

Date: Thursday 26 February 2015
Time: 5.15pm
Meeting Room: Oneroa Bowling Club
Venue: 100 Oceanview Road
Alison Park
Waiheke

Waiheke Local Board OPEN ATTACHMENTS

ATTACHMENTS UNDER SEPARATE COVER

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	E. Controlled Boat Wash Down Area (hard stand) at Ostend Domain - Design considerations and engineers estimate	3

Project name: Ostend Domain – Proposed controlled boat wash down area, sea wall and footpath

Background:

Ostend Domain is in need of improvements that will balance the needs of the key users such as the boat club and local families and make this foreshore area an attractive destination for Ostend residents and visitors for years to come.

Key improvements planned are :

- A sea wall in front of the boat club area to protect the beach and pohutukawa trees from further erosion
- A connecting access way through the Reserve along the beach front that will provide a safe walkway/cycleway for the public to use and enjoy the view
- A boat wash down facility for safe-storage and removal of boat cleaning materials

There are required legislative requirements from the Environmental Protection Agency (EPA) that will come into effect on the 01st July 2015 regarding the establishment of a controlled wash down area for boats. The aim has been to ensure that both the environment and those applying the paints are properly protected, preferably without unduly compromising the effectiveness of the antifouling paints.

The requirements are to:

- i) Isolate solid waste and contaminated wastewater generated from boat maintenance activities from the natural and marine environment,
- ii) Isolate anti-fouling paint (during removal and reapplication) from the natural and marine environment,
- iii) Collect, treat, store and allow for the removal of contaminated wastewater, and
- iv) Maintain usability of the site for the hauling, moving and maintenance of boats.

The design of the controlled wash down area all needs to meet the requirements under the PAUP in relation to

- Coastal processes and protection
- Dealing with site contaminants and safe removal and ongoing hazardous waste treatment
- Protection of scheduled pohutukawa tree roots
- Storm water discharging consent

Design considerations:

1. EPA legislative requires for a controlled Boat Wash Down Area

The requirements for the controlled boat wash down area (hardstand) are to: isolate solid waste and contaminated wastewater generated from boat maintenance activities from the natural and marine environment,

- Isolate anti-fouling paint (during removal and reapplication) from the natural and marine environment.
- Collect, treat, store and allow for the removal of contaminated wastewater, and
- Maintain usability of the site for the hauling, moving and maintenance of boats.

Currently boats are hauled up, water blasted and stored on the site.

2. Solid and Liquid Waste Management

- The concept design plan attached outlines the best practice waste management hierarchy to contain and manage the waste generated from boat maintenance activities.
- At the top of the hierarchy is to reduce the amount of contaminants going to the environment by containing as much solid waste as possible, this includes during the sanding and painting process.
- Any contaminants that are not able to be collected dry are washed to a central collection area. That water can then be treated and recycled for boat wash down activities in the closed loop treatment system (items 3 and 4 on the attached concept design).

3. Stormwater Management

- Rain falling on the controlled boat wash down area will be collected and concentrated. This water may contain contaminants from boat wash down activities and therefore it is recommended this water be treated appropriately and discharged to the environment.
- There are two scenarios proposed on the attached concept plan (and discussed further in Section 3 below).
- In both scenarios stormwater from the wash down area is concentrated and released to the environment. Stormwater discharge consent is therefore required.
- Rainfall events above the water quality storm will be discharged by an overflow bypassing the sand filter and discharging through the outfall.

4. Ecological and Social impacts

- Best practice design of coastal infrastructure includes consideration of impacts on ecology and maximisation of habitat with a variety of ecotones to support biodiversity.
- The concept design for the hardstand/ wash down is proposed alongside a stabilisation of the coastal margin and installation of public walkway. It is understood that these elements will be designed to optimise the interface with the coastal ecology and by maximising habitat, aesthetics and vegetation opportunities.
- Therefore no special considerations are made for ecological interface within the hardstand/wash down concept.

Design Considerations

5. User engagement

- It is essential that the Boat Club, Local Board, Iwi and Parks are engaged in the development of the design of the containment area. Once built, the correct operational use and maintenance of the system need to be maintained.
- The correct use of PPE, dust and paint spray containment, paint storage, maintaining the correct signage, using the correct paints, and doing maintenance in the right weather conditions are all up to the discretion of the boat owner/boat club in how the boat wash down is used rather

- than its design.
- EPA anti fouling regulations will require proper protection to be worn at all times (includes head coverings, safety glasses or goggles, suitable protective gloves and closed-in footwear)
- 6. Water supply**
- Currently roof water supply collected in small tank (approximately 10m³). The roof area is approximately 70m². Have been informed that the water supply does not run out in a normal year. Predominantly because haul outs are less likely in summer when there is less rain, as the boats are being used.
 - Should the boat club expand or change its activities on the site in the future, a benefit of the closed loop water recycling facility is the provision of a more reliable water supply.
- 7. Power supply**
- It is understood that the existing power supply could be due for upgrade and may need to be undergrounded to the required location for new infrastructure.
- 8. Road safety**
- The current working area is currently separated from the road reserve with bollards set into tyres filled with concrete. Causeway Road is a 50 km/hr speed zone and further investigation into appropriate road safety barriers is required here.
 - Reducing the working area by keeping it parallel to the road but moving towards the foreshore may be required to accommodate these safety requirements.
- 9. Levels**
- The level of the lowest point in the containment area above mean high water spring (MHWS) tide level has been set at 2.3m. This level allows for the current MHWS level of 1.5m plus 0.8m sea level rise to 2099.
 - In the meantime this increased level also gives some (reducing) protection from high tides in bad weather where king tides and storm surge increases the high water mark. The ground level within the wash down/ containment area indicated on the attached plan is approximately 2.3m at the eastern end of the site.
 - At the western end, against the boat ramp the existing ground level is approximately 1.95m. Therefore some shaping and ramping of the ground will be required at the eastern end to allow the boats to be manoeuvred into the boat wash down/ hardstand containment area as it is currently proposed.
 - There is an option to install an additional contained wash down area at the top of the boat ramp. This would be subject to operational preference, level and cost constraints.
- 10. Size**
- The dimensions of the wash down area are constrained by a number of factors including:
 - the proposed sea wall and 2.0m wide walkway to the south,
 - the formation of the ramp access from the existing boat ramp to the east,

- the extent of the site towards the road and allowance for road safety barriers to the north, and
 - the extent of land to be occupied by the boat club in the west.
 - The resulting maximum boat wash down area currently available taking this considerations into account is a contained hard stand area of approximately 300m² (about 15m x 20m). This would give working space to 4-5 boats with some space for moving the boats around the hard stand.
 - Note these dimensions need to be confirmed through design consultation with the boat club and the turning area and ramp have not been finalised.
 - If required to extend the controlled area to cater for a 6 boat capacity, the area would need to be extended further west.
- 11. Slope**
- The hardstand area will have a slope of between 1.5-2% towards catch pits for collection of water during water blasting and rainfall events.
 - This will mean the outside edge of the containment area will have a top level of between 2.45m and 2.75m depending on the overall direction of fall of the containment area (towards the middle or towards the east).
 - There will need be a small nib kerb around the perimeter of 50-80mm.
 - The hardstand will therefore sit proud of the surrounding ground level at the eastern end by approximately 200-500mm and at the western end by approximately 400-500mm.

Preliminary engineers estimate – controlled boat wash down area

- the hardstand controlled boat wash down area (assumed size of 300m²),
- the separation of solid waste and treatment of liquid waste discharged from the boat wash down area generated from boat cleaning activities, and
- the treatment of stormwater generated from surface water and/or rain falling within the containment area and other potential working areas.

The initial approximate costs for the hardstand/wash down portion of this project are estimated at \$99,000.00.

Preliminary and general	\$8,500
Hard stand construction	\$21,000 (300m ² @ \$70)
Closed loop water treatment system	\$30,000

Costing assumptions:

- 2 x Drainage Sumps (450mm x 300mm x 900mm deep) - includes cast iron grate and frame.
- Enhanced settlement (modified septic tanks in series including baffles for oil separation and laminar flow tubes)
- 1 x pump sump (assume 1050mm dia manhole ≤1.5m deep)
- 3 x Submersible Sump Pump (including float switch) [2 litre/sec @ 3m head (0.4 kW)]
- 1 x Mixed media filter (carbon/sand) Note: this cost will be based on flow rates yet to be determined. Cost indicative only.
- 1 x Treated water tank [PVC Storage or supply tank - 25000L]

- 1 x Gate valve [Cast Iron, flanged ends - 150mm dia.]

Sand Filter	\$12,500
Clean water outfall from sand filter	\$2,700
Pipework connections	\$7,700
Total	\$82,400
Contingency 20%	\$16,500
Total	\$99,000

Note – Additional costs for the below have not been included

- Contamination testing, analysis and reporting
- Contaminated soil handling
- Professional services
- Resource consent compliance

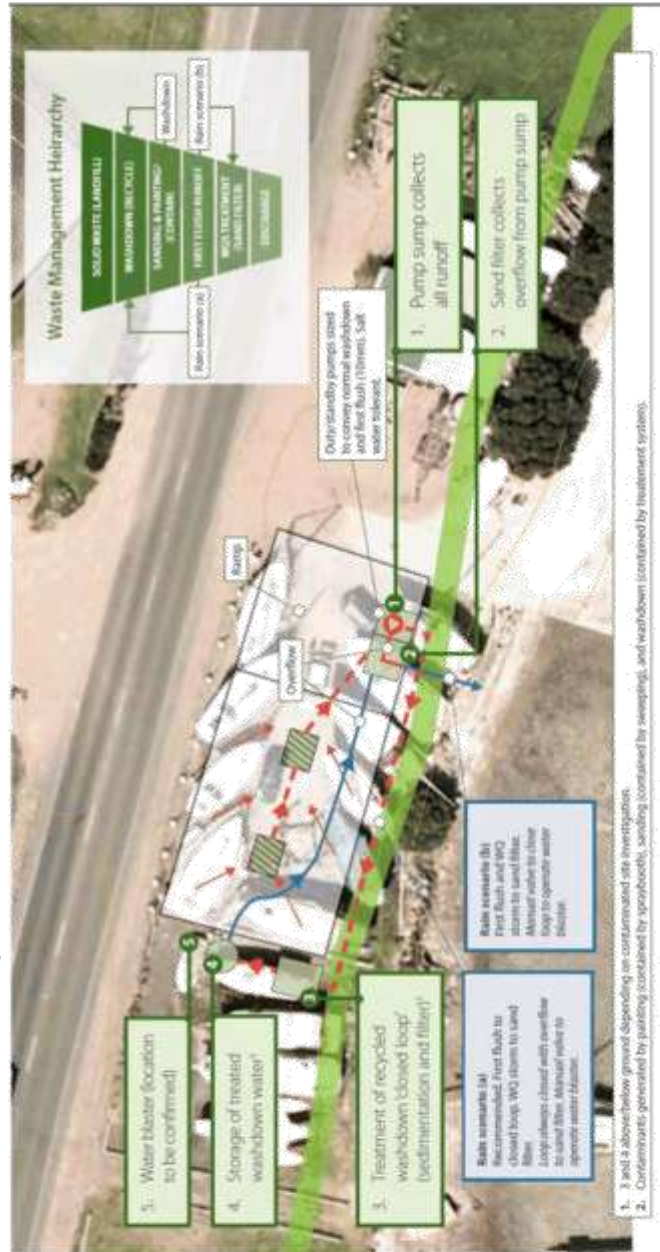
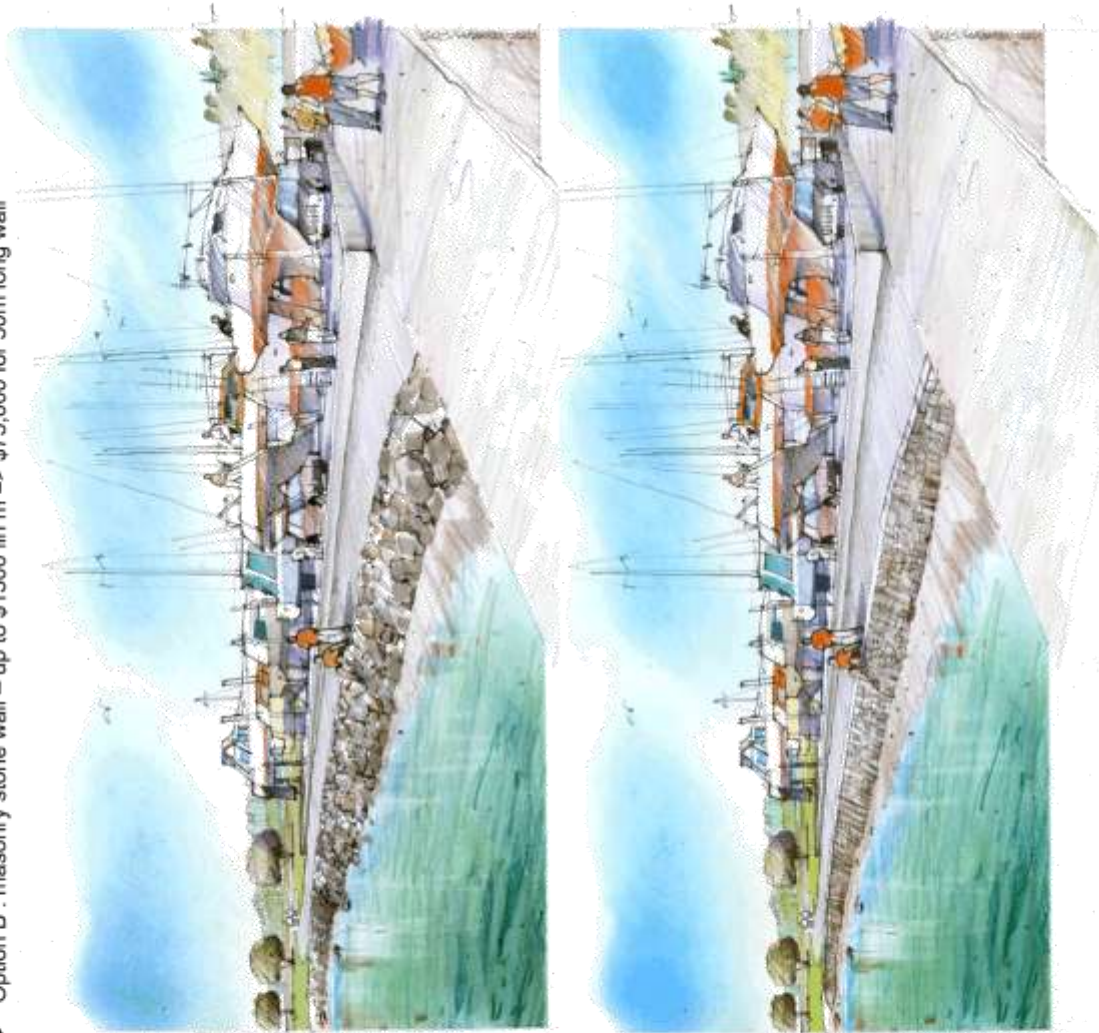


Fig.1 Controlled boat wash down area – draft proposed design only

Seawall construction

- Option A : rock rip rap - \$500 lin m => \$25,000 for 50m long wall
- Option B : masonry stone wall – up to \$1500 lin m => \$75,000 for 50m long wall



**Fig.2 Artist impression of
Option A – rip rap style and
pathway**

**Fig.3 Artist impression of
Option A – masonry stone
wall style and pathway**

Pathway / cycle way
➤ Concrete path 2.0m wide - \$350 lin m => up to \$80,000 for the whole 277m along the full length of the Reserve proposed



Fig.4 Layout of the pathway alignment (preliminary only)

Risks / Issues:

- Design consultation, review and agreement with key affected parties
- Agreement as to operational use and ongoing maintenance of the site and hazardous waste
- Meeting the Proposed Auckland Unitary Plan provisions (PAUP)
- Meeting the contamination NES health standards
- Capital funding for the staged delivery
- Lodgement of the Resource consent by the critical path requirement date of March 2015 to enable physical works in May/June 2015
- Clearance of the site to enable physical works to commence 01st May 2015