

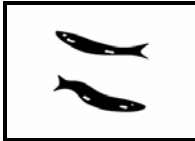


1 HERITAGE SPECIALIST REPORT

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1.1 Introduction

Coastal and Environmental Services (CES) in Grahamstown on behalf of Exxaro Resources Limited requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for the proposed construction of the Exxaro AlloyStream™ Manganese Plant to be located within the Coega Industrial Development Zone (IDZ) situated approximately 25kms from Port Elizabeth in the Eastern Cape Province of South Africa.

The Coega IDZ has been rezoned for industrial development and is currently being developed. Authorization for the change in land-use of the IDZ was granted by the Department of Environmental Affairs and Tourism (DEAT) and services for the development and operation of the site are currently being installed.

Two, approximately 15 ha alternative sites (Option 1 and Option 2) are proposed for construction of the Exxaro AlloyStream™ Manganese Plant within Zone 6 – the zone designated for heavy ferrous metal industries of the Coega IDZ. Both sites occupy the Aloes 220 farm.

The extent of the proposed development (about 15 ha) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999). The aim of this specialist study was therefore to locate and map archaeological heritage sites and remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

Consulting palaeontologist Dr John Almond has been commissioned to undertake a palaeontological desk top study of the entire 10 000 ha by Coega IDZ. Recommendations pertaining to possible mitigation actions arising out of the study will be made by Dr Almond. In addition, a separate desk-top palaeontological assessment has been conducted by Dr Almond on the two sites proposed for the Exxaro AlloyStream™ Manganese project (see Chapter 2 that follows) and will compliment this archaeological report.

1.2 Terms of Reference

Specialists were required to address issues raised by I&APs (see Appendix A) in their reports. In addition, the specific terms of reference for the archaeological heritage study were to:

- Determine the likelihood of archaeological remains of significance in the proposed site(s);
- Identify and map (where applicable) the location of any significant archaeological remains;
- Assess the sensitivity and significance of archaeological remains in the site(s); and
- Identify mitigatory measures to protect and maintain any valuable archaeological sites and remains that may exist within the proposed site(s).

1.3 The Affected Environment

Figure 1-1 and 1-2 indicate a locality map and aerial photograph respectively of the Option 1 and Option 2 sites proposed for establishment of the Exxaro AlloyStream™ Manganese Project.

The proposed Exxaro AlloyStream™ Manganese sites are both located in Zone 6 (specifically identified for ferrous metal industries) in the Coega IDZ, about 25 kms outside of Port Elizabeth. These sites are situated north of the N2 on either side of the R102. Access to the sites is via a gravel road off the N2.

Figures 1-3 to 1-20 indicate the major characteristics of the proposed sites.

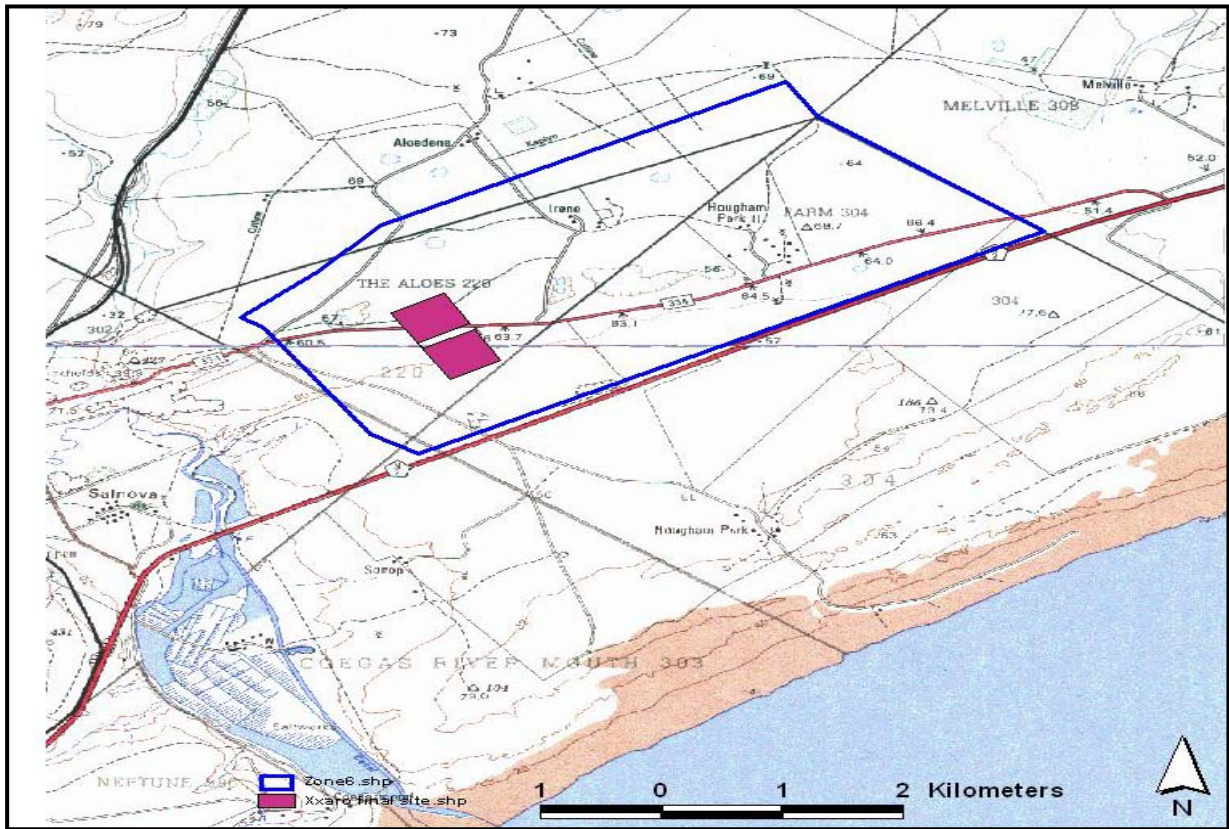


Figure 1-1: Locality map (3425 BA Port Elizabeth) indicating the proposed Exxaro AlloyStream™ Manganese Project sites.



Figure 1-2: Aerial photograph of the study area indicating the proposed Option 1 and Option 2 sites

The proposed site(s) and surrounding area has a sloping topography, but is generally flat. There are no significant landscape features such as hills or kopjes occurring on the sites. A strip of land alongside the western boundary of the property has recently been cleared, and there are some services already in place. The bulk of the sites, however, is covered in very dense thicket mosaic vegetation (Figure 1-20). There is an old borrow pit alongside the R102 (refer to Figure 1-12). Several small two-track roads intersect the sites (refer to Figure 1-7), and some even smaller animal tracks were also noted. The geology of the area includes a thin soil covering over a thick layer of calcrete. Some surface calcrete is visible in places sometimes covered with a scatter of quartzite cobbles and pebbles. A few trial pits have been excavated alongside the gravel road while a deep service trench has been excavated alongside the Option 1 site (refer to Figure 1-10). There are no buildings or structures present on the proposed sites.



Figure 1-3: Option 1 Site. View of the site facing north



Figure 1-4: Option 1 Site. View of the site facing north



Figure 1-5: Option 1 Site. View of the site facing south



Figure 1-6: Option 1 Site. View of the site facing north



Figure 1-7: Option 1 Site. View of the site facing west



Figure 1-8: Option 1 Site. View of the site facing north west



Figure 1-9: Option 1 Site. View of the site facing north west



Figure 1-10: Option 1 Site. View of the site facing south east



Figure 1-11: Option 1 site. View of the site facing south



Figure 1-12: Option 1 site. Borrow pit alongside R102



Figure 1-13: Option 1 and 2 sites. View facing South



Figure 1-14: Option 2 site. View of the site facing north



Figure 1-15: Option 2 site. View of the site facing north



Figure 1-16: Option 2 site. View of the site facing south



Figure 1-17: Option 2 site. View of the site facing south



Figure 1-18: Option 2 site. View of the site facing west



Figure 1-19: Option 2 site. View of the site facing east



Figure 1-20: Option 2 site. View of the site facing west

1.4 Study Approach

As previously stated (section 1-1 above), the extent of the proposed development falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999). Therefore, it was important to first establish exactly what legislative requirements applied that could guide the study (section 1.4.1 below), the methods that should be employed (section 1.4.2 below) as well as outlining the limitations and constraints under which this study was conducted (section 1.4.3 below).

1.4.1. Relevant Legislation

The following section provides a brief overview of the relevant legislation with regard to the archaeology of the proposed project.

1.4.1.1. The National Heritage Resources Act (Act No. 25 of 1999)

The National Heritage Resources (NHR) Act requires that “...any development or other activity which will change the character of a site exceeding 5 000m², or the rezoning or change of land use of a site exceeding 10 000 m², requires an archaeological impact assessment”

The relevant sections of the Act are briefly outlined below.

1.4.1.1.1. Archaeology (Section 35 (4))

Section 35 (4) of the NHR stipulates that no person may, without a permit issued by write in full (HWC), destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object.

1.4.1.1.2. Burial grounds and graves (Section 36 (3))

Section 36 (3) of the NHR stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or 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.

In line with the above-mentioned legislation, a heritage impact assessment had to be conducted for the proposed project. The methods employed to allow for collection of data relevant to this study are discussed in [section 1.4.2](#) below.

1.4.2. Methodology

During the archaeological study, a desktop study of work conducted in the Coega IDZ and surrounding areas was undertaken. This desktop study was supplemented with a ground survey of each of the proposed sites (Option 1 and Option 2). The site visit and assessment took place on the 18th August 2008. Archaeological remains were recorded using a Garmin Gecko 201 GPS unit set on map datum WGS 84.

In addition to the above, archaeologist Dr Johan Binneman from the Albany Museum in Grahamstown was also consulted.

1.4.3. Constraints and Limitations

Except for a narrow strip of recently cleared land in the western portion of the proposed sites, most of the site(s) is covered in very dense vegetation, resulting in low archaeological visibility.

1.5 Results and Discussion

1.5.1. Results of the Desktop Study

The Coega River was first mentioned by early travellers in 1752. The name Coega is of Khoekhoen origin and means 'seacow' or hippopotamus. In 1776, a community of displaced Khoekhoen herders were reported to be living on the Coega River and the estuary, caring for the stock of several Dutch farmers (Binneman, 2006). These were remnants of the Cochoqua, who had fled the Cape after their defeat in the second Khoekhoen-Dutch War one hundred years previously.

Coega Kop itself is shown on maps dating back to 1834, and is reported to have been used as a navigation beacon by sailing ships wishing to enter Port Elizabeth Harbour. The 'kop' has also been quarried since the 1920's by the South African Railways and Harbours for the development of the Port Elizabeth harbour (Webley, 2007). The salt pan behind Coega Kop (not the present locality of the salt works at the river estuary) was being mined for salt as early as the 1920's (Binneman, 2006).

According to Binneman (2006), an 1851 map which indicated the original road between Port Elizabeth and Grahamstown that crosses the Coega River, also revealed the presence of a 'Junction Post' on the crossing at the Coega River that was likely to represent one of a number of temporary earthen fortifications established between 1812 and 1819 to protect the eastern frontier. This post, in all likelihood, no longer exists.

There are historical structures within the Coega IDZ as well that are older than 60 years, which are protected by current heritage legislation. However, a 1996 survey indicated that these structures have been badly maintained or vandalised and the Eastern Cape branch of SAHRA confirmed that there are no conservation-worthy buildings within the proclaimed Coega IDZ (Binneman and Webley, 1996).

Early Stone Age (ESA), Middle Stone Age (MSA) as well as younger Later Stone Age (LSA) tools have been recorded in the gravels of old river terraces which line most of the Coega River and its estuary (Binneman and Webley, 1997). ESA handaxes have been collected from Coega Kop as well as from the banks, and the gravels from the river between the N2 and the salt works (Kaplan, 1993). These tools were mostly found spread over a wide area, in secondary, (i.e. disturbed) context and as a result have been rated as being low priority

sites (Webley, 2007).

Occurrences of fossil bone and MSA tools were also reported south of Coega Kop by Gess (1969). Some archaeological remains were found on the surface, but the bulk of the bone remains were found in limestone deposits between 1 and 1.5 m below the surface. The excavations (for lime) exposed a large number and variety of bones, teeth and horn cores from animals including warthog, leopard, hyena, rhinoceros and ten different antelope species. The association of stone tools and animal bones strongly suggested that they were the result of human activity. A radiocarbon date of greater than 37 000 years was obtained for the site (Gess, 1969).

One of South Africa's most important ESA finds and excavations was conducted a few kilometres west of Zone 13 (north west of Zone 6) at Coega, at Amanzi Springs (Deacon, 1970). In a series of spring deposits a large number of stone tools were found in situ, to a depth of about 3-4 metres. Remarkably, wood and seed material preserved in the spring deposits, possibly dating to between 250 000 to 800 000 years old, were also recovered at the time.

LSA shell middens (or ancient rubbish dumps) and the remains of at least 12 clay pots, stone, flakes as well as ostrich eggshell were also documented on the coast, west of the Coega River in the 1960's (Kaplan 1993; Rudner 1968).

More recently, older ESA and MSA tools and younger, LSA sites at the coast have been recorded within the Coega IDZ, in a series of specialist, Archaeological Impact Assessments (AIA's) prior to development activities commencing (Binneman 2006, 2004, 1999; Binneman and Webley 1997, 1996; Kaplan 2007, 2008; Webley 2007, 2006; Len van Schalkwyk pers. comm. 2007).

A survey of the Coega IDZ and the industrial harbour was undertaken in 1996 (Binneman and Webley, 1996). However, the study only focussed on the estuary and adjacent coastal region. The inland area was not surveyed due to the thick vegetation cover. According to Webley (2007), in 1997, Dr Jeanette Deacon (of the then National Monuments Council), in commenting on the above report, called for mandatory archaeological surveys for each proposed development activity in the Coega IDZ, as part of the EIA process.

A few flaked tools and quartzite stone cores were documented in a disturbed context during a survey for a proposed biomass plant in Zone 3 in Coega IDZ but were rated as having low local significance (Wadley, 2006).

Thirteen LSA shell middens were documented to the east of the Coega River Mouth during the course of a specialist AIA study. Six of the middens were later sampled and excavated by Binneman (1999) before the deep water harbour was constructed. Binneman (1999:8) noted that the 'Coega River Mouth shell middens were poor in size, depth of deposit, quality and quantity of food waste and cultural material'. Remnants of some of these middens were later recorded by Kaplan (2007) during a survey for a proposed gas-fired combined cycle gas turbine power plant located near the port of Ngqura.

Relatively large numbers of shell middens with pottery and scatters of stone artefacts were also documented about 3 kms east of the Coega River mouth during the course of a AIA for a proposed Chlor-alkali and salt plant (Webley and Gess, 2007), while LSA middens were documented at Schelmhoek and Hougham Park, about 2 kms inland from the coast, north of the above-mentioned salt plant (Binneman 1994).

Binneman (2006 and pers. comm. 2007) also reports that large numbers of shell middens, ceramic pot sherds (or shards) and other archaeological material, are situated between the Coega and Sunday's River Mouths. In addition, according to Binneman (pers. comm. 2007), unmarked human remains have also been found in the dunes along the coast.

Binneman (2006) also reported that fragments of decorated porcelain were recovered from near the mouth of the Coega River which may have washed up from a nearby 19th century shipwreck.

1.5.2. Findings of the Field Studies

As with previous studies undertaken in the Coega IDZ (in Zone 3, 6 and 13 specifically), scatters of stone tools were documented during the specialist archaeological study, but these are spread very thinly and unevenly over the surrounding landscape.

The bulk of the tools comprise unmodified Middle Stone Age (MSA) flakes and a few Early Stone Age (ESA) flaked cobbles/chunks and one large cobble core. A few Later Stone Age (LSA) artefacts were also documented. Most of the tools were found in the strip of cleared land alongside the gravel access road, while some MSA flake tools were found embedded in the surface of the calcrete and gravel road. One possible LSA scraper and one lower grindstone were also found lying on a surface bed of calcrete in the interior of Option 2, in the heavily vegetated portion. All the tools are in locally available quartzite.

The archaeological remains have been rated as having low local significance.

It should be noted that a 'few isolated stone tools' of MSA and LSA origin were also documented by Binneman (2006) during an archaeological survey of a proposed peaking power plant in Zone 13 situated north west of Zone 6, while Webley (2007) documented 'a few cores and pieces of flaked quartzite stone' randomly distributed during a survey for a proposed steel recycling plant in Zone 6 – immediately north west of the proposed sites for the Exxaro AlloyStream™ Manganese plant.

A recent study of the proposed 200 ha Kalagadi Manganese Smelter situated directly north and west of the proposed Exxaro sites, however, documented relatively large numbers of mainly MSA tools, as well as some LSA and ESA tools, such as retouched and utilized flakes, blades and cores, mostly in quartzite, but also some in silcrete and quartz (Kaplan, 2008).

The above finds were all located in a disturbed and secondary context and are rated as being low priority sites.

It is important to note that in addition to the above, some fossil shell (White Sand Mussel and small Venus clams) were also found embedded in a small chunk of weathered calcrete in the access road alongside the Option 2 site. These finds have been communicated to consulting palaeontologist, Dr John Almond.

1.6 Evaluation of Impacts

The Phase 1 Archaeological Impact Assessment for the proposed Exxaro AlloyStream™ Manganese Project has identified no significant impacts to important pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

Previous specialist studies undertaken in Zones 3, 6 and 13 at Coega have shown that stone tools do occur in the heavily vegetated areas, but that these are spread quite thinly and unevenly over the surrounding landscape and occur mostly in a disturbed context. The 'Risk' of uncovering any important archaeological during the construction phase, is therefore, unlikely to occur. No evidence of any factory or workshop site, or the result of any human settlement was identified during the study. It is likely that the flaked tools found are not in primary context, but have been moved around as a result of past fluvial (or river activity). Unmarked human burials may, however, be uncovered or exposed during earthmoving operations.

Table 1-1 below presents an assessment of the archaeological impacts of the proposed project.

Table 1-1: Assessment of the archaeological impacts of the proposed project

Nature of the project	Intensity	Extent	Duration	Probability	Risk	Severity without mitigation	Severity with mitigation	Significance without mitigation	Significance with mitigation
Impact on Archaeological heritage	High	Local	Short	Probable	Unlikely to occur	Slight	Slight	Low	Low

1.7 Conclusions and Recommendations

1.7.1. Conclusions

The field study, including the desk top study, indicated that there are no potential (archaeological) risks associated with the proposed project. However, it is possible that unmarked human burials may possibly be uncovered or exposed during earthmoving operations and excavations. The following recommendations are therefore made (see section 1.7.2 below).

1.7.2. Recommendations for mitigation of impacts

With regard to the proposed Exxaro AlloyStream™ Manganese Plant in Zone 6 at Coega, the following recommendations are made:

- Should any layers of sub-surface archaeological remains be exposed or uncovered during earthworks, these should immediately be reported to the consulting archaeologist or the South African Heritage Resources Agency (Dr A. Jerardino 021 462 4502).
- Should any unmarked human remains be disturbed, exposed or uncovered during earthworks, these should immediately be reported to the South African Heritage Resources Agency (Dr A. Jerardino, or Ms C. Scheermeyer 021 462 4502).