**Aberdeen City Council**

**Structures Flooding and Coastal Engineering**

**Marine Licence Application – Appendix A**

**Outline Method Statement - Aberdeen Coastal Embankment**

This method statement has been prepared at the consents application stage by Aberdeen City Council. Further method statements will be sought as part of tender stage deliverables and the selected contractor will be required to create a detailed construction stage method statement the contractor shall not be allowed to proceed until Aberdeen City Council are satisfied that this is suitably developed to allow construction activities to progress.

**Works Requirements**

Replacement of an approximately 100m long section of deteriorated pitched stone revetment lining with a rock revetment between the north verge of the Greyhope Road carriageway and the adjacent foreshore.

Works will include:

* excavation on the beach and construction of revetment toe
* removal and breakup of damaged pitched stone lining
* benching of embankment and creating new slope with imported fill
* installation of filter geotextile over new slope
* installation of rock filter layer and rock armour layer to full height of revetment/embankment (broken up pitched stone lining incorporated into lower layer of rock armour)
* installation of new drainage gullies and manholes in road and replacement of existing headwalls with a single headwall structure
* replacement of missing sections of tubular steel fencing

**Method and Sequence**

This outline method statement covers the marine works required for the revetment. It does not detail road, road drainage or fencing works as these are outwith the foreshore area and are normal to road maintenance and repair/upgrade activities. The contractor will be required to develop a full and detailed method statement prior to construction, and this will require the acceptance of Aberdeen City Council.

**Revetment Sequence**

In order to prevent unplanned movement or collapses of the existing revetment lining and tidal erosion of the embankment, the contractor will be required to schedule their work to cover these issues. This will require the contractor to work on shorter sections of the embankment at any one time and these are not likely to be longer than approximately 10m in length.

It is likely that kerbing and drainage works will follow completion of the revetment construction, but it is possible that some of these works could be progressed when tidal conditions restrict access to the foreshore.

**Demolition and Excavation**

This will be by mechanical plant most likely working on the foreshore but possibly also from the road. The existing concrete lining will be broken up into sizes approximately matching the rock armour to be imported and this will be set aside nearby on the foreshore.

Excavation and benching of the embankment slope will be carried out by an excavator on the foreshore. Excavated soil (sands, gravel, silts) will be taken by dumper truck along the foreshore to the base of the coastal embankment east of the site on the foreshore for disposal. This material shall then be spread to blend into the surrounding landscape and left to vegetate naturally.

Excavation of the beach for the toe trench will be carried out by an excavator on the foreshore. Beach material (sand, gravel, boulders, rocks) excavated will be set aside on the foreshore for later backfilling.

**Imported Fill**

This will be brought to site by lorry and will likely be taken from the lorry and placed by excavator directly to the embankment. Compaction of the fill will be carried out in 500mm deep layers and will likely be by means of an excavator on the foreshore with a compactor plate attached.

**Geotextile Laying**

This will likely be paid-out from the road level from a roll supported by an excavator and laid to the new surface of the compacted fill slope.

**Drainage Layer and Rock Armour**

a 200mm thick layer of 63-180mm coarse graded rock will be laid over the geotextile this will likely by placed from a lorry to the slope by an excavator on the road but spreading may be assisted by an excavator on the foreshore.

Rock Armour of weight 150 – 450kg will be placed by plant on road from lorries directly to the revetment and this process may be supported by and excavator on the foreshore to further manoeuvre rocks into place. The rock armour will be laid in two layers and the first layer will incorporate the broken-up remnants of the demolished pitched stone lining.

Details can be seen on drawings SFC-1123-DR- 001 to 006

Material excavated from the beach will be replaced to maintain existing shore levels after construction of the toe. Surplus material will be spread on the beach.

**Timeframe for Construction Works**

Works expected to be progressed in between July and November 2019

**Future of Installed Structure**

Once in place the condition of the revetment will be monitored along with other coastal embankments and structures by Aberdeen City Council. The revetment will be self-healing in nature and likely to require minimal maintenance. The sheltered location of this site will provide significant protection from the direct tidal wave action that would normally be expected in a coastal environment.

Maintenance activities when required, would likely consist of re-installing or replacement of displaced rock which may become detached from the embankment. This would involve short-term plant activity on the foreshore and adjacent road.