REEFTON POWER SCHEME: ARCHAEOLOGICAL MANAGEMENT PLAN

KIRSA WEBB
UNDERGROUND OVERGROUND ARCHAEOLOGY LTD

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UNPUBLISHED REPORT FOR THE REEFTON POWERHOUSE CHARITABLE TRUST INC

INTRODUCTION

The Reefton Power House Restoration Committee proposes to restore parts of the town's pioneer hydro-electric scheme as a power generator and visitor attraction. Because the water race dates from 1887 and the original power house from 1888, an authority from the Heritage New Zealand Pouhere Taonga (HNZPT) is being sought for the project. This archaeological management plan has been prepared to accompany the archaeological authority application, and outlines the procedures to be followed during the earthworks.

The archaeological management plan covers the following:

- Archaeological monitoring of the works associated with the project and areas where the archaeologist must be present;
- Procedure for any archaeological investigation or recording of archaeological information;
- Methods to protect any archaeological sites or features;
- The role, responsibility and level of authority of the approved archaeologist;
- Timeframes and stand-down periods for archaeological work;
- On-site briefing by project archaeologist for contractors about the archaeological work required and how to identify archaeological sites during works;
- On-call processes for when the archaeologist is not on site;
- The responsibilities of the contractors with regard to the archaeological authority and notification of archaeological sites;
- Requirements for stand-down periods to enable archaeological work;
- Artefact management and safe keeping;
- Mechanisms for dispute resolution; and
- Emergency contact details for the Project Archaeologist, NHZPT Regional Archaeologist and Iwi.

ARCHAEOLOGICAL MONITORING AND AREAS WHERE THE ARCHAEOLOGIST MUST BE PRESENT

The areas where an archaeologist must be present and the required archaeological recording recommended is based on what is known and/or suspected about the history of the site and the amount of modification that has previously been undertaken within particular areas of the power station complex and the type of work that is proposed in those areas. The archaeological required for the proposed work is summarised in Table 1.

An on-call protocol will be enacted for earthworks that are determined to not require archaeological monitoring (protocol outlined below).

Table 1. Works that will be undertaken as part of the restoration of the Reefton power house restoration and the recommended archaeological recording.

Feature	Pre-1900	Proposed work	Archaeological work
Water race intake	N	Following cleaning out, two of the intake apertures will be rebuilt and all four trash racks replaced to the existing patterns. Steel housings will be placed in all four apertures to accommodate new gates complete with raising mechanisms. In the absence of original drawings they will be designed along the lines of similar gates elsewhere. A 10 metre long rock groyne will be built from the outer edge of the water race into the river immediately downstream from the intake point. It is anticipated that sediment will accumulate on the upstream side of the groyne, maintain the bed at the same level as the race and direct water into the intake.	Detailed photography & recording[1] of the structure following cleaning out & prior to installing the new intake apertures.
Concrete channel	N	This will also be cleaned out and repaired as required. Short lengths will need replacing and tying into the original. There is a historic slip approx 50 m downstream of the intake, which has completely filled a section of the canal. The original scheme had a rock fence here. Advice is currently being sought about the best way to remove debris from the canal without destabilising the slip any further. A timber roof will be built above the slip to prevent further damage.	Detailed photography following cleaning out & prior to repairs. Accidental discovery protocol to cover any excavation works.
Gravel sluice	N	The missing gates and lifting mechanism will be replaced with new components, copied from authentic structures elsewhere.	Detailed photography prior to replacement of components.
Upper race ditch	N	Accumulated debris and growth will be cleared out and timber lining remnants removed to restore the original profile. The timber lining will not be replaced. However, a gravel lining along the base probably will be required to avoid water loss. Where the race reaches the private land the true right wall of the ditching will be breached and a combination of both earth trench and fluming will be installed around the Farnham property to the rock tunnels. Glacial gravel will be packed between the wall and flume to make a watertight joint.	Detailed photography and recording of old timber lining before removal. Accidental discovery protocol to cover any excavation works.
Earth tunnel		Being on private land this is not going to be re-used. A new section of water race will be constructed on legal road (around 150 m long). Final design is yet to be confirmed but is expected to involve construction of an open earth trench and a short stretch of timber fluming linking it to the tunnel. Route detailed on site plan.	Accidental discovery protocol.
Rock tunnel	Y	Cleaning out will be completed as per the existing authority. Timber fluming will be re-instated, with the slipped section to be bridged with a timber flume.	Record remains as stipulated in existing authority.
Race inspector's track		This will not be re-used.	

[1] Such as measurements, taking samples of fabric and/or drawing.

Side cutting	?	The surface and sides will be cleared and a new section of flume, replicated from photographs of the original, constructed along the surface from the rock tunnel to the next concrete race section.	Detailed photography & recording prior to re-instatement of new flume.
Concrete channel	?	The channel will be cleared of debris and growth, then repaired as required. New material will be marked and dated to make it easily identifiable. Where the section of new flume meets the concrete at the upper end it will be checked in and sealed. Possibly a sliding joint will be installed inside the concrete to prevent damage.	Detailed photography & recording prior to re-instatement of new flume.
Lower race ditch	?	Accumulated debris and growth will be cleared out to restore the original profile. Compacted gravel may be used to line the base. The small kink around the historic slip will be retained to preserve its distinctive character and history. Where the present access track crosses the filled-in race, the reinstated ditch will be bridged. At the lower end of the ditch the earthworks will be checked to help seal the joint with the proposed new lower section of flume.	Record any evidence of historic fabric, such as fluming, during cleaning out. Detailed photography & recording following clean-out.
Lower race flume	Y	This will be a replica of the original, designed to resemble it as closely as possible. It is intended to follow the same footprint as closely as possible but this may not always be possible, due to the lay of the land and the alignment of sections of flume.	Earthworks will need to be monitored by an archaeologist.
Penstock headwall	N	The control gates & lifting mechanism will be replaced with new components replicating the original as closely as possible.	Detailed photography & recording prior to reinstatement of control gates & lifting mechanism.
1888-1906 power houses	Y & N	Ground at the foot of the terrace will be excavated approximately 800mm to the natural gravel bed for a foundation slab. A 'Stonestrong' retaining wall will be built on that to protect the western face of the terrace from further erosion. It will be designed to prevent damage to the historic foundation part way down the face near the veranda. The workshop floor (which may lie over part of the 1888 power house site) and the floor of the 1906 power house turbine pit will be removed so the eroded spaces below both can be filled with pre-cast concrete pipes and compacted gravel. The pipes will enable water to pass under the site if required for some future development, such as re-use of the turbine. Both floors will be replaced and the foundation blocks for the 1938 diesel starting equipment will be restored to their correct positions if they have to be removed for the filling operation. A new building for interpretive displays will be built over the sites of the 1906 power house, both diesels, the workshop and the washroom, using historic and new foundations. If any remnants of the 1888 power house are found underneath the	Detailed recording (including mapping) & photography of the sites as it is prior to any works. All earthworks in this area will need to be monitored by an archaeologist.

		workshop floor they will be incorporated in the new building floor where practicable.	
1935 power house	N	Broken concrete foundations, floors, parapets, steps, etc, will be repaired and recast using the originals as patterns. A new penstock and draught tube will be installed along with turbine, generator and electrical equipment resembling the originals as closely as possible. On the upper level, the paths running to the northwest corner of the workshop will be relaid, along with the adjacent portico floor and upstands.	Detailed recording (including mapping) & photography of the sites as it is prior to any works. All earthworks in this area will need to be monitored by an archaeologist.
By-pass	N	It is intended to reinstate this.	Detailed photography & recording of this area prior to reinstatement.
Tail race	N	The existing tailrace channel will be re-used, but complete reconstruction is not proposed. The intention is to batter the sides of the channel and line the last 30 m with rock riprap to protect it from river action.	Detailed photography & recording of this area prior to reinstatement.
Car park	n/a	Earthworks to form car park.	Archaeological monitoring.
Powerhouse track	N	Improvements to the existing track surface.	Accidental discovery protocol.
Transmission line	n/a	One new power pole will be installed.	Accidental discovery protocol.
Other works	n/a	It is intended to install a modern generator in a small building (22 m^2) just beyond the 1935 building. This will be the primary generator of electricity.	Archaeological monitoring of earthworks.

PROCEDURES FOR ARCHAEOLOGICAL INVESTIGATION

Where pre-1900 archaeological features cannot be preserved in situ as a result of the proposed works they will be excavated and recorded in accordance with accepted archaeological practice. This includes, but is not limited to, the following:

- the location of any archaeological material or features will be mapped to scale;
- written records and annotated drawings of any archaeological features or material;
- stratigraphic drawings of the site and any archaeological features;
- extensive photography of any archaeological material or features prior to and during excavation;
- measurements of any archaeological features;
- archaeological features will be excavated by hand using an appropriate methodology,
- recovery of archaeological samples;
- analysis and investigation of any archaeological samples recovered, in line with standard archaeological practice, including artefact and faunal analysis, soil residue analysis, timber identification and radiocarbon dating.
- Ngāti Waewae will be contacted and their advice sought on matters of tikanga if any Māori archaeological features, possible taonga or Māori artefacts are found.

METHODS TO PROTECT ANY ARCHAEOLOGICAL SITES OR FEATURES

Damage to the site or feature will be minimised by only disturbing those areas of the site necessary to complete the works. It may be possible for archaeological features encountered during the course of the project, that extend below the maximum depth of the earthworks, to remain preserved in situ. This will be considered on a case by case basis.

ROLE, RESPONSIBILITY AND LEVEL OF AUTHORITY OF THE ARCHAEOLOGIST

- The archaeologist's role is to ensure that the conditions of the archaeological authority and this work plan are complied with.
- The archaeologist is responsible for ensuring that all archaeological sites are investigated and recorded appropriately.
- The archaeologist is responsible for determining the nature and extent of archaeological monitoring.
- The archaeologist can, in conjunction with the site foreman, engineers and/or project manager(s), direct works in relation to archaeological sites/features. The archaeologist can stop works if they are impacting archaeological sites.
- The archaeologist is responsible for notifying the Heritage New Zealand regional archaeologist, Ngāti Waewae and the New Zealand Police if kōiwi tangata are found.
- The archaeologist will be responsible for notifying the Heritage New Zealand regional archaeologist if any circumstances arise during the exercise of the authority where an archaeological site(s) encountered could provide significant information about the historical and cultural heritage of New Zealand (in relation to section 52(2) of the Heritage New Zealand Pouhere Taonga Act).
- The archaeologist is responsible for meeting all reporting requirements of the authority.

STAND-DOWN PERIODS AND TIMEFRAMES FOR ARCHAEOLOGICAL WORK

Investigating any archaeological discoveries may require a stand-down period. Every effort will be made to minimise this, and opportunities for work to continue in other areas will be investigated. In the event of the discovery of an archaeological site, the project archaeologist will provide advice on how/where work can proceed within half a day. The amount of time required to investigate an archaeological site will depend on the extent and significance of the site.

ON-SITE BRIEFINGS

All contractors involved in earthworks will receive a briefing by the project archaeologist on the following:

- the history of the site and its archaeological potential;
- the role of the HNZPT, the conditions of the archaeological authority and the details of this work plan;
- what sort of archaeological features could be expected and what they might look like;
- what to do if they find a possible archaeological site and the archaeologist is not on site; and
- the role of the project archaeologist.

A hard copy of the briefing will be given to all those who attend it and a hard copy will be kept on site.

ON-CALL PROTOCOL

In the event of any discovery of a suspected archaeological site while the archaeologist is not on site, the worker/contractor shall take the following action:

- Cease all works immediately within a 5 m radius;
- Advise the site supervisor of a find;
- The site supervisor will contact the project archaeologist, who will advise on the significance of the find and outline what steps are to be taken;
- If required the archaeological feature will be recorded and investigated in accordance with standard archaeological practice (as outlined below).

CONTRACTORS' RESPONSIBILITIES

- The contractors must provide at least 48 hours' notice of the requirement for an archaeologist to attend the site for the monitoring of earthworks.
- All contractors and sub-contractors have a legal obligation to allow the archaeological recording required by the authority to take place. This may mean pausing the earthworks to allow archaeological investigation and recording.

MANAGEMENT AND STORAGE OF ARTEFACTS

Artefacts will be managed and stored in accordance with Underground Overground Archaeology's Artefact Management Plan.

MECHANISMS FOR DISPUTE RESOLUTION

In the event of a dispute that cannot be resolved by the parties concerned, an independent mediator will be called to assist. The mediator should be agreed upon by all parties.

CONTACT INFORMATION

Approved Archaeologist

Hayden Cawte
Underground Overground Archaeology Ltd
hayden.cawte@underoverarch.co.nz
027 600 6152

Project Archaeologist

Kirsa Webb
Underground Overground Archaeology Ltd
Kirsa.webb@underoverarch.co.nz
021 236 1126

Heritage New Zealand

Frank van der Heijden
Regional Archaeologist
fvanderheijden@heritage.org.nz
03 363 1884

Runanga

Te Runanga of Ngāti Waewae
Lisa Tumahai
admin@ngatiwaewae.org.nz
03 755 6451