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Marine, Estuarine and Freshwater Ecology, Sediment and Water Quality Dynamics

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PROPOSED RAMP FACILITY 21 BONA CRES MORNING BAY - ACID SULFATE SOIL (ASS) ASSESSMENT AGAINST CLAUSE 7.1 OF PITTWATER LEP 2014

Figure 1 View inshore from existing jetty to shoreline at 21 Bona Crescent Morning Bay. The ramp will be placed on the eastern (left) side of the jetty.

1 INTRODUCTION

I have been requested by *Stephen Crosby and Associates Pty Ltd* (SCA) to provide an Acid Sulfate Soil Assessment Report for a proposed skid ramp facility at No 22 Bona Crescent Morning Bay (**Figure 1**). The proposal is set out on drawing 1220 DA300 dated 28 June 2022 prepared by buck&simple and the location in relation to existing marine facilities is shown on **Figure 1** above and **Figure 2** below. As the water land where the proposal is sited is *Class 1* on the acid sulfate soil hazard map, the proposal requires assessment against Clause 7.1 of the Pittwater LEP 2014.

The project will require the construction of a 6m by 2.4m boat ramp connect to the existing seawall and supported by up to six piles.

1.1 Land and Seabed Descriptions

The land and seabed at the site are described as follows (see **Figures 1 and 3**):

- The foreshore for the property comprises a reclamation behind a block sandstone seawall with sandstone paving.
- The proposed inshore works are located over a low gradient intertidal basement rock shelf which has a thin cover of marine sands.
- The basement rock shelf dips gently down to the north-east with progressively more sand to silty sand cover.
- There is a linear mound of placed rock rubble to the east of the proposed ramp facility (**Figure 3**).

Figures 1 and 3 show the existing inshore rock rubble and sandy cover over basement rock at the subject and adjacent properties at low tide becoming deeper offshore silty sand cover offshore.

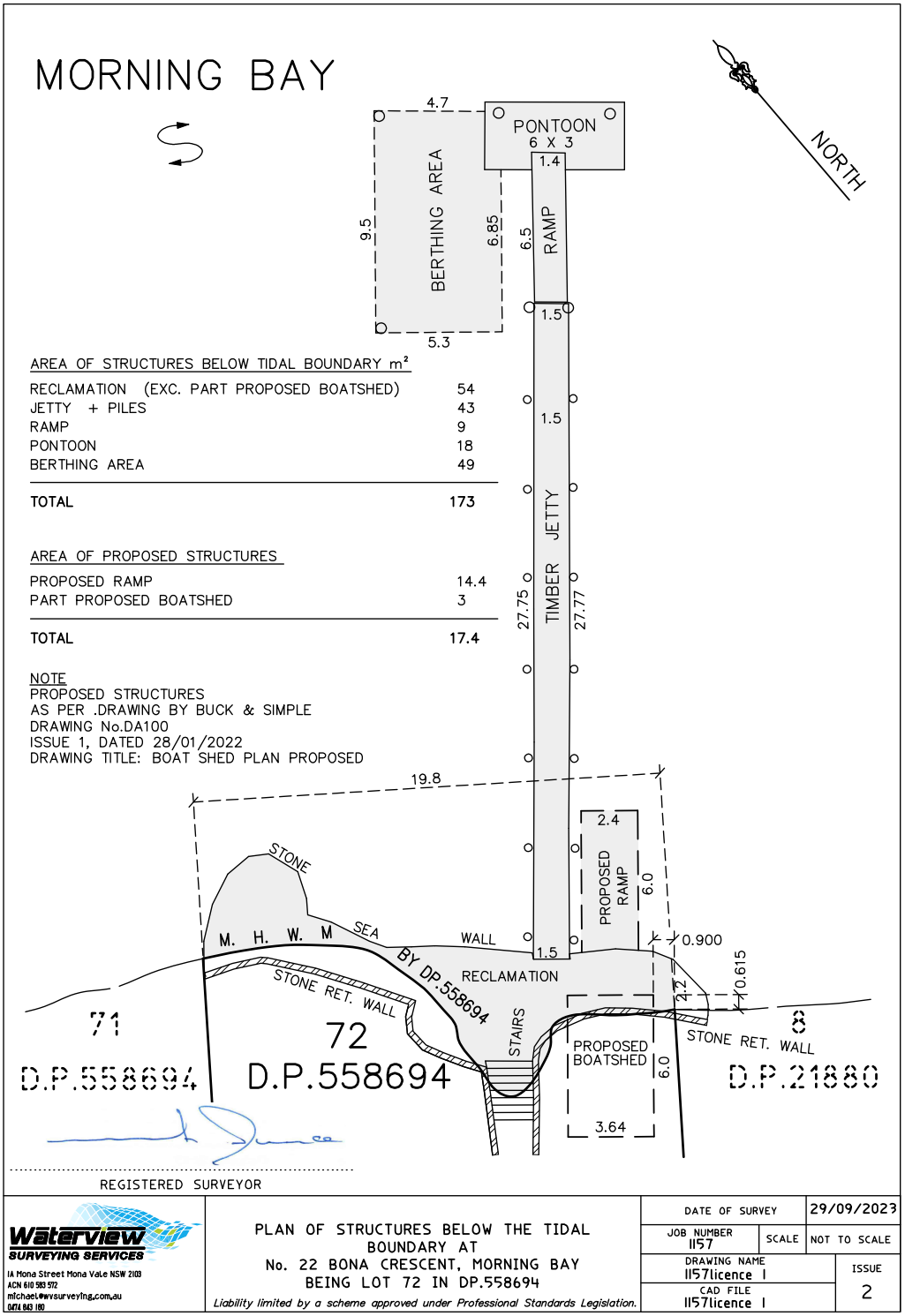


Figure 2 Survey report showing the location of the proposed ramp in relation to the existing structures

Figure 3 View NE (offshore) showing location of ramp into marine sand over basement rock

2 CLAUSE 7.1 OF PITTWATER LEP 2014 & ASS MANUAL REQUIREMENTS

This Section sets out the Pittwater LEP 2014 (PLEP) requirements as follows:

> **PLEP Clause 7.1 (2)** states that *Development Consent is required for the carrying out of works described in the Table to this subclause on land shown on the Acid Sulfate Soils Map as being of the class specified for those works* and for Class 1 Lands the works are described as "*any works*".
> **LEP Clause 7.1 (6)** states that *Despite subclause (2), development consent is not required under this clause to carry out any works if:*
> *(a) the works involve the disturbance of less than 1 tonne of soil and*
> *(b) the works are not likely to lower the water-table.*

The ASS Manual (ASSMAC 1998) model ASS LEP states *inter alia* that:

> *The Model Acid Sulfate Soils LEP requires that if works:*
> - *involve disturbance of more than one (1) tonne of soil or lowering of the water-table;* ***and***
> - *trigger the criteria relating to the land (see the ASS Planning Maps which are based on the level of risk associated with the soil characteristics and the depth and type of works),*
>
> *a preliminary test must be undertaken to determine if an ASS Management Plan is required.*
> *If an ASS Management Plan is required, a development application must be lodged for the works.*
> *The Model ASS LEP clauses only apply to works likely to result in environmental impacts from the disturbance of acid sulfate soil.*

3 ASSESSMENT OF APPLICATION AGAINST LEP PROVISIONS

The proposal is located in south western Pittwater, which has the full tide range of around 0m Lowest Astronomical Tide (LAT) to +2m HAT (Highest Astronomical Tide). The project Plan Contours are shown as mAHD, where 0m AHD approximates +0.925m LAT. The site is open to North East Pittwater and Scotland Island to the east with resultant wind waves. Passing vessel wash would be present but not expected to be high.

With respect to ASS impact assessment, the works require no removal of piles and placement of up to six new piles for the new skid ramp.

3.1 Potential for PASS Soil Disturbance During Construction

In terms of PASS soil disturbance during construction, there will be no excavation required for the project as all piles are to be driven or screwed into the seabed.

- All the new piles are to be driven or screwed into inter-tidal sediments from a barge-mounted pile driving rig and therefore there will be no sediments mobilised, as the pile driving action pushes and compresses soils aside with some entrained downwards via friction effects. As a result, the sediments remain intact and under water, and as they are not exposed to air, there is no risk of acid generation arising from piling activities.
- Pile driving is associated with pulse turbidity, and this is caused partly by rig and pile driving head lateral vibration, and also via compression of sediments, whereby the laterally-compressed sediments compress waters in adjacent benthic fauna burrows jetting turbid water up out from burrows.
- As the local waters are generally full marine salinity, these sediments rapidly fall back to re-settle on the seabed.
- There is therefore no 'secondary excavation' or any exposure to air of sediments associated with turbidity caused by pile placement/driving.

3.2 Potential for Alteration of the Water Table

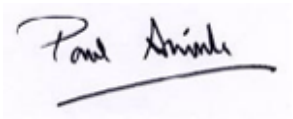
The level of the water table below the tidal seabed will fluctuate dynamically according to the interplay of gravity pressure from fresh groundwater flow (which varies with the rate of wet or dry weather infiltration), and the back pressure imposed by the tidal waters that saturate the seabed sediments down to the water table.

Accordingly, placement of piles will have no material effect on the sub-surface water table levels nor on the rates of exchange/mixing of freshwater groundwater with overlaying saline waters. That is, there is no potential for alteration of the water table associated with pile driving activities into intertidal waters. Further, as there are no temporary or permanent excavations associated with the project inshore, there will be no lowering of the local water table.

3.3 Assessment against Pittwater LEP 2014 Clause 7.1

In sum, as no soil is to be excavated for the piling project, there will be less than 1 tonne of PASS disturbed for the project, and the small amounts of PASS that could be disturbed and brought from the seabed surface would for the most part be returned to the estuarine waters to be dispersed and re-incorporated into the seabed sediments with no exposure to air, and no opportunity to become ASS. Accordingly, the project would meet both provisions of Pittwater LEP Clause 7.1 (6) and thus the project should not require development consent under Section 7.1 (2), and there is no requirement for the preparation of an ASS Management Plan as per Clause 7.1 (3).

Signed:



This report has been prepared by Paul Anink, Managing Director and Principal Scientist at Marine Pollution Research Pty Ltd. Final Report 05 Dec 2023.