Western Ferries (Clyde) Limited

145036

Kilmun Pier Design Statement

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Document Control

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EXECUTIVE SUMMARY

Arch Henderson LLP have been instructed by Western Ferries (Clyde) Limited to produce a proposal design for the mooring /berthing facility in Kilmun (Kilmun Pier).

The design criteria specified by Client were:

- the berth has to be able to accommodate current Western Ferries vessels,
- the proposed solution has to have minimum visual and environmental impact,
- the proposed solution has to provide safe access for Western Ferries crew.

Three options have been considered, concluding that the preferred option would be to build a new berthing structure in form of free-standing monopiles.

DESIGN STATEMENT

The design statement was produced by Arch Henderson LLP for Western Ferries (Clyde) Limited to support planning application (ref. no. 2018/0247/DET) issued in August 2018 to Loch Lomond National Park. The application is for: Construction of overnight berth and crew access, and installation of fenders and bollards, Kilmun Pier, Kilmun, Dunoon, PA23 8SB.

The existing Kilmun Pier in Kilmun is mostly used by Western Ferries (Clyde) Limited as an overnight berth for their vessels. Additionally, vessels stay at the pier when not needed or during bad weather. Occasionally as many as 3 vessels are moored to the pier side by side.

Currently, the vessels are berthing directly against the timber structure. The spring ropes are moored to the existing bollards installed to the top deck of the pier. Bow and stern ropes are connected to the mooring anchors on the beach.

Crew access/egress the vessel to/from the pier via 6m gangway.

A previous inspection of the Kilmun Pier in 2015 showed that the timber structure is in poor condition. A number of repairs were carried out over many years by Western Ferries, however the structure will continue to deteriorate and the residual operational life is difficult to assess. Pictures showing the current condition of the timber pier are attached in Appendix 1.

Most importantly; the form of the existing structure and its geometry suggest that the existing timber pier was never designed to take full mooring and berthing forces from the Western Ferries vessels currently mooring at the pier.

The above findings suggest that the existing structure may be overloaded by the mooring vessels and with time the structural integrity of the structure may be compromised.

Additionally, the current pier does not meet basic safety rules in terms of vessel operation and crew access.

The several options that were considered:

1. DO NOTHING - WESTERN FERRIES WILL CONTINUE MAINTAIN THE CONDITION OF THE EXISTING PIER.

The existing timber pier is approximately 190 years old. The average design life of new timber structures, constructed from treated timber, in marine environments are considered to be approximately 75years. Western Ferries took over the ownership of the pier in the late 1970's and therefore at that time the pier age exceeded its expected design life. Since then, Western Ferries have carried out regular maintenance works to the pier, however without full construction drawings and record of previous repairs it is very difficult to carry out any further improvement works.

The pier in its current form does not meet basic safety rules and other requirements listed in British Standards and other Regulations (refer to: Safety in docks. Approved Code of Practice - L148).

No safe access that meets current standards can be provided from the existing pier.

The geometry of the existing pier (mooring length) does not meet current requirements for the proposed use of the pier.

It is not recommended to carry out any further improvement works directly to the pier due to its poor structural condition.

2. DECOMMISION THE EXISTING TIMBER PIER AND BUILD SIMILAR STRUCTURE.

The use of following materials has been considered: timber, concrete, steel.

In all cases the proposal proved to be unsustainable. The costs of the construction were too high and the environmental impact was significant. The geometry of the structure will have to meet the new design criteria, and therefore the structure will be much wider, but most importantly in all cases the top deck level will have to be increased to meet current flood risk level (+6.02mCD excluding potential effect of wave action, funneling or local bathymetry at this location – please refer to SEPA letter from 11th September 2018, ref. no PCS/160997) and other criteria. Therefore any structure with this increase in deck heights will dramatically affect the view.

3. BUILD A NEW BERTHING STRUCTURE IN FORM OF FREE-STANDING MONOPILES

The proposed solution to this problem is to construct a new berthing/mooring face in front of the existing timber pier. This new berthing structure will be constructed in the form of 5 tubular, free-standing monopiles, approx. 1.0 to 1.2m diameter. The top of the piles has been estimated as +7.35m CD, which is approximately 2m above the deck of the existing pier and only 0.5m higher than the top of the existing timber piles installed at the front face of the existing pier.

The new structure will be installed approx. 6.5m away from the existing berthing face to provide suitable water depth for all Western Ferries vessels over the full tidal range without dredging. Dredging operations in the area adjacent to the existing timber structure could affect its overall stability.

The visual impact when vessels are moored will be unchanged.

From the landside, the proposed free-standing piles will have little visual impact when a vessel is not at the berth.

Additionally, all piles will be painted black with black fenders installed to the front face of each piles.

Discreet mooring bollards will be installed on the top of some piles as required.

The two shore anchors will be replaced by two engineered mooring bollards that will be installed on land (example shown on drawing 145036-311 will be reduced to below adjacent road level).

Therefore, in our opinion the visual impact of our proposal will be low.

To provide safe access/egress to all vessel's crew, it is proposed to construct new permanent gangway access. The crew will access/egress the boat via a new approx. 6m long gangway that will be installed to the new access frame constructed adjacent to the existing pier. The new gangway will allow the crew to safely access the boat at all tides levels (to meet the requirement from Safety in docks. Approved Code of Practice - L148). The design of this has been altered to reduce the visual intrusion of the cross bracing shown on earlier drawings.

Additionally, we confirm that Western Ferries are aware of their responsibilities as the pier owner and will still carry out the regular inspection, maintenance and repair works to the existing timber pier.

APPENDIX 1