

Professional Consultancy Services for Coastal Engineering Infrastructure Activities – Proclaimed Fishing Harbours Western Cape

Project Descriptions: Repairs and upgrades to structures older than 60 years

Hout Bay Harbour

REV.00

01 March 2017



COEGA DEVELOPMENT CORPORATION
South Africa



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1. INTRODUCTION

1.1 Project Background

The National Department of Public Works (NDPW) has appointed the Coega Development Corporation (CDC) as the implementing agents for the repair, maintenance and upgrade of the 13 proclaimed Western Cape fishing harbours. The 13 fishing harbours have been split into four separate work packages. PRDW have been appointed by CDC for the professional consulting services required to repair, maintain and upgrade the marine infrastructure for Work Package 1 and 2, which includes Hout Bay, Kalk Bay, Gordons Bay, Hermanus (Work Package 1), and Saldanha Bay and Pepper Bay (Work Package 2).

The following project description focuses on the work required in the harbour, which is shown in Figure 1-1.

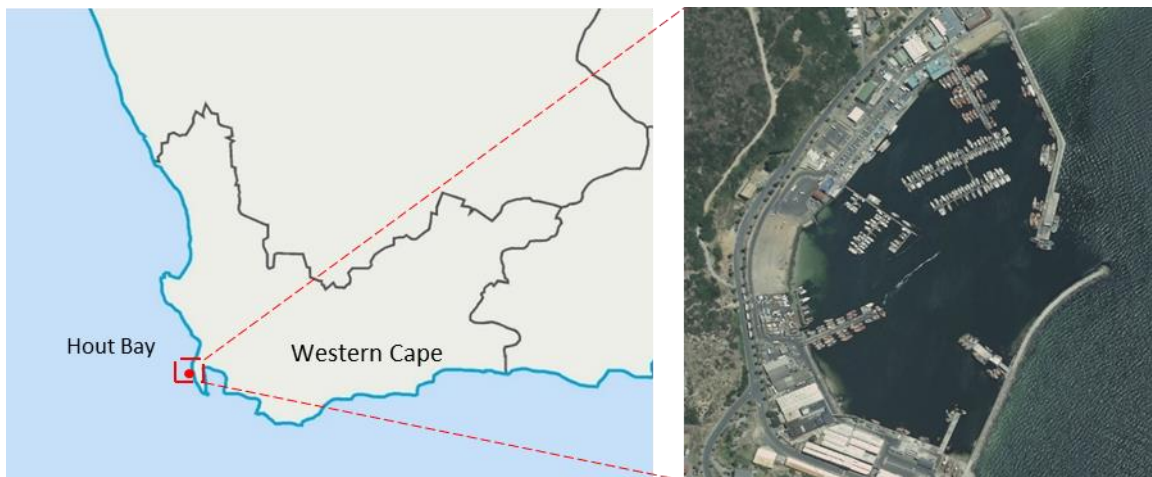


Figure 1-1: Hout Bay Harbour

1.2 Scope of Work

PRDW have carried out a condition assessment of all marine infrastructure within the Hout Bay harbour. The scope of work includes the following:

- Concrete repair and maintenance of existing marine structures;
- Maintenance and repair of quay furniture (bollards, fenders and access ladders);
- Repair and maintenance of the harbour slipways including rails, cradles and winches;
- Replacement of the shore crane;
- Removal of the 14 sunken fishing vessels;
- Maintenance dredging of isolated areas within the harbour basin; and
- Breakwater concrete cap repairs, and placement of additional concrete armour units.



2. HOUT BAY HARBOUR SCOPE OF WORKS

2.1 Harbour Description

Hout Bay is situated on the Atlantic coastline of the Cape Peninsula, approximately 20 km south of Cape Town. It is an important harbour for the fishing industry, for tourism and leisure craft. The commercial fishing industry traditionally relies mainly on pelagic fish, rock lobster and long line fishing. A significant eco-tourism industry has developed, with craft markets, restaurants and operators running boat trips to view seals and whales. Figure 2-1 Shows the Gordons Bay Harbour and the different marine structures associated with it.



Figure 2-1: Hout Bay Marine Structures



Hout harbour has a water area of approximately 18.5 ha enclosed by the main and secondary breakwaters. A large portion of the water area in the Northern section of the harbour is occupied by private (club) floating moorings for leisure craft. The Southern portion of the basin is mainly used by the fishing industry.

A summary of the work required in the harbour is shown in Figure 2-2.

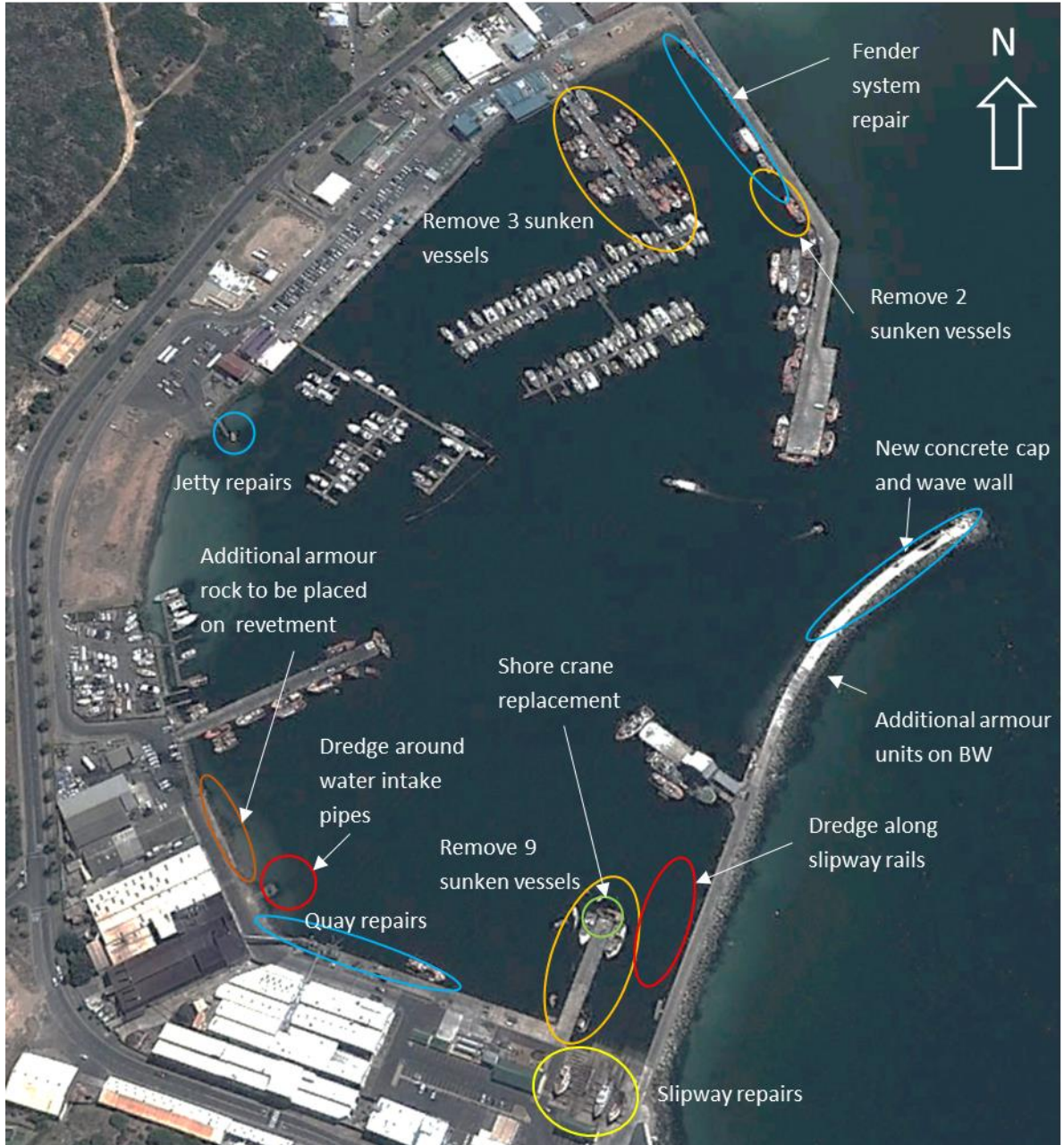


Figure 2-2: Work required in Hout Bay Harbour



2.2 Structures older than 60 years

The following structures listed in *Table 2-1* are older than 60 years.

Table 2-1: Structures older than 60 years

Hout Bay	Length (m)	Built	Age	Source of information	Repaired
Main Breakwater	453m	1939	78	As-built drawings, 1939	1972
Quay 1	145m	1950	67	As-built drawings, 1950	Gunite on underside and new capping

The proposed works on each of the above structures are provided below.

2.2.1 Main Breakwater

The main breakwater is a 453 m long rubble mound structure protected with Grobbelaar and Toskane armour units. The following repair work is required:

- Supply and place additional 3.6 tonne Toskane armour units in gaps along the breakwater;
- Cast a new concrete cap along the last 150m of the breakwater. This includes a wave wall, and steel reinforcing; and
- Removal of corroded and damaged existing precast wave wall units at the end of the breakwater.

Figure 2-3 shows the main breakwater structure in Hout Bay Harbour.

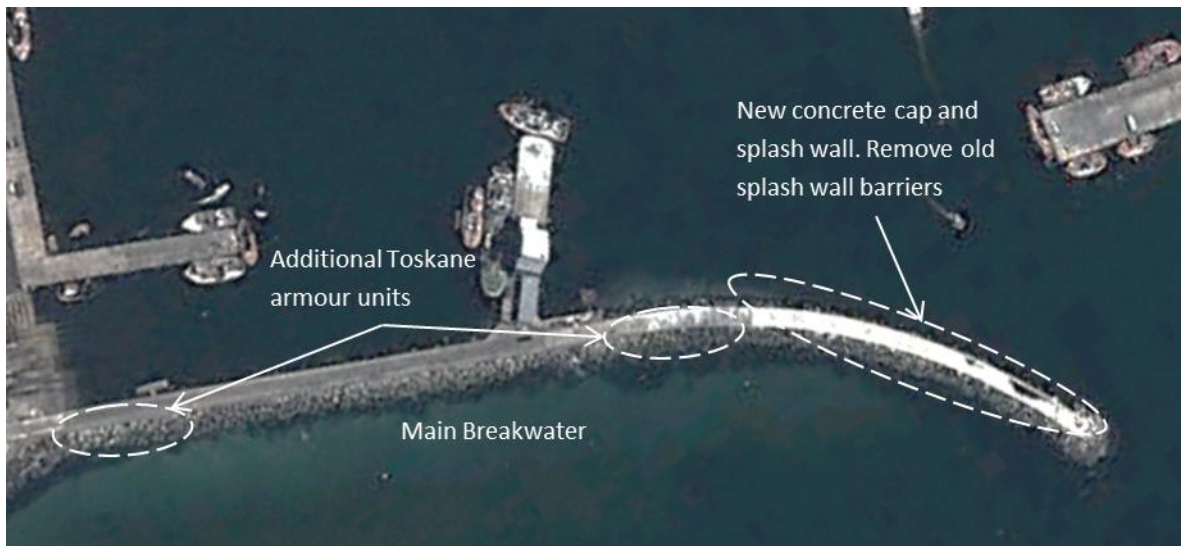





Figure 2-3: Main Breakwater Structure

Table 2-2 shows the typical repair work required for the Main Breakwater.

Table 2-2: Breakwater repair and maintenance work

<p><u>Main Breakwater – Armour units</u></p> <p>A few additional concrete armour units are required to fill a few gaps that have formed along the breakwater. (Approx. 20 additional units)</p>	
<p><u>Main Breakwater – Concrete capping</u></p> <p>The concrete cap at the end of the main breakwater is in poor condition and needs to be repaired by casting a new concrete cap along the existing surface.</p>	
<p><u>Main Breakwater – Splash barrier removal</u></p> <p>The splash wall barrier along the end of Hout Bay has become a safety hazard and must be removed.</p>	

Refer to Annexure A for additional figures of the Main Breakwater in Hout Bay Harbour.

2.2.2 Quay 1

A 145 m long concrete deck-on-pile structure used for offloading fish and servicing of trawlers. The following repair work is required:

- Concrete repair of 2 No. contraction joints;
- Minor concrete repair along the cope edge of quay 1;
- Repair, clean and paint bollards;
- Replace corroded and missing fender fixings;



- Replace damaged and missing fenders; and

Figure 2-4 shows the Quay 1 structure in Hout Bay Harbour.



Figure 2-4: Quay 1 Structure

Table 2-3 shows typical concrete repair work required for Quay 1 at Hout Bay harbour.

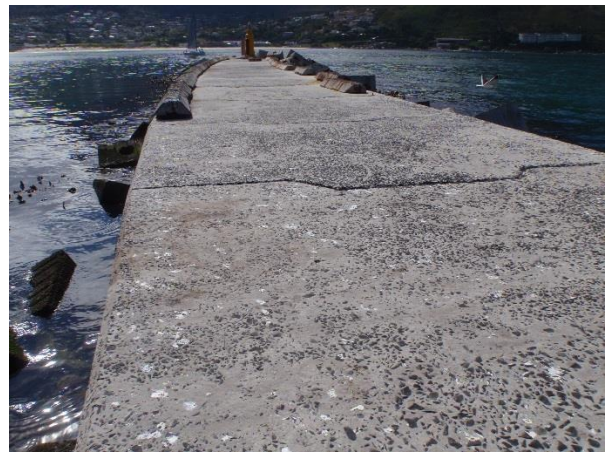
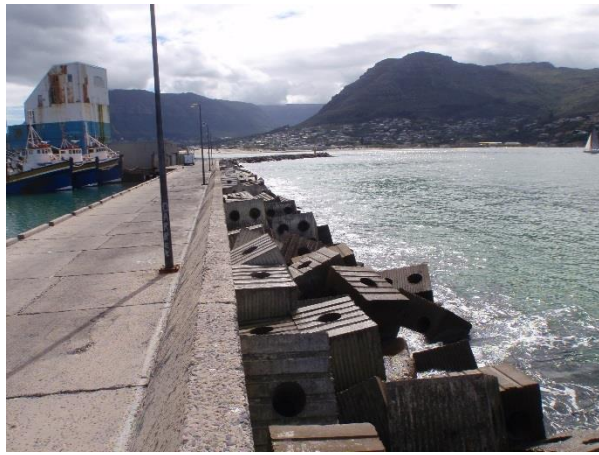
Table 2-3: Concrete repair of infrastructure

<p><u>Quay 1</u> Concrete repair along the cope edge and construction joints of quay 1.</p>	
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Refer to Annexure B for additional figures of Quay 1 in Hout Bay Harbour.



ANNEXURE A | MAIN BREAKWATER – ADDITIONAL FIGURES





ANNEXURE B | QUAY 1 – ADDITIONAL FIGURES

