PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

For

The Proposed ACP Weighbridge on a Portion of Portion 67 of the Farm Waterval 303 JQ, Rustenburg, North West

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August 2021

A Phase 1 Archaeological Impact Assessment for the Proposed ACP Weighbridge on a Portion of Portion 67 of the Farm Waterval 303 JQ, Rustenburg, North West

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Report No: 2207211_ACP

Version: 1

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I, Tobias Coetzee, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed ACP Weighbridge 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, 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.

Date: 18 August 2021

List of Abbreviations

AAP – Anglo American Platinum

ACP – Anglo Converting Process

AIA – Archaeological Impact Assessment

CRM – Cultural Resource Management

EIA – Environmental Impact Assessment

ESA – Early Stone Age

GPS – Global Positioning System

ha – Hectare

HIA – Heritage Impact Assessment

km – Kilometre

LIA – Late Iron Age

LSA – Later Stone Age

m – Metre

MASL – Metres Above Sea Level

MEC – Member of the Executive Council

MSA – Middle Stone Age

NHRA – National Heritage Resources Act

SAHRA – South African Heritage Resources Agency

Executive Summary

The author was appointed by Environmental Assurance (Pty) Ltd to undertake a Phase 1 Archaeological Impact Assessment (AIA) for Anglo American Platinum's proposed ACP (Anglo Converting Process) weighbridge on a portion of Portion 67 of the Farm Waterval 303 JQ near Rustenburg, North West. The aim of the study is to determine the scope of archaeological resources that could be impacted by the construction of the proposed weighbridge.

A high density of sites consisting of buildings/huts were observed on historical aerial images and topographical maps dating to between 1955 and 1968 (Site B02). These buildings have been demolished and only one instance of a dilapidated angular stone structure near the eastern boundary of the study area was noted (Site B01). Compared to the rest of the study area, the general area surrounding this site is also associated with a higher concentration of intact historical glass bottles. It is therefore recommended that this area, indicated as 'Surface remains' on Figures 4 and 21, be avoided by the proposed development since a higher probability of subsurface cultural material exists.

Although the buildings associated with Site B02 have been demolished, subsurface culturally significant material, including graves, might be associated with the area. Care should therefore be exercised during the construction and development phases of the project.

Subject to adherence to the recommendations and approval by SAHRA (South African Heritage Resources Agency), the proposed ACP Weighbridge project may continue. Should skeletal remains be exposed during the construction and development phases, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage and Resources Act, 25 of 1999 section 36 (6)). Also, should culturally significant material be discovered during the course of the said development, all activities must be suspended pending further investigation by a qualified archaeologist.

Table of Contents

List of Figures

List of Tables

1. Project Background

1.1 Introduction

The author was appointed by Environmental Assurance (Pty) Ltd to undertake a Phase 1 Archaeological Impact Assessment for Anglo American Platinum's proposed Anglo Converting Process weighbridge. The proposed study area is located on a portion of Portion 67 of the Farm Waterval 303 JQ, approximately 10 km east of the Rustenburg CBD in the North West Province (**Figures 1 – 3, Table 1**). The purpose of this study is to examine the demarcated portion in order to determine if any archaeological resources of heritage value will be impacted by the proposed weighbridge, as well as to archaeologically contextualise the general study area. The aim of this report is to provide the developer with information regarding the location of heritage resources on the demarcated portion.

The following report discusses the implication for the proposed weighbridge on a portion of Portion 67 of the Farm Waterval 303 JQ with regard to heritage resources. The demarcated portion is roughly rectangular in shape and is located along the northern border of Portion 67. The legislation section included serves as a guide towards the effective identification and protection of heritage resources and will apply to any such material unearthed during the project within the demarcated study area.

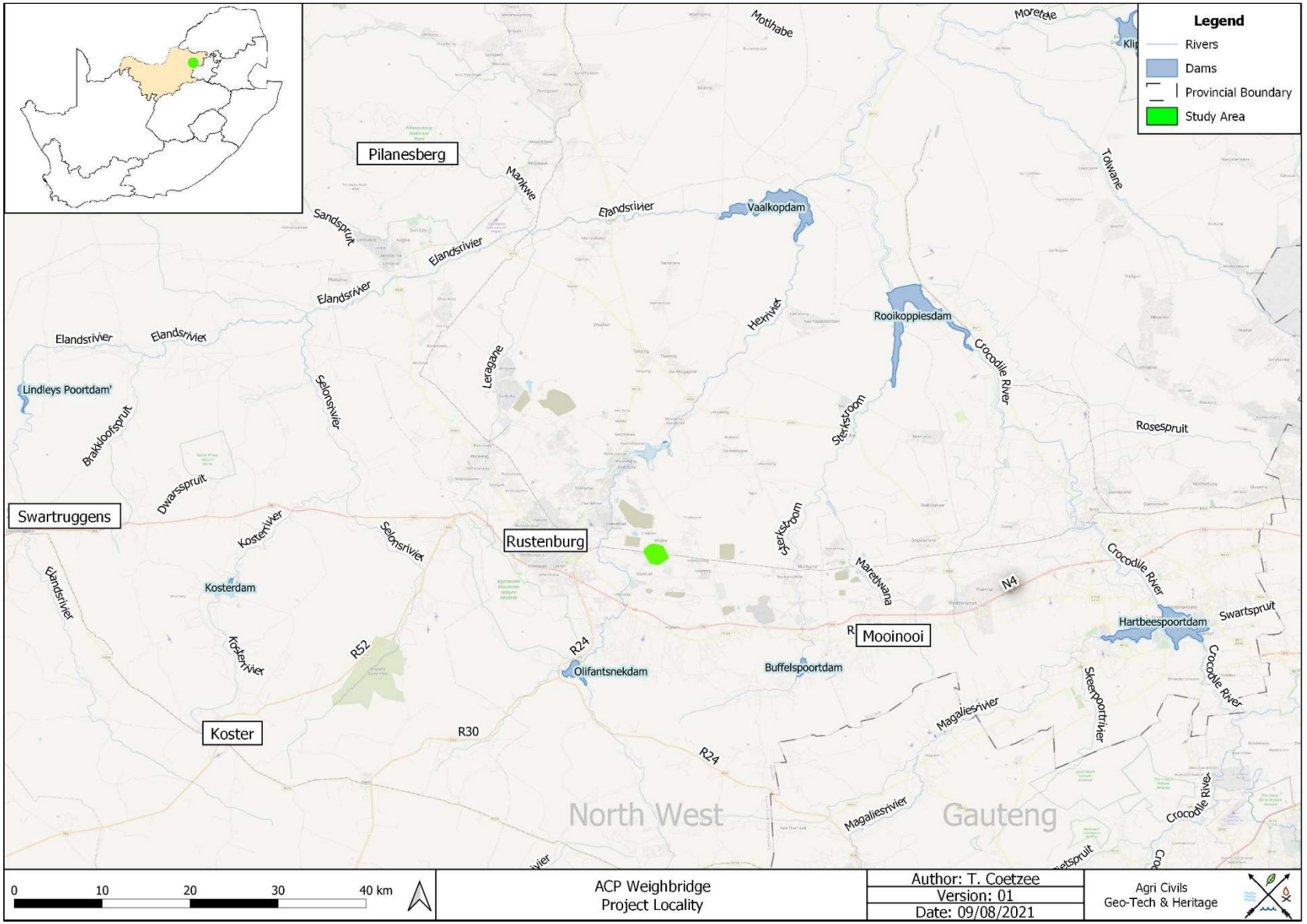

Figure 1: Regional and Provincial location of the study area.

1.2 Legislation

The South African Heritage Resources Agency aims to conserve and control the management, research, alteration and destruction of cultural resources of South Africa and to prosecute if necessary. It is therefore crucially important to adhere to heritage resource legislation contained in the Government Gazette of the Republic of South Africa (Act No.25 of 1999), as many heritage sites are threatened daily by development. Conservation legislation requires an impact assessment report to be submitted for development authorisation that must include an AIA if triggered.

AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources that might occur in areas of development and (b) make recommendations for protection or mitigation of the impact of the sites.

1.2.1 The EIA (Environmental Impact Assessment) and AIA processes

Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact that the development might have, and relevant recommendations.

All Archaeological Impact Assessment reports should include:

a. Location of the sites that are found;

b. Short descriptions of the characteristics of each site;

c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;

d. Assessments of the potential impact of the development on the site(s);

e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and

f. Recommendations for conservation or mitigation.

This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:

a. Whether or not it has objections to a development;

b. What the conditions are upon which such development might proceed;

c. Which sites require permits for mitigation or destruction;

d. Which sites require mitigation and what this should comprise;

e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and

f. What measures should or could be put in place to protect the sites which should be conserved.

When a Phase 1 AIA is part of an EIA, wider issues such as public consultation and assessment of the spatial and visual impacts of the development may be undertaken as part of the general study and may not be required from the archaeologist. If, however, the Phase 1 project forms a major component of an AIA it will be necessary to ensure that the study addresses such issues and complies with Section 38 of the National Heritage Resources Act (NHRA).

1.2.2 Legislation regarding archaeology and heritage sites

National Heritage Resource Act No.25 of April 1999

Buildings are among 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 Farming Community settlements. 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;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives;
- 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 issued 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 authority:

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;

(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)

On the development of any area the gazette states that:

"…any person who intends to undertake a development categorised as:

(a) the construction of a road, wall, power line, 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 5000m² 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 10000m² 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." (38. [1] 1999:62-64)

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)

Human Tissue Act and Ordinance 7 of 1925

The Human Tissues Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) protects graves younger than 60 years. These 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 Member of Executive Council MEC as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act as well as the Human Tissues Act, 1983.

2. Study Area and Project Description

2.1 Location & Physical Environment

The proposed weighbridge is situated on the following land parcel:

Table 1: Property name & coordinates

Property	Portion	Map Reference (1:50 000)	Lat	Lon	Parcel Size (ha)	Proposed Study area (ha)
Waterval 303 JQ	67 (portion of)	2527 CB	-25.675629	27.336402	58.3	13

The Rustenburg CBD is located about 10 km west of the ACP weighbridge project area, while Mooinooi is located 25 km to the east-southeast and Koster 52 km to the southwest. The study area is located approximately 13 km northeast of the Magaliesberg and falls within the Bojanala District Municipality and the Rustenburg Local Municipality in the North West Province. The N4 National Road runs in a northwest – southeast direction approximately 6.5 km to the southwest of the study area, while a tertiary road forms the northern boundary (**Figures 1 – 3**). Access to the study area is via a local road turning from the tertiary road along the northern boundary of the study area.

In terms of vegetation, the study area falls within the Savanna Biome and Central Bushveld Bioregion. On a local scale, the proposed prospecting area is classified as Marikana Thornveld. This vegetation unit is found in the North West and Gauteng Provinces only and occurs on the plains from Rustenburg in the west, through Marikana and Brits to the Pretoria area in the east. In terms of conservation, Marikana Thornveld is considered endangered with a conservation target of 19%. Less than 1% is statutorily conserved in the Magaliesberg Nature Reserve, while more is conserved in the De Onderstepoort Nature Reserve. Cultivation, urban or built-up areas transformed about 48% of the vegetation unit and erosion is generally low. Alien invasive plants generally occur in high densities along drainage lines (Mucina & Rutherfords 2006).

The average elevation for Marikana Thornveld varies between 1050 and 1450 MASL (Metres Above Sea Level) while the average elevation of the study area is 1149 MASL and slopes from the slightly more elevated western section to the lower eastern area.

The study area falls within the summer rainfall region and the average annual rainfall is roughly 663 mm. The average maximum temperature for the study area is recorded during January when an average of 23.7 ºC is reached. The average minimum temperature is recorded during July when an average of 11.5 ºC is reached (Climate-data.org 09/08/2021).

The study area falls within the A22H Quaternary Catchment within the Crocodile West and Marico Water Management Area. The closest river to the study area is a non-perennial river between Olifantsnekdam and Bospoortdam approximately 6 km to the west. The closest perennial river, Sterkstroom, flows roughly 16 km to the east.

On a local scale, roads are found along the northern, western and southern boundaries. A railway line is also located along the southern border and a power line intersects the eastern-most section of the study area. A small fenced-off section near the western boundary is used for production/construction processes, while modern construction material is found in the general vicinity. A local road also transects the demarcated study area near the middle. The remaining area is associated with patches of dense vegetation and a few burnt areas. The greater area is generally associated with industrial and mining related activities.

2.2 Project description

Anglo American Platinum's (AAP) Anglo Converting Process (ACP) is planning activities as part of the de-bottlenecking process to cater for increased throughput resulting from the expansion of the upstream mining and concentrator operations. Activities to be undertaken include the construction of a weighbridge with access roads and additional storage tanks for storage of sulphuric acid. The layout of the proposed weighbridge has not yet been finalised, but it is planned to be located within the demarcated study area. The general area demarcated for the proposed weighbridge covers approximately 13 ha, but the actual size of the weighbridge is estimated to be much smaller (**Table 1, Figures 2 & 3**).

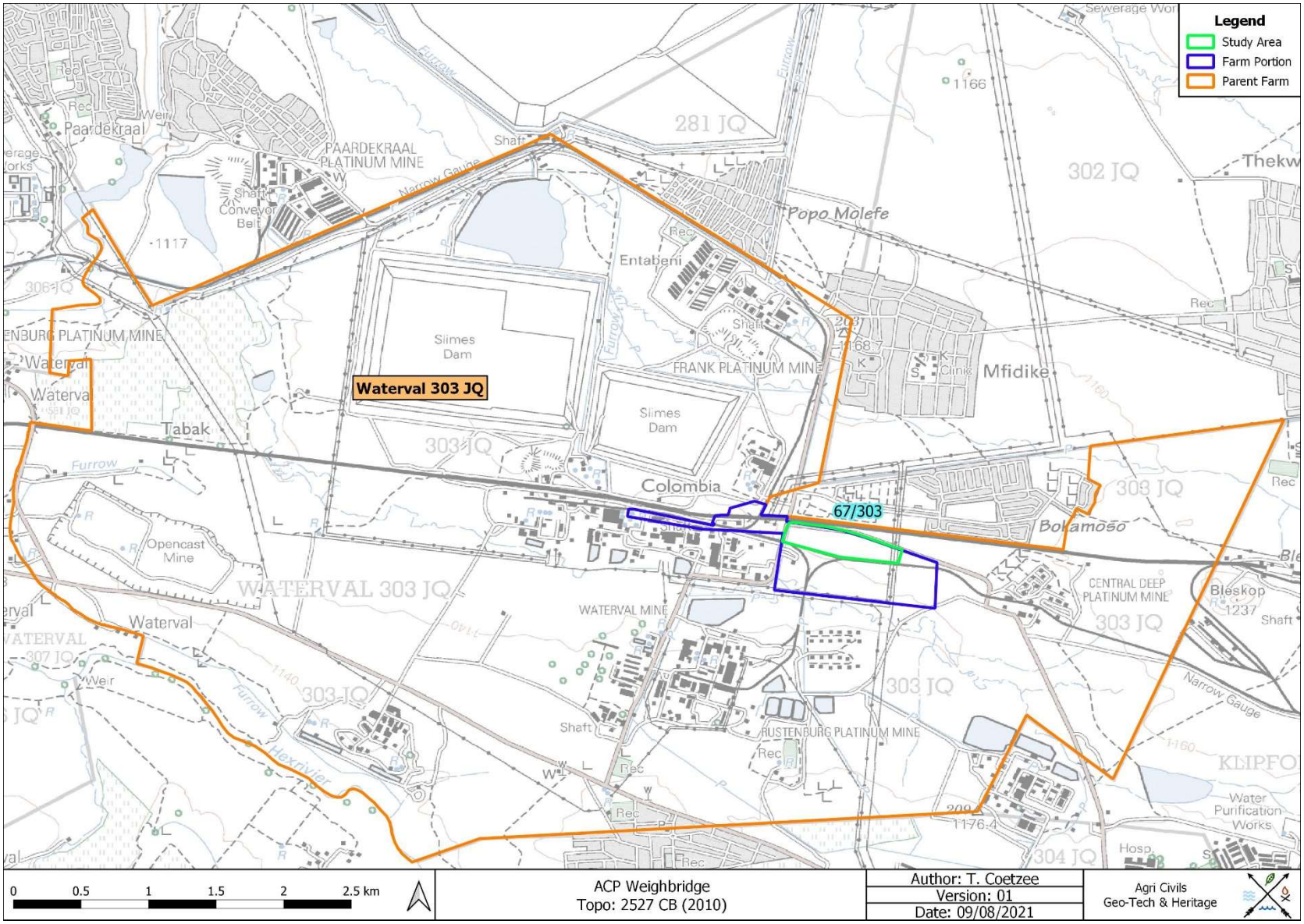

Figure 2: Segments of SA 1: 50 000 2527 CB indicating the study area.

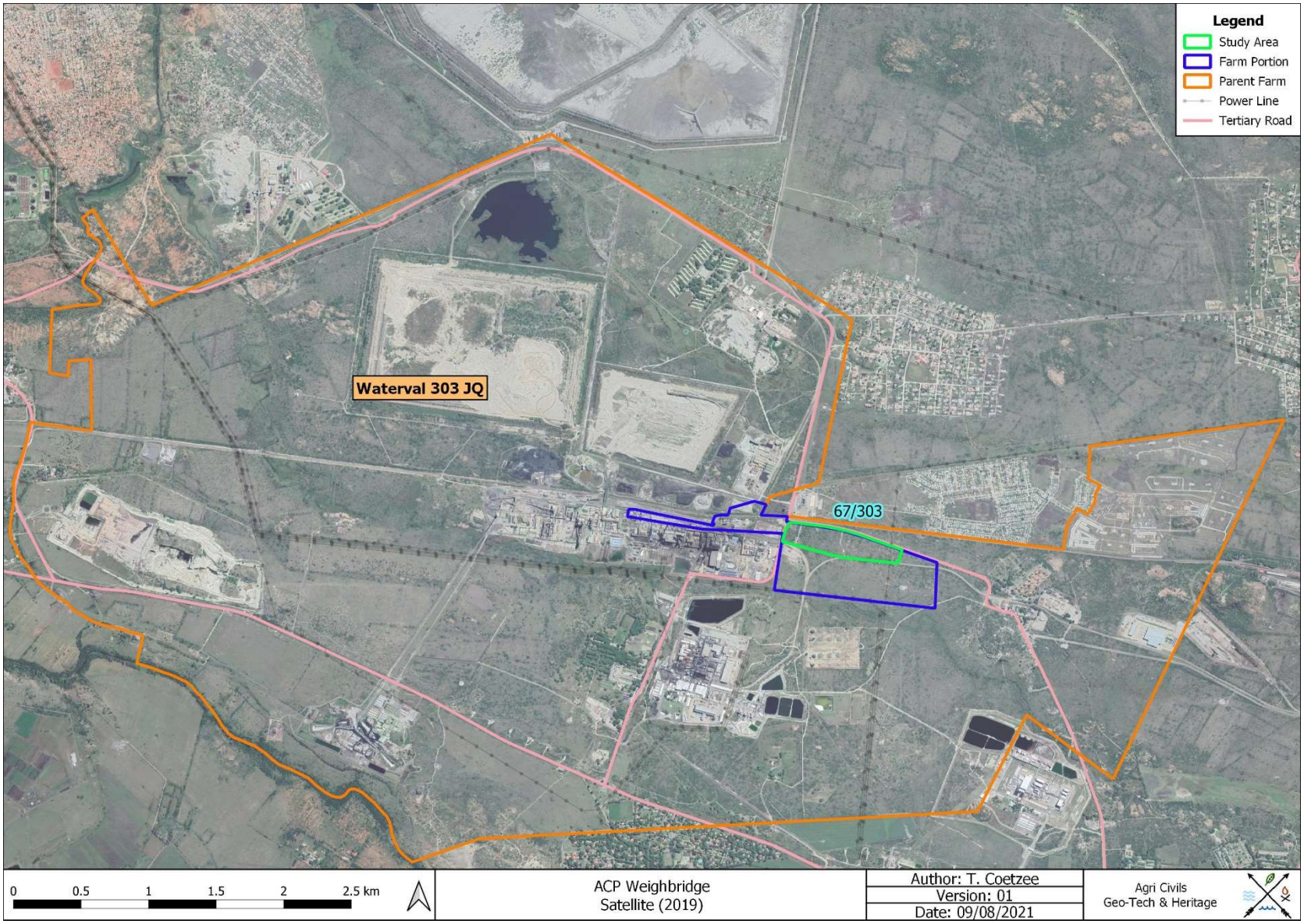

Figure 3: Study area indicated on a 2019 satellite image.

3. Archaeological Background

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. This section of the report provides a general background to archaeology in South Africa and focuses on more site-specific elements where relevant.

3.1 The Stone Ages

The earliest stone tool industry, the Oldowan, was developed by early human ancestors which were the earliest members of the genus *Homo,* such as *Homo habilis*, around 2.6 million years ago. It comprises tools such as cobble cores and pebble choppers (Toth & Schick 2007). Archaeologists suggest these stone tools are the earliest direct evidence for culture in southern Africa (Clarke & Kuman 2000). The advent of culture indicates the advent of more cognitively modern hominins (Mitchell 2002: 56, 57)

The Acheulean industry completely replaced the Oldowan industry. The Acheulian industry was first developed by *Homo ergaster* between 1.8 to 1.65 million years ago and lasted until around 300 000 years ago. Archaeological evidence from this period is also found at Swartkrans, Kromdraai and Sterkfontein. The most typical tools of the ESA (Early Stone Age) are handaxes, cleavers, choppers and spheroids. Although hominins seemingly used handaxes often, scholars disagree about their use. There are no indications of hafting, and some artefacts are far too large for it. Hominins likely used choppers and scrapers for skinning and butchering scavenged animals and often obtained sharp ended sticks for digging up edible roots. Presumably, early humans used wooden spears as early as 5 million years ago to hunt small animals.

Middle Stone Age (MSA) artefacts started appearing about 250 000 years ago and replaced the larger Early Stone Age bifaces, handaxes and cleavers with smaller flake industries consisting of scrapers, points and blades. These artefacts roughly fall in the 40-100 mm size range and were, in some cases, attached to handles, indicating a significant technical advance. The first *Homo sapiens* species also emerged during this period. Associated sites are Klasies River Mouth, Blombos Cave and Border Cave (Deacon & Deacon 1999).

Although the transition from the Middle Stone Age to the Later Stone Age (LSA) did not occur simultaneously across the whole of southern Africa, the Later Stone Age ranges from about 20 000 to 2000 years ago. Stone tools from this period are generally smaller, but were used to do the same job as those from previous periods; only in a different, more efficient way. The Later Stone Age is associated with: rock art, smaller stone tools (microliths), bows and arrows, bored stones, grooved stones, polished bone tools, earthenware pottery and beads. Examples of Later Stone Age sites are Nelson Bay Cave, Rose Cottage Cave and Boomplaas Cave (Deacon & Deacon 1999). These artefacts are often associated with rocky outcrops or water sources.

3.2 The Iron Age & Later History

The Early Iron Age marks the movement of farming communities into South Africa in the first millennium AD, or around 2500 years ago (Mitchell 2002:259, 260). These groups were agro-pastoralist communities that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Archaeological evidence from Early Iron Age sites is mostly artefacts in the form of ceramic assemblages. The origins and archaeological identities of this period are largely based upon ceramic typologies. Some scholars classify Early Iron Age ceramic traditions into different "streams" or "trends" in pot types and decoration, which emerged over time in southern Africa. These "streams" are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). Early Iron Age ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. This period continued until the end of the first millennium AD (Mitchell 2002; Huffman 2007). Some well-known Early Iron Age sites include the Lydenburg Heads in Mpumalanga, Happy Rest in the Limpopo Province and Mzonjani in Kwa-Zulu Natal.

The Middle Iron Age roughly stretches from AD 900 to 1300 and marks the origins of the Zimbabwe culture. During this period cattle herding appeared to play an increasingly important role in society. However, it was proved that cattle remained an important source of wealth throughout the Iron Age. An important shift in the Iron Age of southern Africa took place in the Shashe-Limpopo basin during this period, namely the development of class distinction and sacred leadership. The Zimbabwe culture can be divided into three periods based on certain capitals. Mapungubwe, the first period, dates from AD 1220 to 1300, Great Zimbabwe from AD 1300 to 1450, and Khami from AD 1450 to 1820 (Huffman 2007: 361, 362).

The Late Iron Age (LIA) roughly dates from AD 1300 to 1840. It is generally accepted that Great Zimbabwe replaced Mapungubwe. Some characteristics include a greater focus on economic growth and the increased importance of trade. Specialisation in terms of natural resources also started to play a role, as can be seen from the distribution of iron slag which tend to occur only in certain localities compared to a wide distribution during earlier times. It was also during the Late Iron Age that different areas of South Africa were populated, such as the interior of KwaZulu Natal, the Free State, the Gauteng Highveld and the Transkei. Another characteristic is the increased use of stone as building material. Some artefacts associated with this period are knife-blades, hoes, adzes, awls, other metal objects as well as bone tools and grinding stones.

3.2.1 Rustenburg Archaeo-History

During the 19th century the Kwena and Kgatla occupied the general area north of Pretoria. These areas included the Apies, Crocodile, and Pienaars Rivers, as well as Magaliesberg, Brits, Rustenburg, Bela-Bela, Modimolle, Pilanesberg and the Waterberg. These groups were disturbed during the *difaqane* by Mzilikazi's Ndebele but returned afterwards. Examples of Kwena and Kgatla communities during these times include: Mogôpa-Kwena, Kwena, Modimosana ba Maake-Kwena, Modimosana ba Mmatau-Kwena, Modimosana ba Matlhaku-Kwena, Kgafêla-Kgatla, Mosêtlha-Kgatla, Mmakau-Kgatla and the Motsha-Kgatla (Bergh 1998a: 106).

Early in the 19th Century the Fokeng was present in the vicinity of present-day Rustenburg as well. Traditionally, their territory stretched from the Magaliesberg in the south to probably the Elands River in the north. In the west their territory stretched from the Selons River to the roughly the area where the Mogôpa-Kwena resided near Sterkstroom in the east. Clashes with the Tlokwa, Kgafêla-Kgatla and the Pedi during the first two decades of the 19th Century, however, weakened the position of the Fokeng. With the arrival of Mzilikazi shortly afterwards, the Fokeng moved further in a southern direction across the Vaal River. Other groups that resided in the vicinity of Rustenburg during these times were the Taung, Tlokwa, Po and Phiring (Bergh 1998a: 106-107).

When the Magaliesberg congregation split from Potchefstroom in 1850, plans were made for the establishment of Rustenburg. The suggestion by Andries Pretorius to appoint a landdros in Rustenburg was approved in January 1851 and P.J. van Staden was appointed (Bergh 1998b: 130).

4. Methodology

Archaeological reconnaissance of the study area was conducted during July 2021 (Winter) through a systematic pedestrian survey that lasted one day (**Figure 4**). Sections of the study area are associated with patches of dense vegetation, but free movement was mostly possible. The eastern-most section consists of burnt veldt and visibility was therefore considered to be relatively good. General site conditions were recorded via photographic record (**Figures 5 – 11**). Also, the site was inspected beforehand on Google Earth, historical aerial imagery and topographical maps in order to identify potential heritage remains (**Appendix A**). Numerous buildings were identified on historical topographical maps and aerial images (**Table 2 & Appendix A**) and were delineated using the 1968 topographical map. Although some buildings can be identified on the 1963 aerial image, the maximum extent of the area associated with buildings/huts is indicated on the 1968 topographical map.

One angular stone structure and several glass bottles were identified during the survey. It should be noted that the prefix '2527CB' is not used as a site reference due to the length of the name, but is recorded as such in **Tables 2 & 5**. The topographical datasets dating to 1968, 1982, 1985, 1996 and 2010, as well as the historical aerial photographs dating to 1955, 1963 and 1968 proved useful in terms of providing an indication of the location and age of the buildings associated with the study area, as well as to determine past land uses of the area. The total area surveyed was approximately 13 ha.

The reconnaissance of the area under investigation served a twofold purpose:

- To obtain an indication of heritage material found in the general area as well as to identify or locate archaeological sites on the area demarcated for development. This was done in order to establish a heritage context and to supplement background information that would benefit developers through identifying areas that are sensitive from a heritage perspective.

- All archaeological and historical events have spatial definitions in addition to their cultural and chronological context. Where applicable, spatial recording of these definitions were done by means of a handheld GPS (Global Positioning System) during the site visit.

Table 2: Site coordinates & description

Name	Off. Name	Latitude	Longitude	Description	Age	Current Status	ID Source
B01	2527CB-B01	-25.676753	27.340346	Stone-walling	Historic	Ruin	Field
B02	2527CB-B02	-25.675602	27.337140	Buildings	Historic	Demolished	Aerial 1963
Surface remains		-25.676346	27.340068	Glass bottles	Historic	Partially intact	Field

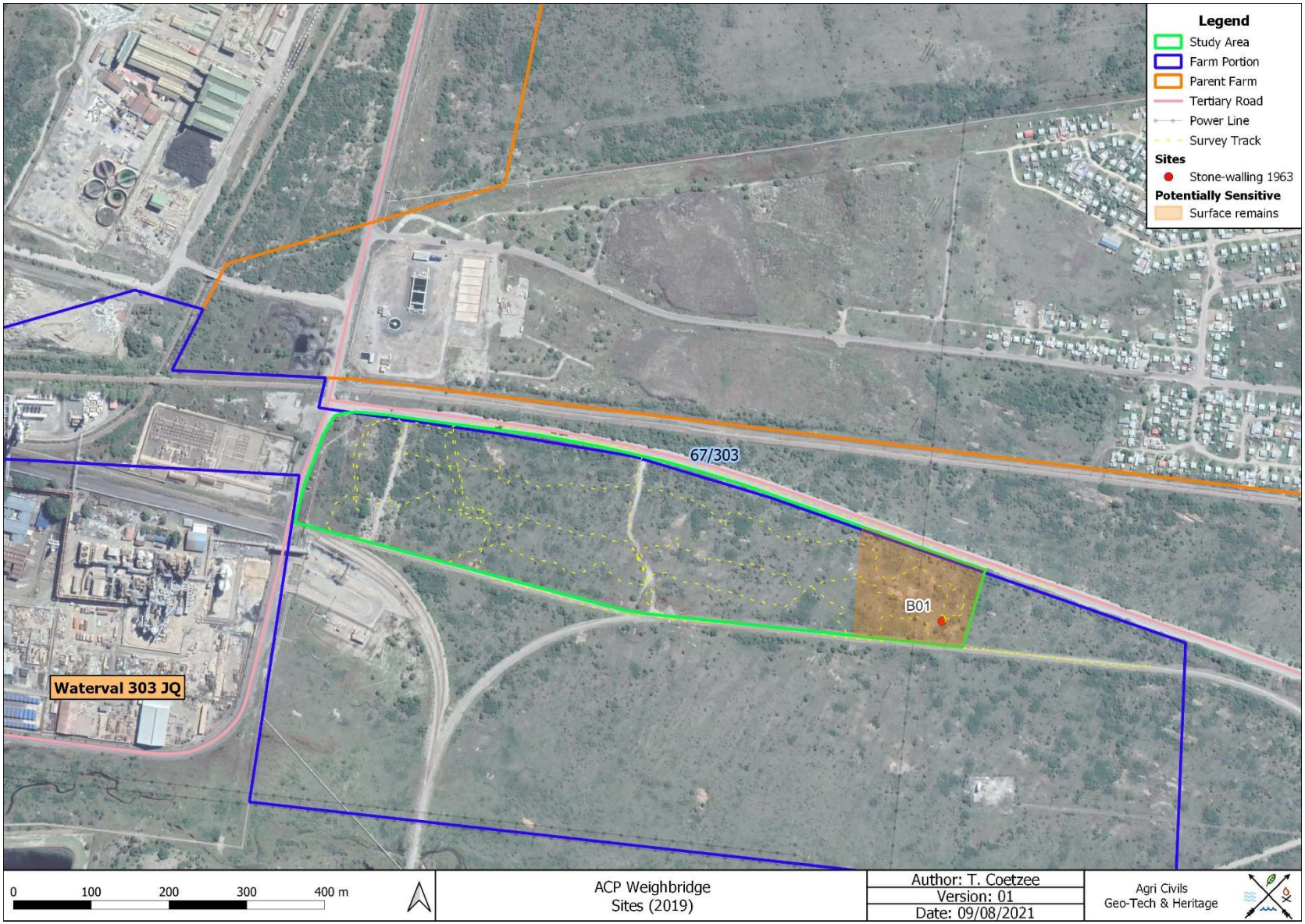

Figure 4: Study area with survey track indicated on a 2019 satellite image.

Figure 5: Modern material in the north-western corner of the study area.

Figure 6: South-western section of the study area.

Figure 7: Burnt section in the south-eastern corner of the study area.

Figure 8: Burnt section in the north-eastern corner of the study area.

Figure 9: Railway forming the southern border of the study area.

Figure 10: Modern development to the west of the study area.

Figure 11: Modern development associated with the western section of the study area.

4.1 Limitations

Patches of dense vegetation (**Figure 12 & 13**) slightly hampered visibility and free movement at the time of surveying (July 2021). No other access constraints were encountered.

Figure 12: Dense vegetation associated with a portion of the western half of the study area.

Figure 13: Dense vegetation associated with a portion of the eastern half of the study area.

4.2 Sources of information

At all times during the survey, standard archaeological procedures for the observation of heritage resources were followed. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was paid to disturbances; both man-made such as roads and clearings, and those made by natural agents such as burrowing animals and erosion. Locations of archaeological material remains were recorded by means of a Garmin Oregon 750 GPS. These sites, as well as the general conditions of the terrain, were photographed using a Samsung S7 mobile phone.

A literature study, which incorporated previous work done in the region, was conducted in order to place the study area into context from a heritage perspective.

4.2.1 Historical aerial and topographical maps

The historical aerial image dating to 1955 (**Appendix A: Figure 22**) shows the proposed study area to be an open veldt, while a cultivated field is shown to the east and a road/railway further to the north. Due to poor image resolution, the presence of buildings is unclear. The 1963 aerial image (**Appendix A: Figure 23**) shows the presence of several cultivated fields within the demarcated study area, as well as disturbances likely to be buildings. By 1968 (**Appendix A: Figure 24**), significantly more buildings are visible, as well as several footpaths. The 1968 topographical map (**Appendix A: Figure 25**) indicates the presence of several huts at the location previously associated with buildings, as well as a railway line to the north of the study area. The 1982, 1985 and 1996 topographical maps (**Appendix A: Figures 26 – 28**), however, shows the previously indicated buildings/huts to be demolished and that a service railway line was built along the southern boundary of the study area. A power line is also shown intersecting the eastern section of the study area. By 2010 (**Appendix A: Figure 29**) the service railway line and the power line appear to have been expanded, while the built environment to the west of

the study area gradually increased between 1982 and 2010.

4.2.2 Previous Heritage Studies

Housing Development on Pt 65 and Pt 501 of Waterkloof 305 JQ

A phase 1 HIA was done for the housing development on Portions 65 and 501 of the Farm Waterkloof 305 JQ, which is located about 6 km south of the ACP weighbridge study area. The HIA revealed one outbuilding exceeding 60 years of age but also noted that it was of low significance as it has significantly been altered (Van Vollenhoven 2012).

Portion 23 of the Farm Rietfontein 338 JQ

The HIA survey done by Coetzee (2008) for the development of offices on the Portion 23 (Portion of Portion 13) of the farm Rietfontein 338 JQ, located 8.5 km southeast of the ACP weighbridge study area, revealed several heritage sites. The sites were identified as stone-walled sites belonging to the later phase of the LIA (c. AD 1640 – AD 1830s), also known as the Late Moloko. The stone-walled sites include six enclosures with a main enclosure, a large enclosure with several secondary enclosures, and several stone cairns. The stone-walling consist of dry-walling as no evidence of a plaster agent was found. Accordingly, the high concentration enclosures might have been a large cattle outpost associated with the Bafokeng Kgosi August Molotlegi Mokgatle who's people lived further to the north (Coetzee 2008).

Lanxess Chrome Mine

Higgitt (2015) conducted a Heritage Scoping Study for the amendment of the existing EMP for the Lanxess Chrome Mine. The scoping study revealed that the general study area is associated with MSA tools, ceramic sherds and stone-walled settlements. The ceramics indicate Iron Age settlement from at least the 17th Century CE to the 19th Century CE. Additionally, previous heritage assessments recorded a mine shaft that was sunk in 1949 and two graves in the surrounding areas. During the scoping survey, six Iron Age/Historic sites were recorded and one Stone Age Scatter. The Laxess Mine is located roughly 8 km southeast of the proposed ACP weighbridge.

5. Archaeological and Historical Remains

5.1 Stone Age Remains

No Stone Age archaeological remains were observed within the demarcated study area.

Stone Age artefacts are often associated with rocky outcrops or water sources. **Figures 14 – 16** are examples of stone tools often associated with the Early, Middle and Later Stone Age of southern Africa.

The heritage study conducted by Higgitt (2015) for the Lannxess Chrome Mine recorded MSA tools.

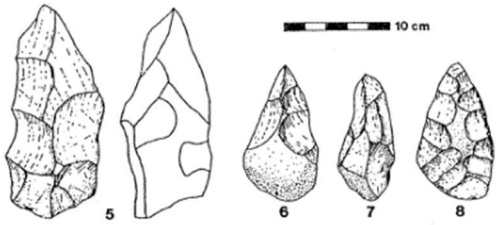

Figure 14: ESA artefacts from Sterkfontein (Volman 1984).

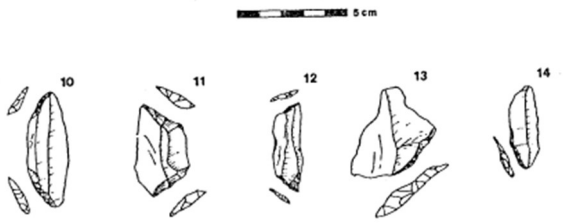

Figure 15: MSA artefacts from Howiesons Poort (Volman 1984).

Figure 16: LSA scrapers (Klein 1984).

5.2 Iron Age Farmer Remains

No Iron Age archaeological remains were observed within the demarcated study area.

The heritage studies conducted by van Coetzee (2008) and Higgitt (2015) noted several stone-walled enclosures and the presence of ceramics.

5.3 Historical

One site and two areas (**Table 3**) potentially dating to the historic period were identified using a combination of historical topographical maps, aerial imagery and field observations.

Site B01 was identified as a small, angular stone structure measuring approximately 2 m X 1.5 m near the eastern boundary of the study area (**Figure 17**). No surface artefacts were observed in the immediate vicinity of the site. It is likely that the structure dates to between 1955 and 1968, the same period as the buildings and huts observed on the historical aerial images and topographical maps. It is also possible that similar structures might be associated with the study area, but are obscured by a combination of dense vegetation and a poor level of preservation.

The boundary of Site B02 was delineated from the area associated with huts on the 1968 topographical map (**Appendix A: Figure 25**). Although buildings appear on earlier aerial images, the 1968 topographical map indicates a greater area associated with huts. Due to no buildings being visible on the 1955 aerial image (**Appendix A: Figure 22**), and only a few on the 1963 aerial image (**Appendix A: Figure 23**), it is likely that some the buildings were constructed between 1955 and 1963. However, a possibility also exists that some of the buildings already existed by 1955, but are not visible on the aerial image due to poor image resolution. Contemporary satellite imagery, as well as observations made during the pedestrian survey, confirmed that the buildings associated with Site B02 have been demolished. Based on historical topographical maps, these buildings were demolished between 1968 and 1982.

Several intact bottles dating to the Historic Age were observed within the study area (**Figures 18 – 20**). These glass bottles consist of a variety of shapes and colours, including clear honey and milk bottles, as well as brown poison bottles. The highest concentration of bottles was observed towards the east of the study area. It is likely that these bottles date to the historical buildings that used to be associated with the study area. The area associated with the higher concentration of bottles is labelled as 'Surface remains' on **Figure 4 & 21**.

Table 3: Historic Sites.

Name	Type	Status	Portion	Heritage	Extent (ha)
B01	Stone-walling	Ruin	67	Avoid	3m²
B02	Building	Demolished	67	Less sensitive	10.7
Surface remains	Glass bottles	Partially intact	67	Avoid	1.6

The Heritage studies conducted by Higgitt (2015) and Van Vollenhoven (2012) recorded heritage sites dating to the Historic Period.

Figure 17: Section of stone-walling at Site B01.

Figure 18: Clear milk and honey bottles.

Figure 19: Glass bottles near the eastern boundary of the study area.

Figure 20: Glass poison bottle.

5.4 Contemporary Remains

Apart from the modern construction material near the western boundary of the study area, no other contemporary remains were observed.

The heritage studies done by the Coetzee (2008), Higgitt (2015) and Van Vollenhoven (2012) did not mention contemporary sites.

5.5 Graves

No graves, cemeteries or burial sites were observed during the study. However, due to the evidence of past human settlements within the demarcated study area, the possibility exists that burial sites without surface dressings might be located in the area.

The heritage studies done by the Coetzee (2008), Higgitt (2015) and Van Vollenhoven (2012) did not record the presence of graves or burial sites.

6. Evaluation

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.

A fundamental aspect in the conservation of a heritage resource relates to whether the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and if appropriate mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed.

6.1 Field Ratings

All sites should include a field rating in order to comply with section 38 of the National Heritage Resources Act (Act No. 25 of 1999). The field rating and classification in this report are prescribed by SAHRA.

Table 4: Field Ratings.

Rating	Field Rating/Grade	Significance	Recommendation
National	Grade 1		National site
Provincial	Grade 2		Provincial site
Local	Grade 3 A	High	Mitigation not advised
Local	Grade 3 B	High	Part of site should be retained
General protection A	4 A	High/Medium	Mitigate site
General Protection B	4 B	Medium	Record site
General Protection C	4 C	Low	No recording necessary

Table 5: Individual site ratings.

Site / Survey Point Name	Type	Rating	Field Rating/Grade	Significance	Recommendation
2527CB-B01	Building Ruin	General Protection B	4 B	Medium	Record site
2527CB-B02	Demolished Buildings	General Protection C	4 C	Low	No recording necessary
Surface remains	Glass bottles	General Protection B	4 B	Medium	Record site

7. Statement of Significance & Recommendations

7.1 Statement of significance

The study area: A portion of Portion 67 of the Farm Waterval 303 JQ

As can be seen form heritage studies done in the surrounding areas, as well as the findings made in this study, the greater study area is considered to be significant from a heritage perspective. Locally, only a potential historical stone structure and glass bottles were observed.

Site B01, an angular stone structure, was possibly constructed between 1955 and 1963 and might exceed 60 years of age. The site might therefore be protected under the NHRA (25 of 1999). However, due to the dilapidated state of the site, it is not considered to be significant from a heritage perspective.

The buildings associated with Site B02 have been demolished and the demarcated area is not considered to be significant from a heritage perspective. However, since burial sites and other subsurface culturally significant material are often associated with past human settlements, the area is potentially sensitive. Since the demolished buildings might exceed 60 years of age, potential remains could be protected under the NHRA (25 of 1999).

The area demarcated as 'Surface remains' on **Figure 21** is associated with a higher concentration of historical glass bottles and might therefore indicate a higher probability of subsurface cultural material.

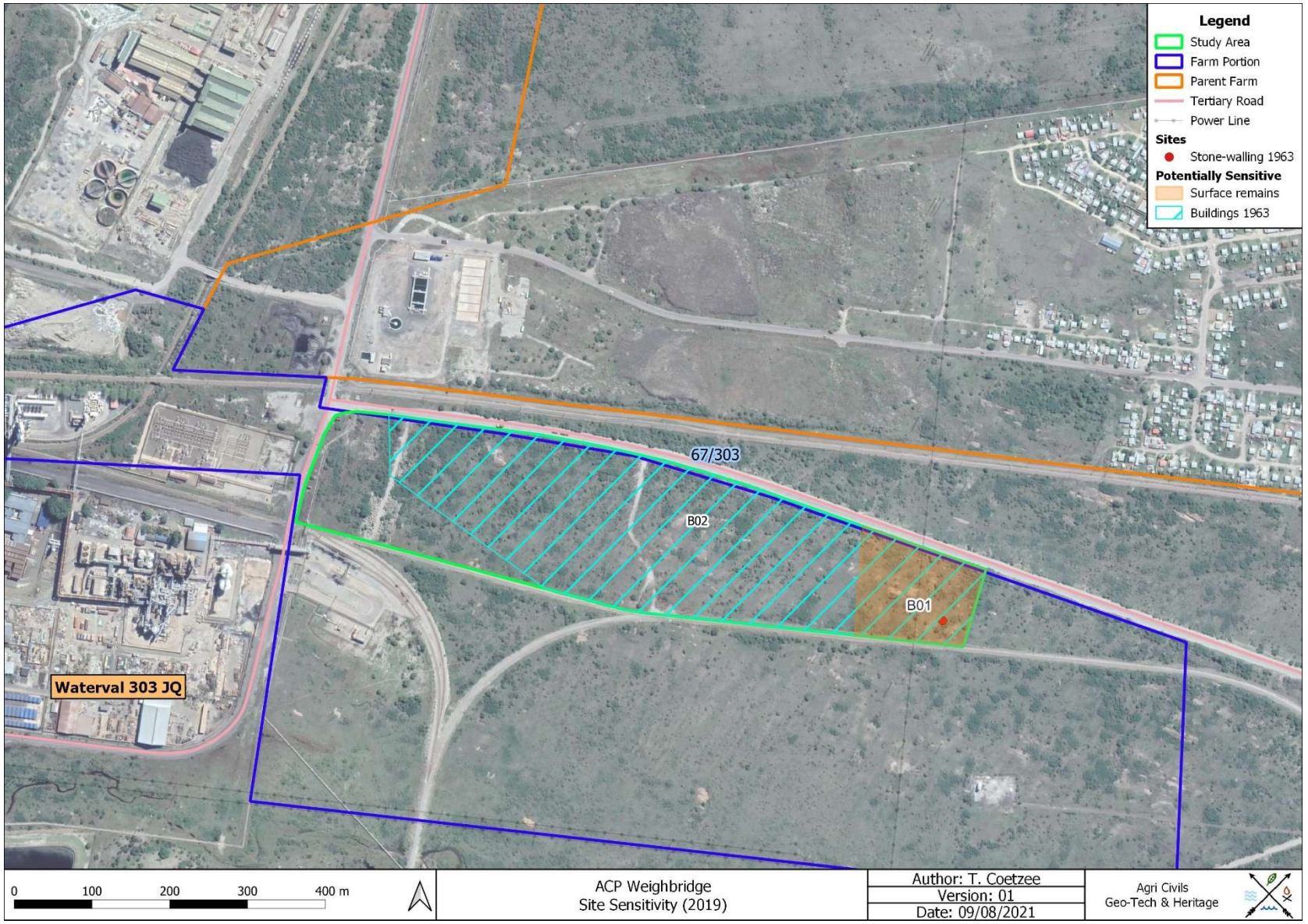

Figure 21: Potential heritage sites indicated on a 2019 satellite image.

7.2 Recommendations

The following recommendations are made in terms with the National Heritage Resources Act (25 of 1999) in order to avoid the destruction of heritage remains associated with the area demarcated for the construction of the weighbridge:

- Site B01, a potentially historical stone structure, might exceed 60 years of age. However, due to the dilapidated state of the structure, it is not regarded to be significant from a heritage perspective. The site also falls within an area associated with a higher concentration of historical glass bottles. Due to the higher concentration of surface remains, it is likely that the associated area might indicate a higher probability of subsurface cultural material. It is therefore advised that the area be avoided by the proposed development.

- The area associated with Site B02 used to be associated with buildings potentially exceeding 60 years of age, but have been demolished. Although surface structures are no longer present, subsurface cultural material, including graves, might exist and care should therefore be exercised during the construction phase.

- Because archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the construction and development phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during the course of the project, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage Resources Act, 25 of 1999 section 36 (6)).

- Should the need arise to expand the proposed project beyond the surveyed area outlined in this study, the following applies: A qualified archaeologist must conduct a full Phase 1 Archaeological Impact Assessment on the sections beyond the demarcated area that will be affected by the development, in order to determine the occurrence and extent of any archaeological sites and the impact development might have on these sites.

- From a heritage point of view, the proposed ACP weighbridge project may proceed, subject to the abovementioned conditions, recommendations and approval by the South African Heritage Resources Agency.

8. Addendum: Terminology

Archaeology:

The study of the human past through its material remains.

Artefact:

Any portable object used, modified, or made by humans; e.g. pottery and metal objects.

Assemblage:

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

Context:

An artefact's context usually consist of its immediate *matrix* (the material surrounding it e.g. gravel, clay or sand), its *provenience* (horizontal and vertical position within the matrix), and its *association* with other artefacts (occurrence together with other archaeological remains, usually in the same matrix).

Cultural Resource Management (CRM):

The safeguarding of the archaeological heritage through the protection of sites and through selvage archaeology (rescue archaeology), generally within the framework of legislation designed to safeguard the past.

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 other material covering and accompanying it.

Feature:

An irremovable artefact; e.g. hearths or architectural elements.

Ground Reconnaissance:

A collective name for a wide variety of methods for identifying individual archaeological sites, including consultation of documentary sources, place-name evidence, local folklore, and legend, but primarily actual fieldwork.

Matrix:

The physical material within which artefacts is embedded or supported, i.e. the material surrounding it e.g. gravel, clay or sand.

Phase 1 Assessments:

Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 Assessments:

In-depth culture resources management 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.

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:

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity.

Surface survey:

There are two kinds: (1) unsystematic and (2) systematic. The former involves field walking, i.e. scanning the ground along one's path and recording the location of artefacts and surface features. Systematic survey by comparison is less subjective and involves a grid system, such that the survey area is divided into sectors and these are walked ally, thus making the recording of finds more accurate.

9. References

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Removal of Graves and Dead Bodies Ordinance No. 7 of 1925, Government Gazette, Cape Town

Appendix A: Historical Aerial Photographs and Topographical Maps

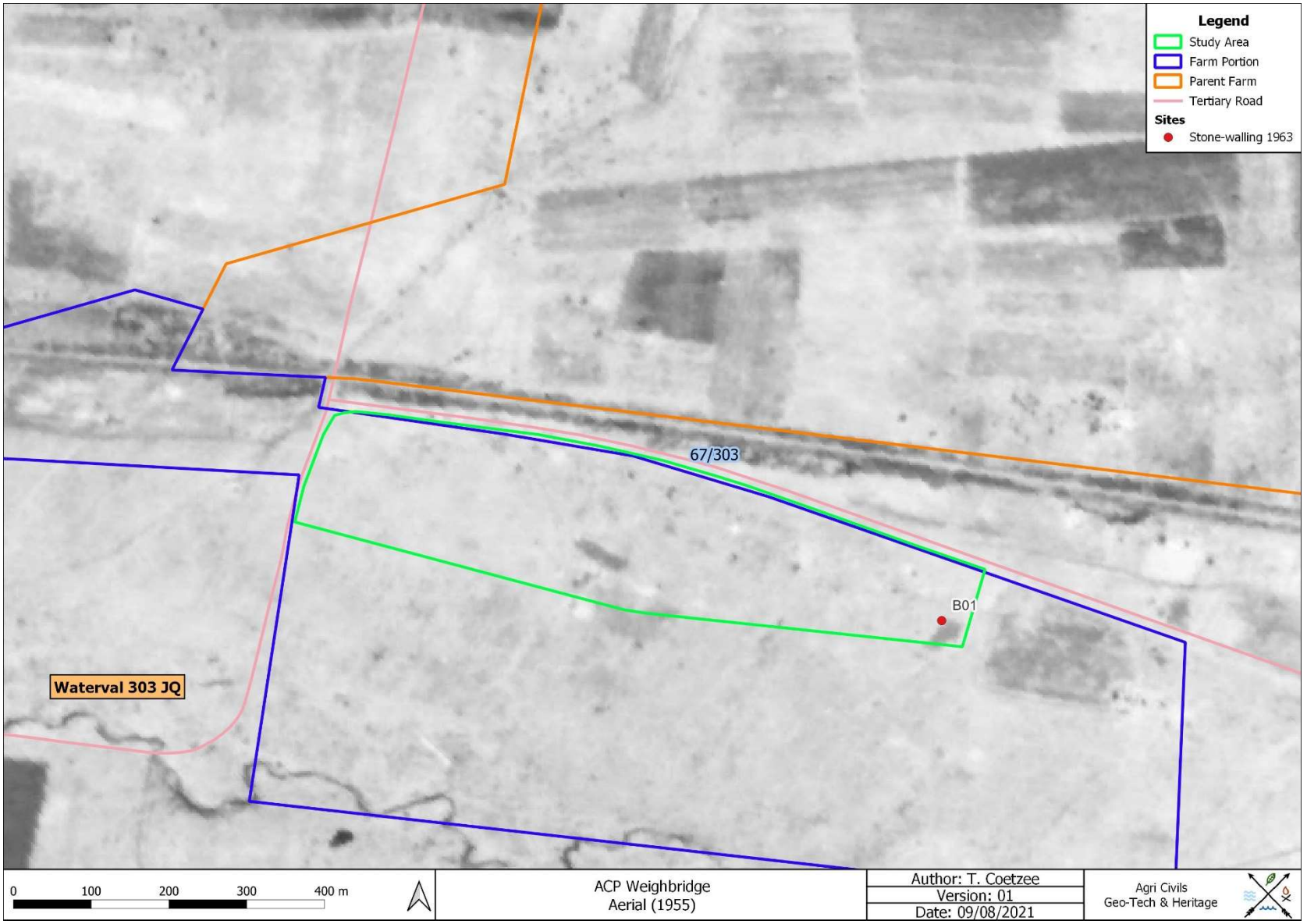

Figure 22: The study area superimposed on a 1955 aerial image.

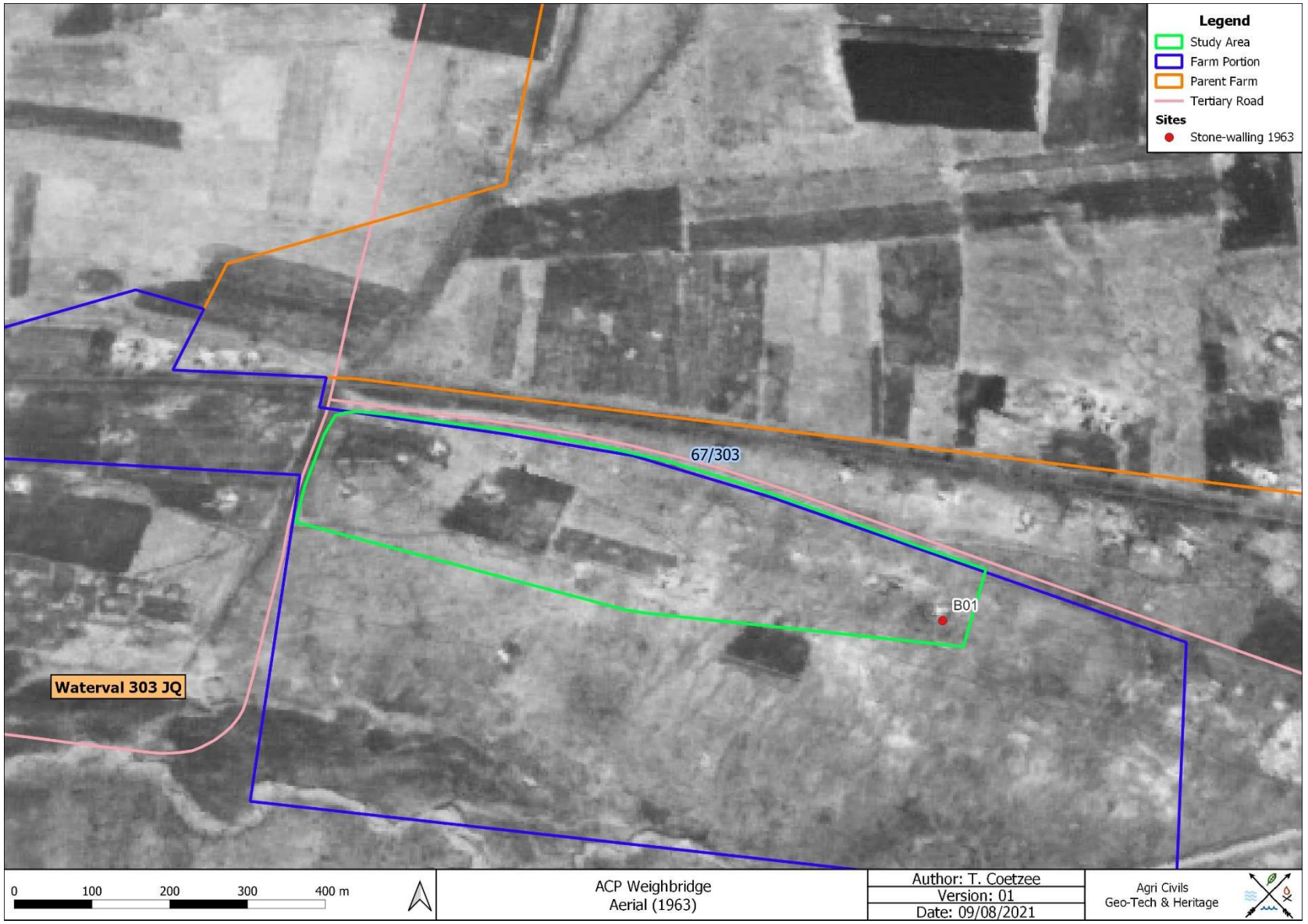

Figure 23: The study area superimposed on a 1963 aerial image.

Figure 24: The study area superimposed on a 1968 aerial image.

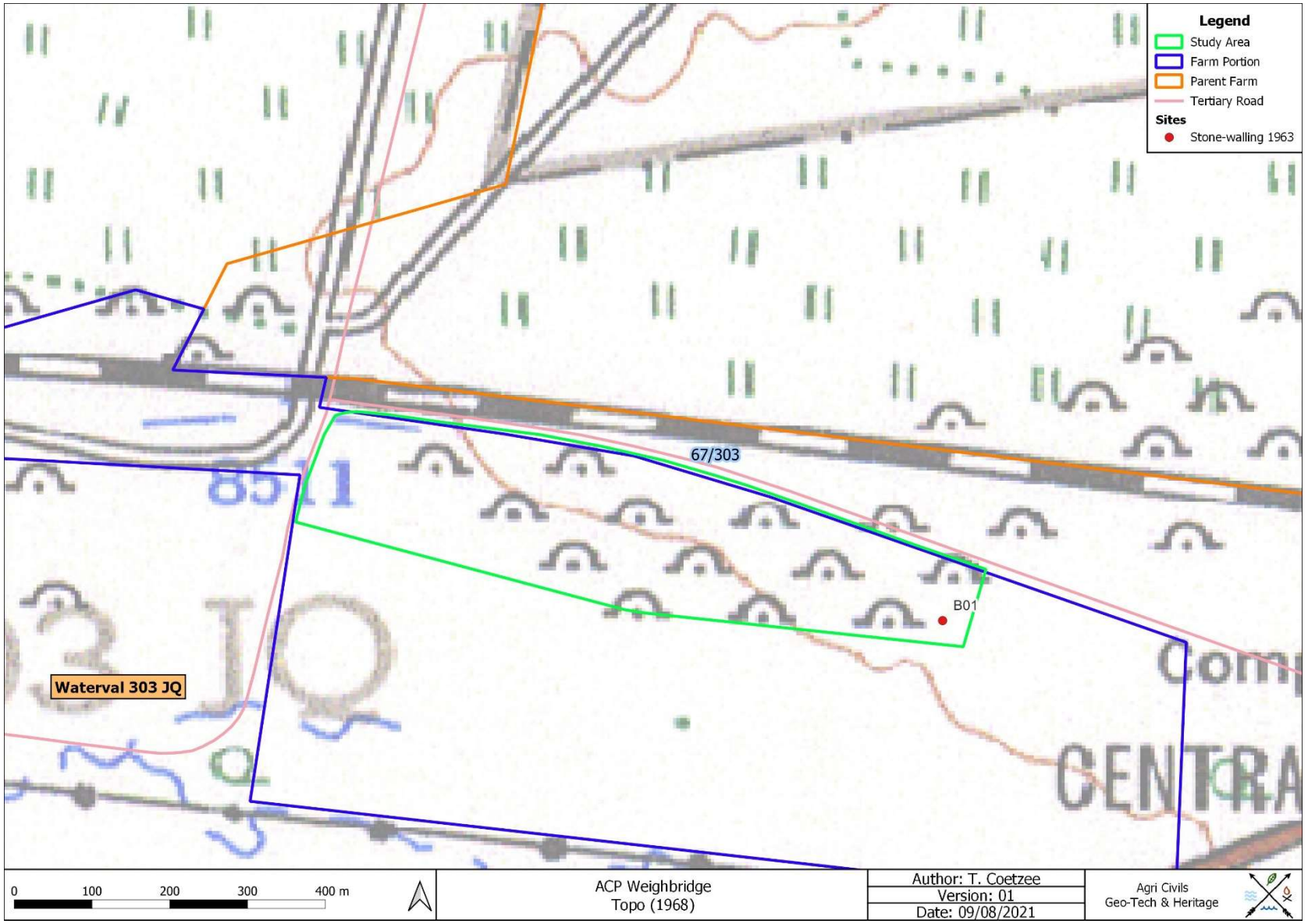

Figure 25: The study area superimposed on 1: 50 000 2527 CB 1968 topographical map.

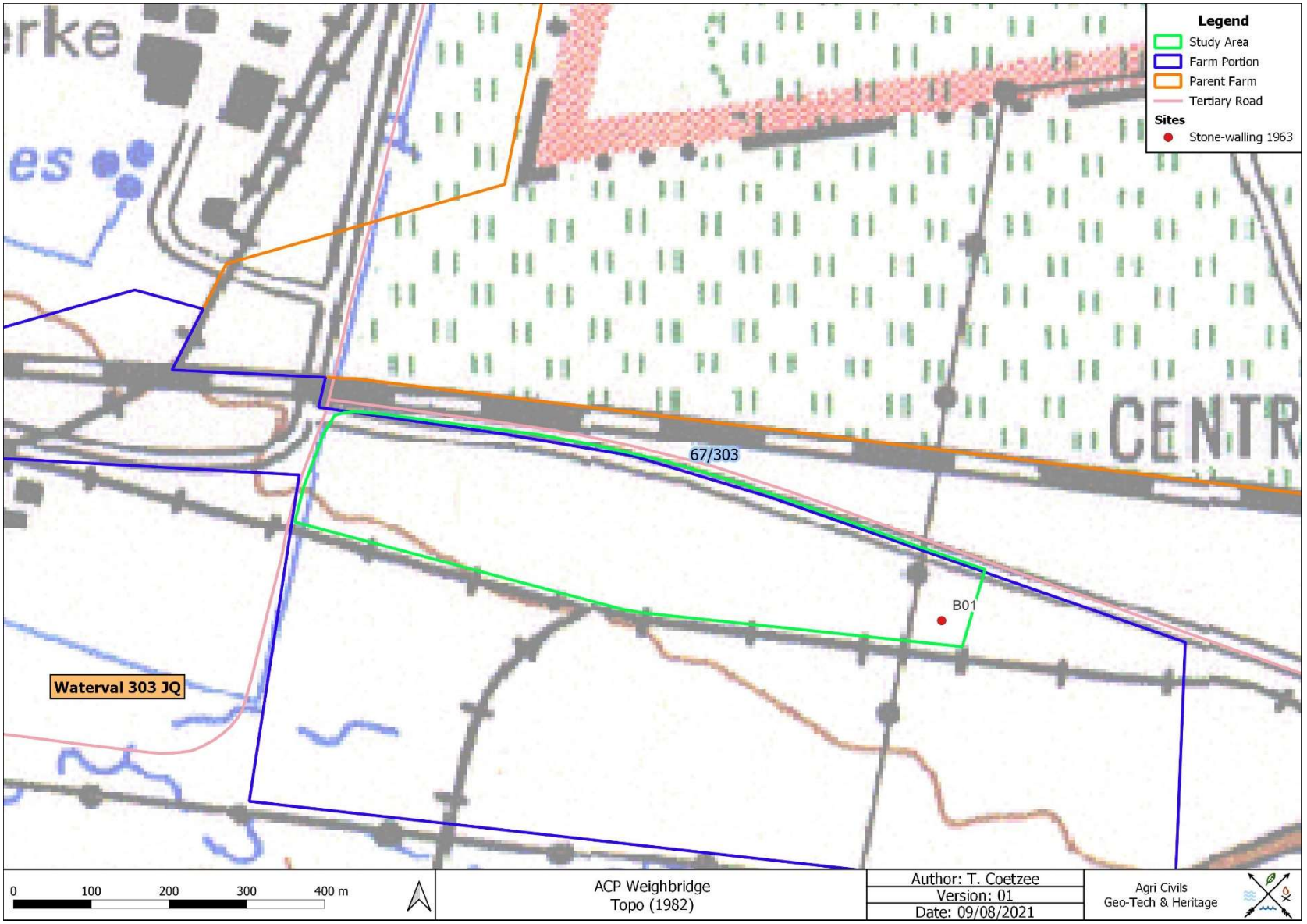

Figure 26: The study area superimposed on 1: 50 000 2527 CB 1982 topographical map.

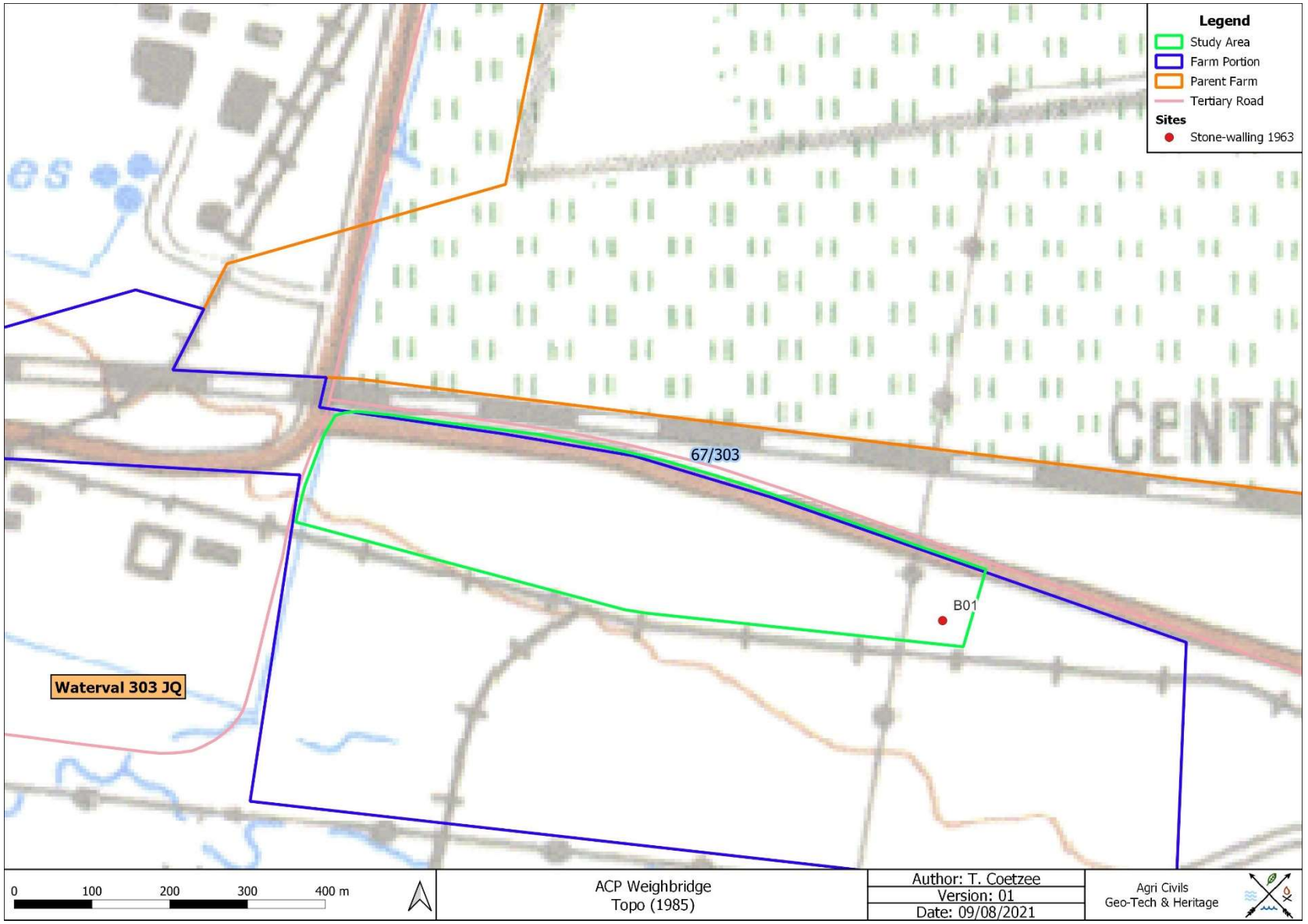

Figure 27: The study area superimposed on 1: 50 000 2527 CB 1985 topographical map.

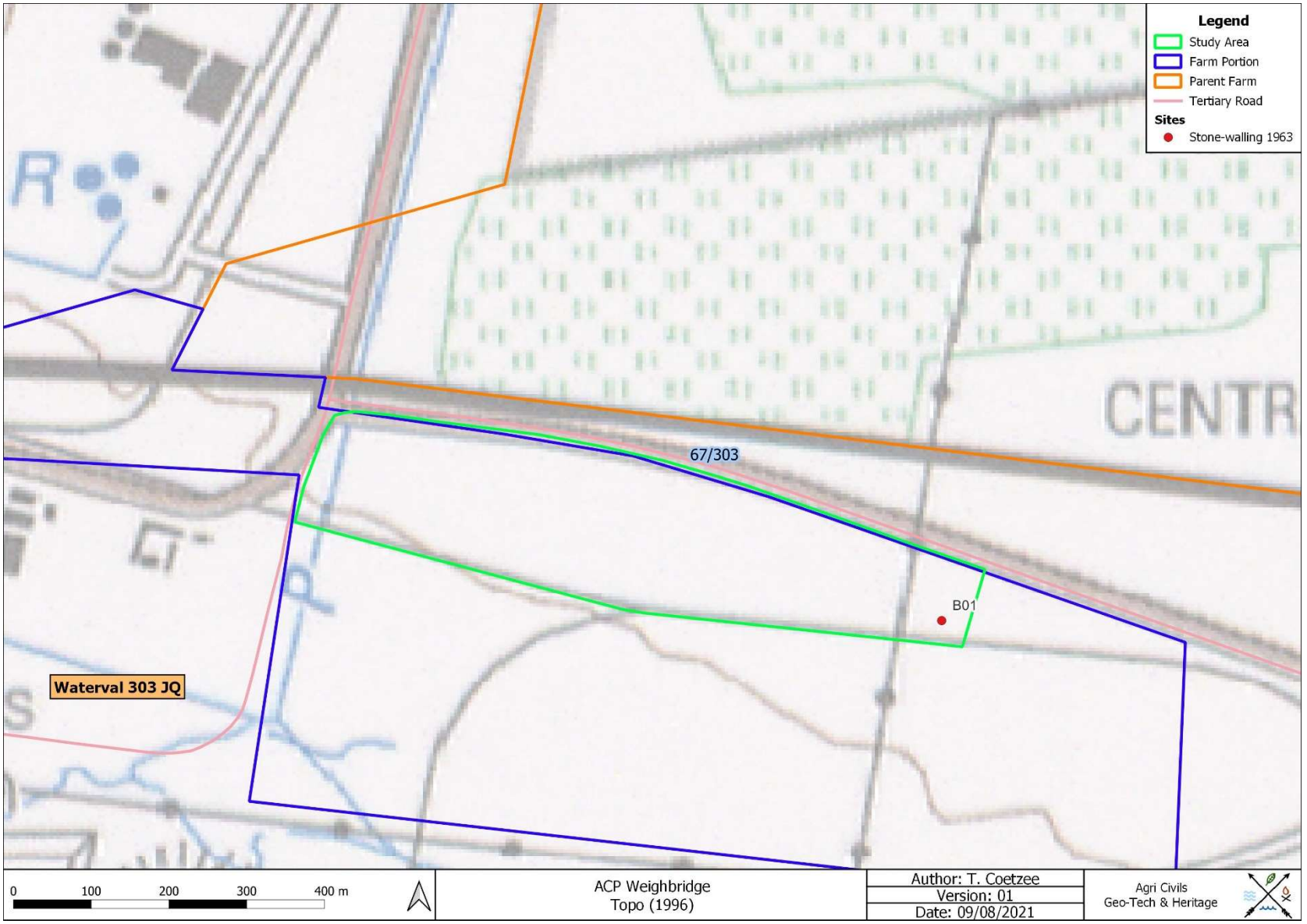

Figure 28: The study area superimposed on 1: 50 000 2527 CB 1996 topographical map.

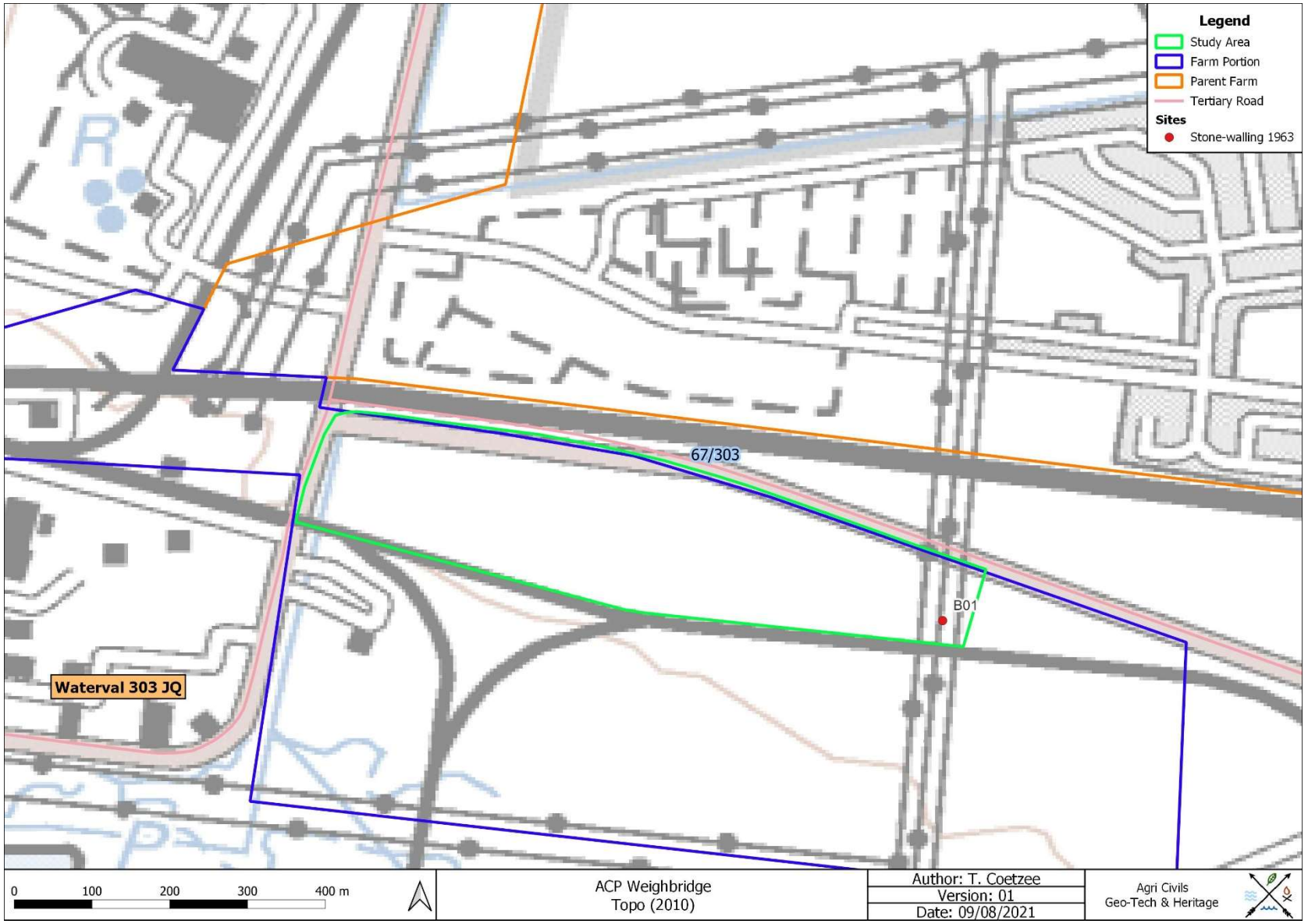

Figure 29: The study area superimposed on 1: 50 000 2527 CB 2010 topographical map.

Appendix B: NEMA Appendix 6

NEMA Specialist reports	
Item	**Section**
1. (1) A specialist report prepared in terms of these Regulations must contain—	
(a) details of-	
(i)the specialist who prepared the report; and	Cover, p2
(ii)the expertise of that specialist to compile a specialist report including a curriculum vitae;	Cover, p2, Appendix C
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	p2
(c) an indication of the scope of, and the purpose for which, the report was prepared;	1.1, 2.2
(cA) an indication of the quality and age of base data used for the specialist report;	4
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	2.1, 2.2, 4.2.1
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	4
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	4
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	4, 5, 7.1
(g) an identification of any areas to be avoided, including buffers;	7
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	p34
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	4.1
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity[, including identified alternatives on the environment]or activities;	5, 7
(k) any mitigation measures for inclusion in the EMPr;	7.2
(l) any conditions for inclusion in the environmental authorisation;	7.2
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	7.2
(n) a reasoned opinion—	
(i)[as to] whether the proposed activity, activities or portions thereof should be authorised	7.2
(iA) regarding the acceptability of the proposed activity or activities; and	7.2
(ii)if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	7.2
(o)a description of any consultation process that was undertaken during the course of preparing the specialist report;	N/A

NEMA Specialist reports	
Item	**Section**
(p)a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
(q)any other information requested by the competent authority.	Nothing received to date
(2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Noted

Appendix C: Curriculum Vitae

Tobias Coetzee

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082 821 3104
Registered Professional Archaeologist, Association of Southern African Professional Archaeologists (ASAPA), CRM accredited, membership no: 289

Full names: Tobias Johannes Coetzee
Date of birth: 19 May 1986
Qualifications: MA (Archaeology)

Education:

2017	MA (Archaeology) University of Pretoria Dissertation: *Mapping Bokoni: Exploring Bokoni settlement choices and changes in Mpumalanga and Limpopo, South Africa using GIS site distribution analysis techniques*
2008	BA (Hons) (Archaeology) University of Pretoria Dissertation: *Mapping Bokoni towns & trade: Applying Geographic Information Systems to the articulation of Mpumalanga stonewalled sites with pre-colonial trade routes*
2006 – 2008	BA (Archaeology & Geography) University of Pretoria Subjects: Zulu, Afrikaans, Cartography, GIS and ArcGIS applications, Meteorology, Anthropology, Ancient History, Isotope Ecology and Dating, Computer and Information Literacy, Academic Skills and Introduction to research

Employment:

2020 – present	Heritage Practitioner Agri Civils Geo-Tech & Heritage
2013 – 2019	GIS Practitioner Bigen Group (Pty) Ltd
2013	Specialist consultant: Heritage Environmental Assurance (Pty) Ltd
2011	Junior lecturer in Archaeology at the University of South Africa (UNISA) at the department of Anthropology & Archaeology Primary lecturer for: The Prehistory of South Africa Assistant lecturer for: Applied Archaeology - Heritage Conservation
2009	Tutor Department of Anthropology & Archaeology, University of Pretoria

Conference papers, publications & Cultural Resources Management Reports:

Coetzee, T. 2020. *Conservation Management Plan for Cemetery 1 at the Kwagga North Mine, Middelburg, Mpumalanga*. Lydenburg: Agri Civils Geo-Tech & Heritage

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Coetzee, T. 2018. *Conservation Management Plan for a Graveyard on Portion 5 of the Farm Van Dykspruit 431 JR, Mpumalanga*. Pretoria

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Coetzee, T. 2018. *Phase 1 Archaeological Impact Assessment for the proposed Gulf service station on erf 10742, Umhlathuze Village, Empangeni, KwaZulu-Natal*. Pretoria

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Coetzee, T. 2017. *A Phase 1 Archaeological Impact Assessment for the Proposed Witbank Siding on erf 5197 and portions of portion 2, 144, 150, 219 and 244 of the Farm Blesboklaagte 296 JS, Emalahleni, Mpumalanga.* Pretoria

Coetzee, T. 2017. *Heritage Management Plan for Sedibeng Iron Ore Mine on Annex Taaibosch 1, Portion 3 and the RE of Farm 445 Postmasburg, Northern Cape.* Pretoria

Coetzee, T. 2017. *A Phase 1 Archaeological Impact Assessment for the Emfuleni Local Municipality landfill development on a Portion of Portion 178 of the Farm Vlakfontein 546 IQ, Vereeniging, Gauteng.* Pretoria

Coetzee, T. 2017. *A Phase 1 Archaeological Impact Assessment for Environmental Assurance (Pty) Ltd on a portion Intersecting Portions 19, 22 and 29 of the Farm Kennedy's Vale 361 KT, Steelpoort, Limpopo Province.* Pretoria

Coetzee, T. 2017. *A Phase 1 Archaeological Impact Assessment for Environmental Assurance (Pty) Ltd on erf 1 of Masehlaneng and erf 1480 of Sekgakgapeng, Mokopane, Limpopo.* Pretoria

Coetzee, T. 2017. *A Phase 1 Archaeological Impact Assessment for Environmental Assurance (Pty) Ltd on two portions of Portion 6 of the Farm Mareesburg 8 JT, Steelpoort, Limpopo*. Pretoria

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