St Kilda Fuel Tank Replacement -

Version 1 - 5th October 2015

Prepared : B A Urquhart 5th October 2015

Detail in support of Schedule Monument Consent - Historic Scotland

Introduction

Boiler and diesel generator plant on St Kilda are fired by fuel oil held in nine 55,000litre tanks, all in the one position, some 70 metres from the top of the slipway. They are single skinned steel tanks installed in 1970 and now are life expired.

A thorough mechanical examination and analysis of the structural integrity of the existing fuel tanks in St Kilda has shown that all should be replaced, three this year with the remainder in 2016.

The competent authority has also recommended that the safe working capacity of the remaining serviceable tanks be reduced to a maximum holding capacity. Unless three of nine tanks are replaced this year the remaining holding capacity is insufficient to guarantee continuous operation of electricity generators and boiler plant through the winter.

Method Statement

The method to recover the old and install the new tanks is the responsibility of the principal contractor but guided by our and our advisers' advice. The Authorising Engineer (Petroleum), Authorised Person (Petroleum), Site Engineer, Head of Site and stakeholders all have had an input to the proposed method of exchanging tanks.

Generally, the lifting contractor will accept the new tanks from the supplier at the point of boat departure. He will transfer the new tank to a 'port' trailer and tractor it onto the St Kilda supply vessel. The lifting contractor will accept this tank from the boat on its arrival on the island. He will deliver the tank to a position on the road immediately to the west of the crane.

Awaiting the arrival of the boat, the tank decommissioning team will have degassed, desludged and disconnected one tank and handed responsibility to the lifting contractor to lift from the bund area and onto another 'port' trailer. The tank will be dry and empty.

The crane will have positioned itself on the road towards the east end of the tanks assembly, (see figures 3, 4, 5 and 6) but distant from the Main Dyke. The grass either side of the crane will have been prepared to accept the outriggers from the crane by first laying a protective geotextile membrane (Terram), providing imported washed clean sand as a levelling material on top of which will be placed timber bearing battens to accept the load from the outrigger pad. The whole footprint will be covered with the same 'Terram' material to contain the sand from being washed or blown from the work site. Crushed stone, where heavier and less likely to be blown away is not deemed an acceptable alternative in the eyes of present lifting practice. Six lifts are planned, three to remove three old tanks and three new lifted into position. The load on the outriggers will only be applied during the lifting operation each of which should be no longer than five minutes. The 'Terram' material will be recovered together with all timber and sand.

Depending upon weather conditions the boat will either remain on station or return when weather abates. When the boat arrives there should be a transfer of tanks, old for new. The new tank will be lifted into position, fixed, connected and commissioned for service. The old tank on the trailer will leave by boat and follow an agreed disposal route.

Fuel transfers between tanks will all be addressed by agreed and regularly reviewed procedure via the in-situ pumps, and distribution lines within the bund area. The sludge bottoms from each tank will be decanted into

the one holding tank within the bund area until the operation approaches completion. This tank will be emptied to a dedicated bowser just prior to the collection vessel arriving.

Should there be a delay in boats sailing, delivering or recovering tanks and tanks must be set aside awaiting collection, tanks will only be removed from the bund when certificated clean and empty. Set down positions have been agreed with all interested parties.

Refuelling exercises are strictly governed by agreed procedures and regularly reviewed. Oil spill recovery plans are exercised and Risk Assessments for existing operations are very familiar to all staff. Risk assessments and method statements from all contractors have been reviewed and accepted.

Statement

There should be no impact on European Protected Species and Places.

Figure 1

Scheduled Area around St Kilda Village Bay marked by black line.

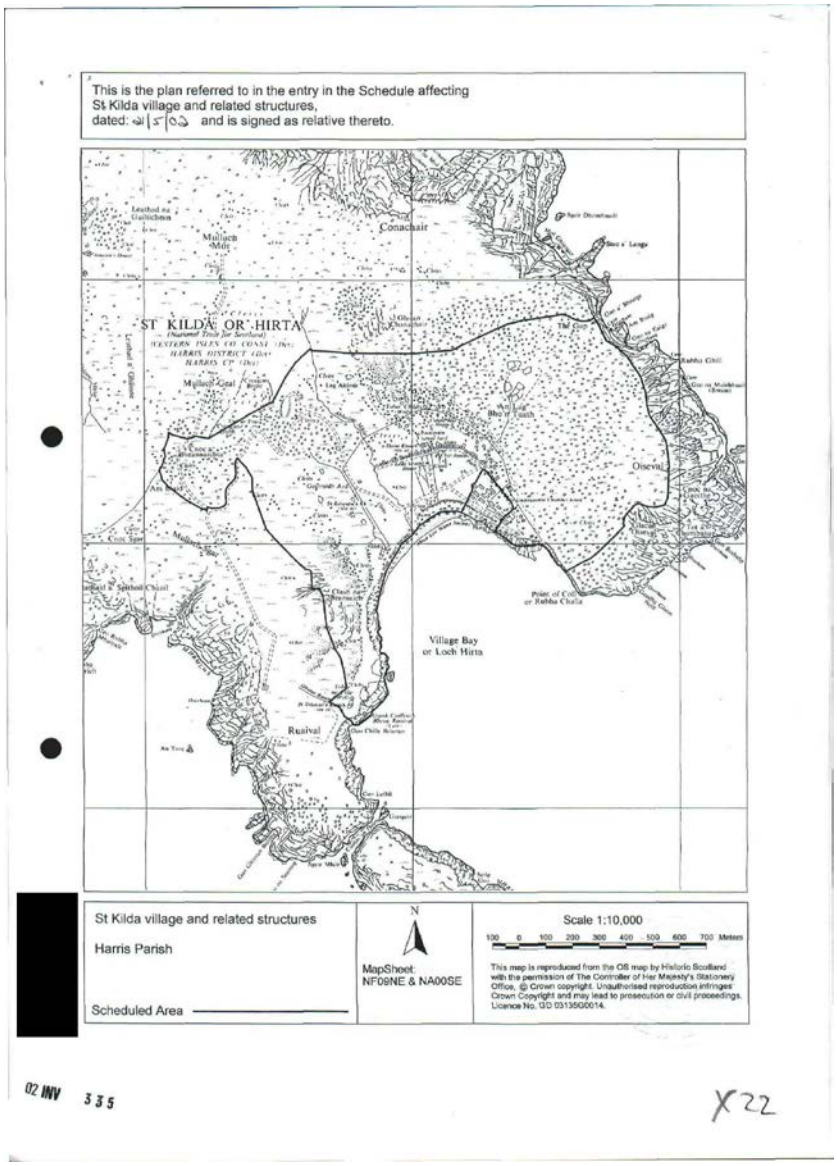

Figure 2

MOD leased areas in Village Bay St Kilda, shaded light grey.

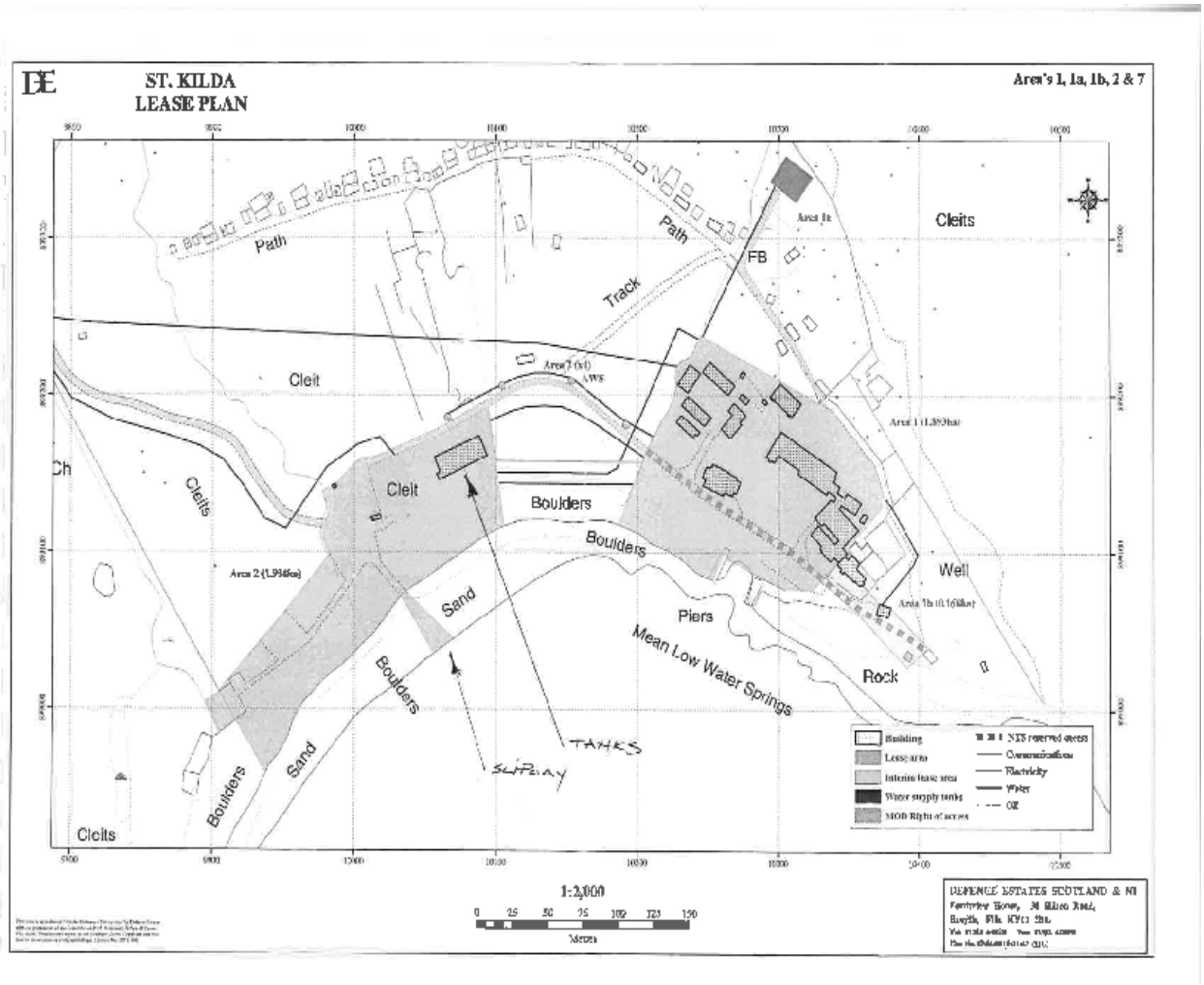

Figure 3

Work site marked in red, crane position shown in blue

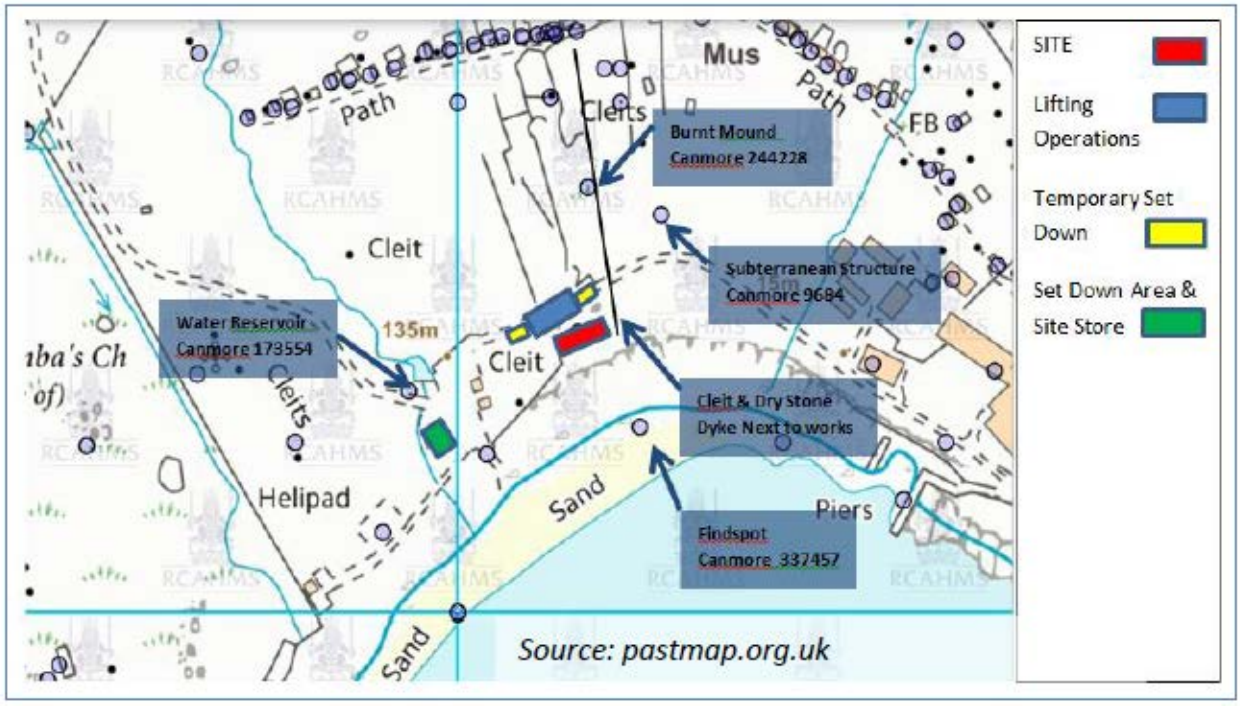

Figure 4

Ariel photograph of proposed work site.

Plan showing the approach slipway in the foreground with fuel tank locations in centre right. Tanks are numbered one to nine from right to left. Tanks 7, 8 and 9 are to be replaced in October 2015 with the remainder in Spring 2016.

Crane is shown in red positioned with outrigger support pads reaching beyond the road and onto the grass verges.

Figure 5

View from east showing suggested position of the crane.

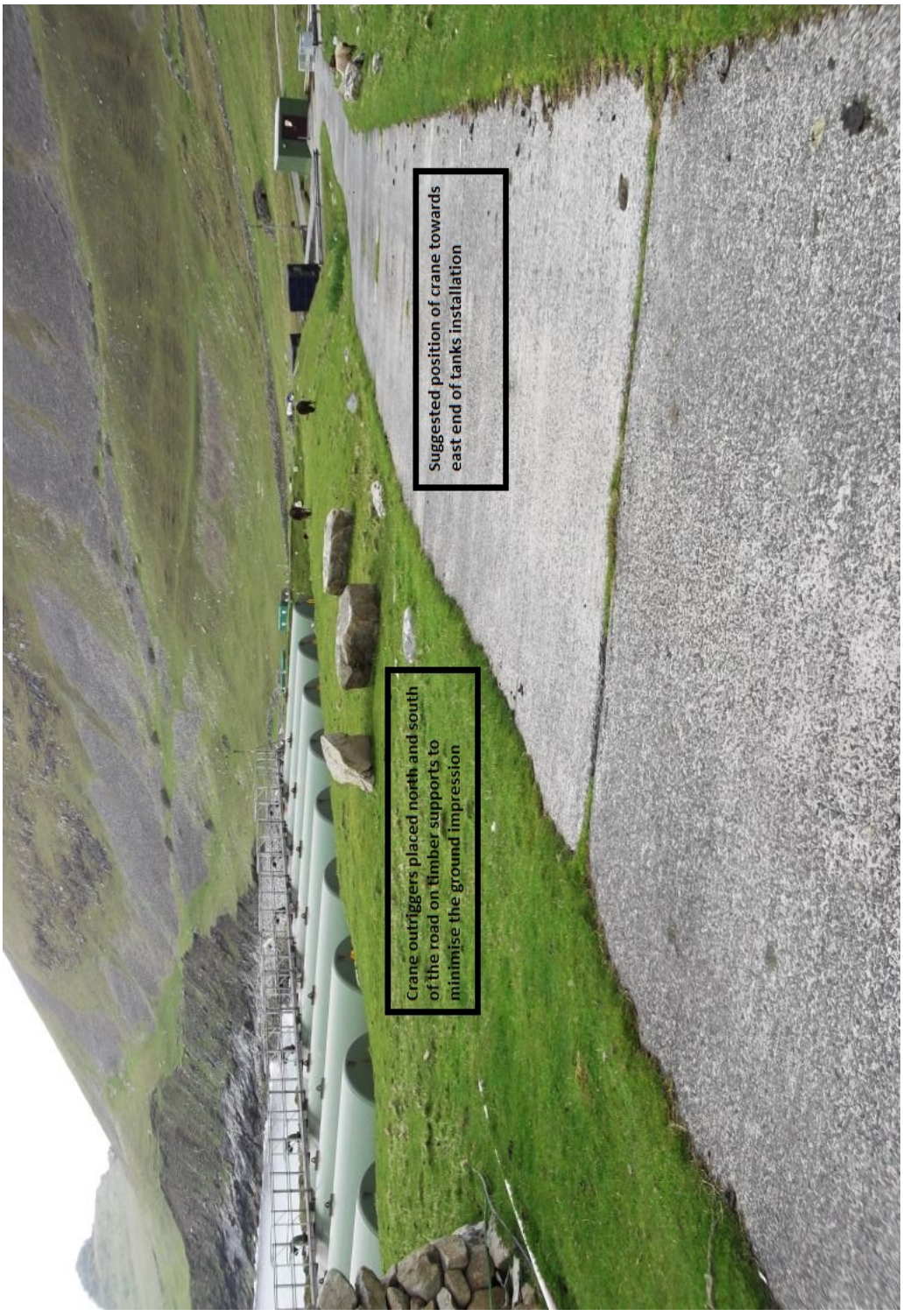

Figure 6

View from West showing proposed crane position