

Cockle Bay Marine Structure

Schematic Design update

**WOODS
BAGOT™**

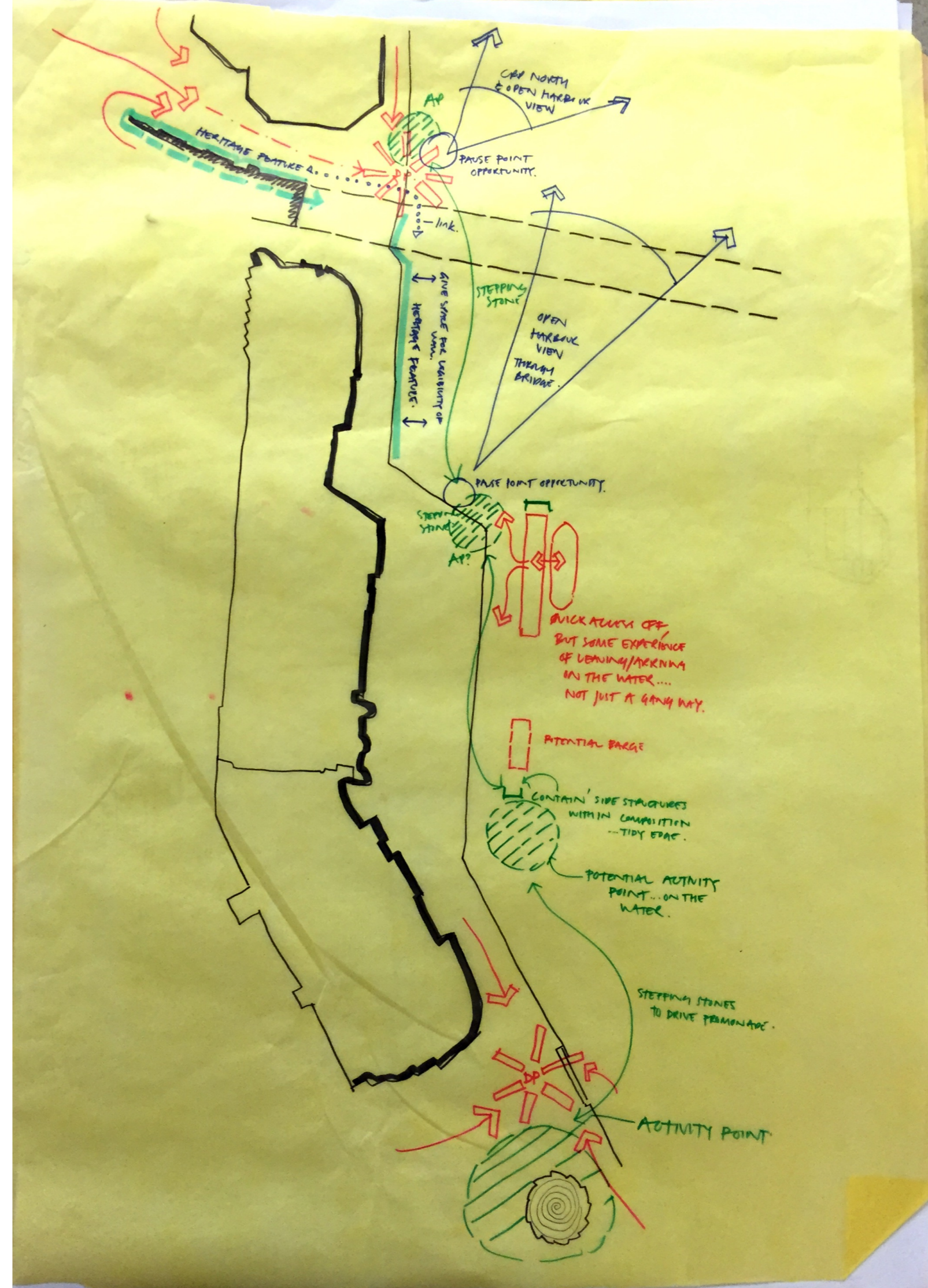
Initial Concept Review

Confirmation and adjustments

Main objectives:

- Improve legibility of access at key end nodes
- Provide spaces for both access (direct, convenient) and experience of the water (destination, or linger space)
- Improve legibility of pontoon vs 'fixed' structures
- Provide usable space or activity nodes to activate longer lengths of pontoon

Figure 5.11: Preferred Layout and Indicative Views



Initial Schematic Design Outline

from wk of 23rd Feb

Main issues:

- Ramps require multiple stages for compliance
- Could be difficult to modify levels or edge of existing concourse
- No desire for landing or water-use activation on western side
- Desire for floating pontoon across heritage wall length
- Need to develop construction-effective ways of delivering rounded or organic forms of pontoon

Tide Levels relative to Deep Port Channel Tide Gauge

Tide Level	Water level	Water level
Highest Recorded Tide (MHL)	2.84m	2.47m
Highest Anticipated Tide (HAT)	2.50m	2.13m
Mean High Water Spring (MHWS)	1.92m	1.55m
Mean High Water Neap (MHNW)	1.72m	1.35m
Mean Low Water Spring (MLWS)	0.80m	0.43m
Mean Low Water Neap (MLWN)	0.60m	0.23m
Lowest Recorded Tide (LLT)	-0.18m	-0.25m
Lowest Anticipated Tide (LAT)	-0.38m	-0.45m

The NSW Maximum Procedure for the Assessment of Public Ferry Wharf Safety requires ferried ramps to have a maximum slope of 1:14 for more than 90% of the ride and for unassisted disabled access. Historical water levels shown in Figure 1.7 will be used in the design of the ramps.

Vertical Levels:
 +2.85 TYPICAL CONCOURSE LEVEL
 +1.65 PAVED PLATFORM LEVEL
 +1.575 MAX WATER LEVEL
 -0.185m LOW PLATFORM LEVEL
 -0.685m MLWS
 -0.925m LAT

Gradients:
 .6m drop @ 1:24 ramp
 1.895m drop @ 26m ramp @ 1:14

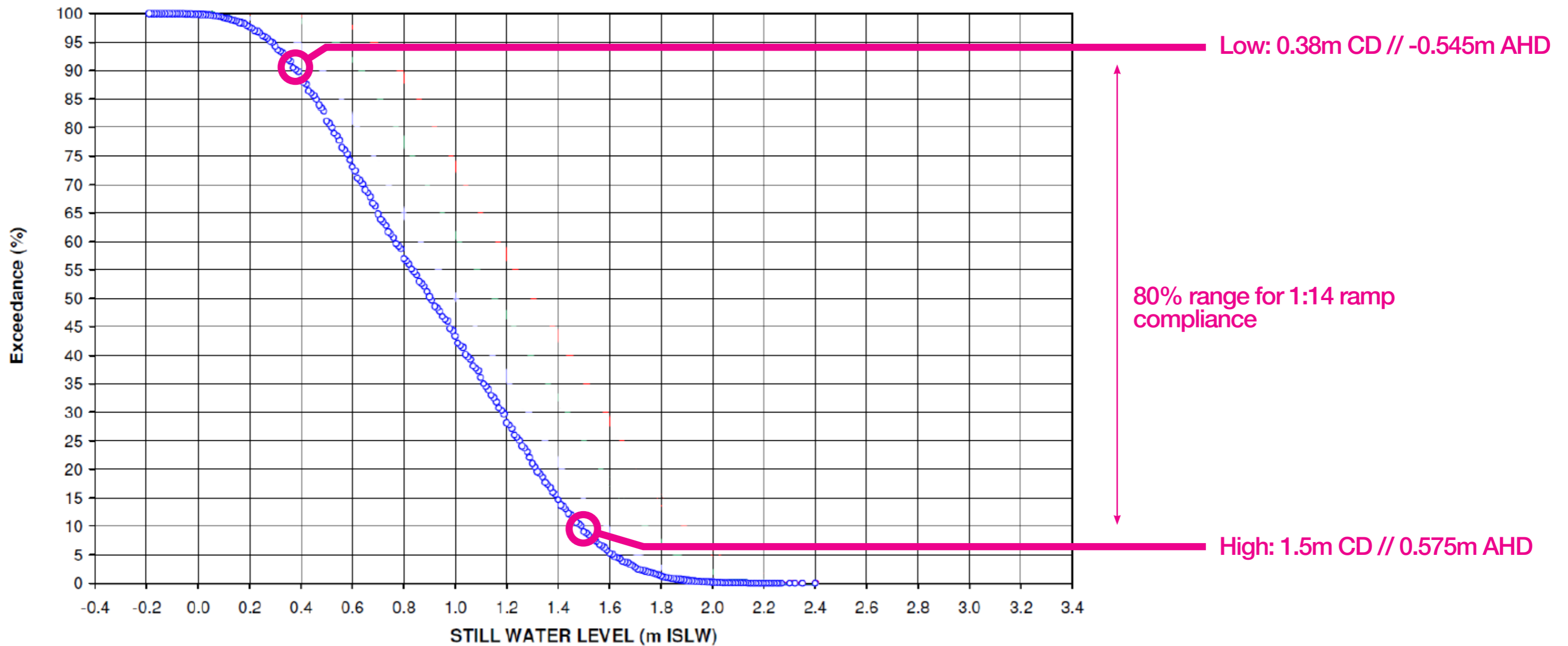
Other Annotations:
 RELOCATED RAMP
 SIMPLE PERCH
 RAISED PERCH
 HABITABLE EDGES
 KVAACK LANDING
 SCULPTURE/WATER PLAY
 MERGING LEVELS
 FLOATING STRUCTURE - SCEPTOR/OCEANIC
 RAMP AS HABITABLE LANDSCAPE
 ALTERNATIVE

Access and ramps

Design level assumptions

The “NSW Maritime Procedure for the Assessment of Public Ferry Wharf Safety” requires hinged ramps to have a minimum slope of 1:14 for more than 80% of the tide time for unassisted disabled access. Historical water levels shown in Figure 3.3 will be used in the design of the ramps.

Figure 3.3: Sydney Harbour Water Level Exceedance



Source: Sydney Harbour Sea Level Rise Vulnerability Studies (Phil Watson)

Access and ramps

Design level assumptions

Tide levels which will be used for the design are tabulated below. The maximum recorded water level at Fort Denison is 2.4m (Watson, 2009). The recommended allowance for sea level rise according to AS 4997 (Table 4.1) is 0.1m for 25 years.

Therefore a maximum water level of 2.5m (1.575m AHD) will be used in the design.

Table 3.1: Tide levels relative to Zero Fort Denison Tide Gauge

Tidal Plane	Water Level	Water level (AHD)
Highest Recorded Tide (HRT)	2.4m	1.475m
Highest Astronomical Tide (HAT)	2.0m	1.075m
Mean High Water Springs (MHWS)	1.56m	0.635m
Mean High Water Neaps (MHWN)	1.32m	0.395m
Mean Sea Level (MSL)	0.89m	-0.035m
Mean Low Water Neaps (MLWN)	0.49m	-0.435m
Mean Low Water Springs (MLWS)	0.24m	-0.685m
Lowest Astronomical Tide (LAT)	0.0m	-0.925m

The "NSW Maritime Procedure for the Assessment of Public Ferry Wharf Safety" requires hinged ramps to have a minimum slope of 1:14 for more than 80% of the tide time for unassisted disabled access. Historical water levels shown in Figure 3.3 will be used in the design of the ramps.

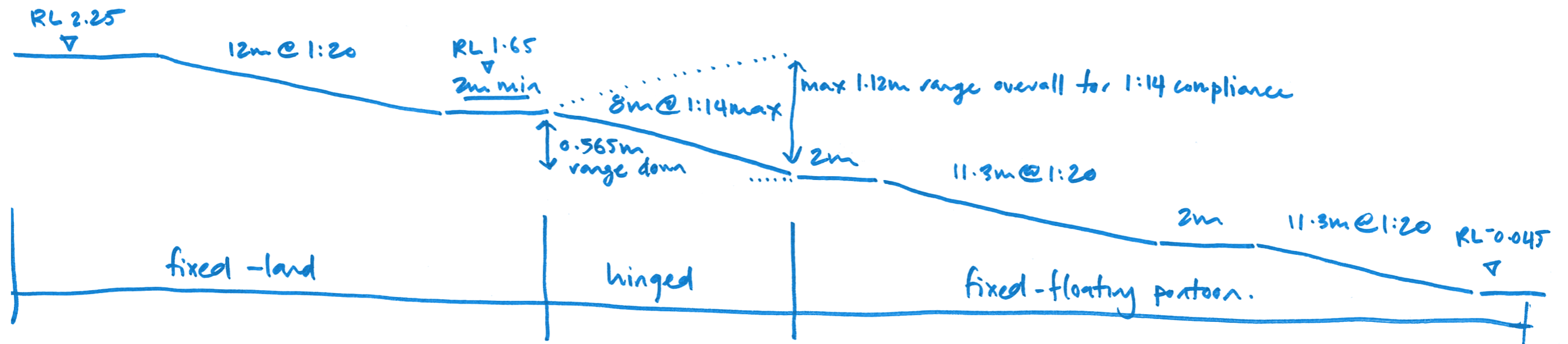
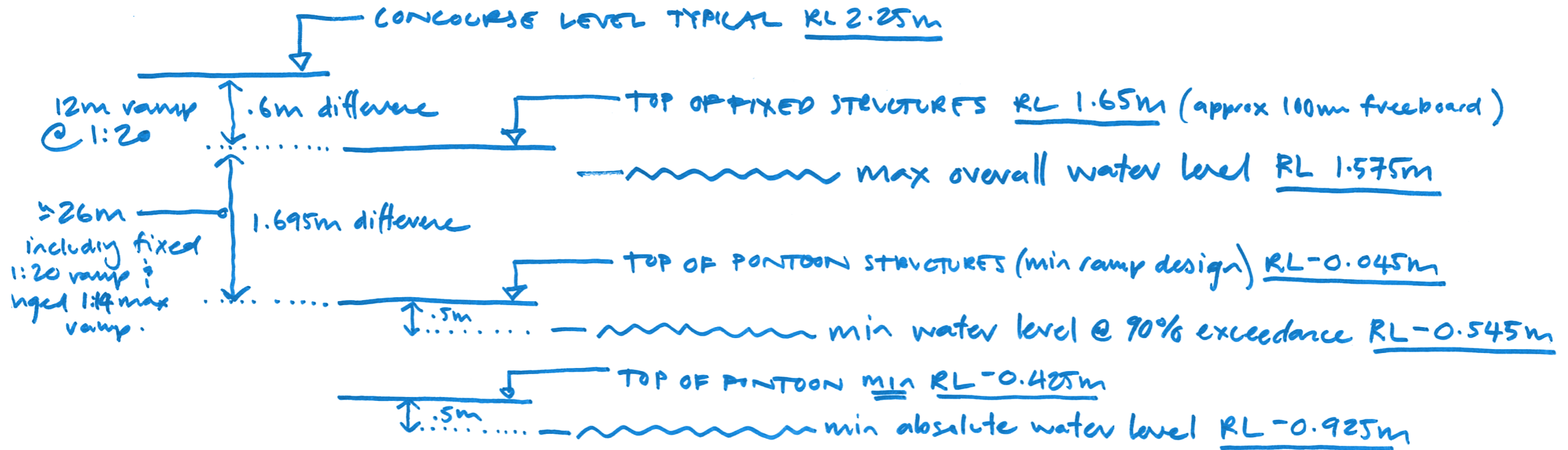
Maximum water level AHD

2.4m overall design range

Minimum water level AHD

Access and ramps

Design level assumptions



Precedents



'Invisible' ramps



Blended ramps and steps

Precedents



'Edge conditions for habitation'



Making routes and pauses

Precedents

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Pockets for view and activity



Steps are for sitting

Initial geometry

To be tested for constructibility, and refining geometry

