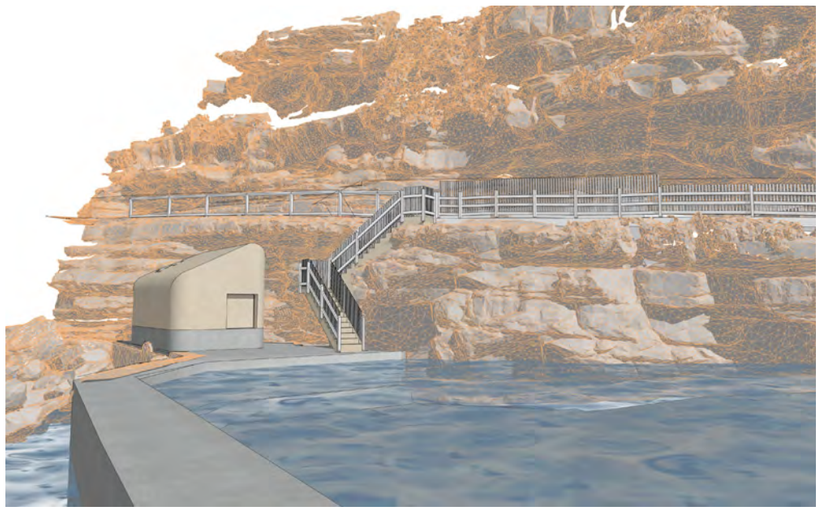
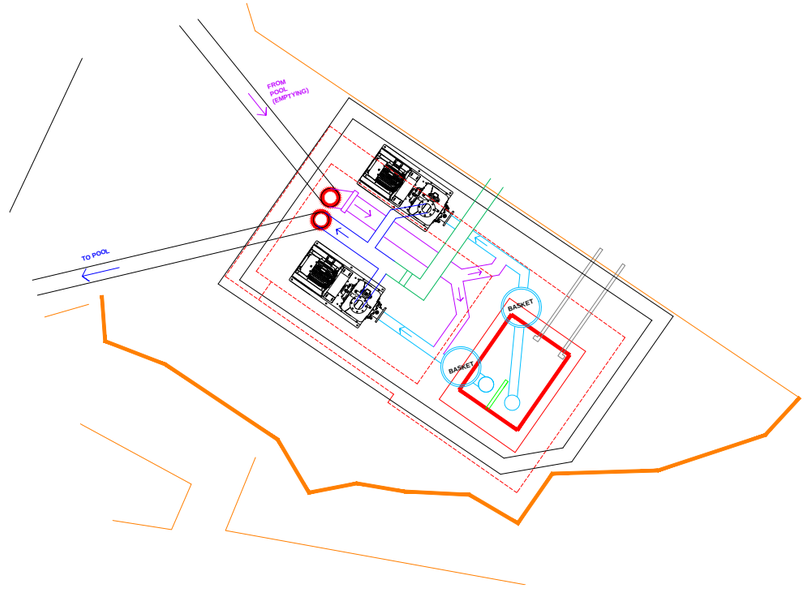
November 14, 2023



PANOV—SCOTT

South Bronte Pump and Pumphouse Replacement

03 Concept design:
Bronte Pool pump



Above: Concept pump arrangement showing dual surface mounted end suction pumps with strainer baskets, noting a nominal building envelope to accommodate this arrangement is shown. The existing pumphouse is shown dashed in red.

Replacement pump system considerations

A dual end-suction self priming pump system has been selected to address the earlier acknowledged issues, in particular Civille's recommendation to install a duty-assist pump arrangement such that if one pump were to fail, there is always a second pump available for operating the pool circulation system. The operation of the pump system will be more energy efficient, by utilising two pumps which provide the ability for variable flow rate, depending on pool usage and by installing a Variable Frequency Drive to control the speed of the pump.

Self priming end suction pumps have the advantage of being able to be surface mounted (which allows for ready access during times of maintenance) and the system is able to use the existing wet well with only minor modifications.

A basket strainer will be fitted to each pump inlet for screening of seaweed and larger particulates prior to seawater entering the pump to prevent clogging of the pump operation.

While the pump is self priming, the pump does have the potential to lose prime and may require occasional manual priming, requiring staff to attend site. A secondary priming pump such as the existing arrangement has been avoided to remove complexity from the system (and therefore possible failure) and as it would require additional maintenance and operational cost.

While the pump technology is far superior to the existing, the proposed pump system is in general terms most similar to the existing arrangement, the operation of which is familiar, and which allows expertise and procedures which already exist within Council's operations and maintenance team to be reapplied as necessary.

Spatial considerations

The spatial requirement for a dual pump system will inevitably be greater than for a single pump system such as that which exists, resulting in the requirement for a larger pumphouse.

Other physical constraints which have been considered include the location of existing pipes and penetrations to and from the pool and ocean, and the deep wet well.

The proposed pump selection and arrangement of equipment must also have regard for the location of necessary curtilage to the pumphouse for service access, and to maintain space for the new stair and general public access.

While detail design considerations around the pumphouse are discussed in the next section, it should be noted that the Concept Pump Arrangement foreshadows the use of the narrow section of concrete which currently exists between the pumphouse and the ocean, to accommodate the necessary increase in size of the pumphouse, to preserve curtilage for service access, as well as space for the new stair and to maximise the public open space around the pool and pumphouse.

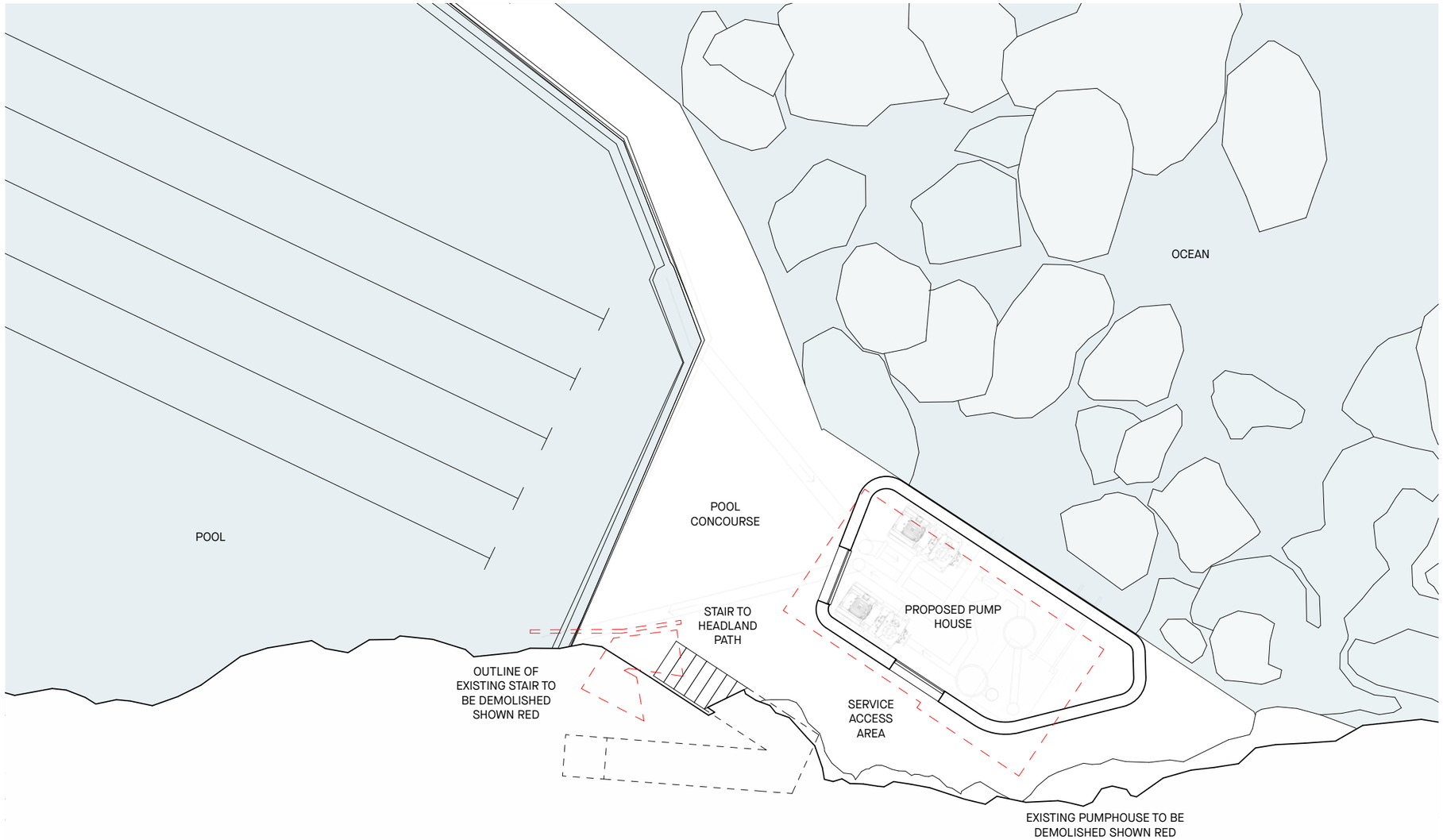
03 Concept design:
Bronte Pool pumphouse

While the proposed pumphouse is required to be larger than the existing, it is proposed that it adopts a slender proportion, with splayed walls that relate to its natural and built context, and rounded corners to reduce its visual impact. The additional footprint largely occupies the unused strip of concrete between the existing pumphouse and the ocean, while the north west-facing splay offers a small increase in public open space between the pumphouse and the pool.

The sloped roof will assist in reducing the impacts of wave inundation, while also providing a pleasing form which is seen in the round and which relates to the surrounding topography.

The proposed pumphouse will employ a material palette which is low maintenance and which responds to its natural landscape setting - a grey concrete base anchors the pumphouse to the pool concourse, with the walls above being a sand coloured concrete akin to the surrounding sandstone cliffs.

A large door is provided into the south western side of the pumphouse for daily access, with a second door facing the pool for additional access as required. This might double as a community signboard or recess for art and cultural interpretation. Doors will be detailed to withstand likely wave action.



Concept site plan - at level of pool concourse & pumphouse

03 Concept design:
Stair and railings

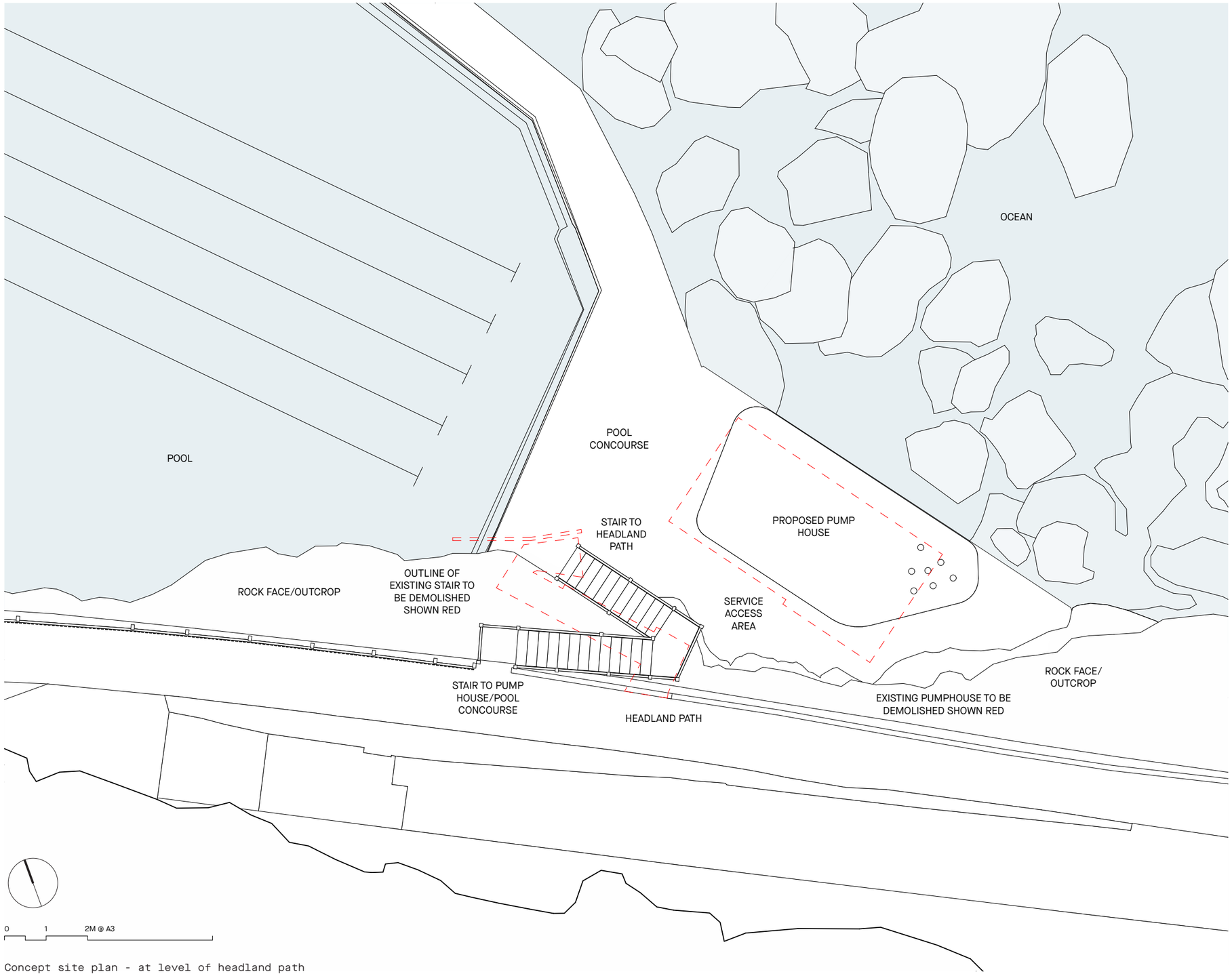
While the existing stair has 22 non-compliant risers, a new stair would require up to 29 risers, depending at which point along the headland path that the stair descends from. To minimise the additional height, and therefore length for stair, the stair descends earlier along the path than the existing.

This has the further benefit of directing the first run of the stair away from the pool before turning back towards the pool and arriving at a comfortable distance from the pool edge. This enhances the experience of using the stair as well as placing the mid landing away from the sandstone cliff face, which reduces the requirement for the current level of screening at this location.

The stair arrangement takes the majority of the stair's bulk away from the pool, and so presents as a reduction in visual impact, improved again by the reduced requirement for screening.

Compliant stair tread, riser and landing dimensions as well as provision of compliant balustrades and handrails will ensure the stair meets current safety standards, will adopting the current material language of painted white timber which exists around the pool.

An efficient structural solution with minimal rock cutting is envisaged.



Concept site plan - at level of headland path

03 Concept design:
Views

Reference photograph across Bronte Pool towards existing pumphouse and stair (above) and similar view of proposed pumphouse and stair (right) using 3D terrestrial scan survey of immediate context as base for modelling software.

The proposed pumphouse adopts a slender proportion, with splayed walls that relate to its natural and built context, and rounded corners to reduce its visual impact.

The sloped roof will assist in reducing the impacts of wave inundation, while also providing a pleasing form which is seen in the round and which relates to the surrounding topography.

The proposed pumphouse will employ a material palette which is low maintenance and which responds to its natural landscape setting - a grey concrete base anchors the pumphouse to the pool concourse, with the walls above being a sand coloured concrete akin to the surrounding sandstone cliffs.

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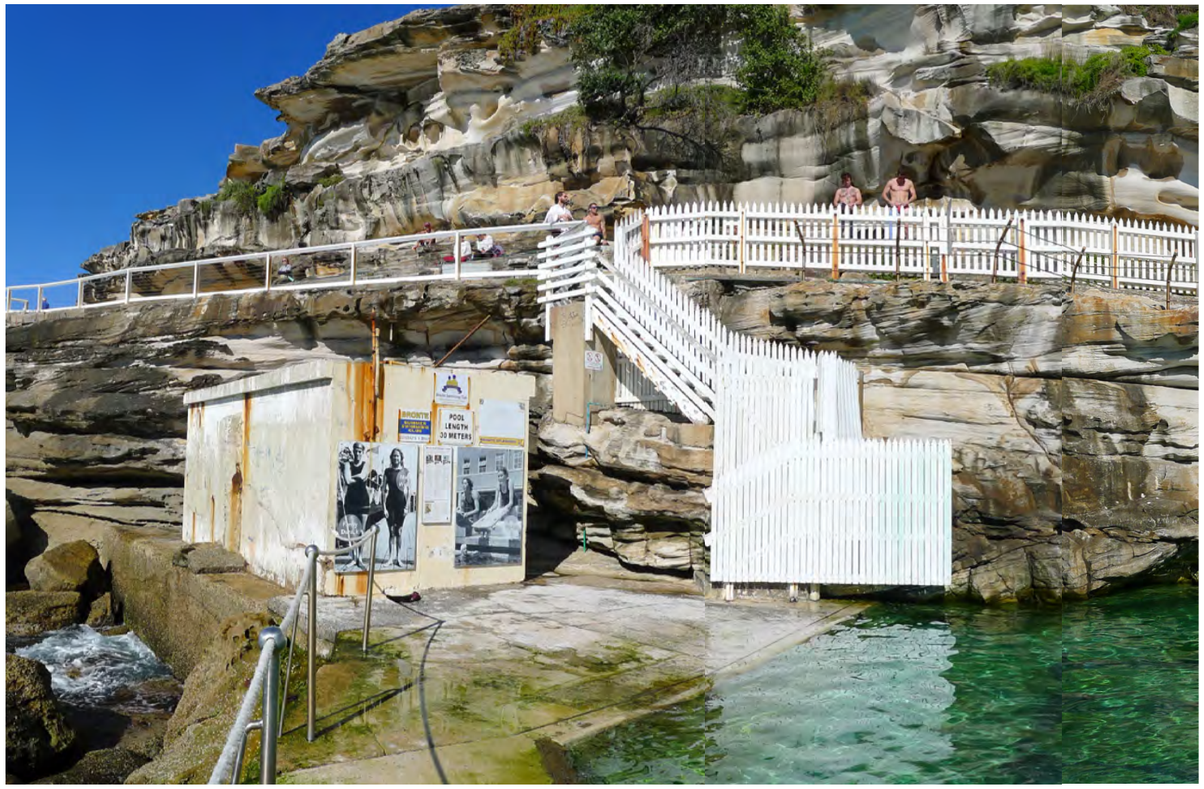

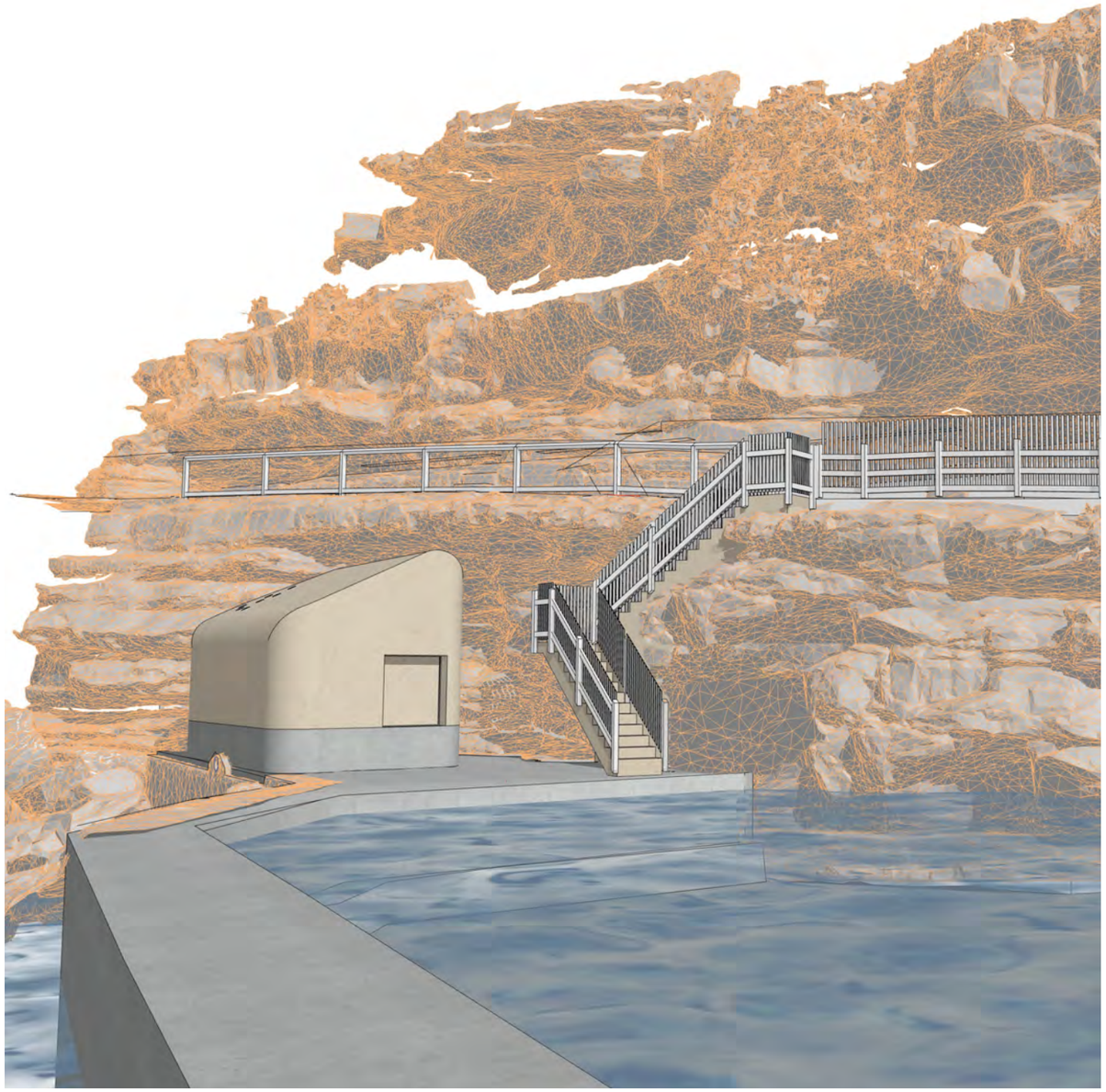

Reference photograph along Bronte Pool seawall towards existing pumphouse and stair (above) and similar view of proposed pumphouse and stair (right) using 3D terrestrial scan survey of immediate context as base for modelling software.

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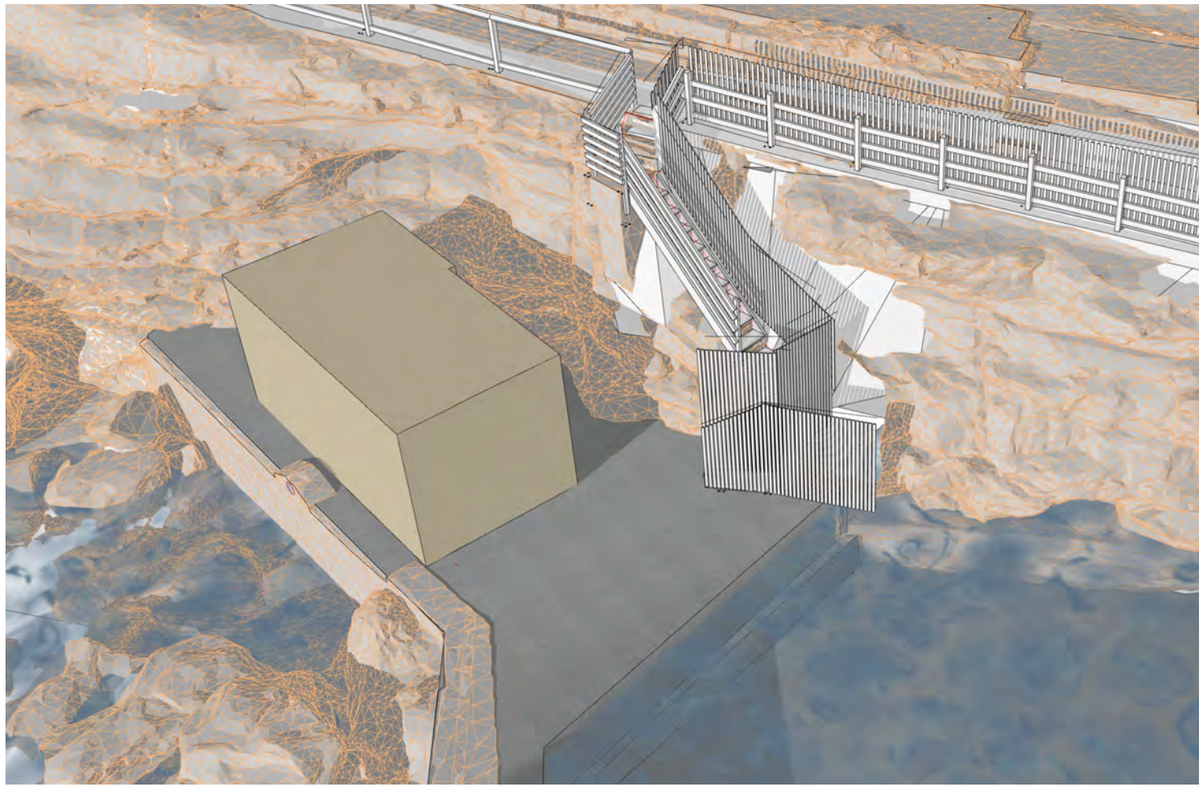

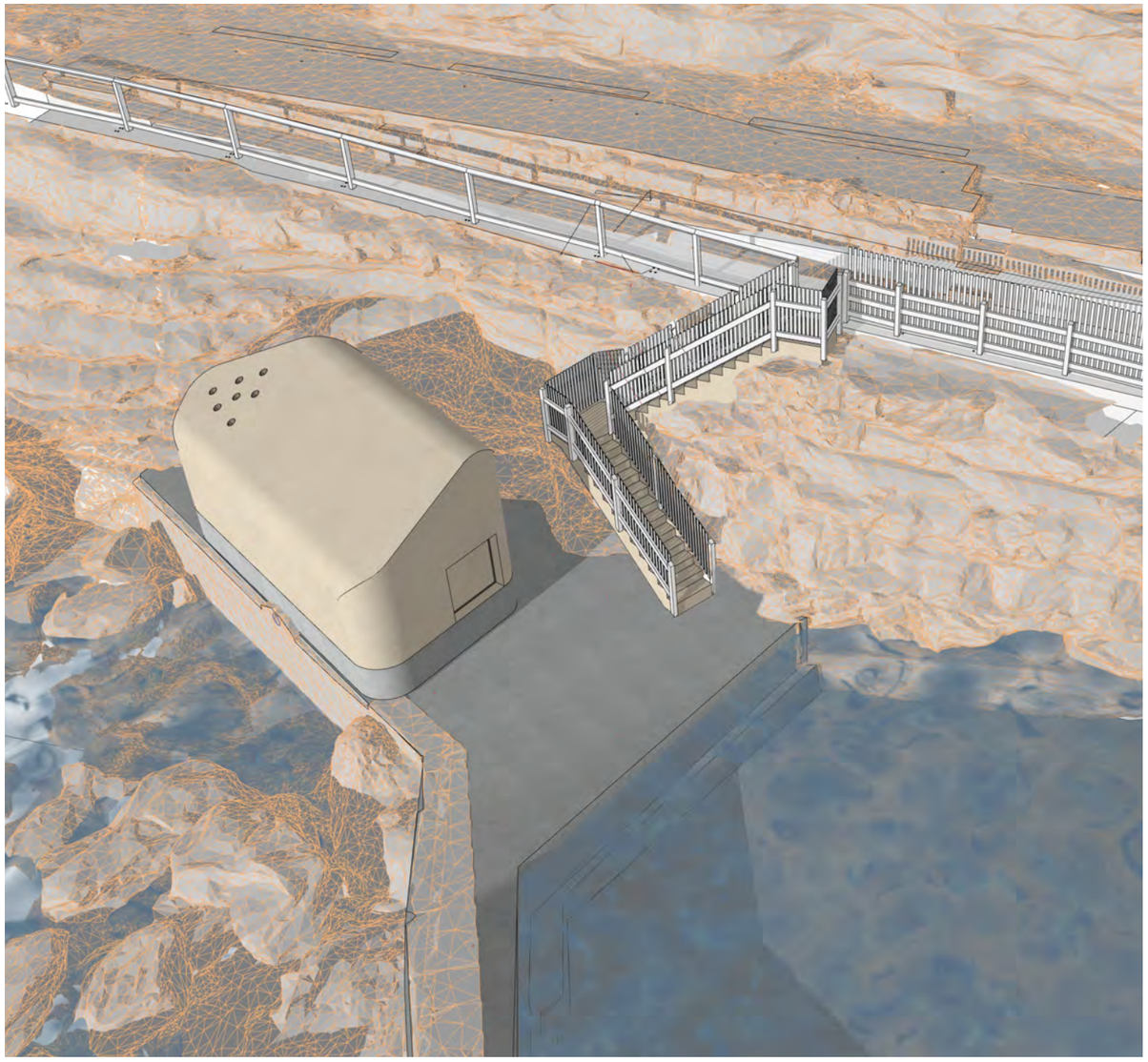

View from above Bronte Pool towards existing pumphouse and stair (above) and proposed pumphouse and stair (right) using 3D terrestrial scan survey of immediate context as base for modelling software.

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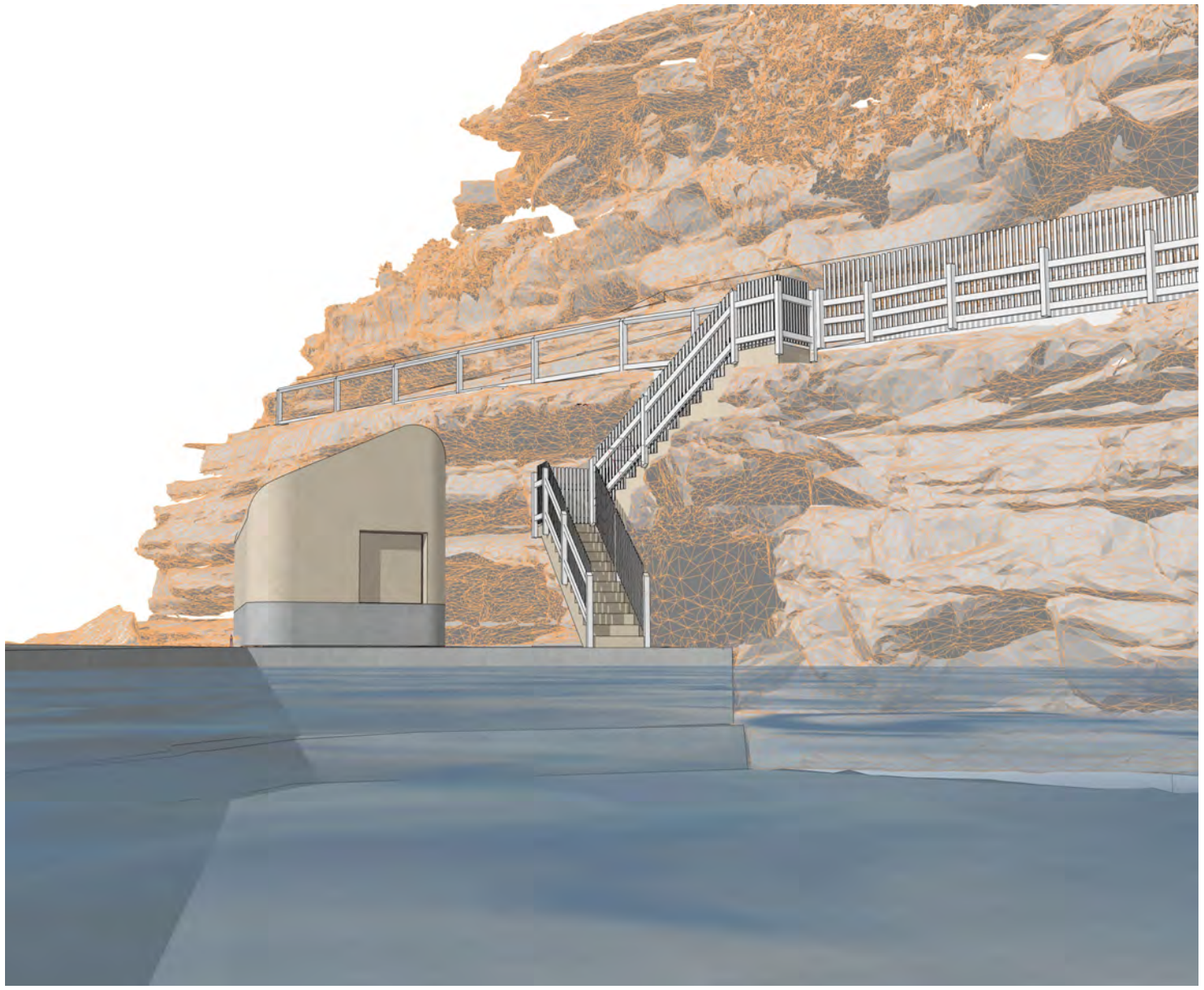

Reference photograph from in Bronte Pool when empty towards existing pumphouse and stair (above) and similar view of proposed pumphouse and stair (right) using 3D terrestrial scan survey of immediate context as base for modelling software.

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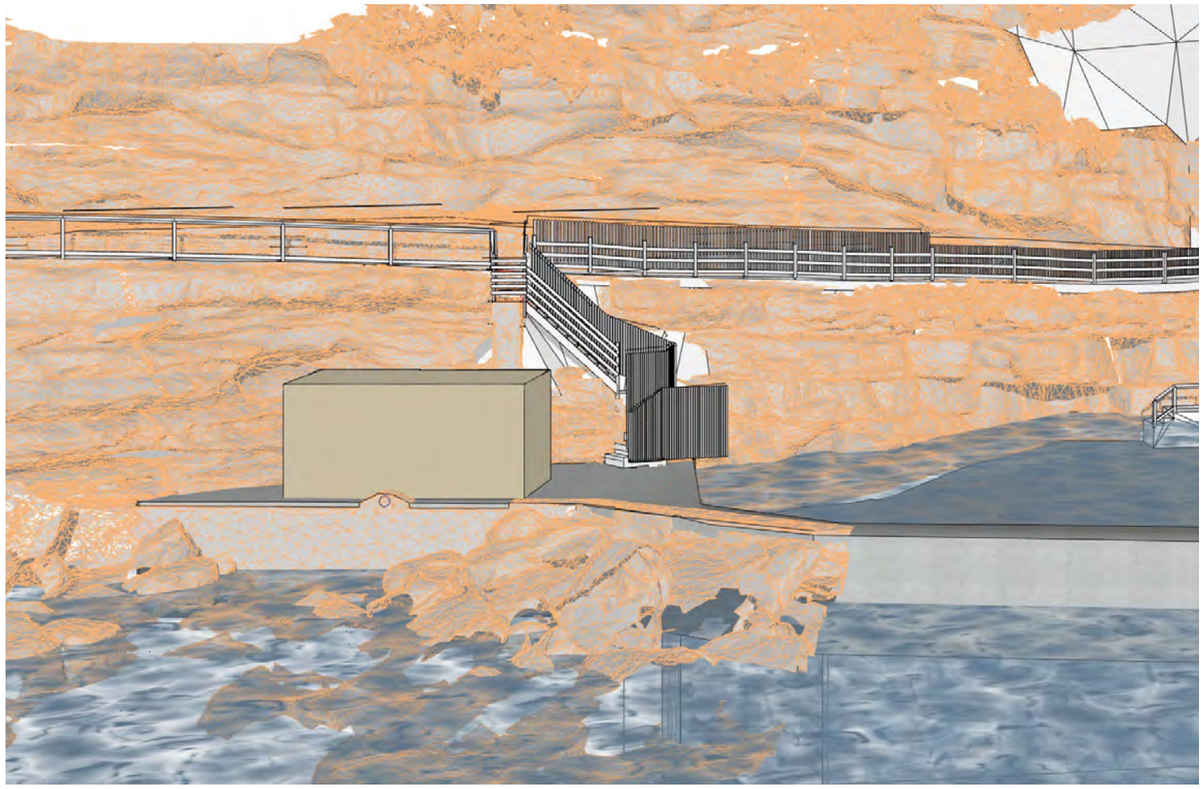

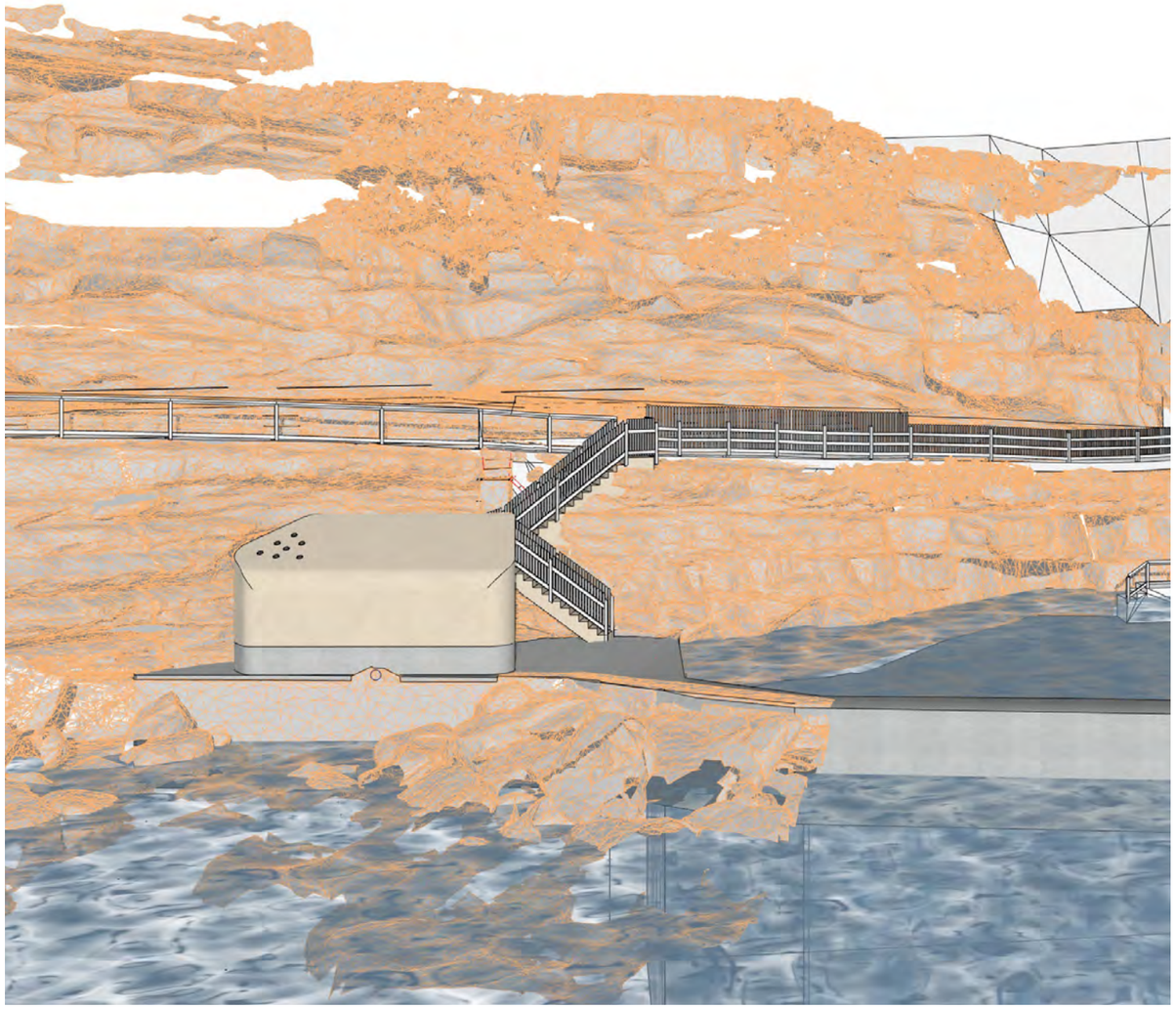

View from the ocean towards existing pumphouse and stair (above) and proposed pumphouse and stair (right) using 3D terrestrial scan survey of immediate context as base for modelling software

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