A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED CONSTRUCTION OF A SEWAGE GRIT AND SLUDGE WASHING FACILITY AND ASSOCIATED INFRASTRUCTURE ADJACENT TO FISH WATER FLATS WASTE WATER TREATMENT WORKS, NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE PROVINCE.

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NOTE: An archaeological impact assessment is required as a requisite of the National Heritage Resources Act 25 of 1999, Section 38 (c)(i):

(c) any development or other activity which will change the character of the site –
(i) exceeding 5 000 m^2 in extent

This report follows the minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA) and the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) for compiling a Phase 1 Archaeological Impact Assessment. (See Appendix A for further heritage legislation)

1. EXECUTIVE SUMMARY

1.1. Purpose of the Study

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the proposed construction of a sewage grit and sludge washing facility and associated infrastructure adjacent to Fish Water Flats Waste Water Treatment Works (WWTW), Nelson Mandela Bay Municipality, Eastern Cape Province.

The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

1.2. Brief Summary of Findings

No archaeological heritage remains were observed within the proposed development area. The structural remains of a bucket washing area associated with the Fishwater Flats Waste Water Treatment Works (WWTW) is located at the entrance of the proposed site. The area is no longer used as the bucket washing facility is now situated within the waste water treatment work. It is most likely that the area is younger than 60 years as Fish Water Flats Waste Water Treatment Works was commissioned and built in 1976. The dilapidated foundations of other structures and building rubble were strewn across the proposed development area.

1.3. Recommendations

The overall area is considered as having a *low archaeological heritage significance*. Development may proceed as planned however the following recommendations must be considered during the course of development:

1. If concentrations of pre-colonial archaeological heritage material (such as shell middens and associated material) and/or human remains (including graves and burials) are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the archaeological / heritage site will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue.

2. A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

1.4. Declaration of Independence and Qualifications

This section confirms a declaration of independence that archaeological heritage specialist, Ms Celeste Booth, has no financial or any other personal interests in the project for the proposed construction of a grit washing facility and associated infrastructure adjacent to Fish Water Flats Waste Water Treatment Works, Nelson Mandela Bay Municipality, Eastern Cape Province.

Ms Celeste Booth was appointed on a strictly professional basis to conduct a Phase 1 Archaeological Impact Assessment in line with the South African national heritage legislation, the National Heritage Resources Act 25 of 1999 (NHRA 25 of 1999) and in response to the recommendations provided by the Department of Environmental Affairs and according to the environmental impact assessment regulations.

Ms Celeste Booth (BSc Honours: Archaeology) is an archaeologist who has had nine years of full time experience in Cultural Resource Management in the Eastern Cape and sections of the Northern Cape and Western Cape. Ms Booth has conducted several Archaeological Desktop Studies and Phase 1 Archaeological Impact Assessments within

the Eastern Cape and in the Karoo region across the Eastern Cape, Northern Cape and Western Cape.

2. BACKGROUND INFORMATION

2.1. Type of Development

(from 'Project Description' extract provided by GIBB)

The Nelson Mandela Bay Municipality (NMBM) and various contractors undertake maintenance and cleaning operations on sewage pump stations, sewer lines and inlet works at waste water treatment works. These activities generate sewage grit and sludge. Sewerage grit is comprised of sand, gravel and other non-soluble heavy particles. Sewerage sludge is the softer semi-solid portion of sewerage that separates out from faster flowing liquid sewage. The NMBM lacks accurate records for the volumes of grit and sludge generated by these activities, but a preliminary investigation undertaken by Lukhozi Consulting Engineers (Lukhozi) in 2011 estimated that at least $30m^3$ of grit is generated in the NMBM daily. This figure does not take into consideration sludge originating from septic tanks. It is anticipated that the total grit available for treatment is higher than $30m^3$ per day once all the service providers who are undertaking cleaning of sewage infrastructure are taken into consideration. Samples of the grit and sludge were taken in 2011 and sent to two independent laboratories for analysis. The grit and sludge was classified as hazardous waste.

The grit and sludge is currently disposed of at the NMBM's general waste landfill sites, Arlington and Koedoeskloof. The Department of Environmental Affairs (DEA) issued a waiver to the NMBM in 2011 which permitted the NMBM to dispose of grit at the municipal landfill sites on the condition that if has first been washed. At present there are no facilities available for the washing of large quantities of grit generated in the NMBM. The NMBM is therefore unable to comply with the waiver issued by DEA.

A feasibility assessment was undertaken in 2017 by Lukhozi to compare the option of disposing of grit at the privately owned Aloes waste management facility (hazardous waste site, H: H) versus the construction of a grit washing facility and disposal of grit at the NMBM's general landfill sites. A H:H hazardous waste landfill is a hazardous waste handfill that can receive wastes with a hazard rating of 1 and 2. An H: h hazardous waste site is a hazardous waste landfill that can receive wastes with a hazard rating of 3 and 4. The feasibility study calculated the costs of the two options over a 25 year period. The cost for the construction, maintenance and operation of a grit washing facility was calculated as R 87,204,651, while the cost for disposal of grit at the Aloes facility was calculated as R 162,197,343. The recommendation of the feasibility study was therefore that a grit treatment facility be constructed.

Facility and Associated Infrastructure Design

A treatment facility is proposed, which has capacity to treat approximately $55m^3$ of grit and sludge mixture per hour.

The grit washing facility will consist of the following components and infrastructure:

1. Grit washing facility

The grit washing facility will consist of:

- Roofed building with a weighbridge and access control point for weighing trucks entering the facility on a wide reinforced concrete structure
- Reinforced concrete structure into which the acceptance bin will be placed. The acceptance bin receives grit from trucks which is fed into the drum washer. The drum washer is a cylindrical drum which washes separates out larger grit particles.
- Roofed structure housing the grit washer classifier, Skip 1 and Skip 2, electrical control equipment, office, storage and ablutions
- Undercover area for the storage of skips

The mechanical and electrical equipment required will consist of:

- Entry and exit weighbridges, with associated electronic sensors and control equipment.
- Acceptance bin (ROSF 7), drum washer (ROSF 9), sump pump, grit washer classifier (ROSF 4) mechanical equipment and associated electrical motor control centre, and cabling.
- Ventilation for the main structure.
- Area lighting and general internal power points, lighting, and electrical equipment.
- Pumping equipment including all controls and electrical equipment for the treated effluent supply consisting of two pumps. One pump for the treatment process and one pump for washing of vehicles and collection of treated effluent.

2. Road widening and constructing an access road

A Traffic Impact Assessment (TIA) was undertaken in September 2017 by Engineering and Advice Services to determine how developing such a facility at the proposed location would impact the traffic along John Tallant Road and Grahamstown Road. The TIA recommended that the existing four lane John Tallant Road cross-section be extended to Grahamstown Road to prevent delay caused by vehicles entering the facility to eastbound traffic on John Tallant Road. Thus upgrades to the John Tallant / Grahamstown Road intersection have been proposed as part of this project. Refer to layout plans in Appendix A.

The facility will require the following roadworks

- An access road from John Tallant Road to the weighbridge (7 m wide, 75 m long), made of concrete block paving.
- Widening of the eastern side of John Tallant Road by the addition of two extra lanes (7.4 m wide and 110 m long) from the Grahamstown Road intersection to the entrance to Fish Water Flats Waste Water Treatment Works.
- The extension of the existing culvert beneath John Tallant Road to the east by approximately 10m to accommodate the additional lanes.
- Construction of a slip lane 14 m wide (at the widest point) on the north-east of the intersection and a slip lane 25 m wide (at the widest point) south-east of the intersection.
- Development of three vehicle rest bays near to the intersection (each 4 m wide and 40 m long).
- The western side of John Tallant Road also requires upgrades in the future and could potentially be included in the contract for the development of this facility.

3. Stormwater Management

The stormwater originating from the area where trucks offload the sludge and grit into the acceptance bin is anticipated to be contaminated with some spillage of waste water. The affected area is small (10m x 20m) and roofed, thus the quantity of stormwater runoff from this area will not be large and it will be diverted into the municipal sewer.

The stormwater originating from the remainder of the access road and hardstand areas is anticipated to be uncontaminated. The road and hardstand areas will be designed to allow for overland flow of stormwater with multiple discharge points in order to minimise the concentration of stormwater runoff.

To protect the main structure and equipment of the facility against heavy rainfall and floods, the treatment facility will be constructed at a height above the 1:50 year flood level.

4. Treated Effluent Supply

The treatment facility will use treated effluent from the Fish Water Flats waste water treatment works (WWTW) to wash the grit and sludge. The treated effluent demand for the treatment process is approximately 120 kilolitres per day. There is also a need for treated effluent for flushing of delivery trucks and tankers as well as for collection of treated effluent for private use, the maximum demand for these is estimated at 1.5 mega litres per day.

The following infrastructure will be required to provide a supply pipeline for treated effluent:

- connection to the existing industrial outfall to the Paapenkuils canal.
- pump house containing two pumps.

- pipeline to connect the sump to the treatment facility.
- pipeline to connect wash hydrants and treated effluent collection points.

5. Potable Water Supply

Potable water will be required at the facility for general domestic use and ablutions. The following infrastructure will be required. The facility will require a water connection with a water meter for potable water for general domestic use for ablutions.

6. Sewer Connection

The facility will require the following sewage connections:

- sewage pipe and connection to the Kwazakhele outfall sewer for ablutions.
- sewage pipe and connection to the Kwazakhele outfall sewer for wastewater discharged from the treatment facility, with a maximum discharge rate of 16 l/s.

7. Fencing

The facility will require approximately 400 m of 2.1 m high, high security fencing around the entire perimeter, the fencing will be either ClearVu, BetaFence or similar. The fence will not extend to the eastern boundary. A 25m corridor will be left unfenced to allow access to the existing pipelines in this corridor for future.

2.2. Applicant

Nelson Mandela Bay Municipality

2.3. Environmental Assessment Practitoner (EAP)

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2.4. Terms of reference

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the proposed construction of a grit washing facility and associated infrastructure adjacent to Fish Water Flats Waste Water Treatment Works, Nelson Mandela Bay Municipality, Eastern Cape Province.

The survey was conducted to:

- Identify and map all heritage resources in the area affected;
- Assess of the significance of such resources in terms of the heritage assessment criteria;
- Assess the impact of development on such heritage resources;
- Evaluate the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- Make recommendations to minimize possible damage to the archaeological heritage.

3. ARCHAEOLOGICAL BACKGROUND

Little systematic archaeological research has been conducted within the immediate research area. Most of the archaeological information generated on the area has occurred during archaeological impact assessments and surveys.

Several relevant archaeological and heritage impact assessments have been conducted within the immediate area and wider region. These impact assessments have identified several Early, Middle, and Later Stone Age artefact scatters and sites as well as evidence of Khoekhoen pastoralist occupation and/or interaction by the presence of broken earthenware pot sherds and associated material culture and settlement patterns.

3.1. Early Stone Age (ESA) - 1.5 million to 250 000 years ago

The Early 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 Olduwan Industry originating from stone artefacts recorded at Olduvai Gorge, Tanzania. The Acheulian Industry, the predominant southern African Early Stone Age Industry, replaced the Olduwan Industry 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 (mya) but have been reported from a wide range of areas, from South Africa to northern Europe and from India to the Iberian coast. The end products were similar across the geographical and chronological distribution of the Acheulian techno-complex: large flakes that were suitable in size and morphology for the production of handaxes and cleavers perfectly suited to the available raw materials (Sharon 2009).

One of the most well-known Early Stone Age sites in southern Africa is Amanzi Springs (Deacon 1970), situated about 10 km north-east of Uitenhage. The site is situated on a north-facing hill overlooking the Coega River. The earliest reference to the spring was

made by an early traveller, Barrow (1801). FitzPatrick first reported stone artefacts in the area in 1924. Ray Inskeep (Inskeep 1965) conducted a small-scale excavation of the site in 1963. It was only in 1964 and 1965 that large scale excavations were conducted by Hilary Deacon. In a series of spring deposits a large number of stone tools were found *in situ* to a depth of 3-4 m. Wood and seed material preserved remarkably very well within the spring deposits, and possibly date to between 800 000 to 250 000 years old.

Other Early Stone Age sites that contained preserved bone and plant material include Wonderwerk Cave in the Northern Province, near Kimberly and Montagu Cave in the Western Cape, near the small town of Montagu (Mitchell 2007). Early Stone Age sites have also been reported in the foothills of the Sneeuberge Mountains (in Prins 2011).

The gravels of old river terraces which line most of the Coega River and estuary contain archaeological remains in the form of stone tools. Early Stone Age (ESA) (approximately 1.4 million – 250 000 years old) stone tools are found throughout the area. Large handaxes were reported from Coega Kop and were also collected from the banks and gravels of the Coega River as well as between the N2 national road and the salt works (Albany Museum collections).

3.2. Middle Stone Age (MSA) – 250 000 – 30 000 years ago

The Middle Stone Age 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 Middle Stone Age 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 50-80 cm below ground. Fossil bone may in rare cases be associated with Middle Stone Age 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 Middle Stone Age is distinguished from the Early Stone Age 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 facetted 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 Middle Stone Age stone artefacts: the size of tools are generally smaller, the range of raw materials include finer-grained rocks such as

silcrete, chalcedony, quartz 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 (*Nassarius kraussianus*) 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. Although Middle Stone Age artefacts occur throughout the Eastern Cape, the most well-known Middle Stone Age sites include the type-site for the Howiesons Poort stone tool industry, Howiesons Poort (HP) rock shelter, situated close to Grahamstown, and Klasies River Mouth Cave (KRM), situated along the Tsitsikamma coast. Middle Stone Age sites are located both at the coast and in the interior across southern Africa.

Middle Stone Age (MSA) (250 000 - 30 000 years ago) and Later Stone Age (LSA) (30 000 years ago to historical times) stone tool artefacts are also found in the gravels and along the banks of the Coega River. These stone artefacts, like the Earlier Stone Age handaxes are in secondary context with no other associated archaeological material.

Occurrences of fossil bone remains and Middle Stone Age stone tools were also reported south of Coega Kop (Gess 1969). The remains were found in the surface limestone during excavations, but the bulk of the bone remains were found some 1-1.5 metres below the surface. The excavations exposed a large number and variety of bones, teeth and horn corns strongly suggesting that they were deposited there by early humans. The bone remains included warthog, leopard, hyena, rhinoceros and ten different antelope species. A radiocarbon date of greater than 37 000 years was obtained for the site.

Occasional weathered / sand polished Middle Stone Age and Later Stone Age stone artefacts were documented along the western beach and adjacent dune fringe during a survey in 1994 (Binneman 1994 in Binneman 2010). The stone artefacts occurred randomly along the coastline and were manufactured on local quartzite cobbles and black hornfels.

3.3. Later Stone Age (LSA) – 30 000 years ago – recent (100 years ago)

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 Middle Stone Age to Later Stone Age; generally 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*, and in Europe, had already replaced *Homo neanderthalensis*.

The Later Stone Age 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 (20/18 000-14 000 ya), Wilton (8 000-the last 500 years) Industries and in between, the larger Albany/Oakhurst (14 000-8 000ya) and the Kabeljous (4 500-the last 500 years) Industries. Bored stones were 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 2 000 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 plantfoods from the veld. For those that lived at or close to the coast, marine shellfish and seals and other edible marine resources were available for 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.

The majority of hunter-gatherer archaeological sites found usually date from the past 10 000 years where San hunter-gatherers inhabited the landscape living in rock shelters and caves as well as on the open landscape. These latter sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone. The preservation of these sites is poor and it is not always possible to date them (Deacon and Deacon 1999). Caves and rock shelters, however, in most cases, provide a more substantial preservation record of pre-colonial human occupation.

Later Stone Age sites occur both at the coast (caves, rock shelters, open sites and shell middens) and in the interior (caves, rock shelters and open sites) across southern Africa. There are more than a few significant Later Stone Age sites in the Eastern Cape. The most popular are the type-sites for the above-mentioned stone artefact industries, namely Wilton (for the Wilton Industry), Melkhoutboom (for the Albany Industry), both rock shelters situated to the west of Grahamstown, and Kabeljous Rock Shelter (for the Kabeljous Industry) situated just north of Jeffreys Bay. Caves and rock shelters that

were occupied by the San during the Later Stone Age sometimes contain numerous paintings along the walls.

The majority of archaeological sites found in the area date from the past 10 000 years (called the Later Stone Age) and are associated with the campsites of San hunter-gatherers and Khoi pastoralists. These sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone. The preservation of these sites is poor and it is not always possible to date them Africa (Deacon & Deacon 1999).

A large number of shell middens were also situated east of Coega River Mouth. Several of the middens were sampled and excavated just before the harbour was constructed. Many middens, ceramic pot sherds (from Later Stone Age Khoekhoen pastoralist origin - last 2 000 years) and other archaeological material, are situated 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.

There are many San hunter-gatherers sites in the nearby Elandsberg and Groot Winterhoekberg Mountains. Here caves and rock shelters were occupied by the San during the Later Stone Age and contain paintings along the walls. The last San/KhoiSan group was killed by Commandos in the Groendal area in the 1880s.

3.4. Last 2 000 years – Khoekhoen Pastoralism

Until 2 000 years ago, hunter-gatherer communities traded, exchanged goods, encountered and interacted with other hunter-gatherer communities. From about 2 000 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 Khoekhoen pastoralists or herders entered southern Africa with domestic animals, namely fat-tailed sheep and goats, travelling through the south towards the coast. Khoekhoen pastoralist sites are often found close to the banks of large streams and rivers. 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.

The most significant Khoekhoen pastoralist sites in the Eastern Cape include Scott's Cave near Patensie (Deacon 1967), Goedgeloof shell midden along the St. Francis coast (Binneman 2007) and Oakleigh rock shelter near Queenstown (Derricourt 1977). Often, these archaeological sites are found close to the banks of large streams and rivers. It is much more difficult to locate Khoekhoen open sites, owing to their settlement pattern and lack of stone artefacts, makes evidence of occupation almost 'invisible'.

The most common archaeological sites along the nearby coast are shell middens (relatively large piles of marine shell) found usually concentrated opposite rocky coasts, but also along sandy beaches (people refer to these as 'Strandloper middens') (Rudner 1968).These were campsites of San hunter-gatherers, Khoi herders and KhoiSan peoples who lived along the immediate coast (up to 5 km) and collected marine foods. Mixed with the shell are other food remains, cultural material and often human remains are found in the middens. In general, middens date from the past 6 000 years. Also associated with middens are large stone floors which were probably used as cooking platforms (Binneman 2001, 2005).

3.5. Human Remains

It is 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 or construction activities for development. Several human remains have been rescued eroding out of the dunes along this coastline. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials.

The Albany Museum Database holds records of human remains that have been exposed and collected for conservation and curation within the wider region especially along the coastal areas. Cultural Resource Management practitioners whilst conducting archaeological heritage impact assessments have also recorded formal historical and contemporary cemeteries and informal burials within the wider region.

A human skull was donated to the Albany Museum by one of the managers of the nearby abalone farm (Binneman 2010).

3.6. Rock Art (Paintings and Engravings)

Rock art is generally associated with the Later Stone Age period mostly dating from the last 5 000 years to the historical period. It is difficult to accurately date the rock art without destructive practices. The southern African landscape is exceptionally rich in the distribution of rock art which is determined between paintings and engravings. Rock paintings occur on the walls of caves and rock shelters across southern Africa. Rock engravings, however, are generally distributed on the semi-arid central plateau, with most of the engravings found in the Orange-Vaal basin, the Karoo stretching from the Eastern Cape (Cradock area) into the Northern Cape as well as the Western Cape, and Namibia. At some sites both paintings and engravings occur in close proximity to one another especially in the Karoo and Northern Cape. The greatest concentrations of engravings occur on the andesite basement rocks and the intrusive Karoo dolerites, but sites are also found on about nine other rock types including dolomite, granite, gneiss, and in a few cases on sandstone (Morris 1988). Substantial research has also been

conducted in the Western Cape Karoo area around Beaufort West (Parkington 2008). Rock paintings are prolific in the inland mountainous regions situated north of the site.

There are several San hunter-gatherers sites in the Elandsberg and Groot Winterhoekberg Mountains, as well as within the Groendal area to the east and the Zuurberg Mountains to the north. Here caves and rock shelters were occupied by the San during the Later Stone Age and contain paintings along the walls.

The Albany Museum Database holds records of sites and collections of rock painting sites of the wider regions and there are several that that remain undocumented.

4. DESCRIPTION OF THE PROPERTY

4.1. Location data

The proposed location of the sewage grit and sludge washing facility is opposite the entrance of the Fish Water Flats WWTW on Erf 419, Swartkops. The facility will be accessed via the John Tallant Road. The centre of the site is located approximately at 33°52'58.80"S, 25°36'55.64"E. Road upgrades are proposed at the John Tallant / Grahamstown Road intersection, with the middle point being located at approximately 33°52'51.37"S, 25°36'53.30"E.

The site is located about 2.3 km south from the Swartkops River Mouth and within 1 km of the nearest coastline which would generally be regarded as part of the sensitive archaeological coastal zone. However, the area between the coastline and the proposed has been heavily developed and disturbed over time making it highly unlikely that any *in situ* coastal shell middens sites would be exposed during the course of the development.

4.2. Map

1:50 000 topographic map: 3325DC & DD 3425BA PORT ELIZABETH (Figure 1).

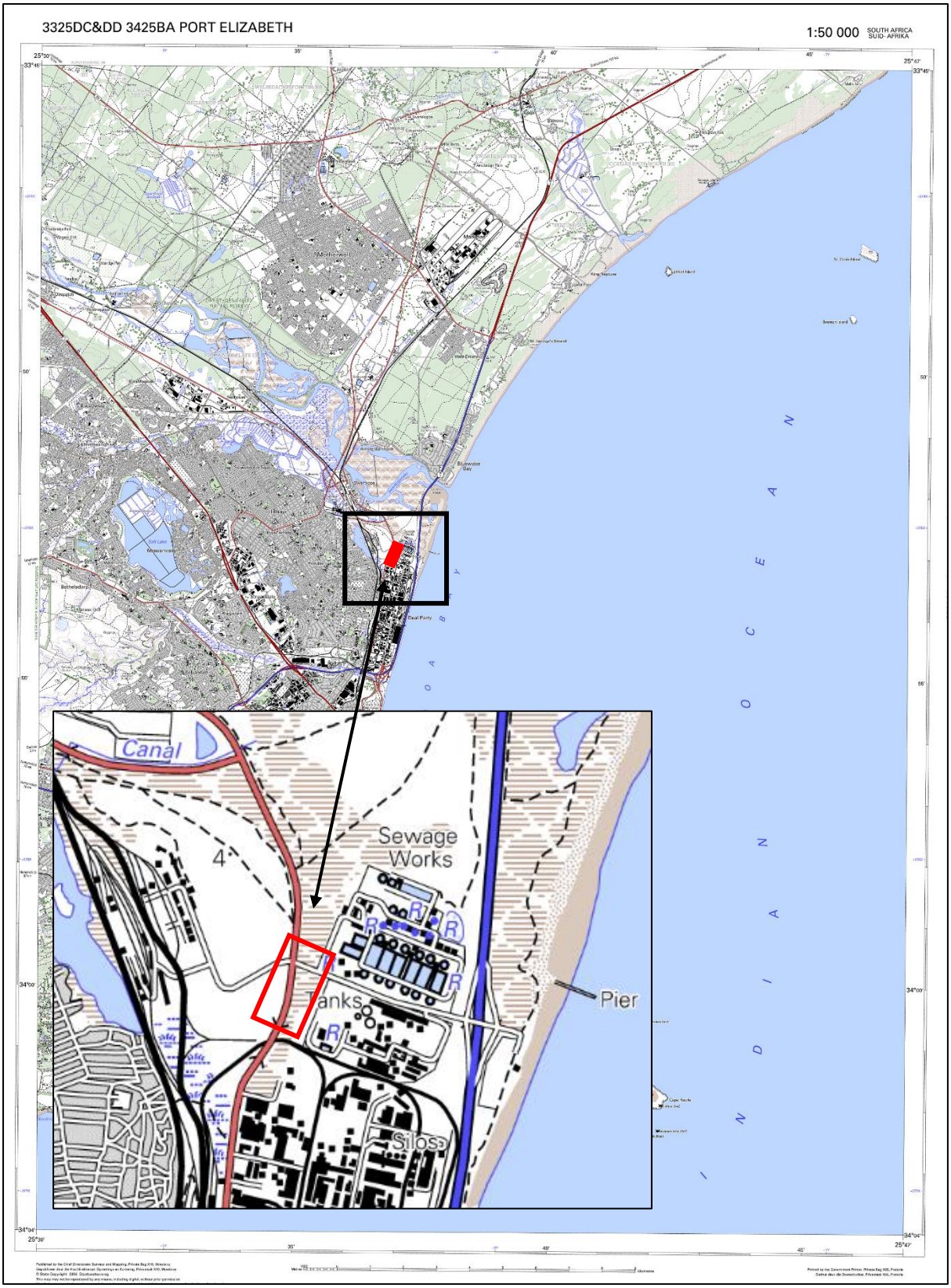

Figure 1. 1:50 000 topographic map 3325DC & DD 3425BA PORT ELIZABETH showing the location of the proposed grit washing facility and associated infrastructure.

Figure 2. Map showing the location of the proposed grit washing facility and associated infrastructure (courtesy of GIBB).

Figure 3. Google Earth generated map showing the location of the proposed grit washing facility and associated infrastructure.

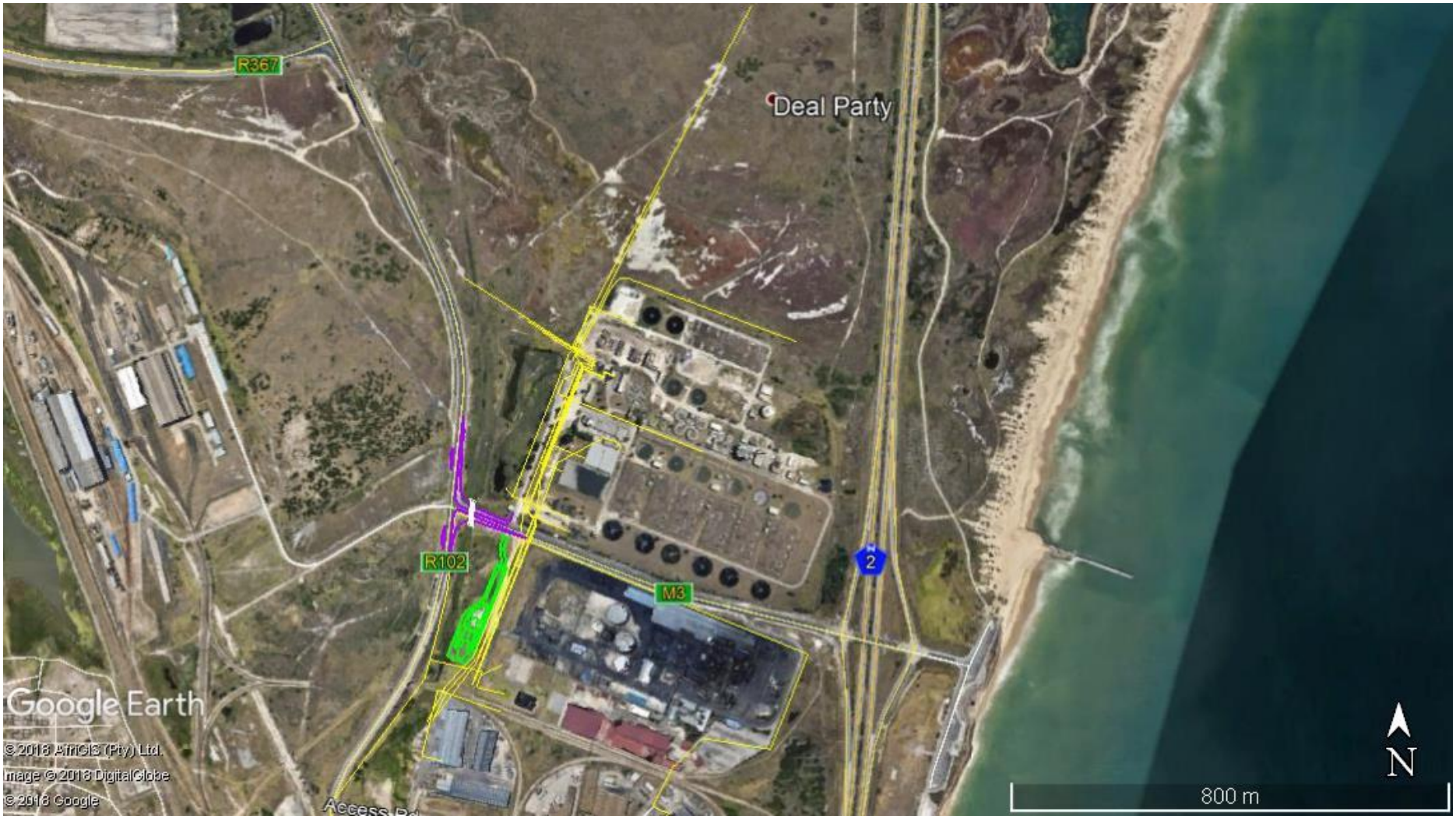

Figure 4. Aerial view showing the layout of the proposed grit washing facility (green area), associated infrastructure (blue area for road upgrade) and existing infrastructure (yellow area).

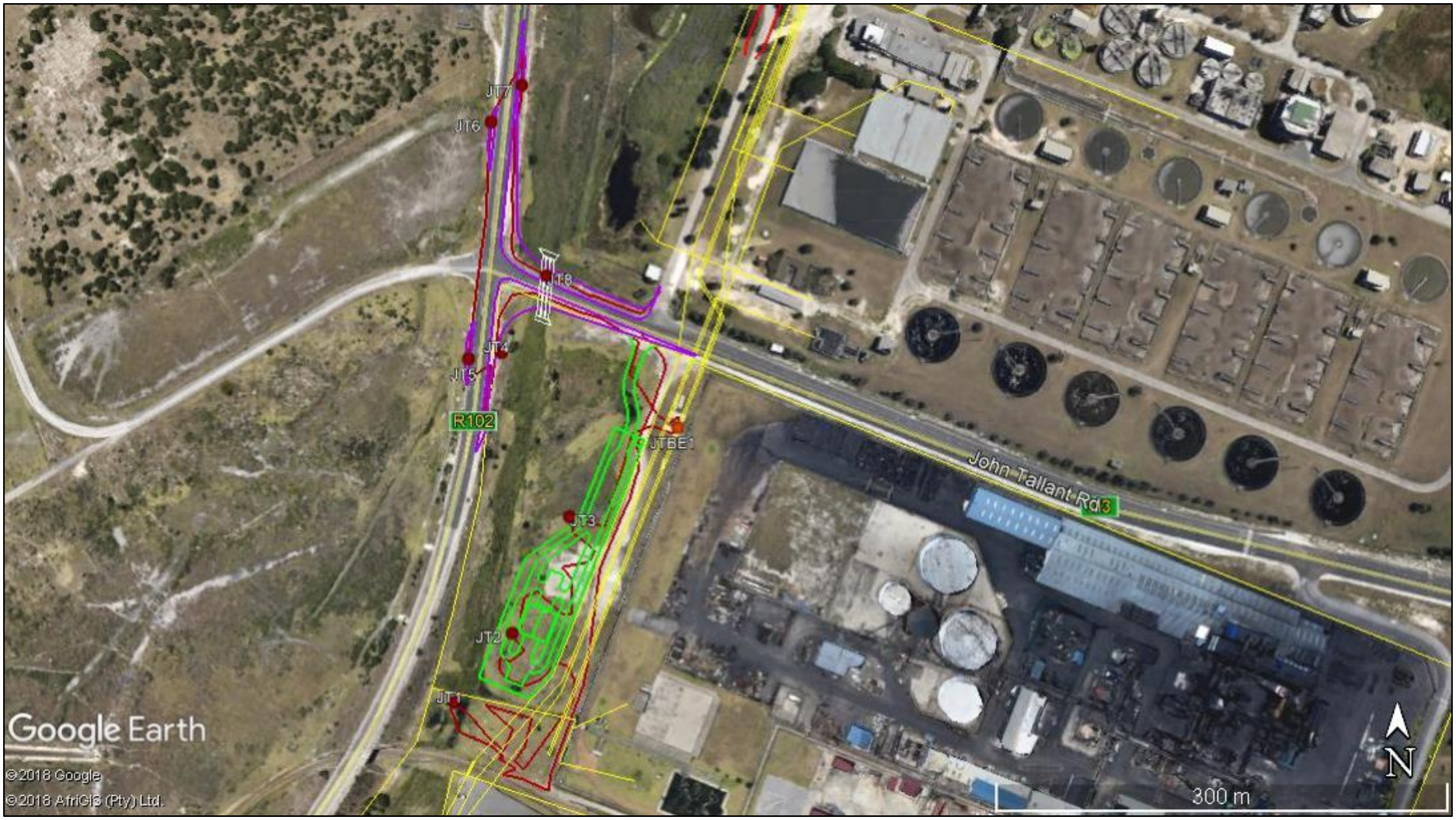

Figure 5. Aerial view showing the layout of the proposed grit washing facility, road upgrades and survey tracks and GPS coordinates.

Figure 6. Close-up aerial view showing the layout of the proposed grit washing facility, road upgrades and survey tracks and GPS coordinates.

5. ARCHAEOLOGICAL INVESTIGATION

5.1. Methodology

A brief overview of archaeological research within the wider region and relevant archaeological, heritage, and cultural impact assessments have been included as an overview to the possible archaeological, historical and other heritage resources that may occur within the proposed construction area.

The proposed development footprint and associated infrastructure, the areas for the road upgrades were surveyed on foot. Photographs and the GPS co-ordinates were taken using a Garmin Oregon 650. The relevant GPS coordinates have been plotted on Google Earth generated maps.

5.2. Results of the Archaeological Survey

The proposed development area has been heavily disturbed over time (Figures 7 – 12). The remains of structural foundations and building rubble indicates previous activities, that may have be associated with the railway line, running south of the development footprint in an east-west direction, as well as the Fishwater Flats Waste Water Treatment Works (WWTW). The construction of the railway line and Grahamstown and John Tallant Roads would also have disturbed portions of the site. Several manholes occur throughout the site which indicates deep surface excavation disturbances. The area has also been heavily backfilled from excavations and previous developments. The area has in past been used as a construction camp. A water channel runs north south through within the western half of the site, however, the development will not encroach on the delineated water channel course.

The structural remains of a bucket washing area associated with the Fishwater Flats Waste Water Treatment Works (WWTW) is located at along the access road near the entrance to the off John Tallant Road (JTBE1, Figure 6) (Figures 13-14). The area is no longer used as the bucket washing facility is now situated within the waste water treatment works. It is most likely that the structure is younger than 60 years as Fish Water Flats Waste Water Treatment Works was commissioned and built in 1976. There is no heritage significance associated with this structure.

No archaeological or material remains were located within the proposed development footprint and it is unlikely that any *in situ* archaeological heritage material will be exposed during the course of the development activities.

The proposed road upgrades will occur along the corners of John Tallant and Grahamstown Roads to ease traffic flow once the facility is in operation (Figures 15-19). No archaeological or material remains were identified within the proposed areas for the road upgrade. It is unlikely that any *in situ* archaeological heritage material will be exposed during the course of the road upgrade activities as the area has already been disturbed by the construction of the existing road.

Figure 7. View of building ruins strewn across the area south of the proposed facility boundary from the area JT1 (see Figure 6).

Figure 8. View of the general landscape of the proposed site facing north-west towards Grahamstown Road.

Figure 9. View of the general landscape of the proposed site facing north towards John Tallant Road.

Figure 10. View of the general landscape of the proposed site facing north towards John Tallant Road and the Fishwater Flats Waste Water Treatment Facility.

Figure 11. View of the general landscape of the proposed site facing north-east towards the premises of the neighbouring facility – Orion Carbon.

Figure 12. View of the general landscape of the proposed site facing south.

Figure 13. View of the disused bucket washing facility associated with the Fishwater Flats Waste Water Treatment Works (WWTW).

Figure 14. Alternative view of the disused bucket washing facility associated with the Fishwater Flats Waste Water Treatment Works (WWTW).

Figure 15. View of the south-eastern corner of Grahamstown Road and John Tallant Road that will be upgraded.

Figure 16. View of the bridge at the south-eastern corner of Grahamstown Road and John Tallant Road that will be upgraded.

Figure 17. View of the south-western corner of Grahamstown Road and John Tallant Road that will be upgraded.

Figure 18. View of the north-western corner of Grahamstown Road and John Tallant Road that will be upgraded.

Figure 19. View of the north-eastern corner of Grahamstown Road and John Tallant Road that will be upgraded.

6. COORDINATES AND SITES FOR THE PROPOSED CONSTRUCTION OF A SEWAGE GRIT AND SLUDGE WASHING FACILITY AND ASSOCIATED INFRASTRUCTURE ADJACENT TO FISH WATER FLATS WASTE WATER TREATMENT WORKS, NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE PROVINCE.

Table 1: Coordinates And Sites for the proposed construction of a sewage grit and sludge washing facility and associated infrastructure adjacent to Fish Water Flats Waste Water Treatment Works, Nelson Mandela Bay Municipality, Eastern Cape Province.

REFERENCE	DESCRIPTION	COORDINATE	HERITAGE GRADING
JT1	Area to the south of the proposed development footprint	33°53’00.66”S; 25°36’53.29”E	N/A
JT2	Proposed development area	33°52’59.17”S; 25°36’54.79”E	N/A
JT3	Proposed development area	33°52’56.07”S; 25°36’56.28”E	N/A

JT4	South-eastern corner of Grahamstown and John Tallant Roads proposed for upgrade.	33°52’53.13”S; 25°36’54.52”E	N/A
JT5	South-western corner of Grahamstown and John Tallant Roads proposed for upgrade.	33°52’53.26”S; 25°36’53.66”E	N/A
JT6	North-western corner of Grahamstown and John Tallant Roads proposed for upgrade.	33°52’48.16”S; 25°36’54.24”E	N/A
JT7	North-eastern corner of Grahamstown and John Tallant Roads proposed for upgrade.	33°52’47.38”S; 25°36’55.04”E	N/A
JT8	Proposed bridge upgrade	33°52’47.38”S; 25°36’55.04”E	N/A
TBE1	Historical bucket washing area	33°52’54.74”S; 25°36’59.09”E	N/A

7. RECOMMENDATIONS

The overall area is considered as having a *low archaeological heritage significance*. Development may proceed as planned however the following recommendations must be considered during the course of development:

1. If concentrations pre-colonial archaeological heritage material (such as shell middens and associated material) and/or human remains (including graves and burials) are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the archaeological / heritage site will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue.

2. A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

8. CONCLUSION

These proposed development area is situated within 1 km of the coastline which is general regarded as the archaeologically sensitive coastal zone which extends up to 5 km inland. However, owing to the industrially developed nature of the area it is unlikely that *in situ* coastal midden archaeological heritage remains and sites will be uncovered or disturbed during the course of the development activities. However, mitigation measures must be adhered to if concentrations of artefacts are identified between the surfaces up to a depth of about 80 cm.

Development may proceed as planned, however, the recommendations must be considered during the course of development. Any concentrations of archaeological material and human remains must be reported to relevant authorities is exposed.

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11. GENERAL REMARKS AND CONDITIONS

NOTE: This report is a phase 1 archaeological impact assessment (AIA) only and does not include or exempt other required specialist assessments as part of the heritage impact assessments (HIAs).

The National Heritage Resources Act (Act No. 25 of 1999, Section 35 [Brief Legislative Requirements]) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources including all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic, or technological value or significance are 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.

It must be emphasized that the conclusions and recommendations expressed in this phase 1 archaeological impact assessment (AIA) are based on the visibility of archaeological remains, features and, sites and may not reflect the true state of affairs. Many archaeological remains, features and, sites may be covered by soil and vegetation and will only be located once this has been removed. In the event of such archaeological heritage being uncovered (such as during any phase of construction

activities), archaeologists or the relevant heritage authority must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Resources Act No. 25 of 1999 (NHRA 25 of 1999).

Archaeological Specialist Reports (desktops and AIA's) will be assessed by the relevant heritage resources authority. The final comment/decision rests with the heritage resources authority that may confirm the recommendations in the archaeological specialist report and grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX A: HERITAGE LEGISLATIVE REQUIREMENTS

Sections 3, 34, 35, 36, 38, 48, 49 and 51 of the National Heritage Resources Act 25 of 1999 apply:

S3. National estate

(1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
(2) Without limiting the generality of subsection (1), the national estate may include –
(a) places, buildings, structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds, including –
(i) ancestral graves;
(ii) royal graves and graves of traditional leaders;
(iii) graves and victims of conflict;
(iv) graves of individuals designated by the Minister by notice in the Gazette;
(v) historical graves and cemeteries; and
(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including –
(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological specimens;
(ii) objects to which oral traditions are attached or which are associated with living heritage;
(iii) ethnographic art and objects;
(iv) military objects;
(v) objects of decorative or fine art;
(vi) objects of scientific or technological interest; and
(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act (Act No. 43 of 1996).

(3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of national estate if it has cultural significance or other special value because of –
(a) its importance in the community, or pattern of South Africa's history;
(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
(e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
(g) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
(i) sites of significance relating to the history of slavery in South Africa.

S34. Structures

(1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.
(2) Within three months of the refusal of the provincial heritage resources authority to issue a permit, consideration must be given to the protection of the place concerned in terms of one of the formal designations provided for in Part 1 of this Chapter.
(3) The provincial heritage resources authority may at its discretion, by notice in the Provincial Gazette, make an exemption from the requirements of subsection (1) within a defined geographical area, provided that it is satisfied that heritage resources falling into the defined area or category have been identified and adequately provided for in terms of the provisions of Part 1 of this Chapter.
(4) Should the provincial heritage resources authority believe it to be necessary if by, following a three-month notice period published in the Provincial Gazette, withdraw or amen a notice under subsection (3).

S35. Archaeology, palaeontology and meteorites

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and maritime cultural zone shall be the responsibility of SAHRA.
(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collation policy acceptable to the heritage resources authority and may in doing so establish such terms and conditions as it sees fit for the conservation of such objects.
(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority or museum, which must immediately notify such heritage resources authority.
(4) No person may, without a permit issued by the responsible heritage resources authority—
    (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
    (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
    (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
    (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

(5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and not heritage resources management procedure in terms of section 38 has been followed, it may –
    (a) Serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
    (b) Carry out and investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
    (c) If mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and
    (d) Recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.

(5) The responsible heritage resources authority may, after consultation with the owner of the land on which archaeological or palaeontological site or a meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

(6)(a) Within a period of two years from the commencement of this Act, any person in possession of any archaeological or palaeontological material or object or any meteorite which was acquired other than in terms of a permit issued in terms of this Act, equivalent provincial legislation or the National Monuments Act, 1969 (Act No. 28 of 1969), must lodge with the response heritage resources authority lists of such objects and other information prescribed period shall be deemed to have been recovered after the date on which this Act came into effect.

(b) Paragraph (a) does not apply to any public museum or university.

(c) The responsible authority may at its discretion, by notice in the Gazette or the Provincial Gazette, as the case may be, exempt any institution from the requirements of paragraph (a) subject to such conditions as may be specified in the notice, and may by similar notice withdraw or amen such exemption.

(8) and object or collection listed under subsection (7) –

(a) remains in the ownership of the possessor for the duration of his or her lifetime, and SAHRA must be notified who the successor is; and

(9) must be regularly monitored in accordance with regulations by the responsible heritage authority.

S36. Burial grounds and graves

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3)(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

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

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

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(3) SAHRA or provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority -

(a) Made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) Reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(5) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –

(a) Carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) If such grave is protected or is of significance, assist any person who or community which is the direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(6)(a) SAHRA must, over a period of five years from the commencement of this Act, submit to Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(c) The Minister must publish such lists as he or she approved in the Gazette.

(6) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(7) SAHRA must assists other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re0inter the remains of that person in a prominent place in the capital of the Republic.

S.37 Public monuments and memorials

Public monuments and memorials must, without the need to publish a notice to this effect, be protected in the same manner as places which are entered in a heritage register referred to in section 30.

S38. Heritage resources management

(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of the site –

(i) exceeding 5 000 m^2 in extent, or

(ii) involving three or more 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 resources authority;

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as 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.

(2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection (1) –

(a) if there is a reason to believe that heritage reso8rces will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or

(b) notify the person concerned that this section does not apply.

(3) 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 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 alternative; and
(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

(4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development, decide –

(a) whether or not the development may proceed;
(b) any limitations or conditions to be applied to the development;
(c) what the general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
(d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of development; and
(e) whether the appointment of specialists is required as a condition of approval of the proposal.

(5) A provincial heritage resources authority may not make any decision under subsection (4) with respect to any development with impacts on a heritage resource protected at national level unless it has consulted SAHRA.

(6) The applicant may appeal against the decision of the provincial heritage resources authority to the MEC, who –

(a) must consider the views of both parties; and
(b) may at his or her discretion –
(i) appoint a committee to undertake an independent review of the impact assessment report and the decision of the responsible heritage resources authority;
And
(ii) consult SAHRA; and
(c) must uphold, amend or overturn such decision.

(7) The provisions of this section do not apply to a development described in subsection (1) affecting any heritage resource formally protected by SAHRA unless the authority concerned decides otherwise.

(8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms in terms of the impact of such development of heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environmental Affairs and Tourism, or the Mineral Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regards to such development have been taken into account prior to the granting of the consent.

(9) The provincial heritage resources authority, with the approval of the MEC, may, by the notice in the Provincial Gazette, exempt from the requirements of this section any place specified in the notice.

(10) Any person who has complied with the decision of a provincial heritage resources authority in subsection (4) or of the MEC in terms of subsection (6) or other requirements referred to in subsection (8), must be exempted from compliance with all other protections in terms of this part, but any existing heritage agreements made in terms of section 42 continue to apply.

S48. Permits

(1) A heritage resources authority may prescribe the manner in which an application is made to it for any permit in terms of this Act and other requirements for permit applications, including –

(a) any particulars or information to be furnished in the application and any documents, drawings, plans, photographs and fees which should accompany the application;
(b) minimum qualifications and standards of practice required of persons making application for a permit to perform specified actions in relation to particular categories of protected heritage resources;

(c) standards and conditions for the excavation and curation of archaeological and palaeontological objects and material and meteorites recovered by authority of a permit;
(d) the conditions under which, bore a permit is issued, a financial deposit must be lodged and held in trust for the duration of the permit or such period as the heritage resources authority may specify, and conditions of forfeiture of such deposit;
(e) conditions for the temporary export and return of objects under section 32 or section 35;
(f) the submission of reports on work done under authority of a permit; and
(g) the responsibilities of the heritage resources authority regarding monitoring of work done under authority of a permit.

(2) On application by any person in the manner prescribed under subsection (1), a heritage resources authority may in its discretion issue to such person a permit to perform such actions at such time and subject to such terms, conditions and restrictions or directions as may be specified in the permit, including a condition –

(a) that the applicant give security in such form and such amount determined by the heritage resources authority concerned, having regard to the nature and extent of the work referred to in the permit, to ensure the satisfactory completion of such work or the curation of objects and material recovered during the course of the work; or
(b) providing for the recycling or deposit in a materials bank of historical building materials; or
(c) stipulating that design proposals be revised; or
(d) regarding the qualifications and expertise required to perform that actions for which the permit is issued.

(3) A heritage resources authority may at its discretion, in respect of any heritage resource protected by it in terms of the provisions of Chapter II, by notice in the Gazette or the Provincial Gazette, as the case may be, grant an exemption from the requirement to obtain a permit from it for such activities or class of activities by such persons or class of persons in such circumstances as are specified in the notice.

S49. Appeals

(1) Regulations by the Minister and the MEC must provide for a system of appeal to the SAHRA Council for a provincial heritage resources council against a decision of a committee or other delegated representative of SAHRA or a provincial heritage resources body authority.

(2) Anybody wishing to appeal against a decision of the SAHRA Council or the council of a provincial heritage resources authority must notify the Minister or MEC in writing within 30 days. The Minister or MEC, must have due regards to –

(a) the cultural significance of the heritage resources in question;
(b) heritage conservation principles; and
(c) any other relevant factor which is brought to its attention by the appellant or the heritage resources authority.

S51. Offences and penalties

(1) Notwithstanding the provisions of any other law, any person who contravenes –

(a) sections 27(18), 29(10), 32(13) OR 32(19) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 1 of the Schedule;
(b) sections 33(2), 35(4) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 2 of the Schedule;
(c) sections 28(3) or 34(1) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 3 of the Schedule;
(d) sections 27(22), 32(15), 35(6), or 44(3) is guilty of an offence and liable to a fine or imprisonment or both such fie and imprisonment as set out in item 4 of the Schedule;
(e) sections 27(23)(b), 32(17), 35(3) or 51(8) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 5 of the Schedule;
(f) sections 32(13), 32(16), 32(20), 35(7)(a), 44(2), 50(5) or 50(12) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 6 of the Schedule.

(2) The Minister, with the concurrence of the relevant MEC, may prescribe a penalty of a fine or of imprisonment for a period not exceeding six months for any contravention or failure to comply with regulations by heritage resources authorities or by-laws by local authorities.
(3) The Minister or the MEC, as the case may be, may make regulations in terms of which the magistrate of the district concerned may –

(a) levy admission of guild fines up to a maximum amount of R10 000 for infringement of the terms of this Act for which such heritage resources authority is responsible; and
(b) serve a notice upon a person who is contravening a specified provision of this Act or has not complied with the terms of a permit issued by such authority, imposing a daily fine of R50 for the duration of the contravention, subject to a maximum period of 365 days.

(4) The Minister may from time to time by regulation adjust the amounts referred to in subsection (3) in order to account for the effect of inflation.
(5) Any person who-

(a) fails to provide any information that is required to be given, whether or not on the request of a heritage resources authority, in terms of this Act;
(b) for the purpose of obtaining, whether for himself or herself or for any other person, any permit, consent or authority in terms of this Act, makes any statement or representation knowing it to be false or not knowing or believing it to be true;
(c) fails to comply with or perform any act contrary to the terms, conditions, restrictions or directions subject to which any permit, consent or authority has been issued to him or her in terms of this Act;
(d) obstructs the holder of a permit in terms of this Act in exercising a right granted to him or her by means of such a permit;
(e) damages, takes, or removes, or causes to be damaged, taken or removed from a place protected in terms of this Act any badge or sign erected by a heritage authority or a local authority under section 25(2)(j) or section 27(17), any interpretive display or any other property or thing.
(f) receives any badge, emblem or any other property or thing unlawfully taken or removed from a place protected in terms of this Act; and
(g) within the terms of this Act, commits or attempts to commit any other unlawful act, violates any prohibition or fails to perform any obligation imposed upon him or by its terms, or who counsels, procures, solicits or employs any other person to do so.

shall be guilty of an offence and upon conviction shall be liable to such maximum penalties, in the form of a fine or imprisonment or both such fine and such imprisonment, as shall be specified in the regulations under subsection (3).
(6) Any person who believes that there has been an infringement of any provision of this Act, may lay a charge with the South African Police Service or notify a heritage resources authority.
(7) A magistrate's court shall, notwithstanding the provisions of any other law, be competent to impose any penalty under this Act.
(8) When any person has been convicted of any contravention of this Act which has resulted in damage or to alteration of a protected heritage resource the court may –

(a) order such person to put right the result of the act of which he or she was guilty, in the manner so specified and within such period as may be so specified, and upon failure of such person to comply with the terms of such order, order such person to pay to the heritage resources authority responsible for the protection of such resource a sum equivalent to the cost of making good; or
(b) when it is of the opinion that such a person is not in a position to make good damage done to a heritage resources by virtue of the offender not being the owner or occupier of a heritage resources or for any other reason, or when it is advised by the heritage resources authority responsible for the protection of such resource that it is unrealistic or undesirable to require that the results of the act be made good, order such person to pay the heritage resources authority a sum equivalent to the cost of making good.

(9) In addition to other penalties, if the owner of a place has been convicted of an offence in terms of this Act involving the destruction of, or damage to, the place, the Minister on the advice of SAHRA or the MEC on the advice of a provincial heritage resources authority, may serve on the owner an order that no development of such place may be undertaken, except when making good the damage and maintaining the cultural value of the place, or for a period not exceeding 10 years specified in the order.

(10) Before making the order, the local authority and any person with a registered interest in the land must be given a reasonable period to make submissions on whether the order should be made and for how long.
(11) An order of no development under subsection (9) attaches to the land and is binding not only on the owner as at the date of the order, but also on any person who becomes an owner of the place while the order remains in force.
(12) The Minister on the advice of SAHRA, may reconsider an order of no development and may in writing amend or repeal such order.
(13) In any case involving vandalism, and whenever else a court deems it appropriate, community service involving conservation of heritage resources may be substituted for, or instituted in addition to, a fine or imprisonment.
(14) Where a court convicts a person of an offence in terms of this Act, it may order for forfeiture to SAHRA or the provincial heritage resources authority concerned, as the case may be, of a vehicle, craft, equipment or any other thing used or otherwise involved in the committing of the offence.
(15) A vehicle, craft, equipment or other thing forfeited under subsection (14) may be sold or otherwise disposed of as the heritage resources authority concerned deems fit.

APPENDIX B: GRADING SYSTEM

The National Heritage Resources Act 25 of 1999 stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act and the South African Heritage Resources Agency:

- National: This site is suggested to be considered of Grade 1 significance and should be nominated as such. Heritage resources with qualities so exceptional that they are of special national significance.
- Provincial: This site is suggested to be considered of Grade II significance and should be nominated as such. Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region
- Local: This site is suggested to be Grade IIIA significance. This site should be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised.
- Local: This site is suggested to be Grade IIIB significance. It could be mitigated and (part) retained as a heritage register site (High significance).
- 'General' Protection A (Field Rating IV A): This site should be mitigated before destruction (usually High/Medium significance).
- 'General' Protection B (Field Rating IV B): This site should be recorded before destruction (usually Medium significance).
- 'General' Protection C (Field Rating IV C): This site has been sufficiently recorded (in the Phase 1). It requires no further recording before destruction (usually Low significance).

APPENDIX C: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM COASTAL AND INLAND AREAS: guidelines and procedures for developers

1. Stone artefacts

Stone artefacts are the most common and identifiable precolonial artefacts occurring on the South Africa landscape. Early Stone Age, Middle Stone Age and Later Stone Age stone artefacts occur in various concentrations on the South Africa landscape. Stone artefacts are very commonly found occurring on flat floodplains in a mostly secondary or disturbed context. However, they can be also be found in an *in situ* or undisturbed context in areas where little human or animal impact happens such as open sites mostly near rocky outcrops, amongst boulders and caves.

These may be difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Early Stone Age (ESA) stone artefact
(1.5 million years ago – 250 000 years ago)

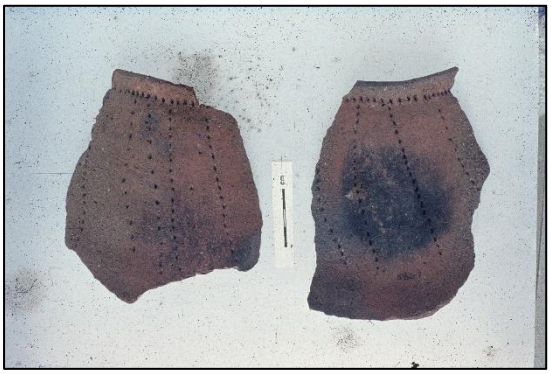
Middle Stone Age stone artefacts
(250 000 – 30 000 years ago)

Later Stone Age stone artefacts
(30 000 years ago – historical times)

2. Pottery scatters

Pottery scatters can be associated with either Khoekhoen pastoralists, the Nguni first farming communities (referred to as the South African Iron Age) or colonial settlement and can be dated to within the last 2 000 years which occur both at the coast and inland. Pottery associated with Bushmen / hunter-gatherers is generally thought to occur in the Karoo region. The most obvious difference between Khoekhoen and Nguni pottery are the decorations, shapes, sizes and wall thickness. Khoekhoen pottery is generally thinner than the thicker walled and robust Nguni pottery. Colonial ceramics ranges from earthenware, stoneware, porcelain and European glazed and unglazed ceramics.

Precolonial pottery and Colonial ceramics are more easily identifiable by the layman and should be reported.



Khoekhoen earthenware pottery (last 2 000 years)

Iron Age earthenware pottery (last 2 000 years)

3. Historical artefacts and features

These are easy to identify and include colonial artefacts (such as ceramics, glass, metal, etc.), foundations of buildings or other construction features and items from domestic and military activities associated with early travellers' encounters on the landscape and European settlement.

Example of a Fortified Structure (Fort Double Drift)

Ruin of stone packed dwelling

Glass artefacts

4. Shell middens (marine and freshwater)

Shell middens can be defined as an accumulation of marine or freshwater shell deposited by past human populations rather than the result of natural or animal activity. Marine shell middens occur all along the coast and may extend within 5 km of the coastline. This area is generally regarded as being archaeologically sensitive. The shells are concentrated in a specific locality above the high-water mark and frequently contain various edible and sometimes inedible marine shells, stone tools, pottery, bone (fish and animal) and occasionally also human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist. Freshwater shell middens occur along river banks and comprise freshwater shell, fish and animal bone, stone tools, pottery, and sometimes human remains.

Examples of the occurrence of coastal shell middens

5. Large stone features

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane.* They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

Examples of stone packed features

6. Graves, Burials and Human Skeletal material

Formal historical graves are easily identifiable as they are in most cases fenced off or marked with engraved headstones. Informal stone packed graves in several instances also occur within these fenced off areas.

It is 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 or construction activities for development. Several human remains have been rescued eroding out of the dunes along this coastline and dongas in inland areas. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials.

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

Exposed human remains eroding out a coastal shell midden.

Exposed human remains eroding out an inland donga

7. Identification of Precolonial and Historical Iron Age Occupation

7.1. Circular hollows / sunken soil: may indicate storage pits and possible hut floors.
7.2. Ash heaps / middens that contain cultural material and food waste.
7.3. Khaki green soils / dung accumulations that would indicate the kraal area.
7.4. Baked clay blocks that would indicate the remains of hut structures.
7.5. Pitted upper and lower grindstones that show evidence of utilisation. These artefacts may be whole or broken.
7.6. Thick walled decorated and undecorated pot sherds.
7.7. Iron slag / blow pipes (tuyeres) that would indicate iron working.
7.8. Metal artefacts and ornaments.