough stone walling and scattered rocks occur directly north of Cathcart along the R351 road. In addition, a disused concrete livestock drinking trough occurs at the site. A pattern of building and layout of the stone structures could not be ascertained due to the poor preservation of the site but the feature covers a surface area of approximately 50m x 100m. A clear temporal context for the structures is not known but, considering its similarity with existing home structures in the vicinity as well as the presence of glass and plastic at the site, the feature is most probably not older than 60 years, and of recent age. The feature, which is of low heritage significance due to its poor preservation and probable more recent age, occurs in close proximity of the water pipeline alignment and peripheral impact on the site is anticipated.



Figure 5-4: Scattered stones and dilapidated stone wall structures at site EXIGO-CWS-FT01.



Figure 5-5: A concrete cattle drinking trough at site EXIGO-CWS-FT01.

5.5 Graves

A formal cemetery containing a large number of graves was identified in the project area. In the rural areas of the Eastern Cape Province graves and cemeteries often occur within settlements or around homesteads but this seem not to be the case around Cathcart owing to the centralization of burials at the dedicated cemetery. However, the probability of additional and informal human burials encountered during development should not be excluded. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist.

- **Site EXIGO-CWS-BP01**

A large communal cemetery occurs in an open field in the Katikati settlement directly north-east of Cathcart. The margins of the two sections demarcating the cemetery are situated along the following geographical references:

- Northern -western offset: **S32.287074° E27.162089°**
- South-western offset **S32.288328° E27.162280°**
- North-eastern offset **S32.287642° E27.163584°**
- South-eastern offset **S32.287728° E27.161348°**

The site consists of a graveyard containing a large number of marked and unmarked graves. Many of the graves have an east–west orientation with headstones placed on the western side. Where headstones do not occur, graves are demarcated by packed rocks or soil mounds. The cemetery is not fenced and many of the burials and not maintained and the features are in differing stages of deterioration. The cemetery is of high heritage significance and the site occurs in close proximity of proposed sewer line alignments to the west. Unmitigated impact on the site is expected to be peripheral.



Figure 5-6: View of a large communal cemetery near Katikati Village at site EXIGO-CWS-BP01.

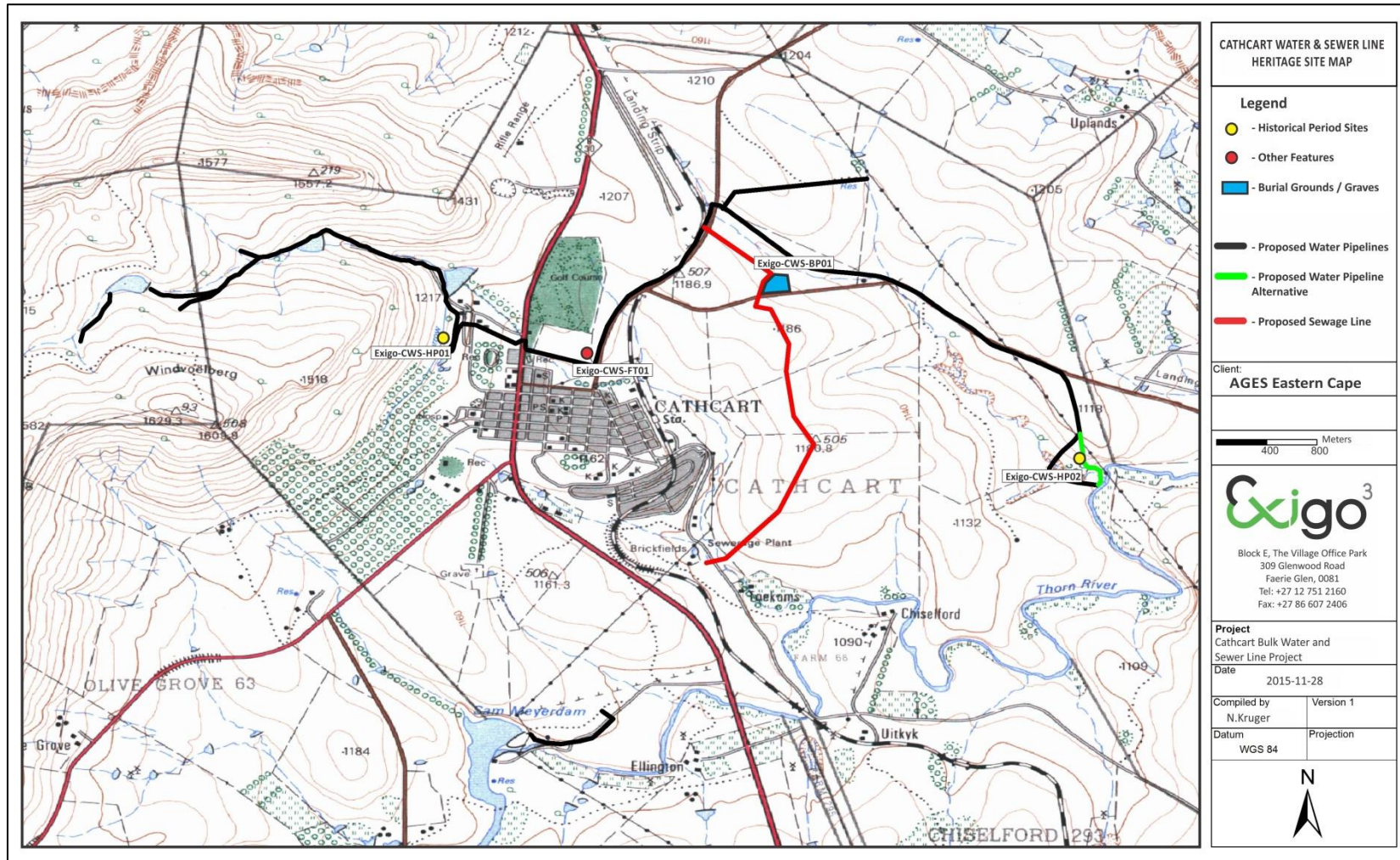


Figure 5-7: Map indicating the locations of sites discussed in the text.

6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

6.1 Potential Impacts and Significance Ratings⁴

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of the Addendum.

6.1.1 General assessment of impacts on resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

6.1.2 Direct impact rating

Direct or primary effects on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

Significant heritage receptors were found in the project area and potential impacts to heritage resources is foreseen.

The following table summarizes impacts to the **low** significance Historical Period site and more recent feature (**Exigo-CWS-HP01, Exigo-CWS-FT01**) located in close proximity of development areas, as anticipated for the Cathcart Bulk Water and Sewer Line Project.

NATURE OF IMPACT: Impacts could involve displacement or destruction of heritage structures or features in the proposed Cathcart Bulk Water and Sewer Line Project areas.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGNITUDE	Minor	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	Low	Low

⁴ Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	
MITIGATION: Site monitoring by ECO.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

The following table summarizes impacts to the **medium** significance Historical Period site (**Exigo-CWS-HP02**) located in close proximity of development areas, as anticipated for the Cathcart Bulk Water and Sewer Line Project

NATURE OF IMPACT: Impacts could involve displacement or destruction of heritage structures or features in the proposed Cathcart Bulk Water and Sewer Line Project.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Major	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	Medium	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	
MITIGATION: Avoidance, Site monitoring by ECO, documentation of site, destruction permit when required.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

The following table summarizes impacts to the **high** significance burial grounds (**Exigo-CWS-BP01**) located in close proximity of development areas, as anticipated for the Cathcart Bulk Water and Sewer Line Project

NATURE OF IMPACT: Impacts could involve displacement or destruction of human burials in the vicinity of the Cathcart Bulk Water and Sewer Line Project.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent

MAGNITUDE	Major	Minor
PROBABILITY	Probable	Very improbable
SIGNIFICANCE	High	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Avoidance, site monitoring by ECO, grave relocation.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

6.1.3 Discussion: Evaluation of Results and Impacts

Previous studies conducted in the larger Cathcart area suggest a rich and diverse archaeological landscape and cognisance should be taken of archaeological material that might be present in surface and sub-surface deposits along drainage lines and at water pans.

Two Historical Period heritage features were documented in the Cathcart Bulk Water and Sewer Line Project areas. The remains of a concrete foundation structure of low significance (**Exigo-CWS-HP01**) occur in close proximity of water pipeline routes but the threshold of the potential impact is expected to be LOW, provided that no previously undetected heritage remains of significance be exposed during construction and development phases. The remains of a Historical Period stone enclosure and terracing of medium significance (**Exigo-CWS-HP02**) occurs in close proximity of an alternative route for the water pipeline alignment and direct impact on the site is anticipated should the alternative be selected for development. As such, the potential impact is expected to be MEDIUM but this rating can be lessened to a LOW impact by the implementation of mitigation measures (avoidance, monitoring, site documentation, destruction permitting).

A recent-period stone walling feature and cattle drinking trough of low significance (**Exigo-CWS-FT01**) occur in close proximity of water pipeline routes but the threshold of the potential impact is expected to be LOW, provided that no previously undetected heritage remains of significance be exposed during construction and development phases.

A large communal cemetery at Katikati (**EXIGO-CWS-BP01**) is situated in close proximity of proposed sewer line alignments and the unmitigated impact on the sites by the proposed activity is anticipated to be peripheral. This feature is of HIGH heritage significance and the threshold of the potential impact can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, monitoring, grave relocation) for the sites, if / when required.

Heritage Resources occur within close proximity of routes proposed for development of the Cathcart Bulk Water and Sewer Line infrastructure. In the opinion of the author of this Archaeological Impact Assessment Report, the proposed Cathcart Bulk Water and Sewer Line Project may proceed from a

culture resources management perspective, provided that mitigation measures provided in the AIA as endorsed by the relevant Heritage Resources Agency are implemented.

6.2 Management actions

Recommendations for relevant heritage resources management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of the Addendum. The following management measures would be required during implementation of the proposed Cathcart Bulk Water and Sewer Line Project.

OBJECTIVE: prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

For the Historical Period site and more recent feature of low significance (Exigo-CWS-HP01, Exigo-CWS-F101) the following are required in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction.		
POTENTIAL IMPACT	Damage/disturbance of previously undetected heritage remains.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface, have not been detected prior to development.		
MITIGATION: TARGET/OBJECTIVE	To adequately document the historic fabric of previously undetected heritage remains as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME	
Fixed Mitigation Procedure (required)			
Site Monitoring: Regular examination of trenches, excavations and other construction areas in order to monitor possible impacts on heritage receptors.	ECO	Monitor as frequently as practically possible.	
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		

For the Historical Period site of medium significance (Exigo-CWS-HP02) the following are required in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction and operation.		
POTENTIAL IMPACT	Damage/destruction of sites.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
MITIGATION: TARGET/OBJECTIVE	To locate previously undetected heritage remains / graves as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME	
Fixed Mitigation Procedure (required)			
Site Monitoring: Regular examination of trenches and excavations.	ECO, HERITAGE ASSESSMENT	Monitor as frequently as	

	PRACTITIONER	practically possible.
Preferred Mitigation Procedure		
Avoidance: Implement a heritage conservation buffer of at least 50m around the heritage resource, redesign the proposed pipeline alignments to avoid the heritage resource and the proposed conservation buffer.	DEVELOPER	All phases of construction and operation.
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)		
Documentation of sites if features are to be impacted on by development (mapping, desktop study). Permitting if and when required.	HERITAGE ASSESSMENT PRACTITIONER	Prior to the commencement of construction and earth-moving.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

For the burial grounds of high significance (Exigo-CWS-BP01) the following is required in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction and operation.	
POTENTIAL IMPACT	Damage/disturbance to subsurface burials and surface burial features.	
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.	
MITIGATION: TARGET/OBJECTIVE	To locate human burials as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.	
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME
Preferred Mitigation Procedure		
Avoidance: Implement a heritage conservation buffer of at least 100m around the heritage resource; if necessary realign any applicable infrastructure alignments to avoid the heritage resource and the proposed conservation buffer. Fence cemetery and apply access control.	DEVELOPER	Prior to the commencement of construction and earth-moving, during all phases of development.
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)		
Grave Relocation: Relocation of burials and documentation of site, full social consultation with affected parties, possible conservation management and protection measures. Subject to authorisations and relevant permitting from heritage authorities and affected parties.	QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (required)		
Site Monitoring: Regular examination of trenches and excavations.	ECO	Monitor as frequently as practically possible.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

7 RECOMMENDATIONS

The larger landscape around Cathcart is rich in pre-historical and historical remnants. The Cathcart Bulk Water and Sewer Line Project area is situated in environments that have, in places been altered where informal settlements, homesteads, crop fields, roads and other infrastructure have been established. However, large parts of the project area remain pristine and a number of heritage occurrences and features were noted in the project infrastructure footprint areas. The following recommendations are made based on general observations in the proposed Project development areas:

- According to the South African Heritage Resources Agency Information System (SAHRIS) Palaeo Map⁵, Cathcart falls within a sensitive fossiliferous zone and a Palaeontological Impact Assessment should be considered where bedrock is to be impacted on, subject to recommendation by the relevant heritage authorities. Should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- The remains of a concrete foundation structure (**Exigo-CWS-HP01**) near the Cathcart Water Treatment Works is of low significance due to the loss of historical context as a result of poor preservation and it occurs in close proximity of water pipeline routes. In addition, a recent-period stone walling feature and cattle drinking trough (**Exigo-CWS-FT01**) in close proximity of water pipeline routes is also of low significance. It is recommended that these sites be frequently monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- The remains of a Historical Period stone enclosure and terracing of medium significance (**Exigo-CWS-HP02**) was documented on a high ridge east of Cathcart and the site occurs in close proximity of an alternative route for the water pipeline alignment. It is primarily recommended that the alternative be excluded for consideration for the proposed project and as such, that the site be avoided. However, should impact on the site prove inevitable, the structures should be adequately documented (mapped, described and contextualised by means of a desktop study) and the necessary destruction permits should be obtained from the relevant Heritage Resources Authorities). Generally, the site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- The large communal cemetery at Katikati (**EXIGO-CWS-BP01**) is situated in close proximity of proposed sewer line alignments and the unmitigated impact on the sites by the proposed activity is anticipated to be peripheral. Since human burials are generally of high heritage significance at all levels for their spiritual, social and cultural values, it is primarily recommended that any applicable infrastructure components in the vicinity of the cemeteries be designed in such a way as to avoid impact on the heritage resources at all times. In addition, a conservation buffer zone of at least 100m around the cemeteries, as well as the fencing off of the graveyard is recommended. However, should impact on any of the graves in the cemeteries or the proposed 30m buffer zone prove inevitable, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project.

⁵<http://www.sahra.org.za/sahris/map/palaeo>

Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately

- It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the Solar Park.

In addition to these site-specific recommendations, careful cognisance should be taken of the following:

- As Palaeontological remains occur where bedrock has been exposed, all geological features should be regarded as sensitive.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits.

8 GENERAL COMMENTS AND CONDITIONS

This AIA report serves to confirm the extent and significance of the heritage landscape of the proposed Cathcart Bulk Water and Sewer Line Project Project Development area. The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools.
- Formal MSA stone tools.
- Formal LSA stone tools.
- Potsherds
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such site were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by AMAFA, SAHRA, the National Resources Act and the CRM section of ASAPA will be required.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (**cf. NHRA (Act No. 25 of 1999)**, Section 36 (6)). It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority (SAHRA).

9 BIBLIOGRAPHY

9.1 Academic Research Publications

- Binneman, J. 1994. Preliminary report on the investigations at Kulubele, an Early Iron Age farming settlement in the Great Kei River Valley, Eastern Cape. *Southern African Field Archaeology* 5:28-35.
- Cain, C.R. 2009. Cultural heritage survey of Lesotho for the Maloti-Drakensberg Transfrontier Project, 2005 – 2006: palaeontology, archaeology, history and heritage management. *South African Archaeological Bulletin* 64: 33-44.
- Coetzee, Colin. 1995. *Forts of the Eastern Cape : Securing a frontier 1799 - 1878*. Grahamstown: Colin G Coetzee. pp 201-207, 438, 508-510, 642.
- Critchley W.R.S. and Netshikovhela, 1998. Land degradation in South Africa: conventional views, changing paradigms and a tradition of soil conservation. *Development Southern Africa* 15 (3), 449-469.
- Deacon, J. 1996. *Archaeology for Planners, Developers and Local Authorities*. National Monuments Council. Publication no. P021E.
- Deacon, J. 1997. Report: Workshop on Standards for the Assessment of Significance and Research Priorities for Contract Archaeology. In: Newsletter No 49, Sept 1998. Association for Southern African Archaeologists.
- Ellenberger, D.F. 1912 [1997]. *History of the Basuto: Ancient and Modern*. Morija: Morija Museum & Archives.
- Gill, S.J. 1993. *A Short History of Lesotho*. Morija: Morija Museum & Archives
- Feely, J.M. 1987. The Early Farmers of the Transkei, southern Africa. *BAR International Series* No. 378.
- Feely, J.M & Bell-Cross, S.M. 2011. The distribution of early Iron Age Settlement in the Eastern Cape: Some Historical and Ecological Implications. *South African Archaeological Bulletin* 66 Number 194: 33-44.
- How, M. 1962. *The Mountain Bushmen of Basutoland*. Pretoria: J. van Schaik.
- Huffman, T.N. 2007. *Handbook to the Iron Age*. Pietermaritzburg: University of Kwazulu-Natal Press
- Le Cordeur, B.A. Die Besettings van die Kaap, 1795–1854. 1991. In: Cameron, T. & Spies, S.B. (eds) *Nuwe Geskiedenis van Suid Afrika (revised edn)*: 75–93. Cape Town: Human & Rousseau
- Mitchell, P. 2001. Recent archaeological research in Lesotho: An overview of fieldwork for the years 1988-2001. *NUL (National University of Lesotho) Journal of Research* 9: 1-24.
- Rudner, J. 1968. Strandloper pottery from South and South West Africa. *Annals of the South African Museum* 49:441-663.
- Swanepoel, N. et al (Eds.) 2008. *Five hundred years rediscovered*. Johannesburg: Wits University Press
- Vinnicombe, P 1972. Myth, motive, and selection in southern African rock art. *Africa: Journal of the*

International African Institute 42: 192-204

Winter, S. & Baumann, N. 2005. Guideline for involving heritage specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 E. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.

Human Tissue Act and Ordinance 7 of 1925, Government Gazette, Cape Town

National Resource Act No.25 of 1999, Government Gazette, Cape Town

9.2 Unpublished CRM and Other Reports

Anderson, G. 1996. Archaeological Survey of the Proposed Route for the Kokstad-Mt. Frere Transmission Line. Umlando Archaeological Tourism & Resource Management

Binneman, J. 2011. A Phase 1 Archaeological Impact Assessment for the proposed low cost housing development at Icwilli settlement near Kei river mouth town, Great Kei River Local Municipality, Amathole district municipality, Eastern Cape Province. East London: Eastern Cape Heritage Consultants

Bennie, J. 2013. A Heritage Impact Assessment for the Sidwadeni River, Mthatha and Mngazi. Environmental Impact Management Services (Pty) Ltd

De Jong, Robert. 2011. A Heritage Impact Assessment for the installation of long-haul dark fibre ducting infrastructure along the N2 between Durban and East London, Kwa-Zulu Natal and Eastern Cape Provinces by Cultural Heritage Consulting Services

Henning, B. 2015. A wetland delineation report for the proposed Kei Rail Township Densification Project, King Sabata Dalindyebo Local Municipality, OR Tambo District Municipality, Eastern Cape Province. Pretoria: Exigo Sustainability

Van Schalkwyk, L.O. 2008. Heritage Impact Assessment of the Proposed N2 Wild Coast Toll Highway. eThembeni Cultural Heritage.

Van Schalkwyk, L.O. 2011. A Heritage Impact Assessment for the Vialiti road upgrades, Mthatha, Eastern Cape Province, South Africa. eThembeni Cultural Heritage.

9.3 Legislation and Internet Resources

Human Tissue Act and Ordinance 7 of 1925, Government Gazette, Cape Town

National Resource Act No.25 of 1999, Government Gazette, Cape Town

<http://csg.dla.gov.za/index.html>

Accessed 2015-11-15

10 ADDENDUM 1: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE

10.1 Site Significance Matrix

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

10.2 Impact Assessment Criteria

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. sitespecific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.

- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Impact Significance

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

10.3 Direct Impact Assessment Criteria

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
CONTEXT 1 High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
CONTEXT 2 Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
CONTEXT 3 Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
CONTEXT 4 Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected

NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.

HERITAGE CONTEXTS	CATEGORIES OF DEVELOPMENT
<p>Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p>Context 2: Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p>Context 3: Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p>Context 4: Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<p>Category A: Minimal intensity development</p> <ul style="list-style-type: none"> - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m2. <p>Category B: Low-key intensity development</p> <ul style="list-style-type: none"> - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m - Building footprints between 1000m2-2000m2 - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). <p>Category C: Moderate intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site between 5000m2-10 000m2.

	<ul style="list-style-type: none"> - Linear development between 100m and 300m. - Building footprints between 2000m2 and 5000m2 - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) <p>Category D: High intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site in excess of 10 000m2 - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)
--	--

10.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p>No further action / Monitoring</p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p>Avoidance</p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p>Mitigation</p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p>Compensation</p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p>Rehabilitation</p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation. - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric. - Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource. <p>Enhancement</p> <p>Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g. the tendency to sanitize the past. This management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored</p>
