

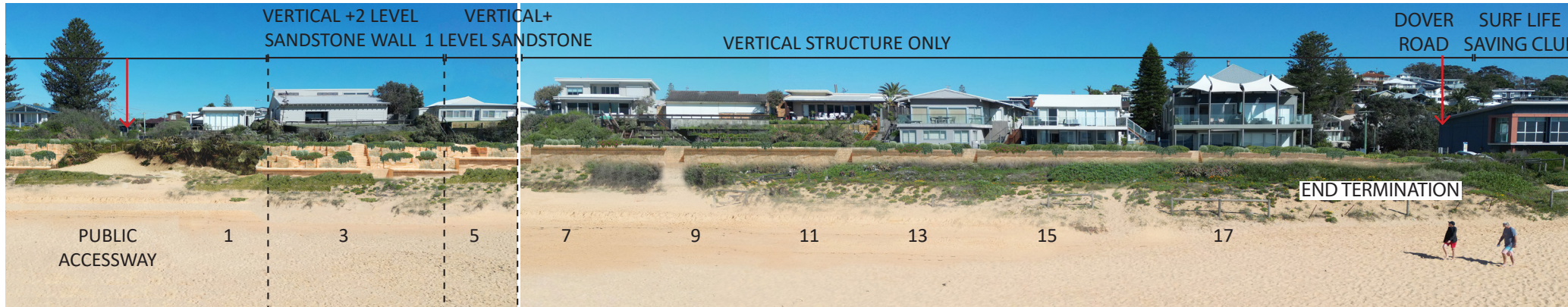
ATTACHMENT D – SECTION A – LANDSCAPE PLANS

Terminal Protection Structure A (TPS A)

The Terminal Protection Structure A was designed according to the design guidelines of the Wamberal Beach Terminal Protection Structure. Structural Engineering was designed by Hatch. Please refer to the documentation and reports by Hatch.



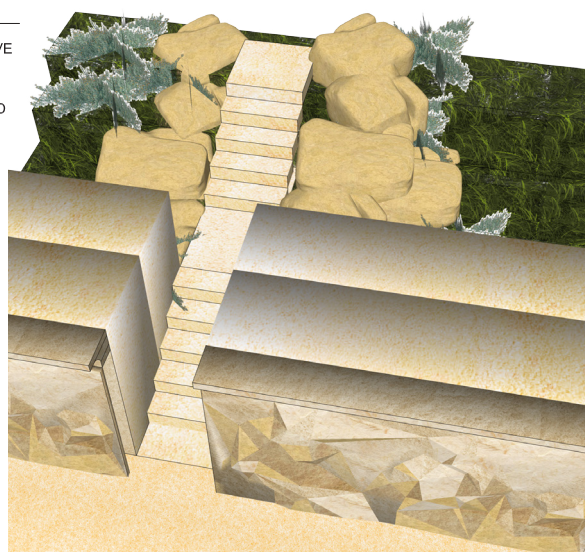
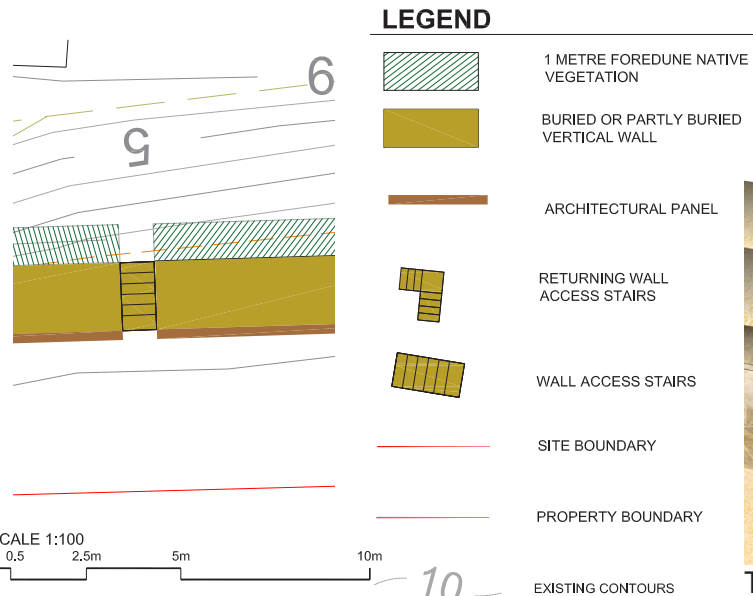
LANDSCAPE PLAN



RENDER - CALAIS ROAD: VERTICAL STRUCTURE, +1 AND +2 LEVEL SANDSTONE WALL

Beach access stairs were integrated both in the private boundary of private properties and in the public realm. Public access stairs are designed to be available at varying levels of sand dunes, as access stairs are built into the vertical wall itself.

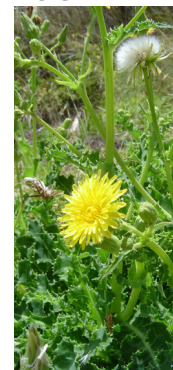
Transitions to termination/adjacent structures and to level changes within the wall are designed to be as smooth as the engineer solutions allows, to enhance uniformity with the shoreline. Adjacent structures are integrated within the horizontal line.



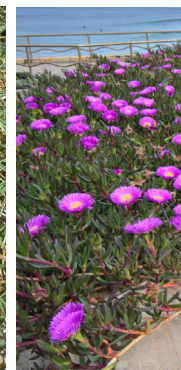
TYPICAL ACCESS STEPS WITH EXAMPLE OF PRIVATE STEPS

A rear corridor of 1m width between the rear crest of the wall and adjacent buildings was considered where space permits it, to allow access for maintenance if necessary and for planting of native groundcovers that can regrow quickly if disrupted.

LOCALLY NATIVE PLANTING

Actites
megalocarpa

Carex pumila



Carpobrotus
glaucescens



Ipomoea
brasiliensis

Ischaemum
triteceum

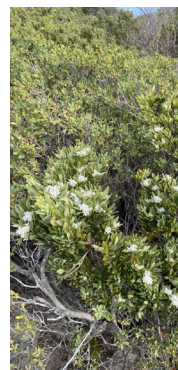
Spinifex



Vigna marina

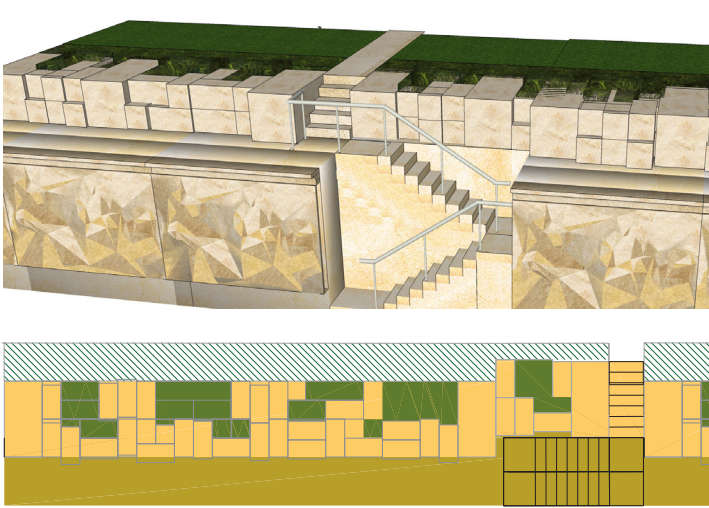


Westringia
fruticosa

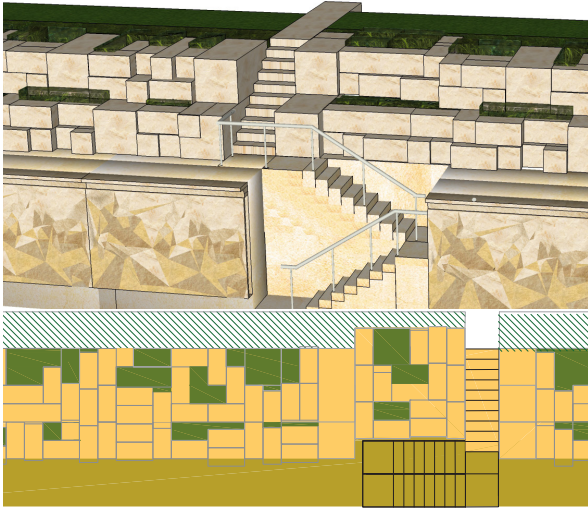


Leucopogon
parviflorus

Terminal Protection Structure A (TPS A)
FROM PUBLIC ACCESSWAYS AT SURFERS ROAD TO DOVER ROAD



TYPICAL LANDSCAPE TREATMENT - VERTICAL
STRUCTURE + 1 LEVEL STEPPED SANDSTONE WALL



TYPICAL LANDSCAPE TREATMENT - VERTICAL STRUCTURE
+ 2 LEVEL STEPPED SANDSTONE WALL

The structure is composed of a mostly buried vertical concrete structure, with a 1 to 2 level cascading upper sandstone block wall on top of the vertical structure. The structure is broken up into parts to provide visual vertical relief. Visual relief is also provided in the upper portion of the structure with the use of planting interspersed between the sandstone blocks.

Below the cascading blocks, an offset engineered mostly buried vertical wall holds the structure of the wall.

SCALE 1:100
0 0.5 2.5m 5m 10m

LEGEND

1 METRE FOREDUNE NATIVE VEGETATION

BURIED OR PARTLY BURIED VERTICAL WALL

PROPOSED ACCESS STAIRS

PROPOSED RETURNING ACCESS STAIRS

1 LEVEL SANDSTONE BLOCKS

2 LEVEL SANDSTONE BLOCKS

SITE BOUNDARY

PROPERTY BOUNDARY

- 10 -

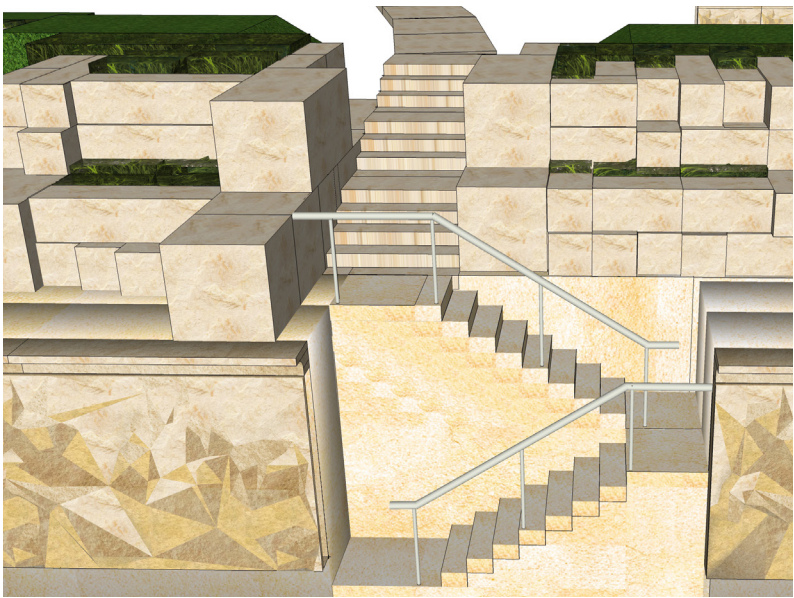
EXISTING CONTOURS

EXISTING BUILD FORM

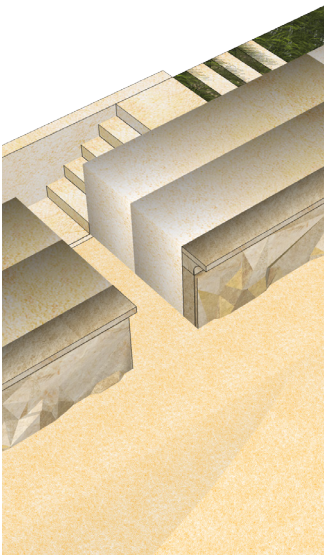
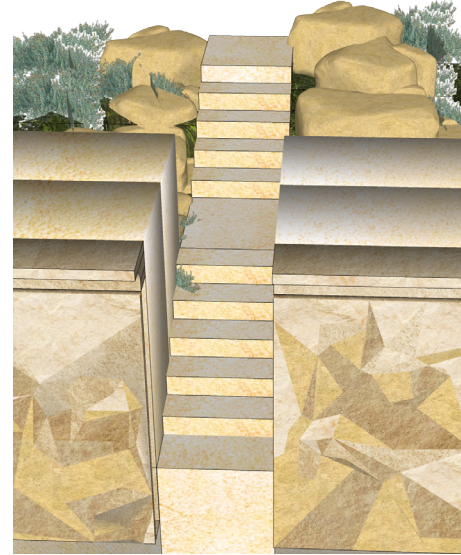


+ 2 LEVEL SANDSTONE STEPPED WALL

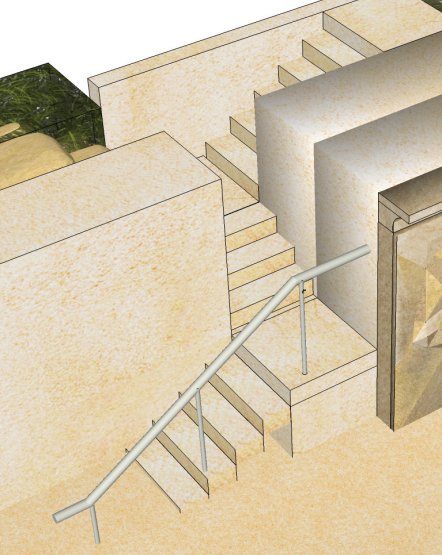
PUBLIC ACCESS WAY



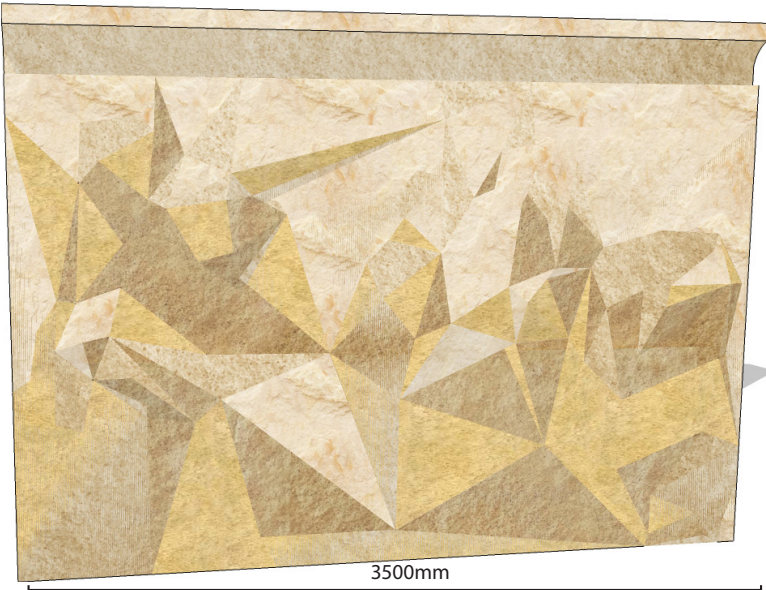
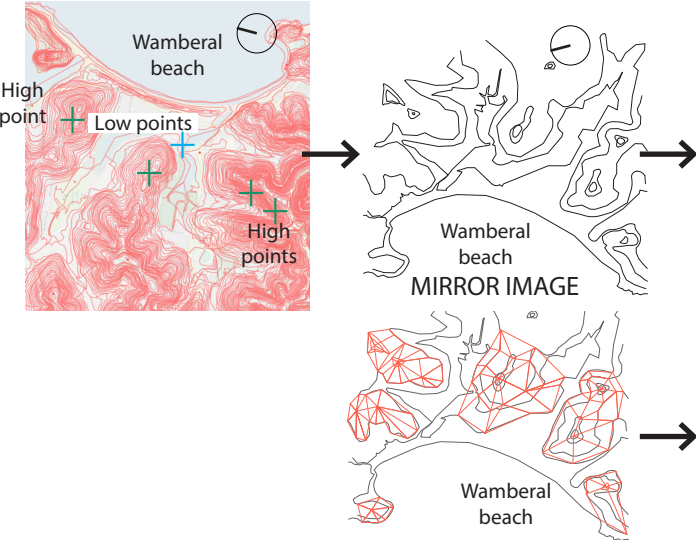
OPENING OF WALL AT ACCESS WAY



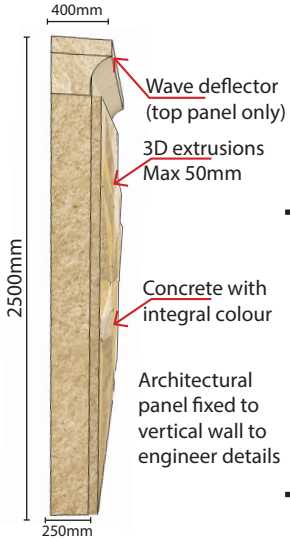
RETURNING ACCESS WAY



LOCAL TOPOGRAPHY - MOTIF OF THE PANEL



TYPICAL PRECAST PANEL MOTIF



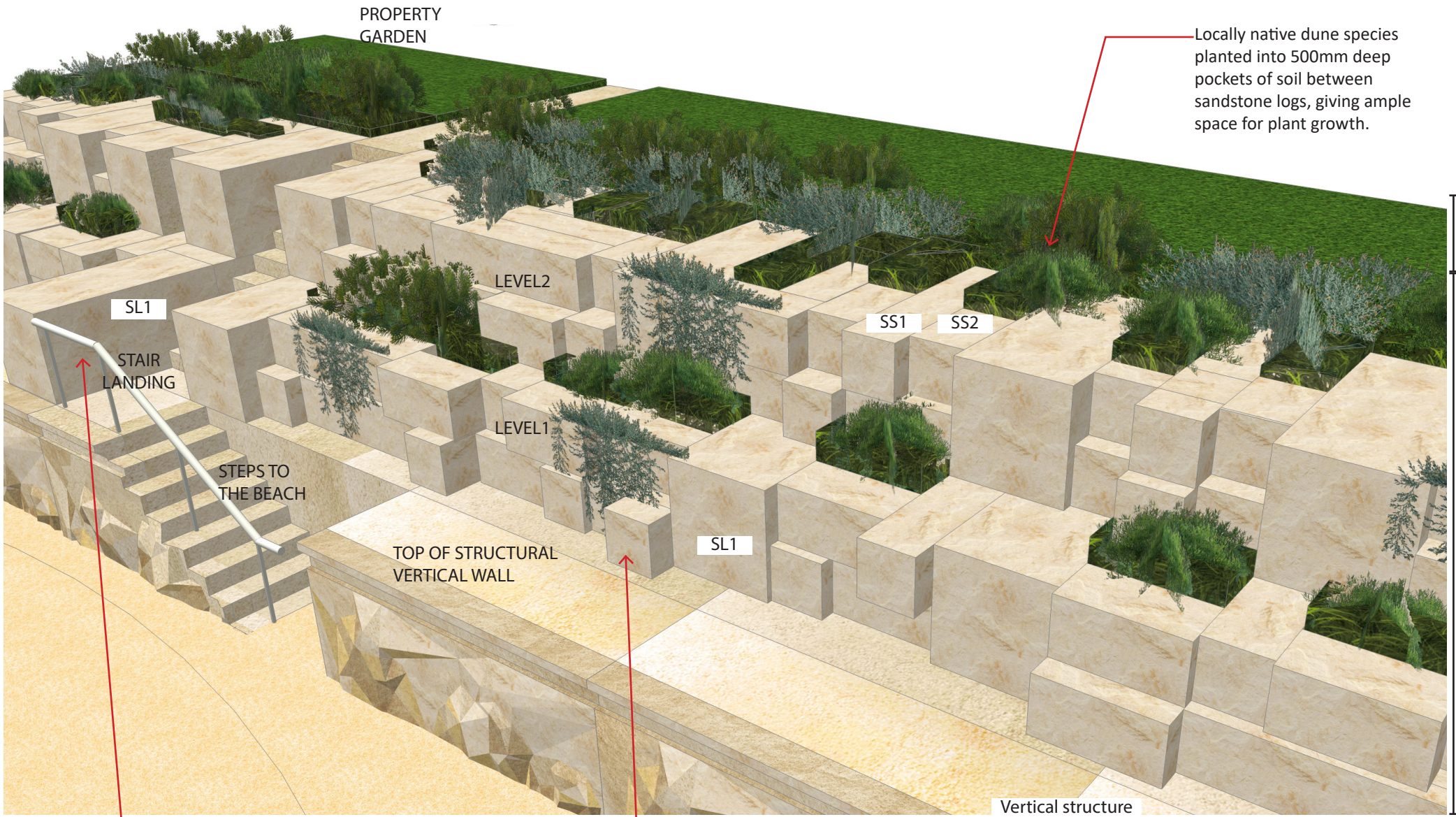
STRUCTURE FRONTAGE
ARCHITECTURAL FINISH
Angular finish will create natural shadow



The TPS was designed to include natural materials that blend into the coastal environment such as sandstone with interspersed planting pockets for native vegetation.

The concrete structure is designed to be tinted in sand colour to limit visual disruption. The façade of this vertical structure has surface decoration inspired by the contour lines of the Wamberal beach. A simplified 3D extrusion of the contour lines was designed to better withstand weathering if exposed.

RECESSED STEPPED LOG TERMINATION STRUCTURE



RECESSED STEPPED WALL

The stepped wall is composed of recessed sandstone logs of varying sizes (see below). Planting is interspersed between the logs. Rock-face with more irregular facing will provide more natural look. The recesses will provide more opportunities for plants to colonise the structure.

There are two levels sandstone logs, each level is 1m high. The depth of the entire sandstone log wall is 3m.

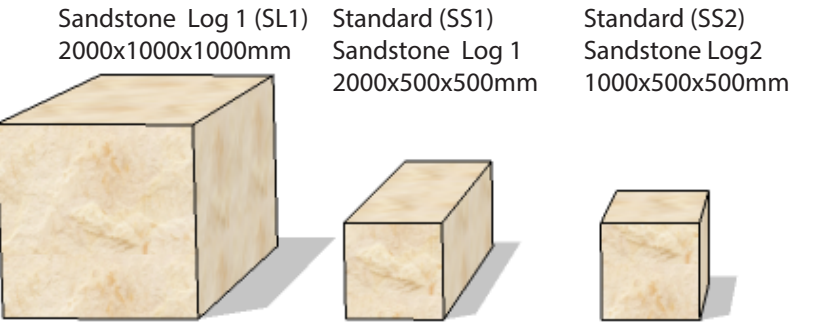
Each level has a front row of logs of minimum depth of 500mm, with planting pockets behind.

A mid-level landing is generated between the vertical structure and the sandstone log wall. This is the top of the structural wall and needs to be unobstructed.

SANDSTONE LOGS:

inish: Quarry sawn

izes:



NATURE INSPIRED LANDSCAPES



Rough sandstone logs provide opportunities for native species to colonize wall crevices and recesses, just like in nature

Recesses will attract moisture and the deposition of sand, which in time will generate litte planting pockets for plants to grow. This will help blend sandstone surfaces with the surrounding natural area.

Similarly, the articulation of pre-cast architectural panels on the vertical wall structure will attract moisture and green colonisers allowing for natural looking shadow lines on the vertical segment of the wall.



Steps at Barrangaroo flanked by large sandstone logs



Protection Structure at South West Rocks