The Transnet National Ports Authority (TNPA) is proposing to upgrade the existing General Maintenance Quay (GMQ) and Rock Quay in the Port of Saldanha (see Appendix C: Figure 1) in order to accommodate off shore supply vessels to the West African Oil and Gas industry at the quay, thereby creating a new business opportunity supporting the oil and gas industry.

The existing GMQ was constructed in the early 1970's and consists of I-shaped precast concrete blocks stacked on top of each other to form the quay wall. The toe of the wall is founded at -11.70 m Chart Datum (CD) and the top of the quay level is at +3.80 m CD, resulting in an overall wall height of 15.50 m. The current overall length of the wall is 147.90 m, with the last 20 m on each end of the wall tapering down to foundation level. This, in effect, results in the usable surface only extending over 107.90 m of the quay wall.

The existing Rock Quay is situated approximately 50 m north of the existing GMQ and was constructed with steel sheet piles in the early 1970's. The existing sheet piles are in a state of disrepair and need to be replaced. In addition, the berth pocket has filled up with sediment over time and it is therefore unusable.

The 50 m gap between the GMQ and Rock Quay structures creates an embayment landwards of the existing quay.

TNPA's intention is to create a single length of continuous quay, approximately 300 m long, by joining the two structures. The proposed upgrades to the GMQ and Rock Quay include various components as described below.

Construction of New Quay Walls

The existing GMQ will be extended by 20 m on either end, a total of 40 m, by building up the tapered wing wall up to the existing capping level (see Appendix C: Figure 1 Section A and Figure 2). This will increase the usable quay surface to 147.90 m. In addition 150 m of new sheet piles will be installed. Of the 150 m, 100 m is required to replace the existing sheet piles at the Rock Quay (see Appendix C: Figure 1 Section C and Figure 4). The remaining 50 m is required to close the gap that exists between the two existing quay walls (see Appendix C: Figure 1 Section B and Figure 3). The area behind the 50 m of new quay wall will be reclaimed. The proposed upgrades will create one continuous length of quay wall approximately 300 m in length.

For the upgrades to the Rock Quay wall, a number of alternative quay wall options were considered (see Section A2c), and the sheet pile option was selected as the preferred solution for this project. Note that Contractors, in tendering, may propose alternative construction methods, although the parameters of these are not yet know.

As a result of the dredging required to reinstate the berth pocket at the Rock Quay (see below), it is possible that sediment from the beach between the Mossgas quay and GMQ will be eroded as sediment is deposited in the dredged berth pocket. Further, the existing revetment north of the existing Rock Quay (see Appendix C: Figure 1) will be disturbed during construction and will be rehabilitated to ensure the stability of the embankment north of the Rock Quay. To avoid any potential coastal erosion along the shoreline west of the Rock Quay, TNPA will monitor the beach profile and, if necessary, undertake the required corrective action to stabilise the shoreline.

The upgraded quay will collectively be referred to as the GMQ.

Refurbishing the Existing GMQ and Rock Quay and Services

The area behind the GMQ and Rock Quay will be reprofiled to slope away from quay. Electrical and water services will be supplied, and new bollards and fenders will be installed. Stormwater runoff from the GMQ will enter the Port's existing stormwater system. The TNPA is currently upgrading the stormwater system. The new system will be geared to prevent contaminated stormwater runoff flowing into the sea adjacent to the quay, although a limited amount of run-off may occur from the quay wall. The new stormwater system will direct stormwater away from the quay towards land as surface runoff, thereby limiting the amount of runoff entering the sea.

Dredging

Dredging is required to reinstate the berth pocket at the Rock Quay. The proposed dredging works include the removal of 15 000 m3 of sediment in a ~5 000 m2 footprint, as shown in Appendix C: Figure 1. Dredging will be to -6.5 m CD for construction and initial operations (see below). The proposed dredging works extend into the active transport zone.

The dredged methodology will depend on the characteristics of the sediment to be dredged. Alternatives currently under consideration are discussed in Section 2c below. It is not anticipated that any blasting will be required.

Reclamation

Dredge material from the (initial) dredging will be deposited in the gap between the existing GMQ and Rock Quay (see Appendix C: Figure 1- Reclamation), to be used as fill material to reclaim this

area. A new sheet pile wall will be installed between the existing GMQ and the Rock Quay, to act as a control weir allowing suspended materials to settle out once reclamation starts. Rubble and debris will then be removed from the reclamation area and disposed of at a registered landfill site. Dredging will then take place (including sampling and grading of dredge material). Dredge material that is suitable for reclamation will be deposited directly into reclamation area. Unsuitable dredge material (material that is too fine) will be stockpiled and blended with small volumes of imported fill prior to being used for reclamation. Following reclamation, a capping layer will be installed.

Excess dredge material, or material not suitable for reclamation, will be disposed of at a licenced landfill site.

Operational Phase

The upgraded GMQ will be leased to a third party user.

The upgrade of the GMQ, as proposed by the TNPA, is key to the development of the proposed Saldanha Bay Integrated Development Zone (IDZ). While it has not yet been confirmed, it is likely that the GMQ will be leased to a supplier of logistical services to the oil and gas industry. It is therefore expected that activities at the GMQ will be associated with logistical services (the supply and offloading of cargo) to vessels servicing this industry off the west coast of Africa – such as the resupply of industrial equipment and perishables.

The potential tenant's vessels are self-sustaining, twin deck, multipurpose vessels with bow-thrusters and heavy lift cranes with approximate capacity of 120 tons and an average deadweight capacity of 7000 metric tons. The vessels can access smaller coastal and river ports with shallow drafts. With the proposed lengthening of the quay and associated works, the quay will be able to accommodate all of the potential tenant's vessels. Berth functionality (including dredge depths) has been designed to accommodate vessels of this nature. Quay walls have been designed in such a way that further / deeper dredging to -8.5 CD in future will allow for larger vessels to be accommodated at the GMQ in future.

The following assumptions relate to the operational phase:

- The quay will operate 24 hours a day, 365 days a year;
- ~ 25 vessels will use the quay annually; and
- No more than two ships will use the GMQ in a calendar week.

If specific activities associated with the tenants' operations require authorisation in terms of any South African legislation (for example, waste management), this will be applied for separately.

The conservative estimate of annual trapping potential of the proposed dredged area at the GMQ is estimated to be ~10 000 m3/year. Maintenance dredging will be required during operations but is excluded from this application.