

28 May 2019

Southern Land Ltd

P.O. Box 713

Queenstown 9348

Attn. Tim Dennis, Dave Howard

Cc. Trevor Butler, Frame Group

Dear Tim & David:

**Central Otago Queenstown Trail Network Trust: Kawarau Gorge**

The following comments relate to our joint field trip to various places along the proposed Kawarau Gorge Trail undertaken on 20 June 2019. The purpose of the field trip was to inspect critical trail sections requiring geotechnical assessment as identified in emails dated 14 & 15/05/19.

In addition to the field trip, a desk study was also undertaken involving review of reports prepared for Kawarau River power development proposals<sup>1</sup>

The following comments mostly follow the route descriptions in the attachments to these emails<sup>2</sup>.

1. Wentworth Station bridge (Distance station not established): The bridge (approximately 100 m) extends from edge of terrace to edge of terrace (Photos 1 & 2). The terraces are underlain by alluvial gravels although *in situ* schist

---

<sup>1</sup> Bremner T.J. Mt Difficulty Slip; Undated mapping data from field notebooks 34-45; Stout M.L. 1971 Landslide Studies – Kawarau Gorge, South Island NZ; NZGS report 117; Brown I.R. A Study of Reservoir Slope Stability – Kawarau Gorge, Clutha Power Project: NZGS engineering geology report 287.

<sup>2</sup> T4303-2 Kawarau Trail, Alignment Photos, May 2019; T4303-2\_P1\_A Kawarau Trail for consent 140519 (002).

underlies gravel at shallow depth (around 3 m) on the true left side. No evidence was found for slope instability or active erosion.



*Photo 1: True right abutment, Wentworth Station bridge.*



*Photo 2: True left abutment, Wentworth Station bridge.*

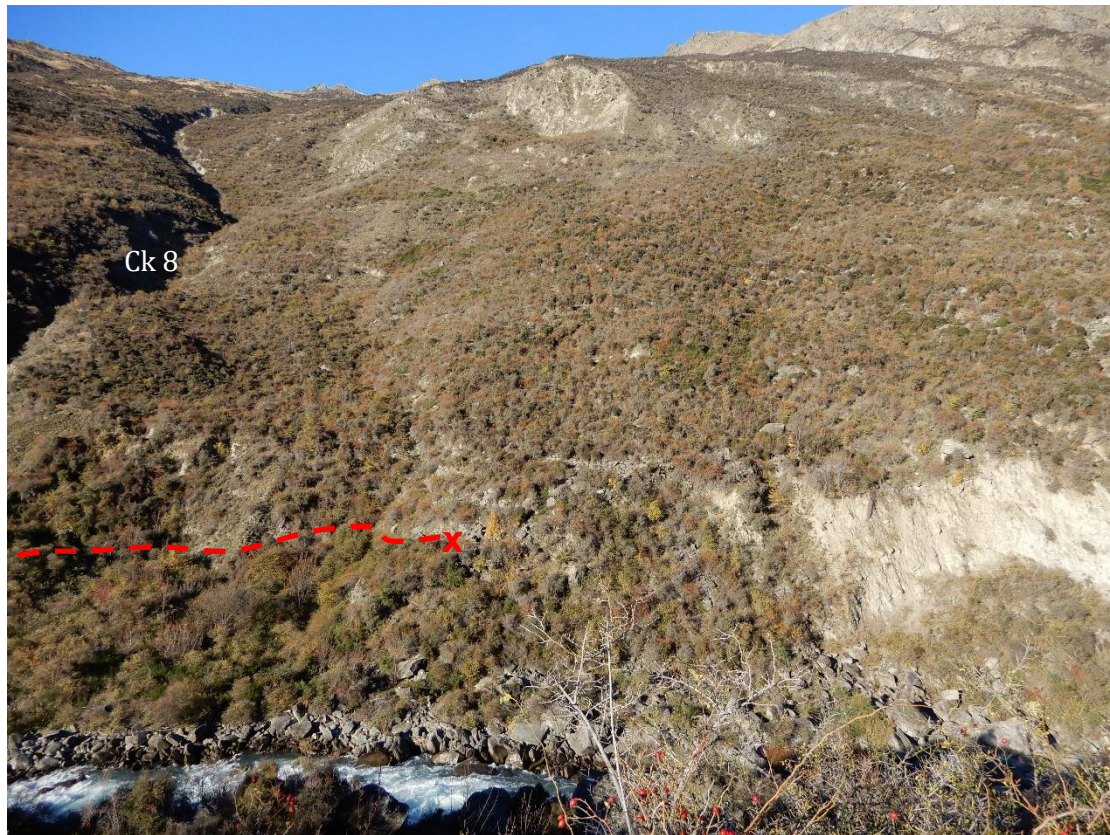
2. Pinch Points 1 & 2 (100 & 175 m upstream of preliminary true left Citroen Bridge abutment): These two locations traverse the true left bank just below SH 6. Sidling slopes are steep, possibly exacerbated by previous instability initiated by active river erosion. At Pinch Point 1, the slopes are also possibly affected by large scale, rock slide movement which has periodically affected SH 6. A stacked stone wall supports part of the road at this location. Thick scrub and small trees cover the slopes and loose grit swept or washed from the road has been deposited on the ground.

Forming a sidling cut and fill formation across these two areas is impractical for the following reasons. Cuts could potentially undermine the road formation, particularly the stone wall, and should not be attempted. Fill slopes will extend a long way down the slope and possibly down to the river where erosion would ultimately undermine them. Long fill slopes are difficult to construct by small diggers as they can't reach far enough downslope to clear vegetation and topsoil and allow the fill to be keyed into the stripped ground. It is therefore recommended that the trail be supported on short sections of bridge constructed on piles bored into the ground.

3. Citroen Rapid Bridge: The prominent rapids have been created by displacement of the Mt Difficulty landslide and its more active lobes on lower slopes. The resulting constriction in the river has led to enhanced erosion and elevated flood flows which in turn has triggered ongoing movement. Fresh scarps with no or minimal vegetation covering are visible on the banks of the inner gorge, just upstream of the bridge site, and at about one third the height of the landslide. Incipient scarps are visible between



the bridge abutment (true right side) and Creek 8, a major gully about 130 m downstream from the true left abutment (Photo 3). Boulders have accumulated in the back-tilted steps formed beneath these incipient scarps.



*Photo 3: Section of trail between proposed Citroen Rapid Bridge true right abutment (red cross) and Creek 8. Note active scarps just below skyline and upstream of site and also incipient scarps just above abutment.*

Construction through this section will be challenging due to the very loose and unstable nature of the terrain and will be the subject of more detailed investigations in collaboration with the bridge designers.

4. Creek 7 [Miners Hope], 1.6 km: This creek is incised around 8-10 m below the adjacent terraces. The side slopes are steep ranging up to the vertical although the track alignment avoids the steepest parts. Cemented fan gravels are exposed on the gully flanks which seem to stand up well following downcutting by the creek. Similar concerns as expressed previously for Pinch points 1 & 2 are valid here. Care should be taken not to create long fill slopes that extend down into the creek bed that will be difficult to key into good ground and be vulnerable to stream erosion.
5. The Step, 3.5 km: This section does not seem to have been visited and no notes taken during the fly-past. It is not clear whether it is proposed to place the trail on structure or cut into the rock for the formation. In either case, some minor rock scaling of loose blocks near the crest will be necessary.



6. Skull Bluff, 4.0 km: The trail traverses a broad rock spur with the downstream side requiring either a fill slope or some form of structure (Photo 6). Scaling will be required on the rock slopes above the trail including a loose slab marked with an X on Photo 6.
7. The Notch, 4.9 km: This section only viewed during fly-past. Trail traverses a narrow rock spur with some potential for rock scaling (to be checked later). Downstream section appears more difficult to form trail than upstream side (Photo 7).
8. Shallow slips, 5.3-6.0 km: This section traverses a large, unnamed landslide with more active, shallow slips on its lower slopes. Lateral river erosion is the probable cause for this activity. A higher level route above the crest of the scarps is preferred to a lower level one that would traverse across the slips and their lateral margins. A low level route would have high maintenance requirements due to movements.



*Photo 6: Skull Bluff showing steep rocky slopes and loose slab marked with red cross.*

It is appreciated a higher route would not lead to an easy descent to Poplar Flat, however, adopting a switch-back may be one way round this problem.





*Photo 7: The Notch with steep rocky slopes on downstream side.*



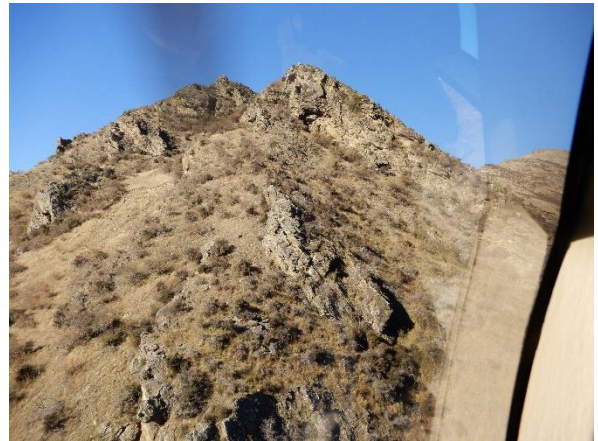
*Photo 8: Lower slopes of unnamed landslide showing active lobes.*



9. Chalmers Leap, 7.4-7.8 km: This section involves traversing round a series of rocky slabs dipping steeply upstream and only viewed during fly-past. The exact route hasn't been able to be verified from photographic inspection but views of upstream (Photo 9) and downstream (Photo 10) give some indication of the terrain to be covered. A bench cut into the rock slabs is considered the most secure way of establishing a track through here. The steepness of the slabs would not be amenable to fill construction.



*Photo 9: Upstream portion of Chalmer's Leap*



*Photo 10: Downstream portion of Chalmer's Leap*

Passing Lane Bluff, 9.3 km: This section only observed during fly-past. The route traverses a narrow gully flanked by rock bluffs (Photo 11). It is uncertain what the method of trail construction is preferred here (structure or cut and fill) but either method would need to safeguard against flash floods and debris flows concentrated in the gully. Bridging would be the preferred solution as it can provide a greater clearance above flood flows. There is also a potential for rock falls on either side of the gully and this threat would need to be mitigated prior to trail construction.

10. Bluff 7 (The Drop), 11.0 km: This section only observed during fly-past. The route also traverses a narrow gully flanked by rock bluffs, however, the track sidles above the bluff on the downstream side (Photo 12). Similar comments provided above for Passing Lane Bluff also apply here although rock fall from the adjacent bluffs is less of a concern.
11. Pixie Hollow to Scrubby Stream Bluff, 12.2-12.7 km: This section of alignment was walked over to inspect:
- Pixie Hollow, 12160: The alignment passes through a hollow between two large rock outcrops which probably owes its formation to past gold mining. The bluff on the upper side provides some protection against rock fall from the prominent bluff upslope.





*Photo 11: Gully at Passing Lane Bluff. Red mark approximately where track is believed to be (pink marking tape).*



*Photo12: Bluff 7 (The Drop) showing approximate track position.*

- The rock slide, 12120-12170 (Photo 12): The alignment passes close to the base of the debris cone the larger blocks of which will provide some protection. However, the source area and the surrounding bluffs will need close examination to assess the risk of further rock fall. Added protection could be gained by moving the alignment closer to the river

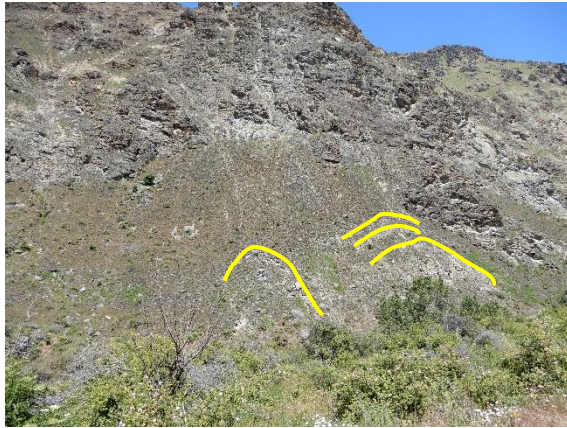




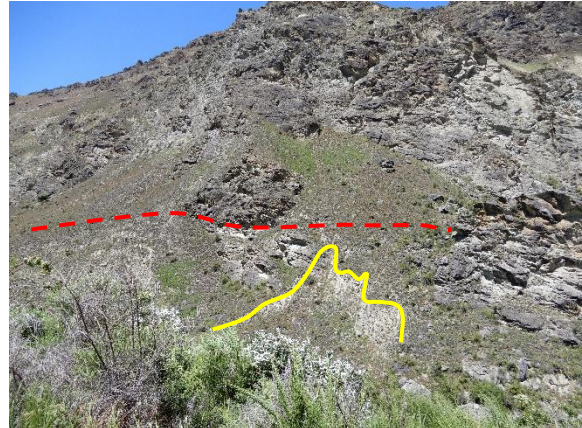
*Photo 13: Rock slide and debris cone extending as far down as proposed alignment (just below photograph).*

- Shallow slumps #1, 12250, #2, 12350 & #312400: These slumps are probably activated by high flood flows eroding their toes (Photos 14 & 15). The alignment passes just above the crest which is preferable to a lower alignment but does put the trail under threat from retrogressive movement. Aligning the trail further upslope would provide some protection, otherwise, ongoing movement is likely to lead to increased maintenance requirements. Care should be taken not to include any sag points in the alignment that could lead to concentrations of runoff into the scarp area.





*Photo 14: Shallow slumps at Sta 12350 & 12400.*



*Photo 15: Shallow slump at Sta 12250.*

- Bluff 9, Metaquartzite Bluff, 12.7 km: An area of geological interest due to the bands of metaquartzite outcropping on the bluffs (see Photo 16). A number of overhangs and loose blocks will require treatment to mitigate rock falls.

12. Goldfields access road, 15.5 – 16.4 km: This section extends from Honeycomb Gully to Walker Creek and roughly follows the existing access road except where a change of alignment to a higher level is required to minimise grade changes (Photo 17). Steep rock bluffs extend above the scree slope above the access road. There is fresh evidence for recent rock fall on or about this road suggesting the bluffs are actively shedding rocks. The bluffs will be targeted for scaling or securing of loose rocks prior to trail construction.



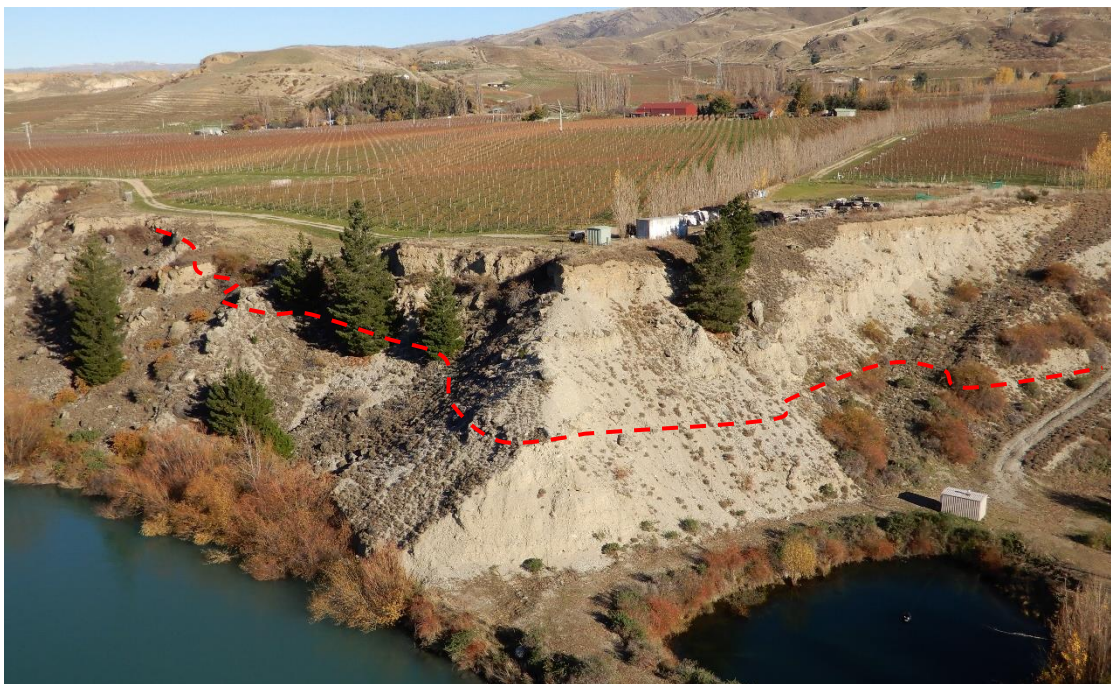
*Photo 16: Trail around west side of Metaquartzite Bluff.*





*Photo 17: Panorama of slopes above Goldfields access road, Walker Creek on left, Honeycomb Gully on right.*

13. Long Gully, 18.3 km: The route sidles down from Goldfields access road on the upvalley side to cross Long Gully before sidling up to a similar level to join the vineyard terraces. Sidling across bare, eroding slopes of alluvial gravels will prove to be challenging, particularly on the true right bank of lower Long Gully (Photo 18). This problem is similar to that described for parts of the traverse around the Bannockburn Inlet part of the Cromwell – Clyde Trail (Geoconsulting report SouthernLand180224). On these sections it was proposed to limit cuts and fills by supporting both sides with low post and board retaining walls.



*Photo 18: Downstream flank of Long Gully (to right of picture). Approximate route shown in red.*



Hydroseeding with mulch, fertiliser and grass seed would minimise erosion by encouraging a vegetative cover.

## **Closure**

As would be expected for a trail of this length and in this terrain, there are a number of 'pinch points' that require attention to detail in route selection and trail design. There are numerous areas requiring rock scaling and possible structural support, some of which have been identified in the listed points of interest. A more detailed assessment will need to be undertaken at an appropriate stage. Overall, there does not appear to be any overriding geotechnical constraints that would preclude trail considerations.

Sincerely,

**Geoconsulting Ltd**



per J.M.Bryant

M.Sc. F.G.S.





# AFFECTED PERSON'S APPROVAL

FOR DEEMED PERMITTED BOUNDARY ACTIVITY  
FORM 8B



Resource Management Act 1991 Section 87BA



## APPLICANT'S NAME AND/OR RM #

Central Otago Queenstown Trail Network Trust



## AFFECTED PERSON'S DETAILS

I/We Land Information New Zealand

Are the owners of  
Bed of Kawarau River



## DETAILS OF PROPOSAL

I/We hereby give written approval for the proposal, subject to a deemed permitted boundary activity application to:  
Earthworks associated with the construction of a cycle trail and installation of retaining walls and bridges.  
Application documents supplied & sighted as follows:

AEE prepared by Southern Land Ltd  
Trail Design Plans ref T4303-2\_P3, prepared by Southern Land Ltd  
Archaeological assessment ref V6 - Kawarau - Archaeological Assessment, prepared by Origin Consultants June 2019  
Landscape Assessment report prepared by Philip Blakely

at the following property:  
Between Nevis Bluff and Citroen Rapid Bridge



I/We understand the proposal and understand that the consent authority will permit the applicant to undertake the activity (provided they have supplied the correct information, including all other written approvals required).



I/We understand that I/we may not withdraw written approval.



## WHAT INFORMATION/PLANS HAVE YOU SIGHTED



I/We have sighted and initialled ALL plans dated and approve them.

Refer application documents shown above



## APPROVAL OF AFFECTED PERSON(S)

The written consent of all owners who are affected. If the site that is affected is jointly owned, the written consent of all co-owners (names detailed on the title for the site) are required.

A	Name (PRINT) <b>Land Information New Zealand</b>	
	Contact Phone / Email address <b>C/- Colliers International, Lvl 2, 10 Athol St, Queenstown 9348</b>	
	Signature 	Date <b>16/08/2020</b>
B	Name (PRINT) <b>Bart van Stratum Senior Portfolio Manager Crown Property Land Information New Zealand Wellington</b>	
	Contact Phone / Email address	
	Signature	Date
C	Name (PRINT)	
	Contact Phone / Email address	
	Signature	Date
D	Name (PRINT)	
	Contact Phone / Email address	
	Signature	Date

### Note to person signing written approval

You should only sign this form if you fully understand the proposal. You should seek expert or legal advice if you need the proposal or deemed permitted boundary activity process explained to you.

Conditional written approvals cannot be accepted, and written approvals cannot be withdrawn once provided.

There is no obligation to sign this form, and no reasons need to be given.

If you do not sign this form, resource consent may be required for the activity and you may have the opportunity to submit on the application.

If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.







14 October 2020

File ref: 2021/153  
11013-035

Central Otago Queenstown Trails Network Trust  
PO Box 31  
Cromwell 9342  
Attn: Janeen Wood

Tēnā koe Janeen

**APPLICATION FOR ARCHAEOLOGICAL AUTHORITY UNDER HERITAGE NEW ZEALAND  
POUHERE TAONGA ACT 2014: Authority no. 2021/153: F41/105, F41/212, F41/213, F41/214,  
F41/211, F41/840, F41/210, F41/196, F41/458, F41/837, F41/836, F41/206, F41/838,  
F41/174, F41/197, F41/818, F41/819, F41/173, F41/821, F41/822, F41/823, F41/825,  
F41/826, F41/432, F41/433, F41/827, F41/830, F41/261, F41/170, F41/171, F41/172,  
F41/455, F41/158, F41/429, F41/154, F41/145, F41/141, F41/139, F41/134, F41/251,  
F41/456; pre-1900 sites related to gold-working and related occupation plus traditional Ngāi  
Tahu campsite, Kawarau Gorge between Nevis Bluff and Felton Road**

Thank you for your application for an archaeological authority which has been granted and is attached.

In considering this application, Heritage New Zealand Pouhere Taonga notes that you wish to construct a cycle trail through Kawarau Gorge between Nevis Bluff and Felton Road. This activity will affect recorded archaeological sites. Kawarau Gorge has a long history of human occupation including the use of the area for Mahika kai by Māori and later gold mining and agricultural activities. It is a significant Central Otago gold mining landscape and contains numerous well preserved archaeological sites associated with mining practices and activities. Although the sites have been damaged in the past, they still possess important archaeological values as excellent examples of alluvial gold mining practices and the hardships faced by nineteenth century miners attempting to adapt their surroundings. The site is of significance to Ngāi Tahu and we appreciate the consultation you have undertaken.

Heritage New Zealand Pouhere Taonga appreciates the effort you have made to provide for the long term protection of 11 sites along the project area through the planning of the project to avoid the sites.

Please inform Aukaha, Te Ao Marama Ltd, the s45 approved person and Heritage New Zealand Pouhere Taonga of start and finish dates for the work.

An appeal period from receipt of decision by all parties applies. Therefore this authority may not be exercised during the appeal period of 15 working days plus 3 working days to allow receipt by all parties by post, or until any appeal that has been lodged is resolved.

This authority may not be exercised until land owner consent is received by Heritage New Zealand Pouhere Taonga for all land affected by this authority.



If you have any queries please direct your response in the first instance to:

Nikole Wills  
Archaeologist, Otago / Southland  
Heritage New Zealand Pouhere Taonga, Dunedin Office  
P O Box 5467, Dunedin 9058

Phone (03) 470 2364  
Email [ArchaeologistOS@heritage.org.nz](mailto:ArchaeologistOS@heritage.org.nz)

Yours sincerely,



PP:

Vanessa Tanner  
Manager Archaeology, Heritage New Zealand Pouhere Taonga

- cc: Janeen Wood, Central Otago Queenstown Trails Network Trust  
via email at [janeenmwood@xtra.co.nz](mailto:janeenmwood@xtra.co.nz)
- cc: Tim Dennis  
via email at [tim@southland.co.nz](mailto:tim@southland.co.nz)
- cc: Benjamin Teele  
via email at [ben@originteam.co.nz](mailto:ben@originteam.co.nz)
- cc: Aukaha  
via email at [Tania@aukaha.co.nz](mailto:Tania@aukaha.co.nz)
- cc: Te Ao Marama Ltd  
via email at [stevie@tami.maori.nz](mailto:stevie@tami.maori.nz)
- cc: Tim Edney- The Station at Waitiri Ltd  
via email at [tim@edney.co.nz](mailto:tim@edney.co.nz)
- cc: Paul Horrell- Rock Supplies NZ Ltd  
via email at [sales@rocksupplies.nz](mailto:sales@rocksupplies.nz)
- cc: Katrina Ellis- QLDC  
via email at [Katrina.Ellis@qldc.govt.nz](mailto:Katrina.Ellis@qldc.govt.nz)
- cc: LINZ (c/- Rose Quirk, Colliers International)  
via email at [rose.quirk@colliers.com](mailto:rose.quirk@colliers.com)
- cc: Lisa Nilsen- DOC  
via email at [lnilsen@doc.govt.nz](mailto:lnilsen@doc.govt.nz)
- cc: Linda Stronach, CODC  
via email at [linda.stronach@codc.govt.nz](mailto:linda.stronach@codc.govt.nz)
- cc: John Anderson- Kawarau Station Ltd  
via email at [ksl@xtra.co.nz](mailto:ksl@xtra.co.nz)
- cc: Planning Manager, Queenstown Lakes District Council and Central Otago District Council  
via email at [services@qldc.govt.nz](mailto:services@qldc.govt.nz) and [david.campbell@codc.govt.nz](mailto:david.campbell@codc.govt.nz);  
[Kathryn.Price@codc.govt.nz](mailto:Kathryn.Price@codc.govt.nz)

Pursuant to Section 51 Heritage New Zealand Pouhere Taonga Act 2014 Heritage New Zealand Pouhere Taonga must notify TLAs of any decision made on an application to modify or destroy an archaeological site. We recommend that this advice is placed on the appropriate property file for future reference.

- cc: Ministry for Culture and Heritage, via email at [protected-objects@mch.govt.nz](mailto:protected-objects@mch.govt.nz)

Pursuant to Section 51 Heritage New Zealand Pouhere Taonga Act 2014

- cc: ArchSite Central Filekeeper, Attn: Mary O'Keeffe  
via email at [centralfilekeeper@archsite.org.nz](mailto:centralfilekeeper@archsite.org.nz)
- cc: Heritage New Zealand Pouhere Taonga Archaeologist, Nikole Wills
- cc: Heritage New Zealand Pouhere Taonga Area Manager, Jane Macknight
- cc: Heritage New Zealand Pouhere Taonga Pouarahi, Huia Pacey



HERITAGE NEW ZEALAND  
POUHERE TAONGA

# **AUTHORITY**

## **Heritage New Zealand Pouhere Taonga Act 2014**

**AUTHORITY NO: 2021/153**

**FILE REF: 11013-035**

**DETERMINATION DATE: 14 October 2020**

**EXPIRY DATE: 14 October 2025**

**AUTHORITY HOLDER: Central Otago Queenstown Trails Network Trust**

**POSTAL ADDRESS: PO Box 31, Cromwell 9342, Attn: Janeen Wood**

**ARCHAEOLOGICAL SITES: F41/105, F41/212, F41/213, F41/214, F41/211, F41/840, F41/210, F41/196, F41/458, F41/837, F41/836, F41/206, F41/838, F41/174, F41/197, F41/818, F41/819, F41/173, F41/821, F41/822, F41/823, F41/825, F41/826, F41/432, F41/433, F41/827, F41/830, F41/261, F41/170, F41/171, F41/172, F41/455, F41/158, F41/429, F41/154, F41/145, F41/141, F41/139, F41/134, F41/251, F41/456**

**LOCATION: Kawarau Gorge between Nevis Bluff and Felton Road**

**SECTION 45 APPROVED PERSON: Benjamin Teele**

**LANDOWNER CONSENT: To be provided.**

**This authority may not be exercised during the appeal period of 15 working days, or until any appeal that has been lodged is resolved.**

**This decision does not ascribe mana whenua status.**

**This authority may not be exercised until land owner consent is received by Heritage New Zealand Pouhere Taonga for all land affected by this authority.**

### **DETERMINATION**

Heritage New Zealand Pouhere Taonga grants an authority pursuant to Section 48 of the Heritage New Zealand Pouhere Taonga Act 2014 in respect of the archaeological sites described above, within the area specified as Sec 3 SO 24743, Lot 4 DP 27395, Pt Lot 3 DP 27395, Lot 8 DP 402448, Sec 32 Blk II Kawarau SD, Legal road QLDC, Kawarau River LINZ, Crown Land Blk II Kawarau SD DOC, Pt Sec 15 SO 342162, Sec 14 SO 342162, Legal Road CODC, Sec 6 SO 485617, Section 11 SO 485617, Pt Sec 23 Blk IV Cromwell SD, Sec 2 SO 22940 to Central Otago Queenstown Trails Network Trust for the proposal to undertake earthworks associated

with the formation of a cycleway through Kawarau Gorge between Nevis Bluff and Felton Road, subject to the following conditions:

**CONDITIONS OF AUTHORITY**

1. The authority holder must ensure that all contractors working on the project are briefed on site by the s45 approved person, who may appoint a person to carry out the briefing on their behalf, prior to any works commencing on the possibility of encountering archaeological evidence, how to identify possible archaeological sites during works, the archaeological work required by the conditions of this authority, and contractors' responsibilities with regard to notification of the discovery of archaeological evidence to ensure that the authority conditions are complied with.
2. Prior to the start of any on-site archaeological work, the Authority Holder must ensure that Heritage New Zealand Pouhere Taonga is advised of the date when work will begin. This advice must be provided at least 2 working days before work starts. The Authority Holder must also ensure that Heritage New Zealand Pouhere Taonga is advised of the completion of the on-site archaeological work, within 5 working days of completion.
3. The authority must be exercised in accordance with an Archaeological Management Plan commissioned, or prepared with archaeological advice, by the Authority Holder. The Archaeological Management Plan shall provide operational guidelines and procedures for day to day activities that may affect archaeological sites during works.

The Plan shall include, but is not limited to, the following:

- a) on-site briefing by approved archaeologist for contractors about the archaeological work required,
- b) the role, responsibility and level of authority of the approved archaeologist
- c) areas and works where the approved archaeologist must be present,
- d) requirements for stand down periods to enable archaeological work
- e) procedures for any archaeological investigation or recording of archaeological information
- f) timeframes for archaeological work
- g) mechanisms for dispute resolution, *and*
- h) emergency contact details for approved archaeologist, Heritage New Zealand Pouhere Taonga Archaeologist and Tangata Whenua.

The Plan must be submitted to the Heritage New Zealand Pouhere Taonga Archaeologist for approval prior to the commencement of any earthworks. No earthworks shall commence until Heritage New Zealand Pouhere Taonga has given its written approval of the Plan.

4. All earthworks that may affect any archaeological sites must be monitored by the s45 approved person who may appoint a person to carry out the monitoring on their behalf.
5. Any archaeological evidence encountered during the exercise of this authority must be investigated, recorded and analysed in accordance with current archaeological practice by the s45 approved person, who may appoint a person to carry out this activity on their behalf.



6. Sites to be avoided shall be marked by the s45 approved person, who may appoint a person to carry out this activity on their behalf, prior to works commencing near an archaeological site.
7. As no signed and agreed protocols between the authority holder and Aukaha or Te Ao Marama Ltd were provided with the authority application, the following shall apply:
  - a) Access for Aukaha and Te Ao Marama Ltd shall be enabled in order to undertake tikanga (Māori protocols) consistent with any requirements of site safety.
  - b) Aukaha and Te Ao Marama Ltd shall be informed 48 hours before the start and finish of the archaeological work.
  - c) If any kōiwi (human remains) are encountered, all work should cease within 5 metres of the discovery. The Heritage New Zealand Pouhere Taonga Pouarahi, New Zealand Police, Aukaha and Te Ao Marama Ltd must be advised immediately in accordance with Guidelines for Kōiwi Tangata/Human Remains (Archaeological Guideline Series No.8) and no further work in the area may take place until future actions have been agreed by all parties.
  - d) Aukaha and Te Ao Marama Ltd shall be informed if any possible taonga or Māori artefacts are identified to enable appropriate tikanga to be undertaken, so long as all statutory requirements under the Heritage New Zealand Pouhere Taonga Act 2014 and the Protected Objects Act 1975 are met.
  - e) Aukaha and Te Ao Marama Ltd shall be provided with a copy of any reports completed as a result of the archaeological work associated with this authority and be given an opportunity to discuss it with the s45 approved person if required.
8. That within 20 working days of the completion of the on-site archaeological work associated with this authority;
  - a) An interim report outlining the archaeological work undertaken must be submitted to the Heritage New Zealand Pouhere Taonga Archaeologist, Aukaha and Te Ao Marama Ltd.
  - b) Site record forms must be updated or submitted to the NZAA Site Recording Scheme.
9. That within 12 months of the completion of the on-site archaeological work, the authority holder shall ensure that a final report, completed to the satisfaction of Heritage New Zealand Pouhere Taonga, is submitted to the Heritage New Zealand Pouhere Taonga Archaeologist.
  - a) One hard copy and one digital copy of the final report are to be sent to the Heritage New Zealand Pouhere Taonga Archaeologist.
  - b) Digital copies of the final report must also be sent to: NZAA Central Filekeeper; Lakes District Museum; Otago Settlers Museum; Aukaha; Te Ao Marama Ltd; The Station at Waitiri Ltd; Rock Supplies NZ Ltd; QLDC; LINZ; DOC; CODC; Kaurau Station Ltd

**Signed for and on behalf of Heritage New Zealand.**



**Claire Craig  
Deputy Chief Executive Policy, Strategy and Corporate Service  
Heritage New Zealand Pouhere Taonga  
PO Box 2629  
WELLINGTON 6140**

**Date 14 October 2020**

## **ADVICE NOTES**

### **Contact details for Heritage New Zealand Archaeologist**

Nikole Wills  
Archaeologist, Otago / Southland  
Heritage New Zealand Pouhere Taonga, Dunedin Office  
P O Box 5467, Dunedin 9058

Phone (03) 470 2364, Email [ArchaeologistOS@heritage.org.nz](mailto:ArchaeologistOS@heritage.org.nz)

### **Current Archaeological Practice**

Current archaeological practice may include, but is not limited to, the production of maps/ plans/ measured drawings of site location and extent; excavation, section and artefact drawings; sampling, identification and analysis of faunal and floral remains and modified soils; radiocarbon dating of samples; the management of taonga tuturu and archaeological material; the completion of a final report and the updating of existing (or creation of new) site record forms to submit to the NZAA Site Recording Scheme. The final report shall include, but need not be limited to, site plans, section drawings, photographs, inventory of material recovered, including a catalogue of artefacts, location of where the material is currently held, and analysis of recovered material.

Please note that where one is required, an interim report should contain a written summary outlining the archaeological work undertaken, the preliminary results, and the approximate percentage of archaeological material remaining *in-situ* and a plan showing areas subject to earthworks, areas monitored and the location and extent of any archaeological sites affected or avoided.

### **Rights of Appeal**

An appeal to the Environment Court may be made by any directly affected person against any decision or condition. The notice of appeal should state the reasons for the appeal and the relief sought and any matters referred to in section 58 of the Heritage New Zealand Pouhere Taonga Act 2014. The notice of appeal must be lodged with the Environment Court and served on Heritage New Zealand Pouhere Taonga within 15 working days of receiving the determination, and served on the applicant or owner within five working days of lodging the appeal.

### **Review of Conditions**

The holder of an authority may apply to Heritage New Zealand Pouhere Taonga for the change or cancellation of any condition of the authority. Heritage New Zealand Pouhere Taonga may also initiate a review of all or any conditions of an authority.

### **Non-compliance with conditions**

Note that failure to comply with any of the conditions of this authority is a criminal offence and is liable to a penalty of up to \$120,000 (Heritage New Zealand Pouhere Taonga Act 2014, section 88).

### **Costs**

The authority holder shall meet all costs incurred during the exercise of this authority. This includes all on-site work, post fieldwork analysis, radiocarbon dates, specialist analysis and preparation of interim and final reports.

**Guideline Series**

Guidelines referred to in this document are available on the Heritage New Zealand Pouhere Taonga website: [archaeology.nz](http://archaeology.nz)

**The Protected Objects Act 1975**

The Ministry for Culture and Heritage (“the Ministry”) administers the Protected Objects Act 1975 which regulates the sale, trade and ownership of taonga tūturu.

If a taonga tūturu is found during the course of an archaeological authority, the Ministry or the nearest public museum must be notified of the find within 28 days of the completion of the field work.

Breaches of this requirement are an offence and may result in a fine of up to \$10,000 for each taonga tūturu for an individual, and of up to \$20,000 for a body corporate.

For further information please visit the Ministry’s website at <http://www.mch.govt.nz/nz-identity-heritage/protected-objects>.

**Land Owner Requirements**

If you are the owner of the land to which this authority relates, you are required to advise any successor in title that this authority applies in relation to the land. This will ensure that any new owner is made aware of their responsibility in regard to the Heritage New Zealand Pouhere Taonga Act 2014.



HERITAGE NEW ZEALAND  
POUHERE TAONGA

## **SECTION 45 APPROVED PERSON**

### **Heritage New Zealand Pouhere Taonga Act 2014**

---

**AUTHORITY NO: 2021/153**

**FILE REF: 11013-035**

**APPROVAL DATE: 14 October 2020**

---

**This approval may not be exercised during the appeal period of 15 working days, or until any appeal that has been lodged is resolved.**

---

#### **APPROVAL**

Pursuant to section 45 of the Act, **Benjamin Teele** is approved by Heritage New Zealand Pouhere Taonga to carry out any archaeological work required as a condition of authority 2021/153, and to compile and submit a report on the work done. Benjamin Teele will hold responsibility for the current archaeological practice in respect of the archaeological authority for which this approval is given.

**Signed for and on behalf of Heritage New Zealand,**

**Claire Craig**  
**Deputy Chief Executive Policy, Strategy and Corporate Service**  
**Heritage New Zealand Pouhere Taonga**  
**PO Box 2629**  
**WELLINGTON 6140**

**Date 14 October 2020**

# COMPLYING WITH AN ARCHAEOLOGICAL AUTHORITY



HERITAGE NEW ZEALAND  
POUHERE TAONGA



## NOW YOU'VE GOT YOUR AUTHORITY – WHAT NEXT?

YOU HAVE RECEIVED AN ARCHAEOLOGICAL AUTHORITY FROM HERITAGE NEW ZEALAND POUHERE TAONGA BECAUSE YOU ARE PLANNING WORK THAT MAY AFFECT AN ARCHAEOLOGICAL SITE. THIS IS A LEGAL DOCUMENT.

HERITAGE NEW ZEALAND WANTS TO SEE THE BEST OUTCOME FOR THE ARCHAEOLOGICAL SITES INVOLVED AND TO HELP ENSURE THAT YOUR PROJECT RUNS SMOOTHLY. ANSWERS TO COMMONLY ASKED QUESTIONS REGARDING COMPLIANCE WITH THE AUTHORITY ARE PROVIDED HERE. IF YOU HAVE OTHER QUESTIONS, PLEASE CALL THE REGIONAL ARCHAEOLOGIST IN THE OFFICE NEAREST YOU.

## WHY COMPLY?

Archaeological sites are an irreplaceable part of our heritage and, although our history is short, it is rich, varied and unique, and belongs to all New Zealanders. What we discover from archaeological sites helps us to better understand our past and to learn from it. By complying with your authority conditions you help to add to our knowledge, and help us to preserve our heritage for the future.

We take compliance seriously and the *Heritage New Zealand Pouhere Taonga Act 2014* has strong provisions for non-compliance with authority conditions. It is a criminal offence to breach the conditions of an authority, and you could be penalised with a fine of up to \$120,000.

## READ YOUR AUTHORITY CONDITIONS CAREFULLY

When authorities are granted, they contain a list of conditions which must be followed. Make sure you understand what the conditions mean and if you have any questions contact the Regional Archaeologist. Their contact details will be printed on the authority decision. You can also talk through the conditions with your approved archaeologist.

## APPROVED ARCHAEOLOGIST

The archaeological conditions of the authority must be carried out by an archaeologist approved in writing by Heritage New Zealand before work starts. Check the authority decision to ensure that your nominated archaeologist has been approved.

If you change your archaeologist you must have the new person approved by Heritage New Zealand before you start work.

## REVIEW OF CONDITIONS

Authority holders may apply to Heritage New Zealand to change or cancel any of the authority conditions. You must state the details of the authority, the area of land involved, the conditions opposed and the reasons for the application for a review. Heritage New Zealand will consider the documentation and provide a written response.

## 15 WORKING DAYS STAND-DOWN PERIOD

You may not start work under your authority until you have waited 15 working days (plus 3 days to allow for receipt by all parties by post) or until any appeal that has been lodged is resolved. The appeal period is part of the *Heritage New Zealand Pouhere Taonga Act 2014* which means we do not have the discretion to waive it.

## APPEALING THE DECISION

The *Heritage New Zealand Pouhere Taonga Act 2014* allows any person directly affected by a decision to appeal it to the Environment Court. In the past, the Court has taken a narrow interpretation of people “directly affected”, but noted that it relates to the particular circumstances of each case. It does not include strong feelings or personal attachment to an area, or living or working close by. Appeals can be made by any person with a proprietary interest in the land, the applicant for the authority, or tangata whenua. There are other special circumstances where the views of people without a proprietary interest in the land will be considered based on the evidence of the case.

Appeals should be made in writing stating the reasons for the appeal and the relief sought. The appeal must be lodged with the Environment Court and served on the Heritage New Zealand within 15 working days of receipt of the authority decision. If your authority is appealed, you must be served with the appeal notice within five working days of it being lodged with the Court (see [www.justice.govt.nz/courts/environment-court](http://www.justice.govt.nz/courts/environment-court)).



## START AND FINISH DATES

Please inform Heritage New Zealand when on site archaeological work will commence, and is completed so that we can undertake compliance and update our records.

## MINISTRY FOR CULTURE AND HERITAGE

Heritage New Zealand is required to send a copy of the authority decision to the Ministry for Culture and Heritage. This is to ensure that any artefacts recovered from the excavation are handled under the provisions of the *Protected Objects Act 1975* (see [www.mch.govt.nz/protected-objects/index.html](http://www.mch.govt.nz/protected-objects/index.html)).

## SITE SECURITY

Consider the security of the site from trespassers and whether this is likely to be an issue on your property. Historic sites in urban environments are more likely to be the target of vandals, particularly if there is potential for them to contain valuable artefacts.

## TIMING IS EVERYTHING

Allow plenty of time to schedule the work that your approved archaeologist will undertake. For bigger projects this is particularly important because the approved archaeologist may need to organise a team of field workers to help with the investigation. Archaeologists normally work on a number of projects at one time across the country, so ensuring that resources are in place well in advance will help avoid delays to your plans.

## HERITAGE NEW ZEALAND POUHERE TAONGA SITE VISIT

Heritage New Zealand staff may organise a site visit while the archaeological investigation is being undertaken to ensure that the conditions of the authority are being met. If there are any issues with compliance, the Regional Archaeologist will contact the authority holder to discuss them.

### IMAGES:

Cover image: Remains of old gold miners town at Logantown, Bendigo, (IMAGE: ARNO GASTEIGER)

- 1 Tāhei, necklace, circa 1150, associated iwi, Hokonui Rūnanga (IMAGE: SOUTHLAND MUSEUM)
- 2 Archaeologists on site (IMAGE: ARNO GASTEIGER)





## FOR INFORMATION ABOUT ARCHAEOLOGICAL SITES:

For enquiries about archaeological sites and applications to modify or destroy sites contact the Regional Archaeologist in your nearest Heritage New Zealand office:

- Northland Area Office, Kerikeri (Northland) ph: 09 407 0470
- Northern Regional Office, Auckland (Auckland, Hauraki, Thames / Coromandel) ph: 09 307 9920
- Lower Northern Area Office, Tauranga (Bay of Plenty, Waikato, Gisborne) ph: 07 577 4530
- Central Regional Office (Lower North Island, Nelson / Tasman, Marlborough) ph: 04 494 8320
- Southern Regional Office, Christchurch (Canterbury, West Coast) ph: 03 357 9629
- Otago / Southland Area Office (Otago, Southland) ph: 03 477 9871
- The Senior Archaeologist  
Heritage New Zealand  
PO Box 2629, Wellington  
Email: [archaeologist@heritage.org.nz](mailto:archaeologist@heritage.org.nz) ph: 04 472 4341

For further information about the New Zealand Archaeological Association database of archaeological sites visit [www.archsite.org.nz](http://www.archsite.org.nz). For a list of consultant archaeologists visit their website [www.nzarchaeology.org](http://www.nzarchaeology.org)

# KAWARAU GORGE CYCLE TRAIL

Archaeological Assessment  
July 2019



# Archaeological Assessment for the Kawarau Gorge Cycle Trail

---

Commissioned by the Central Otago Queenstown Trails Network Trust

---

Prepared by Jeremy Moyle

Reviewed by Benjamin Teele

Origin Consultants Ltd

---

July 2019

*Cover image: Kawarau River c. 1870s-1880s, looking downstream from the Victoria Bridge towards the site where the trail will bridge across from Victoria Flat to Waitiri Point.*



## Contents

Introduction.....	1
Statutory Requirements.....	3
Methodology .....	5
Physical Environment or Setting.....	6
Historical Background to the Assessment Area.....	9
Previous Archaeological Work .....	16
Constraints and Limitations .....	35
Survey Results.....	36
Archaeological and Other Values.....	118
Assessment of Effects .....	121
Conclusion and Recommendations.....	124
References.....	129
Appendix A – Site Record Forms.....	130
Appendix B – HNZPT Archaeological Discovery Protocol .....	131
Appendix C – Typical Trail Cross Sections .....	132

## List of Figures

Figure 1. The assessment area with the trail route marked in red. ....	2
Figure 2. Looking north along the gorge around 1km south of the Roaring Meg power station. ....	6
Figure 3. Looking north along the gorge over the area of sluicings and tailings at F41/151. ....	7
Figure 4. Looking south over the natural bridge and Colquhoun's Flat (M. Schmidt). ....	7
Figure 5. Looking south over the extensive area of sluicing at tailings at the northern end of Gees Flat (M. Schmidt). ....	8
Figure 6. Survey plan 791, dated 1909, showing part of the Kawarau run. This plan was presumably prepared as part of the run's subdivision (QuickMap). ....	10
Figure 7. Houses at an unidentified point in the Kawarau Gorge (Ron Murray Collection). ....	11
Figure 8. The Kirtleburn Hotel and shop pre-1880s, situated adjacent to the Roaring Meg (Hocken). ....	11
Figure 9. The concrete pillar's prior to their deposition into the river (Ron Murray Collection). ....	14
Figure 10. Sites in the vicinity of Victoria Flat (ArchSite). ....	17
Figure 11. Sites in the vicinity of Waitiri Point (ArchSite). ....	18
Figure 12. Sites in the vicinity of Sam's Flat (ArchSite). ....	18
Figure 13. Sites in the vicinity of Colquhoun's Flat/Roaring Meg (ArchSite). ....	19
Figure 14. Sites along the gorge downstream of the Roaring Meg (ArchSite). ....	19
Figure 15. Sites in the vicinity of Gees Flat (ArchSite). ....	20
Figure 16. Sites in the vicinity of Walkers Creek/Long Gully (ArchSite). ....	20
Figure 17. Looking towards the Kawarau down a dry gully near the northern end of Gees Flat. ....	36
Figure 18. Nevis Bluff area; F41/212, F41/213, F41/214. ....	37
Figure 19. F41/211; the white dashed line indicates the approximate site boundary. ....	38
Figure 20. F41/211; looking west across the sluiced area. A tailings pile is visible at the centre left of the image. ....	38
Figure 21. F41/211; looking south across the sluiced area. ....	39
Figure 22. F41/840. ....	40
Figure 23. F41/840; looking north over the feature. ....	41
Figure 24. F41/840; showing the possible framing timber at the base of the feature. ....	41
Figure 25. F41/210; the white dashed line indicates the approximate site boundary. ....	42
Figure 26. F41/210; looking west over the sluicings and tailings. ....	42
Figure 27. F41/839; the white solid lines indicate the approximate run of the earth bank and the dotted lines mark water race segments. ....	43
Figure 28. F41/839; looking west over the earth bund/bank running from the centre to the left of the image. ....	43
Figure 29. F41/839; looking north between the two overgrown races. ....	44
Figure 30. F41/195. ....	45
Figure 31. F41/196; the white dashed line indicates the approximate site boundary. ....	46
Figure 32. F41/196, looking south through the site's tailings. ....	46



Figure 33. F41/458; the white dashed line indicates the approximate site boundary.....	47
Figure 34. F41/458, looking east over the sluicings.....	47
Figure 35. F41/837; the white dashed line indicates the approximate site boundary and the dotted lines mark a water race segment. ....	48
Figure 36. F41/837; looking west across the reservoir.....	48
Figure 37. F41/837; looking north along the water race running beneath the road.....	49
Figure 38. F41/838. ....	50
Figure 39. F41/838, looking east across the dam.....	50
Figure 40. F41/817; the white dashed line indicates the approximate site boundary.....	51
Figure 41. F41/817; looking south across the site. ....	51
Figure 42. F41/206. ....	52
Figure 43. F41/206; looking north at the site. ....	52
Figure 44. F41/206; showing the stonework at the structure's north-east corner. ....	53
Figure 45. F41/838; the white dashed line indicates the approximate site boundary.....	54
Figure 46. F41/838, looking east over the sluicings.....	54
Figure 47. F41/202. ....	55
Figure 48. F41/202; standing on the building platform, looking north at the stone revetment. ....	55
Figure 49. F41/174. ....	56
Figure 50. F41/197. ....	57
Figure 51. F41/818. ....	58
Figure 52. F41/818; looking east at a stone row beneath the willow tree.....	58
Figure 53. F41/818; a corner of the stone structure to the south of the willow tree. ....	59
Figure 54. F41/818; a possible well to the south of the willow tree. ....	59
Figure 55. F41/819. ....	60
Figure 56. F41/819. ....	60
Figure 57. F41/820. ....	61
Figure 58. F41/820; looking west – through briar – at the stone road revetment.....	61
Figure 59. F41/173; the white dashed line indicates the approximate site boundary.....	62
Figure 60. F41/173; looking south over the tailings and sluiced area from the northern end of the site. ....	63
Figure 61. F41/821; the white solid lines indicate the approximate position of dam walls and the dotted line marks a water race segment. ....	64
Figure 62. F41/821; looking south-west at the northern dam wall with the race segment visible at the left of the image.....	65
Figure 63. F41/821; looking south on top of the northern dam. ....	65
Figure 64. F41/822; the white dashed line indicates the approximate site boundary.....	66
Figure 65. F41/823. ....	67
Figure 66. F41/823; the majority of the structure is overgrown by scrub.....	67
Figure 67. F41/824. ....	68

Figure 68. F41/824; looking south west at the hut site, with the chimney structure visible at the right of the image. ....	68
Figure 69. F41/825; the white solid lines indicate the approximate position of the dam walls. ....	69
Figure 70. F41/825; an element of stone facing at the northern end of the dam. ....	69
Figure 71. F41/826; the white dashed line indicates the approximate site boundary. ....	70
Figure 72. F41/826; looking east up the sluiced gully with a tailings pile at the centre of the image. ....	71
Figure 73. F41/826; looking north across the gully mouth at a sluiced area filled with tailings piles. ....	71
Figure 74. F41/432; the white dashed line indicates the approximate site boundary. ....	72
Figure 75. F41/432; looking east across the sluicings and tailings at the southern end of the site area. ....	73
Figure 76. F41/432; looking north-east along the herringbone tailings at the northern end of the site. ....	73
Figure 77. F41/433. ....	74
Figure 78. F41/433; looking west at the rabbiters' huts. ....	74
Figure 79. F41/828; the white solid lines indicate the approximate position of the dam walls. ....	75
Figure 80. F41/829. ....	76
Figure 81. F41/827; the white dashed line indicates the approximate site boundary. ....	77
Figure 82. F41/827; looking south along one of the well-formed sludge channels. ....	78
Figure 83. F41/827; looking north at the stone feature avoided by the lowered trail route. ....	78
Figure 84. F41/830; the white dashed line indicates the approximate site boundary. ....	79
Figure 85. F41/830; looking north at the overgrown sluiced area adjacent to F41/175. ....	79
Figure 86. F41/175. ....	80
Figure 87. F41/175; the east exterior wall of the house. ....	80
Figure 88. F41/261; the white dashed line indicates the site approximate boundary. ....	81
Figure 89. Creek 6: F41/170-F41/172. ....	82
Figure 90. F41/167. ....	83
Figure 91. F41/164. ....	84
Figure 92. F41/164; looking west towards the crossing point. ....	84
Figure 93. F41/455. ....	85
Figure 94. F41/158; the white solid lines indicate the approximate position of the dam walls and the dotted line marks a water race segment. ....	86
Figure 95. F41/158; looking east along the edge of the dam embankment. ....	87
Figure 96. F41/158; looking along the westernmost race towards F41/161. ....	87
Figure 97. F41/161; the white dashed line indicates the approximate site boundary. ....	88
Figure 98. F41/161; looking north over the tailings towards the Roaring Meg carpark. ....	88
Figure 99. F41/831; the white dashed line indicates the approximate site boundary. ....	89
Figure 100. F41/831; looking east across the tailings with the cableway visible in the background. ....	89
Figure 101. F41/832; the dotted white line indicates the cableway. ....	90
Figure 102. F41/832; looking north-east at the cableway across the Kawarau. ....	90



Figure 103. F41/832; cableway anchor. ....	91
Figure 104. F41/429; the dashed white indicates the approximate site boundary and the dotted lines indicate sluice pipe segments. ....	92
Figure 105. F41/429; looking north-east across the sluiced area to the north of Cleghorn's Hut. ....	93
Figure 106. F41/429; looking south-west at Cleghorn's hut across a sluiced area. ....	93
Figure 107. F41/429; looking north-east from Cleghorn's Hut with the suspended sluice pipe visible in the background. ....	94
Figure 108. F41/429; looking north-east at the small dam. ....	94
Figure 109. F41/429; looking south-east along the flume pipe segment to the north-west of the hut. ....	95
Figure 110. F41/429; looking north-west along the trail route where it runs across the suspended flume pipe to the east of the hut. ....	95
Figure 111. F41/154; the white dashed line indicates the approximate site boundary and the dotted line the sludge channel. ....	96
Figure 112. F41/154; looking south-west across the tailings at the north end of the site. ....	96
Figure 113. F41/154; looking north at the sludge channel wall. ....	97
Figure 114. F41/154; looking south at sluice faces at the southern end of the site. ....	97
Figure 115. F41/151; the white dashed line indicates the approximate site boundary. ....	98
Figure 116. F41/151; looking north-west over the sluicings and tailings. ....	98
Figure 117. F41/145; the white solid lines indicate the approximate position of the dam walls. ....	99
Figure 118. F41/145; looking south across the upper dam. ....	100
Figure 119. F41/145; looking south at the stone facing at the north end of the upper dam. ....	100
Figure 120. F41/833; the white dashed line indicates the approximate site boundary. ....	101
Figure 121. F41/833; looking north-west across the sluiced area. ....	102
Figure 122. F41/141; the white solid line indicates the dam walls and the dotted line marks the water race segment. ....	103
Figure 123. F41/141; looking west at the overgrown stone facing on the dam wall. ....	103
Figure 124. F41/834; the white dashed line indicates the approximate site boundary. ....	104
Figure 125. F41/834; looking south-east across the sluiced area. ....	104
Figure 126. Possible shaft site. ....	105
Figure 127. The possible shaft, overgrown with scrub. ....	105
Figure 128. F41/139; the white dashed line indicates the approximate site boundary. ....	106
Figure 129. F41/139; looking south-east across the sluicings and tailings from the north-west edge of the site. ....	107
Figure 130. F41/139; looking south at the large sluice faces near the north-west edge of the site. The trail will run along the base of these features. ....	107
Figure 131. F41/139; looking south-east on the trail route where it runs along the existing 4WD track. ....	108
Figure 132. F41/134. ....	109
Figure 133. F41/134; looking south-east at the ruin with the route of the trail along the 4WD track to the right of the image. ....	110

Figure 134. F41/134; looking north at the ruin.....	110
Figure 135 F41/835; the white dashed line indicates the approximate site boundary. ....	111
Figure 136. Modern dam.....	112
Figure 137. The Goldfields Mining Centre.....	113
Figure 138. Goldfields Mining Centre; looking south-east over the park from the trail route. The red roofed building at the right of the image is the visitor centre at the centre of the park.....	113
Figure 139. F41/251; the white dotted line marks a water race segment.....	114
Figure 140. F41/251; the exposed lower end of the flume pipe. ....	114
Figure 141. F41/456; the white dashed line indicates the approximate site boundaries. ....	115
Figure 142. F41/456; looking south-east adjacent to the house at the centre of the site. The trail route runs from the pine trees at the left of the image.....	116
Figure 143. F41/456; looking north-east over tailings from the trail route close to the centre of the site. ....	116
Figure 144. F41/456; looking south-east along a section of the trail route through the site. The trail will pass over the sluiced ridge to the right of the image. ....	117
Figure 145. F41/456; looking north-west along a section of the trail route through the site. The trail will run along the small ridge at the centre left of the image, avoiding the well-preserved tailings to the right of the image. ....	117
Figure 146. Cross section for 3m wide trail (Southern Land). ....	122
Figure 147. Cross section for 2.5m wide trail (Southern Land).....	122



## List of Tables

Table 1. Archaeological sites previously record in the vicinity of the proposed cycle trail.....	21
Table 2. Assessment of archaeological values. ....	118
Table 3. Site-specific recommendations. ....	125

## Introduction

This archaeological assessment has been prepared for the Central Otago Queenstown Trails Network Trust as part of plans to develop a new cycle trail section through the Kawarau Gorge. The trail will run from the Nevis Bluff on the true right of the Kawarau River, cross SH6 above the existing Kawarau River road bridge, cross the river onto the left bank 800m downstream of the existing Kawarau River road bridge, then cross back onto the right bank at Citroen Rapid through to the Bannockburn bridge (Figure 1). The total trail length is approximately 26km.

The scope of this assessment is limited to between the Nevis Bluff and Long Gully and based on a working trail route dated 13<sup>th</sup> May 2019. The route between Long Gully and the Bannockburn Bridge mostly runs alongside Felton Road, requires no/only limited excavation for construction, and is not expected to impact any archaeological sites.

However, within the Kawarau Gorge proposed route of this trail will pass close to – and potentially impact – numerous recorded archaeological sites. Many of these sites are thought to date to the 19<sup>th</sup> century and are legally protected under the Heritage New Zealand Pouhere Taonga Act.

The legal description of the land parcels crossed by the trail is:

- Crown Land Block II Kawarau Survey District
- Part Section 15 SO 342162
- Road Reserve
- Section 3 SO 24743
- Lot 4 DP 27395
- Part Lot 3 DP 27395
- Part Lot 8 DP 402448
- Sec 2 SO 356266
- Section 6 SO 485617
- Section 12 SO 485617
- Section 11 SO 485617
- Part Section 23 Block IV Cromwell SD
- Section 6 SO 485617
- Part Section 2 SO 23940

The purpose of this assessment is:

- to identify the number, extent, condition, and historical context of archaeological material that may be impacted by the proposed cycle trail;
- to provide appropriate recommendations for the mitigation and management of any potential damage to this material, including design changes if appropriate; and
- to provide information supporting an application for an Archaeological Authority under the Heritage New Zealand Pouhere Taonga Act 2014.

The author of this report is Jeremy Moyle, Archaeologist at Origin Consultants Ltd and a member of the New Zealand Archaeological Association.

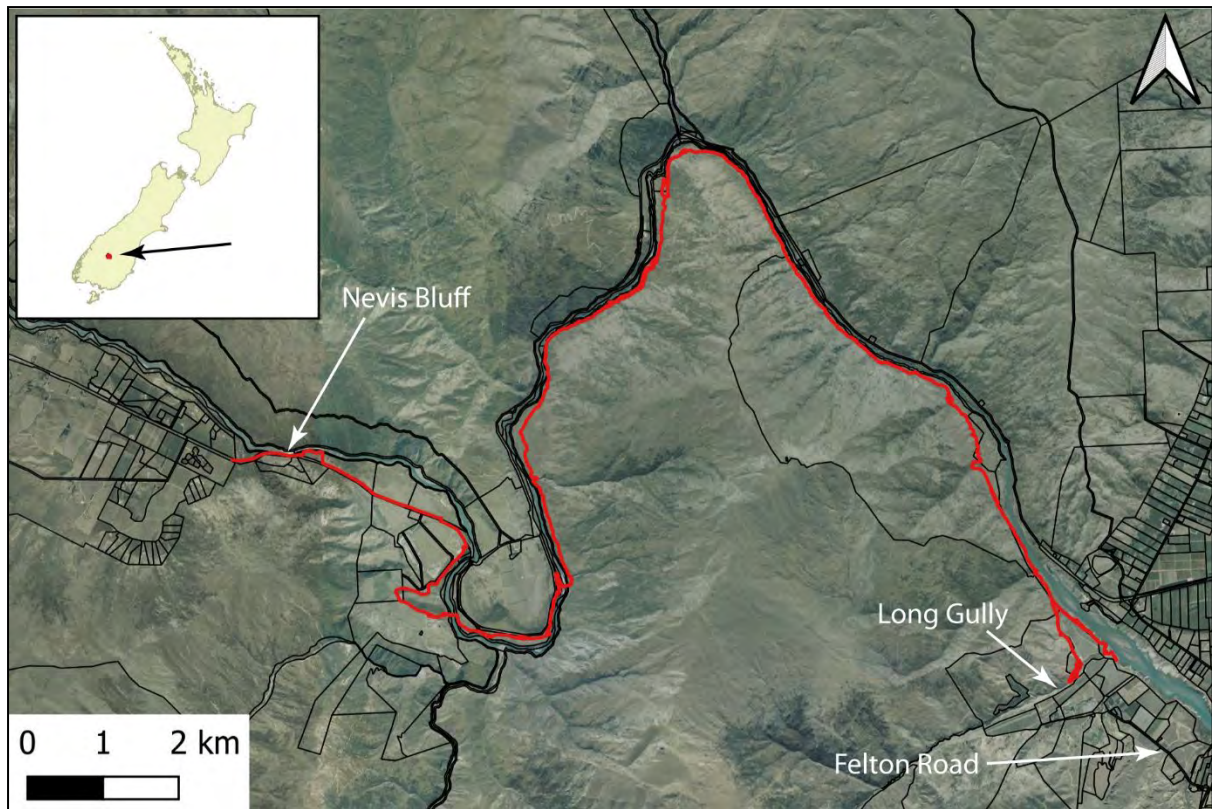


Figure 1. The assessment area with the trail route marked in red.



## Statutory Requirements

There are two main pieces of legislation in New Zealand that control work affecting archaeological sites. These are the Heritage New Zealand Pouhere Taonga Act 2014 ('HNZPT Act 2014') and the Resource Management Act 1991 (RMA). Heritage New Zealand Pouhere Taonga ('HNZPT') administers the HNZPT Act 2014.

### Archaeological Sites

The Act contains a consent (authority) process for any work affecting archaeological sites, where an archaeological site is defined as:

- a) any place in New Zealand, including any building or structure (or part of a building or structure), that—
  - i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
  - ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
- b) includes a site for which a declaration is made under section 43(1)

Any persons who intend carrying out work that may damage, modify or destroy an archaeological site, or to investigate a site using invasive archaeological techniques, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including public, private and designated land. The HNZPT Act 2014 contains penalties for unauthorised site damage or destruction.

The archaeological authority process applies to all sites that fit the HNZPT Act 2014 definition, regardless of whether:

- the site is recorded in the NZ Archaeological Association Site Recording Scheme or registered by HNZPT;
- the site only becomes known about as a result of ground disturbance; and/ or
- the activity is permitted under a district or regional plan, or a resource or building consent has been granted.

Once an authority has been granted, modification of an archaeological site is only allowed following the expiration of the appeals period or after the Environment Court determines any appeals. Any directly affected party has the right to appeal the decision within 15 working days of receiving notice of the determination. HNZPT may impose conditions on the authority that must be adhered to by the authority holder (Section 52). Provision exists for a review of the conditions (see Section 53). The authority remains current for a period of up to 35 years, as specified in the authority. If no period is specified in the authority, it remains current for a period of five years from the commencement date.

The authority is tied to the land for which it applies, regardless of changes in the ownership of the land. Prior to any changes of ownership, the land owner must give notice to HNZPT and advise the succeeding land owner of the authority, its conditions, and terms of consent.

### Historic Heritage

HNZPT also maintains the List of Historic Places, Historic Areas, Wāhi Tapu, Wāhi Tapu Areas, and Wāhi Tūpuna. The List can include archaeological sites. The purpose of the List is to inform members of the public about such places and to assist with their protection under the Resource Management Act (1991).

The RMA requires City, District and Regional Councils to manage the use, development, and protection of natural and physical resources in a way that provides for the wellbeing of today's communities while safeguarding the options of future generations. The protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

Historic heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities.

Historic heritage includes:

- historic sites, structures, places, and areas;
- archaeological sites;
- sites of significance to Māori, including Wāhi Tapu, Wāhi Tapu Areas, and Wāhi Tūpuna; and
- surroundings associated with the natural and physical resources (RMA section 2).

These categories are not mutually exclusive and some archaeological sites may include above ground structures or may also be places that are of significance to Māori.

Where resource consent is required for any activity the assessment of effects is required to address cultural and historic heritage matters (RMA 4th Schedule and the District Plan assessment criteria).

## Methodology

An archaeological assessment is required to accompany an application for an archaeological authority, as stipulated in the Heritage New Zealand Pouhere Taonga Act (2014). The archaeological assessment for this site was carried out using desk-top research methods and an archaeological survey of the cycle trail route.

The desk-top assessment methodology reviewed the historical background of the Kawarau Gorge and collated records of previously recorded archaeological features along the trail route. The following sources were consulted:

- 19<sup>th</sup> century surveyors maps and section subdivision maps;
- photographic and documentary archives (Hocken Library, Museum of New Zealand/Te Papa Tongarewa, the Ron Murray Collection – courtesy of Matthew Schmidt at HNZPT);
- local histories and similar publications;
- NZAA ArchSite; and
- Previous archaeological reports.

The archaeological survey was carried out by Jeremy Moyle and Benjamin Teele in two phases over the 11-12 April, and 2-3 May, 2019. Assistance was provided by Dave Howard from Southern Land.

For this survey the course of the trail was walked and any adjacent archaeological sites were noted, photographed, and plotted using a hand-held GPS. Each site was also noted as either:

- Outside the trail extents;
- In close proximity to the trail; or
- Directly impacted by the trail.

Advice on preferable route options was also provided during the survey. Where possible to avoid archaeological sites, or features within sites, the route of the trail was altered on the ground.



## Physical Environment or Setting

The cycle trail route runs through the Kawarau Gorge along the true right bank of the Kawarau River, between the Nevis River and Walkers Creek.

The Kawarau Gorge is a steep, narrow valley winding around the northern base of Mt Difficulty. It is flanked by Mt Gilray to the north-west and Mt Michael to the north-east. The Kawarau River runs along the gorge through a sheer-banked, rocky channel. The land at the base of the gorge is a mixture of narrow river terraces and steep slopes rising from the river to the mountains above. State Highway Six (SH6) between Cromwell and the Gibbston Valley runs along the true left bank of the river.

Geologically, the rock that forms the Kawarau Gorge is part of the Wanaka lithologic association TZIV (high-grade) schist.

At ground level, the proposed cycle route is characterised by a mixture of scrubland, grassland, exposed bedrock, and river gravels. Historic gold mining has altered the landscape in some parts of the gorge, with extensive sluice faces and tailings piles visible in several areas.



Figure 2. Looking north along the gorge around 1km south of the Roaring Meg power station.





Figure 3. Looking north along the gorge over the area of sluicings and tailings at F41/151.



Figure 4. Looking south over the natural bridge and Colquhoun's Flat (M. Schmidt).





Figure 5. Looking south over the extensive area of sluicing at tailings at the northern end of Gees Flat (M. Schmidt).



## Historical Background to the Assessment Area

### Māori Settlement

The earliest human occupation of the South Island and Otago region is considered to be by Polynesian settlers dating from around 1280AD who quickly spread across the region, developing different types of settlement sites dependent on the available local resources and environmental conditions (Wilmshurst, Anderson, Higham, & Worthy, 2008). These included settled village sites along the coast adjacent to rich and sustained food resources such as seals and moa; seasonal inland sites for collecting stone resources and hunting; and comparable seasonal coastal sites for 'fishing and moa processing' (Hamel, 2001). Such settlement and exploitation of the abundant resources was not without its impacts. Much of the forest along the coastal region was reduced in extent; there were changes in patterns of hunting and fishing; and increasing use of smaller, more mobile occupation sites by the 16th and 17th centuries. This was followed by further changes in subsistence, based on organised food gathering and processing that created settled village communities along the Otago coastline from the mid-18th century onwards (Hamel, 2001).

Archaeological investigations have revealed several early moa hunting and butchery camp sites in the area round the Kawarau demonstrating that there is a long history of Māori occupation and movement around the gorge. Only one Māori site has been positively identified within the Kawarau River valley – the Owen's Ferry site, discussed below – but numerous camp sites were likely established throughout the gorge over its centuries of pre-European occupation. It is thought that the ephemerality of these site types and the significant effects of later mining and farming means that they do not frequently appear in the archaeological record. However, other large camps have been found in the Kawarau's tributaries, notably the Schoolhouse Creek and Hawkesburn sites in the Nevis Valley and Bannockburn respectively.

Later history records the enduring place of the Kawarau Gorge within the rohe of southern Māori. Into the 19<sup>th</sup> century the Kawarau gorge continued to be important as a communication link that provided direct access between Whakatipu Waimāori (Lake Wakatipu) and Mata-au (the Clutha River). A natural rock bridge known to tangata whenua as Pōtiki-whata-rumaki-nao was located slightly upstream from Te Wai-o-Koroiko (Roaring Meg) and allowed travellers to cross the river. Te Wai-o-Koroiko also provided a travel route north from the gorge to the Ōrau (Cardrona River) and settlements in the Wānaka and Hāwea region beyond. Both Te Wai-o-Koroiko and Kawarau were valued as kāinga mahinga kai (food-gathering places) where weka, kea, kākāpō, and tuna (eel) were caught (Te Rūnanga o Ngā Tahu, 2019).

### European History<sup>1</sup>

#### The Pastoralists

Following the start of organised settlement in Otago in 1848, and into the 1850s, there was a phase of early inland settlement which consisted of establishing extensive sheep and cattle stations. These pioneers, their employers and employees were the first Europeans to settle in inland Otago. Grazing was all they wanted and Central Otago appeared to consist of little else. Grazing rights over very large acreages were obtained from the provincial authorities. However, the individuals who actually came into the interior were generally servants or agents of the leaseholders who remained in the United Kingdom.

One of the largest runs in Central Otago, the Kawarau Station, consisted of 81,000 acres (32805 hectares) and its original boundaries encompassed the project area. It was managed by the Australian and New Zealand

---

<sup>1</sup> This section is largely an adapted reproduction of the historical background from Ritchie's (1983) Kawarau River Valley Archaeological Survey report. In this work Ritchie drew upon the regional histories by Sinclair (1962) and Parcell (1976).

Land Company and by 1867 36,000 sheep were recorded as being shorn on the station (Heritage New Zealand, n.d.).

In 1882 several of the vast runs were subdivided after vigorous public agitation. However, many runholders resisted subdivision through the practice of having nominees hold the leases. The Kawarau station was finally subdivided in 1910.

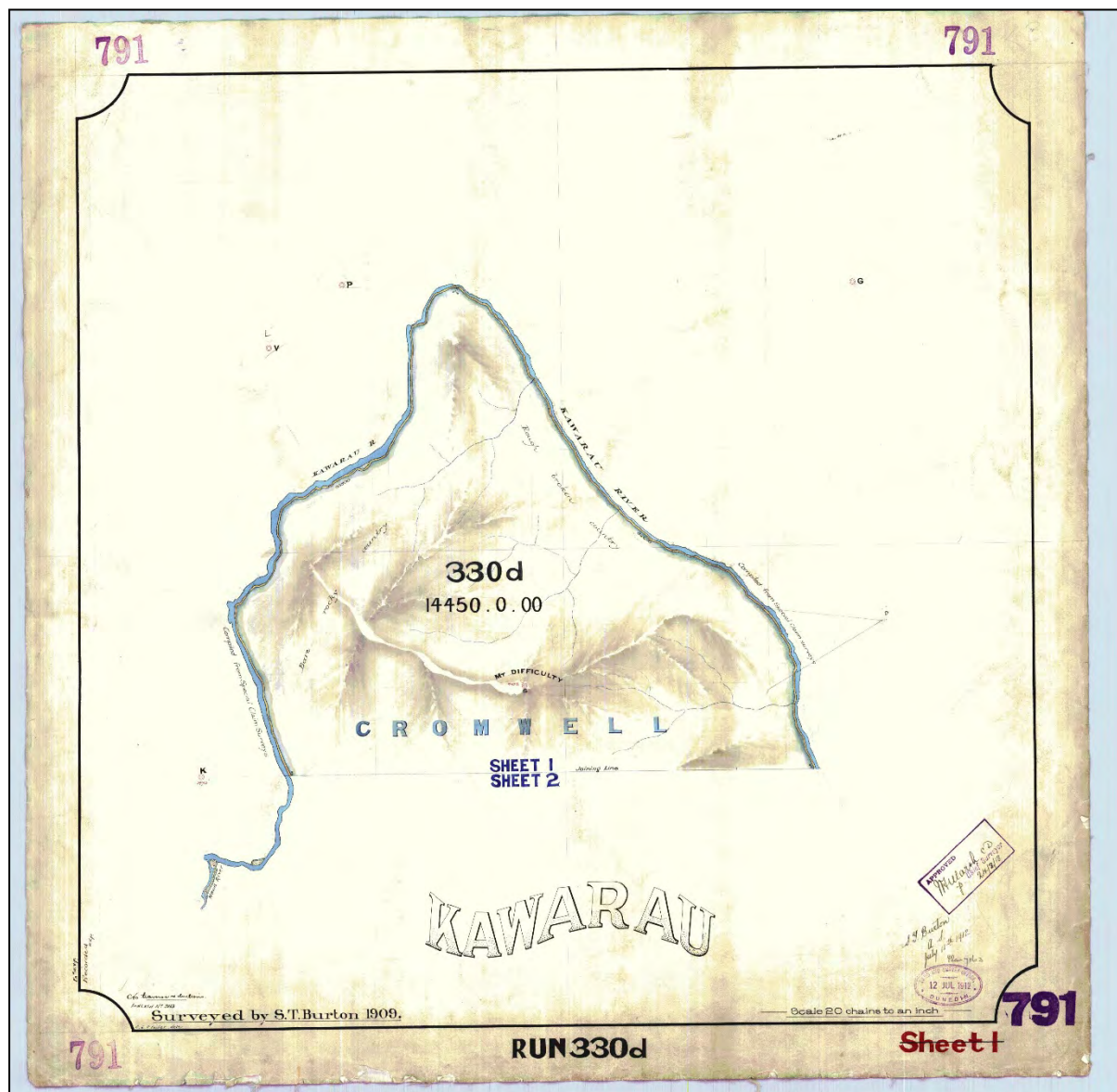


Figure 6. Survey plan 791, dated 1909, showing part of the Kawarau run. This plan was presumably prepared as part of the run's subdivision (QuickMap).

Initially the large stations existed as vast, virtually self-supporting, grazing runs because there was little or no development of tracks or roading. These developments occurred rapidly in the 1860s following the discovery of gold in the Cromwell (Dunstan) Gorge by Hartley and Reilly in August 1862.

#### The Early Mining Period

By the end of 1862 many miners were working in the Kawarau River valley. Within months major discoveries were announced in the main tributaries – the Arrow and Shotover Rivers. From late 1862 numerous mining camps and settlements were established, including the main townships today: Cromwell (initially the Upper Junction), Arrowtown, and Queenstown, and smaller towns, such as Bannockburn and Georgetown at the eastern end of the Kawarau Gorge. In the gorge, dispersed mining camps were established in the vicinity of



Gees Flat, the Roaring Meg (the Kirtleburn), and the Gentle Annie. Living conditions were fairly basic but most settlements had a store and a hotel within walking distance.



Figure 7. Houses at an unidentified point in the Kawarau Gorge (Ron Murray Collection).



Figure 8. The Kirtleburn Hotel and shop pre-1880s, situated adjacent to the Roaring Meg (Hocken).



Prior to the gold rush there was no road through the Kawarau Gorge. Access was hampered by the difficult terrain, thick scrub, and the deep swiftly flowing river. The rock bridge – also known to Europeans as the Natural Bridge – afforded a crossing point as it always for hundreds of years beforehand. However, this was washed away in a major flood in 1957. Elsewhere the traveller was confined to one bank or the other, although miners soon erected flying foxes for access to their claims.

The large influx of miners gave the impetus for better communications. During the mid-1860s the section of the road from Cromwell to Kirtleburn (Roaring Meg) was constructed. By 1868 workmen were tackling the difficult section around the Nevis Bluff. Enterprising individuals established punts to ferry people across the Kawarau near the present Victoria Bridge (Edward's Ferry) and upstream of the Arrow confluence (Owen's Ferry, later known as the Morven Ferry). A coach service was operating from Cromwell to Queenstown by 1869 and each fortnight a gold escort travelled via the gorge from Queenstown to Dunedin.

By mid-1863 provision of water to the various riverbank mining sites was the major concern. Walker and Kestall, working near the mouth of the Kawarau Gorge, attracted some attention by conveying water across the river by means of a canvas pipe suspended from a wire rope. By the end of 1864 Irving and party were tunnelling from the river into Gees Flat. To the south of the gorge, other mining ventures also had great success working into the alluvial terraces on either side of the Kawarau.

The centre of activity in the Dunstan field was now at Cromwell and the town made rapid progress. Early in 1865 miners in the Kawarau Gorge were getting tolerably good returns, although some claims were becoming worked out. Alston and party and Radford and party left for Victoria and Queensland with comfortable fortunes. The population was increasing slightly. In November 1865, there were 50 miners in Cromwell, 30 in Bannockburn, 90 in Bannockburn District, 90 in the Kawarau Gorge (presumably this includes Georgetown) and five between the mouth of the gorge and the Roaring Meg. However, as these figures only count miners, the actual population of these localities was presumably somewhat larger.

By the middle of 1865 there were 20 more miners at the Kawarau Gorge workings, which had now reached their peak. Miners on Gees Flat were producing good results, particularly Kellsell and party. Further up the gorge Hansen and party were working below Roaring Meg where a fluming had been constructed over the Kawarau to enable water from Roaring Meg Creek to be used on the opposite bank. This fluming, like the pipeline mentioned above, was looked upon at the time as a quite revolutionary advance in mining engineering.

Alluvial mining in the Kawarau River Valley was always hindered by the lack of water and the costs of establishing and maintaining races and pipelines on the steep hillsides to convey it to the riverside claims. European interest gradually declined, although a number of Chinese miners continued to eke a living especially in the lower part of the Kawarau Gorge downstream of the Roaring Meg. After 1899 the dredging boom effectively wiped out small scale alluvial mining. Many of the miners began to work on the dredges where wages were more easily earned than in the waterless alluvial claims.

#### Later Mining on the Kawarau

In the late 19<sup>th</sup> to early 20<sup>th</sup> century further land-based alluvial mining projects were proposed along the Kawarau, but these either did not come to fruition or proved ultimately less significant than the early boom years. In September 1897 an application was made for a hydraulic claim on Victoria Flat above the Nevis River junction. This was the first proposal for hydraulic mining in the Cromwell area. However, it did not eventuate as it would have entailed a very costly race-line to get the necessary pressure. No attempt was made to mine these flats until Macale and Party floated the Kawarau High Levels Mining Company in 1926 and conveyed water to the Flat from Doolans Creek via a 1400 feet long tunnel (F41/208) cut through a spur at Mt Mason. Their efforts were largely in vain because the ground was rough and there were too many boulders for successful hydraulic mining.

Alongside this there were several schemes to dam or divert the Kawarau upstream to expose the river bed for alluvial mining. The most significant scheme went ahead in 1922-26 and saw the construction of the Kawarau

Falls Dam at Frankton. However, after successive delays, claim-rent arrears, and the fact that the backflow from the Arrow and Shotover Rivers represented an almost insurmountable technical difficulty, the whole venture was written off as a failure.

Towards the end of 1930 there was a suggestion of a mining revival as a palliative to unemployment which steadily increased from then onwards. By the beginning of 1932 the price of gold rose to £6 per ounce and the government was operating a mining subsidy scheme by way of unemployment relief. Men were paid a small wage, 15/9 per week, and supplied with a certain amount of equipment (against and order on any gold won) provided they mined under a supervisor and to his satisfaction. It was a hard existence and tunnel digging was regarded as the most practical way to mine with the limited equipment available. These tunnels were either supported by timber props or unsupported if the ground was stable enough.

A limited amount of mining alongside the river has also occurred more recently. From the 1970s through to the late 1980s mining using modern mechanical equipment was being carried out at both Colquhoun's Flat and at the mouth of the gorge (on the true left bank) near Cromwell. There was also at least one small scale sluicing operation carried out immediately downstream of the Roaring Meg (Cleghorn's workings). The exact details of this recent gold mining activity are unclear, and it is possible that further modern operations were also mining alongside the river.

#### Dredging

Several dredges made good returns on the lower Kawarau (between Cromwell and the mouth of the Kawarau Gorge) but the upper stretch was not as intensively or as successfully worked. None of the dredge claims in the stretch from Long Gully (near the mouth of the Kawarau Gorge) to the Gentle Annie Creek returned the capital invested. This was due to the difficulty of operating a dredge within the rocky confines of the gorge, the creviced nature of the riverbed and the sudden increases in river depth which occurred after flash floods. The claims in the gorge included the *Magnetic 1* and *2*, the *Voltaic*, the upper *Magnetic*, as well as the *Meg* and *Annie*. Dredging outside the gorge in the more languid portions of the Kawarau River was more successful, and fuelled the dredging boom that ran from c. 1889 to 1907. After 1907 the dredging industry went into a steady decline, though there was a limited resurgence in Central Otago in the 1930s with at least one dredge working the Kawarau River downstream of the gorge.

#### Farming and Other Developments

Though farming settlements producing wheat and barley began to be established along the Kawarau River on the Gibbston Flat, the rugged terrain of the Kawarau Gorge did not provide much incentive for intensive farming or cropping. Instead, much of the land along the gorge has remained part of large pastoral stations (though much reduced since the days of the original Kawarau Run).

Like most areas of Central Otago rabbits reached plague proportions in the Kawarau River valley between about 1880 and 1920. The Kawarau Station employed more rabbiters than musterers when the plague was at its peak. During this period many of the early miners' huts were re-occupied by rabbiters who poisoned rabbits and skinned their carcasses for export.

As well as controlling rabbits, increasing the productivity of land through irrigation was also a major concern. Initially old water races built by the miners were repaired and modified for irrigation purposes and for use in wool scours and dips. In the 1890s, proposals were outlined to bring water from the Roaring Meg for the irrigation of the Cromwell Flat. These plans never reached fruition, but they were to be revived in another form later.

In 1913 a meeting was called in Cromwell regarding the activities of a company called the Cromwell Development Company which was acquiring most of the land between the Kawarau River and Lowburn. The company proposed a large irrigation development on the Flats with water pumped from the Kawarau Gorge. At the time they were viewed with suspicion as landgrabbers.

However, in May 1915 after input from Dunedin businessman P. R. Sargood, work started on the diversion weir and pump house at Gees Flat. By October 1916 the company had planted 36,000 trees, mainly apples, and the pillars to divert the river were in the course of construction. In January 1918 the first pillar was dropped into the river, but the water was not to be successfully diverted and pumped onto the flats until 1926. The scheme would have failed completely but for engineer E. J. Iles who ingeniously raised the diversion weir, known as Sargood's Weir, until the water would flow into the 2km long aqueduct leading to the pump house. Yet the scheme was to be only short-lived. It had no prospect of paying debenture interest, the company could not afford to keep the weir in repair, and the aqueduct to the pump house was partially destroyed by high river flows. Eventually the pipeline from the pumping station to the distribution race was removed to Sargood's farm at Wanaka and the early fruit plantations failed.



Figure 9. The concrete pillar's prior to their deposition into the river (Ron Murray Collection).

A more successful project was the Roaring Meg power station. This was built by the Otago Central Electric Power Board and completed in 1936. The building of the Meg station was financed by approximately a third share each from the Board and the Molyneux and Clutha Dredging Companies.

#### Later Developments

In the later decades of the 20<sup>th</sup> century the small terraces and lower slopes have been largely abandoned to the spread of wild briar, with there being apparently minimal effort to control it.

Higher gold prices in the late 1970s resulted in a latter day gold rush in many of the gold-bearing areas of New Zealand, the Kawarau River valley being no exception. Generally, the modern mining has involved re-working old alluvial workings and river deposits using mobile screening plants and modern earthmoving machinery. Unfortunately this new technology has led to the destruction of many interesting pioneer mining sites consisting of hand stacked tailings in various formations. This is known to have occurred to tailing deposits immediately downstream of the gorge mouth (on the true left bank), at Colquhoun's Flat, and at Cleghorn's Workings (immediately downstream of the Roaring Meg), but the full extent of these modern mining operations is unclear.

At Gees Flat, The Goldfields Mining Centre (formally the Otago Goldfields Park Kawarau Gorge Mining Centre) was established in an effort to preserve and interpret the alluvial mining remains at the site and the human stories associated with them.

In 1976 two high dams were planned for the gorge at Scrubby Stream and Nevis Bluff but neither scheme proceeded because of slope instability problems. Subsequent options for low diversion dams, canals, and tunnels were also abandoned in the face of public opposition.



## Previous Archaeological Work

The first major archaeological survey of the Kawarau Gorge was headed by Neville Ritchie in 1978-1979. This work was carried out under the auspices of the HNZPT (then the Historic Places Trust) and supported by funding from the former Ministry of Works and Development as part of the Clutha Valley Archaeological Project. This was a scheme directed by Ritchie and developed in response to the potential flooding of the gorge for hydroelectric development (though the proposed Kawarau dams were eventually not constructed). Ultimately, the Clutha Valley Archaeological Project would run for ten years from 1977 to 1987 (Ritchie, 1990). Alongside Ritchie, personnel involved in the survey of the gorge and subsequent excavation and analysis of some sites included S. Bedford, G. Bulling, A. Harrison, E. McGregor, M. Till, I. Wilson, and B. Fankhauser (Ritchie, 1983).

Ritchie's 1978-1979 survey along the river had a wide scope, running from the confluence of the Arrow and Kawarau rivers to the mouth of the Gorge near Cromwell. The survey focused on an intensive examination of river terraces, but also included other likely areas of human habitation: river banks, the lower reaches of tributary creeks, and rock overhangs or terraces. Ritchie also notes that "water races detected visually or on aerial photographs were traced from the point where they diverged from a creek to their termination, usually at alluvial gold workings." The survey was designed to record – within reason – all of the visible archaeological features in the Kawarau Gorge (Ritchie, 1983).

The later work of the Clutha Valley Archaeological Project was carried out with a specific focus on Chinese and Māori sites, and several excavations of these site types were carried out along the Kawarau in the 1980s. In 1982 the Hanging Rock and Riverside Chinese rockshelter sites (F41/123 and F41/410 respectively) were investigated. In the same year, a site initially suspected to be a Chinese hut was also excavated, though this was later determined to be a forge (F41/409). These three sites are all located on Gees Flat, and the Riverside and Forge excavations were carried out principally for interpretive purposes for the Goldfields Mining Centre (then known as the Otago Goldfields Park). In 1985 two further excavations of Chinese sites were carried out at Flax Grove and Platform rock shelters (F41/143 and F41/96 respectively; Ritchie, 1989, 1990).

Only one Māori site – Owen's Ferry (F41/1) – was positively located along the Kawarau River, though this site sits outside of the project area. It was excavated in November-December 1981. Ritchie notes the paucity of prehistoric sites in the Kawarau Gorge as puzzling considering the area's use as a major thoroughfare between the Wakatipu and Upper Clutha basins, and suggests that "former sites may have been obliterated by mining and farming operations or buried under mass movements" (Ritchie, 1983, p. 16).

Following the Clutha Valley Archaeological Project, several smaller surveys have been carried out in the 1990s-2000s. In 1991 and 1996 Jill Hamel carried out surveys of areas to the north and south of the Kawarau River for the Department of Conservation (Hamel, 1991, 1996). For the most part these involved the relocation of sites identified earlier by Ritchie. Hamel also noted the discovery of a sawn greenstone boulder was around 1990 by miners on the terrace to the south of the former natural arch across the Kawarau River, a site traditionally known as an early Ngāi Tahu campsite. The site was recorded as F41/455 in 1996, and described at the time as having been greatly disturbed by mining and having some of the large boulders shifted.

Two surveys by Peter Petchey in 1997 and 1999 documented several sites around the Victoria Flat area prior to the establishment of the current landfill (Petchey, 1999). This included a number of sites previously recorded by Ritchie's survey and three new sites: the Edwards Ferry crossing point (F41/753), the historic road formation across Victoria Flat (F41/459), and an area of sluicings (F41/458).

Nearby, Angela Middleton also conducted a small survey of a property at the northern edge of Victoria flat as proposed redevelopment plan (that ultimately appears to have not gone ahead). This located a series of sites similar to other areas of the Kawarau Gorge: two stone ruins (F41/579 F41/581) a dam (F41/580), and areas of tailings (F41/582 and F41/583).

The only other work recorded on ArchSite more recently is the update of site F41/104, the sluice workings known as the Hidden Valley Goldmine. In 2014 Matt Sole added a polygon to this site record to indicate the estimated extend of these gold workings running along the riverbank.

A complete list of sites recorded in the project area and their locations on ArchSite is included below in Figure 10-Figure 16 and Table 1. The red stars are sites recorded during the recent ground survey. The site descriptions are largely adapted from Ritchie's (1983) Kawarau River Valley Archaeological Survey report.

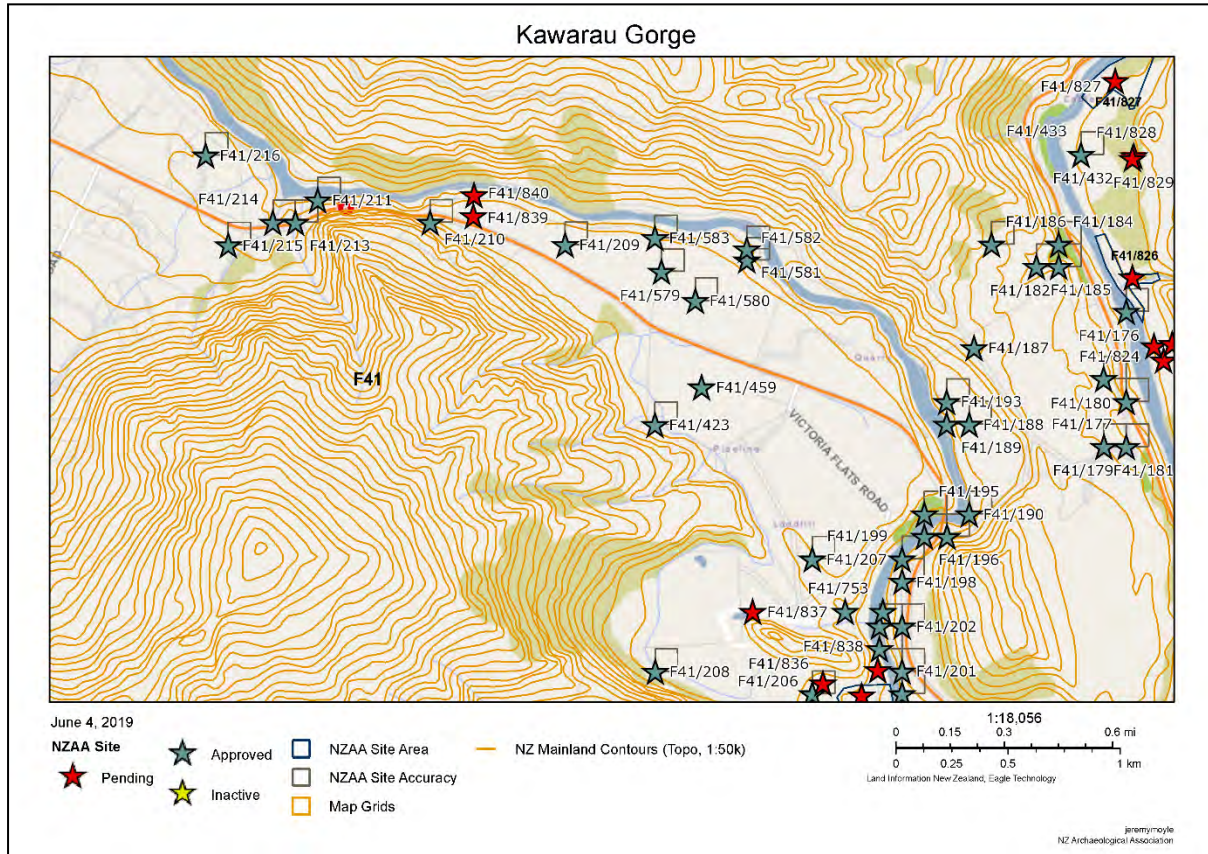


Figure 10. Sites in the vicinity of Victoria Flat (ArchSite).



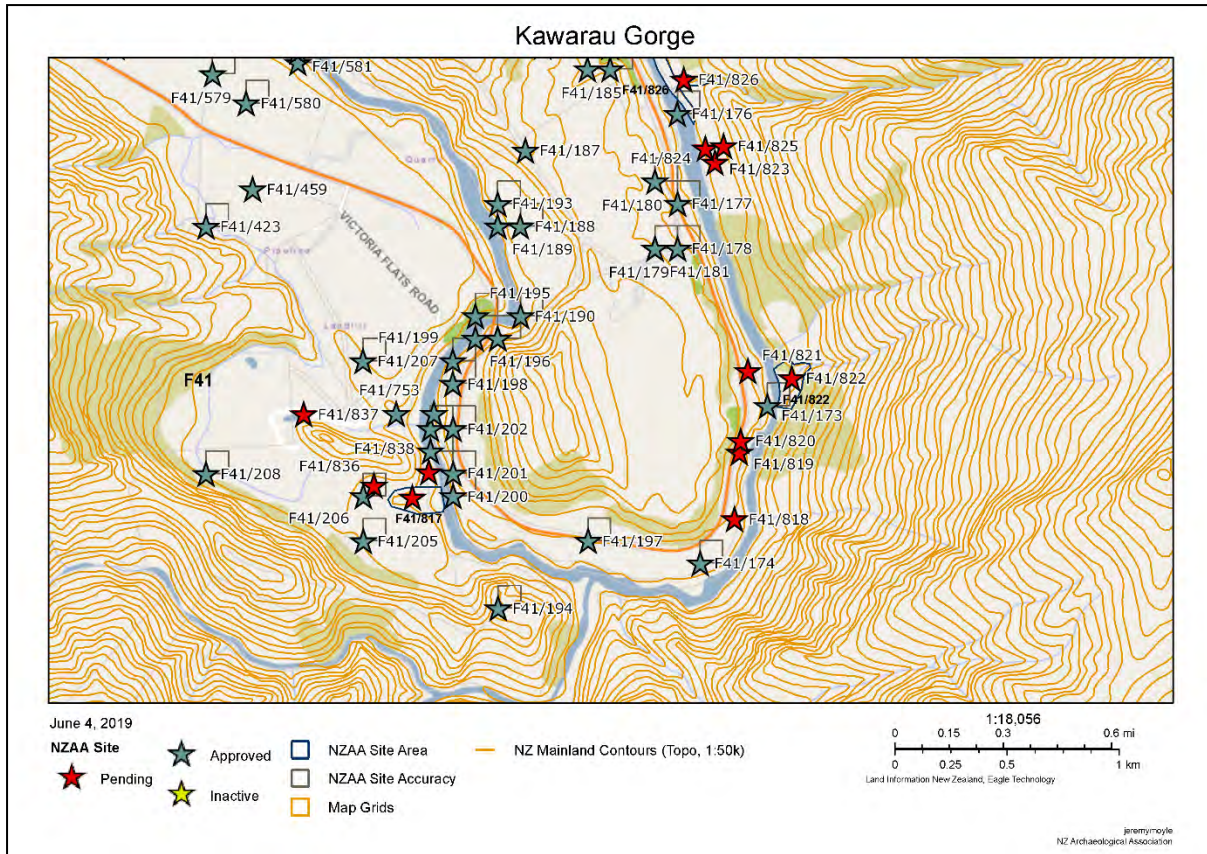


Figure 11. Sites in the vicinity of Waitiri Point (ArchSite).

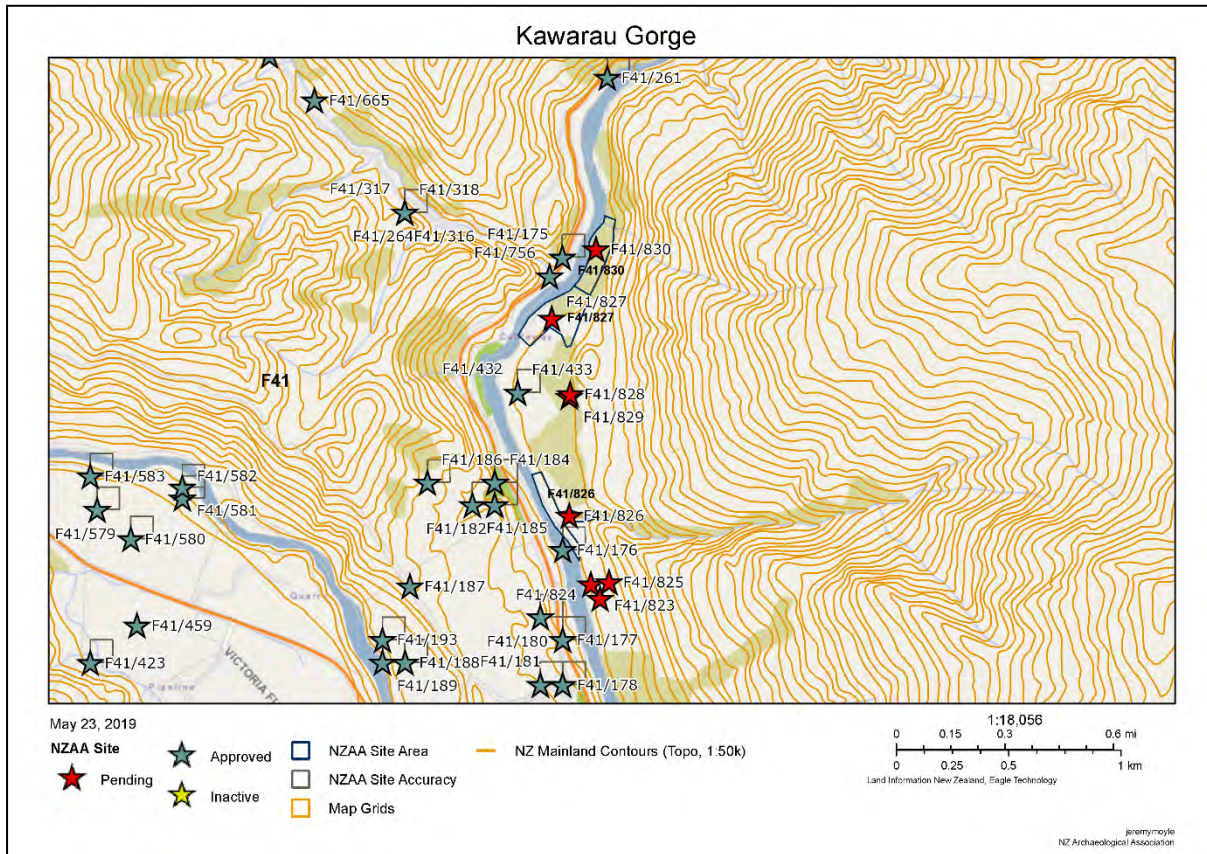


Figure 12. Sites in the vicinity of Sam's Flat (ArchSite).



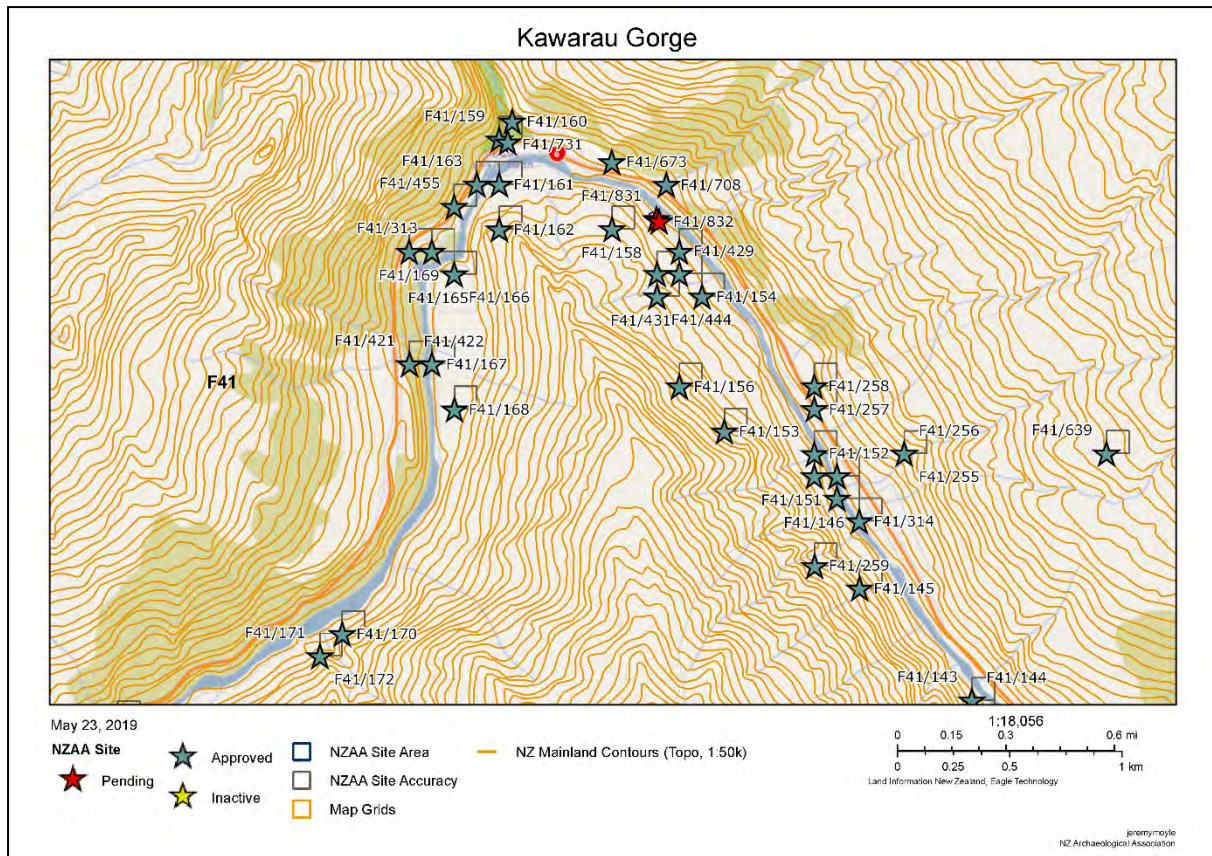


Figure 13. Sites in the vicinity of Colquhoun's Flat/Roaring Meg (ArchSite).

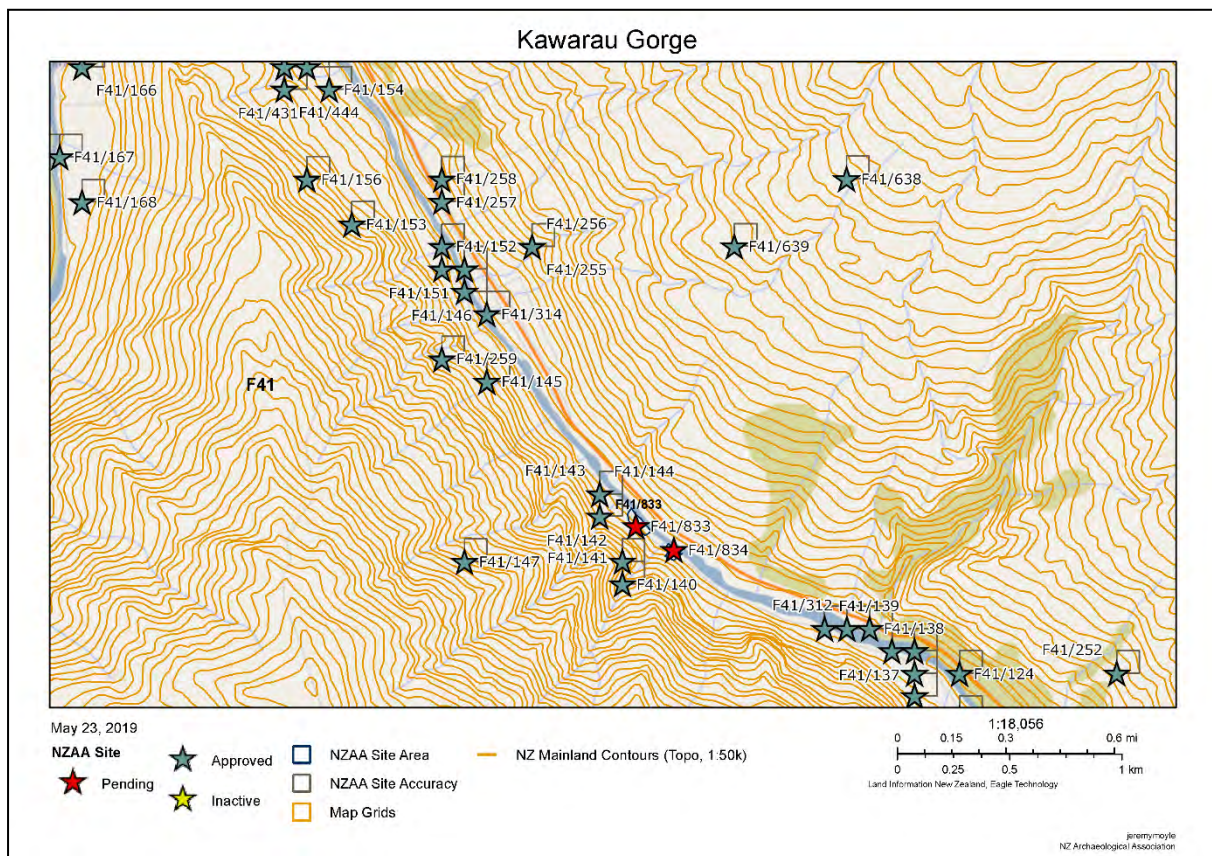


Figure 14. Sites along the gorge downstream of the Roaring Meg (ArchSite).



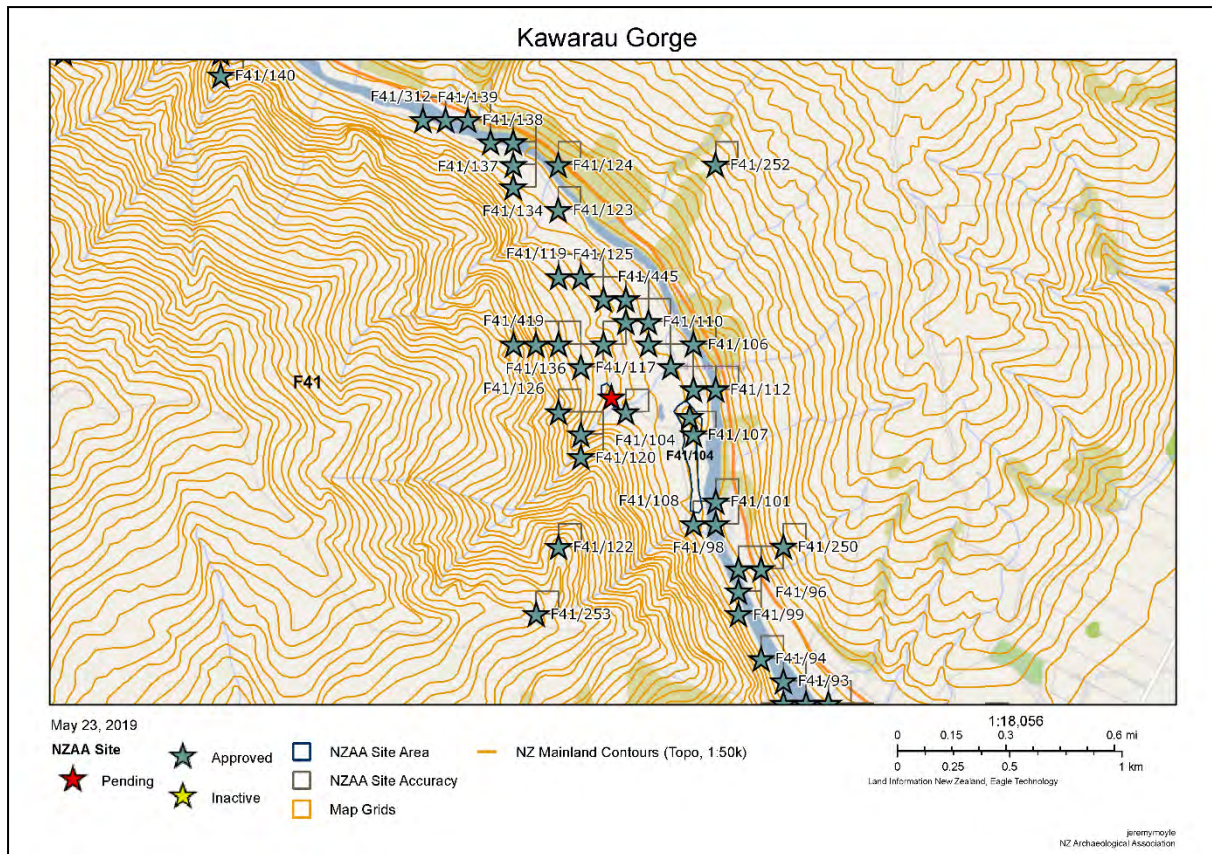


Figure 15. Sites in the vicinity of Gees Flat (ArchSite).

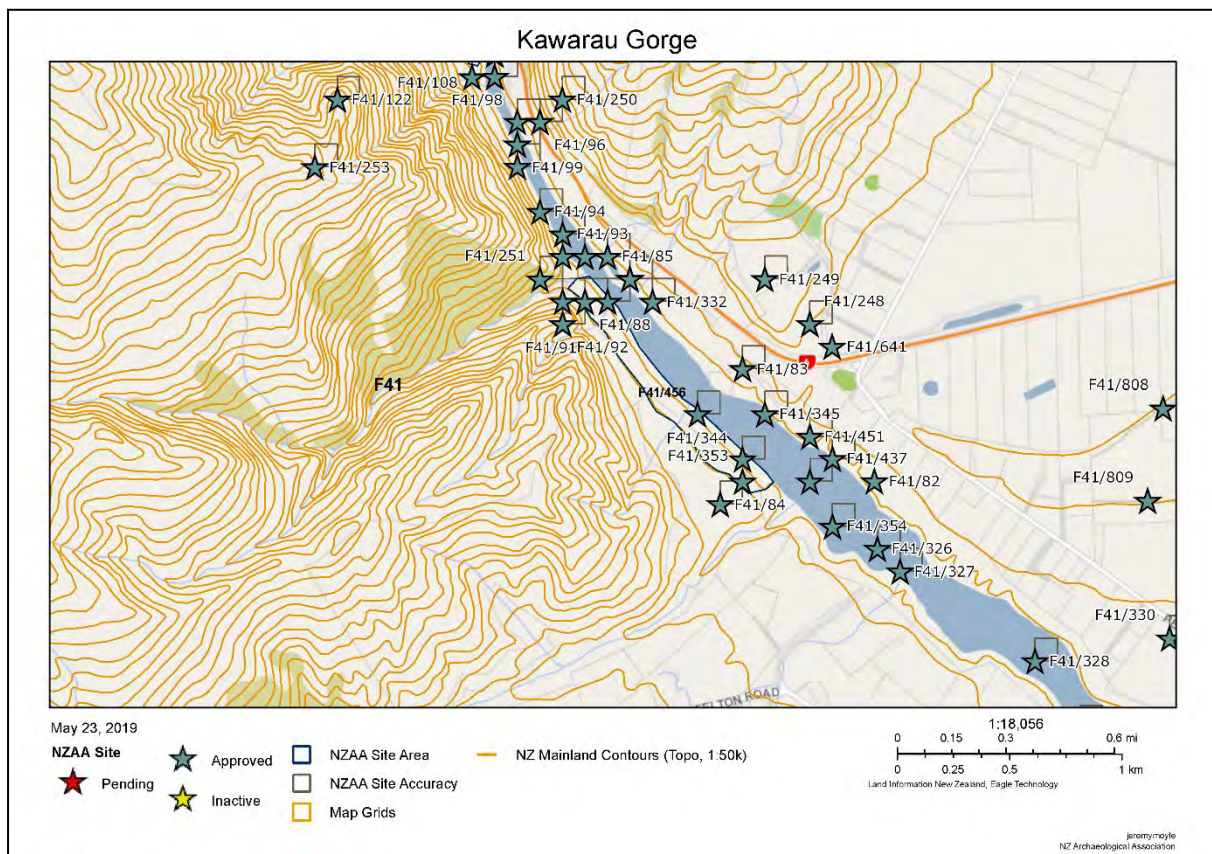


Figure 16. Sites in the vicinity of Walkers Creek/Long Gully (ArchSite).

Table 1. Archaeological sites previously record in the vicinity of the proposed cycle trail.

Site No.	Imperial Site No.	Site Name	Description	Site Type
F41/101	S133/451	Hut	2 room stone and mud brick building. Walls irregularly fallen down, numerous fossick holes, early glass (black), possibly an early grog shop.	Historic - domestic
F41/102	S133/452	Rockshelter	Dug into conglomerate/clay slope. 1.5m across, front is walled up. Good condition in 1978.	Cave/rock shelter
F41/103	S133/453	Huts	Foundation outlines and bases of chimneys of two adjacent huts. Located amidst poplars 50m downstream of the old Cromwell Development Co Pumphouse. Chinese artefacts found in vicinity.	Historic - domestic
F41/104	S133/454	Sluice Workings - Hidden Valley Gold Mine	A large sluiced 'canyon' through the eastern end of Gees Flat. Worked primarily by ground sluicing but also some elevating in recent years (relative to 1978). An interesting feature is the deep (up to 8m) stone revetted tailrace. Operated as the Hidden Valley Gold Mine, a commercial tourist venture from c. 1970 until 1979. Site acquired by the then Otago Goldfields Park in 1980.	Mining - gold
F41/105	S133/455	Track/Water Race	A 50m remnant of water race originally drawing from Walkers Creek. Situated at south-eastern end of Gees Flat. Revetted, sections eroded.	Transport/communication
F41/106	S133/456	Weir/Aqueduct	Across the Kawarau River beside Gees Flat. Known as Sargoods Weir after one of its main promoters, the weir was built by the CDC between 1912-1923. It was formed by toppling 2 concrete pillars into the Kawarau. Due to technical difficulties the scheme which constructed the weir, diverting water via an aqueduct to a pumphouse, ceased operating in 1929.	Industrial
F41/107	S133/457	Dam	Small, 15m x 25m mining dam near riverbank, c. 300m downstream of the Goldfields Mining Centre Information Centre. The dam is very shallow, the walls have probably eroded.	Industrial

F41/108	S133/458	Pump House	Built and operated by the Cromwell development company between 1926 and 1939. Closed because sections of the diversion aqueduct were washed away in the big 1939 flood Kawarau flood. Concrete construction. A small stone shed built into the bank is located 10m behind the pumphouse. The pumphouse will be flooded by lake Dunstan. In 1978 research was underway toward relocating the pumps.	Agricultural/pastoral
F41/109	S133/459	Sluice Tailings	An extensive area of sluice workings stretching 2km upstream of the Goldfields Mining Centre Information Centre on Gees Flat. The tailings are mainly amorphous in form but within them are several interesting features including shafts, a small dam (F41/113), a forge (F41/409), 2 Chinese rockshelters (F41/123 and F41/410) and other mining remnants. Duplicate?, see F41/104.	Mining - gold
F41/110	S133/460	Tramway, Holding Bin, and Hut	100m NW of the Goldfields Mining Centre Information Centre. Rails were laid along the 1.3m wide embankment for pushing skips to dispose of spoil into a sludge channel beside the Kawarau River. Nearby is a stone hut which utilises a large freestanding boulder to form one wall.	Historic - domestic
F41/111	S133/461	Dam	Associated with F41/104. Still used in 1978. 50m x 20m, 2.75 high. Built by Bill Forest in the early 1950s, replacing an existing smaller dam. Filled from Gordon's Creek immediately behind it.	Industrial
F41/112	S133/462	Hut	On the TR bank of the Kawarau River, on a ridge of worked ground beside the river. The structure measures 4 x 4m. The side walls stand 2.2m high but the front wall has largely collapsed. The structure appears to have been a shelter or workshed rather than a habitation.	Historic - domestic
F41/113	S133/463	Dam	A small dam which has been partially destroyed by subsequent mining. Originally 9m long.	Industrial
F41/114	S133/464	Stone Platform	Platform 4m x 3m. Believed to be the upper terminal of a small cableway which acted in conjunction with a set of wooden sheet-legs beside the riverbank. Nearby stanchions have been driven into the rocks and there is a length of galvanised wire rope.	Agricultural/pastoral



F41/115	S133/465	Dams	Located on the upper terrace, c. 100m upstream of the CDC pumphouse site F41/108. The dams are essentially square and measure c. 40m x 30m. The dams were in reasonably good condition in 1978, though at the time their walls only stood c. 50cm high. They appear to have been relatively shallow originally. A third dam located slightly in front and between these two has been virtually destroyed by the encroachment of sluice workings below, i.e. F41/109. The dams stored water drawn from Gordon's Creek.	Industrial
F41/116	S133/466	Rockshelter	Above F41/112, under a rock forming part of a bluff. 2.5m wide x c. 1m high entrance. Considerable deposit of sheep manure dug out to reveal two level floor and a fern and tussock bed.	Cave/rock shelter
F41/117	S133/467	Shelter and Mine Drive	Located 250m upstream of the Goldfields Mining Centre Information Centre and c. 300m back from the river. The second drive of six. Adjacent to the drive entrance, an area 4m x 3m has been excavated and covered with wooden beams presumably to support some form of roof. In the NW corner there is a fireplace and a piece of mining pipe which served as a chimney. Good condition. Below the drive there is a concrete structure believed to have been gravel trap or additional gold recovery structure, and a large mullock heap. Water used at this site was initially used at F41/122, and then conveyed by a short length of race and again used at F41/123.	Industrial
F41/118	S133/468	Water Race Stopgates	Associated with F41/111 and 100m above it. Two stop-gates, metal and wooden, placed so as to divert water either into the dam or to sluicings upstream. Good condition in 1978.	Industrial
F41/119	S133/469	Mine Drive and Shaft	Behind the second rocky outcrop upstream of the Goldfields Mining Centre Information Centre. The third drive of six. The adit measures c. 1.5m high and 1.25m wide. The drive extends for 15m into the hillside where it intersects with a vertical shaft from the surface.	Industrial
F41/120	S133/471	Water Race	Situated in Gordons Gully behind F41/111. Believed to have been used to supplement the dam supply by conveying water across a relatively low saddle from Walkers Creek. However, the race is built at a considerable height above Gees Flat which it services. Notable for the extensive amount of stone revetment along its 1.5km length. Good condition in 1978.	Industrial

F41/121	S133/472	Gold Mine Drive	Located c. 300m upstream of the Goldfields Mining Centre Information Centre and c. 250m from the Kawarau River. Another shallow drive is located 20m to the SE. The drive is inclined into the hillside. Length is not ascertained.	Industrial
F41/122	S133/473	Sluice Paddock	300m up the hill behind the Goldfields Mining Centre Information Centre and slightly upstream of it. An elongated sluiced area c. 150m x 50m with associated tailraces etc. Mine drive F41/418 is driven below the sluice workings. In good condition in 1978.	Mining - gold
F41/123	S133/474	Hanging Rock	Large shelter built under an overhanging boulder, 5m long x 2.5m wide. Maximum height of remaining walls 1m. Excavated in December 1982 - proven to have been occupied by Chinese. Some pieces of 'natural' moa bone in very poor condition were also found in the shelter deposit.	Cave/rock shelter
F41/124	S133/475	Mine Drive	Within F41/109 in a small gully. Adit 2.5m wide x 1.5m high. The drive slopes down gently for the first 5m, then runs horizontally. Length not ascertained. On the right hand side of the entrance supportive stone work has been built for at least a distance of 8m. Appears reasonably sound.	Industrial
F41/125	S133/476	Water Race	Stone revetments and small piled stone pillars are evident in several spots around this area. They appear to have been associated with a scheme whereby water was conveyed by suspended pipeline across the Kawarau River from Scrubby Creek and used at the NW end of the Gees Flat workings. Believed to be part of Bretherton's 1930s workings.	Industrial
F41/126	S133/477	Dam	Sited c. 350m directly uphill above the Goldfields Mining Centre Information Centre. The dam measures 20m x 10m of earth wall construction apart from a small revetted section. Associated with sluice workings F41/122. In good condition. Fed by race F41/419 from Gordon's Creek. Built by Tait and Co in the 1930s.	Industrial
F41/127	S133/478	Mine Drive	The entrance to a system of hand-hewn tunnels c. 1-1.4m wide and c. 1-2m high. The third of 6 drives. The extent of the tunnels was not investigated in 1978 for safety reasons. Adjacent to F41/130. Below the drive entrance there is a prominent mullock drive.	Industrial
F41/130	S133/481	Forge Shelter	Adjacent to F41/127. Area 2.5m x 1.5m, 1m high. Walls combination of earth and stone. In good condition in 1978. Nearby are the remains of a bellows.	Cave/rock shelter

F41/132	S133/483	Dam	On terrace at northern end of Gees Flat. Directly above stone house F41/134. Earth walled, 30m x 10m, in good condition. Water used on sluiced area below.	Industrial
F41/133	S133/484	Mine Drive	Sited 50m north of F41/134. Drive is cut into a sluiced area and proceeds under the terrace. At a point 6m from the entrance the drive is blocked by fallen debris.	Industrial
F41/134	S133/485	Ritchie's House	Named after the owner and builder. A 6.5 x 4m structure, solidly built, sitting on a small portion of the terrace that was not sluiced. The entrance to a former room at the back of the single room house has been blocked off with mud bricks. Although stonework is in a ruinous state, the structure is visually impressive. Potentially impacted by hydro development.	Historic - domestic
F41/135	S133/486	Rockshelter/Mining Forge	2.5m 'L' shaped structure built against a large rock. A stone surrounded fire-box has been built into the NW corner. Good condition in 1978.	Cave/rock shelter
F41/136	S133/487	Dam	A small earth-walled dam reinforced with sections of drystone revetment. Area 10m x 3m. Located immediately west of F41/127 and F41/130. In good condition in 1978.	Industrial
F41/137	S133/488	Rockshelters/stock enclosure	The remains of 3 stone constructed shelters built under a ledge of rock above the Kawarau River. The stonework has largely collapsed or been removed but the shelters are still evident. At least one, if not all, were occupied by Chinese (based on artefactual remains) and probably of early date (black glass). In 1978 the easiest access was via the flying fox below Scrubby Creek.	Cave/rock shelter
F41/139	S133/490	Sluice Tailings	An area of shallow sluice workings c. 200m long extending from just downstream of F41/134 to a point opposite the mouth of Rocky Creek. Some vague herringbone patterns but generally the tailings are fairly amorphous. Some briar infestation in 1978.	Mining - gold
F41/140	S133/491	Dam and Water Race	Small dam, c. 12m x 10m located 40m SE of Cascade Stream. A 100m revetted portion of the supply race from Cascade Stream still exists behind the dam. The dam and remaining portion of the race were in good condition in 1978.	Industrial
F41/141	S133/492	Dam	On terrace 50m NW of Cascade Creek. A 30m long earth dam with stone facings, up to 2m high on the outside edge. In good condition in 1978. Outlet race at SE corner of dam.	Industrial



F41/142	S133/493	Dam	On terrace behind F41/143. 15m long, crescent shaped earth dam with stone facing. Height 1m-1.5m. Water used at F41/144. Condition good in 1978.	Industrial
F41/143	S133/494	Rockshelter	Large shelter with stone wall and protective windbreak. Area of shelter 7m x 2.5m. Wall height ranges from 1.5m - 2.5m. European and Chinese artefacts. Shelter in good condition in 1978. Receipts for gold sales were also found in the shelter and Chinese pakapoo tickets.	Cave/rock shelter
F41/144	S133/495	Sluice Tailings	An area of unpatterned tailings and sluice scars extending from Cascade Creek to the NW end of Gees Flat. Water stored for these workings in F41/140, F41/141, and F41/142.	Mining - gold
F41/145	S133/496	Dams	Two 30m long dams built one above the other on a moderately sloping face. Located almost opposite Goat Camp Creek. In good condition in 1978.	Industrial
F41/146	S133/497	Hut (?) Foundations and Rockshelter	Opposite carpark 100m SE of Goat Camp Creek. The site consists of a shelter (2 walls built at right angles) to a large boulder and the foundation outline of an 8m x 8m structure. The riverside wall of the shelter appears to have slipped away.	Historic - domestic
F41/147	S133/498	Mine Drive	5m upstream of Cascade Stream, at the edge of the Kawarau River. Located between 2 sluiced depressions. The drive is 4m long and 1m high. In good condition in 1978.	Industrial
F41/151	S133/502	Sluice Tailings	On the small narrow terrace opposite Goat Camp Creek. The Tailings extend for c. 200m They are amorphous in layout.	Mining - gold
F41/153	S133/504	Mine Drives	Located c. 150m from the Kawarau River and 100m uphill from the riverside terrace. The two drives are 5m apart connected by a stone revetment. The entrances were blocked by briar in 1978 (then the only briar on the hillside).	Mining - gold
F41/154	S133/505	Sluice Tailings	An area of sluice tailings 100m x 50m in extent, located c. 200m downstream of Cleghorn's corrugated iron hut. Fair condition in 1978.	Mining - gold
F41/155	S133/506	Mine Shafts	On hillside below F41/157, either side of the outlet race from the dam. One shaft is overgrown with briar, the other appears to be about 30m deep. Both shafts are c.1m in diameter	Industrial

F41/156	S133/507	Mine Drive	Located 150m upslope from the Kawarau River and c. 150m upstream of the dilapidated flying fox that was upstream of Goat Camp Creek in 1978. The drive is c. 15m deep and 1.5m in height. The entrance was clear in 1978.	Industrial
F41/157	S133/508	Dam	On TR of the Kawarau River c. 1km below the Roaring Meg power station. The dam is located in a dry gully c. 200m from the Kawarau. It is 30m wide, a maximum of 5m high with a maximum wall thickness of 3m. An outlet race leads down to the tailings below. In good condition in 1978.	Industrial
F41/158	S133/510	Dam	Sited on a flat shelf above the terrace opposite the Roaring Meg power station. The dam has a single curving wall 30m long and up to 1.5m in height. Water used for mining at F41/161. Dam in good condition in 1978.	Industrial
F41/161	S133/513	Sluice Tailings	Extend from (imperial) GR 905749 to 910748, opposite and downstream of the Roaring Meg power station. Amorphous pattern. Water for workings stored in F41/158.	Industrial
F41/162	S133/514	Pack Track	A 500m section of the original or early Kawarau pack track on the true right bank. Now only clear where revetment is in evidence but traceable from (imperial) GR 905747 to GR 903745, i.e. on Colquhoun's flat, upstream of the natural bridge.	Transport/communication
F41/164	S133/516	Natural Arch	Marked on NZMS 1 map. The natural arch was the traditional crossing place used by the Maori to cross the Kawarau. There was a virtually complete arch across the river but this was washed away in a massive flood in 1959. Ritchie judged it still possible to jump across the river at this point when the river was very low in winter.	Transport/communication
F41/165	S133/517	Rockshelter	On Colquhoun's flat, opposite and upriver from the Roaring Meg. Set amongst tailings near poplars on the terrace. The shelter is built against a large rock outcrop. Area 6.5m x 2m, overgrown with briar.	Cave/rock shelter
F41/166	S133/518	Stone Cottage	Between two rows of poplars on Colquhoun's flat. The remaining wall section is only 2m long but the outline suggests it was about 6m long originally. The fireplace in the end wall stands to c. 1.5m high. All the stonework is covered with very dark lichen.	Historic - domestic
F41/167	S133/519	Miners Dam	South of the poplars on Colquhoun's Flat, adjacent to a sluiced area, part of F41/169. A shallow curved earth dam 35m long. Condition indistinct in 1978.	Industrial

F41/168	S133/520	Miners Dam and Race Complex	A large 'U'-shaped dam with c. 100m of earth wall. A series of headraces diverge from the dam and run into sluiced gullies along the bank of the Kawarau river. Excellent condition in 1978, although obscured by Briar growth.	Industrial
F41/169	S133/521	Sluice Tailings	On Colquhoun's flat, and the small terrace across the Kawarau River from it. The two areas were separated by the natural bridge (at the northern end). The tailings are amorphous and overgrown with briar.	Mining - gold
F41/170	S133/522	Rockshelter	Behind a large boulder on the TR bank of the Kawarau upstream of Colquhoun's Flat. Although the walls have largely fallen down, it is apparent that an area of c. 5m x 4m was enclosed under a large boulder by walling three sides.	Cave/rock shelter
F41/171	S133/523	Dam	On TR of the Kawarau River, 70m downstream of an unnamed creek. A small earth dam measuring 16m x 10m. Races run from either side of the dam down to a sluiced area below. The walls have been worn down probably by stock.	Industrial
F41/172	S133/524	Miners Dam	On TR of the Kawarau River, 20m from an unnamed creek and 50m from F41/171. A rectangular dam 25m x 5m fed by a short race from the creek. Some parts of the wall have collapsed.	Industrial
F41/173	S133/525	Sluice Workings/Sludge Channel	c. 100m below SH6. The site consists of an area of tailings c. 150m long and 50m wide serviced by a large sludge channel 3m deep and 2m wide excavated in a gully leading down to the river. Overgrown with briar in 1978.	Mining - gold
F41/175	S133/527	Stone House	On TR of Kawarau, immediately downstream of Gentle Annie Creek. Area 4.5m x 3m. Built against a large rock which forms the south wall. In excellent condition in 1978, walls standing full height, Highly visible from SH 6.	Historic - domestic
F41/195	S133/547	Victoria Bridge Hotel	Hotel was built by Mr J. McCormick sometime after 1874. Oats and chaff were grown on the land associated with the hotel. There were about 4 buildings in the hotel complex, including the main hotel buildings and stables.	Building - Hotel
F41/196	S133/548	Sluice Tailings	On the true right bank of the Kawarau River, 30m downstream of the Victoria Bridge. An area of tailings 100m long and stretching 40m back up the riverbank. Good condition in 1978, but pine trees were beginning to get established among the tailings.	Mining - gold



F41/197	S133/549	Miners Hamlet	Within an area of rock outcrops 6 hearths are present plus two flat stone-bordered areas which were probably tent sites. One 2m high chimney still existed in 1991, though the entire site is overgrown with briar.	Health Care
F41/200	S133/552	Sluice Tailings	A race runs from the road into two sluiced out gullies.	Mining - gold
F41/201	S133/553	Sluiced Gullies	Two small gullies appear to have been sluiced. No sludge channels are evident.	Mining - gold
F41/202	S133/554	Edwards Ferry Hotel	Excavated building platform measuring c. 30m x 15m lined on three sides by stone revetments. Former site of the Edward's Ferry Hotel site, constructed prior to the Victoria Bridge.	Building - Hotel
F41/203	S133/555	Sod Enclosure	Sod enclosure for holding stock. Likely associated with the nearby Edward's Ferry Hotel	Agricultural/pastoral
F41/204	S133/556	Water Race	100m downstream of F41/202 on the true left bank of the Kawarau. Only a c. 20m long section survived in 1978. The race was probably a domestic supply for the Edward's Ferry Hotel	Industrial
F41/205	S133/557	Chimney	400m upstream of the Nevis confluence on the true right bank of the Kawarau River within a group of pine trees. The 1.8m high chimney remains probably mark the site of a miner's hut.	Unclassified
F41/206	S133/558	Stone Hut	A large 5m x 4m stone hut site. Mud mortar walls. In 1978 the highest wall segment was 1.6m high.	Historic - domestic
F41/207	S133/559	Water Race	Marked on historic topographical map S133. Collects water draining from the spur of Mt Mason which separates the Victoria Flat from Doolans Ck. In 1978 the race was used for irrigation purposes. Originally used for riverbank sluicings. In 1978 the race had 50cm high raised sides and was in good condition.	Industrial
F41/208	S133/560	Mining Diversion Tunnel	The tunnel is cut through a spur, a south-east extension of Mt Mason. The 1400 ft tunnel was cut through schist rock to convey water from Doolans Creek to riverside gold workings along the margin of Victoria Flat. The tunnel was built by Macale and party who floated the Kawarau High Levels Mining Co in 1926. The Co was	Industrial

			unsuccessful because the stones were too large for alluvial mining. In 1978 it was used for irrigation purposes.	
F41/209	S133/561	Sluice Tailings	True right bank of the Kawarau, on the edge of the river. A small sluiced area, c. 30m wide and stretching 25m back from the river into the steep bank. Small herringbone patterns were evident in 1978.	Mining - gold
F41/211	S133/563	Miners' Dam	Earth dam with split schist retaining wall at Eastern end. The wall is unusual in that it is constructed of slabs of schist standing vertically against one another and in a few places topped with horizontally laid pieces of schist. A race runs from the dam.	
F41/210	S133/562	Sluice Tailings	A small area of amorphous tailings c. 30m x 20m immediately downstream of the Nevis Bluff on the true right of the Kawarau River. Overgrown with Briar.	Mining - gold
F41/212	S133/564	Miners' Dam	A 'C' shaped 34m long earth dam topped with vertically placed slabs of schist. No workings are visible in the near vicinity although the water may have been conveyed across the river by suspended pipeline to a small area of workings there. Overgrown with briar in 1978. Possibly damaged by MWD drilling associated with the abandoned Kawarau Dam scheme.	Industrial
F41/213	S133/565	Rockshelter	At the western end of the Nevis Bluff, c. 20m below SH6. A 4m x 3m 'L' shaped drystone wall built against a large boulder to form a shelter. No part of the wall stood higher than 50cm in 1978.	Cave/rock shelter
F41/214	S133/566	Hut Remains	c. 15m below SH6 beside dry creek on western side of the Nevis Bluff. A 4m long section of drystone schist walling and chimney base were visible protruding from a dense briar thicket. A large rock was utilised as one wall of the hut but the rest of it was obscured within the briar.	Historic - domestic
F41/216	S133/568	Sluice Tailings	Upriver from the Nevis Bluff. The tailings were stacked in neat piles although no particular pattern was apparent.	Mining - gold

F41/251	S133/605	Water Race and Pipeline	Diverts off the true left bank of Walkers Creek. The water is then conveyed to a suspended pipeline over the Kawarau River (Ritchie notes it as R. L. Glassford's property). Originally the race may have conveyed water to Gees Flat but this section of the race has eroded away. The part in use in 1978 was described as being in good condition.	Industrial
F41/253	S133/607	Water Race	At an elevation of 2400 ft. The race runs from the upper reaches of Walkers Creek to Gees Flat. The GR (NZTM: 1293852 5004149) is for the section visible from Double Rock. The race conveys water to the unnamed creek behind Gees Flat from where the water was drawn for sluicing. This site is probably the same as that recorded as F41/120 but this has not been confirmed by ground survey.	Industrial
F41/259	S133/615	Water Race	On the north side of Mt Difficulty on the 1000 ft. contour. Traverses from opposite the Roaring Meg to Gees Flat. The race was observed from the TL side of the Kawarau valley and was clearly discernible for about half the stated distance starting from the Meg end.	Industrial
F41/261	S133/618	Dam and Tailings	TR of Kawarau River, 500m downstream of the Waitiri flying fox (in 1978). An earth wall stone-faced dam 15m long and up to 1m high. On the river bank below the dam there is a 50m x 15m area of amorphous tailings. The dam appears to have been filled from a now dry creek behind the structure. In 1978 the site was judged to be in poor condition and was totally overgrown with briar.	Industrial
F41/409	S133/790	The Forge	This structure was excavated in December 1982. The excavation showed the shed served as a forge and minders workshed. Its use dates c. 1930. The builders took advantage of two large boulders and the depressed area within a former sludge channel to minimise construction effort. Several weathered roof timbers were still in place in 1982.	Industrial
F41/410	S133/791	Riverside	The shelter is 4m long and 1.3m wide with a schist wall. Located c. 500m upstream of the Goldfields Mining Centre Information Centre and 25m up a steep slope above the river. The site was excavated in January 1983. The excavation indicated it had been occupied by a Chinese miner probably c. 1870. The site is now known as Riverside shelter.	Cave/rock shelter



F41/418	S133/865	Mine Drive	Located 250m up slope from the Goldfields Mining Centre Information Centre. The first of 6 drives driven into the terrace at this level. The drive dates from the 1930s and was driven below sluice paddock F41/122. A depression in the sluiced paddock appears to mark a collapse in the roof of the drive. The entrance is obscured by briar.	Mining - gold
F41/419	S133/866	Water Race	Emerges from the west side of Gordon's Creek. The 400m long race was built in the 1930s to convey water to dam site F41/126 from whence it was conveyed by a pipe to the sluice paddock below, i.e. site F41/122. Good portions of revetment.	Industrial
F41/420	S133/867	Dams	Located slightly upstream of the Goldfields Mining Centre Information Centre and immediately east of a mine drive and associated shelter (site F41/117). The dams are earth walled. The upper dam is divided into 2 holding ponds on different levels and measures 25m x 6m overall. The lower dam is an 'L' shaped structure measuring 35m around the arc. Used for working the eastern end of tailings site F41/109.	Industrial
F41/423	S133/870	Stone Cottage	At the western end of Victoria Flat, 400m east of the Nevis Bluff. A 6m x 4m schist construction cottage. In 1983 most walls stood to a height of c. 1.5m except for the chimney which stands to full height. In a ruinous state.	Historic - domestic
F41/428	S133/875	Mine Shaft	On the TR bank of the Kawarau River, c. 15m east of F41/409. Within the Goldfields Mining Centre reserve. The shaft is 14m deep with two side leads. The opening measures 1.5m x 1.5m and is surrounded by rocks. It is now covered with a steel grate. Probably worked with a windlass originally. The shaft was in good condition in 1983.	Mining - gold
F41/429	S133/876	Cleghorn's Hut and Workings	On the TR bank of the Kawarau, 10m back from the river, within a stand of gum trees. A rectangular corrugated iron structure measuring 3.5m x 2.6m. The hut is locally known as Cleghorn's hut and was last used c. 1960. A suspended pipeline across the river adjacent to the hut was part of Cleghorn's workings.	Historic - domestic
F41/430	S133/877	Cottage, Hut, and Stock Enclosure	On the TR of the Kawarau River, 60m from the river and 40m above F41/429. Within a dense patch of periwinkle and a grove of gum trees. All the structures are on a revetted terrace. The structures are now only evidenced by two standing chimneys and collapsed wall remnants. The enclosure walls stand about 1m high but are very overgrown. Downslope of the terrace scattered midden included matchboxes, bottle	Health Care

			glass dating to c. 1870, and fragments of Chinese ceramic. The structures were in poor condition in 1978.	
F41/431	S133/878	Sluiced and Mined Area	On the TR bank of the Kawarau River, about 120m from the river. Sited directly behind F41/429 and F41/430. The area consists of mountainous stacked tailings with deep tailraces between them. An area of fine gravels on the south side appears to be the mullock heap from a collapsed drive. The extent of the sluice workings is 100m x 40m. The site was in a good state of preservation in 1978.	Mining - gold
F41/432	S133/879	Tailings	Along the TR bank of the Kawarau river, immediately upstream and opposite the gentle Annie confluence. The tailings extend over an area of 200m x 50m and are set back from the river's edge. The site was very overgrown with briar in 1978-1983.	Mining - gold
F41/433	S133/880	Corrugated Iron Huts	Within in F41/432. Two corrugated iron huts each measuring 3.5m x 2.5m. In 1978-1983 one was still roofed and in good condition, while the other was in fair condition. Date from the 1920s judged on the midden material in the tailings nearby.	Historic - domestic
F41/444	S133/509	Water Race	Runs around the NE facing spur, opposite and c. 500m below the Roaring Meg, a distance of c. 1km. Visible on aerial photograph SN 3821 E/4. Several sections have collapsed. Fair condition in 1978.	Industrial
F41/445	S133/470	Dam	A rectangular earth dam, 20m x 10m. On higher terrace above rockshelter F41/116. A steep stone lined race leaves the dam in a SE direction but is obliterated after 25m by a landslip. The dam was in a good condition in 1978.	Industrial
F41/455	S133/883	Whata to Rere	Traditional Ngai Tahu campsite on the true right bank of the natural bridge. Around 1990 a sawn greenstone boulder was found at the site by miners. In 1998 the site was designated as a historic reserve and vested in Te Rūnanga o Ngāi Tahu as part of the Ngāi Tahu Claims Settlement Act. In 1996 the site was noted as having been greatly disturbed by mining and having some of the large boulders shifted.	Artefact find

F41/458		Gold Sluicings	Set of riverbank ground sluicings. The sluicings cut through the old road line that goes down to the Nevis Ferry site that crossed the Kawarau River at this location from 1866.	Mining - gold
F41/459		Old Victoria Flat Road	This was the old Otago Provincial Council road that crossed the Victoria Flat and led to the Nevis Ferry. The ferry was opened in 1866, and was replaced by the first Victoria Bridge in 1874. Much of the road formation has been destroyed by the current landfill.	Transport/communication
F41/579		Stone Hut	Located c. 400m east of Nevis Bluff. Ruined hut measuring c. 2m x 3m with walls standing to 1.5m in 2006.	Historic - domestic
F41/580		Dam and Races	Located 30m from SH6 boundary fence. Collection of sod-walled dam, water races, head races, and at metal pipe that marks a sub-surface tank or reservoir of some kind.	Timber milling
F41/581		Stone Ruin	On edge of a small gully, c. 100m south of tailings F41/582. Site consists of a heap of stones that may have formed part of a hut or collapsed chimney.	Historic - domestic
F41/582		Tailings	Site consists of an amorphous area of stone tailings. This is part of a complex of mining features: sod wall dam, head races and tail races that lead to this area of tailings.	Mining - gold
F41/583		Tailings	An area of tailings, similar to F41/582.	Mining - gold
F41/753		Nevis Crossing Ferry	Site of the Nevis Crossing Ferry that operated on the Cromwell to Queenstown road from 1866 until the Victoria Bridge opened in 1874.	Transport/communication
F41/89	S133/439	Dam and Hut Remains	Small mining dam, 20m long, earth construction faced with rock, hut only evidenced by chimney base.	Historic - domestic



## Constraints and Limitations

The key constraints and limitations on the archaeological assessment for the Kawarau Gorge Cycle Track are considered to be as follows:

- The large distance covered by the trail route made it impracticable to develop a high-resolution history for every area potentially impacted. This issue was further compounded by the general absence or complexity of property or mining records relating to different parts of the gorge, and the relative absence photographs documenting human habitation there. Accordingly, Ritchie's earlier overview history of the gorge was adapted for this report.
- The terrain covered by this survey limited the potential for identifying archaeological sites. The scrub along the trail route was very dense and in parts it was difficult to see beyond one's immediate vicinity. Some new sites were only recorded based of aerial imagery.
- Relocating previously recorded sites on the ground was challenging and sometimes not possible because of the relative inaccuracy of the historic records that have been transferred to the New Zealand Archaeological Associations site recording GIS (ArchSite).
- Time constraints meant the section of trail between Colquhoun's Flat and F41/175 was unable to be surveyed on foot.
- Only a visual survey was carried out; no intrusive investigations were undertaken.

## Survey Results

### On-Site Observations

A survey of archaeological sites along the proposed cycle trail was carried out to identify what sites would possibly be impacted. Four days of survey were carried out by Benjamin Teele and Jeremy Moyle on 11<sup>th</sup> and 12<sup>th</sup> of April as well as the 2<sup>nd</sup> and 3<sup>rd</sup> of May, 2019. Dave Howard – a trail coordinator at Southern Land – acted as a guide for this survey and also worked on the ground to adjust route options to best avoid archaeological sites.

There is a large volume of sites along both sides of the Kawarau River, but this survey largely focused on sites impacted by, or in close proximity to the trail route. Many sites – most of which had been recorded previously – were deemed too removed from the trail route to be relevant to this assessment, and were not inspected.

In total, this survey inspected 29 previously recorded sites, and encountered a further 23 unrecorded sites (all of which have been uploaded to ArchSite: F41/817-F41/840). Other sites were not able to be relocated during the survey, but are still mentioned below because it is possible that they may still be impacted by the trail construction. The details of these sites are briefly outlined in the following pages. The survey did not inspect the sites constituting the Goldfields Mining Centre because the trail will not pass through this area. The 'Origin Ref' component of the below site descriptions relates to an internal reference number used prior to sites being associated with their NZAA Site Numbers.

As well as the sites noted below, the survey also encountered numerous small dry gullies along the course of the route (Figure 17). It was not completely clear if these are natural features created by abnormally high flow levels during periods of heavy rainfall, or mining features: small-scale sluicings undertaken opportunistically when a stream was flowing. Though it is suspected that the former is the case, future research should investigate whether these are natural or cultural features. The trail will have a minor effect on these features, only cutting across a small portion where they run down the hillside.



Figure 17. Looking towards the Kawarau down a dry gully near the northern end of Gees Flat.

F41/212, F41/213, F41/214 – Miners' Dam, Hut, and Rockshelter

These sites are recorded in the vicinity of the Nevis Bluff but were not able to be located on the ground.

Care should be taken when constructing the trail to avoid these features if encountered.

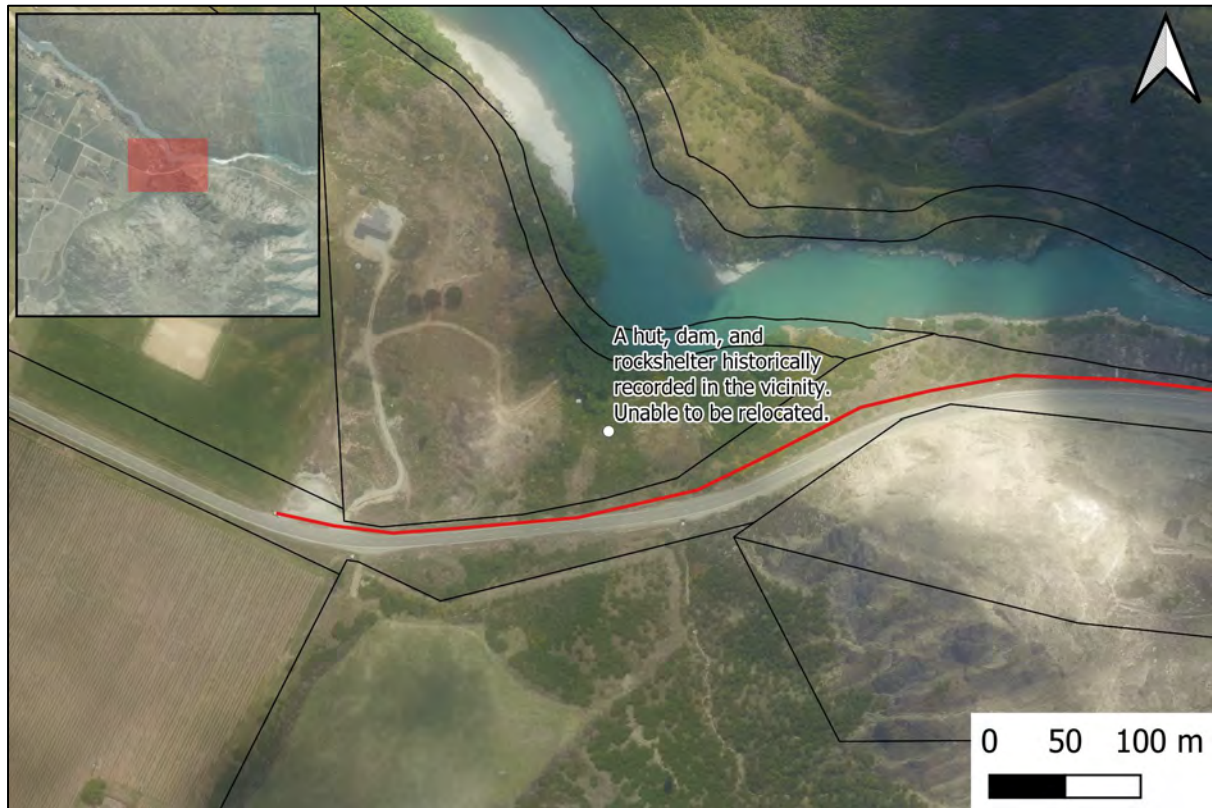


Figure 18. Nevis Bluff area; F41/212, F41/213, F41/214.



F41/211 – Sluicings and Tailings

Origin Ref: 124

Close proximity to trail.

Area of sluicings and amorphous tailings, c. 50m x 60m. Adjacent to the Nevis Bluff.

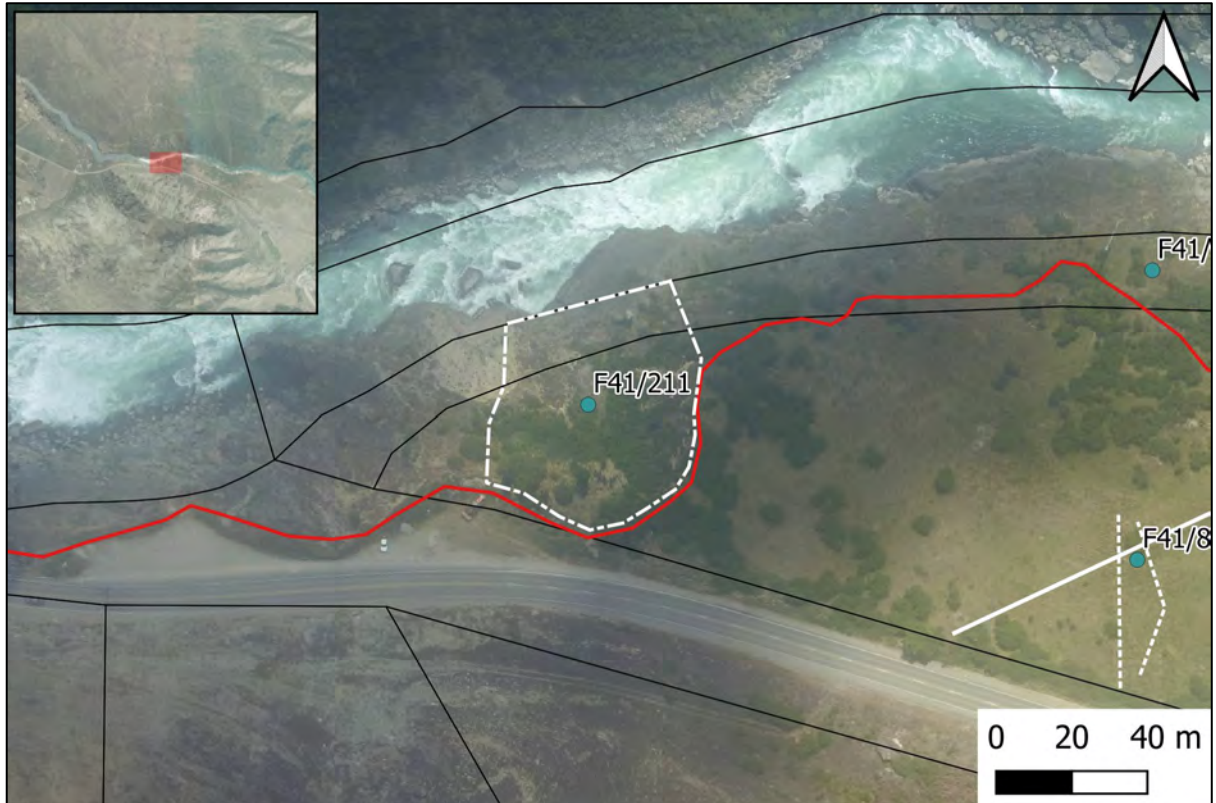


Figure 19. F41/211; the white dashed line indicates the approximate site boundary.



Figure 20. F41/211; looking west across the sluiced area. A tailings pile is visible at the centre left of the image.





Figure 21. F41/211; looking south across the sluiced area.

F41/840 – Shaft?

Origin Ref: 124

Outside of trail extents.

A circa 1.5m x 2m rectangular depression situated on a small mound. Possible collapsed mine shaft. A possible framing timber is visible at the base of this feature.

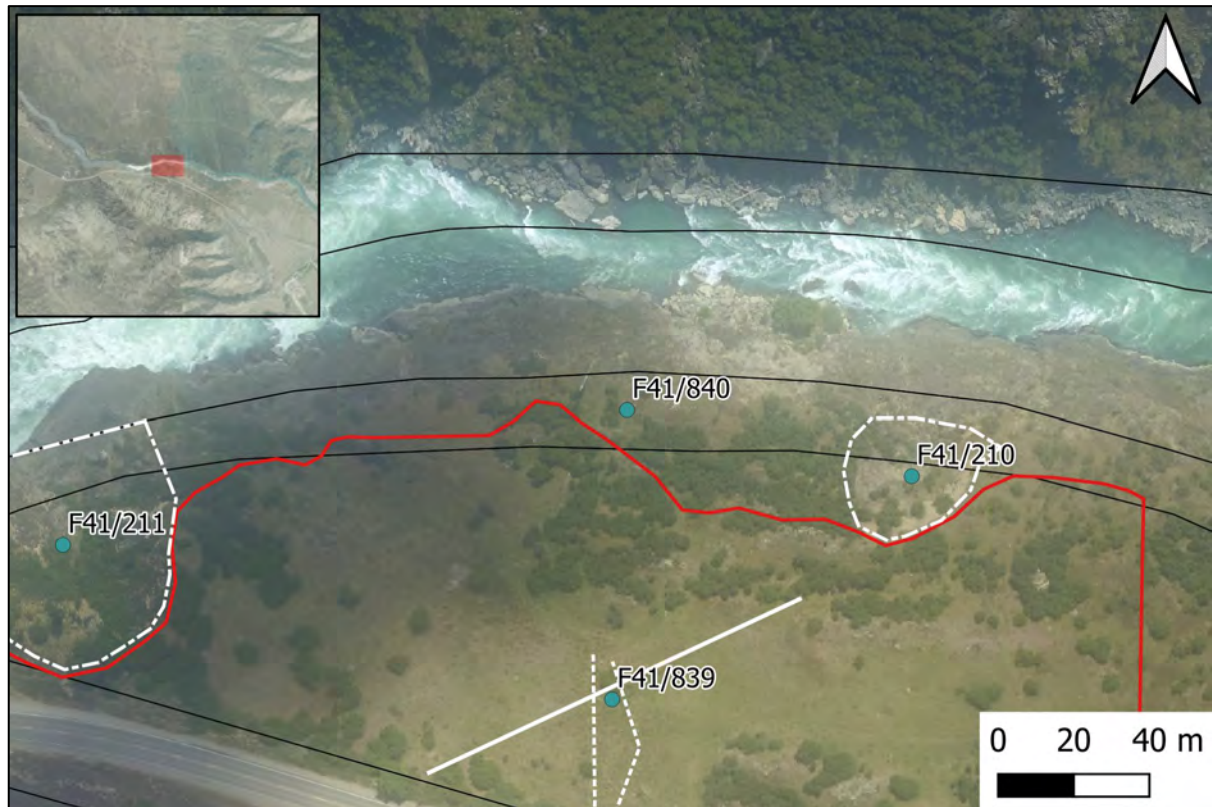


Figure 22. F41/840.





Figure 23. F41/840; looking north over the feature.



Figure 24. F41/840; showing the possible framing timber at the base of the feature.



F41/210 – Sluicings and Tailings

Origin Ref: 123

Close proximity to trail.

Small – circa 30m x 40m – area of sluicings and tailings. A vehicle ramp has cut through part of the sluicings.

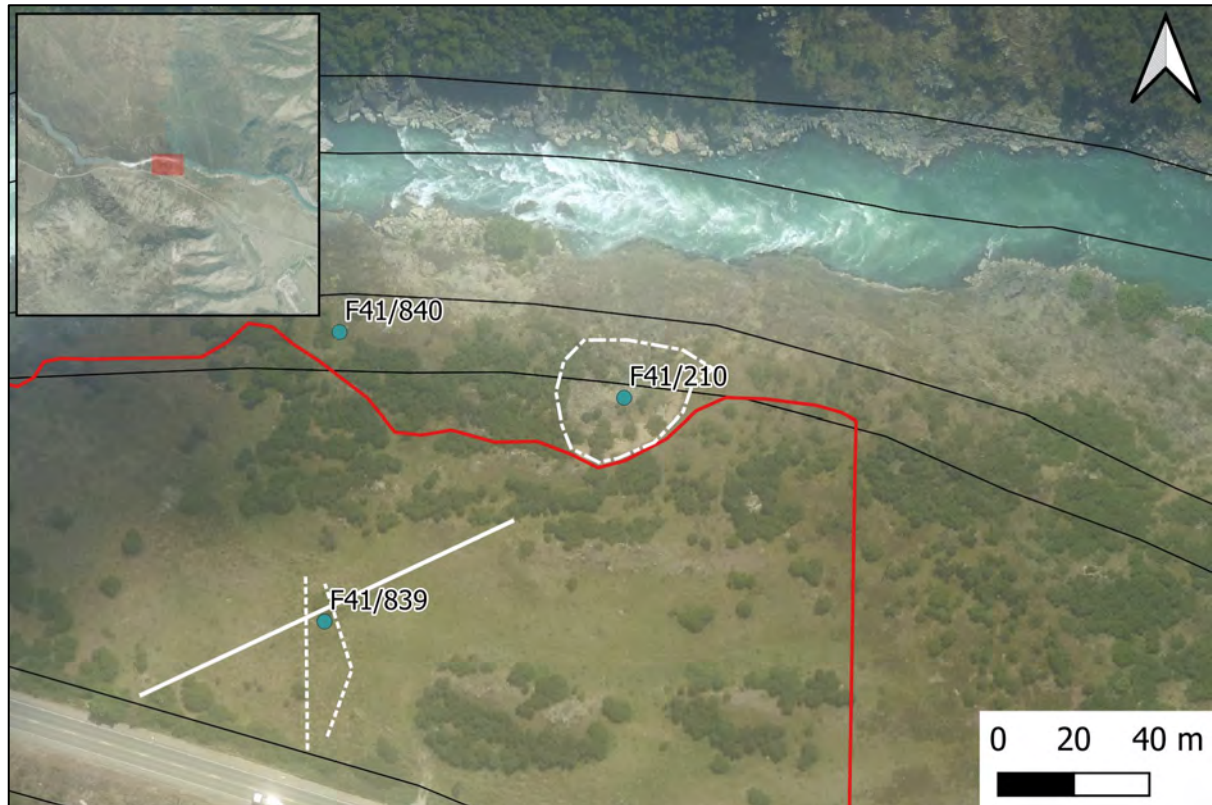


Figure 25. F41/210; the white dashed line indicates the approximate site boundary.



Figure 26. F41/210; looking west over the sluicings and tailings.



F41/839 – Earthworks and Water Races

Origin Ref: 122

Outside of trail extents.

Long earth bund/bank extending NW-SE from the roadside. Cut by two water races. The function of the bund/bank is unclear.

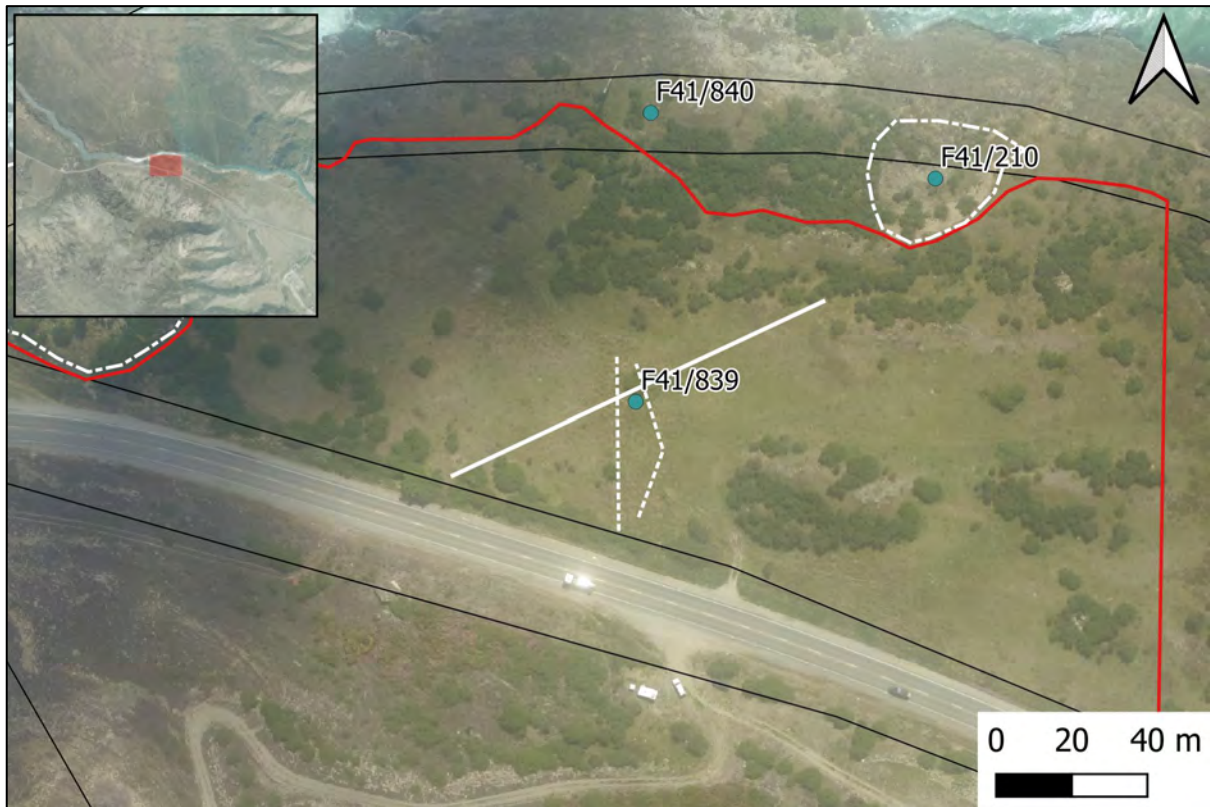


Figure 27. F41/839; the white solid lines indicate the approximate run of the earth bank and the dotted lines mark water race segments.



Figure 28. F41/839; looking west over the earth bund/bank running from the centre to the left of the image.





Figure 29. F41/839; looking north between the two overgrown races.



F41/195 – Victoria Hotel

Origin Ref: Nil

Outside of trail extents.

Hotel site immediately adjacent to the Victoria Bridge. The hotel was demolished at some point prior to 1949. The area has recently been used for marshalling machinery for works at the Victoria Bridge. Subsurface features possibly remain but nothing was evident at ground level.



Figure 30. F41/195.



F41/196 – Sluicings and Tailings

Origin Ref: Nil

Close proximity to trail.

Area of sluicings and tailings close to the Victoria Hotel Site (F41/195). Pine trees and quad bike trails have damaged much of the site, but some piles of hand stacked tailings and sludge channel segments remain intact.



Figure 31. F41/196; the white dashed line indicates the approximate site boundary.



Figure 32. F41/196, looking south through the site's tailings.



F41/458 – Sluicings

Origin Ref: 118

Close proximity to trail.

Large area of sluicings adjacent to the Nevis Ferry site. Damaged by quad-bike trails.



Figure 33. F41/458; the white dashed line indicates the approximate site boundary.



Figure 34. F41/458, looking east over the sluicings.



F41/837 – Reservoir and Water Race

Origin Ref: 116 and 117

Impacted site.

A circa 40m x 180m reservoir beside the Victoria Flat Road. Appears to have been part of the 1920s mining water diversion tunnel from Doolans Creek (F41/208). Held water for workings at F41/458 and possibly F41/196.



Figure 35. F41/837; the white dashed line indicates the approximate site boundary and the dotted lines mark a water race segment.



Figure 36. F41/837; looking west across the reservoir.



Figure 37. F41/837; looking north along the water race running beneath the road.



F41/836 – Dam

Origin Ref: 115

Impacted site.

A circa 20m x 35m earth dam. Appears to have held water for workings at F41/817 and F41/XXX. Apparently fed by race from F41/208. Reroute trail to the north to avoid feature if possible.



Figure 38. F41/838.



Figure 39. F41/838, looking east across the dam.



F41/817 – Machine Workings

Origin Ref: 102

Located outside trail extents.

Area of sluicings and tailings, circa 200m x 100m. Tailings are comprised of large boulders (c. 40-100cm diameter) suggesting that this feature was created by 20th century machine workings. May have been originally worked in the 19<sup>th</sup> century before being overworked in the 20<sup>th</sup>.

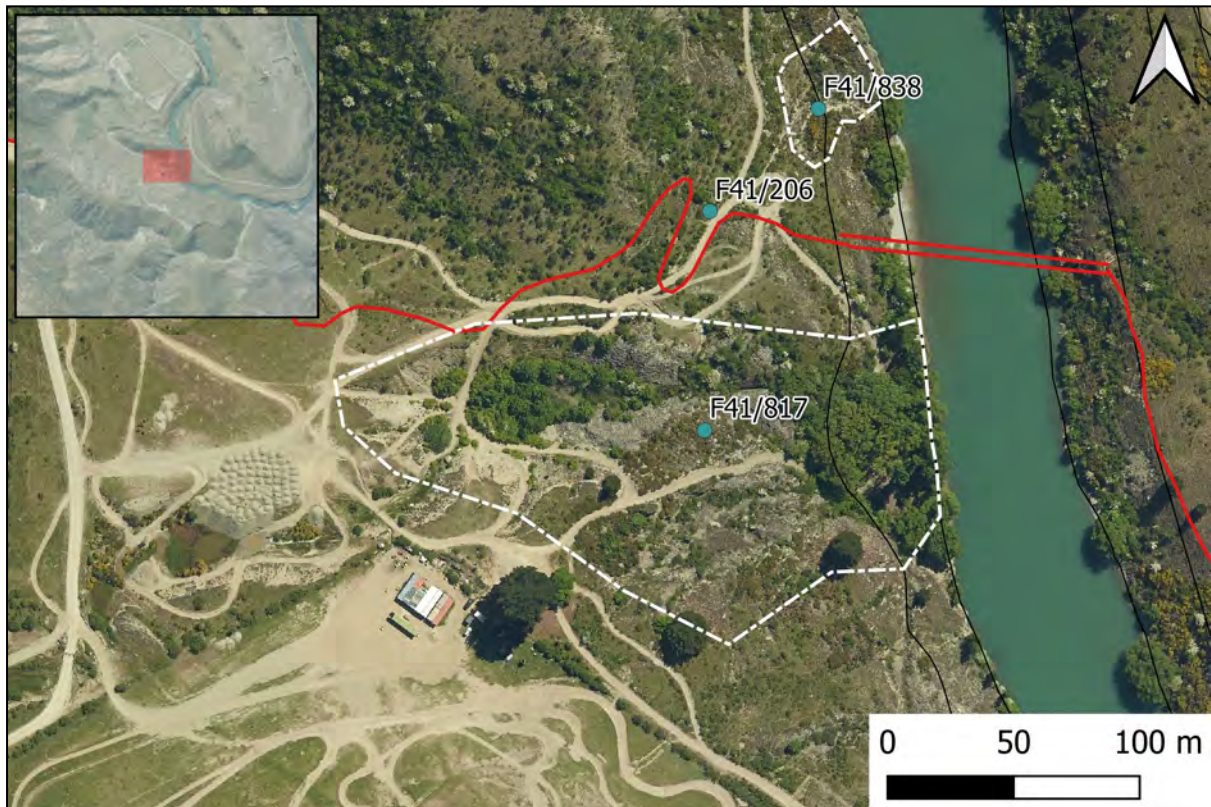


Figure 40. F41/817; the white dashed line indicates the approximate site boundary.



Figure 41. F41/817; looking south across the site.



F41/206 – Stone Hut



Figure 42.F41/206.



Figure 43. F41/206; looking north at the site.





Figure 44. F41/206; showing the stonework at the structure's north-east corner.



F41/838 – Sluicings

Origin Ref: 119

Close proximity to trail.

Small area of well-preserved sluicings. On-site trail route marking passes close to feature.



Figure 45. F41/838; the white dashed line indicates the approximate site boundary.



Figure 46. F41/838, looking east over the sluicings.



F41/202 – Edward's Ferry Hotel

Origin Ref: 093

Located outside trail extents.

The former site of the Edwards Ferry Hotel. An excavated building platform lined on three sides by stone revetment and surrounded by mature trees. Located to the north of the trail route.



Figure 47. F41/202.



Figure 48. F41/202; standing on the building platform, looking north at the stone revetment.



F41/174 – Earthworks/Dam?

Origin Ref: Nil

Close proximity to trail.

Remains of large unidentified earthwork feature located by Ritchie and visible on a historic aerial photograph from 1964. This was possibly a dam. This feature has now been largely destroyed, likely by roading contractors using it as a machinery base/gravel pit.



Figure 49. F41/174.



F41/197 – Miners' Hamlet

Origin Ref: Nil

Close proximity to trail.

ArchSite records note that the remains of a miners' hamlet are present in an overgrown rock outcrop area opposite the outflow of the Nevis River. This site was not relocated during the survey, though its approximate position is noted.



Figure 50. F41/197.



F41/818 – Occupation Site

Origin Ref: 094

Close proximity to trail.

Small stone hut – c. 2m x 2m – associated with a possible stone well to the east and other indeterminate stone ruins to the north towards a very large willow tree. The structures are very overgrown with briar.



Figure 51. F41/818.



Figure 52. F41/818; looking east at a stone row beneath the willow tree.





Figure 53. F41/818; a corner of the stone structure to the south of the willow tree.



Figure 54. F41/818; a possible well to the south of the willow tree.



F41/819 – Shaft?

Origin Ref: 096

Impacted site.

Possible collapsed mining shaft, c. 1m deep. May be natural feature.



Figure 55. F41/819.



Figure 56. F41/819.



F41/820 – Road Revetment

Origin Ref: 097

Close proximity to trail.

Large (c. 50-100cm diameter) schist boulders supporting adjacent road formation. Size suggests that they are a 20th century feature put in place by machinery. Later confirmed by Design Engineer (Dave Howard, pers. comm.)



Figure 57. F41/820.



Figure 58. F41/820; looking west – through briar – at the stone road revetment.



F41/173 – Sluicings, Tailings, and Channel

Origin Ref: 098

Impacted site.

Large area of sluicings and tailings. Ritchie's earlier survey also notes a substantial sludge channel within the site. This was unable to be located on site, but a historic aerial photograph from 1964 suggests that ran across the southern part of the site.

The bridge piers are expected to damage the tailings and suspected channel at the southern end of the site. The route of the trail up from the river will damage sluice faces.

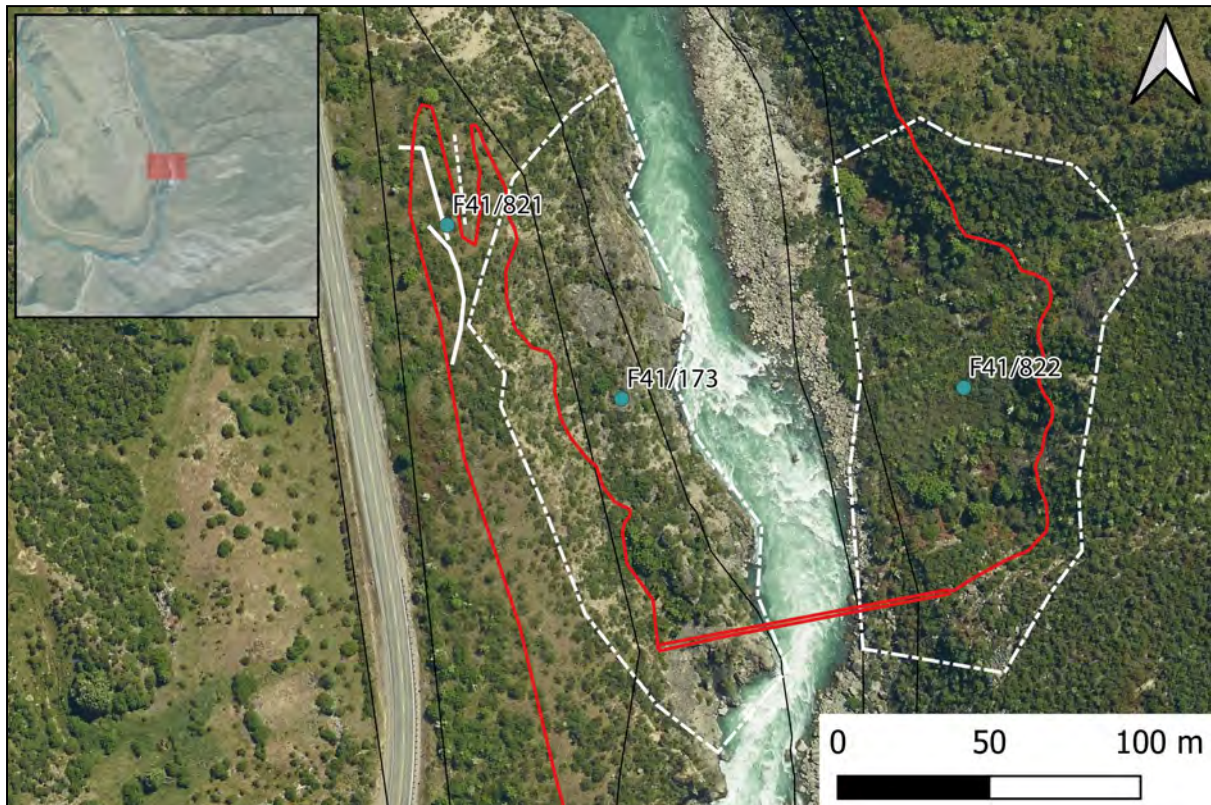


Figure 59. F41/173; the white dashed line indicates the approximate site boundary.





Figure 60. F41/173; looking south over the tailings and sluiced area from the northern end of the site.

F41/821 – Dams

Origins Ref: 099

Impacted site.

Two dams located next to each other above the sluicings and tailings at F41/173. Very clear on a historic aerial photograph from 1964, but overgrown and indistinct today. Fragments of an associated water race running north-south were also identified immediately to the east of the dams.

It is likely that the trail route will damage elements of the dam and race earthworks. While some impact is likely unavoidable, the repositioning of the upper portion of the trail c. 5m closer to the road should limit the damage.



Figure 61. F41/821; the white solid lines indicate the approximate position of dam walls and the dotted line marks a water race segment.





Figure 62. F41/821; looking south-west at the northern dam wall with the race segment visible at the left of the image.



Figure 63. F41/821; looking south on top of the northern dam.



F41/822 – Sluicings and Tailings

Origin Ref: 050

Impacted Site.

Area of potential sluicings at the mouth of gully. The trail route will run along a sluice face.

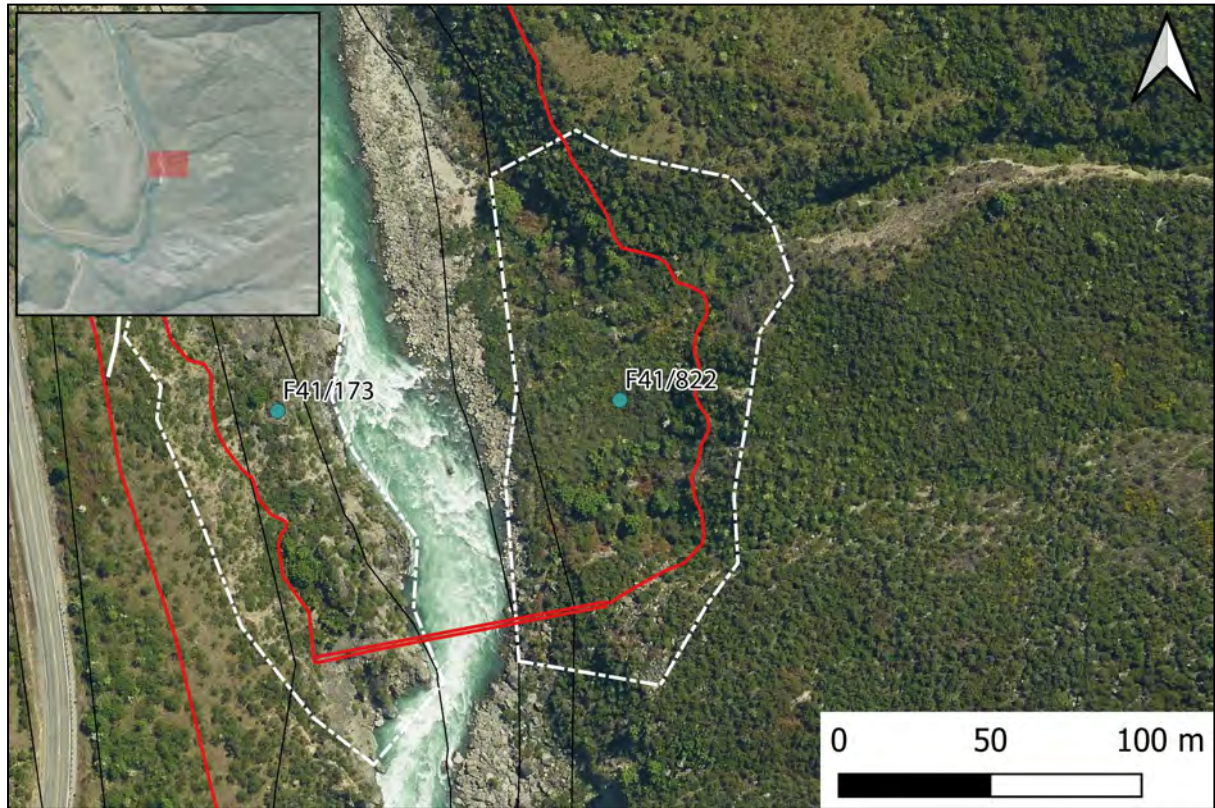


Figure 64. F41/822; the white dashed line indicates the approximate site boundary.



F41/823 – Stone Structure

Origin Ref: 049

Close proximity to trail.

Small, overgrown stone structure. The extent and function of this feature is unclear. The trail as marked on the ground avoids this feature.

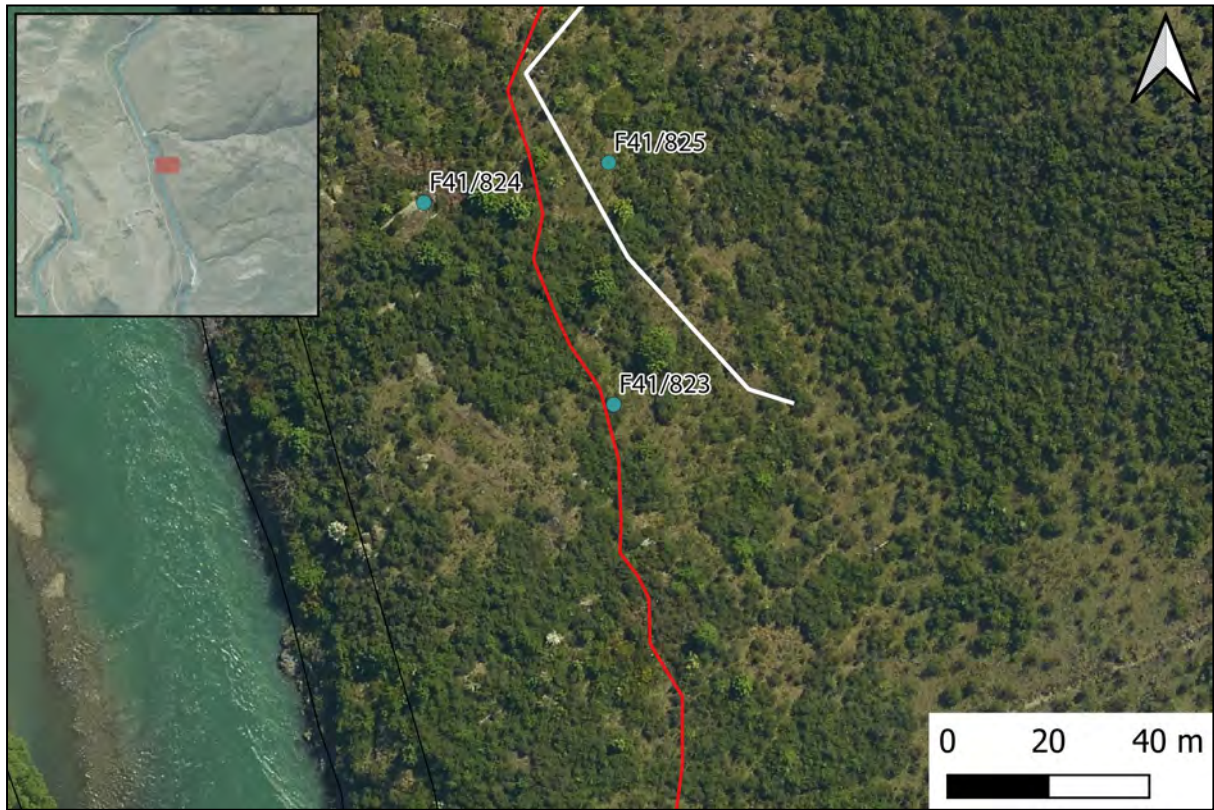


Figure 65. F41/823.



Figure 66. F41/823; the majority of the structure is overgrown by scrub.



F41/824 – Stone Hut

Origin Ref: 051

Located outside trail extents.

Stone walled hut – measuring c. 5m x 3m – a large boulder forming the east wall. Low mud mortar stone walls appear to be original height; presumably these were topped with a canvas tent roof.



Figure 67. F41/824.



Figure 68. F41/824; looking south west at the hut site, with the chimney structure visible at the right of the image.



F41/825 – Dam

Origin Ref:

Close proximity to trail.

Large earth dam with sections of stone facing. Currently overgrown and indistinct, but clear on 1964 aerial photographs. It appears that water flow from the channel behind has broken through the original dam wall.

If possible, the adjacent trail route should be moved slightly westwards to ensure that this feature is not damaged.

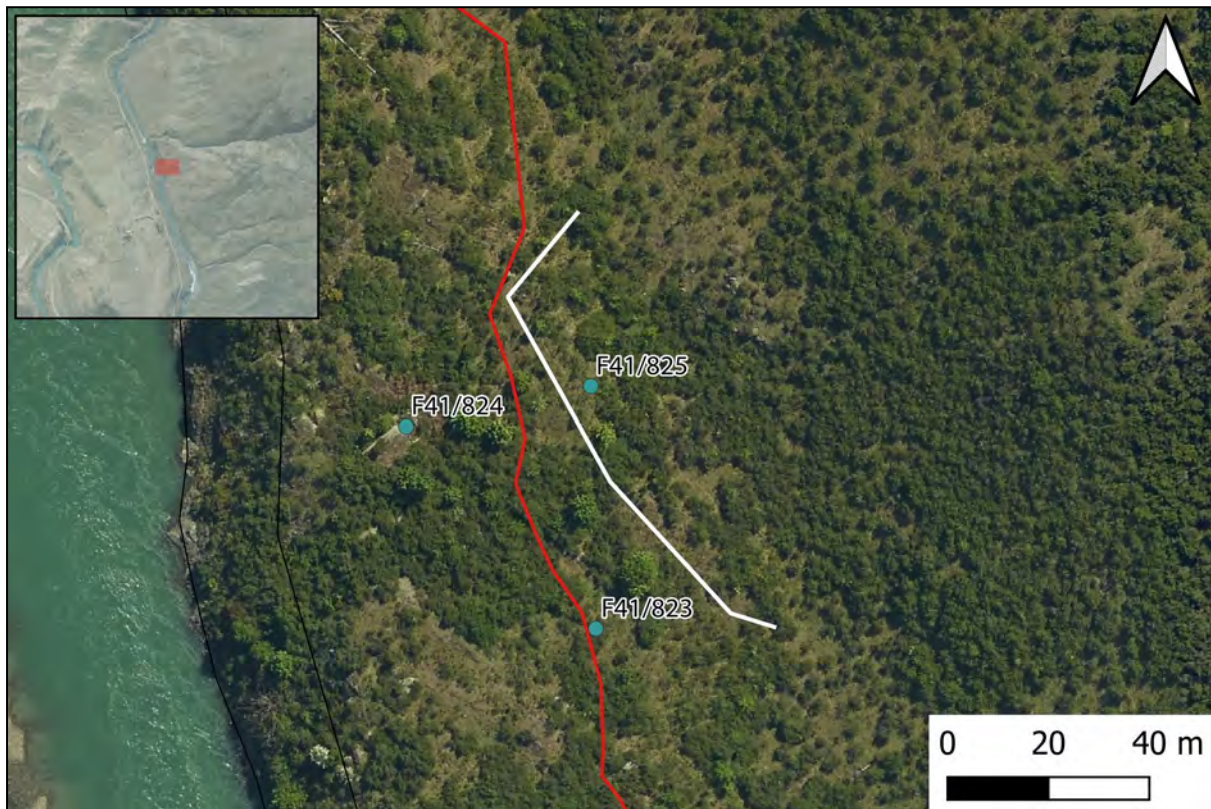


Figure 69. F41/825; the white solid lines indicate the approximate position of the dam walls.



Figure 70. F41/825; an element of stone facing at the northern end of the dam.



F41/826 – Sluicings and Tailings

Origin Ref: 045

Impacted site.

Area of sluicings and tailings along, and extending from the mouth of, a large gully.

The trail will cut across what may be sluice faces within the gully. However, it will avoid the sluicings and stacked tailings at the gully mouth and alongside the river.

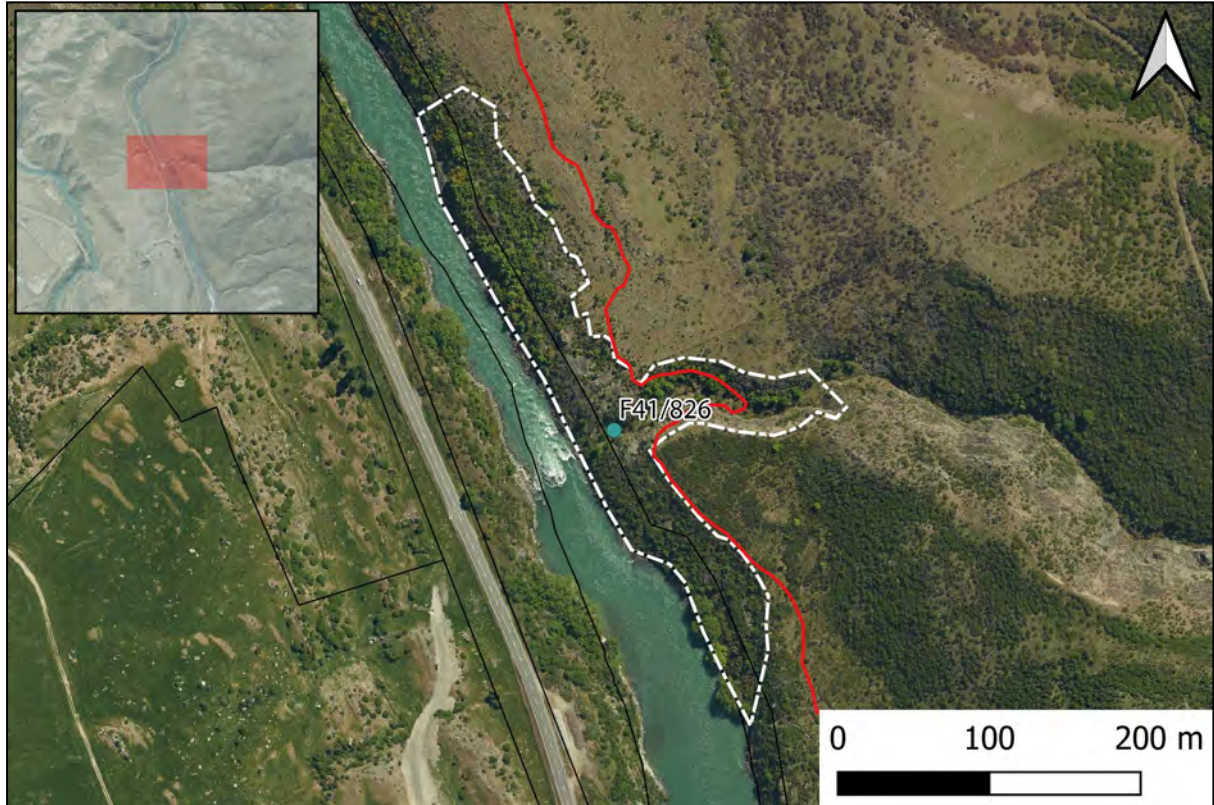


Figure 71. F41/826; the white dashed line indicates the approximate site boundary.





Figure 72. F41/826; looking east up the sluiced gully with a tailings pile at the centre of the image.



Figure 73. F41/826; looking north across the gully mouth at a sluiced area filled with tailings piles.



F41/432 – Sluicings and Tailings

Origin Ref: 052

Close proximity to trail.

Large complex of sluicings and tailings, including some herringbone tailings in an excellent state of preservation. Distinct in form from the sluicings and tailings to the north (F41/827). Related to the dams and stone structure at F41/828 and F41/829.

Care should be taken to avoid these features at the points where the trail passes nearby.

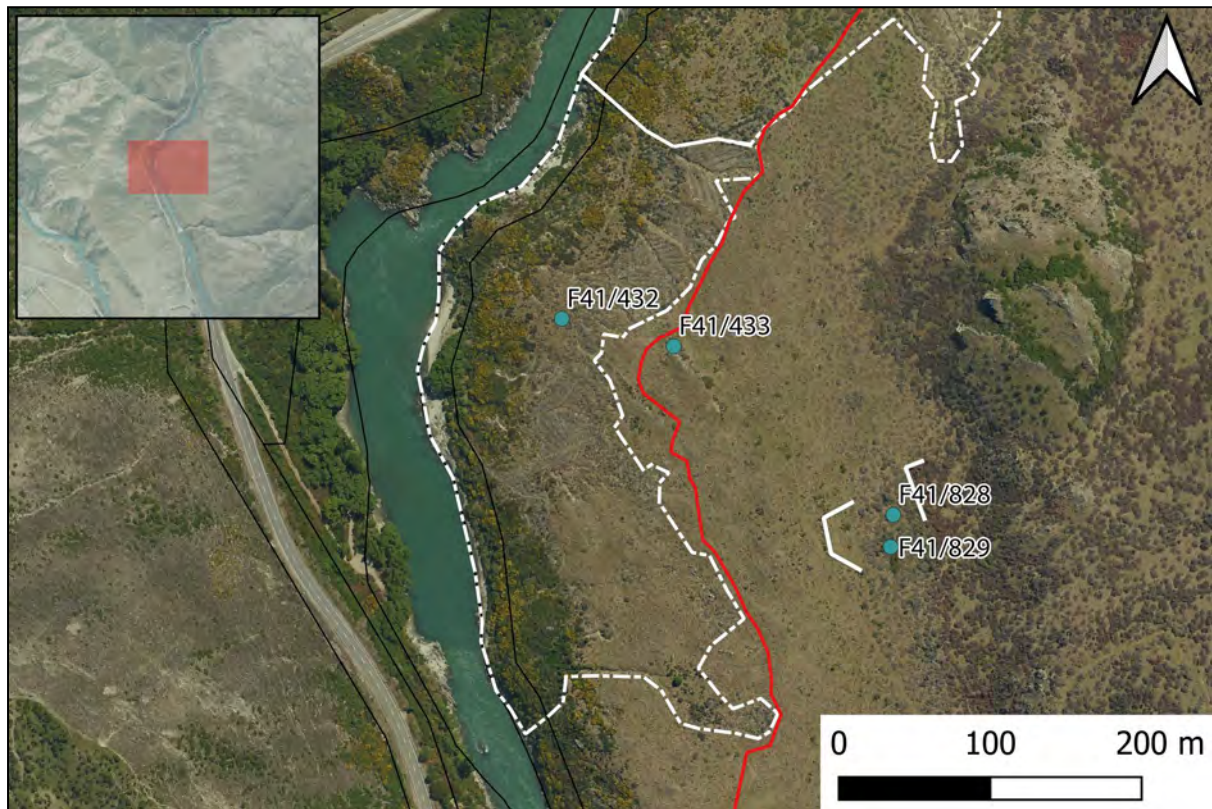


Figure 74. F41/432; the white dashed line indicates the approximate site boundary.





Figure 75. F41/432; looking east across the sluicings and tailings at the southern end of the site area.



Figure 76. F41/432; looking north-east along the herringbone tailings at the northern end of the site.



F41/433 – Rabbiters' Huts

Origin Ref: 037

Close proximity to trail.

Two 2.5m x 3m rabbiters' huts clad in corrugated iron. In poor condition with floors collapsing and other building elements missing. Thought to date to the 1920s-1930s.

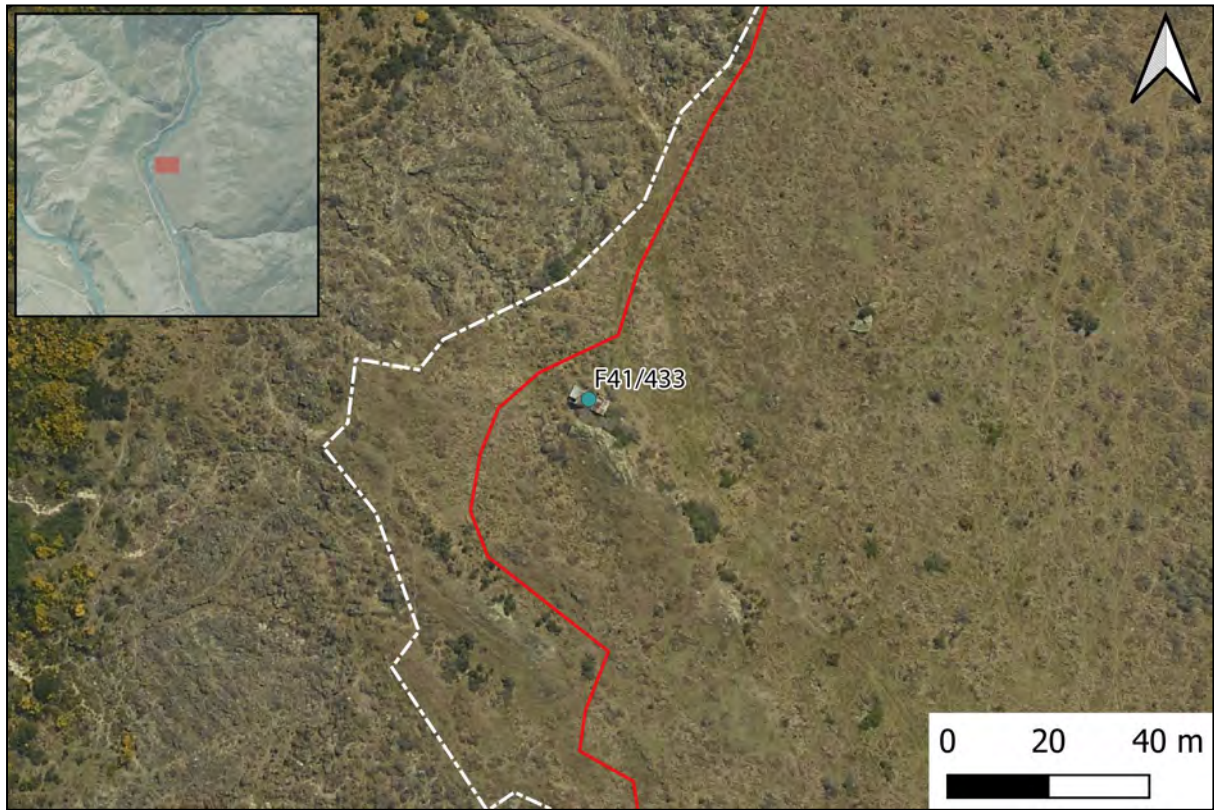


Figure 77. F41/433.



Figure 78. F41/433; looking west at the rabbiters' huts.



F41/828 – Dams

Origin Ref: Nil

Located outside trail extents.

Two dams on Sam's Flat flanking the stone structure at F41/829. Fed by races running from the creek to south. Stored water for sluicings at F41/432 and possibly F41/827. Identified from 1964 and modern aerial photographs, not located on the ground.

The lower dam is in close proximity to the 4WD track coming down from Mt Difficulty. Care should be taken not to damage it if bringing vehicles and machinery onto the flat via this route.



Figure 79. F41/828; the white solid lines indicate the approximate position of the dam walls.

F41/829 – Stone Structure

Origin Ref: Nil

Located outside trail extents.

Stone structure flanked by the two dams at F41/828. Likely associated with the sluicings at F41/432 and possibly F41/827. Identified from 1964 and modern aerial photographs, not located on the ground.



Figure 80. F41/829.



F41/827 – Sluicings and Tailings

Origin Ref: 053

Impacted site.

Large complex of sluicings and tailings. Some sluiced areas further inland from the Kawarau River have stacked tailings and neatly formed sludge channels, but not the well-defined herringbone patterns of the adjacent F41/432.

The trail will cut across several sluiced areas but appears to avoid the more important inland tailings and sludge channels. It was rerouted on the ground at one point to take a lower route and avoid a well-formed stone channel.

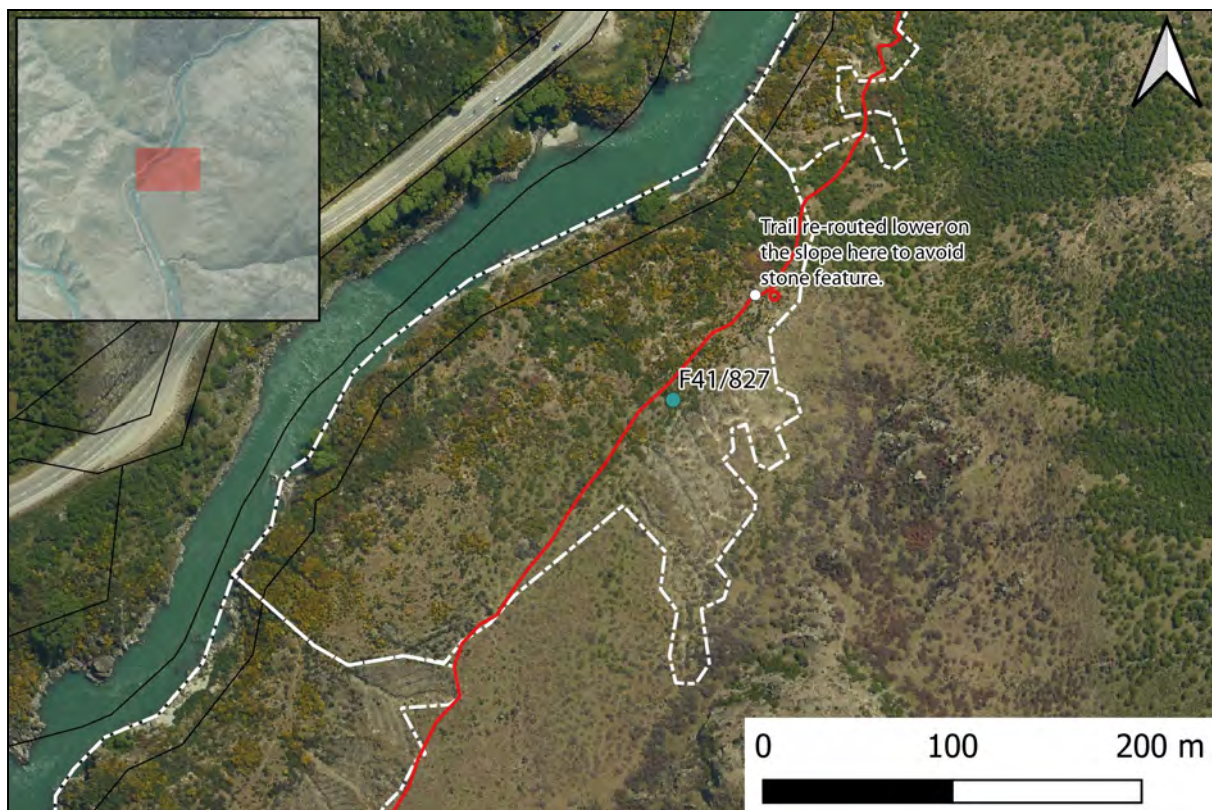


Figure 81. F41/827; the white dashed line indicates the approximate site boundary.





Figure 82. F41/827; looking south along one of the well-formed sludge channels.



Figure 83. F41/827; looking north at the stone feature avoided by the lowered trail route.



F41/830 – Sluicings

Origin Ref: 055-56

Impacted site.

A series of four overgrown sluiced areas alongside the Kawarau River. Very clear on a 1964 aerial photograph.

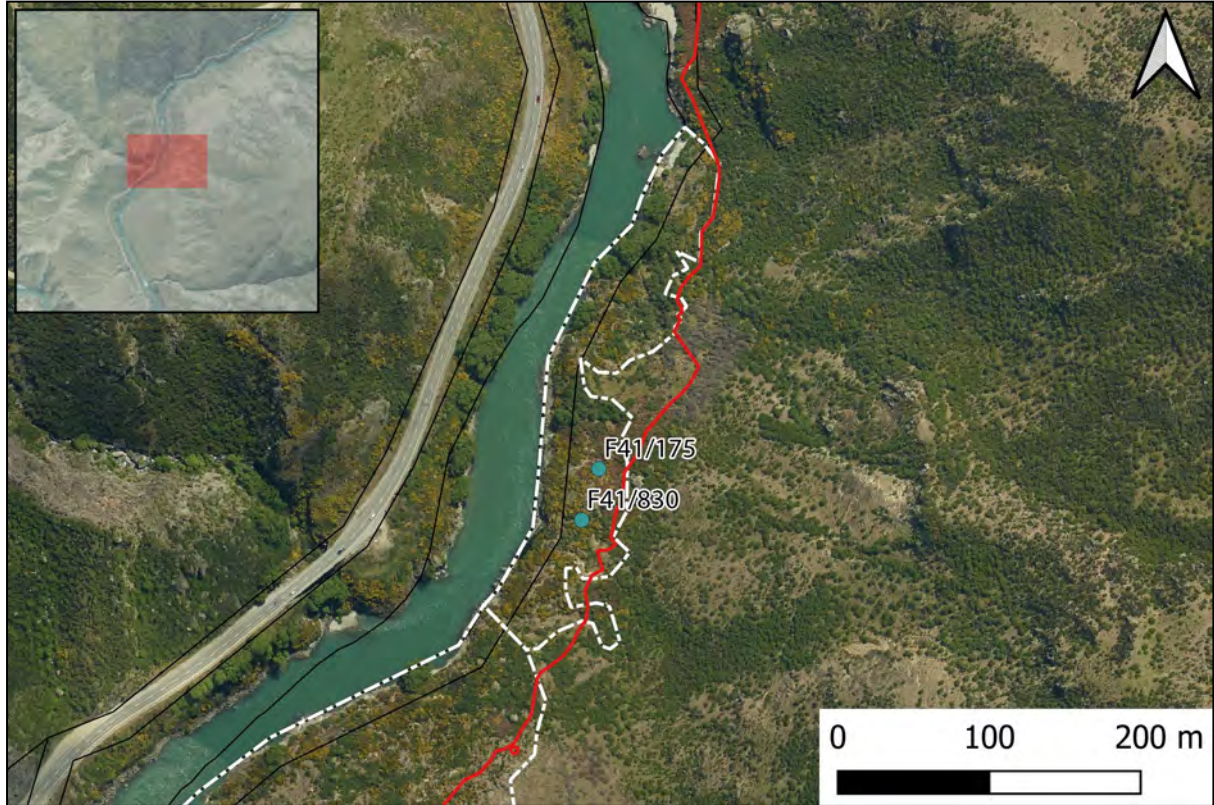


Figure 84. F41/830; the white dashed line indicates the approximate site boundary.



Figure 85. F41/830; looking north at the overgrown sluiced area adjacent to F41/175.



F41/175 – Stone House

Origin Ref: 057

Located outside trail extents.

Mud-mortared, c. 3m x 4m stone structure sitting on a dry stacked stone plinth. In excellent condition. Likely associated with the sluicings at F41/830.



Figure 86. F41/175.



Figure 87. F41/175; the east exterior wall of the house.



F41/261 – Sluicings and Tailings

Origin Ref: Nil

Close proximity to trail.

Large, 250m long area of sluicings alongside the Kawarau. Site of an associated dam previously recorded by Ritchie is unclear. Identified from 1964 and modern aerial photographs, not located on the ground.

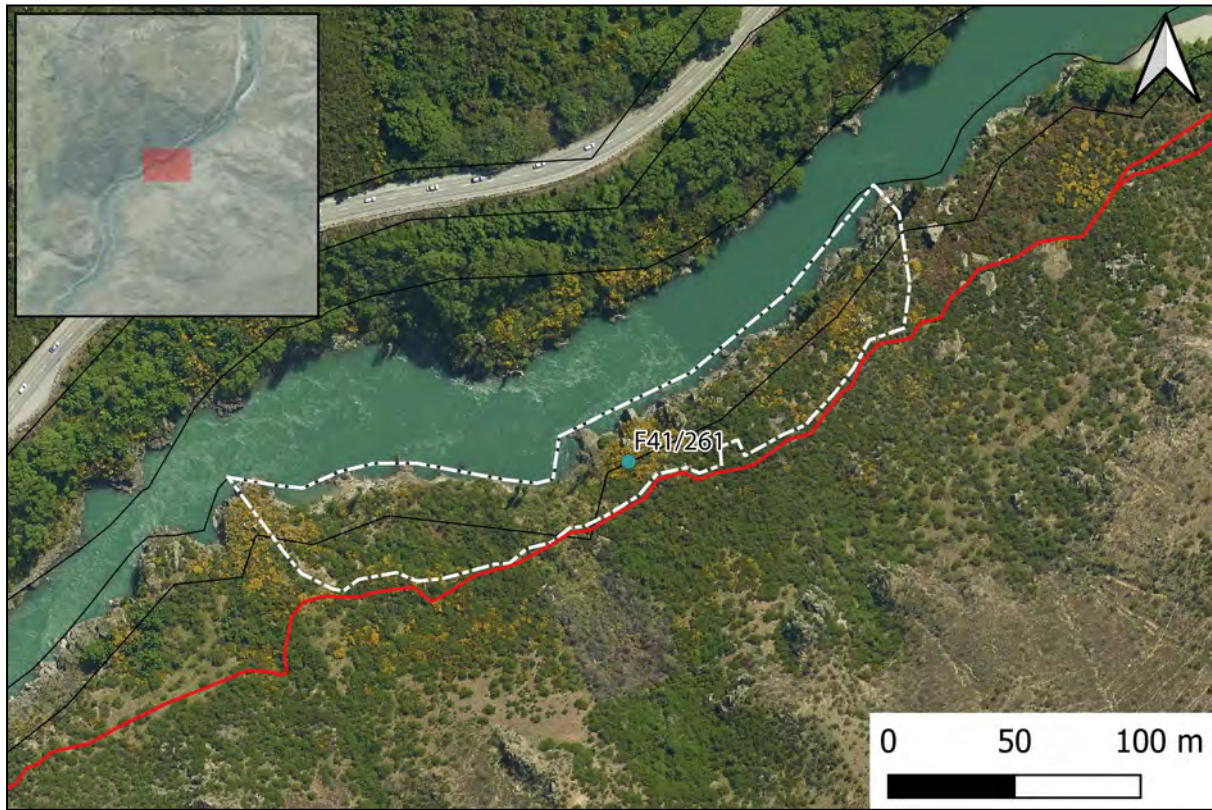


Figure 88. F41/261; the white dashed line indicates the site approximate boundary.

F41/170, F41/171, F41/172 – Rockshelter and Miners’ Dams

These sites are recorded in the vicinity of Creek 6, but were not able to be located on the ground.

Care should be taken when constructing the trail to avoid these features if encountered.

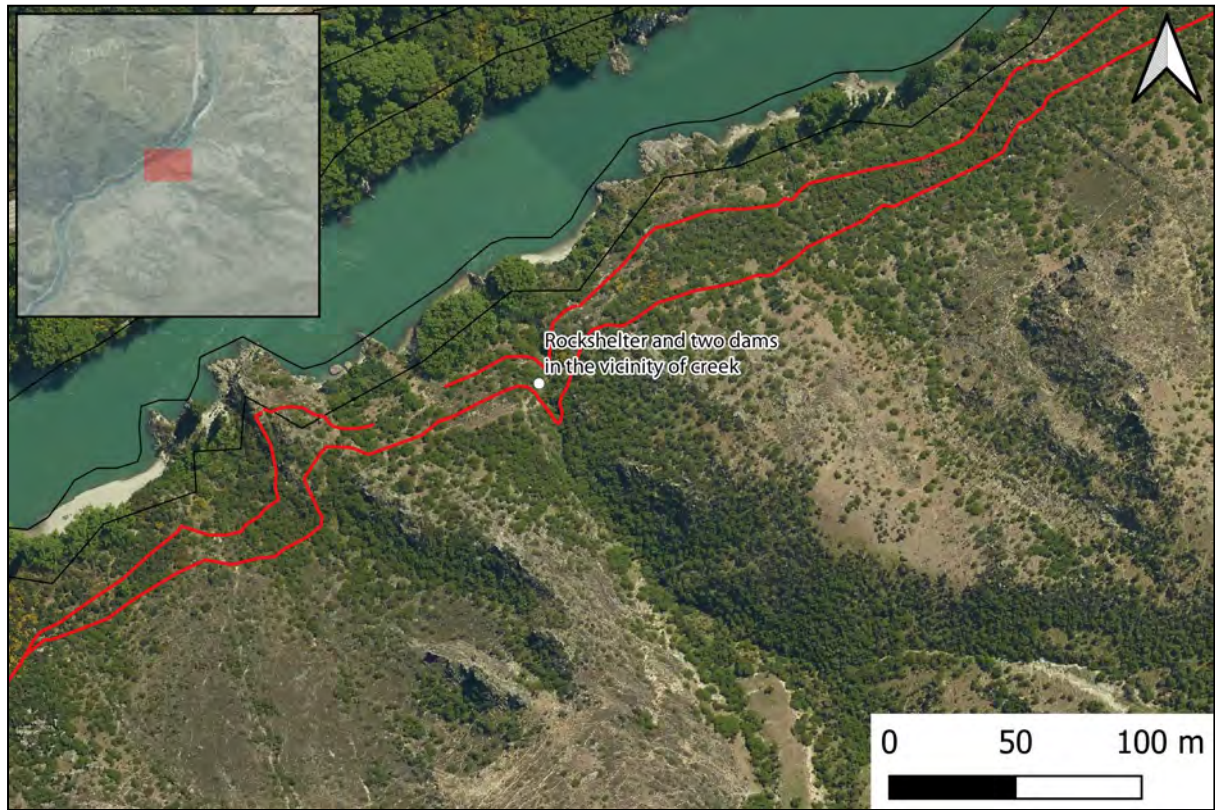


Figure 89. Creek 6: F41/170-F41/172.



F41/167 – Dam

Origin Ref: Nil

Located outside trail extents (previously destroyed).

Site of dam identified by Ritchie. No trace of this feature was able to be identified on the ground or in modern aerial photographs. It appears that it has been destroyed by mining on Colquhoun's Flat during the 1980s.

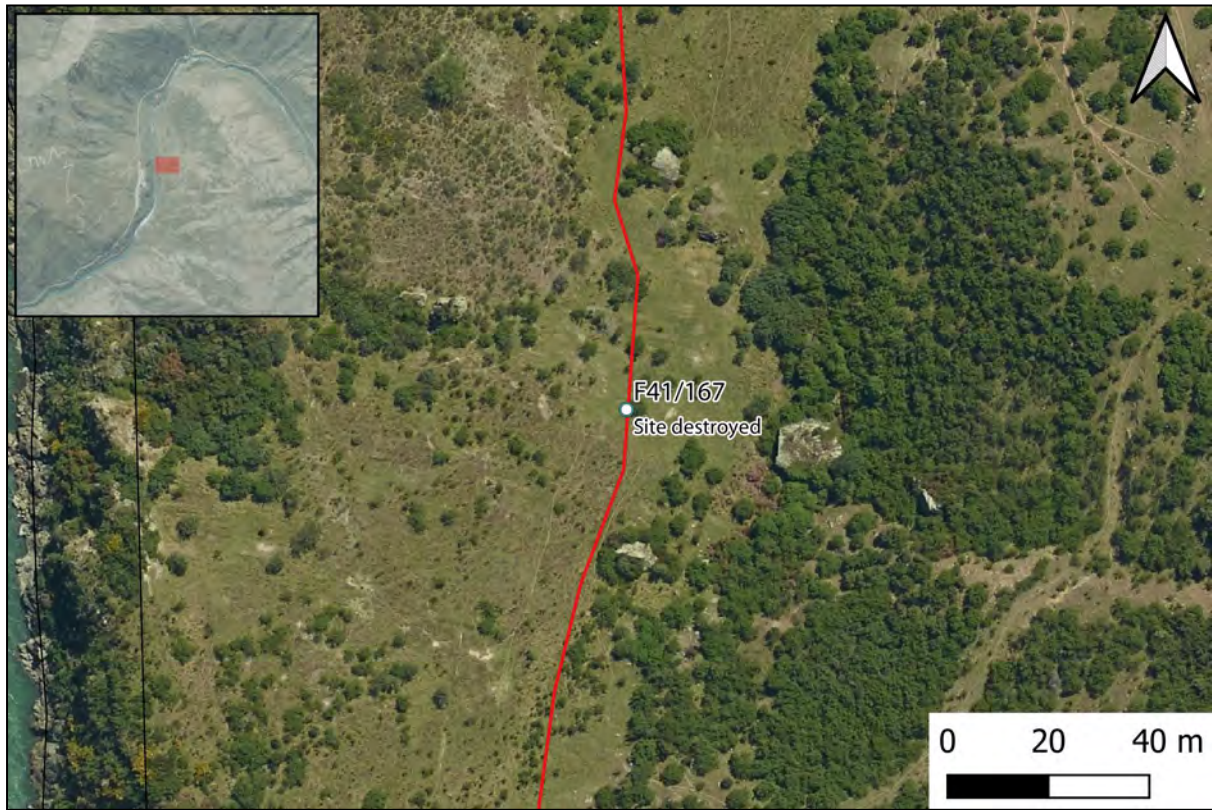


Figure 90. F41/167.



F41/164 – Natural Bridge

Origin Ref: Nil

Located outside trail extents.

The traditional crossing point of early Māori and gold miners. There was a complete rock arch across the river but Ritchie notes this as being washed away in a 1959 flood.

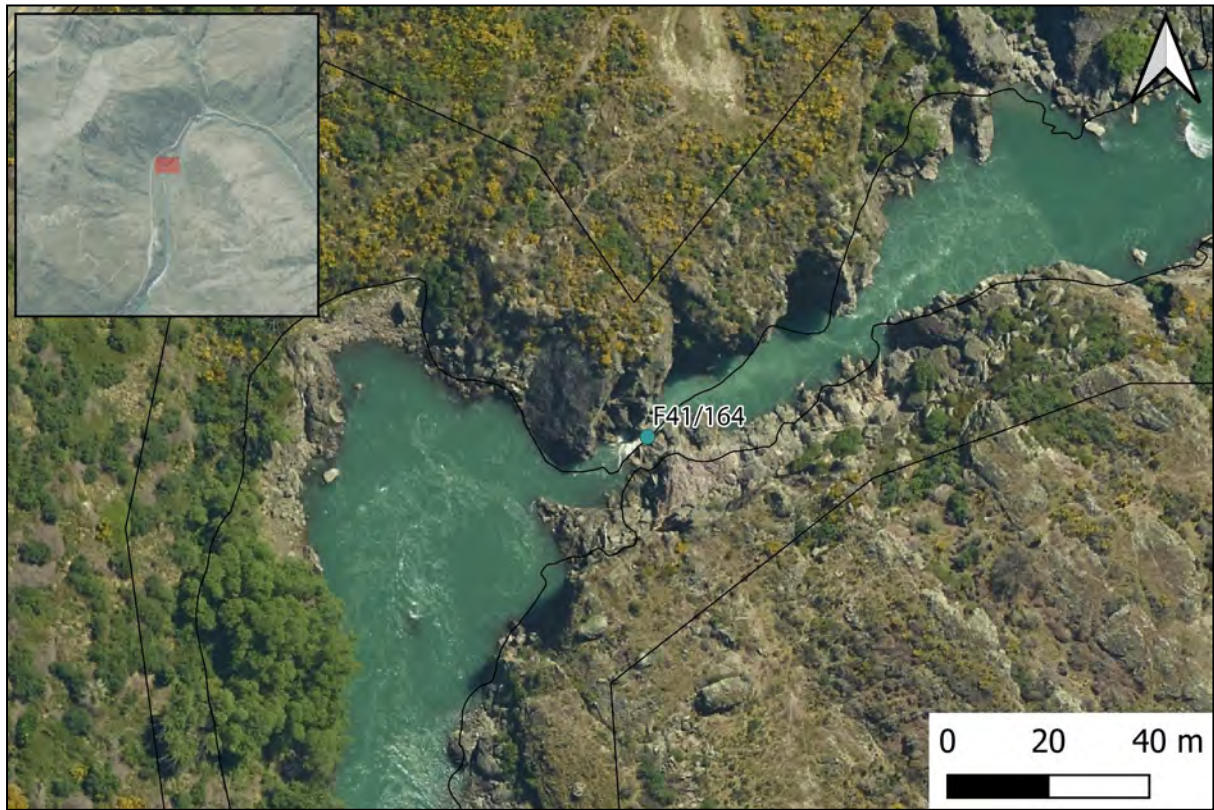


Figure 91. F41/164.



Figure 92. F41/164; looking west towards the crossing point.



F41/455 – Whatatōrere/Colquhoun's Flat

Origin Ref: Nil

Impacted site.

Ngāi Tahu campsite on the true right bank of the Kawarau. A sawn greenstone boulder was found here c. 1990, though the exact location of the find is unclear. The site is now thought to be encompassed by the historic reserve outlined in Section 156 of the Ngāi Tahu Claims Settlement Act 1998.

Modern gold mining appears to have removed any earlier features.

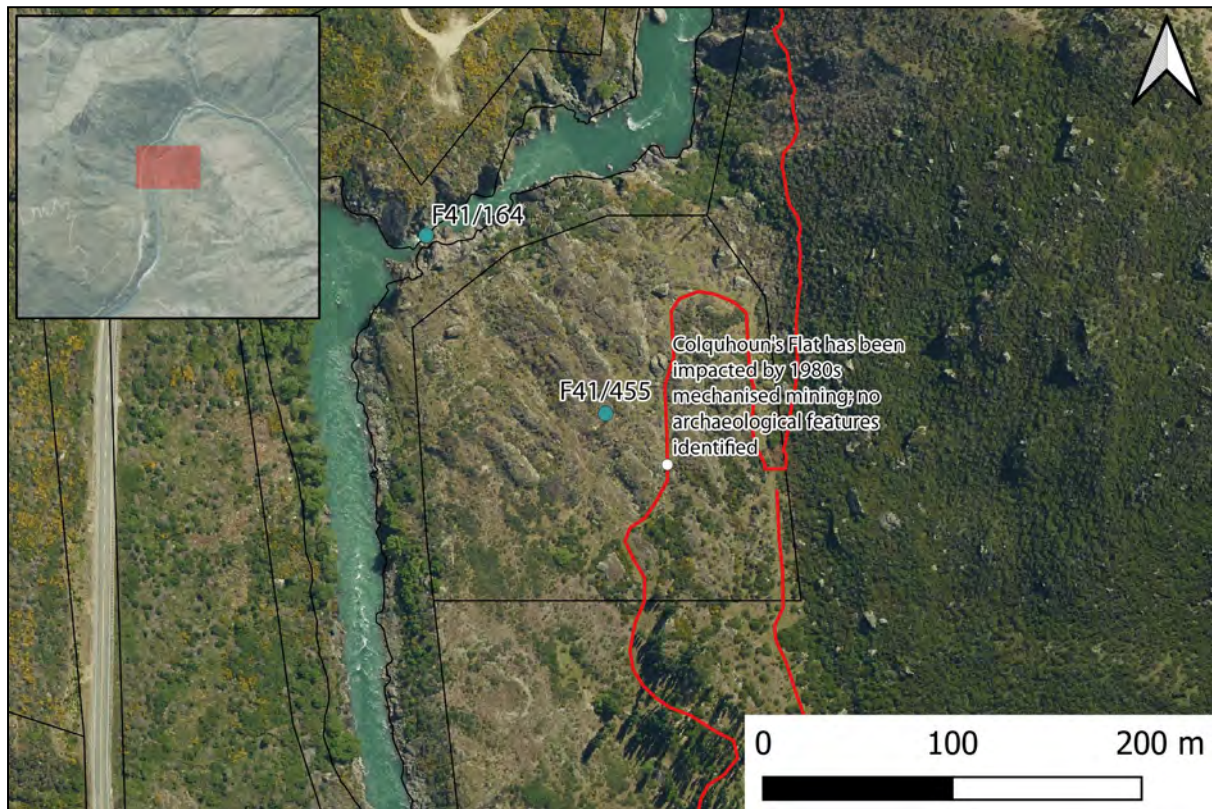


Figure 93. F41/455.

F41/158 – Dam

Origin Ref: 001

Impacted site.

Large and well-preserved earth dam on terrace opposite the Roaring Meg power station. Two races run from the eastern end of the dam to the workings below.

The southern route option along the rear of the dam is preferred to reduce visibility from the Roaring Meg look out and keep earthworks mostly away from the dam wall. A fragment of dam wall and the two races will be damaged by the route.

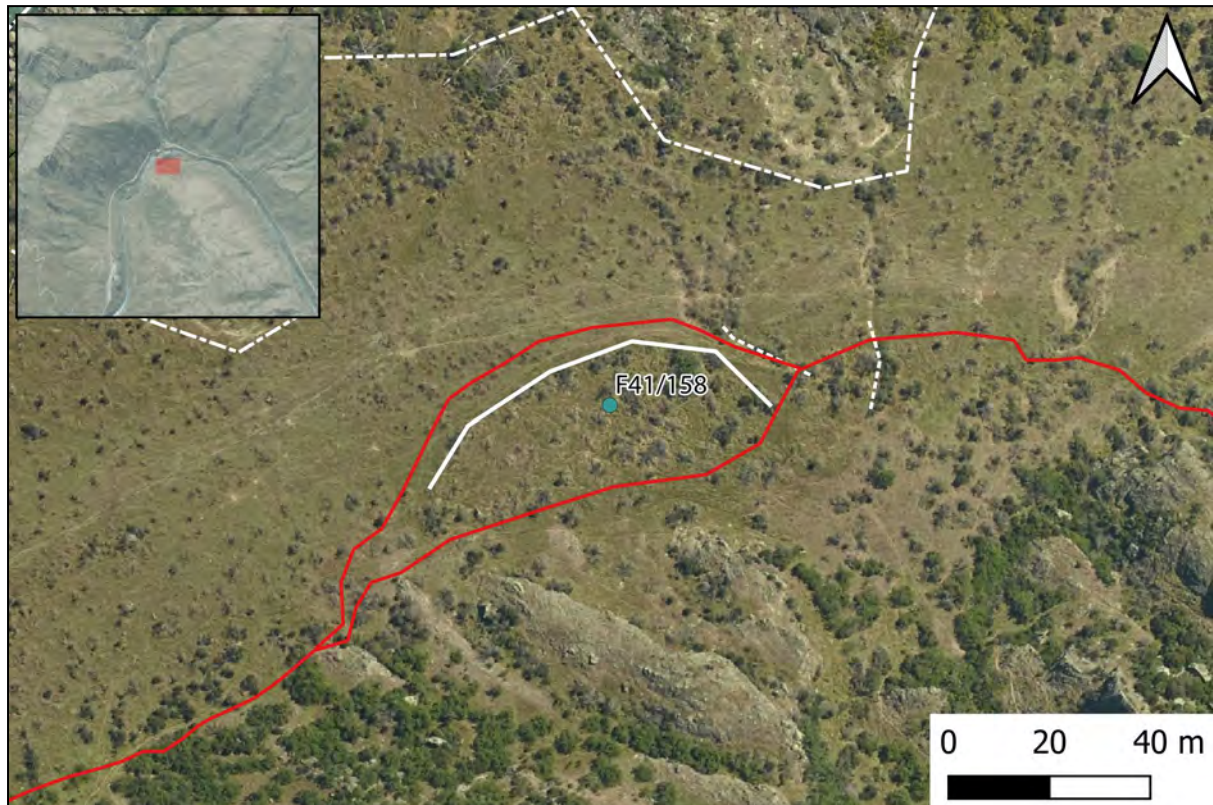


Figure 94. F41/158; the white solid lines indicate the approximate position of the dam walls and the dotted line marks a water race segment.





Figure 95. F41/158; looking east along the edge of the dam embankment.



Figure 96. F41/158; looking along the westernmost race towards F41/161.



F41/161 – Sluicings and Tailings

Origin Ref: Nil

Located outside trail extents.

Large area of sluicings and tailings on the riverbank across from the Roaring Meg power station.

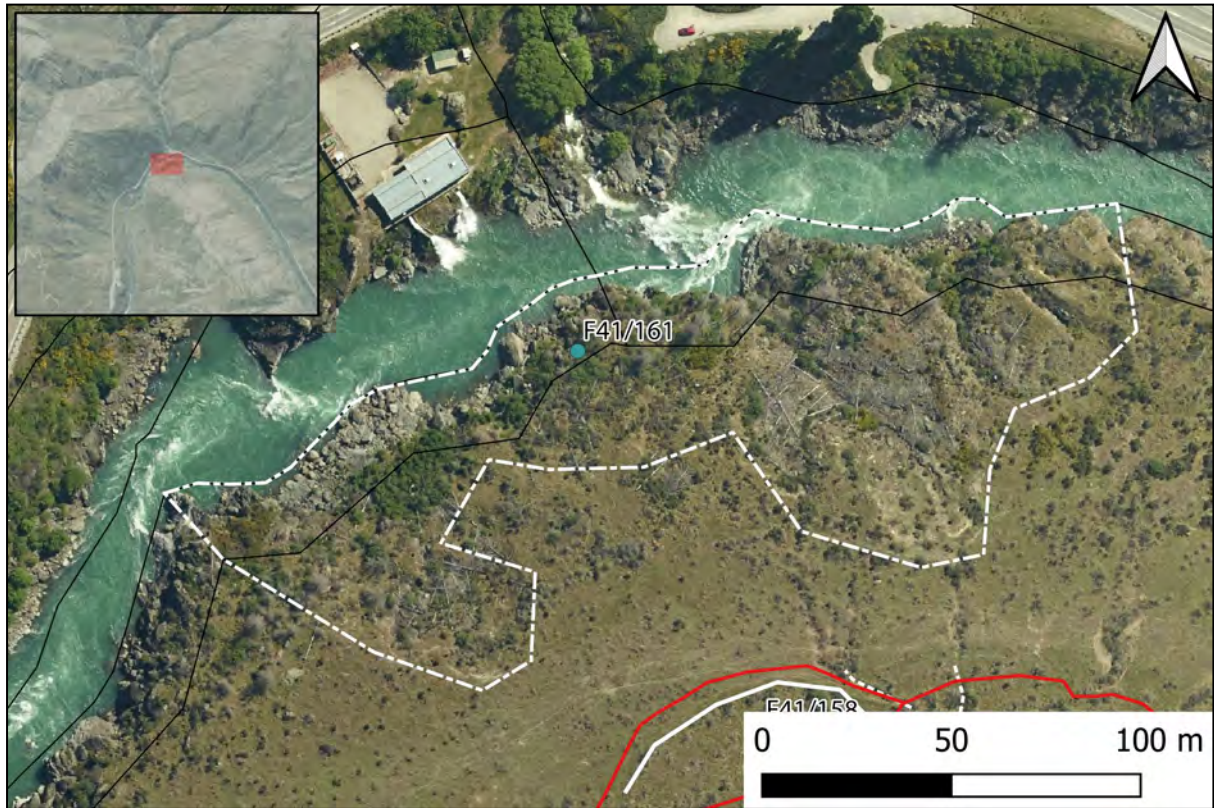


Figure 97. F41/161; the white dashed line indicates the approximate site boundary.



Figure 98. F41/161; looking north over the tailings towards the Roaring Meg carpark.



F41/831 – Tailings

Origin Ref: 004

Located outside trail extents.

Area of amorphous tailings – circa 70m x 20m – on a small terrace above the Kawarau.



Figure 99. F41/831; the white dashed line indicates the approximate site boundary.



Figure 100. F41/831; looking east across the tailings with the cableway visible in the background.



F41/832 - Cableway

Origin Ref: 005

Located outside trail extents.

Cableway passing across the Kawarau. South-west end anchored into rock among tailings. Age uncertain, but likely 20th century.

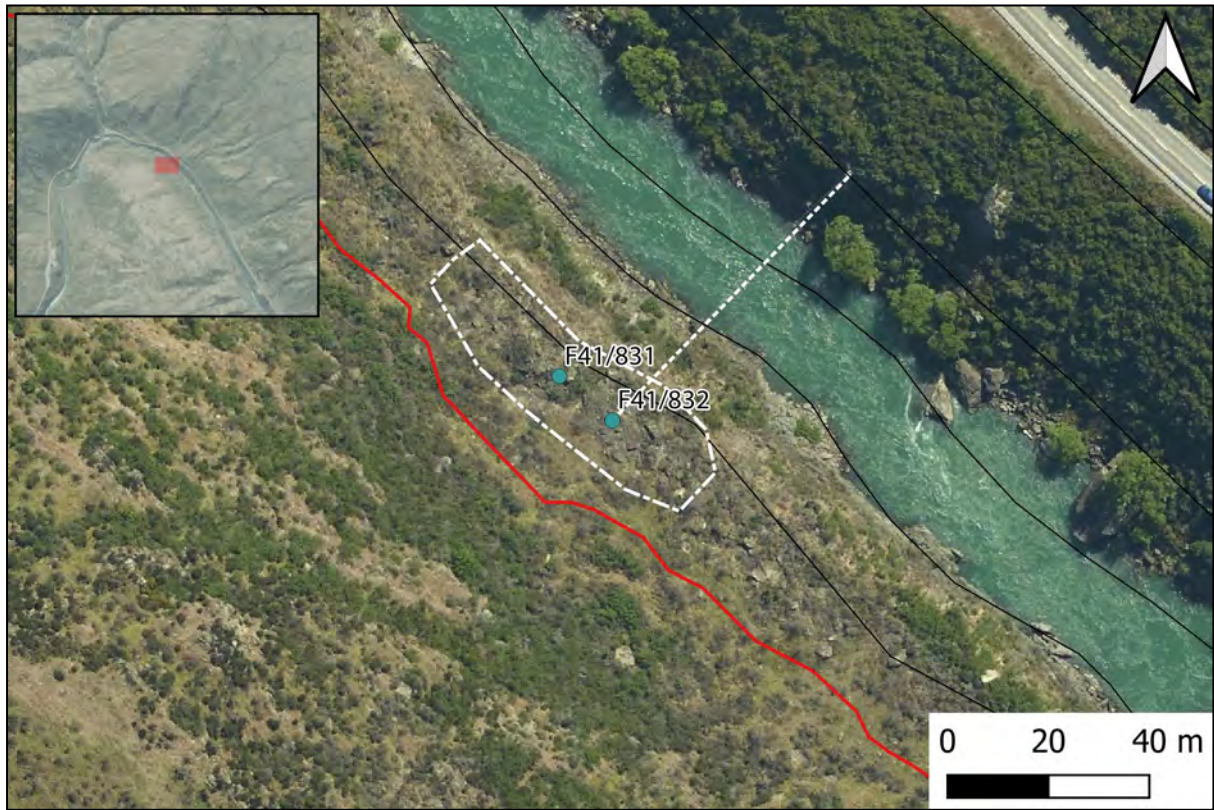


Figure 101. F41/832; the dotted white line indicates the cableway.



Figure 102. F41/832; looking north-east at the cableway across the Kawarau.





Figure 103. F41/832; cableway anchor.

F41/429 – Cleghorn's Hut and Workings

Origin Ref: 008

Impacted site.

Area containing an interrelated set of features, including: a corrugated iron hut, a flume pipe running across the Kawarau and feeding into a small dam, and overgrown sluicings around the hut. There is also a sluiced area to the north of the hut. It is possible that initial mining at the site occurred in the 19<sup>th</sup> century, but the current features likely date from as late as circa the 1960s when the hut was last occupied. Ritchie records 20th century midden in the vicinity of the hut.

Note: Ritchie records pair of c. 1m diameter mine shafts in the vicinity. One of these was estimated to be c. 30m-40m deep. Neither were able to be relocated on the ground (see F41/155 and F41/157).

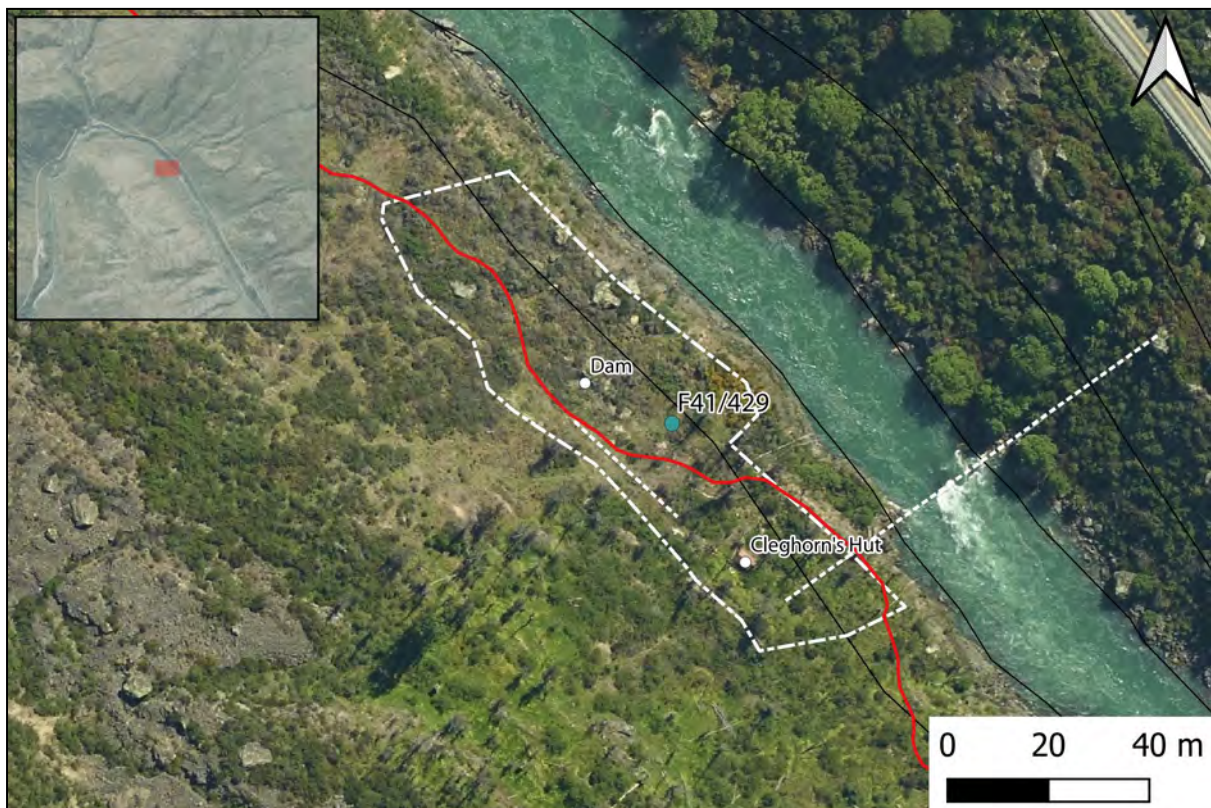


Figure 104. F41/429; the dashed white indicates the approximate site boundary and the dotted lines indicate sluice pipe segments.





Figure 105. F41/429; looking north-east across the sluiced area to the north of Cleghorn's Hut.



Figure 106. F41/429; looking south-west at Cleghorn's hut across a sluiced area.





Figure 107. F41/429; looking north-east from Cleghorn's Hut with the suspended sluice pipe visible in the background.



Figure 108. F41/429; looking north-east at the small dam.





Figure 109. F41/429; looking south-east along the flume pipe segment to the north-west of the hut.



Figure 110. F41/429; looking north-west along the trail route where it runs across the suspended flume pipe to the east of the hut.



F41/154 – Sluicings and Tailings

Origin Ref: 012

Impacted site.

Large area of overgrown sluiced ground extending along the river bank. Numerous piles of stacked tailings are evident in the northern portion of the site. A segment of well-formed sludge channel runs across the site, this feature appears to lead from other workings up the hillside (F41/431).

The current trail route avoids the best preserved section of sludge channel.

Note: Ritchie records pair of c. 1m diameter mine shafts in the vicinity. One of these was estimated to be c. 30m-40m deep. Neither were able to be relocated on the ground (see F41/155 and F41/157).

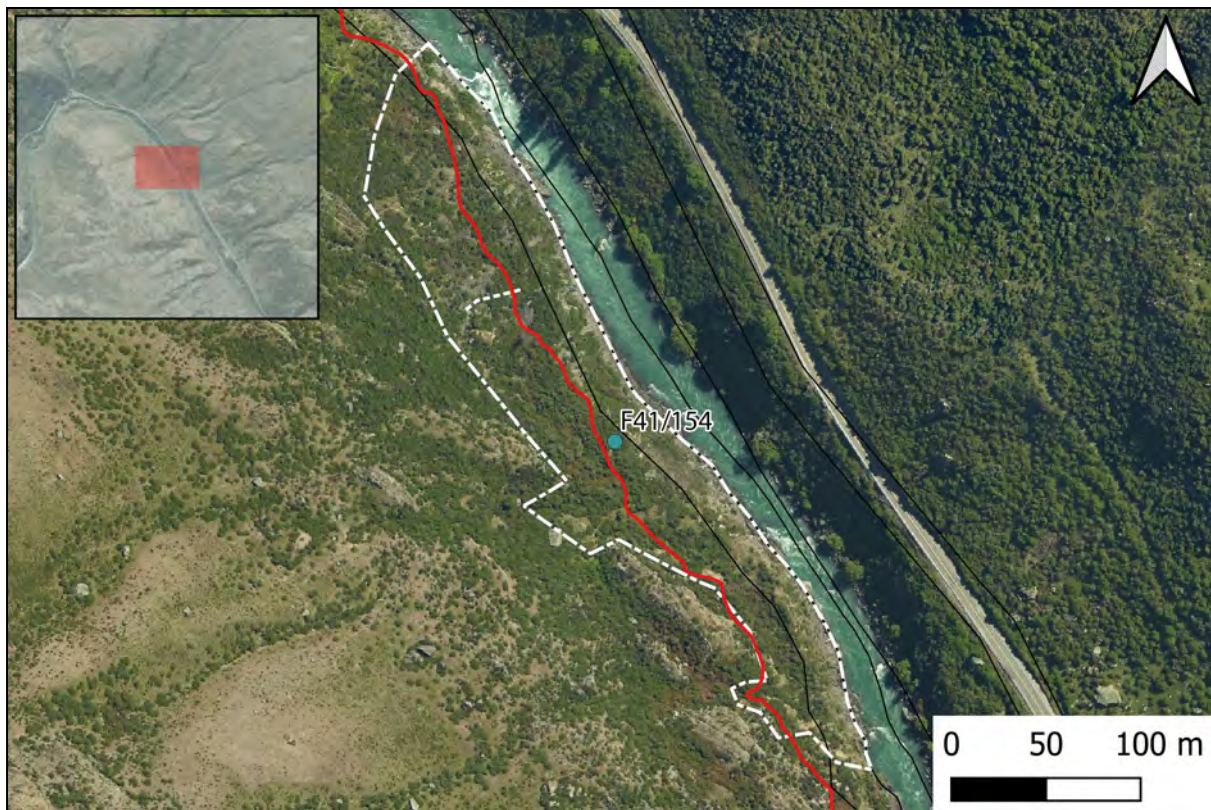


Figure 111. F41/154; the white dashed line indicates the approximate site boundary and the dotted line the sludge channel.



Figure 112. F41/154; looking south-west across the tailings at the north end of the site.





Figure 113. F41/154; looking north at the sludge channel wall.



Figure 114. F41/154; looking south at sluice faces at the southern end of the site.



F41/151 – Sluicings and Tailings

Origin Ref: 034

Located outside trail extents.

An area of overgrown sluicings and tailings on a terrace above the Kawarau.

Ritchie's earlier survey recorded hut foundations and a rockshelter (F41/146) in the vicinity of these tailings, but these were unable to be located.

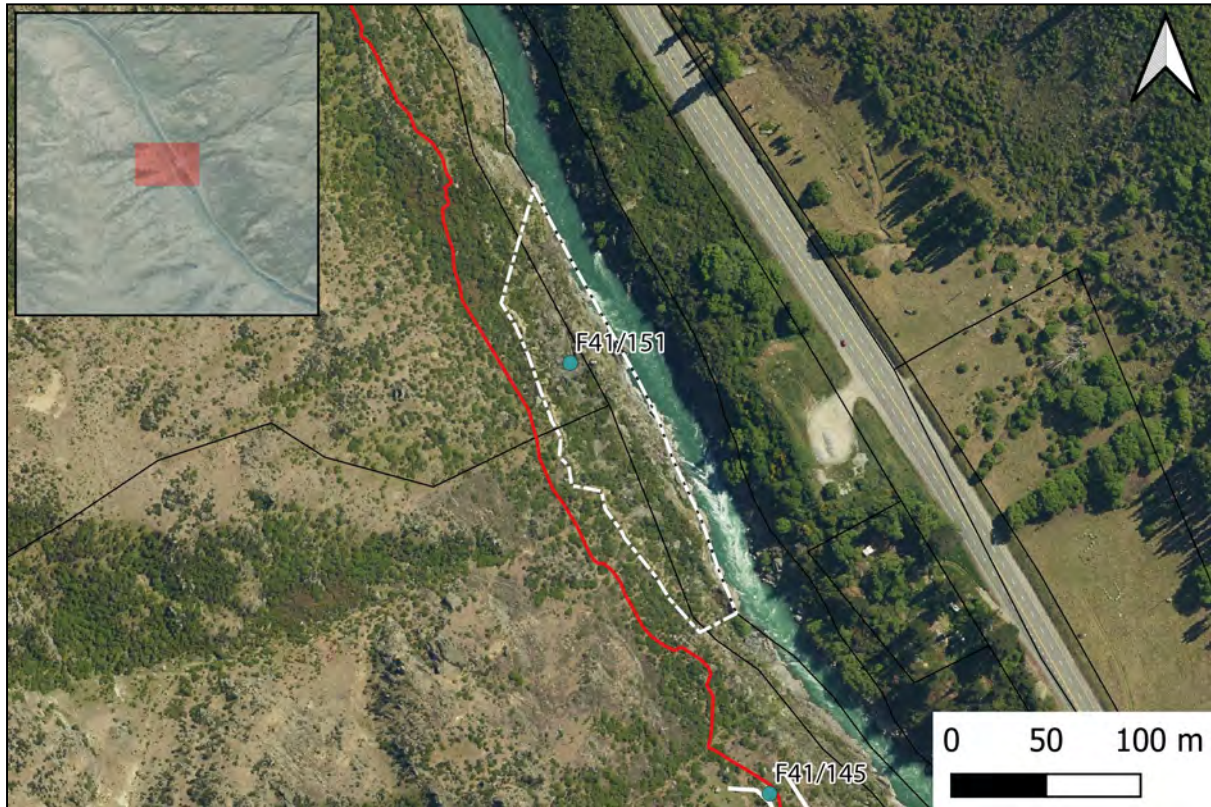


Figure 115. F41/151; the white dashed line indicates the approximate site boundary.

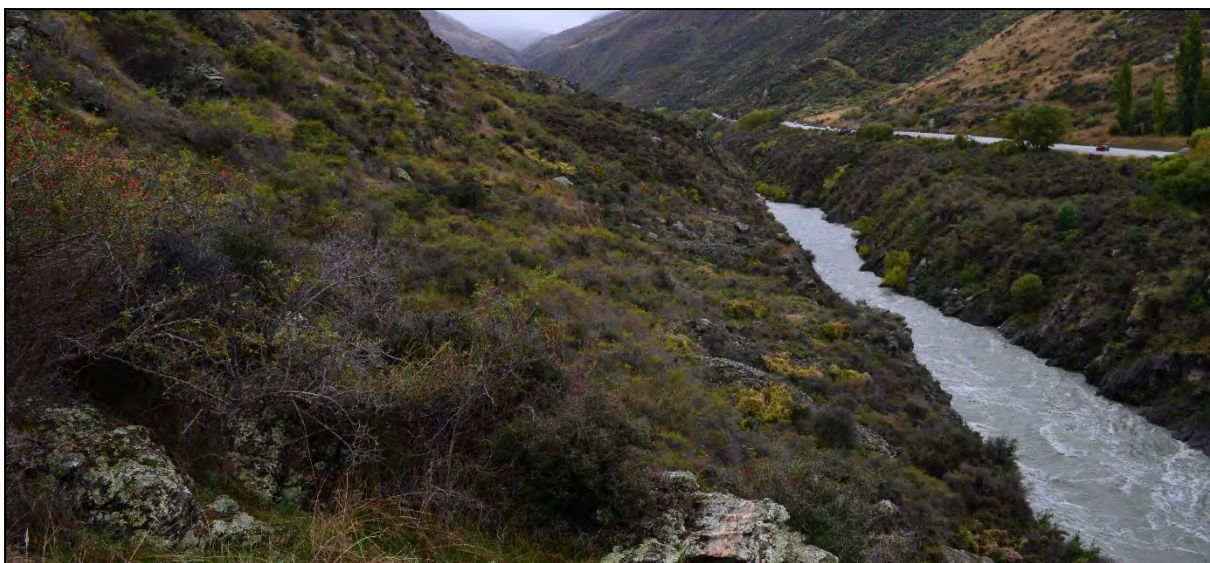


Figure 116. F41/151; looking north-west over the sluicings and tailings.



F41/145 – Dams

Origin Ref: 035

Impacted site.

Two dams built one above the other. The dams are formed by a mixture of earthen embankment and segments of stone facing.

The trail will run between the two dams. This will likely have some effect on their earthen elements, but will avoid the segments of stone facing.

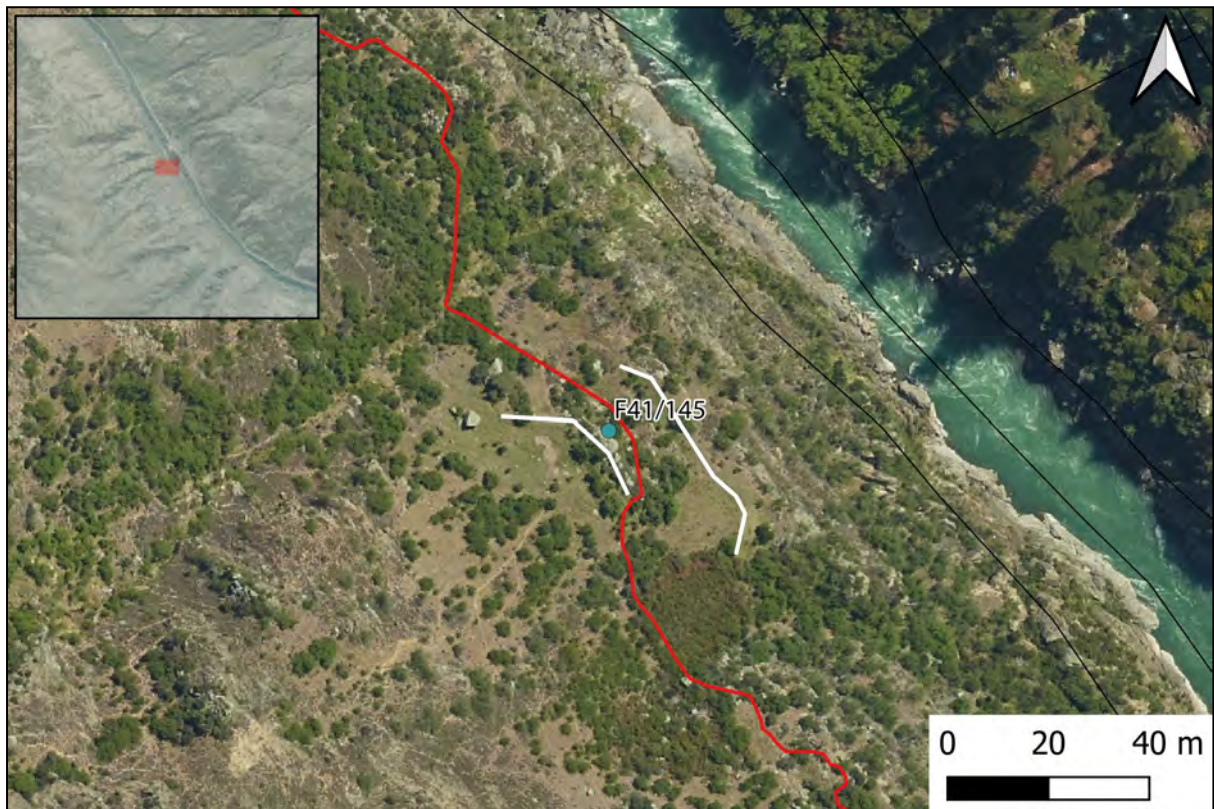


Figure 117. F41/145; the white solid lines indicate the approximate position of the dam walls.





Figure 118. F41/145; looking south across the upper dam.



Figure 119. F41/145; looking south at the stone facing at the north end of the upper dam.



F41/833 – Sluicings

Origin Ref: 039

Located outside trail extents.

Area of sluicings immediately below the Dam at F41/141.



Figure 120. F41/833; the white dashed line indicates the approximate site boundary.



Figure 121. F41/833; looking north-west across the sluiced area.



F41/141 – Dam and Race

Origin Ref: 040

Impacted site.

Overgrown stone-faced dam and associated race. Ritchie notes this as a 30m long dam with an outlet race at its south-east corner. This race was not able to be identified on the ground but was later identified from 1964 aerial photographs and modern images leading towards Cascade Stream. A flume pipe presumably related to this dam and race can be seen in the north bank of the stream. Associated with the sluicings below at F41/833.

If possible the trail should be relocated slightly further up the hillslope to avoid the race and care should be taken not to damage the flume pipe in the bank.

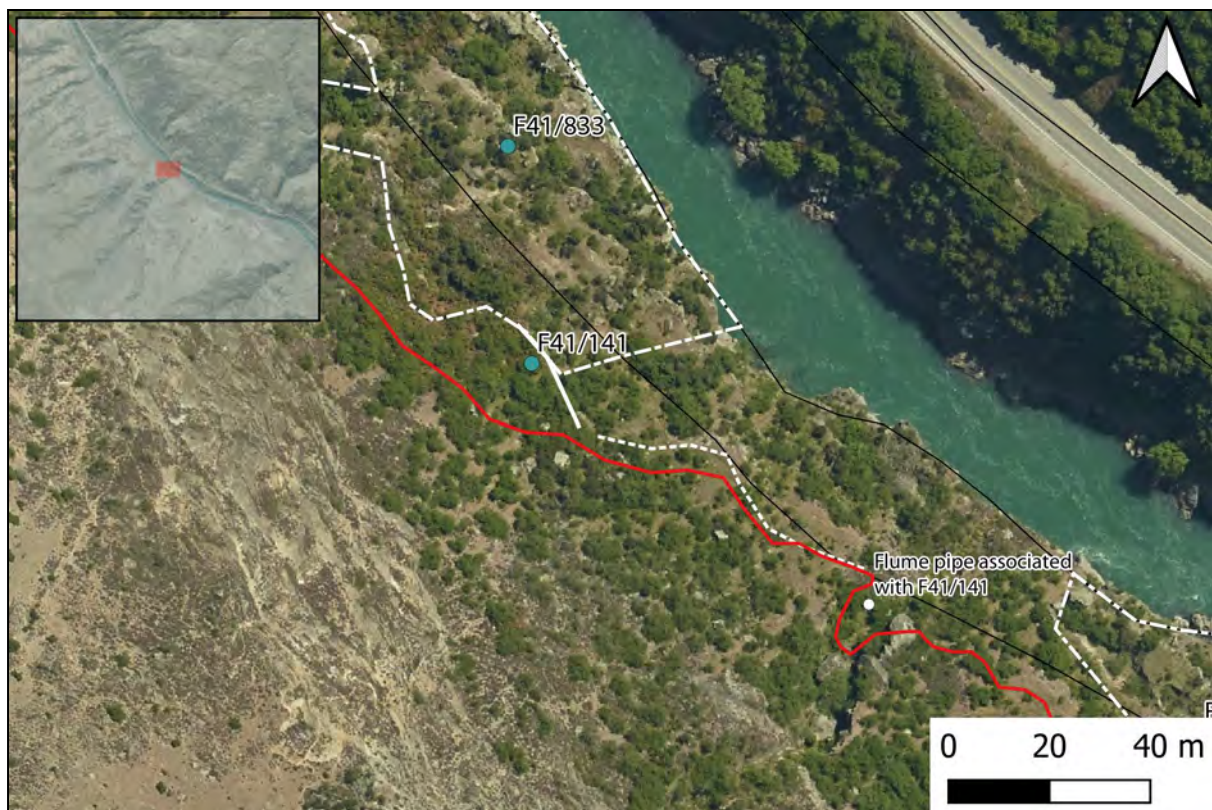


Figure 122. F41/141; the white solid line indicates the dam walls and the dotted line marks the water race segment.



Figure 123. F41/141; looking west at the overgrown stone facing on the dam wall.



F41/834 – Sluicings

Origin Ref: 042

Located outside trail extents.

Small area of sluicings to the south-east of Cascade Stream.



Figure 124. F41/834; the white dashed line indicates the approximate site boundary.



Figure 125. F41/834; looking south-east across the sluiced area.



Possible Shaft?

Origin Ref: 043

Close proximity to trail.

2m deep void to the south of the trail route. This is presently thought to be a natural feature formed by a large rock fall from the cliff face above, but further investigation may show it to be the remains of a mining shaft. Ritchie's earlier survey did not record any sites in the vicinity. Not recorded on ArchSite.



Figure 126. Possible shaft site.



Figure 127. The possible shaft, overgrown with scrub.



F41/139 – Sluicings and Tailings

Origin Ref: 047

Impacted site.

Extensive area of mining with a significant volume of exposed sluice faces and tailings piles. These tailings are sited towards the river, away from the inland sluice faces. Some herringbone patterning and tail races are evident in the tailings towards the centre of the area. There is minimal vegetation cover. A 4WD track runs between the tailings and sluice faces; it is possible that some tailings have been historically removed for the formation of this track.

Though the trail runs through this site it should only have a limited impact on the archaeological features present. It will damage a small area of sluice face at the point where it descends into the sluiced area, and it is likely that the route up out of the sluicings will also have limited impact on some sluice faces. However, it will mostly avoid features by running in-between the tailings and sluice faces, largely following an existing 4WD track.

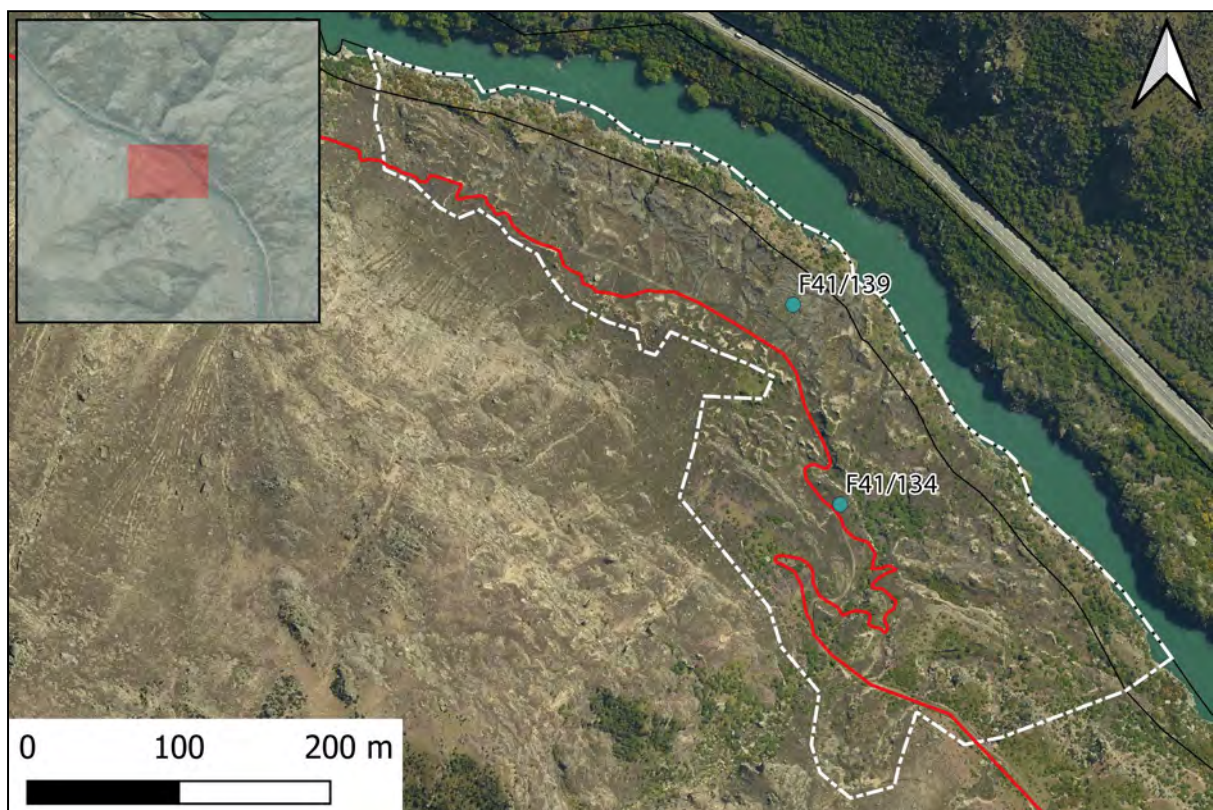


Figure 128. F41/139; the white dashed line indicates the approximate site boundary.





Figure 129. F41/139; looking south-east across the sluicings and tailings from the north-west edge of the site.



Figure 130. F41/139; looking south at the large sluice faces near the north-west edge of the site. The trail will run along the base of these features.





Figure 131. F41/139; looking south-east on the trail route where it runs along the existing 4WD track.



F41/134 – Ritchie's House

Origin Ref: 048

Close proximity to trail.

A substantial 6.5 x 4m ruined stone house sited on a portion of un-sluced terrace.



Figure 132. F41/134.





Figure 133. F41/134; looking south-east at the ruin with the route of the trail along the 4WD track to the right of the image.



Figure 134. F41/134; looking north at the ruin.



F41/835 – Sluicings

Origin Ref: 051

Outside of trail extents.

Small sluiced gully cutting into the hillside behind the Goldfields Mining Centre.

The mapped trail route is incorrect at this point, and the actual route will pass below (to the south of) this feature.

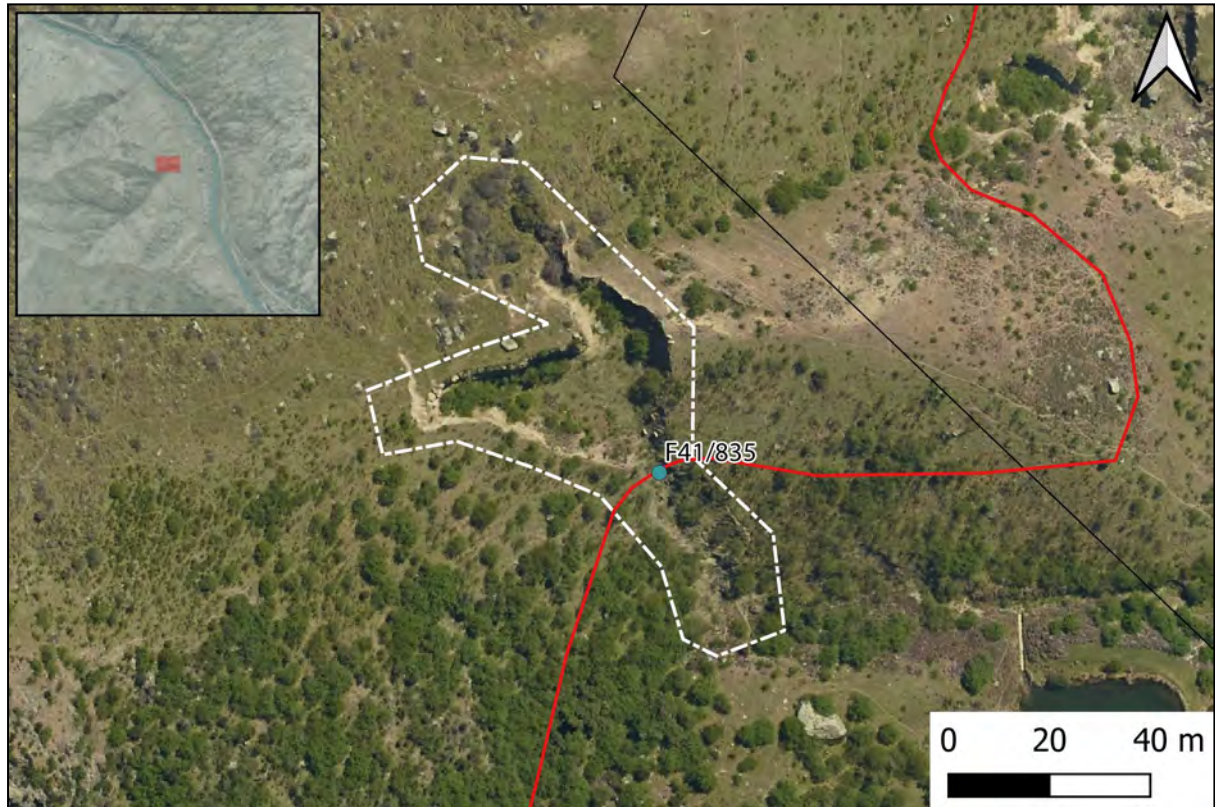


Figure 135 F41/835; the white dashed line indicates the approximate site boundary.

### Modern Dam

Large dam built following the Kawarau surveys of the 1970s-80s. Presumably constructed for the Goldfields Mining Centre attractions. Currently in use.

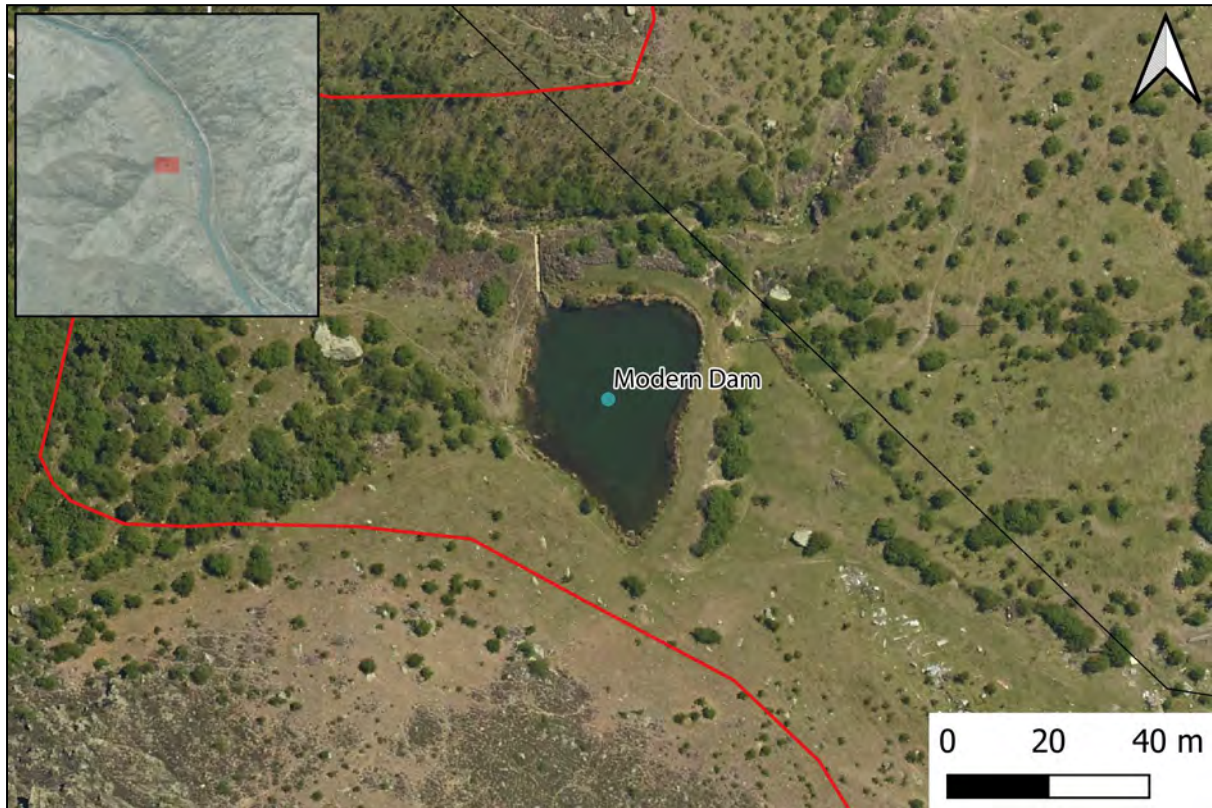


Figure 136. Modern dam.



Goldfields Mining Centre

Origin Ref: Nil

Outside of Trail Extents.

Mining tourist park encompassing a wide range of sites associated with gold mining along the area known as Gee's Flat.<sup>2</sup>

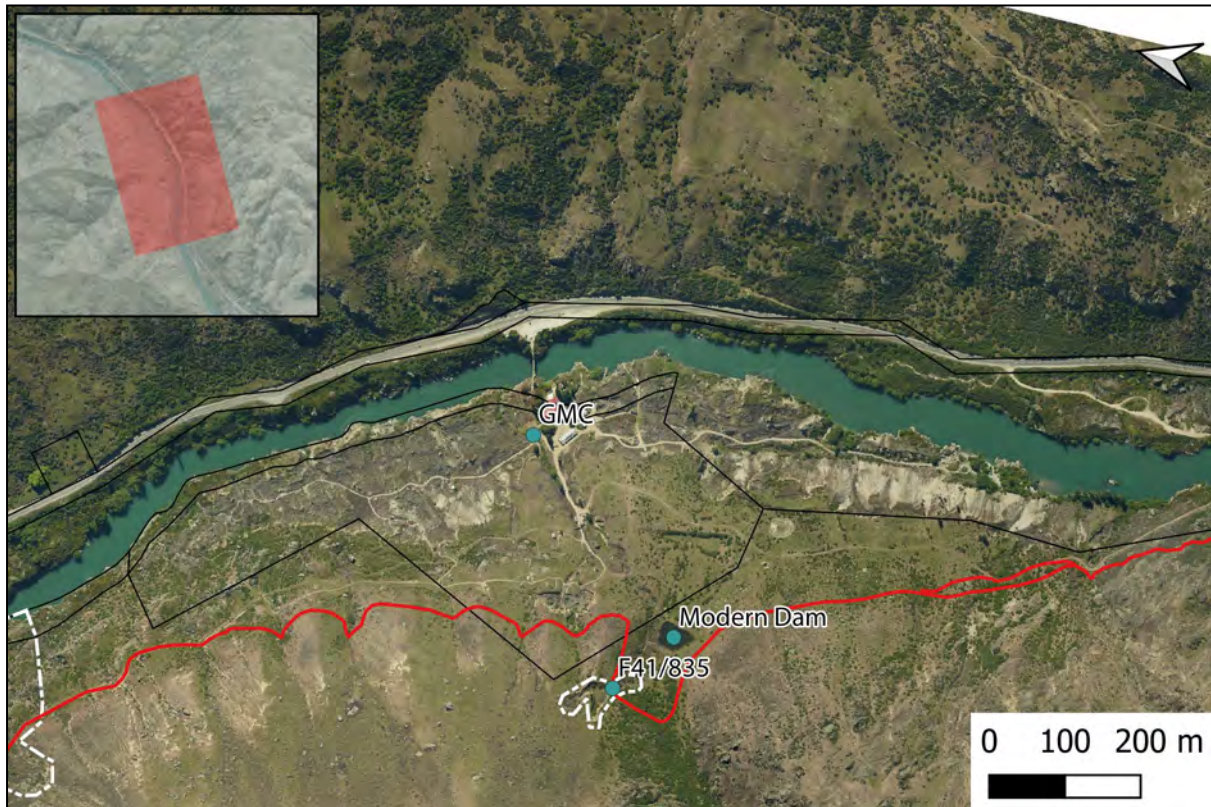


Figure 137. The Goldfields Mining Centre.



Figure 138. Goldfields Mining Centre; looking south-east over the park from the trail route. The red roofed building at the right of the image is the visitor centre at the centre of the park.

<sup>2</sup> F41/101, F41/102, F41/104-F41/106, F41/108-F41/112, F41/115-F41/119, F41/445, F41/120-F41/127, F41/130, F41/136, F41/409, F41/410, F41/418-F41/420, and F41/428



F41/251 - Water Race

Origin Ref: 053

Impacted site.

Diverts off the upper reaches of walkers creek and runs steeply down the hillside in a metal flume pipe. Formally conveyed water across the Kawarau in a suspended pipeline. Likely a 20<sup>th</sup> century site.



Figure 139. F41/251; the white dotted line marks a water race segment.



Figure 140. F41/251; the exposed lower end of the flume pipe.



#### F41/456 – Sluicings and Tailings

Origin Ref: 052

Impacted site.

Extensive area of ground sluicing characterised by stacked tailings. Some very well preserved herringbone structures are present among the workings. Overall, these remains are greatly reduced from their original size; historic aerial photographs show that dredging work in the late 20th century cut significantly into the riverbank. The construction of a house in the centre of the site has destroyed a further element.

One route option will see the trail running through the site. A portion of this route will run along an existing 4WD track, but other portions will have localised impact on some tailings features and sluice faces. However, in consultation with the archaeologists, the current trail route avoids features where possible and completely avoids the best preserved elements of the site.

Of the two possible routes through the site that have been provided to Origin (dated 13 May 2019), the north-eastern-most option is preferred. Should a route through the archaeological site be chosen, contractors must take care to follow the marked trail closely and avoid damaging any features in the immediate vicinity.

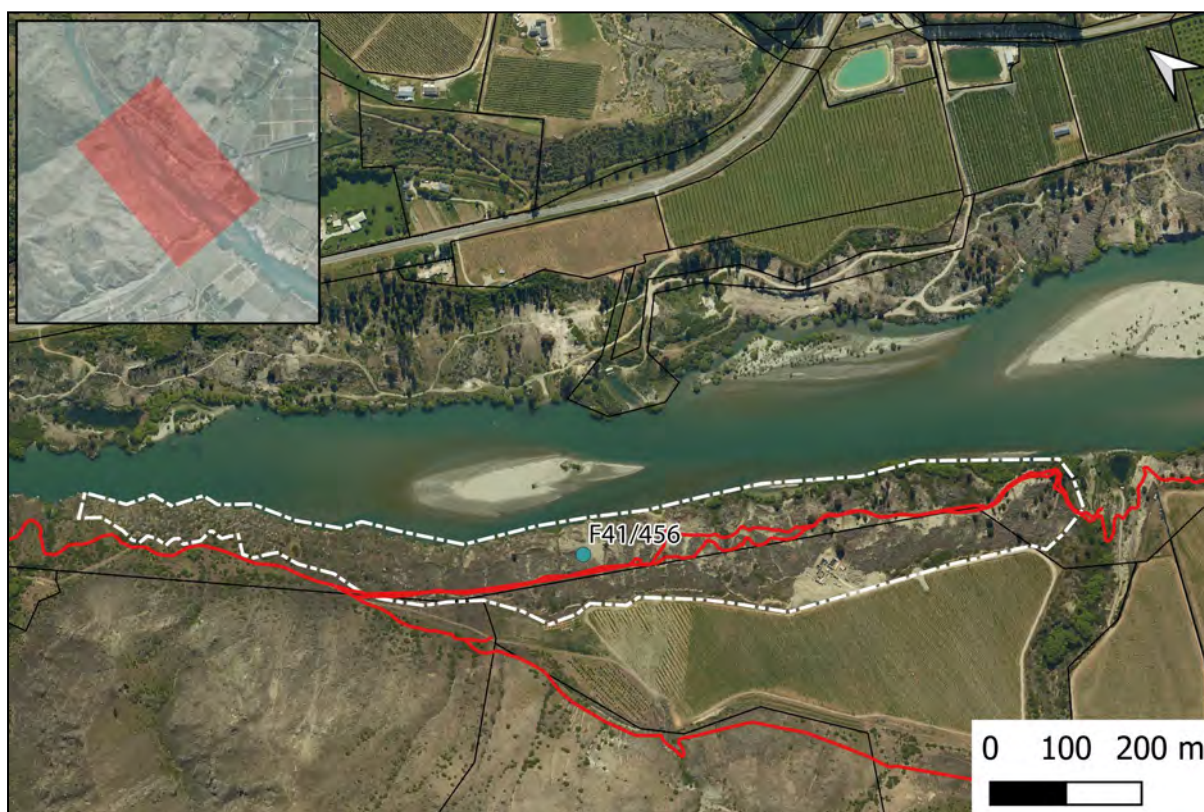


Figure 141. F41/456; the white dashed line indicates the approximate site boundaries.





Figure 142. F41/456; looking south-east adjacent to the house at the centre of the site. The trail route runs from the pine trees at the left of the image.



Figure 143. F41/456; looking north-east over tailings from the trail route close to the centre of the site.





Figure 144. F41/456; looking south-east along a section of the trail route through the site. The trail will pass over the slued ridge to the right of the image.



Figure 145. F41/456; looking north-west along a section of the trail route through the site. The trail will run along the small ridge at the centre left of the image, avoiding the well-preserved tailings to the right of the image.

## Archaeological and Other Values

### Archaeological Values

Six main criteria have been used for assessing the archaeological values of the sites along the Kawarau Gorge Cycle Trail. These are:

- Condition – the physical condition of the site and any associated features.
- Rarity/Uniqueness – the degree of rarity of the site within its immediate and/or wider contexts.
- Contextual value – the contribution of the site to its broader contextual situation (e.g. cultural, local, and archaeological contexts).
- Information potential – the potential for additional information to be recovered by archaeological means and its nature.
- Amenity value – the potential contribution of the site as a local amenity.
- Cultural associations – the cultural associations of the site.

For practical reasons, the archaeological value of the sites along the cycle trail route are assessed collectively as a coherent archaeological landscape.

Table 2. Assessment of archaeological values.

Site	Value	Assessment
Kawarau Gorge, Various legal descriptions (see Introduction)	Condition	<p>The majority of the sites along the Kawarau are in fair to good condition. Because the true right bank of the Kawarau is reasonably inaccessible most sites have remained unaffected by later developments and human activity.</p> <p>Natural processes have had the largest negative impact on the preservation of sites. Over time, most of the area has been covered with dense scrub which has taken root in and around the various sluicings, tailings, dams, and occupation sites.</p> <p>Assessment – Good-Fair</p>
	Rarity/ Uniqueness	<p>The sort of goldmining features found along the trail route – sluicings, tailings, miners' dams, and associated occupation sites are common around central Otago.</p> <p>However, collectively the sites along the Kawarau represent a remarkably intact mining landscape, preserved by their relative isolation following the mining period, and mostly unaffected by later development unlike other areas such as the Cromwell Gorge or the areas around Cardrona, Clyde, and Queenstown.</p> <p>Assessment – High</p>
	Contextual value	<p>As implied above, a key aspect of the sites along the Kawarau gorge is their contextual value as an intact mining landscape.</p> <p>Independently most sites are unexceptional, but together they have a high value.</p> <p>Assessment – High</p>
	Information potential	<p>The sites along the Kawarau have a high potential for providing information into the early goldmining practices and the lives of those carried out the mining. The high number of sites available, and their relatively good level of preservation makes them an attractive target for future analysis.</p>



Site	Value	Assessment
		It is also possible that material relating to early Māori occupation could be uncovered at Colquhoun's flat. However, this area has been extensively modified by 20 <sup>th</sup> century mining operations Assessment - High
	Amenity value	While many features are covered by scrub, the visible remains of the sluicings, tailings, dams and – especially – stone buildings are striking reminders of the area's mining history. Assessment – High
	Cultural associations	The area is associated with early Maori occupation (at Colquhoun's flat) and 19 <sup>th</sup> century European and Chinese miners. Assessment – Māori, European, and Chinese.

## Other Heritage Values

### Protected vs. Unprotected Archaeological Sites

It should be noted that elements of some sites may date to after 1900, and are therefore not protected under the HNZPT 2014 Act (see Statutory Requirements above). One example of this is Cleghorn's Hut and Workings (F41/429).<sup>3</sup> Ritchie's 1983 report notes that the hut was last occupied in the 1960s and appears to imply that the hut and some of the surrounding sluicings dated from that period.

However, in this instance, Origin Consultants suggest that these features are treated the same as the other earlier sites and preserved where possible. This advice is given for the following reasons:

- while not protected, post-1900 sites still have archaeological value, especially within the context of the archaeological landscape along the Kawarau river;
- features like Cleghorn's hut also have a significant heritage value that warrants their preservation; and
- it is impossible to be certain about the age of many archaeological features and it is appropriate to err on the side of caution to avoid unnecessary and potentially illegal damage to pre-1900 sites.

### Heritage Values

Though the range of archaeological sites present along the route can be appreciated as having heritage value, no sites have been either recorded in the HNZPT List or protected in the Queenstown Lakes District Plan (both operative and proposed) and the Central Otago District Plan.<sup>4</sup>

Accordingly, under the Resource Management Act 1991, the cycle trail is not expected to have resource consent requirements relating to heritage.

### Building Preservation

The remaining historic huts and ruins along the route have been preserved largely because of their isolation. Visitor interaction with these structures following construction of the cycleway will likely result in increased wear and tear on these buildings. There are also potential safety concerns as unstable stone walls have the potential to collapse on visitors.

<sup>3</sup> Another is the water race at F41/251.

<sup>4</sup> The route of the cycle trail straddles the District Council boundaries.

A condition assessment and conservation advice would be useful for some key buildings, and it is recommended that the Central Otago Queenstown Trails Network Trust liaises with HNZPT about strategies to ensure the ongoing preservation of the structures along the route.

Tangata Whenua

Colquhoun's Flat was formally a Māori camping site (F41/455) adjacent to the natural bridge across the Kawarau (F41/164), on the travel route from Southland up to settlements at Lake Hawea and beyond. Part of this area was set aside as the Whatatōrere Historic Reserve as part of the Ngāi Tahu Claims Settlement Act 1998 (Section 156), recognising its heritage value and interest to local runaka. Their input will be required for the trail design and construction work in and around this reserve.

Though this area appears to have been severely damaged by modern (1980s) mining activity, there remains the potential for works to encounter Māori material.



## Assessment of Effects

### Proposed Site Works

#### General Description

The trail will be formed to between 2-3m in width with grades between 0-4 degrees for 95% of the trail length. The trail will be surfaced with local Bannockburn gravels to create a smooth and even riding surface.

#### Construction Overview

The trail will be constructed using conventional roading machinery including excavators up to 20T, trucks, rollers, and pozi track graders. The construction will generally involve side casting of cut material with the trail bench being formed from a combination of cut and fill on slopes up to 20 degrees and being fully cut on slopes over 20 degrees. In areas where the terrain is more challenging, smaller excavators up to 8T zero-swing will be stipulated to keep the trail formation to a minimum. Some areas may be constructed using a 1.5t excavator due to the limited access or where an alternative bypass for heavier construction equipment exists (e.g. an established 4X4 track).

The trail will be built around a number of rocky bluffs in the Kawarau Gorge. These will mostly be negotiated using drilling and blasting the rock or using vibrating rippers to create a solid bench. Where the features are nearer vertical and significant in length, structures that span the rock faces will be used creating minimal impact to the rock faces.

Most of the excavation cut faces will be self-supporting and require no retaining. However, on some lower sections of the Kawarau Gorge nearer to Bannockburn, short sections along river gravels will require timber retaining on one or both of the upper and lower batters.

In sensitive areas, for example, near historic sites, attention is given to the side-cast material and where required this is transported to another location, minimising the impact to either side of the immediate trail. Suitable locations for construction marshalling and stock piling of material (if required) are identified and agreed with construction contractors.

Once the trail formation has been cut and shaped to provide the flow of the trail, the surface gravels will be imported to the site and spread using small tip trucks and compacted. Due to the limited access, it is anticipated that a log hauler will be used to transfer gravel across the river at certain locations.

The construction will begin from locations that can be easily accessed. For the Kawarau Gorge this is from the Bannockburn end and Sam's Flat (6km upstream from Roaring Meg).

Bridges will be constructed across the Kawarau Gorge in two locations and where required to bridge either bluffs or across deeply incised gullies. These will mostly be suspension design and will be installed once the main excavation is complete. The bridges will be built of timber, steel, and wire cabling.

Typical trail profiles are shown in Figure 146 and Figure 147. Further examples can be found in Appendix C.

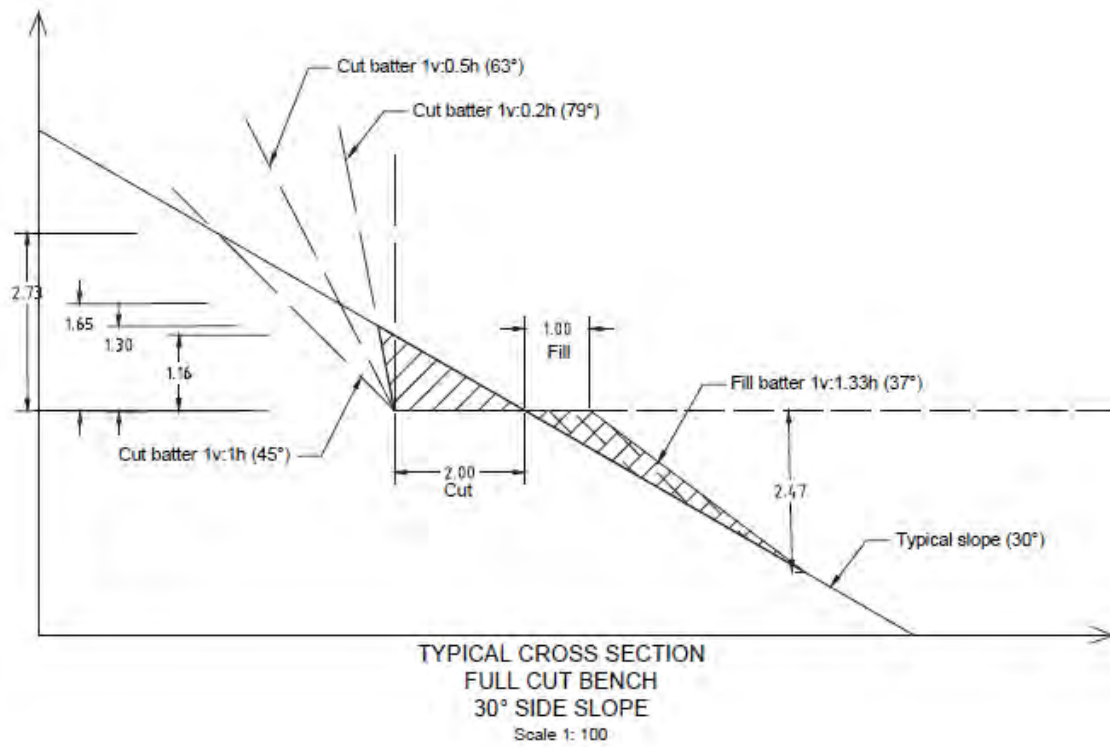


Figure 146. Cross section for 3m wide trail (Southern Land).

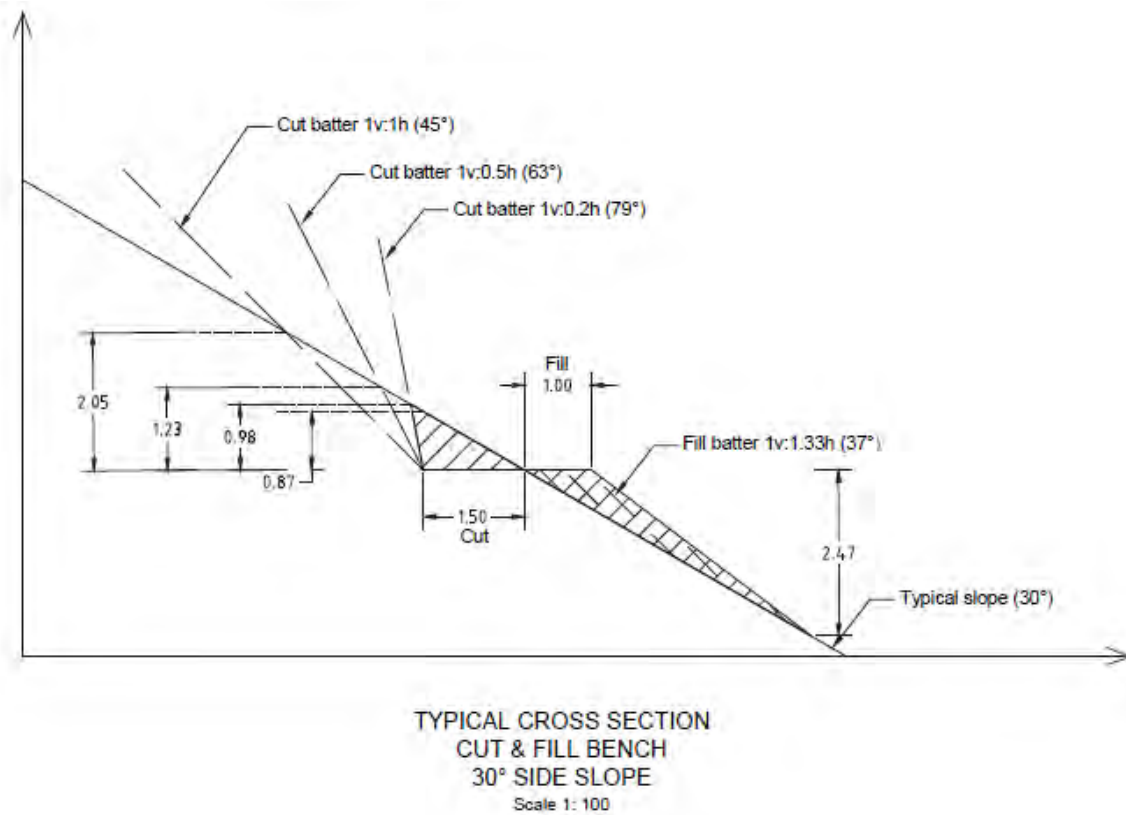


Figure 147. Cross section for 2.5m wide trail (Southern Land).



## Effects of the Proposed Works

Of the 52 sites recorded along the trail route, 18 are located outside of trail extents, 16 are in close proximity to the trail, and 18 will be impacted by the present trail route. The relation of each site to the trail route is identified above in the survey results and again below in the concluding section (Table 3).

It should be noted that the high proportion of impacted sites and sites in close proximity to the trail is product of the archaeological survey focusing on the trail route. Many more sites have been previously recorded along the Kawarau River that were well outside the trail extents, but were not surveyed.

Trail construction will damage some archaeological features along the course of the trail route. With the current route this will mainly involve cutting through sluicings and tailings to create the trail bench. Side-cast excavation spoil, fill embankments, and fill trail platforms also have the potential to impact these features. There is the potential that dam earthworks may also be impacted by these works.

While occasionally in close proximity to the trail, the stone structures and other huts are not expected to be impacted.

It is possible that subsurface features like European rubbish pits or Māori ovens will be encountered along the route, but this is thought unlikely considering the reasonably limited area that will be impacted by trail excavations, the low historic population density of the area, and the fact that occupants likely disposed of most refuse into the river.

It should also be noted that in several instances the trail is routed through or close to an archaeological site not for practical reasons, but to better showcase important elements of the archaeological landscape of the Kawarau Gorge. In these instances, the limited impact of the trail route is assessed as being outweighed by the way the trail route celebrates sites amenity value and fosters greater public engagement with the area's archaeological heritage.

## Alternative Options

From the beginning the trail design has been open to altering the route to both showcase archaeological sites and avoid damage as much as is practicable. Based on advice from Origin Consultants, some route alterations to avoid archaeological sites and features have already taken place.

Future alterations to better preserve and display the site's archaeology are possible in the future as plans progress.

## Site Management

Site management recommendations are mostly covered in the concluding section below.

One major concern is the preservation of the dams and stone structures at sites F41/828 and F41/829. These sites are located immediately adjacent to the 4WD access to Sam's Flat via Mt Difficulty Station. Though they will not be impacted by the trail route, care should be taken to avoid these sites when moving and marshalling the trail-building machinery.

## Conclusion and Recommendations

### Summary

This report provides an overview of the history and archaeology at and around the proposed cycle trail route along the Kawarau Gorge. It offers an assessment of the area's archaeological values and the impacts of the proposed development.

Early Māori are known to have been present gathering mahinga kai around the Kawarau River and numerous temporary camps were likely established throughout the gorge over its long human history. Later accounts note the locale as being a kāinga mahinga kai and part of a communication route between Southland and the Wanaka/Hawea area.

Following the arrival of Europeans the gorge was incorporated into pastoral runs, and later mined extensively for gold. The 1860s saw the most intensive and period of mining, but later dredging and intermittent mining along the Kawarau carried on until at least the late 1980s. Alongside this mining, agricultural development continued in the background, the most notable example being the Cromwell Development Company's Kawarau irrigation scheme.

A large number of archaeological sites have been previously identified in the vicinity of the proposed trail route. Most of these were identified by Ritchie's extensive surveys throughout the late 1970s-early 1980s. Several new sites have also been recorded and others revisited by archaeologists from the mid-1990s onwards.

The constraints of this assessment include the difficulty of establishing a detailed history, the terrain of the assessment area, the inaccuracy of prior records, and the fact that intrusive investigation was not undertaken.

An archaeological survey of the proposed trail route was carried out in April and May 2019, and identified 41 sites. Of these, 29 had been previously recorded and a further 23 are newly identified. Almost all of the sites are either sluicings, tailings, dams, or stone structures.

Based on this survey, the previous archaeological work, and the history of the area, the archaeological landscape the trail passes through is assessed as having mostly high archaeological values and being associated with Māori, European, and Chinese cultural groups.

Though there are no heritage items protected under the Resource Management Act 1991, and some sites also may be post-1900 and not be protected under the HNZPT Act 2014, it is still recognised that the archaeological landscape that the trail passes through has heritage significance and protection is suggested where possible. The Whatatōrere Historic Reserve at Colquhoun's Flat will also be of interest to local runaka.

### Recommendations

Based on the proposed trail route and development plans, Origin Consultants make the following recommendations:

- Considering that works will impact multiple archaeological sites an archaeological authority under Section 44 of the Heritage New Zealand Pouhere Taonga Act (2014) should be obtained from Heritage New Zealand prior to excavation beginning.
- As well as the specific impacted sites, this authority should cover excavations of all of the assessed area in case other archaeological sites not previously identified are encountered during works.
- Local runaka should be consulted for advice on the Kawarau Gorge's Māori archaeological and cultural values, considering the presence of the Whatatōrere Historic Reserve at Colquhoun's Flat as well as the landscape's wider importance in Otago's Māori history.
- As a first principle, the trail route and its associated earthworks should avoid sites and site areas where possible and/or appropriate.



- Before work begins that will **impact a site** or occur within **close proximity to a site** identified by the archaeological survey (coloured red or yellow respectively in Table 3), the approved archaeologist must mark out on the ground site boundaries and/or significant archaeological features that must be avoided.
- Spoil from excavations must not be deposited inside archaeological site areas, or deposited within 10m of archaeological sites and site boundaries, except for where it is necessary to form the minimum necessary trail bench.
- If trail construction will damage or modify an archaeological site, this site must be recorded using appropriate archaeological standards by the approved archaeologist beforehand and the effects of the construction work on the site identified on the site record form.
- All contractors involved in the proposed excavation should be briefed on the presence of archaeological sites along the route, the extent of these sites, how they can be identified, and the above approaches for avoiding/mitigating damage to these sites.
- If contractors encounter subsurface archaeological material then they should immediately contact the approved archaeologist and follow HZNPT's Archaeological Discovery Protocol (Appendix B).
- A contractor briefing document should be prepared to help facilitate the previous two recommendations.
- Further specific advice for each site is offered in Table 3 below.
- If at any stage during site works pre-European (Māori) material is discovered, Heritage New Zealand should be consulted in the first instance. There are historic recordings of isolated Māori features and material culture in the wider area, but it is unlikely the proposed works will encounter any such items. If pre-European material is encountered during works, then all work is to cease immediately with a 20m exclusion zone established around the find, with damage to any material minimised or avoided. Once HNZPT has been contacted, they will advise on the best way to proceed. Any pre-European artefacts will be, prima facie, property of the Crown and will be submitted to the appropriate institutions.

Table 3. Site-specific recommendations.

Site No.	Site Name	Status and recommendations
F41/ F41/212, F41/213, F41/214	Miners' Dam, Hut, and Rockshelter	Archaeologist to inspect the area prior to works commencing and advise on approach.
F41/211	Sluicings and Tailings	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/840	Shaft?	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/210	Sluicings and Tailings	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/839	Earthworks and Water Race	Located outside trail extents. Care should be taken to avoid these sites when moving and marshalling the trail-building machinery via the nearby access point from SH6.
F41/195	Victoria Hotel Site	Located outside trail extents. Given the absence of above ground features it is ok to use the site for marshalling machinery. However, to avoid any subsurface remains, there should be no excavation here.

F41/196	Sluicings and Tailings	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/458	Sluicings	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/837	Reservoir and Water Race	Impacted site. Archaeologist to record impacted water race segment before and after trail construction.
F41/836	Dam	Impacted site. Archaeologist to record before and after trail construction. Or reroute trail to the north to avoid feature if possible.
F41/817	Machine Workings	Located outside trail extents. Avoid.
F41/206	Stone Hut	Close proximity to trail. Avoid; archaeologist to mark on site. Options exist for the trail to pass above or below the hut. The route below – following the existing quad bike track – is preferred.
F41/838	Sluicings	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/202	Edward's Ferry Hotel	Located outside trail extents. Avoid.
F41/174	Earthworks/Dam?	Close proximity to trail. Avoid; archaeologist to mark edge of feature on site. Re-route trail further away if possible.
F41/197	Miners' Hamlet	Close proximity to trail. Exact location unclear, archaeologist to inspect vicinity prior to works passing through. If located, avoid; archaeologist to mark on site.
F41/818	Occupation Site	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/819	Shaft?	Impacted site. Archaeologist to record before and after trail construction.
F41/820	Modern Road Revetment	Modern feature. No management necessary.
F41/173	Sluicings, Tailings, and Channel	Impacted site. Archaeologist to record before and after trail construction.
F41/821	Dams and Race	Impacted site. Archaeologist to record before and after trail construction. If possible, the route uppermost portion of the trail switchback should be shifted further westwards (towards the road) to avoid the dams.
F41/822	Sluicings and Tailings	Impacted site. Archaeologist to record before and after trail construction.
F41/823	Stone Structure	Close proximity to trail. Avoid; archaeologist to mark on site.
F41/824	Stone Hut	Located outside trail extents. Avoid.



F41/825	Dam	Close proximity to trail. Avoid; archaeologist to mark on site. If possible, the route should be shifted slightly westward (towards the river) to better avoid the dam wall.
F41/826	Sluicings and Tailings	Impacted site. Archaeologist to record before and after trail construction.
F41/432	Sluicings and Tailings	Close proximity to trail. Avoid; archaeologist to mark edge of area on site. The route should be moved further eastwards (towards Mt Difficulty) to better avoid this site.
F41/433	Rabbiters' Huts	Close proximity to trail. Avoid.
F41/828	Dam	Located outside trail extents. Care should be taken to avoid these sites when moving and marshalling the trail-building machinery via the adjacent Mt Difficulty 4WD track.
F41/829	Stone Structure	Located outside trail extents. Care should be taken to avoid these sites when moving and marshalling the trail-building machinery via the adjacent Mt Difficulty 4WD track.
F41/827	Sluicings and Tailings	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works.
F41/830	Sluicings	Impacted site. Archaeologist to record before and after trail construction.
F41/175	Stone House	Located outside trail extents. Avoid.
F41/261	Sluicings and Tailings	Close proximity to trail. Avoid; archaeologist to mark edge of area on site. If possible, the route should be moved further southwards (towards Mt Difficulty) to ensure the sluice faces are not impacted.
F41/170, F41/171, F41/172	Rockshelter and Miners Dams	Archaeologist to inspect the area prior to works commencing and advise on approach.
F41/167	Dam	Previously destroyed.
F41/164	Natural Bridge	Located outside trail extents. Avoid.
F41/455	Whatatōrere/Colquhoun's Flat	Impacted site. Though no archaeological features relating to this site are immediately evident any excavations within Section 12 SO 485617 should be monitored by the archaeologist because of the site's sensitivity.
F41/158	Dam	Impacted site. Archaeologist to record before and after trail construction. The southern route option to the rear of the dam is preferred.
F41/161	Sluicings and Tailings	Located outside trail extents. Avoid.
F41/831	Tailings	Located outside trail extents. Avoid.

F41/832	Cableway	Located outside trail extents. Avoid.
F41/429	Cleghorn's Hut and Workings	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works. Note: A 30m-40m deep mine shaft was historically recorded in the vicinity of this site but was unable to be relocated during the survey. Contractors must be made aware of this as a health and safety risk.
F41/154	Sluicings and Tailings	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works. Note: A 30m-40m deep mine shaft was historically recorded in the vicinity of this site but was unable to be relocated during the survey. Contractors must be made aware of this as a health and safety risk.
F41/151	Sluicings and Tailings	Located outside trail extents. Avoid.
F41/145	Dams	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works.
F41/833	Sluicings	Located outside trail extents. Avoid.
F41/141	Dam and Race	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works.
F41/834	Sluicings	Located outside trail extents. Avoid.
N/A	Possible Shaft?	Close proximity to trail. Archaeologist to investigate/record during trail construction.
F41/139	Sluicings and Tailings	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works.
F41/134	Ritchie's House	Close proximity to trail. Avoid.
F41/835	Sluicings	Located outside trail extents. Avoid.
N/A	Modern Dam	Modern feature. No management necessary.
N/A	Goldfields Mining Centre	Located outside of trail extents. Avoid the sites associated with this park.
F41/251	Water Race	Impacted site. Archaeologist to record before and after trail construction.
F41/456	Sluicings and Tailings	Impacted site. Archaeologist to record before and after trail construction, and mark important features to avoid during works.



## References

- Hamel, J. (1991). Gold Mining at Criffel and Roaring Meg. Unpublished report for the Department of Conservation.
- Hamel, J. (1996). Mt Difficulty Revisited: An Archaeological Assessment. Unpublished report for the Department of Conservation.
- Hamel, J. (2001). *The Archaeology of Otago*. Department of Conservation.
- Heritage New Zealand. (n.d.). Kawarau Station Homestead and Woolshed. Retrieved May 23, 2019, from <http://www.heritage.org.nz/the-list/details/7619>
- Parcell, J. C. (1976). *The Heart of the Desert: A History of the Cromwell and Bannockburn Districts, Central Otago*. Christchurch: Whitcombs.
- Petchey, P. G. (1999). Victoria Flats Sanitary Landfill: Archaeological Survey. Unpublished report for Queenstown Lakes District Council.
- Ritchie, N. A. (1983). Kawarau River Valley Archaeological Survey. Unpublished report for the New Zealand Historic Places Trust.
- Ritchie, N. A. (1989). The Clutha Archaeological Project, 1977-1987: A Summary Report. Unpublished report for the New Zealand Historic Places Trust.
- Ritchie, N. A. (1990). The Clutha Valley Archaeological Project, 1977-1987: A Summary Report. *Archaeology in New Zealand*, 33(1), 4–20.
- Sinclair, R. S. M. (1962). *Kawarau Gold*. Dunedin: Whitcombe and Tombs.
- Te Rūnanga o Ngā Tahu. (2019). Kawarau and Te Wai-o-Koroiko. Retrieved March 8, 2019, from <http://www.kahurumanu.co.nz/atlas>
- Wilmshurst, J. M., Anderson, A. J., Higham, T. F. G., & Worthy, T. H. (2008). Dating the late prehistoric dispersal of Polynesians to New Zealand using the commensal Pacific rat. *Proceedings of the National Academy of Sciences*, 105(22), 7676–7680.

## Appendix A – Site Record Forms

For previously recorded sites that will be impacted.





## Site Record Form

**NZAA SITE NUMBER:** F41/139

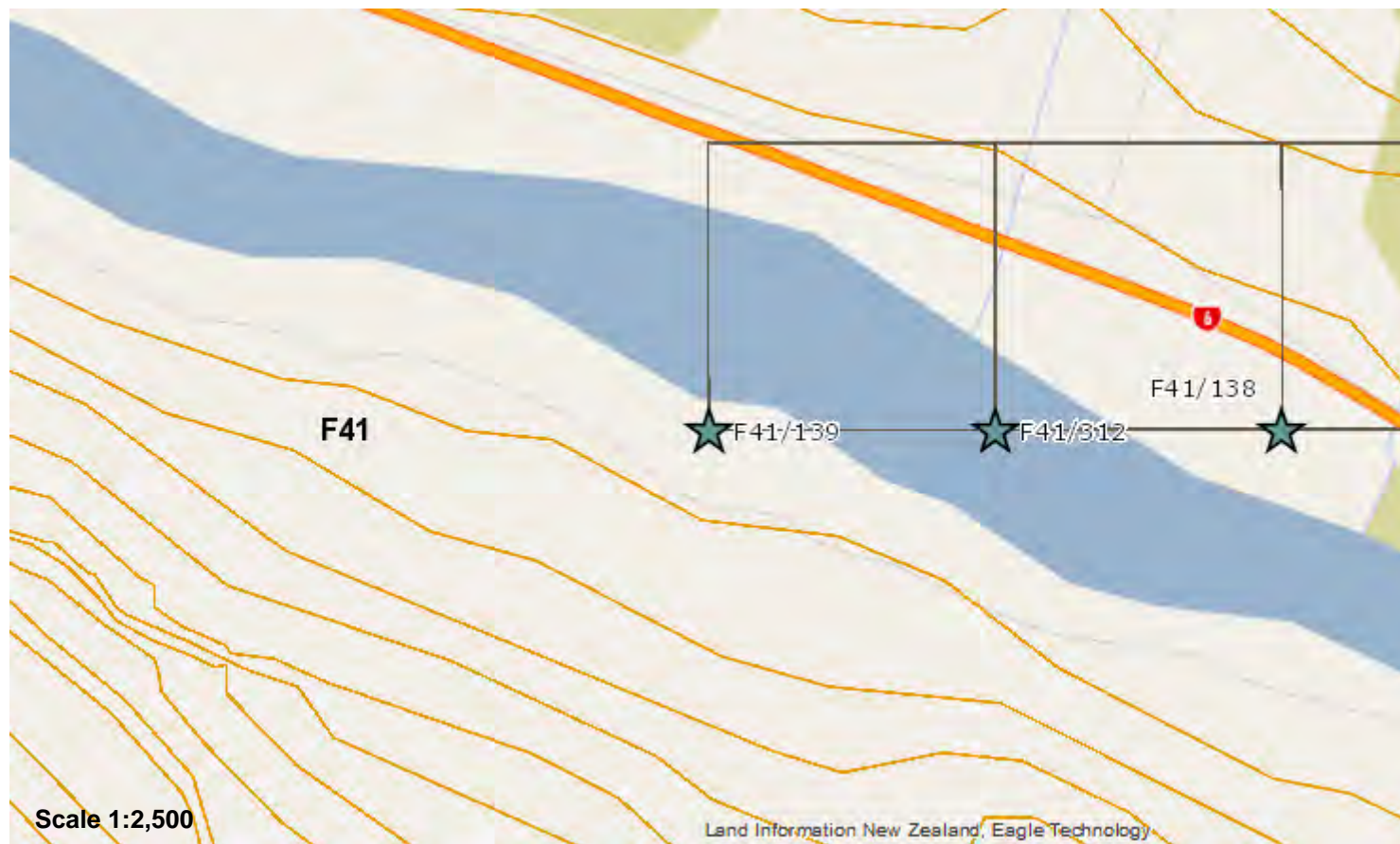
**SITE TYPE:** Mining - gold

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1293349

**Northing:** 5006351

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/490

**METRIC SITE NUMBER:** F41/139

**Finding aids to the location of the site**
**Brief description**

SLUICE TAILINGS

**Recorded features**

Tailings

**Other sites associated with this site**

SITE RECORD HISTORY	NZAA SITE NUMBER: F41/139
<div>Site description</div> <div>Condition of the site</div> <div>Statement of condition</div> <div>Current land use:</div> <div>Threats:</div>	



## SITE RECORD INVENTORY


NZAA SITE NUMBER: F41/139

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS 1 map number S133 NZMS 1 map name Cromwell NZMS 1 map edition 1st 1969		NZAA NZMS 1 SITE NUMBER <del>5133</del> /490 DATE VISITED May 1978 SITE TYPE Sluice tailings SITE NAME: MAORI OTHER			
Grid Reference		Easting	2 9 3 8 0 0	Northing	3 7 1 6 0 0
1. Aids to relocation of site (attach a sketch map) From c200m down river of the stone building, (known as the hotel although it does not appear to have actually been a hotel), to the northern end of the Hidden Valley tourist area, and upriver as far as opposite Rocky Creek.					
2. State of site and possible future damage Some briar grows amongst the tailings but they are otherwise little disturbed.					
3. Description of site (Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here) A complex of tailings and sludge channels. The tailings form rough herringbones in parts. Some hut remains are found within the tailings, including a substantial stone house, "the hotel".					
4. Owner		Tenant/Manager W. Telford Address Hidden Valley Goldmine			
5. Nature of information (hearsay, brief or extended visit, etc.) Kawarau survey Photographs (reference numbers, and where they are held) Aerial photographs (reference numbers, and clarity of site) SN 3821 E/9					
6. Reported by		NEVILLE A. RITCHIE		Filekeeper G. S. PARK	
Address		ARCHAEOLOGIST (N.Z.H.P.T.) CLUTHA VALLEY DEVELOPMENT CROMWELL		Date 12/78 ANTHROPOLOGIST OTAGO MUSEUM	
7. Key words		DUNEDIN, N.Z.			
sluice tailings, herringbone, stone huts					
8. New Zealand Register of Archaeological Sites (for office use) NZHPT Site Field Code					

C	T	Type of site	B	A	Present condition and future danger of destruction
A	K	Local environment today	A	A	Security code
-	-	Land classification	H	P	Local body





## Site Record Form

**NZAA SITE NUMBER:** F41/141

**SITE TYPE:** Industrial

**SITE NAME(s):**

**DATE RECORDED:**

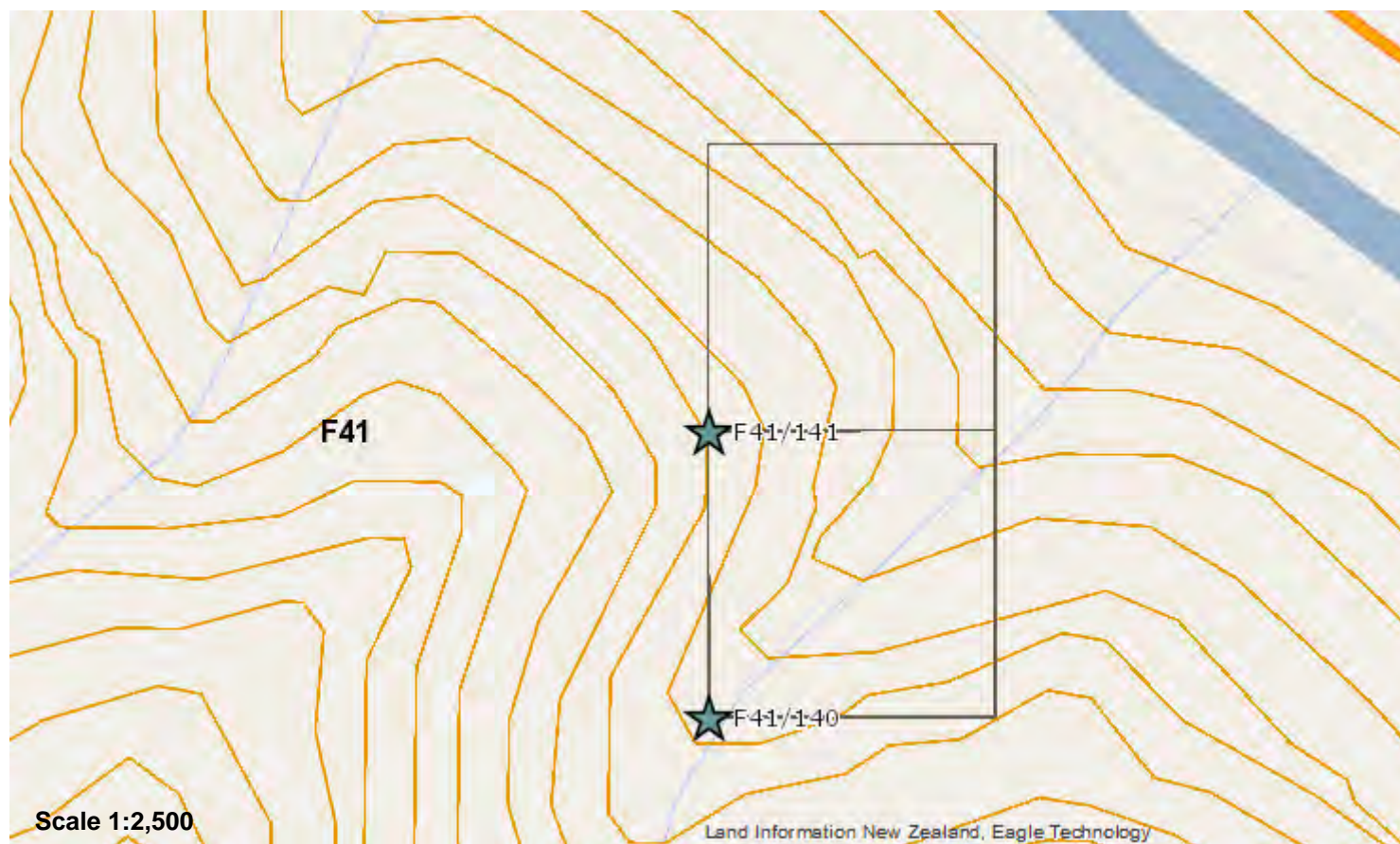
**SITE COORDINATES (NZTM) Easting:** 1292448

**Northing:** 5006650

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/492

**METRIC SITE NUMBER:** F41/141



**Finding aids to the location of the site**

**Brief description**

DAM

**Recorded features**

Dam

**Other sites associated with this site**




<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/141
<b>Site description</b>	
<b>Condition of the site</b>	
<b>Statement of condition</b>	
<b>Current land use:</b>	
<b>Threats:</b>	

## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/141

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS 1 map number S133 NZMS 1 map name Cromwell NZMS 1 map edition 1st 1969		NZAA NZMS 1 SITE NUMBER <b>5433/492</b> DATE VISITED May 1978 SITE TYPE Dam SITE NAME: MAORI OTHER															
Grid Reference		Easting	2 9 2 9 0 0	Northing	3 7 2 0 0 0												
1. Aids to relocation of site (attach a sketch map) On true right bank of Kawarau R., on terrace 50m NW of Cascade Stream.																	
2. State of site and possible future damage Good..																	
3. Description of site (Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here) Earth-walled dam with stone facings.. 30m long in a NW/SE direction.. Walls 2m wide on top.. Stone facing revetment up to 2m high on outer edge of retaining wall.. See attached site description form.																	
4. Owner W.. Felton Address Mt. Difficulty Station		Tenant/Manager Address															
5. Nature of information (hearsay, brief or extended visit, etc.) Kawarau survey Photographs (reference numbers, and where they are held) Aerial photographs (reference numbers, and clarity of site) SN 3821 E//6 Not visible..																	
6. Reported by Address		NEVILLE A RITCHIE ARCHAEOLOGIST (N.Z.H.P.T.) CLUTHA VALLEY DEVELOPMENT CROMWELL		Filekeeper Date 12/78 G. S. PARK ANTHROPOLOGIST OTAGO MUSEUM													
7. Key words dam, earth walls, stone revetment, water race		DUNEDIN, N.Z.															
8. New Zealand Register of Archaeological Sites (for office use) NZHPT Site Field Code																	
<table border="1"> <tr><td>G</td><td>C</td></tr> <tr><td>A</td><td>K</td></tr> <tr><td>A</td><td>C</td></tr> </table> Type of site Local environment today Land classification		G	C	A	K	A	C	<table border="1"> <tr><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td></tr> <tr><td>H</td><td>P</td></tr> </table> Present condition and future danger of destruction Security code Local body		B	B	A	A	H	P		
G	C																
A	K																
A	C																
B	B																
A	A																
H	P																



NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION SITE DESCRIPTION FORM		SITE NUMBER S133/492
Map Number S133	Map Name Cromwell	SITE NAME: MAORI OTHER
Map Edition NZMS 1:1st ed 1969	Grid Reference 929720	SITE TYPE Dam

(This form may be used for recording any descriptive information or other supplementary information on the site, or for maps and drawings.)



## Site Record Form

**NZAA SITE NUMBER:** F41/145

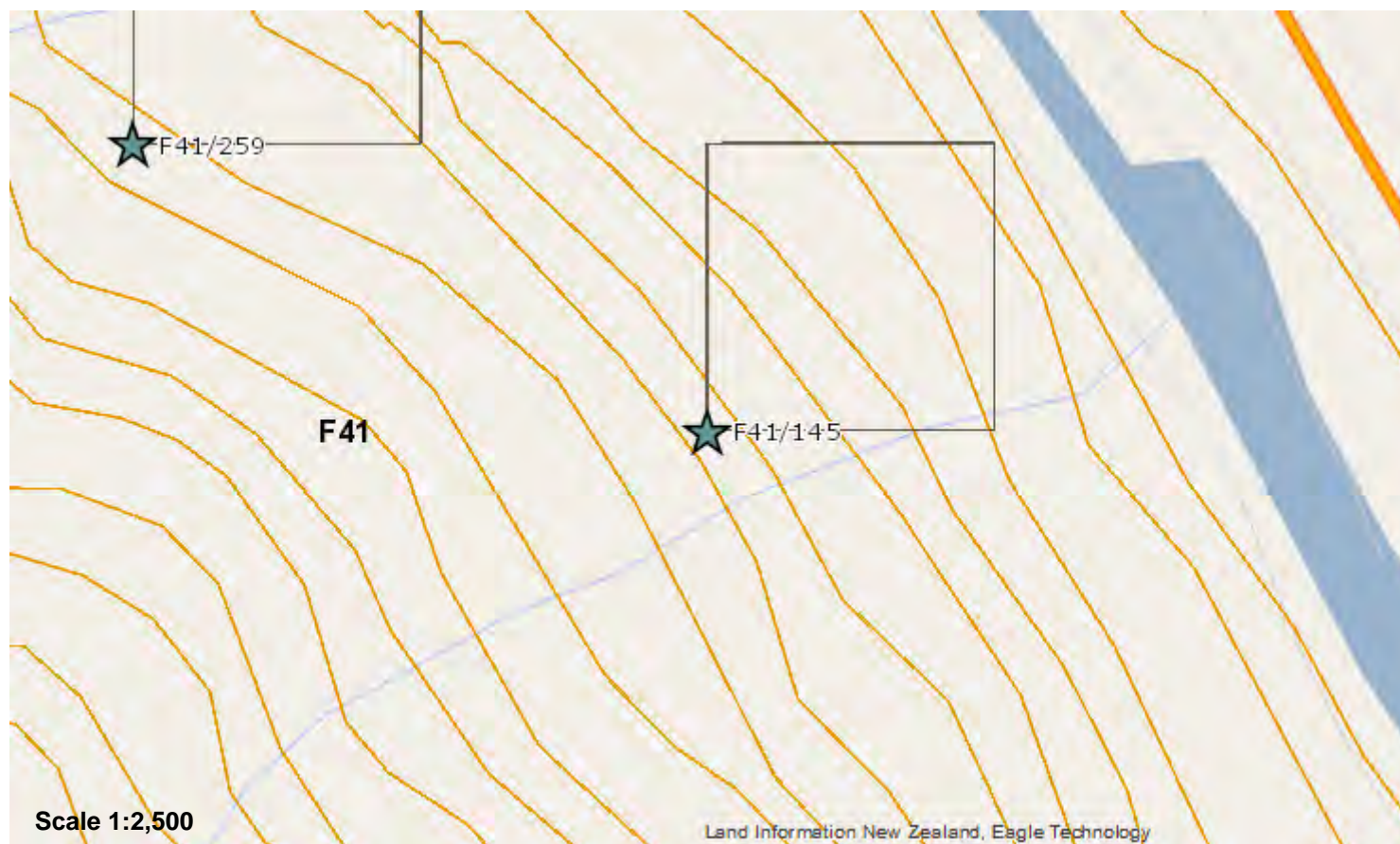
**SITE TYPE:** Industrial

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1291847

**Northing:** 5007450

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/496

**METRIC SITE NUMBER:** F41/145

**Finding aids to the location of the site**
**Brief description**

DAMS

**Recorded features**

Dam

**Other sites associated with this site**



<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/145
<b>Site description</b>	
<b>Condition of the site</b>	
<b>Statement of condition</b>	
<b>Current land use:</b>	
<b>Threats:</b>	

## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/145

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b>		NZAA NZMS 1 SITE NUMBER <b>5133/496</b>													
NZMS 1 map number <b>5133</b>		DATE VISITED <b>May 1978</b>													
NZMS 1 map name <b>Cromwell</b>		SITE TYPE <b>Dams/stone revetment</b>													
NZMS 1 map edition <b>1st 1969</b>		SITE NAME: <b>MAORI</b> <b>OTHER</b>													
Grid Reference		Easting <b>292200</b>	Northing <b>372900</b>												
1. Aids to relocation of site (attach a sketch map)															
On true right bank, opposite copse of young pine trees which are on river side of road at SE end of Goat Camp Creek carpark.															
2. State of site and possible future damage															
Condition of dams is good.															
3. Description of site (Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here)															
Two stone/earth dams and some revetment associated with what appears to be a track. See site description form.															
4. Owner <b>W. Felton</b>		Tenant/Manager													
Address <b>Mt Difficulty Station</b>		Address													
5. Nature of information (hearsay, brief or extended visit, etc.) <b>Kawarau survey</b>															
Photographs (reference numbers, and where they are held)															
Aerial photographs (reference numbers, and clarity of site) <b>SN3821 E/6</b>															
6. Reported by		Filekeeper													
Address <b>NEVILLE A. RITCHIE</b>		Date <b>12/78</b>													
<b>ARCHAEOLOGIST (N.Z.H.P.T.)</b>		<b>G. S. PARK</b>													
<b>CLUTHA VALLEY DEVELOPMENT</b>		<b>ANTHROPOLOGIST</b>													
<b>CROMWELL</b>		<b>OTAGO MUSEUM</b>													
7. Key words		<b>DUNEDIN, N.Z.</b>													
dam, stone-faced earth walls, track revetment															
8. New Zealand Register of Archaeological Sites (for office use)															
NZHPT Site Field Code															
<table border="1"> <tr><td>G</td><td>D</td></tr> <tr><td>A</td><td>K</td></tr> <tr><td>A</td><td>C</td></tr> </table>		G	D	A	K	A	C	<table border="1"> <tr><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td></tr> <tr><td>H</td><td>P</td></tr> </table>		B	B	A	A	H	P
G	D														
A	K														
A	C														
B	B														
A	A														
H	P														
Type of site		Present condition and future danger of destruction													
Local environment today		Security code													
Land classification		Local body													





NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION  
SITE DESCRIPTION FORM

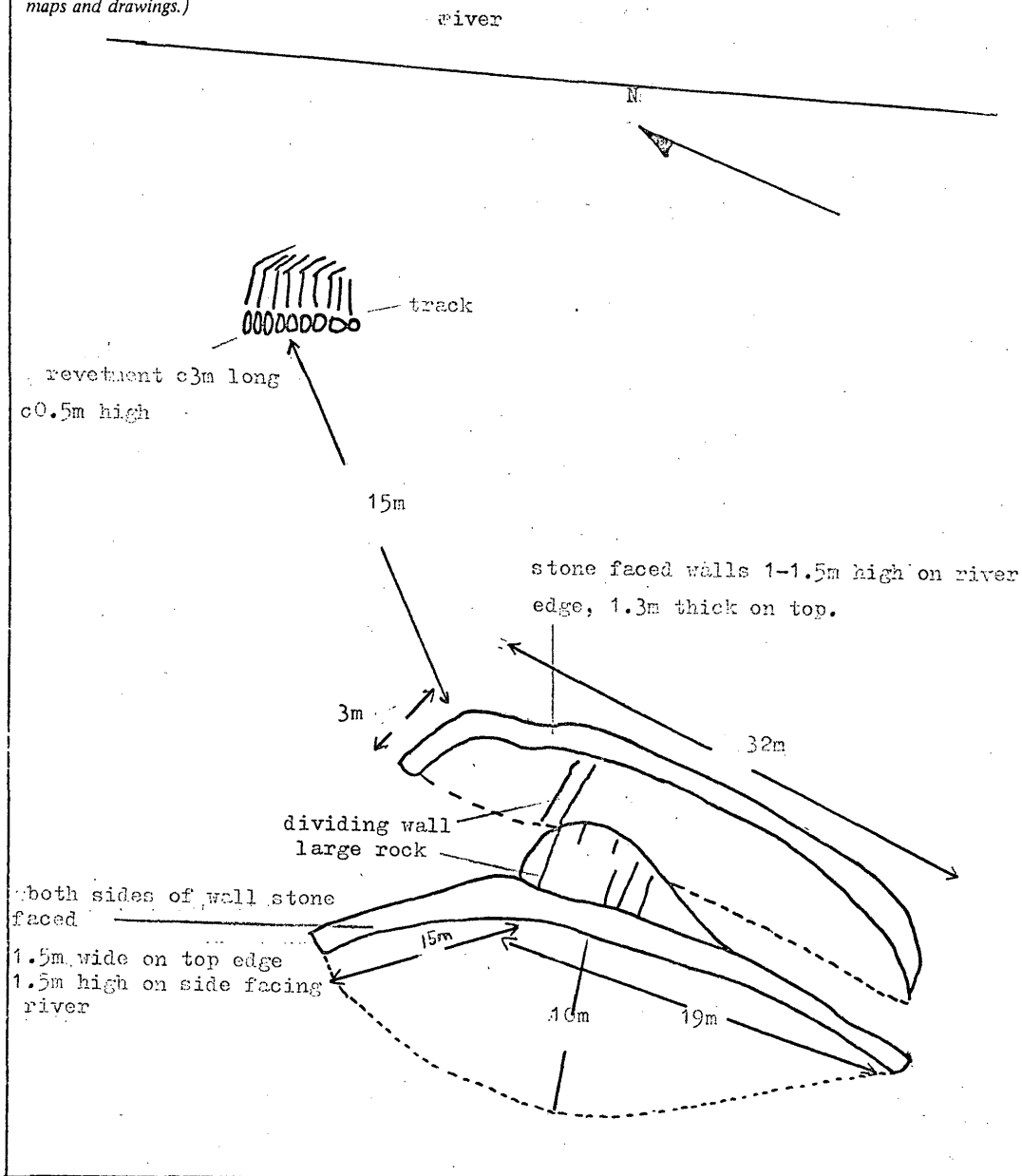
Map Number S133  
 Map Name Cromwell  
 Map Edition 1st ed 1969  
 Grid Reference 922729

SITE NUMBER S133/496

SITE NAME: MAORI  
 OTHER

SITE TYPE Dams and track revetment

(This form may be used for recording any descriptive information or other supplementary information on the site, or for maps and drawings.)





## Site Record Form

**NZAA SITE NUMBER:** F41/154

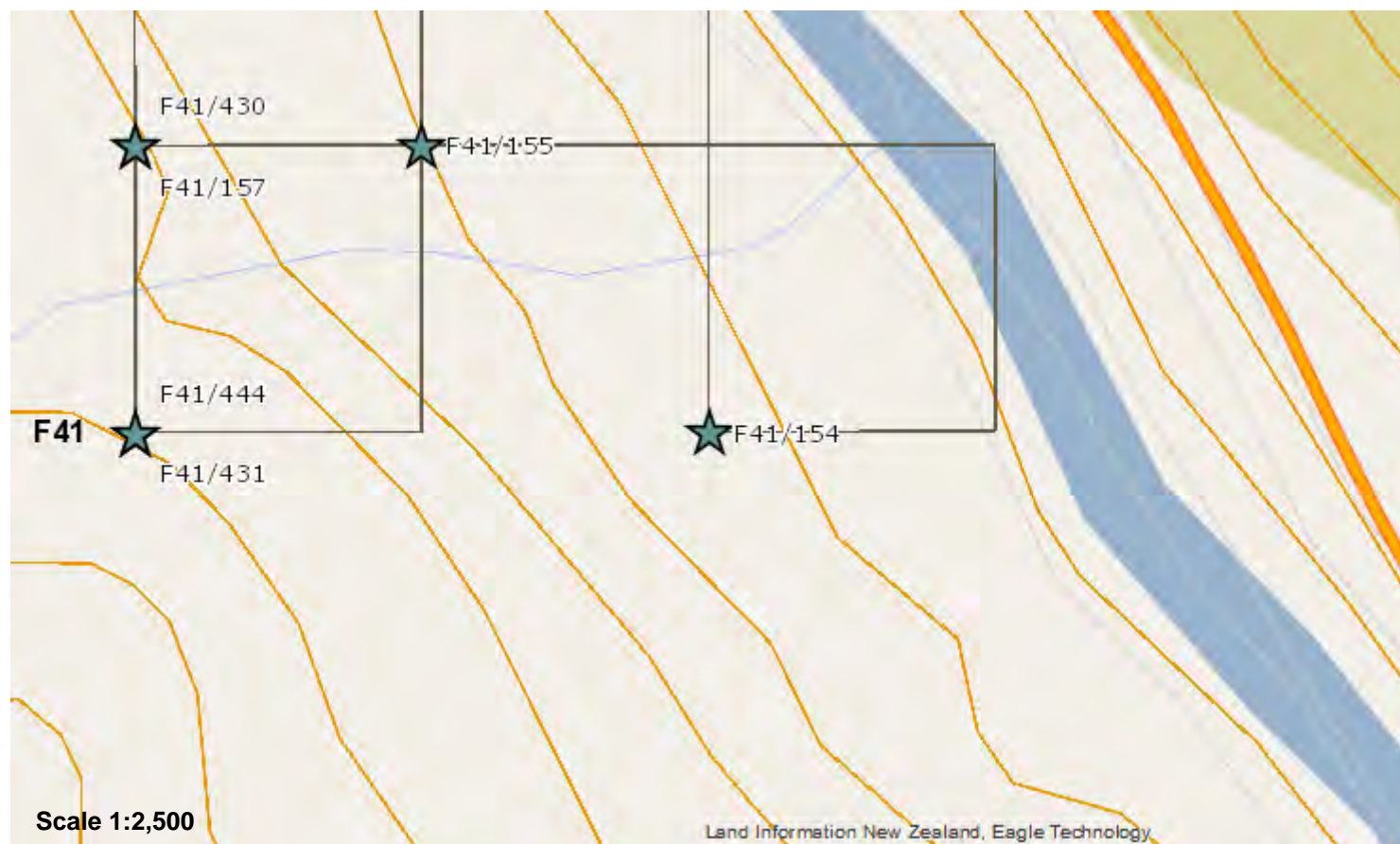
**SITE TYPE:** Mining - gold

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1291145

**Northing:** 5008751

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/505

**METRIC SITE NUMBER:** F41/154

**Finding aids to the location of the site**
**Brief description**

SLUICE TAILINGS

**Recorded features**

Tailings

**Other sites associated with this site**



<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/154
<b>Site description</b>	
<b>Condition of the site</b>	
<b>Statement of condition</b>	
<b>Current land use:</b>	
<b>Threats:</b>	

## SITE RECORD INVENTORY

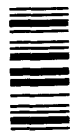
NZAA SITE NUMBER: F41/154

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS 1 map number S133 NZMS 1 map name Cromwell NZMS 1 map edition 1st 1969		NZAA NZMS 1 SITE NUMBER <b>5133/505</b> DATE VISITED May 1978 SITE TYPE Sluice tailings SITE NAME: MAORI OTHER	
Grid Reference		Easting <b>2 9 1 5 0 0</b>	Northing <b>3 7 4 3 0 0</b>
1. Aids to relocation of site (attach a sketch map) c200m downstream from tin hut on right bank of the Kawarau River. (Hut can be seen from the highway just downriver of the Roaring Meg power station.			
2. State of site and possible future damage In a fair condition.			
3. Description of site (Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here) Sluice tailings c100m by 50m in extent.			
4. Owner Address		Tenant/Manager W. Felton Address Mt Difficulty Station	
5. Nature of information (hearsay, brief or extended visit, etc.) Kawarau survey Photographs (reference numbers, and where they are held) Aerial photographs (reference numbers, and clarity of site) SN 3821 E/4 Site shows clearly.			
6. Reported by Address NEVILLE A RITCHIE ARCHAEOLOGIST (N.Z.H.P.T.) CLUTHA VALLEY DEVELOPMENT CROMWELL		Filekeeper Date 12/78 G. S. PARK ANTHROPOLOGIST OTAGO MUSEUM	
7. Key words sluice tailings		DUNEDIN, N.Z.	
8. New Zealand Register of Archaeological Sites (for office use) NZHPT Site Field Code			

C	T	Type of site	B	B	Present condition and future danger of destruction
A	K	Local environment today	A	A	Security code
A	C	Land classification	H	P	Local body







## Site Record Form

**NZAA SITE NUMBER:** F41/158

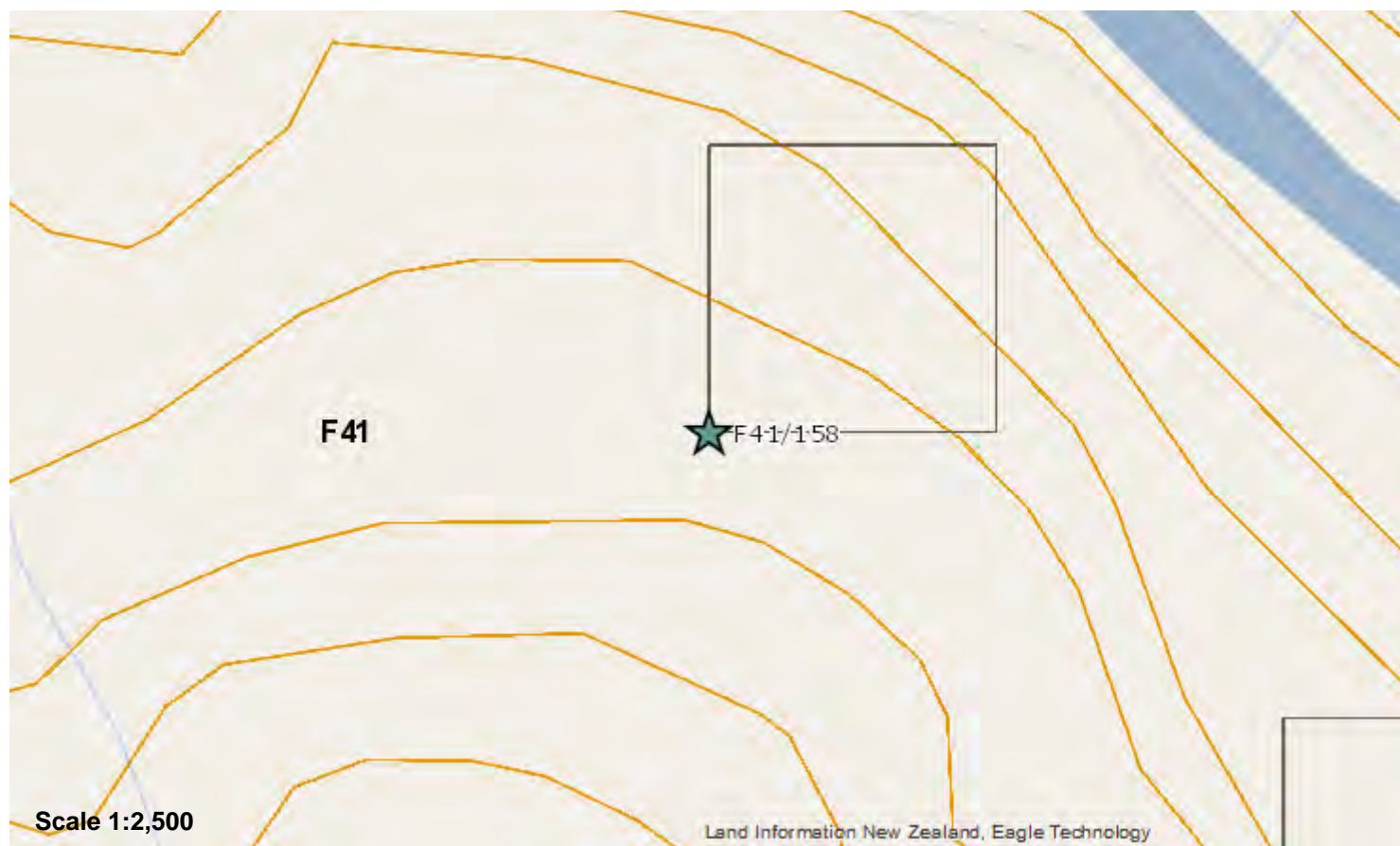
**SITE TYPE:** Industrial

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1290744

**Northing:** 5009051

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/510

**METRIC SITE NUMBER:** F41/158

**Finding aids to the location of the site**
**Brief description**

DAM

**Recorded features**

Dam

**Other sites associated with this site**

<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/158
<b>Site description</b>	
<b>Condition of the site</b>	
<b>Statement of condition</b>	
<b>Current land use:</b>	
<b>Threats:</b>	

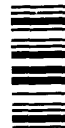


## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/158

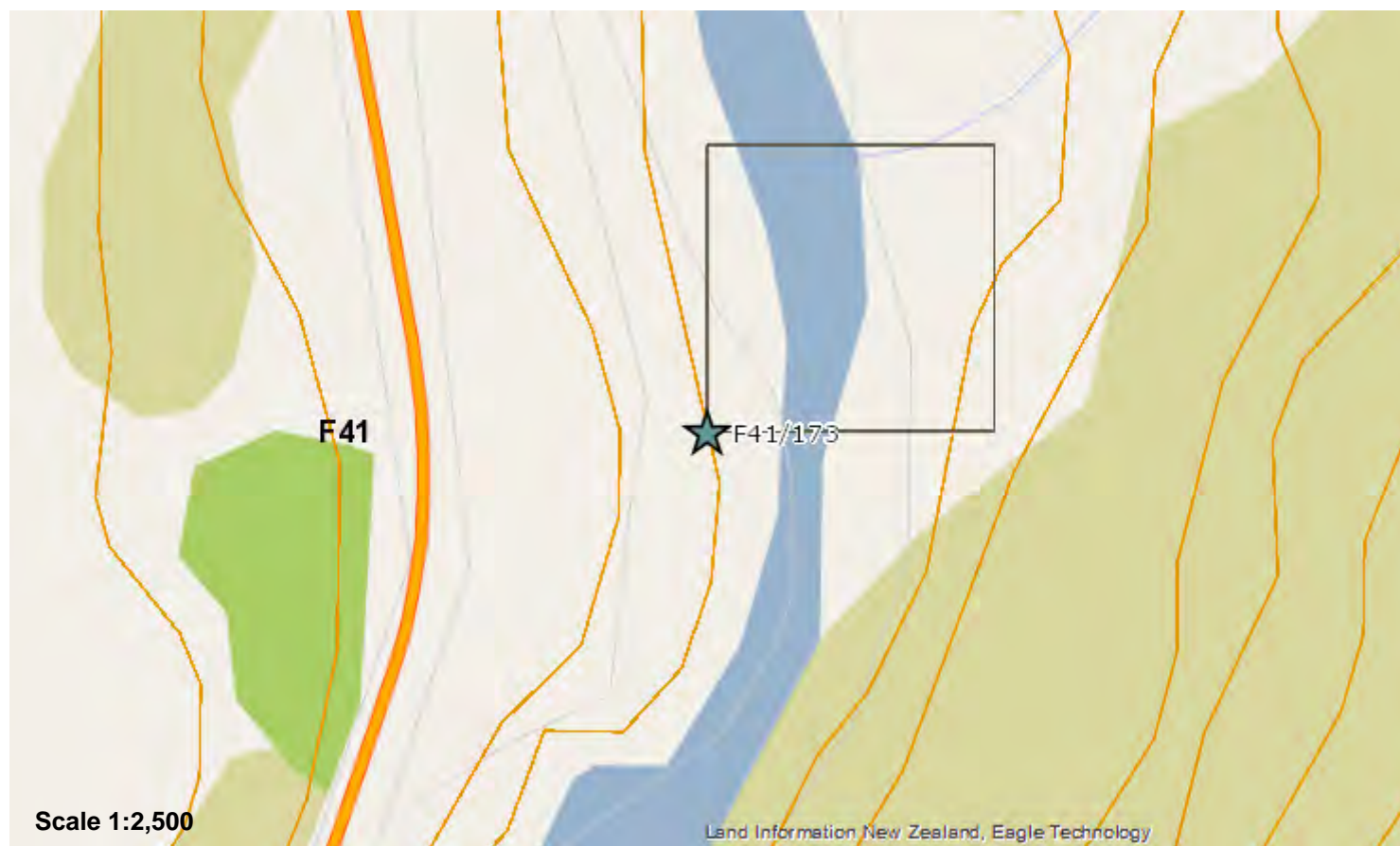
Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS 1 map number S133 NZMS 1 map name Cromwell NZMS 1 map edition 1st 1969		NZAA NZMS 1 SITE NUMBER <b>S133/510</b> DATE VISITED May 1978 SITE TYPE Dam SITE NAME: MAORI OTHER													
Grid Reference		Easting <b>2 9 1 0 0 0</b>	Northing <b>3 7 4 6 0 0</b>												
1. Aids to relocation of site (attach a sketch map) On flat shelf, above terrace opposite the Roaring Meg power station.															
2. State of site and possible future damage In good condition.															
3. Description of site (Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here) Large earth dam, c30m long, a single curving wall, up to 1.5m in height. Fed by a central race with another outlet race on the end of the dam to carry water down to Roaring Meg flat.															
4. Owner Address		Tenant/Manager W. Felton Address Mt Difficulty Station													
5. Nature of information (hearsay, brief or extended visit, etc.) Kaurau survey Photographs (reference numbers, and where they are held) Aerial photographs (reference numbers, and clarity of site) SN. 3821 E/3 Shows clearly.															
6. Reported by Address NEVILLE A. RITCHIE ARCHAEOLOGIST (N.Z.H.P.T.) CLUTHA VALLEY DEVELOPMENT CROMWELL		Filekeeper Date 12/78	G. S. PARK ANTHROPOLOGIST OTAGO MUSEUM												
7. Key words dam, earth walls, race		DUNEDIN, N.Z.													
8. New Zealand Register of Archaeological Sites (for office use) NZHPT Site Field Code															
<table border="1"> <tr><td>G</td><td>C</td></tr> <tr><td>A</td><td>K</td></tr> <tr><td>A</td><td>C</td></tr> </table>	G	C	A	K	A	C	Type of site Local environment today Land classification	<table border="1"> <tr><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td></tr> <tr><td>H</td><td>P</td></tr> </table>	B	B	A	A	H	P	Present condition and future danger of destruction Security code Local body
G	C														
A	K														
A	C														
B	B														
A	A														
H	P														





## Site Record Form

**NZAA SITE NUMBER:** F41/173**SITE TYPE:** Mining - gold**SITE NAME(s):****DATE RECORDED:****SITE COORDINATES (NZTM) Easting:** 1288748**Northing:** 5003444**Source:** CINZAS**IMPERIAL SITE NUMBER:** S133/525**METRIC SITE NUMBER:** F41/173**Finding aids to the location of the site****Brief description**

SLUICE TAILINGS

**Recorded features**

Tailings

**Other sites associated with this site**



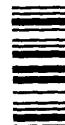
<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/173
<b>Site description</b>	
<b>Condition of the site</b>	
<b>Statement of condition</b>	
<b>Current land use:</b>	
<b>Threats:</b>	

## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/173

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS 1 map number S133 NZMS 1 map name Cromwell NZMS 1 map edition 1st 1969		NZAA NZMS 1 SITE NUMBER <b>S133/525</b> DATE VISITED May 1978 SITE TYPE Sluice tailings/sludge channel SITE NAME: MAORI OTHER													
Grid Reference		Easting <b>2 8 8 7 0 0</b>	Northing <b>3 6 8 6 0 0</b>												
1. Aids to relocation of site ( <i>attach a sketch map</i> ) c100m below SH6, at above grid reference..															
2. State of site and possible future damage Overgrown by briar..															
3. Description of site ( <i>Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here</i> ) An area of sluice tailings and a sludge channel. The channel has carved a fairly deep gully in the bank and leads down to the river. It is c3m deep and 2m wide..															
4. Owner Cook Brothers Address Waitiri Station		Tenant/Manager Address													
5. Nature of information ( <i>hearsay, brief or extended visit, etc.</i> ) Kawarau survey Photographs ( <i>reference numbers, and where they are held</i> ) Aerial photographs ( <i>reference numbers, and clarity of site</i> ) <b>SV34 B/5</b> Tailings visible..															
6. Reported by Address		Filekeeper Date	G. S. PARK ANTHROPOLOGIST OTAGO MUSEUM												
NEVILLE A. RITCHIE ARCHAEOLOGIST (N.Z.H.P.T.) CLUTHA VALLEY DEVELOPMENT CROMWELL		12/78	DUNEDIN, N.Z.												
7. Key words sluice tailings, sludge channel															
8. New Zealand Register of Archaeological Sites ( <i>for office use</i> ) NZHPT Site Field Code															
<table border="1"> <tr><td>C</td><td>I</td></tr> <tr><td>A</td><td>K</td></tr> <tr><td>A</td><td>C</td></tr> </table> Type of site Local environment today Land classification		C	I	A	K	A	C	<table border="1"> <tr><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td></tr> <tr><td>H</td><td>P</td></tr> </table> Present condition and future danger of destruction Security code Local body		B	B	A	A	H	P
C	I														
A	K														
A	C														
B	B														
A	A														
H	P														







## Site Record Form

**NZAA SITE NUMBER:** F41/251

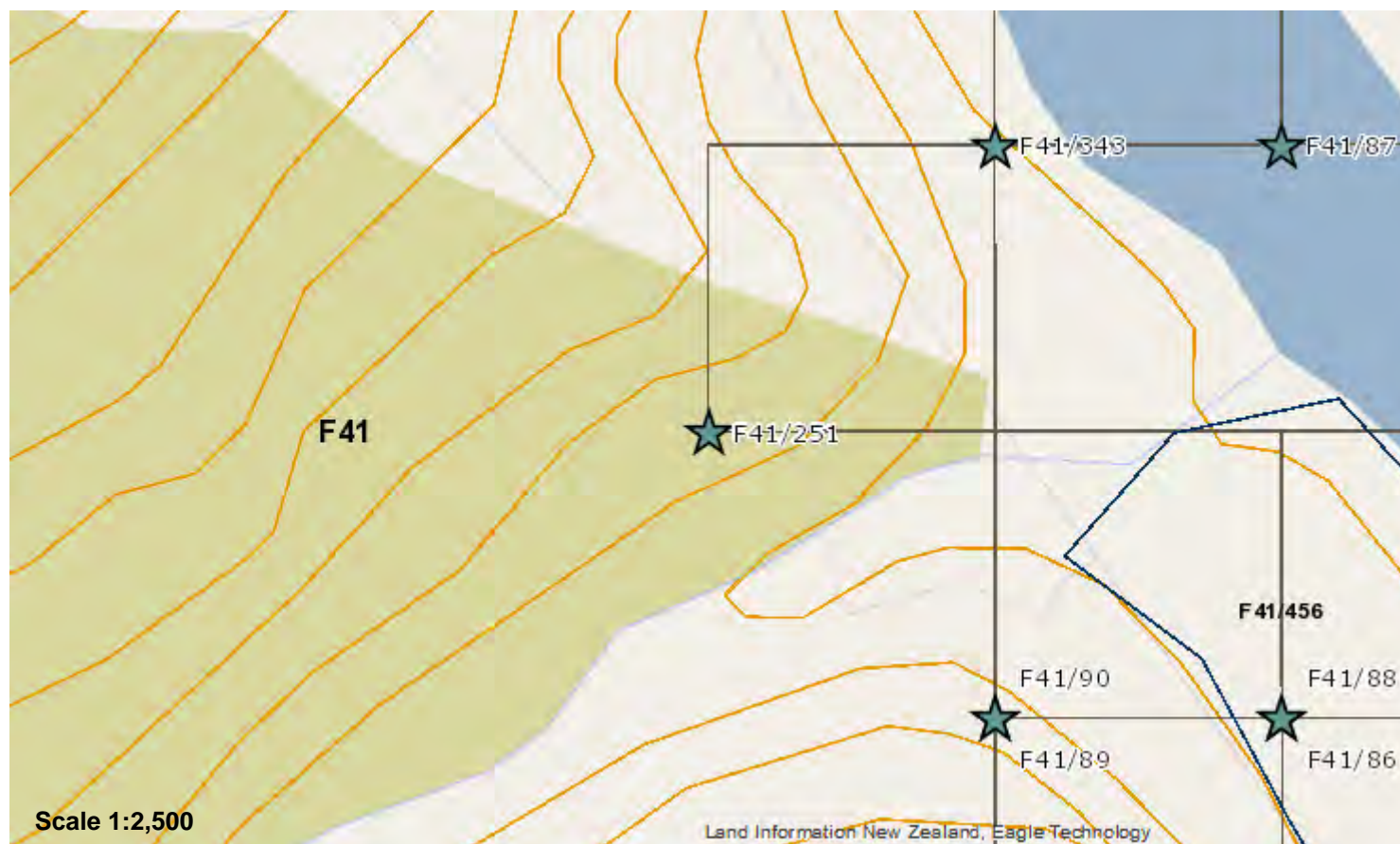
**SITE TYPE:** Industrial

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1294853

**Northing:** 5003650

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/605

**METRIC SITE NUMBER:** F41/251

**Finding aids to the location of the site**
**Brief description**

WATER RACE

**Recorded features**

Water race

**Other sites associated with this site**

SITE RECORD HISTORY	NZAA SITE NUMBER: F41/251
<div>Site description</div> <div>Condition of the site</div> <div>Statement of condition</div> <div>Current land use:</div> <div>Threats:</div>	



## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/251

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b>		NZAA NZMS 1 SITE NUMBER S133/605 DATE VISITED 21/5/79 SITE TYPE Water race. SITE NAME: MAORI OTHER													
NZMS 1 map number S133 NZMS 1 map name Cromwell NZMS 1 map edition 1st. 1969															
Grid Reference	Easting 295400	Northing	368700												
1. Aids to relocation of site ( <i>attach a sketch map</i> )  Comes off true left bank of Walkers Creek. Comes down towards the Kawarau above the true right bank.															
2. State of site and possible future damage  Good. No danger.															
3. Description of site ( <i>Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here</i> )  Water pipe diverts off race, carries water down towards the race and carries water in suspended pipeline over the Kawarau to R.L.Glassfords property. Before the pipeline was installed and parts of the race eroded away it probably carried water around to Gees Flat . Race runs at an elevation of c1000'.															
4. Owner R.L.Glassford. Address		Tenant/Manager Address													
5. Nature of information ( <i>hearsay, brief or extended visit, etc.</i> ) Site Survey.  Photographs ( <i>reference numbers, and where they are held</i> )  Aerial photographs ( <i>reference numbers, and clarity of site</i> ) SN 3821 E/12 Site shows clearly.															
6. Reported by N.Ritchie A.Harrison Address NZHPT Univ. of Otago		Filekeeper yth Date 7/79													
7. Key words  race, pipeline, suspended pipeline															
8. New Zealand Register of Archaeological Sites ( <i>for office use</i> ) NZHPT Site Field Code															
<table border="1"> <tr><td>E</td><td>W</td></tr> <tr><td>A</td><td>K</td></tr> <tr><td>A</td><td>E</td></tr> </table> Type of site Local environment today Land classification		E	W	A	K	A	E	<table border="1"> <tr><td>B</td><td>A</td></tr> <tr><td>A</td><td>A</td></tr> <tr><td>H</td><td>P</td></tr> </table> Present condition and future danger of destruction Security code Local body		B	A	A	A	H	P
E	W														
A	K														
A	E														
B	A														
A	A														
H	P														





## Site Record Form

**NZAA SITE NUMBER:** F41/429

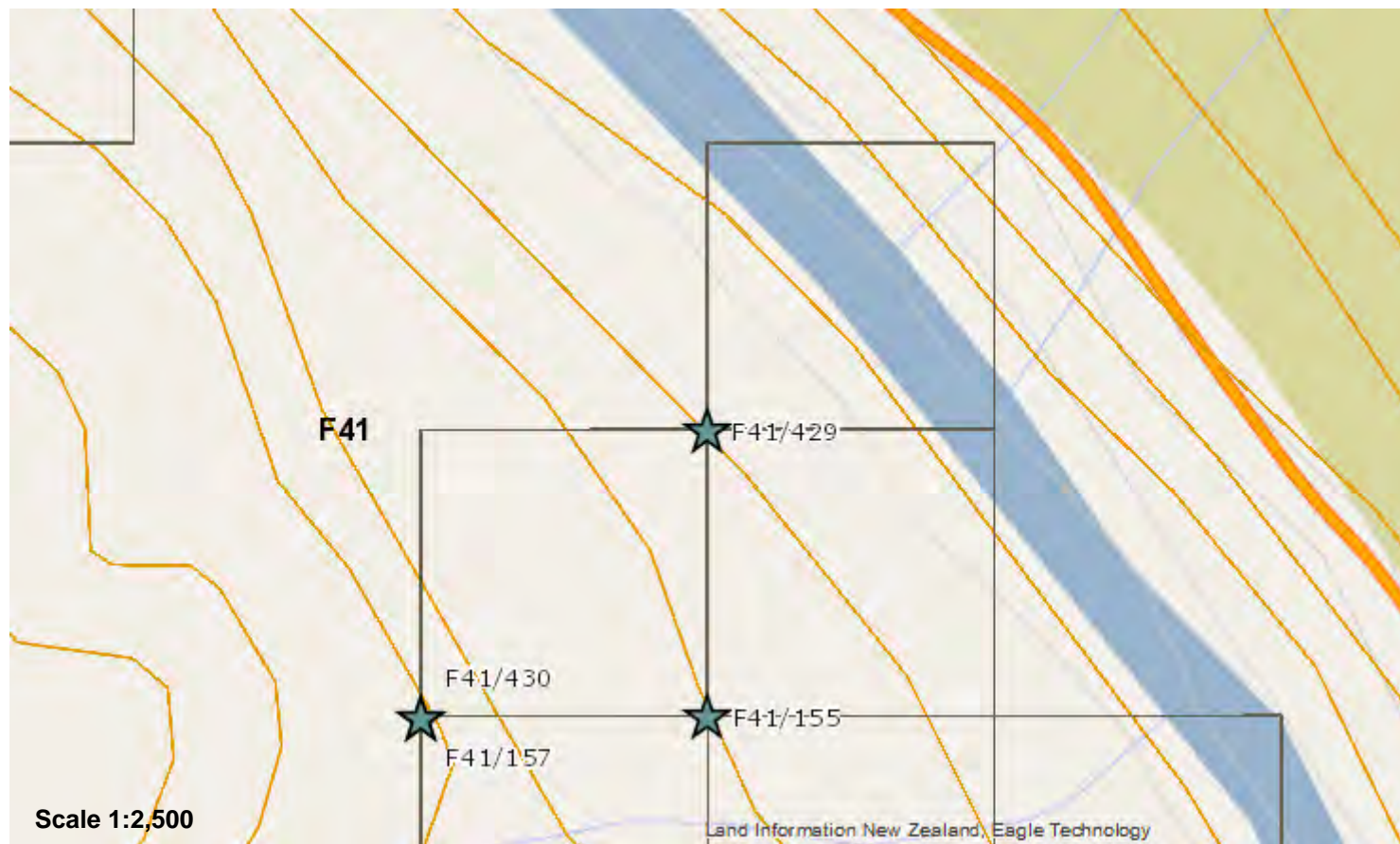
**SITE TYPE:** Historic - domestic

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1291045

**Northing:** 5008951

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/876

**METRIC SITE NUMBER:** F41/429

**Finding aids to the location of the site**
**Brief description**

HUT

**Recorded features**

Hut floor/ site

**Other sites associated with this site**



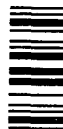
<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/429
<b>Site description</b>	
<b>Condition of the site</b>	
<b>Statement of condition</b>	
<b>Current land use:</b>	
<b>Threats:</b>	

## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/429

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS 1 map number <u>5133</u> NZMS 1 map name <u>Cromwell.</u> NZMS 1 map edition <u>1st ed. 1969.</u>		NZAA NZMS 1 SITE NUMBER <u>5133/876</u> DATE VISITED <u>20.9.83</u> SITE TYPE <u>Hut</u> SITE NAME: MAORI OTHER <u>Cleghorns Hut.</u>													
Grid Reference		Easting <u>2</u> <u>9</u> <u>1</u> <u>4</u> <u>0</u> <u>0</u>	Northing <u>3</u> <u>7</u> <u>4</u> <u>5</u> <u>0</u> <u>0</u>												
1. Aids to relocation of site ( <i>attach a sketch map</i> ) The site is situated on the true right bank of the Kawarau river, 10m back from it, on a rocky terrace amidst a stand of gum trees. Clearly visible from S.H.6 on the true left bank of the Kawarau, opposite the site.															
2. State of site and possible future damage The hut is in a fair condition and still a water-proof structure.															
3. Description of site ( <i>Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here</i> ) The hut is a rectangular structure with corrugated iron roof and sides. See attached sheet for plan and dimensions. The hut has a stone chimney at its eastern end. Scattered inside the hut are assorted fittings (rubber and metal) and pipe connections. Also there is a makeshift table and cupboard. The tailings both up and down the river (near the site) are associated with this hut. Galvanised pipe is also associated with the site, which carried water from Cleghorn Creek (on the true left bank of the Kawarau) on a suspended pipeline and distributed water around the site. Midden directly in front of the hut appears to belong to the 1950's and midden further to the west of the hut appears to be from the 1930's era.															
4. Owner <u>Mr Felton</u> Address <u>Mt Difficulty Station.</u>		Tenant/Manager Address													
5. Nature of information ( <i>hearsay, brief or extended visit, etc.</i> ) <u>Brief visit.</u> Photographs ( <i>reference numbers, and where they are held</i> ) <u>C.V.D. Cromwell.</u> Aerial photographs ( <i>reference numbers, and clarity of site</i> ) <u>3134-C/1 Visible.</u>															
6. Reported by <u>S. Bedford.</u> Address <u>C.V.D. Cromwell.</u>		Filekeeper <u>REVILLE A RITCHIE</u> Date <u>ARCHAEOLOGIST (N.Z.H.P.T.)</u> <u>CLUTHA VALLEY DEVELOPMENT</u> <u>CROMWELL</u>													
7. Key words <u>Cleghorns hut, corrugated iron, stone chimney, associated tailings, suspended pipeline.</u>															
8. New Zealand Register of Archaeological Sites ( <i>for office use</i> ) NZHPT Site Field Code															
<table border="1"> <tr><td>E</td><td>S</td></tr> <tr><td>A</td><td>K</td></tr> <tr><td>A</td><td>C</td></tr> </table> Type of site Local environment today Land classification		E	S	A	K	A	C	<table border="1"> <tr><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td></tr> <tr><td>H</td><td>P</td></tr> </table> Present condition and future danger of destruction Security code Local body		B	B	A	A	H	P
E	S														
A	K														
A	C														
B	B														
A	A														
H	P														





NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION SITE DESCRIPTION FORM	
Map Number S133.	SITE NUMBER S133/876
Map Name Cromwell.	SITE NAME: MAORI OTHER Glegborns hut.
Map Edition 1st ed, 1969	SITE TYPE Hut.
Grid Reference 914 745.	

(This form may be used for recording any descriptive information or other supplementary information on the site, or for maps and drawings.)

Stone chimney

door

windo.

3.5m

2.6m

↓ Kawaran River (10m away).



## Site Record Form

**NZAA SITE NUMBER:** F41/455

**SITE TYPE:** Artefact find

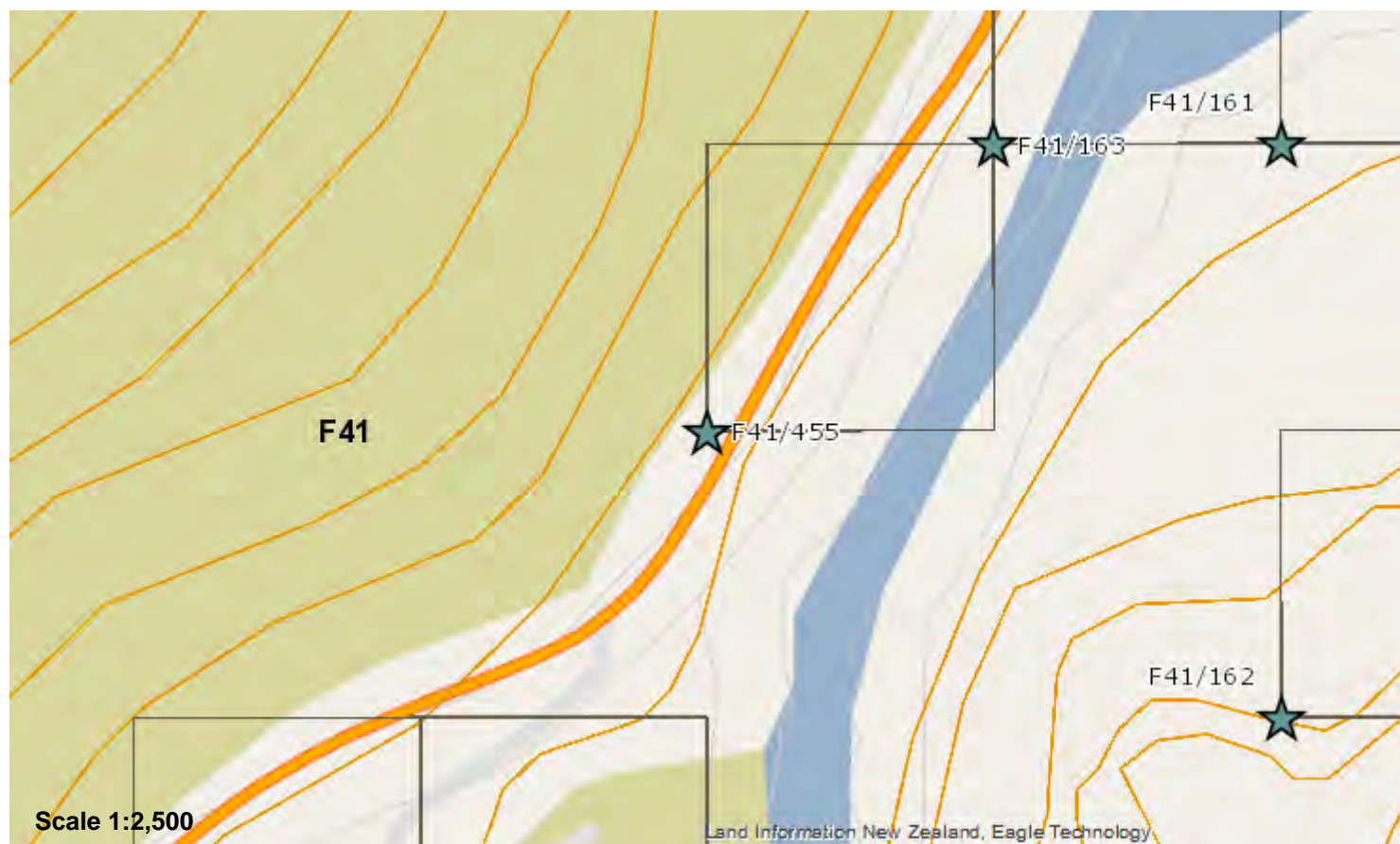
**SITE NAME(s):** Whata to Rere

**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1290044

**Northing:** 5009150

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S133/883

**METRIC SITE NUMBER:** F41/455

**Finding aids to the location of the site**

On the true right bank of the Kawarau River where it was possible to cross by a natural stone bridge. The find spot was on a terrace, well above the river and within 500m of the Natural Bridge, among large boulders with rockshelters under them.

**Brief description**

A boulder of greenstone was found when the old tailings were being mined. The boulder had saw marks on it. The natural bridge is within 500m.

**Recorded features**

Artefact

**Other sites associated with this site**



<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/455
<b>Site description</b>  <b>Condition of the site</b> The site has been greatly disturbed by mining and some of the large boulders shifted. See Draft Otago Conservation Management Strategy, Chap 10, Special Place 24.  <b>Statement of condition</b>  <b>Current land use:</b>  <b>Threats:</b>	

## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/455

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM (NZMS1)</b> NZMS1 map number S133 NZMS1 map name Cromwell NZMS 1 map edition 2nd		NZAA NZMS1 SITE NUMBER S133/883 - F41/455 DATE VISITED (about 1990) SITE TYPE Find spot SITE NAME: MAORI Whata to Rere OTHER Natural Bridge			
Grid Reference		Easting	2 9 0 3 0 0	Northing	3 7 4 8 0 0
1. Aids to relocation of site (attach a sketch map) There is a traditional site on the true right bank of the Kawarau River where it was possible to cross by a natural stone bridge. The find spot was on a terrace well above the river and within 500 m of the Natural Bridge among large boulders with rock shelters under them.					
2. State of site and possible future damage The site has been greatly disturbed by mining and some of the large boulders shifted.					
3. Description of site (Supply full details, history, local environment, references, sketches etc. If extra sheets are attached, include a summary here) A boulder of greenstone was found by the Hammond brothers about six years ago when they were mining the old tailings. The boulder had saw marks on it. The find was reported by Peter Egerton, Kawarau Gold Mining Centre. The natural bridge was a traditional crossing point of the Kawarau River for Ngaitahu and a camping site is considered to have existed on the terrace on the true right bank close to the bridge (Matt Ellison: pers. comm.). The bridge provided access to Lake Wakatipu basin and beyond to the pounamu sources. Another trail ran via the Roaring Meg to the Orau or Cardrona Valley (Draft Otago Conservation Management Strategy, Chap 10, Special Place 24). The site is on the edge of the Mt Difficulty pastoral lease.					
4	Owner Address	Lakes District Trust, c/o Russell Hamilton, R D 1, Queenstown.		Tenant/Manager Address	Russell Hamilton, R D 1, Queenstown.
5	Nature of information (hearsay, brief or extended visit, etc)		Hearsay		
	Photographs (reference numbers and where they are held)				
	Aerial photographs (reference numbers and clarity of site)				
6	Reported by Address	Jill Hamel, 42 Ann Street, Dunedin.		Filekeeper Date	Peter Bruster 22/8/96
7. New Zealand Historic Places Trust (for office use)					
<input type="checkbox"/> Type of Site <input type="checkbox"/> Local environment today <input type="checkbox"/> Land classification		<input type="checkbox"/> Present condition and future danger of destruction <input type="checkbox"/> Local body			







## Site Record Form

**NZAA SITE NUMBER:** F41/456

**SITE TYPE:** Mining - gold

**SITE NAME(s):**

**DATE RECORDED:**

**SITE COORDINATES (NZTM) Easting:** 1295755

**Northing:** 5002750

**Source:** Handheld GPS

**IMPERIAL SITE NUMBER:**

**METRIC SITE NUMBER:** F41/456



### Finding aids to the location of the site

Site is located on the true right of the Kawarau, accessed from a private road via the Black Quail vineyard.

### Brief description

Extensive area of ground sluicing characterised by stacked tailings.

### Recorded features

Tailings

### Other sites associated with this site

SITE RECORD HISTORY	NZAA SITE NUMBER: F41/456
<p><b>Site description</b></p> <p>Updated 30/11/2016 (other), submitted by benteele, visited 15/08/2016 by Teele, Ben Grid reference (E1295755 / N5002750)</p> <p>As early as the end of 1862, after Hartley and Reilly's discovery of gold, a significant mining population was established on the river flats at Bannockburn. By 1864/65 a reported one hundred and seventy-eight miners were working the Bannockburn area; fifteen cradling, 75 sluicing, 70 ground sluicing, and 18 working with hydraulic hoses.</p> <p>The deposition of waste from the mining process, principally the spoil, or tailings, from sluicing claims characterises the site. There is evidence of settlement in the field immediately above the assessment tailings as early as c. 1887. Information from the Paul Crump Collection indicates that this building was the home of Frederick Edmonds, a miner, between 1887 and his death in 1907. As late in the 20th century as 1978, the remains of this structure included the ruins of a mudbrick wall.</p> <p>The site is the subject of two archaeological authorities (2010/268, 2013/288).</p> <p>On screen site extent is approximate only and is based on the extent of features visible during the field visit.</p> <p><b>Condition of the site</b></p> <p>Updated 30/11/2016 (other), submitted by benteele, visited 15/08/2016 by Teele, Ben Grid reference (E1295755 / N5002750)</p> <p>The condition of the tailings are good, being overall relatively well preserved. They can be clearly delineated from aerial imagery. A track has been cut through part of the site, and vegetative growth has caused some damage.</p> <p><b>Statement of condition</b></p> <p>Updated: 27/09/2017, Visited: 15/08/2016 - Good – Majority of visible features are intact, but some minor loss of definition and/or damage</p> <p><b>Current land use:</b></p> <p>Updated: 27/09/2017, Visited: 15/08/2016 - Rural residential</p> <p><b>Threats:</b></p> <p>Updated: 27/09/2017, Visited: 15/08/2016 - Property development</p>	

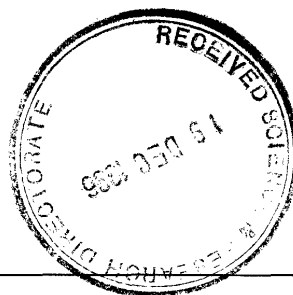


## SITE RECORD INVENTORY

NZAA SITE NUMBER: F41/456

Supporting documentation held in ArchSite

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION <b>SITE RECORD FORM</b> NZMS260 map number F41 NZMS260 map name Arrowtown NZMS260 map edition 1		NZAA METRIC SITE NUMBER F41/456 DATE VISITED August 1996 SITE TYPE Alluvial Gold workings SITE NAME: MAORI OTHER	
Grid Reference		Easting	221015171 . .
		Northing	551614151 . .
1. Aids to relocation of site (attach a sketch map) True right bank of the Kawarau River upstream of Long Gully			
2. State of site and possible future damage Fair some roading. Site is covered to a large extent in briar			
3. Description of site (Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here) An extensive area of ground sluicings along the river terrace between Long Gully and Walkers Creek			
4. Owner		Marginal Strip?	
Address		Tenant/Manager	
		Address	
5. Nature of information (hearsay, brief or extended visit, etc.)		Brief visit	
Photographs (reference numbers and where they are held)			
Aerial photographs (reference numbers and clarity of site)			
6. Reported by P Bristow		Filekeeper Peter Bristow	
Address Doc Dunedin		Date 17/12/96	
7. Department of Conservation (for office use)			
Type of site		Present condition & future danger of destruction	
Local environment today		Local body CO	
Land classification			













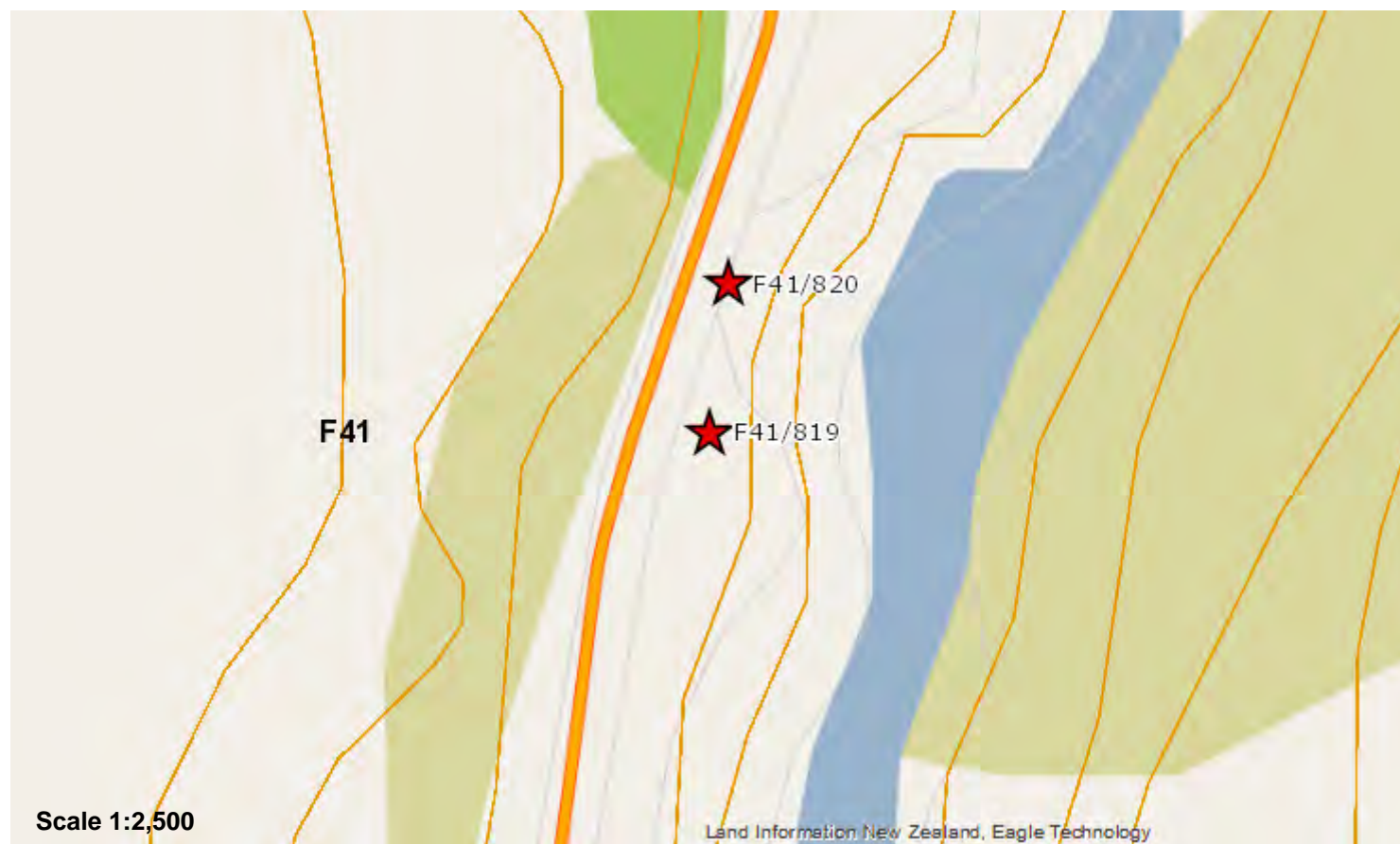


Drone photograph of site before construction. 14th October, 2015.





## Site Record Form

**NZAA SITE NUMBER:** F41/819**SITE TYPE:** Mining - gold**SITE NAME(s):****DATE RECORDED:****SITE COORDINATES (NZTM) Easting:** 1288622**Northing:** 5003236**Source:** Handheld GPS**IMPERIAL SITE NUMBER:****METRIC SITE NUMBER:** F41/819**Finding aids to the location of the site**

In grassed area, circa 20m from the roadside.

**Brief description****Recorded features**

Shaft

**Other sites associated with this site**



SITE RECORD HISTORY	NZAA SITE NUMBER: F41/819
<div><div>Site description</div><div>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 03/05/2019 by Moyle, Jeremy Grid reference (E1288622 / N5003236)</div><div>Possible collapsed mining shaft. Currently the feature is only cica 1m deep.</div><div>Condition of the site</div><div>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 03/05/2019 by Moyle, Jeremy</div><div>Will likely be impacted by the proposed cycle trail.</div><div>Statement of condition</div><div>Current land use:</div><div>Threats:</div></div>	

SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/819
-----------------------	---------------------------

Supporting documentation held in ArchSite





## Site Record Form

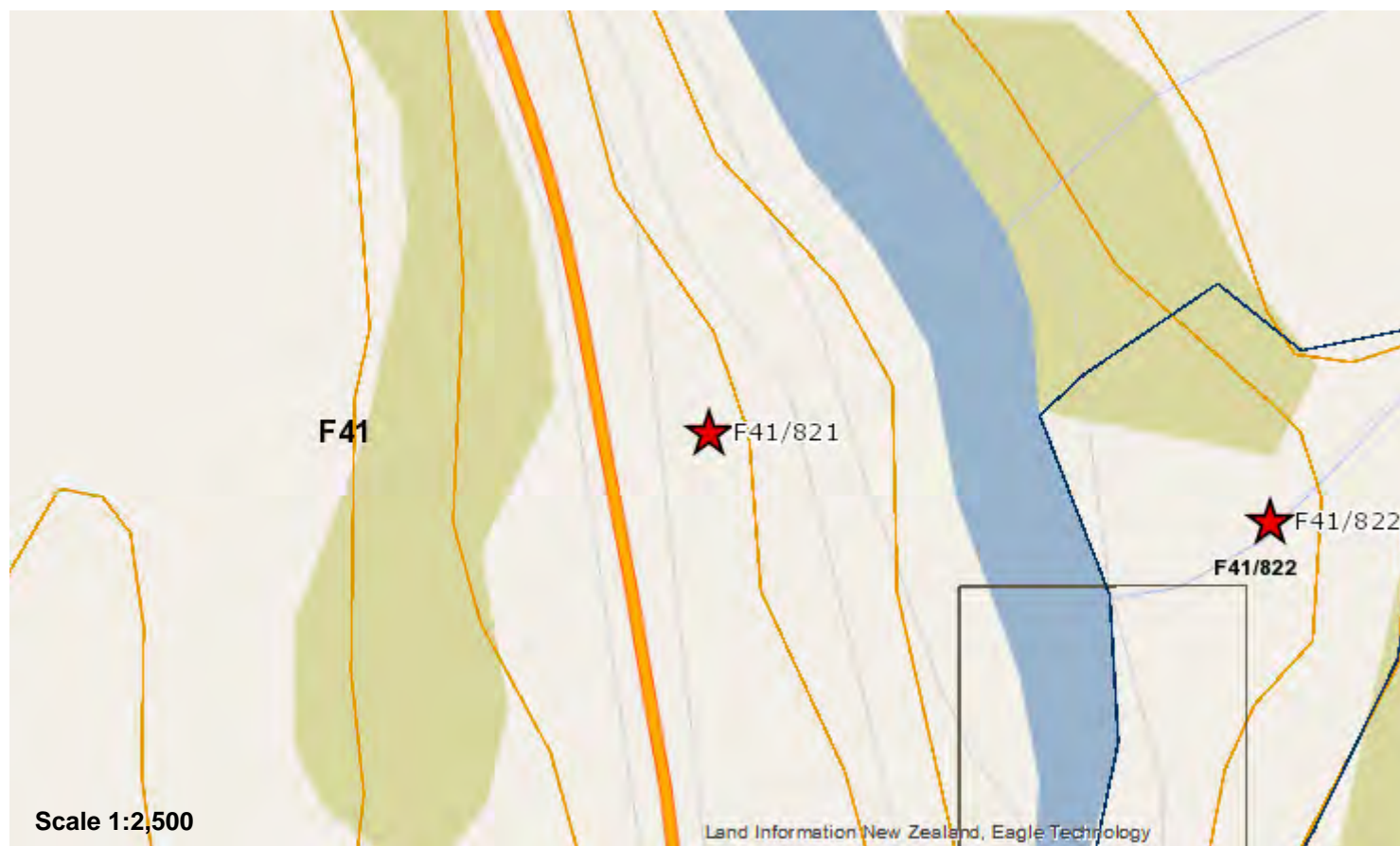
**NZAA SITE NUMBER:** F41/821

**SITE TYPE:** Industrial

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1288660

**Northing:** 5003598

**Source:** Handheld GPS

**IMPERIAL SITE NUMBER:**
**METRIC SITE NUMBER:** F41/821

**Finding aids to the location of the site**

Adjacent to gate from SH6. Mostly overgrown with scrub.

**Brief description**
**Recorded features**

Dam, Water race

**Other sites associated with this site**

F41/173

<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/821
<b>Site description</b> Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 03/05/2019 by Moyle, Jeremy Grid reference (E1288660 / N5003598)  Two dams located next to each other above the sluicings and tailings at F41/173. Very clear on a historic aerial photograph from 1964, but overgrown and indistinct today . Fragments of an associated water race running north-south were also identified immediately to the east of the dams  <b>Condition of the site</b> Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 03/05/2019 by Moyle, Jeremy  Overgrown with scrub. Possibly damaged by vehicles coming from the adjacent gate.  <b>Statement of condition</b>   <b>Current land use:</b>   <b>Threats:</b>	



SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/821
-----------------------	---------------------------

Supporting documentation held in ArchSite



## Site Record Form

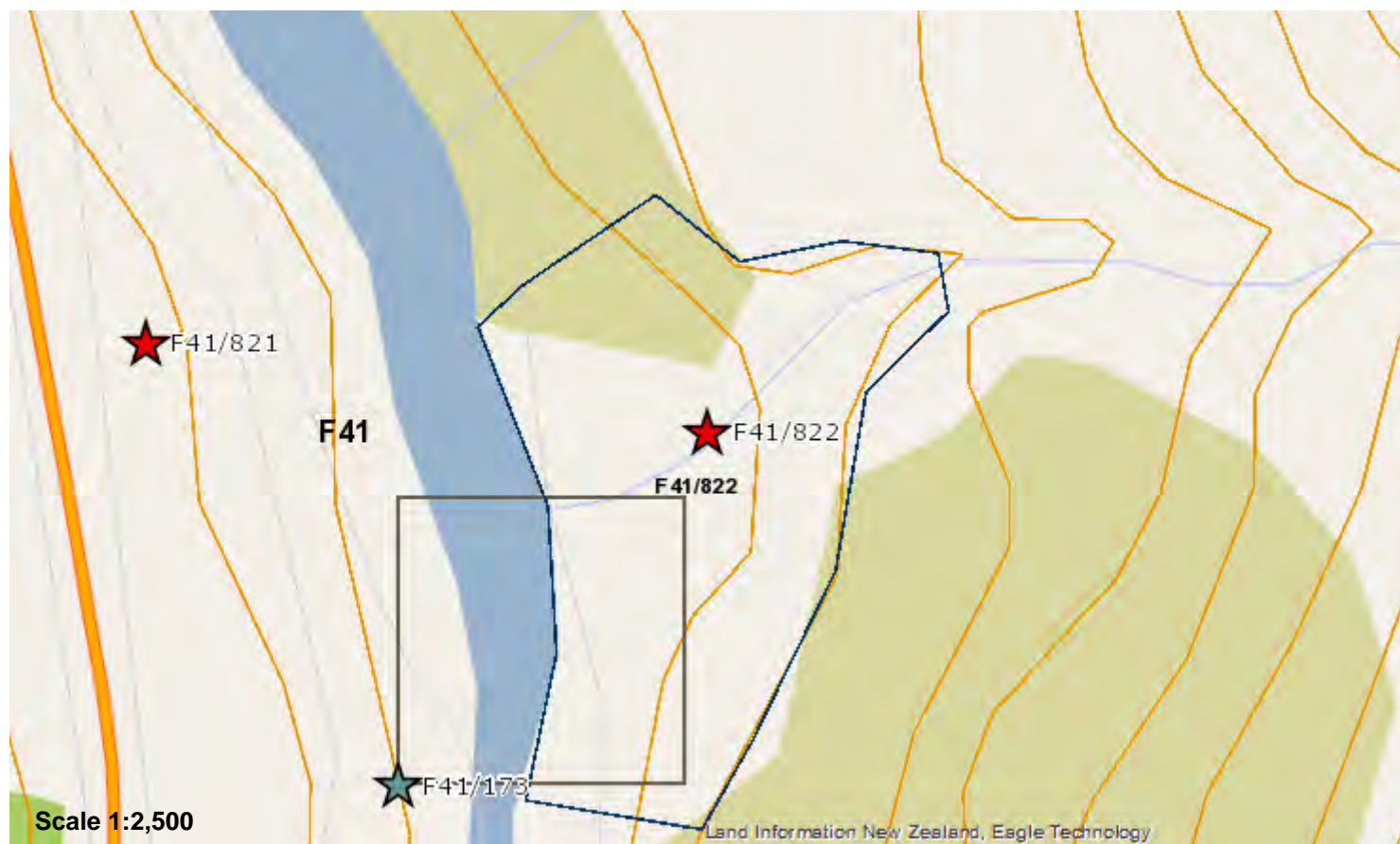
**NZAA SITE NUMBER:** F41/822

**SITE TYPE:** Mining - gold

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1288856

**Northing:** 5003567

**Source:** Handheld GPS

**IMPERIAL SITE NUMBER:**
**METRIC SITE NUMBER:** F41/822

**Finding aids to the location of the site**

Alongside the Kawarau River, at the mouth of an unnamed gully/stream.

**Brief description**
**Recorded features**

Sluicings/ sluicing face, Tailings

**Other sites associated with this site**



<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/822
<p><b>Site description</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jerem Grid reference (E1288856 / N5003567)</p> <p>Area of sluicing and tailings at the mouth of gully/stream alongside the Kawarau River.</p> <p><b>Condition of the site</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jerem</p> <p>No sign of human impact. Overgrown by scrub.</p> <p><b>Statement of condition</b></p> <p><b>Current land use:</b></p> <p><b>Threats:</b></p>	

SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/822
-----------------------	---------------------------

Supporting documentation held in ArchSite





## Site Record Form

**NZAA SITE NUMBER:** F41/826

**SITE TYPE:** Mining - gold

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1288375

**Northing:** 5004898

**Source:** On Screen

**IMPERIAL SITE NUMBER:**
**METRIC SITE NUMBER:** F41/826

**Finding aids to the location of the site**

Centred around an unnamed gully to the south of Rabbits' Flat. Extends for circa 450m alongside the Kawarau River, and 85m up the gully.

**Brief description**
**Recorded features**

Sluicings/ sluicing face, Tailings

**Other sites associated with this site**

<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/826
<p><b>Site description</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jeremy Grid reference (E1288375 / N5004898)</p> <p>Area of sluicings and tailings along, and extending from the mouth of, a large gully.</p> <p>Site polygon based on extent of sluicings as evident from aerial photographs and topographical contours.</p> <p><b>Condition of the site</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jeremy</p> <p>Apparently intact, but overgrown with scrub.</p> <p><b>Statement of condition</b></p> <p><b>Current land use:</b></p> <p><b>Threats:</b></p>	



SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/826
-----------------------	---------------------------

Supporting documentation held in ArchSite



## Site Record Form

**NZAA SITE NUMBER:** F41/827

**SITE TYPE:** Mining - gold

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1288298

**Northing:** 5005773

**Source:** On Screen

**IMPERIAL SITE NUMBER:**
**METRIC SITE NUMBER:** F41/827

**Finding aids to the location of the site**

Along the northern end of Rabbits' flat.

**Brief description**
**Recorded features**

Sluicings/ sluicing face, Tailings

**Other sites associated with this site**

F41/432



SITE RECORD HISTORY	NZAA SITE NUMBER: F41/827
<p><b>Site description</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jeremy Grid reference (E1288298 / N5005773)</p> <p>Large complex of sluicings and tailings. Some sluiced areas further inland from the Kowarau river have stacked tailings and neatly formed sludge channels, but not the well-defined herringbone patterns of the adjacent F41/432.</p> <p>The site is considered separate from F41/432 because of this physical distinction, and a spatial separation between the riverside sluicings.</p> <p>Site polygon is based on extent of sluicings as evident from aerial photographs and topographical contours.</p> <p><b>Condition of the site</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jeremy</p> <p>There are several well preserved sludge channels at the centre of the inland sluicings and tailings. However, much of the site is overgrown with scrub.</p> <p><b>Statement of condition</b></p> <p><b>Current land use:</b></p> <p><b>Threats:</b></p>	

SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/827
-----------------------	---------------------------

Supporting documentation held in ArchSite





## Site Record Form

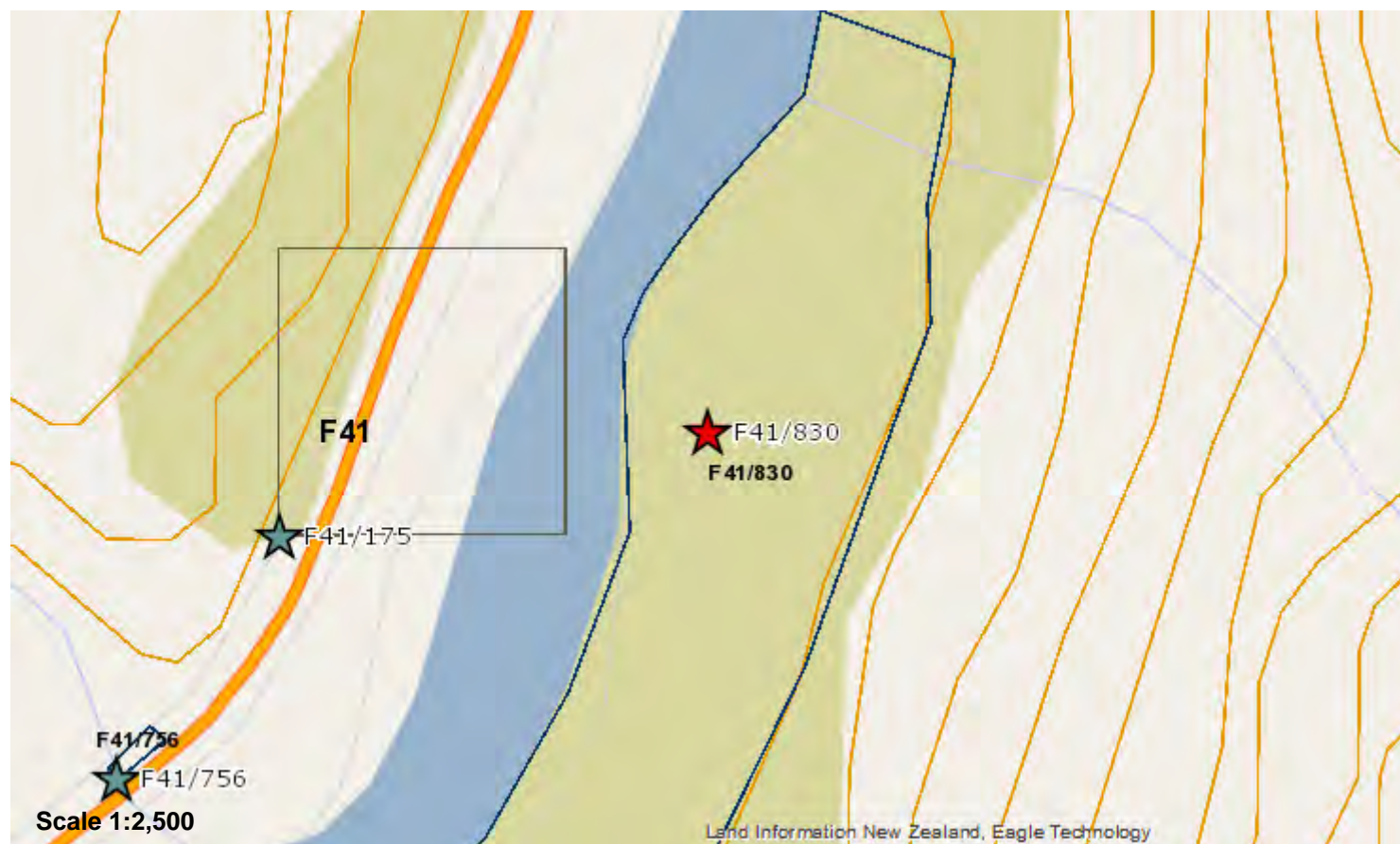
**NZAA SITE NUMBER:** F41/830

**SITE TYPE:** Mining - gold

**SITE NAME(s):**
**DATE RECORDED:**
**SITE COORDINATES (NZTM) Easting:** 1288495

**Northing:** 5006082

**Source:** On Screen

**IMPERIAL SITE NUMBER:**
**METRIC SITE NUMBER:** F41/830

**Finding aids to the location of the site**

Alongside the Kawarau River, to the north of Rabbits' Flat.

**Brief description**
**Recorded features**

Sluicings/ sluicing face

**Other sites associated with this site**

<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/830
<p><b>Site description</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jeremy Grid reference (E1288495 / N5006082)</p> <p>An extensive area of mining encompassing four overgrown sluiced areas alongside the Kawarau River. Very clear on a 1964 aerial photograph.</p> <p>Site polygon based on extent of sluicings as evident from aerial photographs and topographical contours.</p> <p><b>Condition of the site</b></p> <p>Updated 16/05/2019 (Field visit), submitted by jeremymoyle , visited 02/05/2019 by Moyle, Jeremy</p> <p>Slucings appear to be intact but are overgrown with heavy scrub.</p> <p><b>Statement of condition</b></p> <p><b>Current land use:</b></p> <p><b>Threats:</b></p>	



SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/830
-----------------------	---------------------------

Supporting documentation held in ArchSite



## Site Record Form

**NZAA SITE NUMBER:** F41/835

**SITE TYPE:** Mining - gold

**SITE NAME(s):**

**DATE RECORDED:**

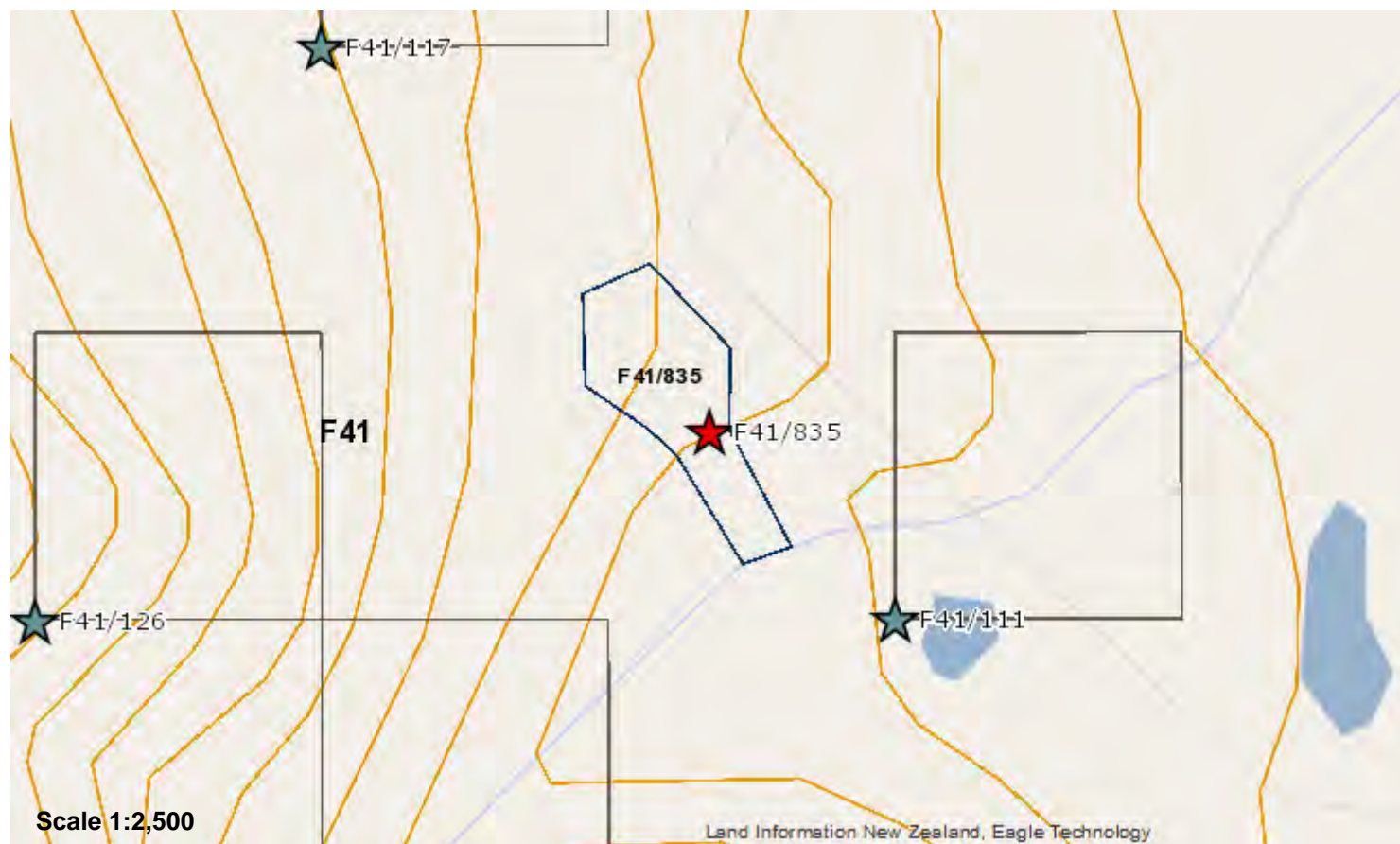
**SITE COORDINATES (NZTM) Easting:** 1294186

**Northing:** 5005116

**Source:** On Screen

**IMPERIAL SITE NUMBER:**

**METRIC SITE NUMBER:** F41/835



### Finding aids to the location of the site

Immediately north-west of the modern dam that holds water for the Goldfields Mining Centre operations.

### Brief description

### Recorded features

Sluicings/ sluicing face

### Other sites associated with this site

F41/104



<b>SITE RECORD HISTORY</b>	<b>NZAA SITE NUMBER:</b> F41/835
<p><b>Site description</b></p> <p>Updated 17/05/2019 (Field visit), submitted by jeremymoyle , visited 12/04/2019 by Moyle, Jeremy Grid reference (E1294186 / N5005116)</p> <p>Small - circa 20m x 100m - sluiced gully cutting into the hillside behind the Goldfields Mining Centre. A tail race runs out and connects with the sludge channel recorded in F41/104.</p> <p><b>Condition of the site</b></p> <p>Updated 17/05/2019 (Field visit), submitted by jeremymoyle , visited 12/04/2019 by Moyle, Jeremy</p> <p>Sluicings appear to be intact, and scrub cover is limited.</p> <p><b>Statement of condition</b></p> <p><b>Current land use:</b></p> <p><b>Threats:</b></p>	

SITE RECORD INVENTORY	NZAA SITE NUMBER: F41/835
-----------------------	---------------------------

Supporting documentation held in ArchSite



## Appendix B – HNZPT Archaeological Discovery Protocol



HERITAGE NEW ZEALAND  
POUHERE TAONGA

## Heritage New Zealand Pouhere Taonga Archaeological Discovery Protocol

Under the Heritage New Zealand Pouhere Taonga Act (2014) an archaeological site is defined as any place in New Zealand that was associated with human activity that occurred before 1900 and provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand. For pre-contact Maori sites this evidence may be in the form of bones, shells, charcoal, stones etc. In later sites of European/Chinese origin, artefacts such as bottle glass, crockery etc. may be found, or evidence of old foundations, wells, drains or similar structures. Burials/koiwi tangata may be found from any historic period.

In the event that an unidentified archaeological site is located during works, the following applies;

1. Work shall cease immediately at that place and within 20m around the site.
2. The contractor must shut down all machinery, secure the area, and advise the Site Manager.
3. The Site Manager shall secure the site and notify the Heritage New Zealand Regional Archaeologist. Further assessment by an archaeologist may be required.
4. If the site is of Maori origin, the Site Manager shall notify the Heritage New Zealand Regional Archaeologist and the appropriate iwi groups or kaitiaki representative of the discovery and ensure site access to enable appropriate cultural procedures and tikanga to be undertaken, as long as all statutory requirements under legislation are met (*Heritage New Zealand Pouhere Taonga Act, Protected Objects Act*).
5. If human remains (koiwi tangata) are uncovered the Site Manager shall advise the Heritage New Zealand Regional Archaeologist, NZ Police and the appropriate iwi groups or kaitiaki representative and the above process under 4 shall apply. Remains are not to be moved until such time as iwi and Heritage New Zealand have responded.
6. Works affecting the archaeological site and any human remains (koiwi tangata) shall not resume until Heritage New Zealand gives written approval for work to continue. Further assessment by an archaeologist may be required.
7. Where iwi so request, any information recorded as the result of the find such as a description of location and content, is to be provided for their records.
8. Heritage New Zealand will determine if an archaeological authority under the *Heritage New Zealand Pouhere Taonga Act 2014* is required for works to continue.

It is an offence under S87 of the *Heritage New Zealand Pouhere Taonga Act 2014* to modify or destroy an archaeological site without an authority from Heritage New Zealand irrespective of



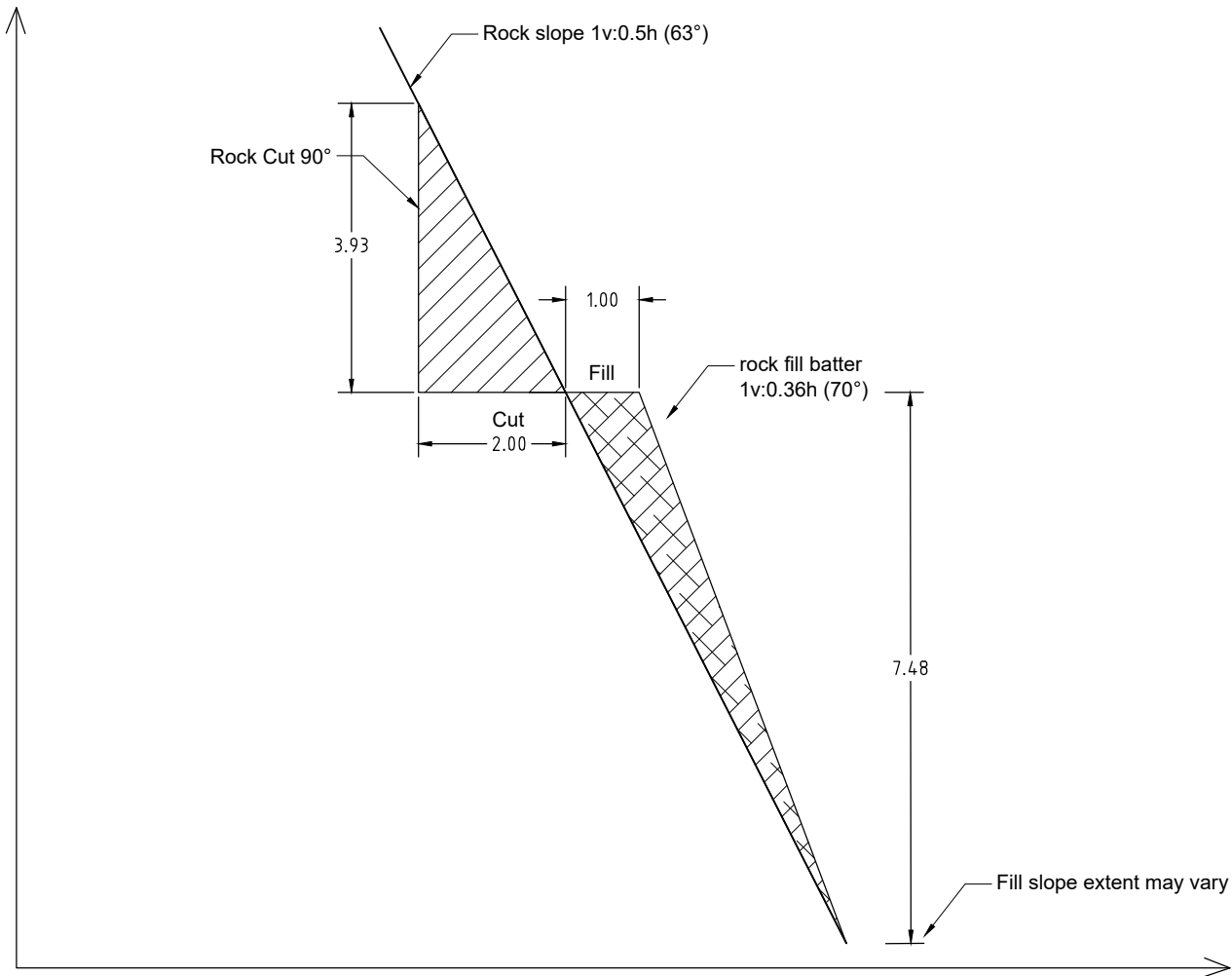
whether the works are permitted or a consent has been issued under the Resource Management Act.

Heritage New Zealand Regional archaeologist contact details:

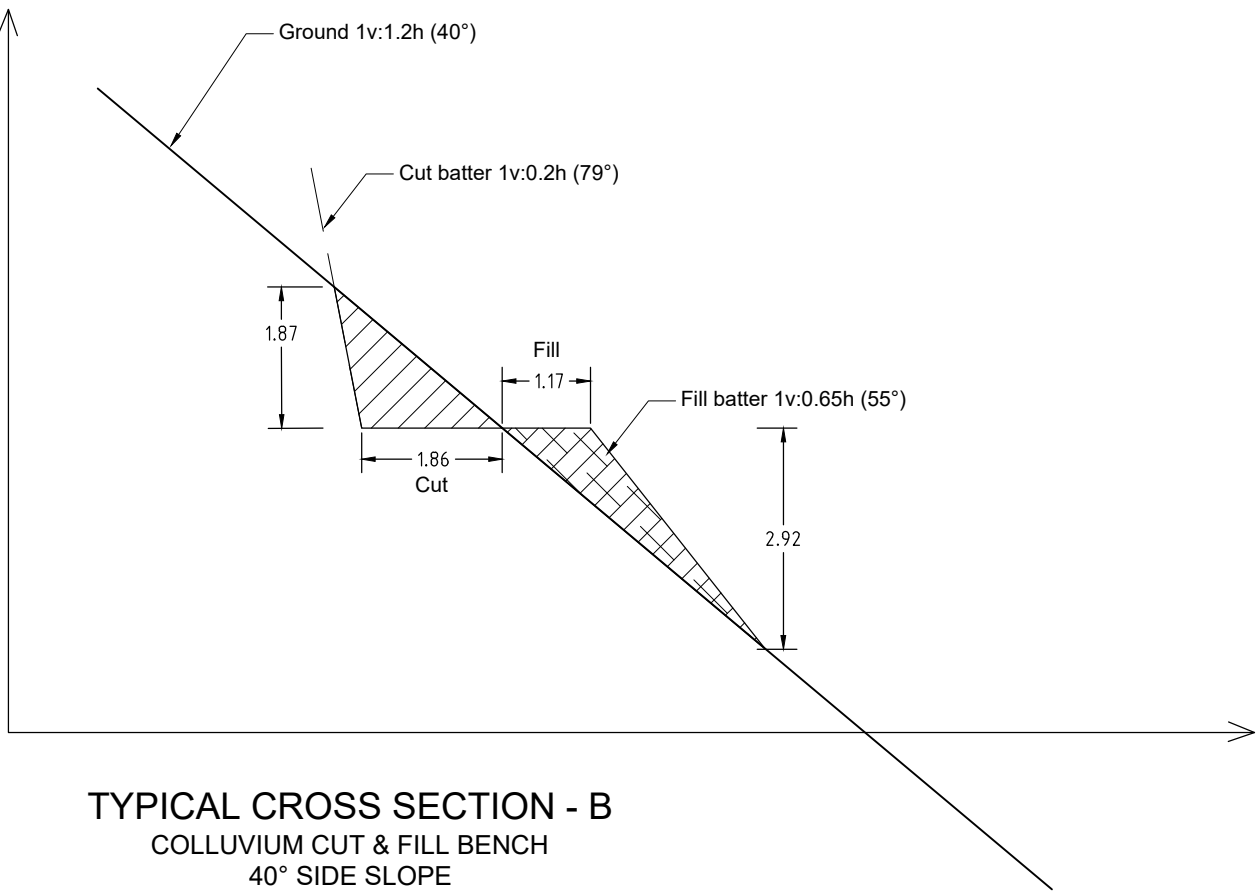
Dr Matthew Schmidt  
Regional Archaeologist Otago/Southland  
Heritage New Zealand  
PO Box 5467  
Dunedin  
Ph. +64 3 470 2364, mobile 027 240 8715  
Fax. +64 3 4773893  
[mschmidt@heritage.org.nz](mailto:mschmidt@heritage.org.nz)

## Appendix C – Typical Trail Cross Sections





TYPICAL CROSS SECTION - A  
SOLID ROCK CUT BENCH  
63° SIDE SLOPE  
Scale 1: 100



TYPICAL CROSS SECTION - B  
COLLUVIUM CUT & FILL BENCH  
40° SIDE SLOPE  
Scale 1: 100



REVISION	DESCRIPTION	DATE
A	ORIGINAL ISSUE	14/5/2019

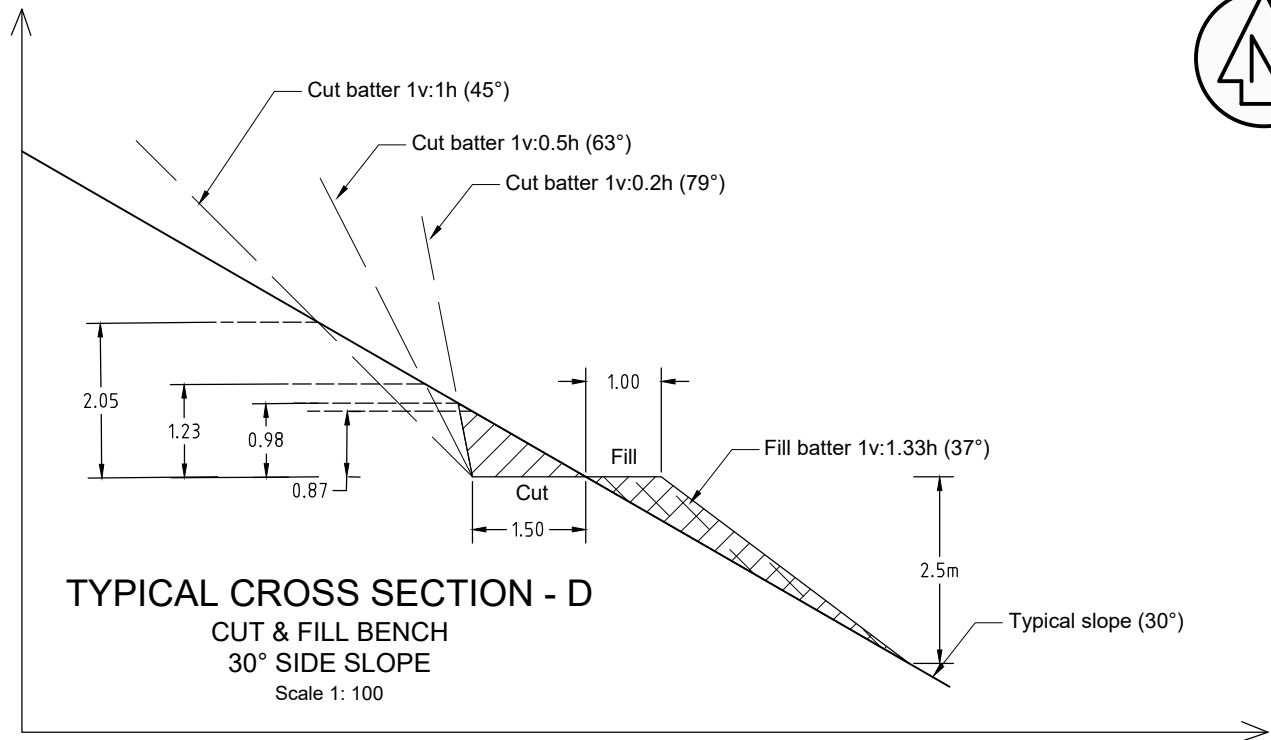
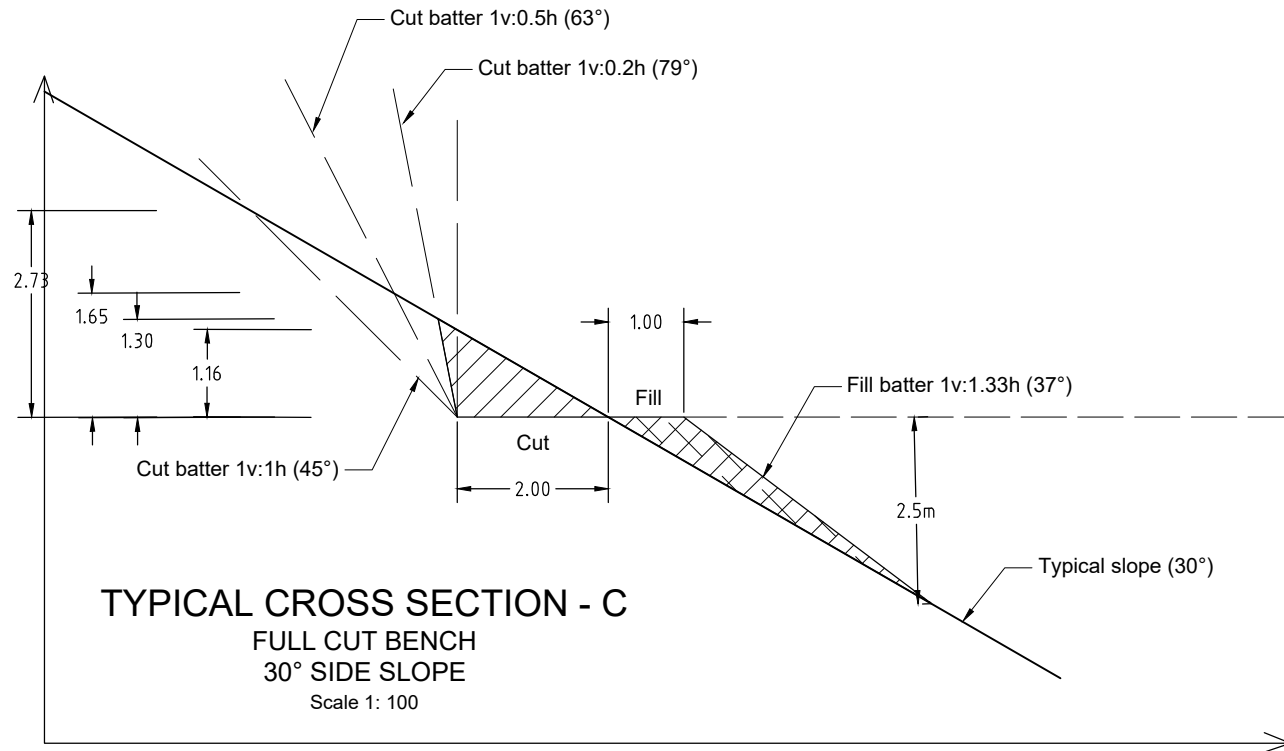
Level 2 Brownston House, 21 Brownston St., Wanaka, Ph: (03) 443 5577, E-mail: [contact@southernland.co.nz](mailto:contact@southernland.co.nz), [www.southernland.co.nz](http://www.southernland.co.nz)  
Any person using Southern Land drawings and other data accepts the risk of: using the drawings and other data in electronic form without requesting and checking them for accuracy against the original hard copy versions or with Southern Land directly and ensuring the information is the most recent issue. If this plan is being used for resource consent purposes then areas and dimensions should be considered indicative and subject to final Land Transfer Survey. As areas and dimensions may vary upon survey it should not be attached to sale & purchase agreements without an appropriate condition to cover such variations.



## TYPICAL CROSS SECTIONS KAWARAU GORGE TRAIL

COPYRIGHT: THE COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS FOR THE INFORMATION SHOWN ON THIS PLAN REMAIN THE PROPERTY OF SOUTHERN LAND LTD. IT MAY NOT BE REPRODUCED WITHOUT THE PRIOR CONSENT OF SOUTHERN LAND LTD.

PREPARED FOR CENTRAL OTAGO QUEENSTOWN TRAIL NETWORK TRUST				SCALE AS SHOWN	
				DATUM & LEVEL NZTM 2000	
SURVEYED DH	DATE 2019	CHECKED DH	DATE 13/5/19	DRAWING REFERENCE T4303-2_P1	REVISION A
DRAWN TD	DATE 27/9/18	APPROVED TD	DATE 14/5/19		

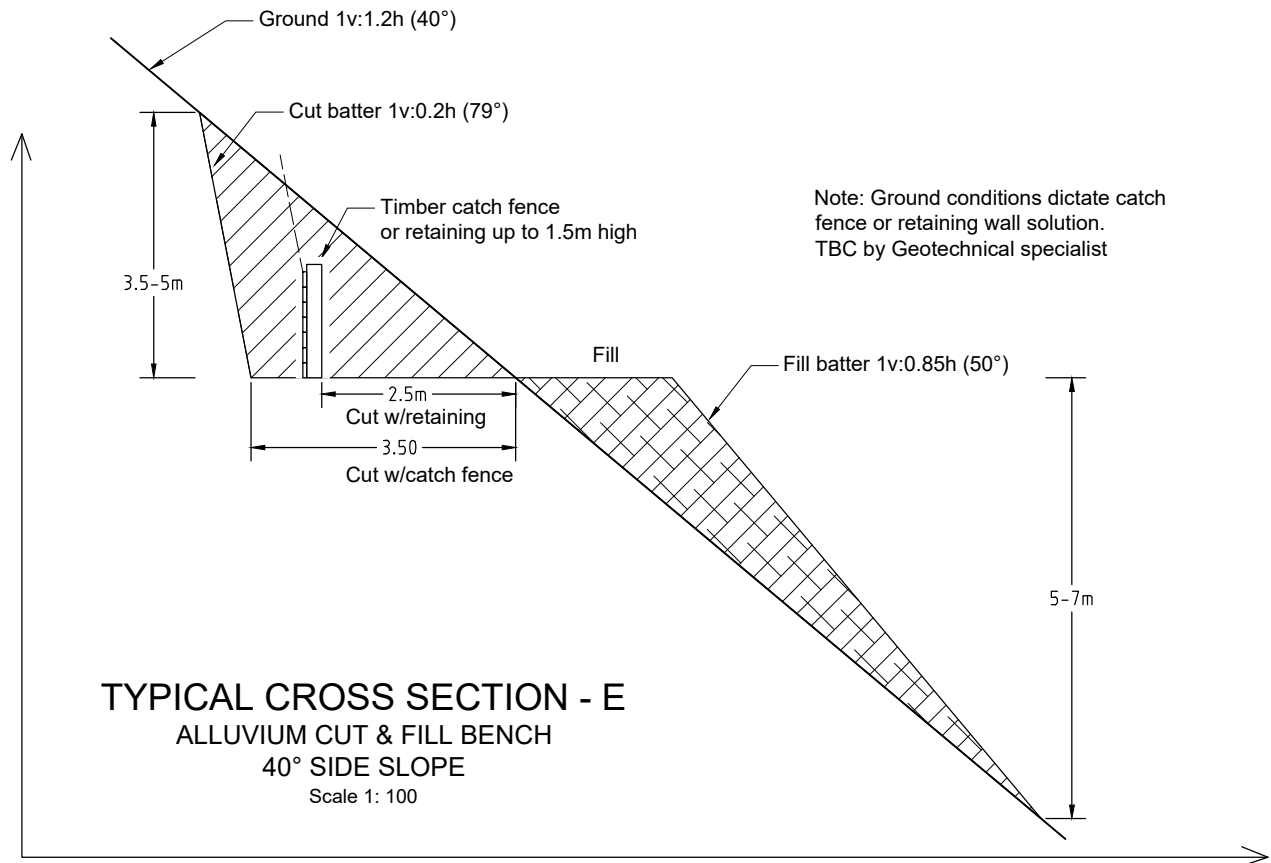


2.0m wide full cut bench, vertical cut face, 1: 1.33 fill batter

Side Slope (deg)	Vertical Cut height (m)	Fill Height (m)
10	0.44	0.30
20	0.91	0.70
25	1.16	1.31
30	1.44	2.47
35	1.75	5.20
40	2.10	7.00

1.5m wide cut & 1m wide Fill, vertical cut face, 1:1.33 fill batter

Side Slope (deg)	Vertical Cut height (m)	Fill Height (m)
10	0.26	0.22
20	0.58	0.67
25	0.70	1.13
30	0.87	2.47
35	1.10	3.50
40	1.25	5.00



REVISION	DESCRIPTION	DATE
A	ORIGINAL ISSUE	14/5/2019

Level 2 Brownston House, 21 Brownston St., Wanaka, Ph: (03) 443 5577, E mail: contact@southernland.co.nz, www.southernland.co.nz



## TYPICAL CROSS SECTIONS KAWARAU GORGE TRAIL

COPYRIGHT: THE COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS FOR THE INFORMATION SHOWN ON THIS PLAN REMAIN THE PROPERTY OF SOUTHERN LAND LTD. IT MAY NOT BE REPRODUCED WITHOUT THE PRIOR CONSENT OF SOUTHERN LAND LTD.

PREPARED FOR CENTRAL OTAGO QUEENSTOWN TRAIL NETWORK TRUST				SCALE AS SHOWN	
				DATUM & LEVEL NZTM 2000	
SURVEYED DH	DATE 2019	CHECKED DH	DATE 13/5/19	DRAWING REFERENCE T4303-2_P1	REVISION A
DRAWN TD	DATE 27/9/18	APPROVED TD	DATE 14/5/19		



## TechnologyOne ECM Document Summary

Printed On 29-Oct-2020

Class	Description	Doc Set Id / Note Id	Version	Date
PUB_ACC	T4303-2_E2 Underpass Site Plan	6665203	1	29-Oct-2020
PUB_ACC	T4303-2_E3 Rev A Bridges	6665202	1	29-Oct-2020
STAFF	Email from Contact Energy considering themselves to be an affected party week of 21-9-20	6637043	1	01-Oct-2020





PT LOT 3  
DP 27395  
ROCK SUPPLIES NZ

SH6

North Approach  
1:14 grade to underpass  
Retaining up to 4m at portal  
6m wide minimum easement width

Fence above retaining wall

Sump & soakpit

Roadside barrier fence  
1.5m off EOS - 50m

Edge line/Edge of seal

Centrelines - double yellow

Lane marking

Edge line/Edge of seal

Victoria Flat Road - 260m

Roadside barrier fence  
1.5m off EOS - 35m

Underpass 25m  
2.5m high, x 3m wide x25m long  
40m approach cuttings - Retaining up to 4m

Fence above retaining wall

LOT 8  
DP 402488  
Cardrona Cattle Co

South Approach  
1:14 grade  
Retaining up to 4m at portal  
15m wide easement required

Note:-  
1. Boundary data sourced from LINZ XML  
2. Additional imagery sourced from LINZ By CC 4.0



REVISION	DESCRIPTION	DATE
A	ORIGINAL ISSUE	25/3/20

Level 2 Brownston House, 21 Brownston St., Wanaka, Ph: (03) 443 5577, Email: contact@southernland.co.nz, www.southernland.co.nz

Any person using Southern Land drawings and other data accepts the risk of: using the drawings and other data in electronic form without requesting and checking them for accuracy against the original hard copy versions or with Southern Land directly and ensuring the information is the most recent issue. If this plan is being used for resource consent purposes then areas and dimensions should be considered indicative and subject to final Land Transfer Survey. As areas and dimensions may vary upon survey it should not be attached to sale & purchase agreements without an appropriate condition to cover such variations.

CSNZ THE CONSULTING SURVEYORS OF NEW ZEALAND A DIVISION OF THE NEW ZEALAND INSTITUTE OF SURVEYORS

## PROPOSED UNDERPASS SH6 - VICTORIA FLATS

COPYRIGHT: THE COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS FOR THE INFORMATION SHOWN ON THIS PLAN REMAIN THE PROPERTY OF SOUTHERN LAND LTD. IT MAY NOT BE REPRODUCED WITHOUT THE PRIOR CONSENT OF SOUTHERN LAND LTD.

PREPARED FOR  
CENTRAL OTAGO QUEENSTOWN  
TRAIL NETWORK TRUST

SCALE  
1: 5,00 @ A3

DATUM & LEVEL  
NZTM 2000



SURVEYED	DATE	CHECKED	DATE
TD	5/2018	TD	31/5/18
DRAWN	DATE	APPROVED	DATE
TD	13/6/18	TD	31/5/18

DRAWING REFERENCE	REVISION
T4303-2_E2	A





**Note**  
1. Boundary data sourced from LINZ XML

 <small>Level 2 Brownston House, 21 Brownston St., Wanaka, Ph: (03) 443 5577, Email: contact@southernland.co.nz, www.southernland.co.nz</small> <small>Any person using Southern Land drawings and other data accepts the risk of: using the drawings and other data in electronic form without requesting and checking them for accuracy against the original hard copy versions or with Southern Land directly and ensuring the information is the most recent issue. If this plan is being used for resource consent purposes then areas and dimensions should be considered indicative and subject to final Land Transfer Survey. As areas and dimensions may vary upon survey it should not be attached to sale &amp; purchase agreements without an appropriate condition to cover such variations.</small>	REVISION	DESCRIPTION	DATE
	A	ORIGINAL ISSUE	19/10/2020
 <small>THE CONSULTING SURVEYORS OF NEW ZEALAND A DIVISION OF THE NEW ZEALAND INSTITUTE OF SURVEYORS</small>			

## NEVIS FERRY BRIDGE SITE PLAN

COPYRIGHT: THE COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS FOR THE INFORMATION SHOWN ON THIS PLAN REMAIN THE PROPERTY OF SOUTHERN LAND LTD. IT MAY NOT BE REPRODUCED WITHOUT THE PRIOR CONSENT OF SOUTHERN LAND LTD.

PREPARED FOR CENTRAL OTAGO QUEENSTOWN TRAIL NETWORK TRUST				SCALE 1: 500 @ A3	
				DATUM & LEVEL NZTM 2000	
SURVEYED TD	DATE 2019	CHECKED TD	DATE 19/10/20	DRAWING REFERENCE T4303-2_E3	REVISION A
DRAWN TD	DATE 19/10/20	APPROVED TD	DATE 19/10/20		







Horizontal Scale 1 : 500  
Vertical Scale 1 : 500

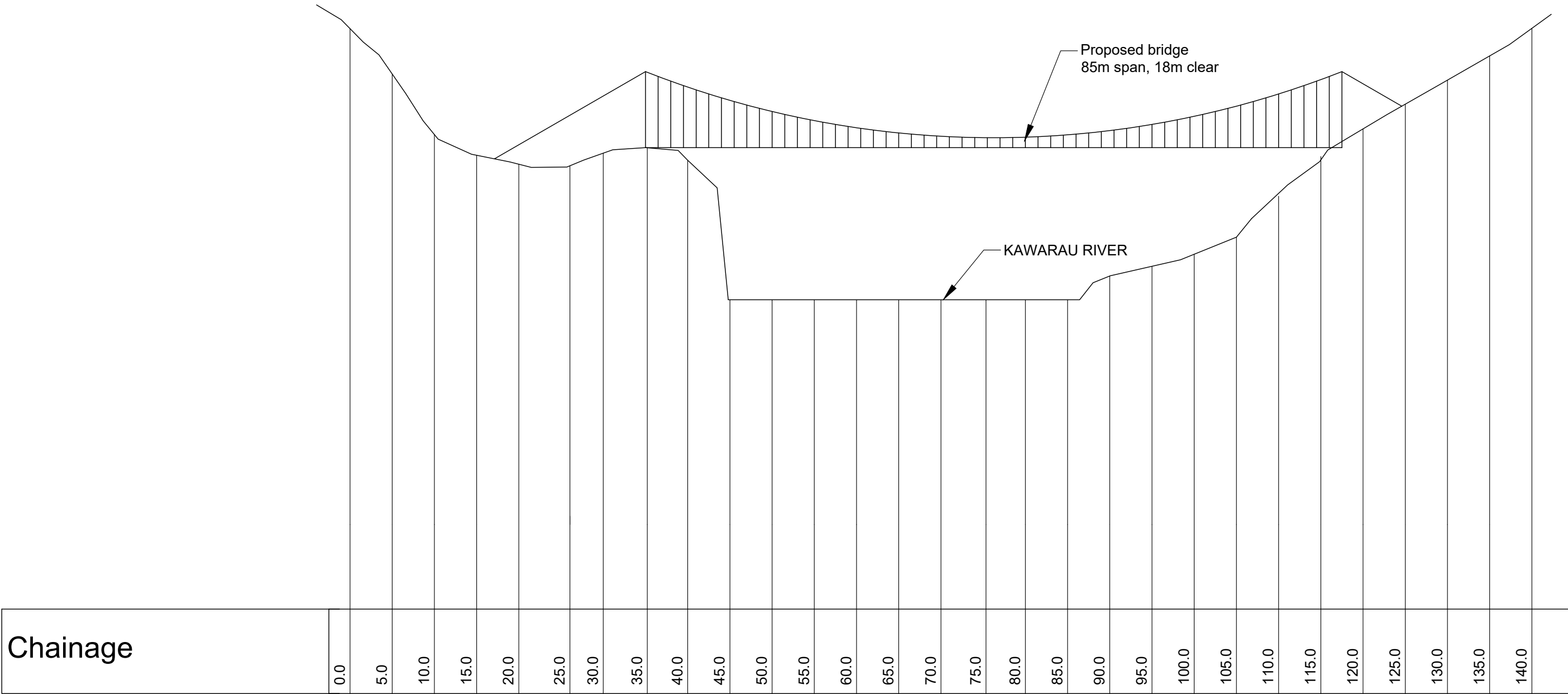




**Note**  
1. Boundary data sourced from LINZ XML

	REVISION	DESCRIPTION	DATE	<h1>CITROEN RAPID BRIDGE SITE PLAN</h1>	PREPARED FOR  CENTRAL OTAGO QUEENSTOWN TRAIL NETWORK TRUST				SCALE 1: 500 @ A3			
	A	ORIGINAL ISSUE	19/10/2020						DATUM & LEVEL NZTM 2000			
									DRAWING REFERENCE T4303-2_E2	REVISION A		
Level 2 Brownston House, 21 Brownston St., Wanaka, Ph: (03) 443 5577, Email: contact@southernland.co.nz, www.southernland.co.nz				COPYRIGHT: THE COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS FOR THE INFORMATION SHOWN ON THIS PLAN REMAIN THE PROPERTY OF SOUTHERN LAND LTD. IT MAY NOT BE REPRODUCED WITHOUT THE PRIOR CONSENT OF SOUTHERN LAND LTD.								
Any person using Southern Land drawings and other data accepts the risk of: using the drawings and other data in electronic form without requesting and checking them for accuracy against the original hard copy versions or with Southern Land directly and ensuring the information is the most recent issue. If this plan is being used for resource consent purposes then areas and dimensions should be considered indicative and subject to final Land Transfer Survey. As areas and dimensions may vary upon survey it should not be attached to sale & purchase agreements without an appropriate condition to cover such variations.												
												
				SURVEYED TD				DATE 2019	CHECKED TD	DATE 19/10/20		
				DRAWN TD				DATE 19/10/20	APPROVED TD	DATE 19/10/20		





Horizontal Scale 1 : 500  
Vertical Scale 1 : 500



**Subject:** Email from Contact Energy considering themselves to be an affected party week of 21-9-20

---

**From:** Oli McIntosh <[oli.mcintosh@codc.govt.nz](mailto:oli.mcintosh@codc.govt.nz)>

**Sent:** Tuesday, 29 September 2020 1:23 pm

**To:** [vicki@visionplanning.co.nz](mailto:vicki@visionplanning.co.nz)

**Subject:** Contact Energy

Hi Vicki,

Just FYI Contact energy contacted one of my colleagues last week and have requested to be considered as an affected party because the trail will contain part of their operating easement which they actively use for 4WD access. Please consider them in your s95 report.

As for our notification deadlines I believe it is Monday 10am but in practice they tend to need to be done a couple days ahead of the capacity for our admin support to finalise these on Monday morning is always very stretched.

Cheers,



**OLI  
MCINTOSH  
SENIOR  
PLANNING  
OFFICER**

1 Dunorling  
Street  
PO Box 122,  
Alexandra  
9340  
New Zealand

**p** +64 3 440 0642  
**m** +64 22 010 6205  
**f** +64 3 448 9196  
**e** [Oli.McIntosh@codc.govt.nz](mailto:Oli.McIntosh@codc.govt.nz)  
**w** [www.codc.govt.nz](http://www.codc.govt.nz)

**FOLLOW US ON**



If you have received this email and any attachments to it in error, please take no action based on it, copy it or show it to anyone. Please advise the sender and delete your copy. Thank you.