Heritage Impact Assessment: Ship Repair Facility, Port of Mossel Bay

Report prepared for

Nemai Consulting

On behalf of

Transnet National Ports Authority

2 October 2018

Version 1.2

Final Report

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Executive Summary

ACO Associates cc was appointed by Nemai Consulting, on behalf of Transnet National Ports Authority (TNPA) to undertake a heritage impact assessment (HIA) of the ship repair facility located within the Port of Mossel Bay in the Western Cape. The HIA forms part of a Basic Assessment, being undertaken by Nemai Consulting for TNPA for the proposed upgrade of the facility.

The ship repair facility was built in c.1919. The age of the facility and its machinery and issues related to maintenance lead to the recent downgrading of its operational capacity. As part of its implementation of Operation Phakisa, TNPA wishes to upgrade the facility to make it fully operational again and extend its working life.

In relation to those elements of the facility which are protected by the National Heritage Resources Act (No. 25 of 1999) (NHRA), the proposed upgrade will require the demolition and rebuilding of the submerged portion of the concrete slipway structure, the repair and upgrading of the slipway and side-slip areas above the waterline, the replacement of the wooden ship cradle and winch house machinery with new, and the demolition of the corrugated iron buildings which house the administration offices for the facility. The proposed upgrade will also require the demolition of the two wooden lead-in jetties, but these appear to be less than 60 years of age and are thus subject to the NHRA.

This HIA found that the pre-colonial landscape of Varkens Bay, in which the port is located, is highly modified and there no record of or evidence for archaeological sites or material at or in the vicinity of the ship repair facility. The construction in 1895 of the seawall which forms part of the ship repair facility resulted in the burial under fill of the dunes surrounding Varkens Bay and the current administration buildings were erected on this fill. There is thus some potential for the presence of pre-colonial archaeological sites or material under the existing administration buildings, but this potential is assessed to be very low.

In respect of palaeontological resources, SAHRA's palaeosensitivity map indicates that the port is located in an area of low to insignificant palaeontological sensitivity and this assessment found no evidence of any palaeontological occurrences at or in the immediate vicinity of the ship repair facility.

The built fabric, structures and features which together comprise the ship repair facility are, with the exception of the lead-in jetties, older than 60 years of age and protected by the NHRA. Their heritage significance is assessed to be mainly local and together they contribute to the evolving cultural landscape of the Port of Mossel Bay.

The proposed upgrade of the ship repair facility will have real and potential impacts on heritage resource types protected by the NHRA. This is particularly true if Alternative 2 (the total demolition and rebuilding of the slipway) is chosen and this assessment recommends, therefore, that the preferred, Alternative 1 (the repair and partial rebuilding of the existing slipway) is considered the best option with respect to the slipway.

The choice of Alternative 1 will help to balance the anticipated impacts of the proposed upgrade on the historic fabric against the long-term benefits to the survival of this historic facility and the operational health of the port that the upgrade will bring.

A permit to demolish and rebuild the submerged portion of the slipway will be needed from SAHRA and it is recommended that the required application for permission to repair and upgrade the slipway and side-slip areas above the waterline is also made to SAHRA. This will ensure that the works related to the marine aspects of the upgrade are dealt with by a single heritage agency. An application will need to be made to HWC for the demolition of the administration buildings.

No archaeological mitigation is recommended but in the event of human remains being uncovered during work, all activities in the vicinity must cease until a suitably qualified archaeologist and SAHRA and HWC have been notified, the significance of the material has been assessed and a decision has been taken as to how to deal with it.

A protocol for reporting palaeontological finds should be commissioned from a suitably qualified palaeontologist and implemented during all intrusive ground works.

It is recommended that the existing ship cradle and winch house machinery that is to be removed is recorded before removal and is then either offered to a suitable local museum or that provision is made for its retention and display at the ship repair facility.

Although the historical seawall will not be affected by the proposed upgrade care must be taken in both the design and construction of the new administration building and in work related to other elements of the upgrade that the wall is not compromised or damaged in any way.

Details of the Heritage Practitioner

This study has been undertaken by John Gribble BA Hons, MA (ASAPA) of ACO Associates CC, Archaeologists and Heritage Consultants.

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1 Introduction

ACO Associates cc was appointed by Nemai Consulting, on behalf of Transnet National Ports Authority (TNPA) to undertake a heritage impact assessment (HIA) of the ship repair facility located within the Port of Mossel Bay in the Western Cape.

The HIA forms part of a Basic Assessment, in terms of Government Notice No. R 982 of 4 December 2014 (as amended on 07 April 2017), being undertaken by Nemai Consulting for TNPA for the proposed upgrade of the facility.

The ship repair facility, which was originally built in c.1919, consists of:

- A concrete beam and pile, end haul type slipway;
- Two wooden lead-in jetties;
- A winch house;
- A wooden vessel cradle on rails on the slip;
- Two side slip yards; and
- An administration building, stores and workshops (**Figure 1**).

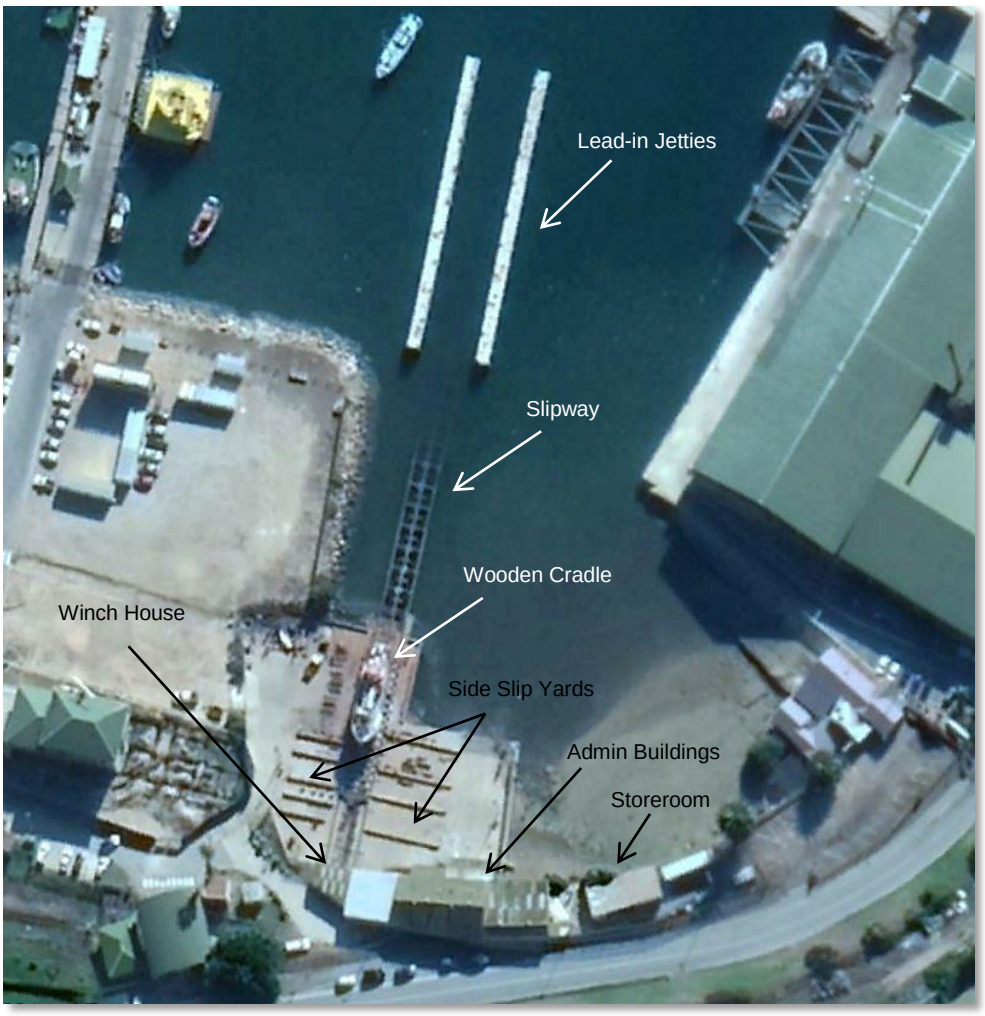

Figure 1: Ship repair facility in the Port of Mossel Bay showing the constituent elements (Source: Google Earth).

According to the Background Information Document (BID) (August 2017), a lack of maintenance and an incident in 2005 resulted in the safety concerns about the facility which saw the size of the vessel it can currently service reduced from 500 tons to 200 tons.

As part of Operation Phakisa, TNPA wishes to upgrade the ship repair facility within the Port of Mossel Bay so as to, inter alia:

- Provide a technologically modern facility that can provide ship repair services efficiently and safely;
- Increase the volume and size of vessels handled per year at the facility;
- Widen the range of ship repair and support services that can be offered by the Port.

1.1 Scope of Proposed Upgrade Work

The Terms of Reference for this HIA lists the scope of the proposed upgrade as follows:

- Demolish the existing wooden lead-in jetties;
- Install docking arms;
- Demolish and rebuild or repair existing slipway. If the latter option is chosen the underwater portion of the rail support beams for the cradle will be rebuilt and the above water portions will be repaired;
- Expand the surface of the sideslip by approximately 300 square meters;
- Replace existing wooden cradle with steel cradle;
- Demolish and rebuild winch house and associated buildings;
- Provide a stormwater management and recycling system;
- Install a 1MVA substation;
- Upgrade services for electrical, sewer, water (salt and fresh), compressed air, lighting, sideslip yards, working area surfacing, bunding; and
- Construction/rehabilitation of substation building, administration building and carpenters and millwright building.

1.2 Public Participation Process

Nemai Consulting commenced with the project announcement phase in August 2017 during which landowners and land occupiers adjacent to the site, key regulatory authorities, stakeholders and the public were informed of the proposed upgrade of the ship repair facility and asked to comment.

In respect of heritage resources, comments were received from the South African Heritage Resources Agency (SAHRA), Heritage Western Cape (HWC), the Department of Environmental Affairs and Development Planning: Western Cape Government, the Mossel Bay Local Municipality, Heritage Mossel Bay and the Great Brak River Museum. These comments have been actioned as appropriate in this HIA and are reproduced in Appendix C.

2 Terms of Reference

The Scoping Phase of the Basic Assessment process identified the following key issues and triggers in respect of heritage resources:

- The size of the development requires a Phase 1 Heritage Impact Assessment in terms of the National Heritage Resources Act (No. 25 of 1999) (NHRA); and

- The potential occurrence of heritage resources, graves and structures older than 60 years at or near the ship repair facility.

In its response to the BID, SAHRA indicated that because much of the infrastructure and fabric to be affected by the proposed upgrade is more than 60 years old and thus protected by the NHRA, a HIA should form part of the Basic Assessment. HWC requested submission of a Notice of Intent to Develop (NID), based on which they could comment on the proposals.

ACO Associates was therefore appointed to conduct a HIA which would:

- Identify and map all heritage resources, including archaeological and palaeontological sites, in or within 100m of the area affected and prepare a GIS-based heritage sensitivity map;
- Assess the significance of any identified resources in terms of the heritage assessment criteria as set out in the NHRA;
- Assess the impact of the proposed upgrade of the ship repair facility on such heritage resources; and
- Make recommendations with respect to identified heritage resources to be monitored/protected during works and/or measures to mitigate the impacts of proposed works on heritage resources.

This report meets the requirements of the NHRA and of Appendix 6 of Gazette Notice R 982 of 4 December 2014 (as amended).

3 Methodology

This HIA is principally desk-based and is informed by available archival and other documentary evidence. A range of potential sources were interrogated and information was sourced from, amongst others the Cape Archives Depot in Cape Town and the National Geo-Spatial Information Service of the Department of Rural Development and Land Reform in Mowbray.

A site visit was undertaken by ACO Associates on 16 August 2018 during which TNAP provided a comprehensive tour of the site and explanation of the ship repair facility and the proposed upgrade work.

4 Legislation

This HIA has been produced under the terms of the NHRA, which provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3(3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (defined in the Act as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge

systems and the holistic approach to nature, society and social relationships) (Section 2(d)(xxi)).

Prior to a development which exceeds the extents described in Section 38 of the NHRA, the person who intends to undertake the development must notify SAHRA or the relevant Provincial Heritage Resources Authority at the very earliest stages of initiating such a project of the location, nature and extent of the development. Section 38 (2)(a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted to the relevant heritage resources authority.

The infrastructure that comprises the ship repair facility and thus the extent of the proposed upgrade work is approximately 5,500m^2 in extent and therefore triggers Section 38(1)(c)(i) of the NHRA.

Although HWC is the Provincial Heritage Resources Authority in the Western Cape, its jurisdiction ends at the high water mark. SAHRA, the National Heritage Resources Authority is responsible for the management of heritage resources below the high water mark. Because the ship repair facility straddles this jurisdictional boundary the HIA will be submitted to both SAHRA and HWC for their comment on the portions relevant to each.

5 Historical Background

5.1 The Development of the Port of Mossel Bay

Mossel Bay can trace its maritime history back 1488, when on 3rd February of that year the Portuguese explorer, Bartholemeu Dias made landfall in the Munro Bay after rounding the Cape of Good Hope. Dias' small fleet put into what he named Aguada de São Bras for water and supplies, and in so doing became the first Europeans to set foot on South African soil (Axelson 1987).

In the following centuries mariners of all nationalities plying the route to and from the East used Mossel Bay, one of the few natural harbours on southern Africa's rugged coast, as a place of refuge where water could be found, supplies replenished and vessels repaired (Scheffler 1990).

In 1734 the Dutch governor of the Cape, Jan de la Fontaine, visited Mossel Bay and erected a possession stone, although the first permanent structure - the VOC's granary, which today houses the Bartholemeu Dias Museum - was only built in 1787 (**Figure 2**).

Mossel Bay's role as the port for the southern Cape and Little Karoo began in 1788 with the first shipment from the bay of wheat grown in the area (https://en.wikipedia.org/wiki/Mossel_Bay). Until the mid-nineteenth century, however, harbour facilities were non-existent and vessels using Mossel Bay simply anchored in either Munro or Varkens Bay in the lee of Cape St Blaize (**Figure 2** above). According to Scheffler (1990) the first moves to develop harbour infrastructure took place in 1843 when local businessman, Henry Ralph Harris was given colonial government approval to erect a jetty in Varkens Bay. Although there is some question as to whether Harris' jetty was built, he was one of those instrumental in having a Board of Commissioners for Improving the Port and Harbour of Mossel Bay appointed in 1848. In 1854 the local shipping and landing agent, Daniel Bland, paid for and built a small stone wharf on the eastern side of Varkens Bay. The

jetty was lengthened in 1858 and taken over and operated by the government in 1860 (Scheffler 1990).

Figure 2: Detail of a VOC map of Mossel Bay dated 1789. The buildings of the VOC post are shown overlooking Munro Bay. Varkens Bay, the site of the Port of Mossel Bay is the deep bay on the right of the image (Source: VOC Atlas).

The opening of Meiringspoort and the access to the Little Karoo and interior this allowed meant that Bland's jetty was soon too small for the increased maritime traffic visiting Mossel Bay and in July 1862 G.W. Pilkington started construction on a second, larger jetty – 122m long and 15m wide - at the end of Bland Street to the west (**Plate 1**). A harbour office was built the same year and in 1874 a stone-built Customs House, the Queen's Warehouse, was erected behind the harbour office (**Plate 2**). In 1884 the jetty was lengthened again and a new loading gantry, visible in **Plate 1** below, was installed (Scheffler 1990).

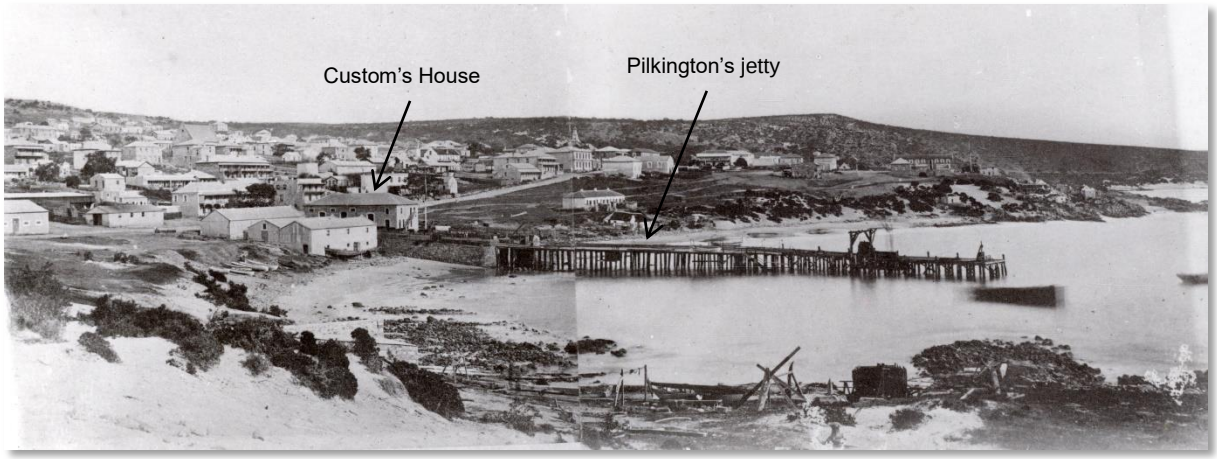

Plate 1: Pilkington's jetty c.1886. Bland's earlier jetty is off the photo to the right. Note the Custom's House at the entrance to the new jetty (Source: Cape Archive, AG 16352.4 and AG 16352.5)

Plate 2: Pilkington's jetty (c. 1880 and 1882) with the Custom's House and white-painted single-storey Harbour Office (with signal mast) both on the left (Source: Cape Archive, J2802).

In 1895 a seawall was constructed between Pilkington's jetty and a slipway belonging to Henry Harris on the far side of Varkens Bay, adjacent to Bland's jetty. The area behind the new wall was filled in and provided additional wharfage space for the harbour (**Plate 3**). The buildings associated with the ship repair facility that is the subject of this report would later be constructed on this landfill.

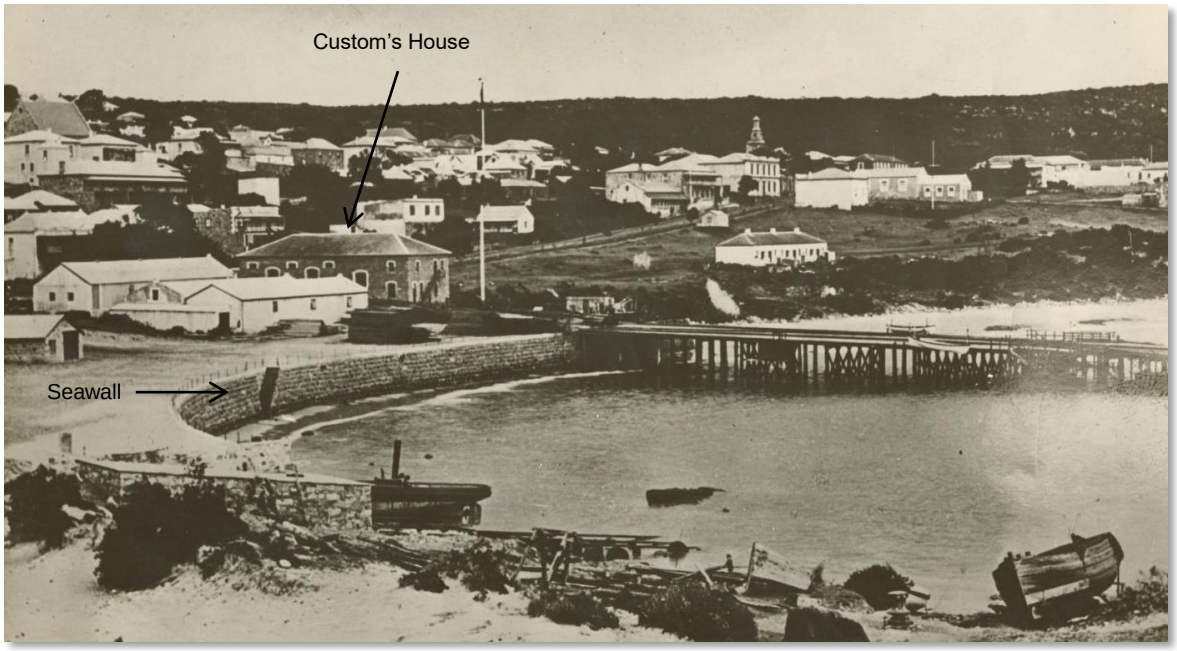

Plate 3: Mossel Bay harbour c. 1895-97 showing the newly constructed seawall between Harris' slipway where the steam launch is hauled out in the foreground and Pilkington's jetty. The buildings associated with the ship repair facility would later be constructed on the landfill behind the seawall (Source: Cape Archive, M719).

Between 1898 and 1902 the seaward side of the harbour was enclosed by the construction of a substantial stone breakwater parallel to the shoreline, which was initially proposed by harbour engineer John Coode in 1883 (Scheffler 1990). Coode proposed a breakwater "starting from the isolated rock forming the south-eastern portion of Vaark Bay … so as to afford protection to the Jetty, and enable landing and shipping to be carried out at all times and also to protect the only anchorage for the cargo boats which at present are moored in Vaark Bay, to the south of the Jetty" (PWD 2/5/277, Cape Archive). During the same period (1901) the storerooms shown on **Plate 3** above to the left of the Customs House were demolished and replaced by the large stone packing shed which still stands outside the harbour gate.

To cope with increased activity in the harbour, Pilkington's wood and stone jetty was replaced by the current No.1 or White Jetty below the Customs House and visible on **Plate 4** shortly before World War I (Du Plessis 1976).

5.2 The Development of the Ship Repair Facility

These developments together boosted the use of Mossel Bay harbour, giving impetus to the growth of the local fishing fleet and fleet of lighters which served the bigger vessels that anchored in the Bay, and providing safe berths for small coasting vessels within the port. This in turn created a need for the slipway which forms the heart of the ship repair facility and which, according to Du Plessis (1976), was built during World War I, commissioned in 1919 and could originally cater for craft up to 250 tons.

A number of photographs of the harbour from the same period show the early configuration of the lead-in jetties which consisted of four wooden dolphins to line vessels up to the slipway instead of the two long jetties that currently exist, (**Plate 4** and **Plate 5**). This configuration is shown in the South African Railways and Harbours plan of the harbour dated 1931 (**Figure 3**).

During subsequent harbour work in between 1969 and 1972, the slipway was lengthened and strengthened to handle vessels of up to 500 tons (Du Plessis 1976). It seems likely that it was at this stage the two lead-in jetties replaced the dolphins.

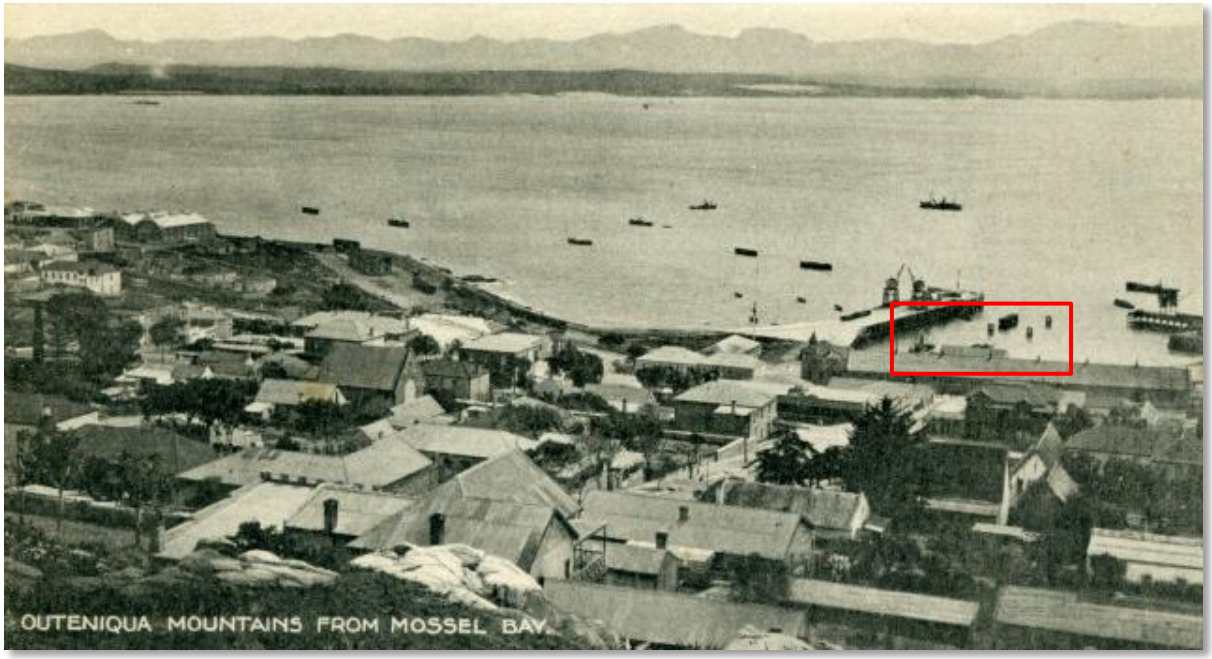

Plate 4: Postcard of Mossel Bay probably dating from the 1920s or 1930s. The ship repair facility is highlighted. Note the four wooden dolphins, a vessel on the slipway on the left and the roof of the current administration building at centre within the red square. By this time Pilkington's jetty had been replaced by the concrete No.1 jetty shown in this photograph (Source: http://www.hotelportaodiaz.co.za/home).

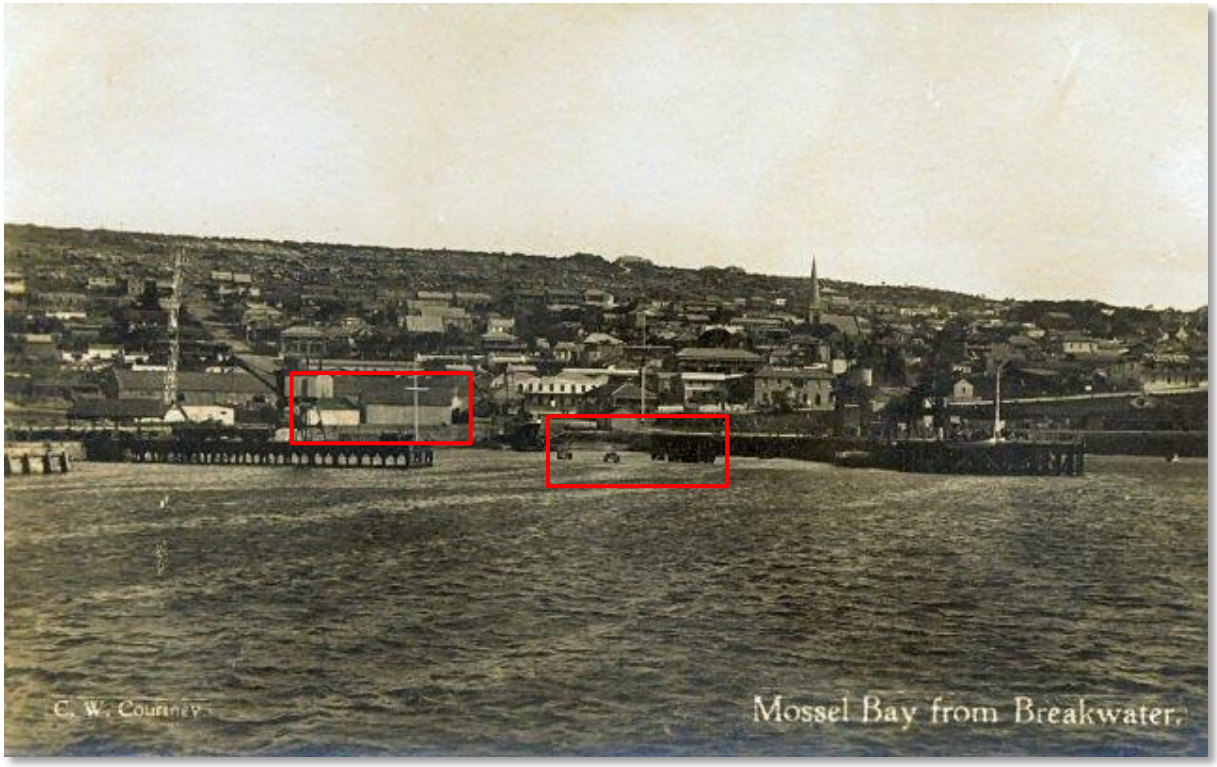

Plate 5: Postcard of Mossel Bay also dating from the 1920s or 1930s, looking towards the ship repair facility from the breakwater. The four wooden dolphins are highlighted at centre. A ship is hauled out on the slipway and the administration building and adjacent shed are highlighted at left (Source: http://www.ponto.co.za/old-mossel-bay-pics.html).

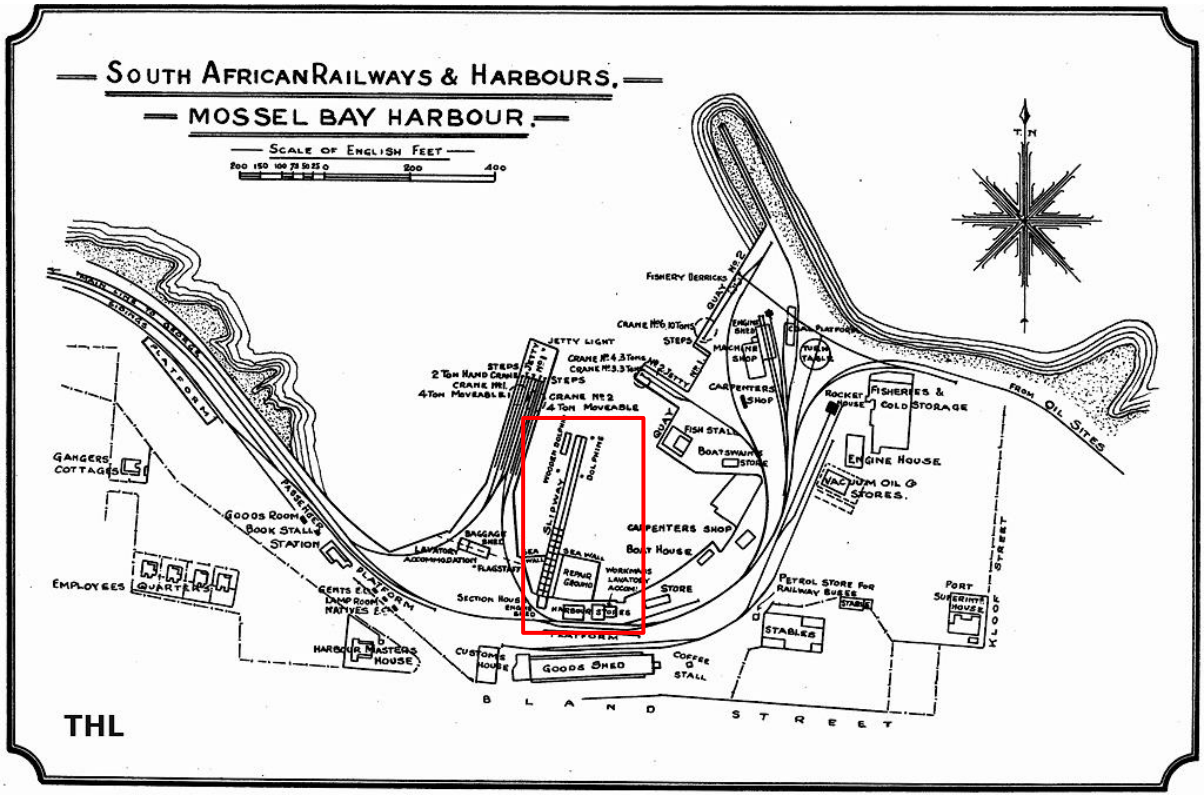

Figure 3: Plan of Mossel Bay Harbour from the General Managers' Annual Report for 1931 which shows the ship repair facility in place. Note the wooden dolphins in the position now occupied by the lead-in jetties (Source: https://sites.google.com/site/soulorailway/home/system-3-1/the-garden-route-mossel-bay-to-klipplaat).

6 Findings of the Assessment

6.1 Archaeology

The earliest recorded archaeological work in the Mossel Bay area was by George Leith in 1888 at Cape St Blaize Cave. Later also excavated by John Goodwin in 1932, this important site has yielded evidence of human occupation from about 200,000 years ago; a period covering most of the Middle Stone Age (MSA) and the whole of the Later Stone Age (LSA) (Leith 1898; Goodwin & Malan 1935, Marean & Nilssen 2002).

In 1997 Jonathan Kaplan and Peter Nilssen conducted an environmental impact assessment survey of the Pinnacle Point area, about 4km west of Mossel Bay (Kaplan 1997). This study identified 28 archaeological sites, 21 of which dated from the MSA and 15 of which were caves or shelters. Subsequent and ongoing archaeological research at Pinnacle Point by a multidisciplinary international team has revealed that this stretch of coastline is one of the richest sources of MSA archaeological remains anywhere in Africa. The area's abundant and well preserved caves, rock shelters and open air MSA sites contain some of the earliest evidence for the emergence of modern human behaviour (Marean & Nilssen 2002).

Although there is no evidence for this, it is likely that LSA shell middens were once present on the rocky points on either side of Varkens Bay, within which the harbour lies. It is also possible that archaeological sites were present in the dunes within and behind Varkens Bay which are visible on the left of **Plate 1** above.

6.2 Palaeontology

According to SAHRA's palaeosentivity map on SAHRIS, the Port of Mossel Bay and the ship repair facility are located in an area of low to insignificant palaeontological sensitivity. This assessment has found no evidence of any palaeontological occurrences at or in the immediate vicinity of the ship repair facility.

6.3 Historic Built Environment

6.3.1 Slipway

The slipway is a concrete beam structure comprising three longitudinal beams supported at regular intervals by transverse beams (**Plate 6** and **Plate 7**). The longitudinal beams run from the seaward end of the lead-in jetties up to the winch house, although between the retaining wall at the water's edge and the winch house only the top faces of the beams are visible in the surrounding concrete surface of the slipway. Each longitudinal beam supports one of the three rails on which the wooden ship cradle runs. The slipway structure has been strengthened over the years with the addition of new concrete beams (**Plate 7**)

According to the engineers' report in the TNPA Feasibility Study Report (March 2018) the concrete beams in the tidal zone are in poor condition and show signs of severe erosion. There is no visible damage or signs of distress on the exposed concrete faces of the beams above the waterline.

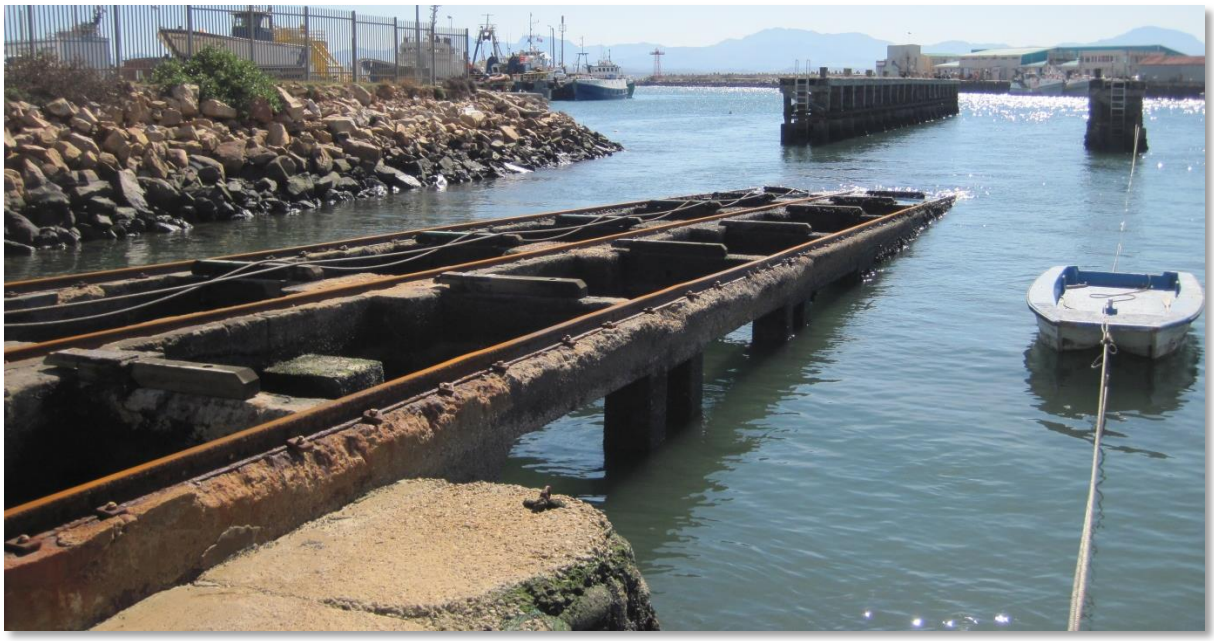

Plate 6: View of marine portion of the slipway structure. Note the condition of the concrete on the nearest longitudinal beam.

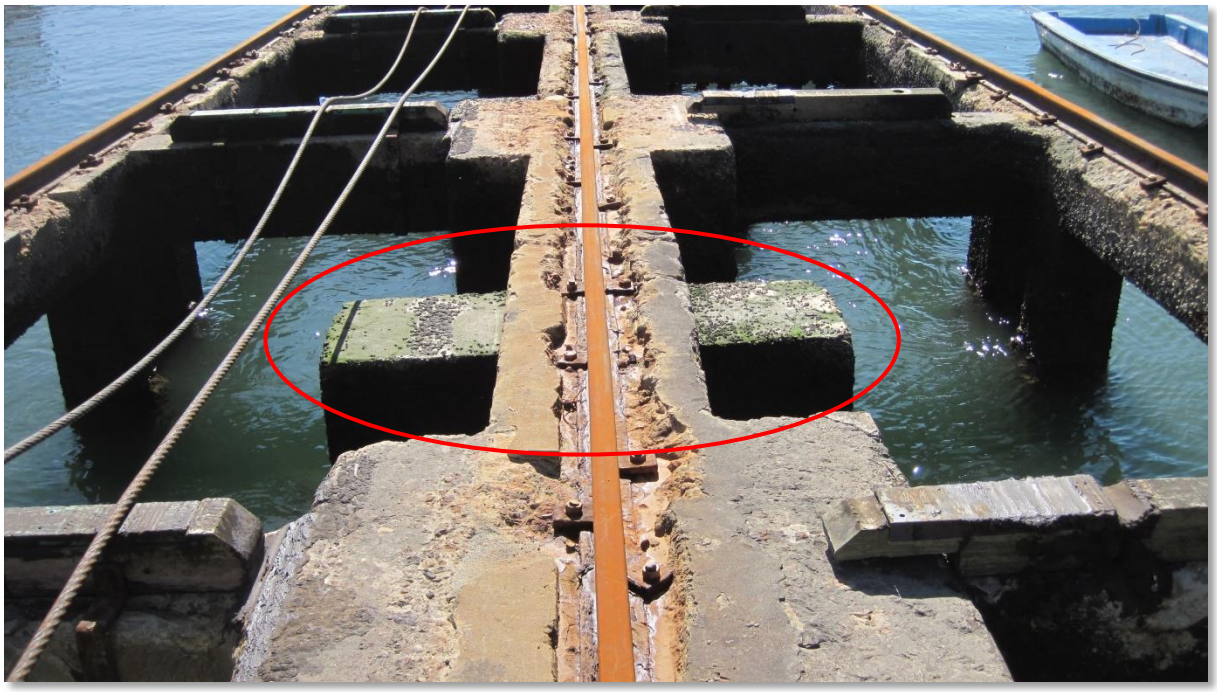

Plate 7: Slipway structure showing the three cradle rails. Note the more recent concrete support (marked in red).

6.3.2 Lead-in Jetties

The lead-in jetties for the ship repair facility are parallel wooden structures approximately 62m long and supported on wooden piles (**Plate 8**). The slipway runs structure runs between the two jetties.

According to TNPA, at some stage in the recent past the wooden piles of the jetties were encased in concrete to strengthen them (**Plate 9**).

Plate 8: Lead-in jetties looking seaward.

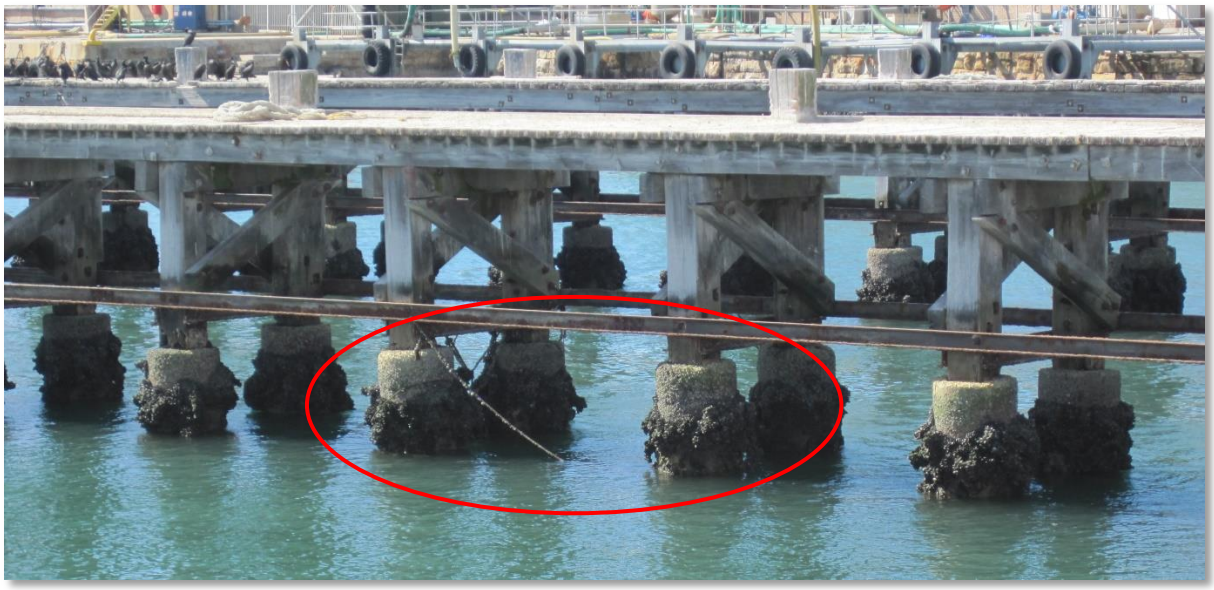

Plate 9: Concrete reinforcing around the wooden piles supporting the lead-in jetties.

A structural assessment of the lead-in jetties in the TNPA Feasibility Study Report (March 2018) indicates that they are in a poor condition with major deterioration of both the pile supports and superstructure. There is concern that any impact by vessels could result in a catastrophic structural failure of the jetties.

As indicated above, the evidence suggests that the current lead-in jetties were built between 1969 and 1972, replacing the four small wooden dolphins erected at the time of the construction of the slipway in c.1919. If this is the case, these jetties are less than 60 years of age and are thus not protected by the NHRA.

6.3.3 Cradle

The existing cradle is made from wood and is supported by a 3-way rail system. The centre rail and concrete support beam of the slipway structure picks up the vessel keel and is intended to bear the entire vessel load. The timber cradle, when fully extended into the water, nests between the two wooden lead-in jetties.

The cradle was made from wooden sections and bolted together with fish plates. It was originally 42m long but had a section removed around 10 years ago, reducing its effective length to 35m.

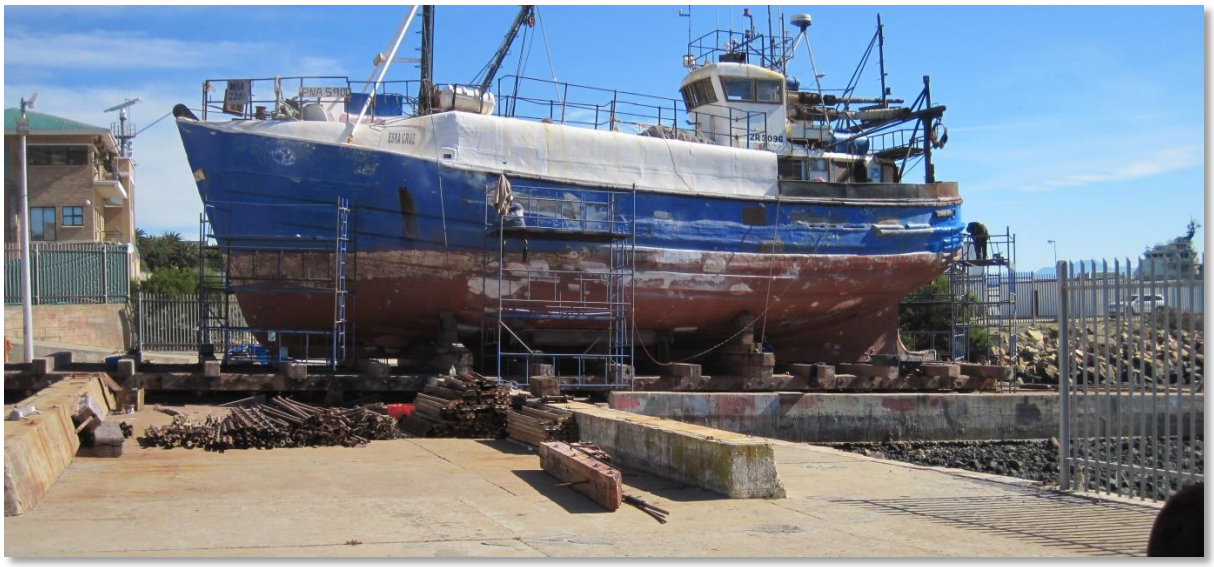

Plate 10: Side view of a fishing vessel on the slipway cradle with one of the sideslip areas in the foreground.

Plate 11: Front view of the slipway cradle with both sideslip areas visible.

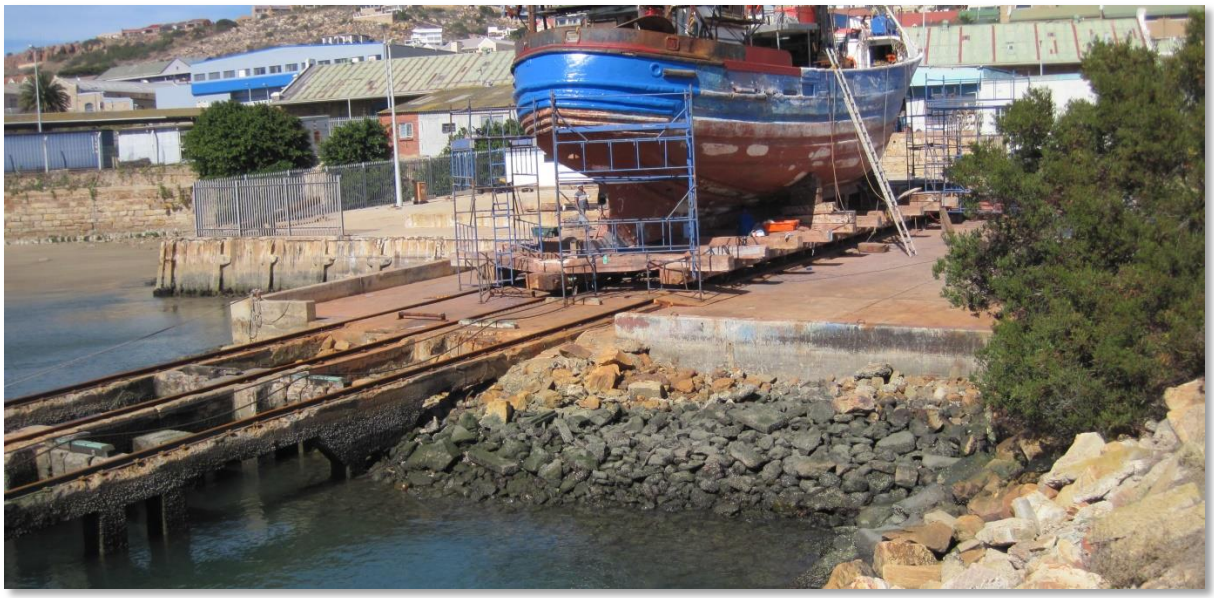

Plate 12: View of the seaward end of the slipway cradle. The portion of the cradle removed c.10 years ago was taken from this end of the structure.

6.3.4 Sideslip Areas

The slipway was originally designed to accommodate side slipping, where vessels are brought to land on the main cradle and then shifted of the main cradle to either side of it.

Some of the side slipping infrastructure, like the upstanding concrete ribs, is still present although, according to TNPA, side slipping has not been practiced at the slipway for at least 50 years. As part of the upgrade of the ship repair facility, the Port of Mossel Bay plans to undertake side slipping in future.

Plate 13: Side slip areas with slipway rails and cradle in between.

Plate 14: View of the sideslip areas from the top of the seawall outside the administration building. Some of the concrete structures are damaged and the wooden beams that originally lay on top of each concrete rib are no longer present.

Plate 15: Eastern sideslip area with slipway and lead-in jetties visible on the left of the photograph.

6.3.5 Winch House and Machinery

The winch house is located at the top of the slipway, in a cut made into the historical seawall that forms the landward edge of the slipway (**Plate 16** and **Plate 17**) and houses the machinery for the end haul slipway system. The 1931 plan of the harbour (**Figure 3**) shows an engine room where the winch house stands, and the current building appears to be a

typical red brick Railways and Harbours building of the first half of the 20th century (**Plate 18**).

Plate 16: Winch house from the slipway, showing the cradle rails and the winch cable entering the building through the horizontal opening to the left of the door.

Plate 17: Rear and side facades of the winch house.

Plate 18: Two photographs of the interior of the winch house showing the Railways and Harbours red brick. The winch cable drum is the large grey object in both images.

The winch house machinery consists of an electric motor, a gearbox and couplings, down- and up-haul drums and wire rope, wire rope supports, band brakes and a mounting structure (**Plate 19** - **Plate 21**). Although there is not clear proof of this it is likely that the machinery is original.

Plate 19: Electric motor and gearbox.

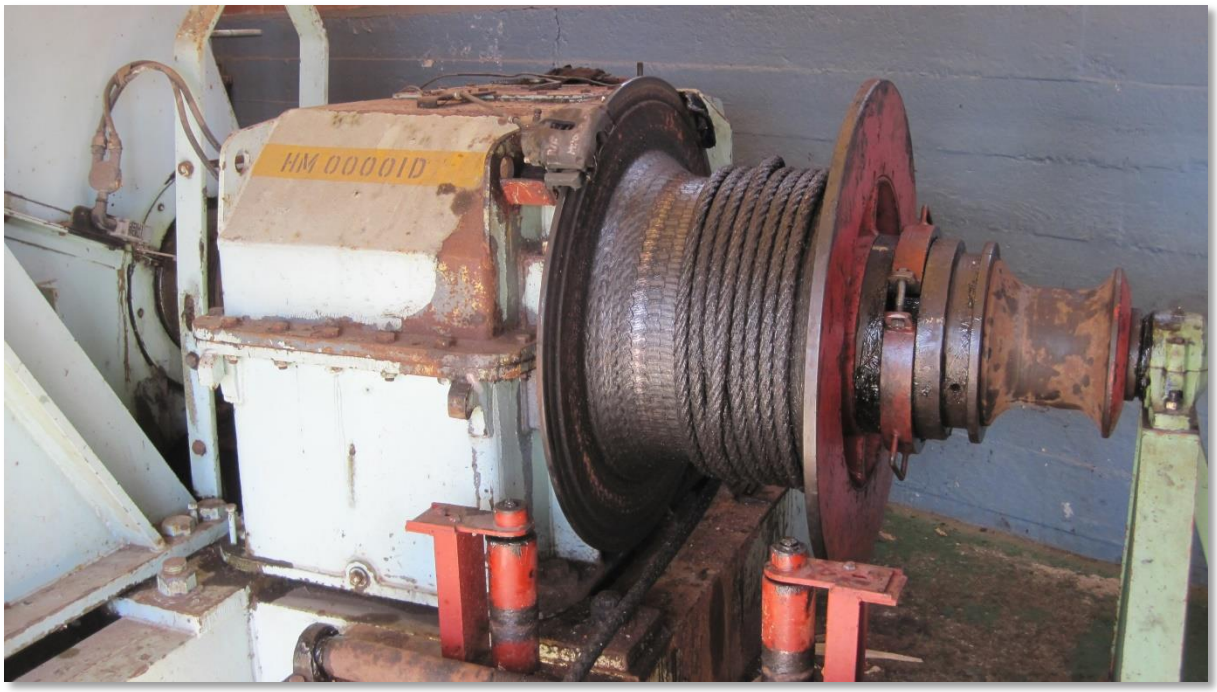

Plate 20: Gearbox and downhaul drum.

Plate 21: Up-haul drum from both sides.

As part of the TNPA Feasibility Study Report (March 2018) the condition of the slipway winch machinery and its suitability for current and future use was assessed.

While still suitable for short term operation (0-3 years) the machinery was assessed to be approaching the end of its usable lifespan. Regular malfunction, expensive maintenance with associated lost opportunity costs, the complexity of its operation, and oversizing and inefficiency all informed this conclusion.

According to the report, the equipment is unlikely to align with the minimum 20 year operational requirements as imposed by the TNPA on new designs being incorporated in the upgrade of the ship repair facilities at the Port of Mossel Bay and its seem likely that the winch system in its entirety will need to be replaced as part of the upgrade. If this does occur it is suggested that the old machinery is either offered to a suitable local museum or provision is made for its retention and display at the ship repair facility.

6.3.6 Administration Buildings

The administration of the ship repair facility is housed in two steel framed, corrugated iron, industrial buildings that overlook the slipway and which are marked on the 1931 harbour plan as harbour stores (**Figure 3**, **Plate 22** and **Plate 23**). From the documentary evidence, it seems that these two buildings pre-date the construction of the slipway (see **Plate 25**).

Both administration buildings have been altered from their form shown in **Plate 25**. Windows have been added in both, they have been linked by a corrugated iron infill, and the building shown in **Plate 23** has had the corrugated iron replaced by brick walling on its eastern corner.

Plate 22: View of the seaward side of the administration buildings: the grey building at centre and the building on the extreme left of the photograph (see **Plate 23** below). The winch house is on extreme right with a modern infill building between. Lean-to storerooms obscure the seawall below the larger of the administration buildings.

Plate 23: The second administration building with a corrugated iron infill between the two buildings and a brick addition on the left.

Plate 24: View of the eastern end of the smaller administration building. Note the replacement of corrugated iron with brick on the seaward corner of the building.

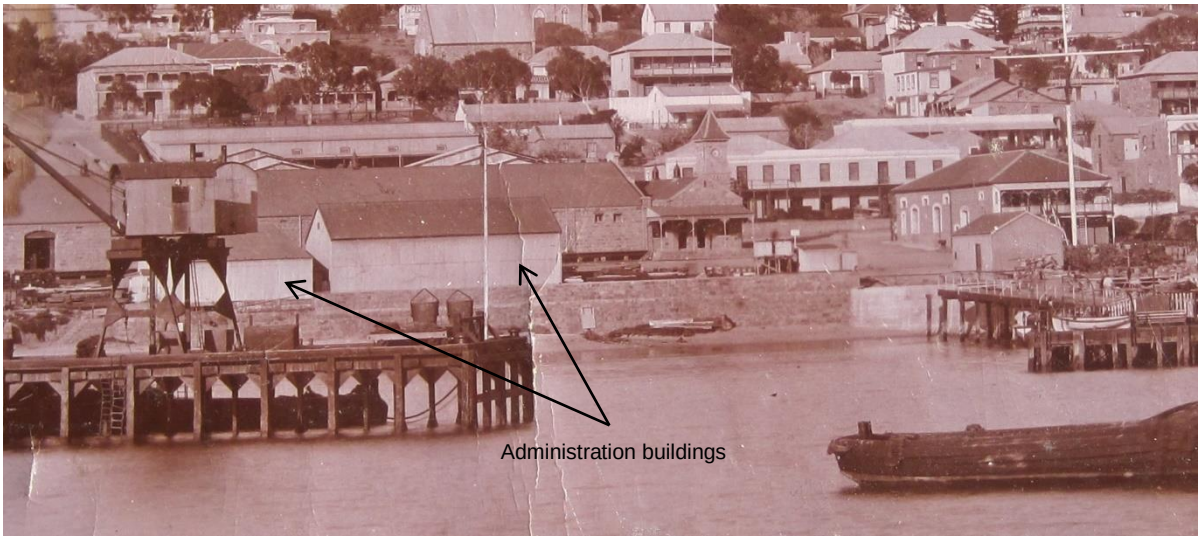

Plate 25: Early 20th century image of the area occupied by the ship repair facility. Note the two corrugated iron buildings already in place above the seawall. Pilkington's jetty is on the right of the photograph (Source: TNPA).

Internally both buildings have been subdivided into offices and workshops. Most of these subdivisions are lightweight drywalls (**Plate 26**). Portions of both buildings are open to the roof which is asbestos sheeting (**Plate 27**).

Plate 26: Internal prefab office divisions in the smaller of the two administration buildings.

Plate 27: Steel framed structure of the large administration building. Prefab office lower left with open asbestos roof sheets visible above.

6.3.7 Infill Building

The entrance to the ship repair facility and administration buildings is via the infill building between the winch house and the larger administration building shown in **Plate 28**. This infill consists of a small brick built office and a prefabricated room, both under an overarching steel-framed roof which spans the space (**Plate 29**).

Plate 28: Infill building from the seaward side. Brick built office on the right.

Plate 29: View of roof of infill building. The prefabricated office is on the lower right.

6.3.8 Shed

To the east of the administration buildings there is a third steel framed, corrugated iron shed which is used as an store. The western end of the building is a flammable materials store, other two third of the structure is open on both landward and seaward sides (**Plate 30** and **Plate 31**).

Plate 30: Flammable store with open shed structure beyond.

Plate 31: Store showing open section with flammable store beyond.

6.3.9 Sea Wall

As stated earlier, the buildings described above, with the exception of the winch house, are built above and behind the seawall which was constructed 1895. The seawall appears to be in good condition and is largely intact, although somewhat obscured below the main administration buildings by a series of lean-to storerooms built against it (**Plate 22** and **Plate 32**).

Plate 32: Lean-to structure with seawall behind.

6.4 Cultural Landscape

Cultural landscapes are heritage resources of national, regional or local importance in terms of their rarity and representivity. The UNESCO *Operational Guidelines for the World Heritage Convention* (1995) defines cultural landscapes as cultural properties which represent the "combined works of nature and of man" which are “illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal”.

UNESCO identifies three main categories of cultural landscape, namely:

- Landscapes **designed and created intentionally** by humans. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles.
- **Organically evolved landscapes** which result from an initial social, economic, administrative, and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub categories:
    - **Relict (or fossil) landscapes** in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form.
    - **Continuing landscapes**, which retain an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time such landscapes exhibit significant material evidence of their evolution over time.
- **Associative cultural landscape**. In which there are powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent.

In cultural landscape terms, the ship repair facility can be described as being part of the **continuing landscape** which is the Port of Mossel Bay itself. The port plays an active and important role in social and economic life of contemporary Mossel Bay, is associated with the traditional way of life of the town, and as a working harbour is in a constant process of growth and development. The port exhibits significant material evidence of its evolution over time but at the same time there is considerably continuity in its form and features from its earliest development.

Relative to the ship repair facility, surviving heritage indicators include the seawall, the corrugated iron administration buildings and surrounding stone buildings, and the original elements and features of the ship lift.

7 Impact on Heritage Resources

7.1 Archaeology

The pre-colonial landscape of Varkens Bay is highly modified and there no record of or evidence for archaeological sites or material at or in the vicinity of the ship repair facility.

The slipway and lead-in jetties of the ship repair facility were constructed on the seabed and the side-slip areas on land reclaimed from the sea so their potential for intersecting archaeological material is very low.

The construction of the seawall in 1895 resulted in the burial of the dunes surrounding Varkens Bay under the fill behind the wall. The current administration buildings were erected on this fill and there is some potential for the presence of pre-colonial archaeological sites or material under the existing administration buildings, although this potential is likely to very low.

7.1.1 Nature and extent of impacts

The excavation of foundations for the buildings proposed to replace the existing administration buildings may intersect buried historical dunes and archaeological sites or material they contain, although this is assessed to be very unlikely. It is also unlikely that the demolition of the lead-in jetties and the replacement of the submerged section of the slipway will have an impact on archaeological material. The extent of potential impacts will be limited to the footprint of the excavations and works.

Table 1: Impact Assessment – Archaeology

Potential impacts on heritage aspects:	**Archaeology**
Nature of impact:	Impact on buried pre-colonial archaeological sites and/or materials
Extent of impact:	Local
Duration of impact:	Permanent
Probability of occurrence:	Unlikely
Degree to which the impact can be reversed:	Irreversible, but effects can be mitigated
Degree to which the impact may cause irreplaceable loss of resources:	Medium to low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Archaeological monitoring and/or implementation of a reporting protocol during groundworks will ensure that should any archaeological material is encountered it can be recorded and recovered.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

7.2 Palaeontology

There is no evidence of any palaeontological occurrences at or in the immediate vicinity of the ship repair facility.

Impacts on palaeontological resources are not expected and an impact assessment table for palaeontology has not been created.

7.3 Built Environment

The ship repair facility is comprises a collection of related buildings and structures, most of which are more than 60 years of age and thus protected by the NHRA. It appears from this

study that the lead-in jetties are less than 60 years of age and they have thus been omitted from the impact assessment below.

The heritage significance of the various elements of the ship repair facility is assessed to be mainly local (Grade 3C).

7.3.1 Nature and extent of impacts

The impacts of the proposed upgrade include:

- the demolition of the administration buildings;
- the replacement of the winch machinery and the wooden ship cradle; and
- two alternatives with respect to the slipway, namely:
  - Alternative 1 (Preferred) - the repair of the existing slipway, which will comprise the rebuilding of the underwater portion of the rail support beams for the cradle and the repair of the above water portions; or
  - Alternative 2 - the demolition and replacement of the slipway in toto.

In all cases the extent of potential impacts will be limited to the footprint of the proposed upgrade works.

Table 2: Impact Assessment – Demolition of administration buildings and submerged portion of the slipway

Potential impacts on heritage aspects:	**Administration buildings and submerged portion of the slipway**
Nature of impact:	Destruction of historical structures older than 60 years of age
Extent of impact:	Local
Duration of impact:	Permanent
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	Irreversible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	High
Proposed mitigation:	- Design of proposed new administration buildings should respond to and reflect the heritage indicators of the buildings to be demolished – for example, height, massing and industrial nature; - Reconstruction of submerged portion of slipway and the integration of the new structure with the surviving slipway above the waterline.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Table 3: Impact Assessment – Alteration or repair of slipway above the waterline and side-slip areas

Potential impacts on heritage aspects:	**Slipway above the waterline and side-slip areas**
Nature of impact:	Alteration and potential loss of historic fabric older than 60 years of age
Extent of impact:	Local
Duration of impact:	Permanent
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	Irreversible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Repair of existing historic fabric will ensure the facility can return to full operational usefulness, which will ensure its long-term survival
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Table 4: Impact Assessment – In toto demolition and replacement of the slipway

Potential impacts on heritage aspects:	**Slipway is demolished and rebuilt in toto**
Nature of impact:	Alteration and potential loss of historic fabric older than 60 years of age
Extent of impact:	Local
Duration of impact:	Permanent
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	Irreversible
Degree to which the impact may cause irreplaceable loss of resources:	High
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	No mitigation is possible if the slipway is demolished in toto as this will result in the total loss of the slipway's existing historic fabric.
Cumulative impact post mitigation:	High – the demolition and rebuilding of the slipway taken together with the impacts on other elements of the ship repair facility will result in a high cumulative loss of historic fabric.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	High

Table 5: Impact Assessment – Replacement of winch machinery and ship cradle

Potential impacts on heritage aspects:	**Winch machinery and ship cradle**

Nature of impact:	Loss of historic features older than 60 years of age
Extent of impact:	Local
Duration of impact:	Permanent
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	Irreversible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Existing ship cradle and winch machinery recorded and then displayed on site or offered to a suitable local museum after removal.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

7.4 Cultural Landscape

Cultural landscapes are highly sensitive to cumulative impacts and development activities that change the character and public memory of a place.

7.4.1 Nature and extent of impacts

Although the proposed upgrade of the ship repair system will be result in the replacement of or changes to individual elements of the facility, the overall integrity of the facility, as a part of and contributor to the evolving cultural landscape of the port is unlikely to be greatly affected by the proposed works.

The impacts of the proposed upgrade work will be limited to the footprints of the various elements of the ship repair facility. The upgrade will ensure that the ship repair facility continues to contribute as a working element of an active harbour.

Table 6: Impact Assessment – Cultural landscape

Potential impacts on heritage aspects:	**Cultural landscape**
Nature of impact:	Impact on evolving cultural landscape of the Port of Mossel Bay
Extent of impact:	Local
Duration of impact:	Permanent
Probability of occurrence:	Possible
Degree to which the impact can be reversed:	- Partly reversible through the design of the new buildings and structures to fit with the existing - Where not reversible the retention of a working ship repair facility will contribute to the evolving landscape of the port
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation	Medium-High

(Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	High
Proposed mitigation:	The design of the new administration building that responds to surrounding and local heritage indicators
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

8 Conclusions and Recommendations

The proposed upgrade of the ship repair facility will have real and potential impacts on heritage resource types protected by the NHRA. This is particularly true if Alternative 2 (the total demolition and rebuilding of the slipway) is chosen and this assessment recommends, therefore, that the preferred, Alternative 1 (the repair and partial rebuilding of the existing slipway) is considered the best option with respect to the slipway.

The choice of Alternative 1 will help to balance the anticipated impacts of the proposed upgrade on the historic fabric against the long-term benefits to the survival of this historic facility and the operational health of the port that the upgrade will bring.

Because all built structures older than 60 years of age are protected by the NHRA, a permit to demolish and rebuild the submerged portion of the slipway will be needed from SAHRA. It is recommended that the required application for permission to repair and upgrade the slipway and side-slip areas above the waterline is also made to SAHRA. This will ensure that the works related to the marine aspects of the upgrade are dealt with by a single heritage agency. An application will need to be made to HWC for the demolition of the administration buildings.

No archaeological mitigation is recommended but in the event of human remains being uncovered during work, all activities in the vicinity must cease until a suitably qualified archaeologist and SAHRA and HWC have been notified, the significance of the material has been assessed and a decision has been taken as to how to deal with it.

A protocol for reporting palaeontological finds should be commissioned from a suitably qualified palaeontologist and implemented during all intrusive ground works.

It is recommended that the existing ship cradle and winch house machinery that is to be removed is recorded before removal and is then either offered to a suitable local museum or that provision is made for its retention and display at the ship repair facility.

Although the historical seawall will not be affected by the proposed upgrade care must be taken in both the design and construction of the new administration building and in work related to other elements of the upgrade that the wall is not compromised or damaged in any way.

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Appendix A: Specialist's CV

Name:	John Gribble
Profession:	Archaeologist
Date of Birth:	15 November 1965
Parent Firm:	ACO Associates cc
Position in Firm:	Senior Archaeologist
Years with Firm:	1
Years of experience:	28
Nationality:	South African
HDI Status:	n/a

Education:

1979-1983	Wynberg Boys' High School (1979-1983)
1986	BA (Archaeology), University of Cape Town
1987	BA (Hons) (Archaeology), University of Cape Town
1990	Master of Arts, (Archaeology) University of Cape Town

Employment:

- ACO Associates, Senior Archaeologist and Consultant, September 2017 – present
- South African Heritage Resources Agency, Manager: Maritime and Underwater Cultural Heritage Unit, 2014 – 2017 / Acting Manager: Archaeology, Palaeontology and Meteorites Unit, 2016-2017
- Sea Change Heritage Consultants Limited, Director, 2012 – present
- TUV SUD PMSS (Romsey, United Kingdom), Principal Consultant: Maritime Archaeology, 2011-2012
- EMU Limited (Southampton, United Kingdom), Principal Consultant: Maritime Archaeology, 2009-2011
- Wessex Archaeology (Salisbury, United Kingdom), Project Manager: Coastal and Marine , 2005-2009
- National Monuments Council / South African Heritage Resources Agency, Maritime Archaeologist, 1996-2005
- National Monuments Council, Professional Officer: Boland and West Coast, Western Cape Office, 1994-1996

Professional Qualifications and Accreditation:

- Member: Association of Southern African Professional Archaeologists (No. 043)
- Principal Investigator: Maritime and Colonial Archaeology, ASAPA CRM Section
- Field Director: Stone Age Archaeology, ASAPA CRM Section
- Member: Chartered Institute for Archaeologists (CIfA), United Kingdom
- Class III Diver (Surface Supply), Department of Labour (South Africa) / UK (HSE III)

Experience:

I have nearly 30 years of combined archaeological and heritage management experience. After completing my postgraduate studies, which were focussed on the vernacular architecture of the West Coast, and a period of freelance archaeological work in South Africa and aboard, I joined the National Monuments Council (NMC) (now the South African Heritage Resources Agency (SAHRA)) in 1994. As the Heritage Officer: the Boland I was involved in day to day historical building control and heritage resources management across the region. In 1996 I become the NMC's first full-time maritime archaeologist in which role was responsible for the management and protection of underwater cultural heritage in South Africa under the National Monuments Act, and subsequently under the National Heritage Resources Act.

In 2005 I moved to the UK to join Wessex Archaeology, one of the UK's biggest archaeological consultancies, as a project manager in its Coastal and Marine Section. In 2009 I joined Fugro EMU Limited, a marine geosurvey company based in Southampton to set up their maritime archaeological section. I then spent a year at TUV SUD PMSS, an international renewable energy consultancy based in Romsey, where I again provided maritime archaeological consultancy services to principally the offshore renewable and marine aggregate industries.

In August 2012 I set up Sea Change Heritage Consultants Limited, a maritime archaeological consultancy. Sea Change provides archaeological services to a range of UK maritime sectors, including marine aggregates and offshore renewable energy. It also actively pursues opportunities to raise public awareness and understanding of underwater cultural heritage through educational and research projects and programmes, including some projects being developed in South Africa.

Projects include specialist archaeological consultancy for more than 15 offshore renewable energy projects and more than a dozen offshore aggregate extraction licence areas.

In addition to managing numerous UK development-driven archaeological projects, I have also been involved in important strategic work which developed guidance and best practice for the offshore industry with respect to the marine historic environment. This has included the principal authorship of two historic environment guidance documents for COWRIE and the UK renewable energy sector, and the development of the archaeological elements of the first Regional Environmental Assessments for the UK marine aggregates industry. In 2013-14 I was lead author and project co-ordinator on the Impact Review for the United Kingdom

of the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage. In 2016 I was co-author of a Historic England / Crown Estate / British Marine Aggregate Producers Association funded review of marine historic environment best practice guidance for the UK offshore aggregate industry (.

I returned to South African in mid-2014 where I was re-appointed to my earlier post at SAHRA: Manager of the Maritime and Underwater Cultural Heritage Unit. In July 2016 I was also appointed Acting Manager of SAHRA's Archaeology, Palaeontology and Meteorites Unit.

I left SAHRA in September 2017 to join ACO Associates as Senior Archaeologist and Consultant.

I have been a member of the ICOMOS International Committee for Underwater Cultural Heritage since 2000 and have served as a member of its Bureau since 2009. I am currently the secretary of the Committee.

I have been a member of the Association of Southern African Professional Archaeologists for more than twenty years and am accredited by ASAPA's CRM section. I have been a member of the UK's Chartered Institute for Archaeologist's (CIfA) since 2005, and served on the committee of its Maritime Affairs Group between 2008 and 2010. Since 2010 I have been a member of the UK's Joint Nautical Archaeology Policy Committee.

I am currently a member of the Advisory Board of the George Washington University / Iziko Museums of South Africa / South African Heritage Resources Agency / Smithsonian Institution 'Southern African Slave Wrecks Project' and serve on the Heritage Western Cape Archaeology, Palaeontology and Meteorites Committee.

Books and Publications:

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Appendix B: Declaration Of Independence

I, John Gribble, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- There are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24(F) of the Act.

Signature of the specialist

ACO Associates cc

Name of company (if applicable):

2 October 2018

Date

Appendix C: I&AP Comments Received

Comment/Query	Raised by	Response
This process will require a permit application in terms of Section 34 of the National Heritage Resources Act, No. 25 of 1999. The BA should include a Heritage Impact Assessment. An application must be made on SAHRIS, and all documents must be uploaded so that SAHRA may comment in terms of Section 38 of the NHR Act. SAHRA is the competent authority for this application. Although Mossel Bay falls within the Western Cape, the proposed upgrades are to maritime structures below the high water mark, which is the remit of the Maritime and Underwater Cultural Heritage Unit at SAHRA.	Lesa la Grange, SAHRA Email dated 04/08/2017	Nemai Consulting - Thank you for the confirmation that SAHRA is the competent authority. We will ensure you are kept informed of the process.
HWC will await the submission of NID as a way of requesting our comment to NEMA process.	Zwelibanzi G Shiceka, Heritage Western Cape Email dated 07/08/2017	Nemai Consulting - SAHRA have confirmed that they are the competent heritage resources authority for the Heritage Permit Application.
Please just check with SAHRA if they or HWC is the competent heritage resources authority. From my experience collating the Department's comments on EIA applications, it would appear that SAHRA commented on applications pertaining to the marine environment. I don't know where the one's jurisdiction starts and end.	Adri La Meyer, Department of Environmental Affairs and Development Planning Western Cape Government Email dated 03/08/2017	Nemai Consulting - We have informed both SAHRA and HWC about the project, and SAHRA have confirmed that they are the competent heritage resources authority.
The Slipway, 1919, has some unique features of historic interest. Attention should be paid that it is not radically altered in the restoration project. Application for a permit from Heritage Western Cape would require written input from Heritage Mossel Bay.	Carina Wiggill, Heritage Mossel Bay Email dated 15/08/2017 Reply Form dated 14/08/2017	
Loss of historic values and information Record accurately the past equipment and history The past activity must be documented on the site for public information	Rene David de Kock, Great Brak River Museum Reply Form dated 24/08/2017	
Rene de Kock provided a document which provided a historical	Heritage Focus Group Meeting	Heritage Specialist has been provided with the

overview of the site. The findings were made by a group from Mossel Bay Heritage who have marked all the historic buildings. The document showed photographs of the existing Port facility from 1926 thus the structures are older than 80 years.	24/08/2017	document
Old infrastructure needs to be replaced but TNPA must retain what they can. Rene de Kock's concern is that the history of the Port could be lost and therefore TNPA must try their best to retain the history.		TNPA
The heritage value of the Port was discussed and Mossel Bay Heritage enquired if TNPA were going to save the old equipment that is to be replaced. It was suggested that TNPA conserve the old equipment for its heritage value which could allow for tourism opportunities since the town has developed because of the Port. It was stated that Mossel Bay Heritage have a photographic record of the Port.	Mossel Bay Heritage Public Meeting 24/08/2017	