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Project/File: Grutness (00010318) Red line  
Boundary Changes

Date: 19 March 2024

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**Reference: Grutness Shetland (00010318)**

As the design for the works to the existing pier at Grutness have progress into detailed design and also the slight scope change in reducing the build due to the removal of the linkspan which also has reduced the length of the pier.

The project team have identified 2 changes to the original red line boundary:

- Toe of the rock armour below sea level: and
- Slight variation to the design as a result of the linkspan being removed from the project.

**Toe of the Rock Armour below sea level:**

The toe of the rock protection now just goes outside the original boundary. This is based on the size of rock armour required to achieve slope stability, with minimum crest width of 1.5m and steepest feasible breakwater slope angle of 1: 1.75.

**Embankment**

As we are removing the linkspan option from the project, the design team would like to include an embankment to improve stability and protect the pier and structures in this location. The linkspan used to have a piled wall surrounding it. Now that the linkspan has been removed we have a 1 in 2 embankment from the edge of the dredge pocket up to the existing ground level. The embankment has a slightly larger footprint than the piled structure. It extends lightly further South therefore red line boundary has been adjusted to go around this embankment.

It will be constructed at a 1 in 2 slope angle. The natural bed material will be dredged to form the 1 in 2 slope angle, then a membrane will be laid, and secondary and primary armour layers placed on top. The core and secondary layers can be natural beach material, but the primary armour will be imported 0.3-1Te rock.

**Environmental Assessment**

Stantec have reviewed the plans in terms of Environmental Assessment and our professional judgement is that the two slight changes to the red line boundary would not result in additional environmental impact and would be an immaterial change. To confirm the works will not result in any additional dredging, noise, or disturbance to the protected species and the mitigation measures included within the existing consent will also be relevant and included for these amendments. As the works are now smaller the timescales of the project are also shorter which is will be of benefit to any environmental impacts at this location.

**Reference: Grutness Shetland**