

FILE NOTE**FROM: Craig Wilson****DATE: 17 April 2009****FILE: PAV 13-01-75****SUBJECT: Rise and Shine covenant**

On April 1 Rob R and myself drove up the Thompsons Gorge Road to the gate midway up the valley while at Bendigo for Clematis spraying. The covenant looked the same as last year, gorse still needs spraying and consideration needs to be given to controlling conifers near the gate and sluicings.
No other concerns noted.

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Item 2

File: PAV-13-01-75

Date: 20/12/2017

By: Sasha Roselli

SUBJECT: Bendigo Conservation Covenant Photo-point monitoring 8 December 2017

I conducted photo-point monitoring for Bendigo Conservation Covenant on 8/12/2017. In general, the covenant was in good condition.

Last year Terra mentioned the overgrazing and invasion of briar to the owner Sec 9(2)(a)

The overgrazing seems to have lessened with more grass cover at most of the points than last year, despite it being very dry this summer. It is still not to the level of 2007 though so this still needs to be monitored.

The briar is still present but it seems unreasonable to ask Sec 9(2)(a) to remove it when DOC does not remove briar on its own land. The conservation covenant does require the owners to control briar as there is not statutory requirement to do so. As a result I have not mentioned it in my letter to the owners this year.

Prior accessing the covenant I phoned the owner Sec 9(2)(a) and the Manager Sec 9(2)(a)
Sec 9(2)(a)

Photos and GPX files are stored in: Q:\GIS_Users\Alexandra\Data\Biodiversity\Bendigo Hill - D400403000\Covenants\Bendigo Hill - Rise and Shine\Monitoring\Photos\2017

Photos included in item 9

Copy of Letter

20/12/2017

Dear **Sec 9(2)(a)**

I conducted photo-point monitoring for Bendigo Conservation Covenant on 8/12/2017. In general, the covenant was in good condition, and the shrublands in particular are looking healthy despite not spreading much.

Last year Terra mentioned some apparent overgrazing at some of the photo points to you. The tussock cover is still depleted compared to the photos taken in 2007, but show an improvement from last year.

I have attached the photos for your records. If you have any questions about this years monitoring, or any other aspect of your covenant, please feel free to contact me.

Yours sincerely

Sasha Roselli

Sec 9(2)(a)

Ranger Operations - Biodiversity

Department of Conservation - *Te Papa Atawhai*


Kā Moana Haehae / Alexandra Office

43 Dunstan Rd | PO Box 76, Alexandra 9340

DOCDM-1204478
PAV-13-01-75

18 July 2013

Sec 9(2)(a)



Bendigo Special Lease, Covenant spraying incident and renewal of covenant agreements

See Item 3a for report

As discussed, please find enclosed a copy of Carol Jensen's report on the Bendigo Special Lease vegetation monitoring programme. This report shows that tussock cover has declined to the degree that thresholds have been reached in the Castle Rock and Moka Blocks. Once you have supplied the stock numbers from 2009 to the present, we will be in a position to discuss the future grazing and management of the lease with you.

Also as discussed, we have drafted new covenant documents for each property arising from the Bendigo tenure review. These new documents better reflect the intention of the tenure review, and make clear what values are to be protected on what land. Once they have been reviewed by our solicitors, they will be sent to the relevant landowners for their consideration.

As the covenant agreement currently stands, the spraying of horehound that took place in January 2013 should have had our prior approval, as it killed native shrub species within the covenanted area (which is contrary to the stated objectives of the covenant). However, had the covenants following tenure review been implemented as intended, the spraying in question would not have required our approval.

Until the new covenant agreements are in place, I would like to propose that we use the following guidelines regarding land covered by the covenants:

- On land where the intention of the covenant was primarily to protect biodiversity values (Mt Koinga), no activity that damages the vegetation is to take place without prior approval from the Department.
- On land where the intention of the covenant was to protect landscape, historic and biodiversity values (Rise and Shine Valley), no activity that damages any of these values is to take place without prior approval from the Department.

- On the remainder of the land, no activity that damages historic values is to take place without prior approval from the Department, and the Department is to be notified of any action (such as spraying) that may damage biodiversity values before the activity is undertaken.

Following these guidelines should avoid any complications regarding the covenant and ensure that its intentions are upheld.

Please contact me on **Sec 9(2)(a)** or cgwilson@doc.govt.nz if you would like to discuss this further.

Yours sincerely,

Craig Wilson
Biodiversity Ranger

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VEGETATION MONITORING ON BENDIGO SPECIAL LEASE

1994 - 2013



**Report prepared for the
Department of Conservation by:
Carol Jensen**

Sec 9(2)(a)



May 2013

SUMMARY

Vegetation monitoring was established on Bendigo Special Lease in 1994 to provide base line data as a basis for future management decisions. These transects (12 transects on 4 blocks) were remonitored in 2000, 2006 and 2013 and the results are presented here. The Management Prescription Document for Bendigo Special Lease allows for grazing rates to be linked to the vegetation monitoring results at lease renewal. The agreement allowed for a reduction in stocking rate if the mean bare ground cover increased by more than 5% or total tussock cover decreased by more than 5% within each block. Using the 1994 monitoring data as a baseline, changes in bare ground and tussock cover were assessed on each of the four blocks.

Comparison of the 1994 and 2013 results show two of the four blocks (North Castle and Sunny Devils) to be within the threshold figure for bare ground cover. Moka block just reaches the threshold figure of 5% increase in bare ground with Castle Rock block well over the threshold figure in terms of ground cover (12%).

Mean tussock cover was maintained on two blocks but declined on two blocks. Moka and Castle Rock blocks exceeded the threshold figure with mean tussock cover declining by 12 and 15% respectively. In North Castle block the lower short tussock transects showed a marked decline in total tussock cover. Opposing trends of increasing total tussock cover on the higher tall tussock transects meant that the mean total tussock cover for the block was within the threshold figure.

Hawkweeds are present and increasing on all but two transects. On the lower short tussock transects hawkweed cover is increasing at the expense of native vegetation cover.

Actual stock numbers for the 2006 - 2013 period are not available at the time of writing but frequent sign of sheep, cattle and pigs in the vicinity of the lower altitude transects (below 1450m) indicate high animal use.

Some adjustment to the grazing rate on Moka and Castle Rock blocks should be considered under the conditions agreed to in the Management Prescription Document. Although the mean total tussock cover on North Castle block is within the threshold figure the decline of total tussock cover on the lower short tussock transects warrants a reduction in grazing pressure.

The Bendigo Special Lease transects should be next monitored in March / April 2019 prior to lease renewal.

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- I. Transect data
- II. Photographs (Figures 1-12)

1. BACKGROUND

A Special Lease covering the higher altitude blocks on Bendigo Station was created as part of the tenure review process. The purpose of the lease was to maintain or enhance conservation, recreation and soil and water values while allowing for continued grazing. In April 1994 a vegetation monitoring programme was established to provide baseline data on which to base future grazing management decisions. Grazing rights were to be issued for 7 year periods and prior to lease renewal transects were to be remonitored and the data assessed to indicate any change in vegetation cover over time.

The Management Prescription Document for the Bendigo Special Lease allows for the vegetation monitoring results to be linked to grazing rates at lease renewal. The agreement allowed for a reduction in stocking rate if the mean bare ground cover increased by more than 5% cover or total tussock cover decreased by more than 5% cover within each block. Bare ground includes rock and rubble. Total tussock cover includes blue tussock (*Poa colensoi*), hard tussock (*Festuca novae-zelandiae* and *Festuca matthewsii*) and tall tussock (*Chionochloa macra* and *Chionochloa rigida*).

The initial monitoring in April 1994 established 12 transects (1 on Moka block, 6 on North Castle block, 3 on Castle Rock block and 2 on Sunny Devils block). Physical descriptions of each site and vegetation cover, frequency and biomass were recorded as well as a photographic record including photopoints, transect photos and closeup photos of transect vegetation. Details of the methods used are described in the 1994 report. The 12 transects were remonitored in 2000, 2006 and 2013 and the resulting data analysed and compared with the 1994 data. A detailed summary of all the vegetation data collected during 1994, 2000, 2006 and 2013 is included in the appendices.

All the original photographs (slides) and data from the 1994 and 2000 monitoring are held at the authors address where they are available to the Department of Conservation when required. In 2005 all the location, transect and photopoint slides were copied in digital format onto cd. The Department of Conservation, Central Otago Area office in Alexandra has a copy of this cd.

2. RESULTS

2.1 Moka block (transect 1)

The Moka block is essentially short tussock grassland dominated by blue tussock and hard tussock. Transect 1 (Fig.1) samples this vegetation type and the results are presented in Table 1. The dominant tussock on transect 1 is *Festuca matthewsii* subsp.*pisamontis* called *Festuca novae-zelandiae* in earlier reports. These fescue tussocks are very similar and for the purposes of this report will be called hard tussock as in previous years.

	Transect 1				Change (% cover)
	1994	2000	2006	2013	
Bare ground	7	7	10	12	5
Total tussock cover	56	51	49	35	-21
Blue tussock	24	27	19	16	-8
Hard tussock	32	24	30	19	-13

Table 1: Change in cover of bare ground and total tussock on Moka block

The bare ground component of the single transect in this block increased over the 19 years since 1994. Total tussock cover decreased by 21%. Both short tussocks declined more than 5% over 19 years. Points heights also showed a marked decline. At the time of monitoring cattle were present in this block with several cow pats on or near the transect. Several large mobs of sheep were also present. There was no gate in the fence dividing Moka and North Castle blocks so stock have access to both blocks.

The results and photos (Fig.1) show a steady increase in golden spaniard (*Aciphylla aurea*). Frequency increased from 24% in 1994 to 76% in 2013. Similarly cover increased from 1-6%.

Tussock hawkweed (*Hieracium lepidulum*) increased in frequency from 28-64% although cover is still low at 5%. Two other hawkweeds, mouse-ear hawkweed (*Hieracium pilosella*) and king devil (*Hieracium praealtum*) also increased in frequency (both were recorded on this transect for the first time in 2006).

2.2 North Castle block (transects 2-7)

The North Castle block is the largest block and includes the highest part of the Special Lease along the exposed broad summit plateau of the Dunstan Range where the vegetation is dominated by extensive areas of cushion vegetation (transects 2,3,5) with patches of slim snow tussock (*Chionochloa macra*) (transect 4). The lower part of the block has short tussock (transects 6,7). The primary management aim for this block is to maintain a native vegetation cover and to protect soil and water values. Table 2 summarises the cover data for bare ground and tussock species.

Overall tussock cover within the block (including tall tussock, blue tussock and hard tussock) has changed little since 1994. Similarly bare ground averaged over the 6 transects has not changed much over 19 years. However there are some opposing trends with

transects 3 and 4 showing a big increase in total tussock cover (both tall tussock and blue tussock have increased), whereas transects 6 and 7 have shown a marked decline in short tussock cover (Table 2).

	Transect 2				Transect 3				Transect 4			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
Bare ground	9	9	10	10	12	11	8	9	8	11	7	8
Total tussock	30	30	27	28	16	14	31	29	34	27	42	51
Tall tussock					5	3	6	10	32	22	33	44
Blue tussock	30	30	27	25	11	11	25	19	2	5	9	7
Hard tussock				3								

	Transect 5				Transect 6				Transect 7			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
Bare ground	6	5	2	4	14	11	9	16	7	13	12	12
Total tussock	3	3	6	5	33	25	16	7	30	30	18	15
Tall tussock												
Blue tussock	3	3	6	5	13	14	13	2	17	16	5	5
Hard tussock					20	11	3	5	13	14	13	10

	Mean cover (%) over transects 2-7				Change in mean cover (%) since 1994
	1994	2000	2006	2013	
Bare ground	9	10	8	10	-1
Total tussock cover	24	22	23	22	-2

Table 2: Changes in cover of bare ground and total tussock on North Castle block transects.

2.2.1 Cushion vegetation

Cushion plants *Celmisia sessiliflora*, *Celmisia viscosa*, *Dracophyllum muscoides*, *Hectorella caespitosa* and *Chionohebe densiflora* are adapted to the extremely exposed alpine environment. These cushion plants form an important protective ground cover and although generally not palatable to stock, can be broken up by trampling, thereby exposing bare ground. It is important that the cushion vegetation cover is maintained (or that the bare ground / rock and rubble component doesn't increase) and that the cover provided by the cushion plants is not reduced.

The three highest transects (transects 2,3,5) sample cushion vegetation and are all above 1500m. On transect 2 (Fig.2) *Celmisia sessiliflora* and blue tussock provide the dominant cover. The cover of both species has declined over 19 years. There was a lot of dead *Celmisia sessiliflora* on the transect and this has shown up as a decline in cover (20-13%) and increased dead vegetation (18-24%). Blue tussock cover declined by 5%. In 1994 tussock hawkweed was the only hawkweed present on transect 2. In 2013 two other hawkweed species, mouse-ear hawkweed and king devil, were recorded for the first time. *Celmisia viscosa* provided the main cover on transect 3 (Fig.3). Cover remains the same at 23% but the frequency has increased (76 - 92%). The scattered tall tussocks have shown an increase in cover and frequency and blue tussock has also increased in cover, giving a total tussock cover increase of 13% since 1994. On transect 5 (Fig.5) the dominant species

is *Dracophyllum muscoides* which has shown a slight increase in cover (46-52%) over 19 years. Blue tussock cover and frequency also increased.

The total cushion vegetation cover on transects 3 and 5 has been maintained and looks in good condition. No sheep tracks were observed through the cushion vegetation and the bare ground component has improved slightly. The increase in blue tussock cover on transects 3 and 5 may be an indication of long term regeneration to blue tussock and eventual succession to tall tussock. No hawkweeds were recorded on the cushion vegetation transects 3 and 5.

2.2.2 Tall and short tussock grassland

Tall tussocks (*Chionochloa macra*) and short tussocks provide the dominant vegetation cover in this block. Originally the tall tussock cover would have been far more extensive. Transect 4 (Fig.4) samples some of the remnant *Chionochloa macra* areas. In 2000 the tall tussock on this transect showed a decline in cover as the tussocks had been grazed by sheep leaving bristle-like tussocks (see 2000 report). Monitoring in 2006 showed the tall tussocks to be flowering profusely and tussock cover restored to 1994 levels. In 2013 recovery had continued and tall tussock now provides 44% cover (an increase of 17% since 1994). Several young and seedling tussocks were seen, indicating that if the tussocks are allowed to flower and set seed then tussock recruitment will occur. Tussock recruitment may be facilitated by timing grazing to occur after tussock flowering. Cushion vegetation is still present but may decline over time as tall tussock and blue tussock seeds into cushions and may eventually shade out the cushion plants.

Blue tussock provided cover on all transects in this block and increased on all cushion and tall tussock plots but cover declined markedly on the short tussock transects 6 (13 - 2%) and 7 (17 - 5%). Frequency and point heights also declined.

Hard tussock was only present on the lower part of the block in short tussock grassland on transects 6 and 7. On both transects hard tussock declined in terms of cover, frequency and point heights.

Tussock hawkweed and mouse-ear hawkweed are present in the short tussock grassland of transects 6,7 where frequency and cover has steadily increased over 19 years. A third hawkweed species, king devil is also present on both transects.

Golden spaniard cover and frequency increased in the short tussock grassland around transects 6 and 7 and this is apparent in the photos (Figs.6,7).

Raoulia subsericea has declined on both transects over 19 years. On transect 6 *Raoulia subsericea* cover declined (16 - 7%) and on transect 7 (20 - 3%).

In the vicinity of transect 7 (the lowest transect) there is considerable disturbance by stock and pigs. There are cowpats, sheep hoof prints and droppings and lots of pig rooting evident. Stock camp around the base of the large rock tors at the top of the transect. The high disturbance and animal pressure in this area is probably responsible for the decline in native dominance (blue tussock, hard tussock and *Raoulia subsericea*) and the increase in exotic vegetation (hawkweed species). Since 1994 the dominant native species (*Raoulia subsericea* and short tussock) combined cover has declined (50 - 18% cover) but hawkweed species

cover has increased (3 - 46%). Transect 6 showed a similar trend with hawkweed species increasing (4 - 46%) combined cover, over 19 years, at the expense of native (*Raoulia subsericea*, blue tussock and hard tussock) combined cover which declined (49 - 14%).

Although the decline in short tussock cover on transects 6,7 is quite marked the overall bare ground component and the total tussock cover for the block as a whole has not reached the threshold figure due to the increase in tall tussock cover and blue tussock on the higher less disturbed transects 3,4. Although the overall change in bare ground and total tussock cover is not enough to trigger stock reductions, the loss of short tussock cover on the lowest transects (6,7) is quite marked and it is clear that native vegetation cover is not being maintained.

2.3 Castle Rock block (transects 8 - 10)

Tall tussock (*Chionochloa rigida*) and short tussock provide the dominant vegetation cover on Castle Rock block. The primary management aim for this block is to maintain a native vegetation cover and to protect soil and water values. Transects 8-10 sample tall tussock communities. Maintenance or improvement of the tall tussock cover is most desirable given that the bare ground / rock component is fairly high.

	Transect 8				Transect 9				Transect 10			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
Bare ground	15	11	11	21	25	29	40	49	20	30	29	27
Total tussock	48	52	53	46	37	30	24	18	59	68	39	35
Tall tussock	31	44	39	33	26	16	14	10	43	45	26	26
Blue tussock	12	10	7	6	11	13	8	7	12	23	12	7
Hard tussock	5	2	7	7	0	1	2	1	4	0	1	2

	Mean cover (%)				Change in mean cover (%) 1994 - 2013
	1994	2000	2006	2013	
Bare ground	20	23	27	32	12
Total tussock	48	50	36	33	-15

Table 3: Changes in mean cover of bare ground and total tussock cover on Castle Rock block since 1994

The bare ground component increased on all 3 transects (Table 3). The big increase in bare ground on transects 9 is of concern. Since 1994 this transect has shown a steady increase in bare ground at the expense of tall tussock and litter. At the time of monitoring there was a lot of sheep sign and tussocks chewed. There was also a lot of pig rooting in the vicinity. Both transect 9 and 10 are on steep rubbly sites which are actively eroding (Figs. 9,10).

Mean total tussock cover on Castle Rock block has declined by 15% due to loss of tall tussock cover on transects 9 and 10. Blue tussock cover has also declined on all 3 transects.

Golden spaniard (*Aciphylla aurea*) cover and frequency remained at similar levels on transects 8 and 9 but transect 10 has shown a marked increase in frequency since 1994 (24 - 76%).

Tussock hawkweed is present on all 3 transects in this block and has shown a steady increase over 19 years. Although cover remains fairly low (1-9%) the mean frequency has

increased from 13 - 72% over 19 years. In 1994 mouse-ear hawkweed was not recorded on transects 8-10 but in 2013 it was present on all transects. In 2013 king devil was recorded for the first time on transects 8 and 9.

2.4 Sunny Devils block (transects 11,12)

Transects 11 and 12 sample the short tussock / golden spaniard vegetation of Sunny Devils block. The bare ground / rock component is high (average 40%) and therefore maintenance or improvement of ground cover is desirable.

	Transect 11				Transect 12			
	1994	2000	2006	2013	1994	2000	2006	2013
Bare ground (%)	36	43	47	43	51	45	44	38
Total tussock cover (%)	16	13	11	11	9	12	11	15
Blue tussock	9	9	6	4	3	9	7	10
Hard tussock	7	4	5	7	6	3	4	5

	Mean cover (%)				Change in mean cover (%) 1994 - 2013
	1994	2000	2006	2013	
Bare ground (%)	43	44	45	40	-3
Total tussock cover (%)	12	12	11	13	1

Table 4: Changes in bare ground and short tussock cover on Sunny Devils block.

Transect 11 has shown a slight increase in bare ground over 19 years and transect 12 has shown a decrease. The increase in bare ground on transect 11 is mainly due to a decrease in cover of golden spaniard. A lot of the golden spaniard has died (shows up in the results as dead vegetation). In 2013 there was a lot of pig rooting and sheep tracks visible. Hard tussock, blue tussock and the native mat plant *Raoulia subsericea* have also declined.

Three species of hawkweeds were recorded on Sunny Devils block. Tussock hawkweed frequency on transect 11 more than doubled over 19 years (40-92%) and cover increased from 4 to 21%. Tussock hawkweed on transect 12 also increased in frequency from 16 – 44% over 19 years. Another hawkweed, king devil, on transect 11 has increased slightly (4-12% frequency) over 19 years. Mouse-ear hawkweed on transect 12 increased in frequency (8-56%) and cover (1-17%) so that it now provides the most cover of any species. On transect 12 the decrease in bare ground appears to be due to the increase in mouse-ear hawkweed cover. Mouse-ear hawkweed also occurred for the first time on transect 11.

Both transects 11 and 12 showed high use with many sheep hoofprints and droppings visible and much bare and disturbed ground. There is also pig rooting in the vicinity. There were a mob of at least 100 sheep in head of gully below transect 11.

2.5 Stocking rates

Table 5 gives some indication of stock numbers grazing the four blocks up to 2005. Stock numbers were higher from 1997 – 2003 with reduced stocking rates in 2004 and 2005.

	Moka	NorthCastle	Castle Rock	Sunny Devils
Stock limit over 4 weeks (from Management Prescription Document)	3000	4000	800	500
	Actual stock grazed (sheep equivalent over 4 weeks)			
1997	2000	4000	3000	1400
1998	3000	4000	3000	1400
1999	2400	5000	2400	1400
2000	2400	4000	1400	1000
2001	2400	4000	1000	1000
2002	2000	3400	1400	1000
2003	2250	2250	1500	1050
2004	600	1050	1050	850
2005	Not grazed	700	700	Not grazed

Table 5: Stocking numbers over the years 1994-2005. Stock numbers supplied by Department of Conservation, Dunedin.

Castle Rock block and Sunny Devils block appear to have been grazed at well above the stock limits set in the Management Prescription Document until 2005 when stock numbers dropped below the limit.

Actual stock numbers for the 2006 - 2013 period were not available at the time of writing this report.

2.6 Threatened and Uncommon plants

Several plants recorded near or on transects, are listed as threatened or uncommon (de Lange, 2009). They include:

Myosotis oreophila - known only from the northern Dunstons. Several plants were located around rock outcrops above transect 8 (Mike Thorsen, 2006). It is classified as 'naturally uncommon'.

Carmichaelia crassicaule (declining) was present near the top pole of transect 10.

Plantago obconica which is classified as 'naturally uncommon' was present in a seep below transect 6 (Mike Thorsen, 2006).

Myosotis pygmaea var. *drucei* is uncommon and was recorded in cushion vegetation on transect 5.

3.0 CONCLUSIONS

The purpose of the Special Lease is to provide for the maintenance or enhancement of nature conservation, landscape, soil and water and public recreation values, while allowing for continued grazing of the land. Monitoring of vegetation cover and species frequency gives an indication of whether some of these values are being maintained. The Management Prescription Document for the Bendigo Special Lease allows for the vegetation monitoring results to be linked to grazing rates at lease renewal. The agreement allows for a reduction in stocking rate if the mean bare ground cover increases by more than 5% cover or total tussock cover decreases by more than 5% cover within each block.

Comparison of the 1994 and 2013 results show two of the four blocks (North Castle and Sunny Devils) to be within the threshold values for bare ground cover. Moka block just reaches threshold figure of 5% increase in bare ground with Castle Rock block well over the threshold figure in terms of ground cover (12%).

The threshold for total tussock cover was exceeded in Moka block (total tussock declined by 21%) and Castle Rock block where total tussock declined by 15%. North Castle and Sunny Devils blocks are within the threshold for tussock cover. However, there are opposing trends within North Castle block with transects 3 and 4 showing an increasing trend in total tussock cover cancelling out the decline in total tussock on transects 6 and 7. On transects 6 and 7 hawkweeds cover has increased markedly over 19 years at the expense of the dominant native cover which has declined.

There are several areas of concern arising from the observations and results from the 2013 monitoring:

- Bare ground threshold near to or exceeded on Moka and Castle Rock blocks.
- Total tussock threshold exceeded on Moka and Castle Rock blocks
- Due to opposing trends (increasing tussock cover on transects 3,4 and declining tussock cover on transects 6 and 7) the mean threshold figure for total tussock, over North Castle block, is not exceeded. However, there was a marked decline in total tussock on transects 6 and 7.
- One of the primary management aims for North Castle block is to maintain the native vegetation cover. However, the short tussock transects 6 and 7 show a marked increase in hawkweed species at the expense of native cover.
- There is no gate between Moka and North Castle blocks so stock numbers cannot be controlled on these blocks.
- Cattle were observed on Moka block and cowpats observed on transect 7 in North Castle block. The Special Lease document does not allow for cattle grazing.
- Pig rooting was evident in the vicinity of transects 7,9,11 in North Castle, Castle Rock and Sunny Devils blocks.
- Actual stock numbers for the 2006 - 2013 period are not available at the time of writing but frequent sign of sheep, cattle and pigs in the vicinity of the lower altitude transects (below 1450m) indicate high animal use.

In the light of the 2013 monitoring results and observations it would be prudent to consider reducing the stock limits on Moka, North Castle and Castle Rock blocks. The recent actual stock numbers should also be taken into account when they become available.

Future monitoring will continue to indicate trends in the vegetation cover in relation to grazing. The transects should be next monitored in March / April 2019 in the year prior to the next lease renewal.

4. REFERENCES

de Lange, P.J; Heenan, P.B; Given, D.R; Norton, D.A; Courtney, S.P; Cameron, E.K; Barkla, J.W; Hitchmough, R; Townsend, A, J. 2009. Threatened and uncommon plants of New Zealand. *NZ Journal of Botany* 47: 61-96.

Jensen, Carol. 1994. Vegetation Monitoring on Bendigo Special Lease. *Report prepared for the Department of Conservation.*

Jensen, Carol. 2000. Vegetation Monitoring on Bendigo Special Lease 1994-2000. *Report prepared for the Department of Conservation.*

Jensen, Carol. 2006. Vegetation Monitoring on Bendigo Special Lease 1994-2006. *Report prepared for the Department of Conservation.*

APPENDICES

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Transect 1 Moka block

	Ground cover (%)											
	1994	2000	2006	2013								
% bare	7	6	10	12								
% dead vegetation	8	12	14	18								
% litter	6	3	8	6								
% rock & rubble		1	0	1								
% vegetation	79	79	68	64								
	Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
<i>Aciphylla aurea</i>	1	3	6	6	24	32	48	76				
<i>Agrostis capillaris</i>				1				8				
<i>Agrostis muelleriana</i>	0	0	1	1	48	16	36	32				
<i>Agrostis personata</i>	0				8							
<i>Anisotome flexuosa</i>	1	1	3	2	60	48	64	52				
<i>Anthoxanthum odoratum</i>		0	0	0		4	8	16				
<i>Carex kirkii</i> var <i>kirkii</i>		0				4						
<i>Carex</i> sp.	0				4							
<i>Celmisia gracilentata</i>	0		0	0	4		8	8				
<i>Crepis capillaris</i>	0				4							
<i>Deyeuxia avenoides</i>		0	0	1		4	8	28				
<i>Epilobium atriplicifolium</i>	0	0	0	0	16	4	20	16				
<i>Euphrasia petrei</i>			0				4					
<i>Euphrasia zelandica</i>	0	0	2	0	24	32	56	4				
<i>Festuca matthewsii</i>			0				4					
<i>Festuca matthewsii</i> ssp <i>pisamontis</i>	32	24	30	19	100	96	100	92	117	88	158	27
<i>Gaultheria depressa</i> var. <i>nov.</i>	1	1	1	2	12	12	12	20				
<i>Hieracium lepidulum</i>	1	1	3	5	28	44	48	64				
<i>Hieracium pilosella</i>			0	2			12	36				
<i>Hieracium praealtum</i>			0	0			4	12				
<i>Hypochoeris radicata</i>	1	1	1	3	60	40	40	64				
<i>Kelleria dieffenbachii</i>	0	1	1	0	20	8	12	8				
<i>Leucopogon fraseri</i>	1	0	1	2	4	12	20	20				
lichen	0	1	4	1	40	48	64	48				
<i>Luzula rufa</i>	0	0	0	0	8	4	4	4				
moss	1	1	1	0	64	60	52	52				
<i>Pimelea oreophila</i>	2	4	3	4	8	8	16	28				
<i>Poa colensoi</i>	24	27	19	16	100	100	88	96	184	132	66	23
<i>Poa tonsa</i>	0				4							
<i>Raoulia grandiflora</i>	2	1	4	3	48	36	48	60				
<i>Raoulia subsericea</i>	10	4	10	10	84	52	72	68				
<i>Rumex acetosella</i>	0	0	2	1	32	16	76	80				
<i>Rytidosperma nigricans</i>			0				4					
<i>Rytidosperma pumilum</i>	2	2	3	6	64	48	72	72				
<i>Trisetum spicatum</i>	0	0			4	4						
<i>Viola cunninghamii</i>	1	1	1	0	80	80	92	80				
<i>Wahlenbergia albomarginata</i>				0				4				

Note: 0 indicates a value of less than 1% cover

Released under the Official Information Act

Transect 2 North Castle block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	8	8	10	10												
% dead vegetation	18	14	12	24												
% litter	2	3	2	1												
% rock & rubble	1	1	0	1												
% vegetation	70	74	75	64												
Aciphylla hectori	5	2	1	4	56	56	44	72								
Agrostis capillaris				1				4								
Agrostis muelleriana	0	1	1	0	32	32	40	44								
Agrostis personata		0				4										
Anisotome flexuosa				0				8								
Anthoxanthum odoratum				0				4								
Carex kirkii var kirkii	0	0	0	0	4	12	8	28								
Celmisia sessiliflora	20	22	25	13	92	92	96	88								
Deyeuxia avenoides			0				4									
Dracophyllum muscoides	3	3	3	3	4	4	4	4								
Epilobium atriplicifolium	1	0	1	0	56	28	40	56								
Euphrasia zelandica	2	0	2		80	12	72									
Festuca matthewsii ssp pisamontis			2	3			8	20								3
Gaultheria depressa var. nov.	1	0	1	0	16	8	24	28								
Geum leiospermum	0	0			4	12										
Hieracium lepidulum	0	0	0	1	8	12	20	28								
Hieracium pilosella				1				12								
Hieracium praealtum				0				4								
Hypochoeris radicata			0	0			4	4								
Kelleria dieffenbachii	1	3	5	2	16	12	12	20								
Leucopogon fraseri	1	1	0	1	12	12	16	24								
lichen	5	6	8	7	72	88	92	92								
Luzula leptophylla				0				44								
Luzula pumila	0	0	2		12	20	44									
Luzula rufa	1	1	1	1	52	44	56	60								
Lycopodium fastigiatum	1	2	2	0	20	28	36	24								
moss	0	1	2	1	52	68	48	60								
Neopaxia sessiliflorum			0	1			4	4								
Plantago uniflora	0	0	0		4	4	8									
Poa colensoi	30	30	27	25	100	100	100	100	159	104	134	48				
Raoulia grandiflora	6	6	9	7	68	72	76	76								
Raoulia subsericea	2	0	0	0	12	12	8	8								
Rumex acetosella	0	2	0	0	44	60	68	56								
Rytidosperma pumilum	6	6	4	7	80	96	84	88								
Uncinia divaricata	0		1		4		4									
Uncinia fuscovaginata				1				8								
Viola cunninghamii	0	0	0	0	56	44	56	48								
Wahlenbergia albomarginata	0	0	0	0	8	8	16	12								

Note: 0 indicates a value of less than 1% cover

Transect 3 North Castle block

Ground cover (%)					Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	12	11	8	9												
% dead vegetation	17	12	12	12												
% litter	4	4	2	1												
% rock & rubble	0	0	0	1												
% vegetation	67	72	79	77												
Aciphylla hectori	1	1	2	3	24	24	28	32								
Agrostis muelleriana	2	1	3	0	56	60	84	64								
Anisotome flexuosa	0	0	0	0	20	16	12	16								
Carex kirkii var kirkii	2	0	2	2	60	48	44	68								
Celmisia laricifolia	0		0	1	4		4	4								
Celmisia sessiliflora	2	2	1	1	20	12	16	8								
Celmisia viscosa	23	19	28	23	76	76	76	92								
Chionochloa macra	5	3	6	10	16	20	24	24	14	0	32	35				
Dracophyllum muscoides	5	7	11	5	28	32	36	32								
Epilobium atriplicifolium				0				4								
Epilobium sp.	0				4											
Euphrasia zelandica	0	0	0		4	8	16									
Gaultheria depressa var. nov.	0	0	1	0	4	4	8	8								
Gentiana divisa	0	1	0	0	8	8	12	12								
Hectorella caespitosa			0	1			4	4								
Kelleria childii	0	1			4	8										
Kelleria dieffenbachii	3	0	2	1	12	8	8	12								
Leucopogon fraseri	0	1	1	1	12	12	8	12								
lichen	4	5	8	9	76	92	88	84								
Luzula leptophylla	0	0	0	0	28	28	16	28								
Luzula rufa	0	0	1	0	24	36	28	28								
Lycopodium fastigiatum		0				4										
moss	2	2	1	0	72	72	72	44								
Poa colensoi	11	11	25	19	92	92	92	96	18	36	44	12				
Raoulia grandiflora	7	7	5	6	64	76	68	72								
Rumex acetosella	0	0	0	0	4	8	16	12								
Rytidosperma pumilum	7	6	3	4	80	80	76	72								
Uncinia fuscovaginata				0				4								

Note: 0 indicates a value of less than 1% cover

Transect 4 North Castle block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	8	11	7	8												
% dead vegetation	16	13	9	7												
% litter	5	7	2	2												
% vegetation	71	68	82	83												
Abrotanella inconspicua	1	2	2	1	20	20	32	20								
Aciphylla hectori	1	1	2	3	36	44	32	40								
Agrostis muelleriana	1	2	1	0	52	72	48	28								
Anisotome flexuosa	0	0	0	1	16	12	16	16								
Anisotome imbricata	2	1	2	1	20	16	24	12								
Anthoxanthum odoratum				0				12								
Carex wakatipu		0	0	0		4	12	4								
Celmisia laricifolia	0	1	1	1	32	44	36	52								
Celmisia sessiliflora	2	2	2	1	56	60	44	36								
Chionochloa macra	32	22	33	44	92	92	92	96	355	180	280	334				
Chionohebe densifolia	0	0	0	0	12	12	8	8								
Deyeuxia avenoides			0	0			4	8								
Dracophyllum muscoides	21	24	28	31	96	88	96	92								
Dracophyllum pronum				1				4								
Epilobium atriplicifolium	0	1	0	0	28	32	24	20								
Euphrasia zelandica		0	0			20	32									
Festuca madida			0				4									
Gaultheria depressa var. nov.	0	2	1	2	24	28	28	36								
Gentianella sp.	1	1	0	1	12	8	8	24								
Geum leiospermum	0	0	0	0	4	4	4	4								
Hectorella caespitosa		0	1	1		4	8	8								
Hieracium lepidulum				0				8								
Hieracium pilosella				0				4								
Hierochloa novae-zelandiae			0	0			4	4								
Kelleria childii	0	0	1	1	8	12	12	12								
Kelleria villosa	1	1	1	1	8	4	8	12								
Leptinella goyenii	1	2	1	0	40	36	36	8								
Leucopogon fraseri	3	3	4	3	68	52	60	44								
lichen	5	5	7	2	84	88	92	72								
Luzula pumila	0	1	1	0	36	44	36	32								
Luzula rufa	0	1	1	1	36	32	36	56								
Lycopodium fastigiatum	0	1	0	0	12	20	12	8								
moss	2	3	2	1	76	84	72	44								
Ourisia glandulosa	0	0	2	1	4	4	4	4								
Phyllachne colensoi	4	1	2	2	24	12	16	16								
Plantago lanigera	1	0	0	0	16	20	8	16								
Poa colensoi	2	5	9	7	72	76	88	92	9	18	23	2				
Poa tonsa		0				8										
Raoulia grandiflora	5	7	9	9	84	80	88	88								
Raoulia subsericea		0	0	0		4	8	4								
Rumex acetosella	0	0	0	0	8	8	24	44								
Rytidosperma pumilum	0	0	1	1	24	16	44	36								
Scleranthus brockiei			0				4									
Trisetum sp.		0				4										
Uncinia sp.		0	0			8	4									
Viola cunninghamii				0				4								
Wahlenbergia albomarginata			0	0			16	4								

Note: 0 indicates a value of less than 1% cover

Transect 5 North Castle block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	5	5	2	4												
% dead vegetation	19	26	15	11												
% litter	2	2	2	1												
% rock & rubble	1	0	0	0												
% vegetation	72	66	81	84												
Abrotanella inconspicua	1	1	1	1	44	76	68	52								
Agrostis muelleriana	1	0	1	0	64	44	68	60								
Anisotome aromatica		0				12										
Anisotome flexuosa				0				4								
Anisotome imbricata	2	2	5	3	60	80	84	96								
Brachyscome sinclairii	0	0	0	0	32	28	24	20								
Celmisia laricifolia	0	0	0	0	20	28	20	40								
Chionohebe densifolia	0	0	0	0	20	20	16	24								
Dracophyllum muscoides	46	37	64	52	100	100	100	100								
Euphrasia zelandica	0	0	0	0	4	24	28	8								
Hectorella caespitosa	1	1	1	1	44	56	48	44								
Koeleria sp.			0					4								
Leptinella goyenii		0				4										
lichen	16	19	24	22	92	100	100	100								
Luzula pumila	1	1	1	1	44	80	56	76								
Lycopodium fastigiatum			0	0			4	16								
moss	0	0	0	0	8	36		8								
Myosotis pygmaea var. drucei		0	0	0		4	4	4								
Poa colensoi	3	3	6	5	84	92	100	96								
Poa maniototo		0				4										
Raoulia grandiflora	0	0		0	8	16		36								
Raoulia hectorii	3	2	4	3	32	32	28	28								
Rytidosperma exiguum				0				4								
Rytidosperma pumilum			0	0			12	28								

Note: 0 indicates a value of less than 1% cover

Transect 6 North Castle block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	14	11	9	16												
% dead vegetation	14	15	9	17												
% litter	4	3	5	3												
% vegetation	68	71	77	65												
Aciphylla aurea	1	4	9	7	16	32	32	52								
Agrostis muelleriana		0	1	0		4	40	20								
Agrostis personata			0	0			4	4								
Anthoxanthum odoratum	2	3	3	3	24	44	48	72								
Aphanes arvensis				0				4								
Celmisia gracilentia			0					4								
Deyeuxia avenoides		0	0	0		4	20	28								
Epilobium atriplicifolium	0	0	0		8	12	4									
Euphrasia zelandica	0	0	1		16	28	24									
Festuca novae-zelandiae	20	11	3	5	100	76	40	76	68	38	23	5				
Hieracium lepidulum	3	2	7	14	56	72	80	88								
Hieracium pilosella	1	2	12	15	16	32	60	84								
Hieracium praealtum			1	3			32	64								
Hypochoeris radicata	6	1	0	0	88	64	16	20								
Koeleria multiflora	1	1	1	1	4	4	4	4								
Koeleria sp.	0				4											
Lagenifera cuneata	0	0	0	0	4	12	8	20								
Leucopogon fraseri	2	5	3	2	32	36	40	36								
lichen	4	3	1	3	72	60	40	88								
Luzula pumila	0		1		8		4									
Luzula rufa	0	0	0	0	4	8	12	12								
moss	2	1	0	1	84	60	24	76								
Pimelea oreophila	0	2	2	4	12	32	36	48								
Poa colensoi	13	14	13	2	100	100	92	72	54	44	76	3				
Raoulia grandiflora	2	1	0	2	16	20	8	36								
Raoulia subsericea	16	12	15	7	84	76	80	76								
Rumex acetosella	2	2	2	0	84	88	84	80								
Rytidosperma pumilum	10	6	6	4	96	88	88	88								
Trisetum sp.	0				4											
Viola cunninghamii	0	0	0	0	64	20	8	12								
Wahlenbergia albomarginata	1	1	0	0	36	40	28	56								

Note: 0 indicates a value of less than 1% cover

Transect 7 North Castle block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	7	13	12	12												
% dead vegetation	13	6	8	8												
% litter	5	2	2	5												
% vegetation	75	79	78	75												
Aciphylla aurea	5	8	23	19	44	52	72	60								
Agrostis muelleriana		0	0			4	16									
Anthoxanthum odoratum	9	7	5	4	80	80	64	72								
Carex breviculmis			0				4									
Carex kirkii var kirkii		0	0			28	12									
Crepis capillaris				0				4								
Deyeuxia avenoides			0	0			4	24								
Dichelachne crinita		0				4										
Epilobium atriplicifolium	0	0	0		12	20	4									
Festuca novae-zelandiae	13	14	13	10	96	88	56	76	138	88	18	29				
Hieracium lepidulum	3	2	7	18	44	56	68	96								
Hieracium pilosella	0	2	17	24	4	28	64	76								
Hieracium praealtum	0	0	1	4	4	16	20	36								
Hypochoeris radicata	3	1	0	0	64	52	12	12								
lichen	2	1	0	3	52	56	12	52								
Luzula pumila			0				8									
Luzula rufa	0	0			4	4										
moss	0	5	0	1	36	48	28	56								
Pimelea oreophila		0	0	0		4	4	4								
Poa colensoi	17	16	5	5	92	88	64	68	72	114	87	12				
Poa maniototo		0				4										
Poa tosa	0				4											
Raoulia subsericea	20	20	9	3	76	88	72	72								
Rumex acetosella	5	1	1	1	76	60	52	52								
Rytidosperma pumilum	5	2	5	4	60	80	48	56								
Scleranthus uniflorus	1	0	1	1	8	20	24	8								
Viola cunninghamii	0	0		0	68	4		4								
Wahlenbergia albomarginata		0				4										

Note: 0 indicates a value of less than 1% cover

Transect 8 Castle Rock block

Ground cover (%)					Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	10	8	8	13												
% dead vegetation	14	6	5	7												
% litter	10	7	4	8												
% rock & rubble	5	3	3	8												
% vegetation	61	76	81	65												
Acaena caesiiglauc	1	0	0		8	4	4									
Aciphylla aurea	4	3	6	5	40	28	44	32								
Agrostis muelleriana	0	0	0		8	4	16									
Agrostis personata				0				4								
Anisotome flexuosa	0	0	0	1	8	12	8	12								
Anthoxanthum odoratum	0				8											
Carex kirkii var kirkii	0				12											
Carex wakatipu	0	0	0		4	4	4									
Chionochloa rigida	31	44	39	33	88	88	84	96	374	380	518	216				
Deyeuxia avenoides			0	1			16	68								
Dracophyllum muscooides	3	2	3	2	12	12	16	16								
Dracophyllum pronum	3	10	11	13	36	32	48	48								
Epilobium atriplicifolium	2	0	0	0	80	16	24	24								
Festuca novae-zelandiae	5	2	7	7	52	12	48	72	32	16	29	7				
Gaultheria depressa var. nov.	1	1	1	1	8	8	4	12								
Hieracium lepidulum		0	1	1		8	12	36								
Hieracium pilosella				1				8								
Hieracium praealtum				0				4								
Hypochoeris radicata	0	0	1	2	20	20	20	52								
Lagenifera cuneata	0	0		0	4	12		4								
Leucopogon fraseri	0	1	1	1	4	4	4	4								
lichen	2	2	0	3	48	40	20	72								
Luzula leptophylla			0				8									
Luzula rufa	0	0	0	0	8	8	4	12								
moss	2	1	0	0	60	52	16	52								
Pimelea oreophila	1	0	0	0	4	4	4	12								
Poa colensoi	12	10	7	6	88	92	84	76	10	48	13	3				
Raoulia grandiflora	0	0	1	2	8	8	16	24								
Raoulia subsericea	6	5	10	7	64	60	52	72								
Rumex acetosella	2	1	1	1	80	52	68	72								
Rytidosperma pumilum	2	1	3	2	48	44	44	44								
Trisetum sp.	0				4											
Uncinia fuscovaginata				0				8								
Viola cunninghamii	1	0	0	0	52	40	4	4								
Wahlenbergia albomarginata	0			0	4			4								

Note: 0 indicates a value of less than 1% cover

Transect 9 Castle Rock block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	9	18	32	30												
% dead vegetation	6	9	6	6												
% litter	24	24	6	9												
% rock & rubble	16	11	18	19												
% vegetation	44	38	37	36												
Acaena caesiiglauca	0		0	0	4		4	4								
Aciphylla aurea	9	9	8	4	32	40	32	44								
Agrostis personata			0				4									
Anthoxanthum odoratum		0		0		8		16								
Carex breviculmis			0	0			8	8								
Carex kirkii var kirkii	0				4											
Chionochloa rigida	26	16	14	10	80	76	72	72	484	358	230	142				
Colobanthus strictus	0				4											
Craspedia sp.		0				8										
Crepis capillaris	0	0	0	0	16	4	4	4								
Deyeuxia avenoides		0	0	1		4	24	32								
Dichelachne crinita		0				4										
Elymus rectisetus			0	0			4	4								
Epilobium atriplicifolium	1	0	1	0	60	32	24	24								
Festuca matthewsii ssp matthewsii			2	0			24	12								
Festuca novae-zelandiae		1				8				16	5	3				
Gaultheria depressa var. nov.			0				4									
Geranium brevicaule			0				4									
Hieracium lepidulum	1	0	5	8	20	28	40	88								
Hieracium pilosella			0	1			4	4								
Hieracium praealtum				0				8								
Hypochoeris radicata	2	2	3	3	48	56	56	60								
Lachnagrostis filiformis	0		0		4		4									
lichen	1		0	1	24		4	4								
Luzula rufa	0	1	0	0	20	20	16	16								
moss				0				4								
Pimelea oreophila			0	0			4	12								
Poa colensoi	11	13	8	7	88	88	72	80	81	94	15	11				
Poa tonsa				0				4								
Pseudognaphalium luteo-album	0	0	1		4	8	24									
Raoulia subsericea	0	0	1	3	12	12	16	20								
Rumex acetosella	2	0	4	1	76	56	88	72								
Rytidosperma pumilum	0	0	0	0	8	12	4	8								
Scleranthus uniflorus		0		0		4		4								
Stellaria gracilentia			0				4									
Trifolium repens				0				4								
Viola cunninghamii	0	0	0		36	20	8									

Note: 0 indicates a value of less than 1% cover

Transect 10 Castle Rock block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	13	23	24	18												
% dead vegetation	2	4	5	6												
% litter	19	8	6	11												
% rock & rubble	7	7	5	9												
% vegetation	59	58	60	56												
Aciphylla aurea	2	2	5	8	24	24	44	76								
Anthoxanthum odoratum			0	4			4	60								
Carex breviculmis				0				16								
Carex wakatipu	0		0		4		8									
Chionochloa rigida	43	45	26	26	88	92	84	100	550	594	518	238				
Deyeuxia avenoides	1	0	1	1	40	8	24	40								
Epilobium atriplicifolium	0	0	0	0	16	28	20	12								
Festuca novae-zelandiae	4		1	2	36		8	28	13	0	14	9				
Gaultheria depressa var. nov.			0				4									
Geranium brevicaulis	0	0			4	8										
Hieracium lepidulum	1	1	8	9	20	24	56	92								
Hieracium pilosella			0	1			8	4								
Hypochoeris radicata	2	6	8	4	72	92	88	72								
Lagenifera cuneata		0	0	0		4	8	12								
Leucopogon fraseri	1	1	1	1	4	8	8	12								
lichen	0	0			8	4										
Luzula banksiana			0	0			12	12								
Luzula rufa		0				8										
Melicytus alpinus	0	1	1	0	4	8	4	4								
Poa colensoi	12	23	12	7	88	96	80	80	95	160	36	9				
Poa lindsayi			0	0			12	4								
Prasophyllum colensoi				0				4								
Pseudognaphalium luteo-album	0	0	0	0	12	12	8	4								
Raoulia subsericea	1	1	7	2	16	36	40	36								
Rumex acetosella	1	1	4	0	56	64	84	44								
Rytidosperma pumilum	0	0	1	0	8	16	12	32								
Scleranthus uniflorus			0	0			4	4								
Trifolium repens				0				4								
Trisetum sp.	0	0			4	4										
Viola cunninghamii	0	0			8	4										

Note: 0 indicates a value of less than 1% cover

Transect 11 Sunny Devils block

Ground cover (%)				
	1994	2000	2006	2013
% bare	34	43	47	41
% dead vegetation	8	10	6	15
% litter	5	4	5	8
% rock & rubble	2	0	0	2
% vegetation	52	43	43	35

	Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
Aciphylla aurea	31	27	21	7	84	76	68	60				
Anthoxanthum odoratum	0	0	0	1	16	12	4	24				
Crepis capillaris	0				4							
Deyeuxia avenoides	0	0	1	1	32	16	32	48				
Epilobium atriplicifolium	0	0	0		24	4	4					
Festuca novae-zelandiae	7	4	5	7	76	56	52	76	54	46	14	14
Hieracium lepidulum	4	4	14	21	40	80	92	96				
Hieracium pilosella				1				4				
Hieracium praealtum	1	0	1	1	4	4	12	8				
Hypochoeris radicata		2	1	1		52	48	40				
lichen	2	1	0	0	36	28	4	8				
Luzula rufa	1				4							
Melicytus alpinus	0	0	0		4	4	4					
Poa colensoi	9	9	6	4	88	68	60	60	39	58	90	10
Poa tonsa	0	0	0	0	8	4	4	4				
Raoulia subsericea	4	1	0	0	64	40	8	8				
Rumex acetosella	1	1	1	0	64	56	28	48				
Scleranthus uniflorus	0				4							
Viola cunninghamii	0				4							

Note: 0 indicates a value of less than 1% cover

Transect 12 Sunny Devils block

	Ground cover (%)				Species cover (%)				Frequency (%)				Sum of point heights			
	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013	1994	2000	2006	2013
% bare	26	20	28	18												
% dead vegetation	3	3	1	1												
% litter	4	2	4	4												
% rock & rubble	25	25	16	20												
% vegetation	41	51	51	56												
Aciphylla aurea	1	1	2	2	36	8	20	8								
Anthosachne solandri		0	0	1		24	24	28								
Anthoxanthum odoratum	19	11	13	14	96	92	96	100								
Arenaria serpyllifolia	1	4	1	1	72	88	44	72								
Carex breviculmis	0	0	1	0	28	24	16	20								
Celmisia gracilentia		0	0			4	8									
Cerastium fontanum	0	0		0	16	24		20								
Colobanthus strictus	0				12											
Coprosma petriei	1	1	1	1	8	16	16	20								
Crassula tetramera	0	0	0		4	4	4									
Crepis capillaris	1	1	2	0	48	44	52	24								
Deyeuxia avenoides			1	0				28	4							
Dichelachne crinita			0	0				4	4							
Epilobium atriplicifolium	0				4											
Festuca filiformis		0	4	3		8	20	28								
Festuca novae-zelandiae	6	3	4	5	60	24	32	44	7	2	24	9				
Geranium brevicaule	0	0	0		32	28	12									
Hieracium lepidulum	1	0	2	5	16	20	36	44								
Hieracium pilosella	1	2	5	17	8	4	24	56								
Hypericum perforatum	0	0			52	8										
Hypochoeris radicata	2	0			52	16										
Koeleria sp.		0	0	0		4	12	20								
Lachnagrostis filiformis	0	0	0	0	4	8	8	4								
Leucopogon fraseri	0	1	1	0	12	12	16	12								
lichen	1	0	1		40	28	16									
Linum catharticum			1	0			32	12								
Medicago sativa	0				24											
Melicytus alpinus	0				4											
moss		0				16										
Muehlenbeckia axillaris		0	0	0		4	4	4								
Pimelea oreophila	0				8											
Poa colensoi	3	9	7	10	52	80	76	68	52	44	51	25				
Pseudognaphalium luteo-album	0				4											
Raoulia australis	1	0	0		16	12	4									
Raoulia subsericea	1	0	0		12	4	12									
Rumex acetosella	2	2	3	0	76	52	76	44								
Rytidosperma australe			1				4									
Scleranthus uniflorus	0	0			8	8										
Stellaria gracilentia	0	0		0	32	4		4								
Trifolium arvense	2	12	1	8	68	92	64	76								
Trifolium repens	0				16											
Trifolium subterraneum			0				8									
Veronica verna	0	0		0	12	12		48								
Vitadina australis	0	0	0		16	4	4									
Wahlenbergia albomarginata	0	0		0	12	8		4								

Note: 0 indicates a value of less than 1% cover



File: PAV-13-01-75

25 August 2011

Sec 9(2)(a)

Rise and Shine Covenant

On 22 August myself and Gavin Udy inspected the Rise and Shine area of your covenant while Marion Sutton was undertaking her assessment of the old battery site.

We drove along the track that follows the ridge to the south of Thomson Gorge Road as far as the snow allowed, then a short distance up Thompson Gorge Road itself.

We retook photos from photopoints one and two; these are enclosed. The photos seem to show little change from previous ones.

Our one area of concern was the gorse within the covenant. This seems to be in two main patches, and the presence of young plants suggests the patches are increasing in size.

Clause 2 of the covenant document states that the Landholder is responsible for controlling gorse and other noxious plants, and in particular complying with the provisions of the Biosecurity Act 1993. The Biosecurity Act is the legislation under which Regional Pest Management Strategies are formed, and the Rise and Shine area falls within the gorse and broom free area of the Otago Regional Council's RPMS.

For these reasons we would like to see the gorse controlled, and feel that it is primarily your responsibility to do so.

Please contact me on **Sec 9(2)(a)** or cgwilson@doc.govt.nz if you would like to discuss this or have any questions.

Yours sincerely

Craig Wilson
Ranger, Biodiversity Assets.

Central Otago Area Office
PO Box 176, Alexandra 9340, New Zealand
43 Dunstan Road, Alexandra, 9320, New Zealand
Telephone 03-440 2040, Fax 03-440 2041

FILE NOTE

FROM: Craig Wilson

DATE: 13 May 2008

FILE: PAV-13-01-75

SUBJECT: Rise and Shine covenant inspection April 2008

On the 23rd April I inspected the covenant, after having received permission from Sec 9(2)(a) who had no issues to raise regarding it. The inspection took place in bright sunny conditions.

I drove up the track to photopoint 1, then along and through the gate to pp 2, and completed the loop along the track past pps 4 and 3, then drove up Thompsons Gorge Rd to the saddle.

The views from the photopoints are the same as those from May 2007, thus won't be printed here, but can be found in M: Craig: Covenants: Rise and Shine April 2008.

Points of note:

At E2227951 N5578466 there's a patch of gorse on the southwestern side of the road – a few plants visible from the road, then more on the slope above the road-cutting. Half an hour's work with the spray truck should be enough to clean it up.

At 2229231 5577481 there's some fir(?) trees growing on both sides of the road. Some of these look to have been sprayed, but some are still green and healthy. Although there were no small wildings seen it would be good to clean them up. They could be sprayed, or chopped.

At approx. 285 777 there's a bigger patch of gorse (see photo below, taken from pp3). If the spray truck can be driven up to it this won't take long to treat – it looks like this should be possible.

Another issue that may need consideration is that of the trees growing near the cattleyards, dam and gate where the road drops into the rise and Shine valley. These seem to be spreading, and while they may not expand into the drier parts of the covenant do detract from the natural character of the land.



Patch of gorse, approx 285 777



Exotic trees near cattle yards

The covenant agreement states '2. The landholders will, so far as is practicable: a) keep the land free from gorse, broom...' but that the landholder 'may request assistance in this if they impose a substantial burden...'. hence we could ask Sec 9(2)(a) Sec 9(2)(a) to spray the gorse, or do it ourselves.

Released under the Official Information Act



FILE NOTE

File: PAV-13-01-75
Date: 15 April 2010
From: Craig Wilson

SUBJECT: Rise and Shine covenant inspection

On March 27 CW and MS travelled down Thompsons Gorge Road and looked at the Rise and Shine covenant on the way, including inspecting an area of tailings on foot.

Everything looked the same as last time – ie the patches of gorse were unsprayed but other things were fine.

Photos were not retaken.

Released under the Official Information Act

File: PAV-13-01-75
Date: 28 November 2012
From: Craig Wilson

SUBJECT: Rise and Shine inspection Nov 2012

Today I inspected the covenant, having talked to ^{Sec 9(2)(a)} beforehand. He had no issues to raise, but sought clarification on the values protected in this covenant, versus the rest of the ex-tenure review land. I said that this land was a historic/landscape/biodiversity (especially tussock) covenant, whereas the rest of the freeholded land was intended to have a historic covenant over it, and that these documents were still with our solicitor and that there had been little progress on them.

I drove up the track along the southern ridge, took the photos from PPs 1 and 2, and returned down the gravel road. Reasonably low numbers of cattle with calves and sheep with lambs were in the covenant. The cattle were herded out by helicopter while I was there.

I noted nothing of concern – the silver tussock did not appear particularly grazed – the wet spring should have ensured that there was enough grass to be eaten without stock getting into the tussock.

The gorse is still there and no control appears to have taken place.

Comparing this year's photos to 2006/2007's, no changes are apparent. Compared to 1999's, there may be less silver tussock now, but it's hard to say as in 1999 there was more other grass to confuse things.

The shrubland is spreading compared to 1999, and is thick in places. It is also reasonably diverse, containing *Olearia* and *Carmichaelia* species, amongst others. Without some form of control the shrubland will become more extensive, apart from high on the southern ridge perhaps. At some stage the ^{Sec 9(2)(a)} will probably seek approval to do something about this. A letter in the (OTC2) covenant file dated 23 March 1994, from Landcorp to the CCL, states that the covenant is designed to maintain the area in its present state, specifically mentioning the silver tussock grassland, and that the patch burning of shrubland is considered acceptable. This letter purports to reflect the 'understanding between all parties', yet this understanding is not reflected in the covenant document, which on the face of it would generally preclude burning the shrubland. The Perriams may have a good argument that they should be allowed to patch-burn the shrubland, should they decide they want to.


19 December 2012

Last week I rang ^{Sec 9(2)(a)} and said that the covenant looked good, but that the gorse needs to be controlled. ^{Sec 9(2)(a)} agreed, saying he had just flown over it, and realised that it was spreading, and that the sooner it is controlled, the better. ^{Sec 9(2)(a)} undertook to get in touch with Dunstan Sprayers to discuss the best time to do the control with them. He suggested they may seek to do it soon to give it an initial knockdown, then have a follow-up spray next spring.

File: PAV-13-01-75

19 December 2012

Sec 9(2)(a)

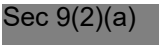


Rise and Shine Covenant Inspection

Thank-you for permission to access your covenant recently. I visited on November 28th, and drove up the track near the yards, along the ridge on the southern side of the valley, past Mt Moka and back down Thompson Gorge Rd.

I took the photos from photopoints 1 and 2 on the way; these photos are enclosed and show a similar tussock and shrub cover to the 2006/07 photos. Compared to photos from 1999, they seem to show a slight increase in shrub cover, and possibly a slight decrease in silver tussock cover.

As we discussed over the phone, the patches of gorse near the road are spreading and need to be controlled, and you intend to get a ground-based contractor to spray it when conditions are right. We are happy for the spraying to wait until spring if your contractors advise that spraying this summer is unlikely to be effective.

I am happy to discuss this or any other issues relating to the covenant further, and can be contacted on , or cgwilson@doc.govt.nz.

Yours sincerely,

Craig Wilson
Ranger, Biodiversity Assets

Note: Photos cannot be found (section 18(e))



File: PAV-13-01-75

Date: 2/12/2016

From: Terra Dumont

SUBJECT: Bendigo Conservation Covenant Photo-point monitoring 30 November 2016

I conducted photo-point monitoring for Bendigo Conservation Covenant on 30/11/2016. In general, the covenant was in good condition, however there are a few issues that should be managed for the continued protection of the Covenant Values.

1. The slopes by photo point 4 (shown in photo 4b) show signs of overgrazing. There is significantly more bare ground and less tussock present now than in 2011.
2. Briar is invading the Covenant, especially on the slopes below photo point 1.

Prior accessing the covenant I phoned the owner Sec 9(2)(a) and the Manager Sec 9(2)(a)
Sec 9(2)(a) I also texted Sec 9(2)(a) when I entered and exited the property.

Photos and GPX files are stored in: S:\cnoaonas1\Bio Assets\Covenant photos\bendigo survey photos\rise and shine

Released under the Official Information Act

Item 9

From: Terra Dumont
To: Sec 9(2)(a)
Cc:
Subject: Bendigo Conservation Covenant Photo Point Monitoring 2016
Date: Wednesday, 4 January 2017 11:09:00 am
Attachments: [1a.JPG](#)
[1b.JPG](#)
[2a.JPG](#)
[2b.JPG](#)
[2c.JPG](#)
[2d.JPG](#)
[3a.JPG](#)
[3b.JPG](#)
[4a.JPG](#)
[4b.JPG](#)
[4c.JPG](#)
[Bendigo Rise and Shine CC photopoints GPX.gpx](#)
[Bendigo Covenant monitoring 30 Nov 2016 Map.pdf](#)

Hello Sec 9(2)(a)

I conducted photo-point monitoring for Bendigo Conservation Covenant on 30/11/2016. In general, the covenant was in good condition, however there are a few issues that should be managed for the continued protection of the Covenant Values.

1. The northern slopes by photo point 4 (shown in photos 4a, 4b and 4c) show signs of overgrazing. There is significantly more bare ground and less tussock present now than in 2011 (this area is shaded pink on the attached map). As the conservation objectives of the Covenant are "Protecting and enhancing the natural character of the land with particular regard to the natural functioning of ecosystems and to the native flora and fauna in their diverse communities and dynamic inter-relationships with their earth substrate and water courses and the atmosphere" it is important that the over grazing in this area is reduced to allow the ecosystem to function naturally. What do you think would be some practical ways to do this?
2. Sweetbriar is invading the Covenant, especially on the north east slopes below photo point 1 (this area is shaded yellow on the attached map). As the covenant owner it is your responsibility to control sweetbriar (and any other noxious plants) as far as is practicable.

I have attached the photos taken as well as a map of the photo point locations and GPX files. If you have any questions in regards to this or any other aspect of your covenant please contact me. I look forward to discussing options for the continued protection of your beautiful covenant.

Sincerely,

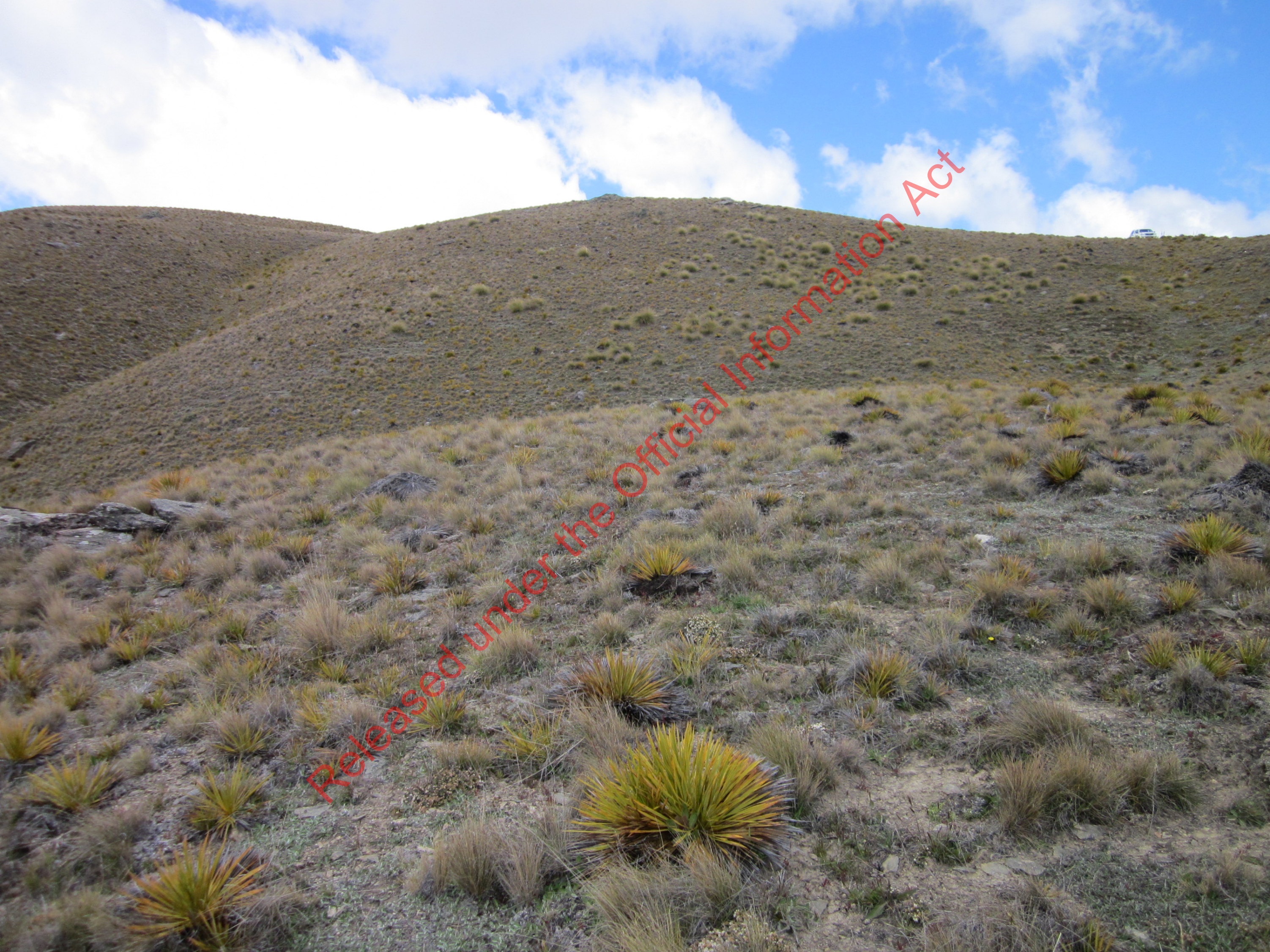
Terra Dumont
Ranger Operations - Biodiversity
Department of Conservation - *Te Papa Atawhai*
DDI: Sec 9(2)(a)

Central Otago Area Office
43 Dunstan Rd | PO Box 176, Alexandra 9340

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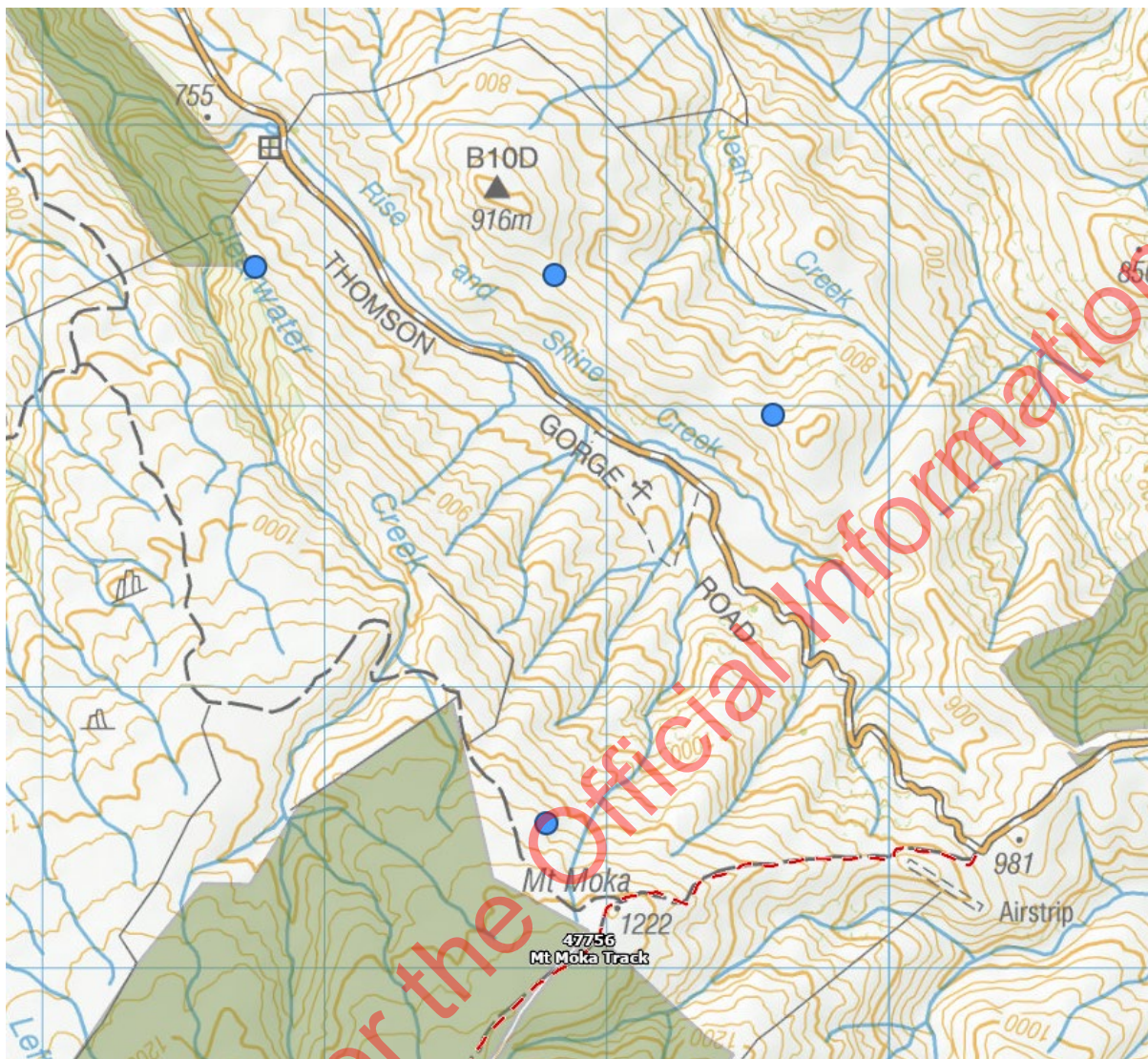
Released under the Official Information Act



Released under the Official Information Act

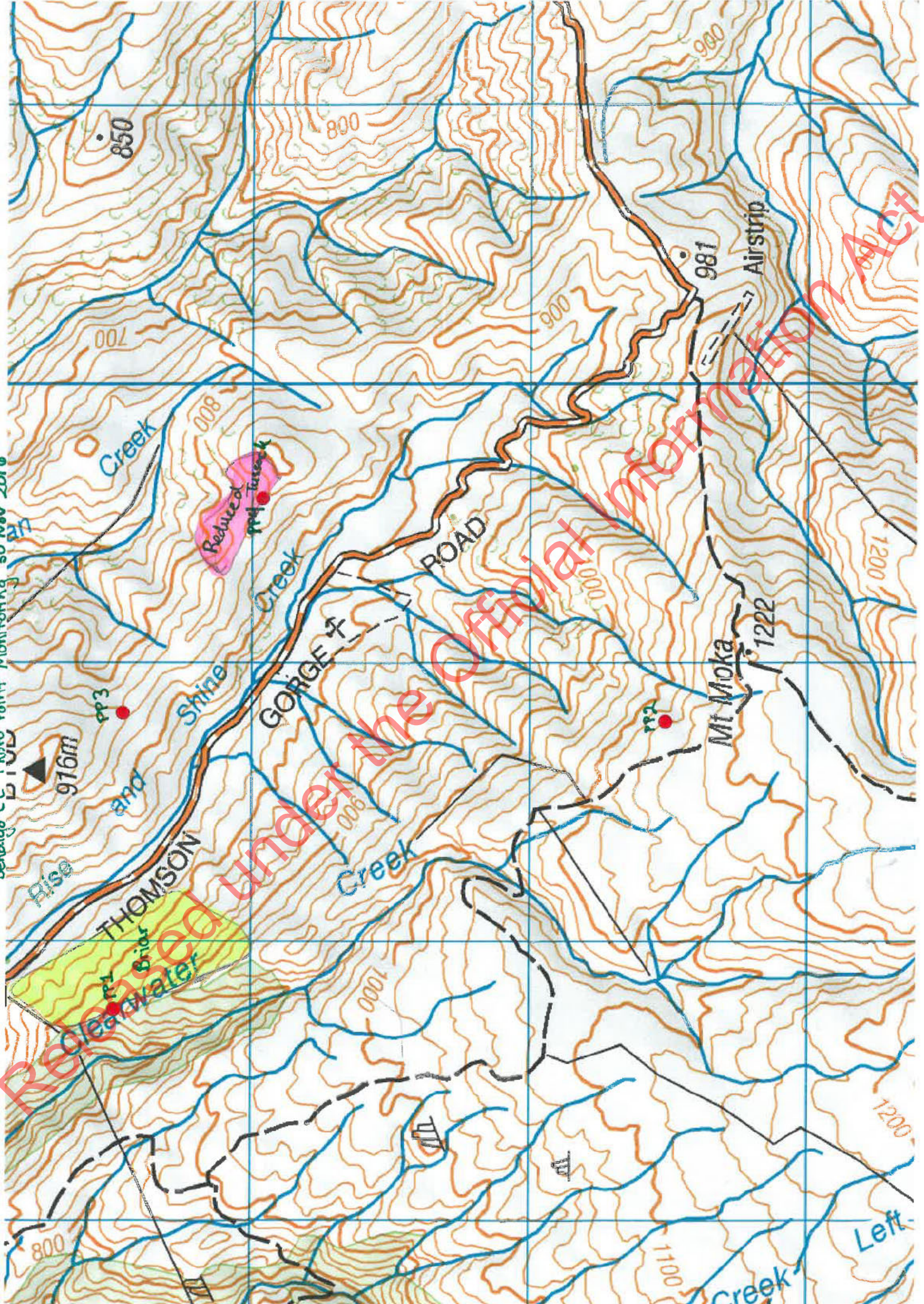


Released under the Official Information Act



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Bendigo CC Photo Point Monitoring 30 Nov 2016



Received under the Official Information Act



File: PAV-13-01-75 SSA1

18 October 2017

Sec 9(2)(a)

LETTER OF AUTHORITY: APPROVAL FOR MINERAL EXPLORATION IN THE BENDIGO CONSERVATION COVENANT

Approval is granted to you under Section 77 of the Reserves Act 1977 to authorise Matakanui Gold Limited to excavate six 20-metre-long trenches as detailed in the Trench Sampling Programme, received at the Central Otago District Office on 20 September 2017 and subsequent refined proposal received on 15 October 2017, from Sec 9(2)(a) of Matakanui Gold Limited.

This approval is subject to the following conditions:

1. No historic sites identified in the Mamakau (Nichol & Wright) Consultancy 2006 archaeological survey report, the 'Rich Fields of Bendigo' by Jill Hamel 1993 (subsequently identified on the orthophotos provided with the Matakanui Gold Ltd Trench Sampling Programme, received 15 October 2017) or the NZ Archaeological Association Site Recording Scheme will be affected when undertaking the work.
2. At any time during the trench excavation works, in the event of any 'accidental discovery' of suspected archaeological material, including human remains, The Accidental Discovery Protocol (attached as Appendix A) must be followed and adhered to.
3. Appropriate trench warning signs are to be erected and all open trenches to be taped off using high visibility tape when unattended.
4. Any vegetation clearance required to enable vehicle access to the trench sampling sites shall be restricted to sweet briar or gorse only. No native vegetation is to be disturbed.
5. All machinery, tools and equipment must be steam cleaned so that it is free of weed seeds, plant fragments and mud prior to entering the land.
6. All work will be as detailed in the Trench Sampling Programme from Matakanui Gold Ltd received 15 October 2017.
7. No tracking, campsites or other soil disturbance shall be undertaken during the work.

8. Machinery and equipment used on site shall be maintained at all times to prevent leakage of oil and other contaminants on to the land.
9. Matakanui Gold Ltd. shall reinstate the land to the same or better condition it was before trench sampling work commenced.
10. A photographic record of rehabilitated trench sampling sites shall be provided to the Central Otago District Office within one month of the completion of works.

This approval is specific to the application set out in the refined Trench Sampling Programme received on 15 October 2017 from Matakanui Gold Ltd. It is not indicative of any associated concession or other statutory approval which may be required from the Department in respect to future exploration or mining in the Bendigo Conservation Covenant. Any change to the application will require that it be resubmitted to me for approval.

Please note that a copy of this letter will also be sent to Matakanui Gold Ltd for their signature of acceptance of the above-mentioned conditions.

Thank you for having regard to the interests of the Department.

Yours sincerely,



Mike Tubbs
Operations Manager, Central Otago District
Pursuant to delegated authority

Action Required

A representative from Matakanui Gold Limited is to sign this letter, return it to the Department prior to the commencement of trench sampling works, and keep a copy to confirm the conditions.

Representative from Matakanui Gold Limited

Name
Sec 9(2)(a)

Signed

Date

19/10/2017

Appendix A

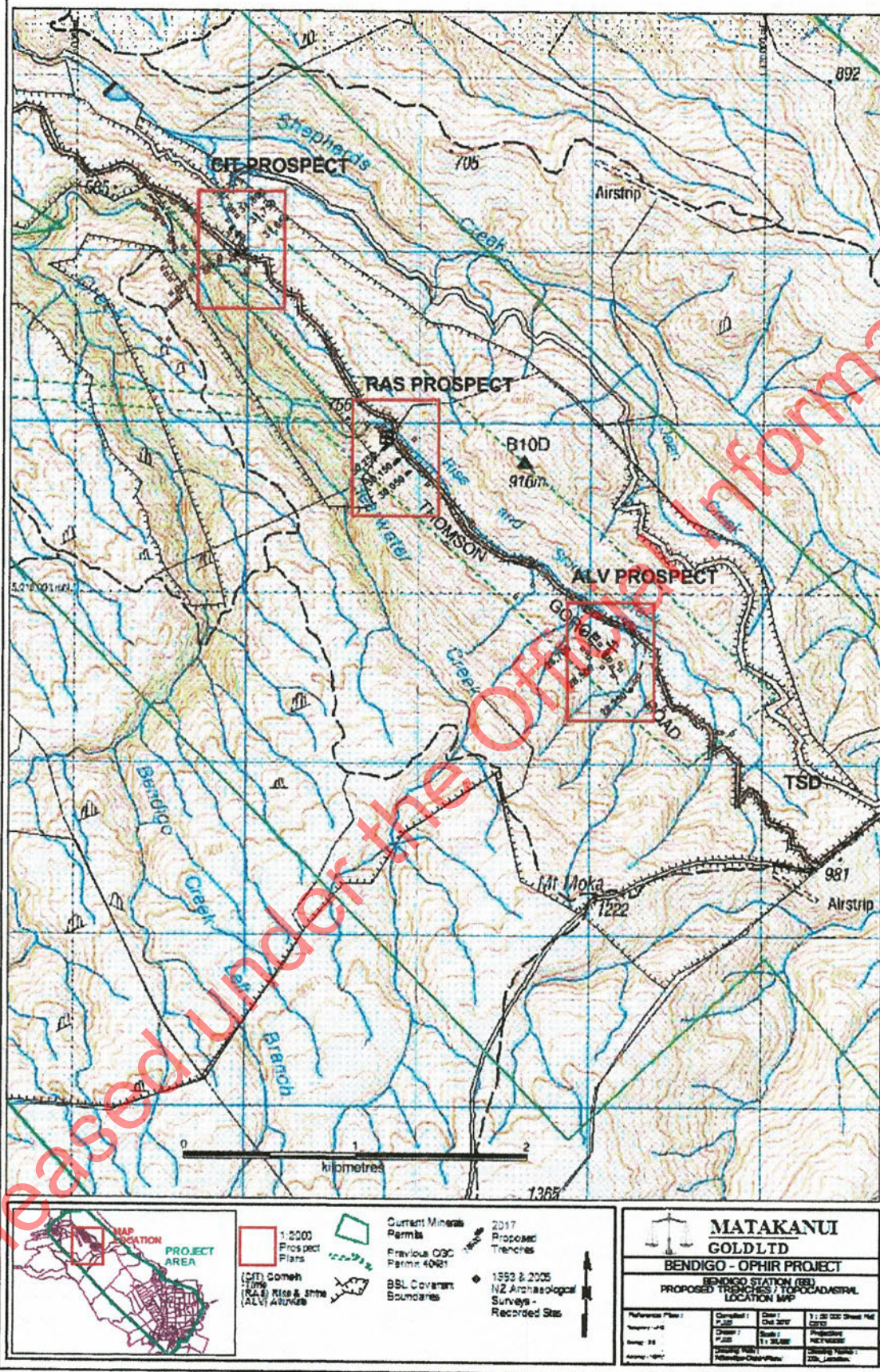
Department of Conservation Accidental Discovery Protocol for Archaeological Sites

If any archaeological site(s) are uncovered during physical works the Department of Conservation will require the site/project manager to adopt the following protocol. Evidence of archaeological sites can include New Zealand Protected Objects, oven stones, charcoal, shell midden, ditches, banks, pits, old building foundations, artefacts of Maori and European origin or human remains.

1. Work shall cease immediately at that place.
2. All machinery must be shut down, and the area secured.
3. The Site/Project Manager shall notify the Department of Conservation Central Otago District Office who will then contact Heritage New Zealand (if no general authority has been granted) and if necessary the appropriate consent process shall be initiated.
Contact: 03 440 2040 (Alexandra Office).
4. If the site is of Maori origin the Site/Project Manager shall notify Te Papatipu Rūnanga to determine what further actions are appropriate to safeguard the site or its contents.
5. If skeletal remains are uncovered the Site/Project Manager shall advise the Police, Heritage New Zealand, and the appropriate iwi contact.
6. Works affecting the archaeological site shall not resume until Heritage New Zealand, the Police (if skeletal remains are involved) and Te Papatipu Rūnanga have each given the appropriate approval for work to continue. This approval shall be transmitted to the Site/Project Manager by the Central Otago District Office unless otherwise arranged.

Note: The Site/Project Manager is someone who is on site throughout works, who can recognise an archaeological site.

Appendix B – Proposed Trench Sampling Site Locations



Department of Conservation Te Papa Atawhai
 Central Otago District Office
 PO Box 176, Alexandra 9320
www.doc.govt.nz
 docCM - 3193176



File: PAV-13-01-75 SSA1

6 March 2018

Sec 9(2)(a)

LETTER OF AUTHORITY: APPROVAL FOR FURTHER MINERAL EXPLORATION IN THE BENDIGO CONSERVATION COVENANT

Approval is granted to you under Section 77 of the Reserves Act 1977 to authorise Matakanui Gold Limited to undertake drilling, of 60-metre-deep drill holes, at 50 sites as detailed in the Drilling Programme, received at the Central Otago District Office on 12 February 2018 from ^{Sec 9(2)(a)} of Matakanui Gold Limited.

This approval is subject to the following conditions:

1. No historic sites identified in the Mamakau (Nichol & Wright) Consultancy 2006 archaeological survey report, the 'Rich Fields of Bendigo' by Jill Hamel 1993 (subsequently identified on the orthophotos provided with the Matakanui Gold Ltd Drilling Programme, received 15 October 2017), the NZ Archaeological Association Site Recording Scheme and the Heritage Properties Ltd archaeological assessment conducted on the 13 February 2018 will be affected when undertaking the work.
2. All conditions outlined in the archaeological assessment and ecological and botanical report, commissioned by Matakanui Gold Ltd, shall be adhered to.
3. At any time during the drilling works, in the event of any 'accidental discovery' of suspected archaeological material, including human remains, The Accidental Discovery Protocol (attached as Appendix A) must be followed and adhered to.
4. Appropriate drill hole warning signs are to be erected and all open drill holes are to be taped off using high visibility tape when unattended.
5. Any vegetation clearance required to enable vehicle access to the drilling sites shall be restricted to sweet briar or gorse only. No native vegetation is to be disturbed.
6. All machinery, tools and equipment must be steam cleaned so that it is free of weed seeds, plant fragments and mud prior to entering the land.
7. All work will be as detailed in the Drilling Programme from Matakanui Gold Ltd received 15 October 2017 and 12 February 2018.

Department of Conservation Te Papa Ataurahi
Central Otago District Office
PO Box 176, Alexandra 9320
www.doc.govt.nz
docCM - 5432493

8. No tracking, campsites or other soil disturbance shall be undertaken during the work.
9. Machinery and equipment used on site shall be maintained at all times to prevent leakage of oil and other contaminants on to the land.
10. Matakanui Gold Ltd. shall reinstate the land to the same or better condition it was before drilling work commenced.
11. A photographic record of rehabilitated drill hole sites shall be provided to the Central Otago District Office within one month of the completion of works.

This approval is specific to the application set out in the Drilling Programme received on 15 October 2017 and 12 February 2018 from Matakanui Gold Ltd. It is not indicative of any associated concession or other statutory approval which may be required from the Department in respect to future exploration or mining in the Bendigo Conservation Covenant. Any change to the application will require that it be resubmitted to me for approval.

Please note that a copy of this letter will also be sent to Matakanui Gold Ltd for their signature of acceptance of the above-mentioned conditions.

Thank you for having regard to the interests of the Department.

Yours sincerely,

Mike Tubbs
Operations Manager/Pou Matarautaki - Central Otago District
Pursuant to delegated authority

Action Required

A representative from Matakanui Gold Limited is to sign this letter, return it to the Department prior to the commencement of the drilling works, and keep a copy to confirm the conditions.

Representative from Matakanui Gold Limited

Name	Signed	Date
Sec 9(2)(a)	Sec 9(2)(a)	8/03/2018

Appendix A

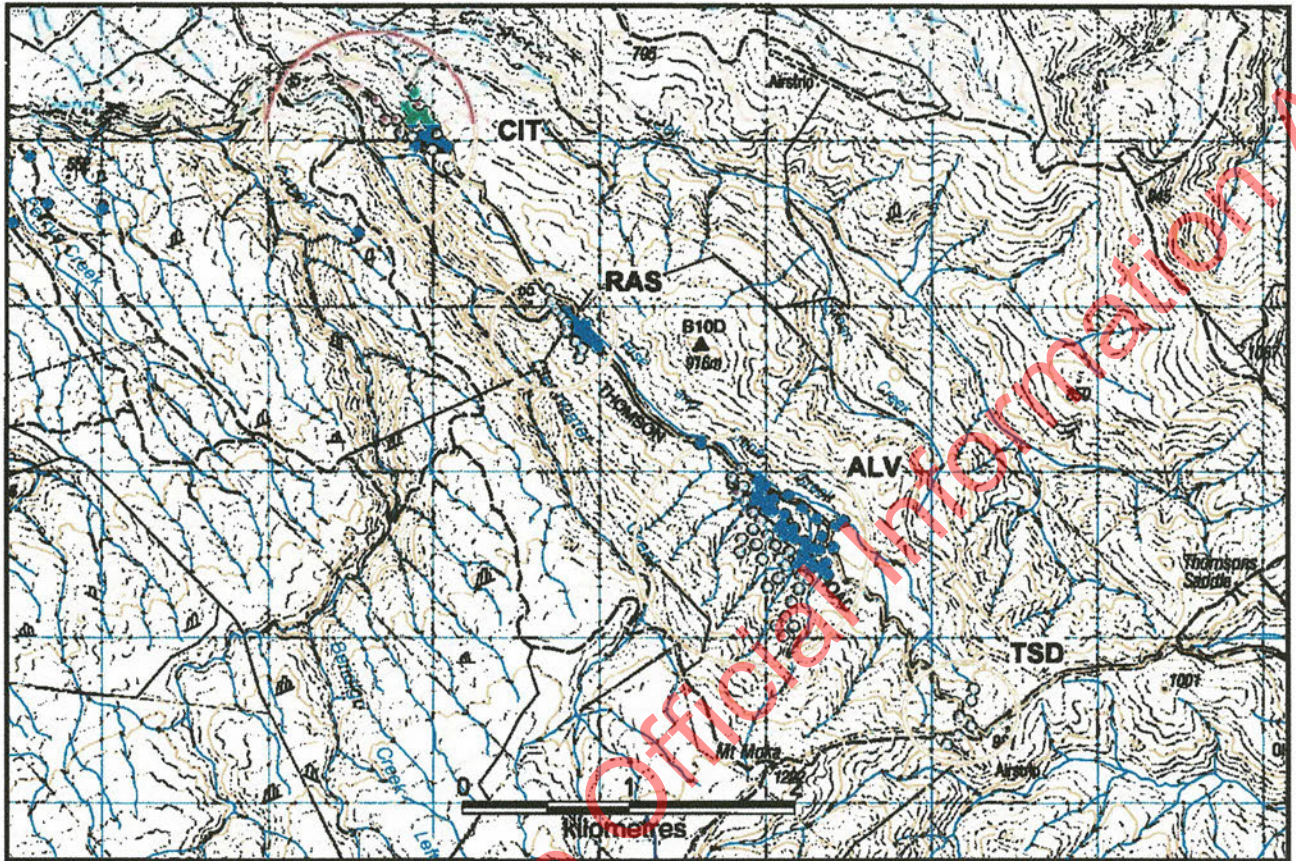
Department of Conservation Accidental Discovery Protocol for Archaeological Sites

If any archaeological site(s) are uncovered during physical works, the Department of Conservation will require the site/project manager to adopt the following protocol. Evidence of archaeological sites can include New Zealand Protected Objects, oven stones, charcoal, shell midden, ditches, banks, pits, old building foundations, artefacts of Maori and European origin or human remains.

1. Work shall cease immediately at that place.
2. All machinery must be shut down, and the area secured.
3. The Site/Project Manager shall notify the Department of Conservation Central Otago District Office who will then contact Heritage New Zealand (if no general authority has been granted) and if necessary the appropriate consent process shall be initiated.
Contact: 03 440 2040 (Alexandra Office).
4. If the site is of Maori origin the Site/Project Manager shall notify Te Papatipu Rūnanga to determine what further actions are appropriate to safeguard the site or its contents.
5. If skeletal remains are uncovered the Site/Project Manager shall advise the Police, Heritage New Zealand, and the appropriate iwi contact.
6. Works affecting the archaeological site shall not resume until Heritage New Zealand, the Police (if skeletal remains are involved) and Te Papatipu Rūnanga have each given the appropriate approval for work to continue. This approval shall be transmitted to the Site/Project Manager by the Central Otago District Office unless otherwise arranged.

Note: The Site/Project Manager is someone who is on site throughout works, who can recognise an archaeological site.

Appendix B – Proposed Drill Hole Sampling Site Locations



Previous 20th century drill site

Current proposed drill site



Ref: DOCCM-5708418

7 February 2019

Sec 9(2)(a)

LETTER OF AUTHORITY: APPROVAL FOR FURTHER MINERAL EXPLORATION IN THE BENDIGO CONSERVATION COVENANT

Approval is granted to you, under Section 77 of the Reserves Act 1977, to authorise Matakanui Gold Limited to undertake drilling of 50-metre-deep drill holes at 40-50 sites, and to construct temporary access tracks, as detailed in the Drilling Programme received at the Central Otago District Office on 21 December 2018 and further additional information received on 25 January 2019, from Sec 9(2)(a) of Matakanui Gold Limited.

This approval is subject to the following conditions:

1. No historic sites identified in the Mamakau (Nichol & Wright) Consultancy 2006 archaeological survey report, the 'Rich Fields of Bendigo' by Jill Hamel 1993 (subsequently identified on the orthophotos provided with the Matakanui Gold Ltd Drilling Programme, received 15 October 2017), the NZ Archaeological Association Site Recording Scheme and the Heritage Properties Ltd archaeological assessment conducted on the 14 December 2018, will be affected when undertaking the work.
2. All conditions and recommendations outlined in the archaeological assessment and ecological and botanical report, commissioned by Matakanui Gold Ltd, must be adhered to.
3. All necessary resource consents/council approvals, associated with the construction of temporary access tracks, must be obtained.
4. At any time during the drilling and access track works, in the event of any 'accidental discovery' of suspected archaeological material, including human remains, The Accidental Discovery Protocol (attached as Appendix A) must be followed and adhered to.
5. Construction of temporary access tracks shall be limited to only what is deemed necessary to achieve a safe gradient for vehicle and drill rig access.
6. Vegetation clearance required to enable vehicle and drill rig access to drilling sites shall be restricted to sweet briar or gorse where possible. No native vegetation is to be disturbed where practicable.

7. Other than required temporary access tracks, no campsites or other soil disturbance must be undertaken during the works.
8. Appropriate drill hole warning signs are to be erected and all open drill holes are to be taped off using high visibility tape when unattended.
9. All work will be as detailed in the Drilling Programme and Assessment of Environmental Effects, received from Matakanui Gold Ltd on 15 October 2017, 21 December 2018 and 25 January 2019.
10. All machinery, tools and equipment must be steam cleaned so that it is free of weed seeds, plant fragments and mud prior to entering the land.
11. All machinery, tools and equipment must be re-cleaned after it has operated in previous sections of the land where weed infestations are present.
12. Machinery and equipment used on site must be maintained at all times to prevent leakage of oil and other contaminants on to the land.
13. Immediately upon the completion of works, Matakanui Gold Ltd. must reinstate the land to the same or better condition it was before works commenced.
14. Rehabilitation of temporary access tracks must follow the existing contours of the land
15. A photographic record of rehabilitated drill hole sites and access track sites shall be provided to the Central Otago District Office within one month of the completion of works.

This approval is specific to the application set out in the Drilling Programme received on 21 December 2018, and additional Assessment of Environmental Effects received 25 January 2019, from Matakanui Gold Ltd. It is not indicative of any associated concession or other statutory approval which may be required from the Department in respect to future exploration or mining in the Bendigo Conservation Covenant.

This approval does not authorise works within the area identified as 'Upper Thomsons Area (UTS)', as it lies outside the Covenant boundaries. Any works undertaken in this area will require a separate approval from the Commissioner of Crown Lands, due to the lands pastoral lease status.

Any change to the application will require that it be resubmitted to me for approval.

Please note that a copy of this letter will also be sent to Matakanui Gold Ltd for their signature of acceptance of the above-mentioned conditions.

Thank you for having regard to the interests of the Department.

Yours sincerely,



Mike Tubbs
Operations Manager, Central Otago District
Pursuant to delegated authority

Action Required

A representative from Matakanui Gold Limited is to sign this letter, return it to the Department prior to the commencement of the drilling works, and keep a copy to confirm the conditions.

Representative from Matakanui Gold Limited

Name
Sec 9(2)(a)



Date

12/02/2019

Released under the Official Information Act

Appendix A

Department of Conservation Accidental Discovery Protocol for Archaeological Sites

If any archaeological site(s) are uncovered during physical works, the Department of Conservation will require the site/project manager to adopt the following protocol. Evidence of archaeological sites can include New Zealand Protected Objects, oven stones, charcoal, shell midden, ditches, banks, pits, old building foundations, artefacts of Maori and European origin or human remains.

1. Work shall cease immediately at that place.
2. All machinery must be shut down, and the area secured.
3. The Site/Project Manager shall notify the Department of Conservation Central Otago District Office who will then contact Heritage New Zealand (if no general authority has been granted) and if necessary the appropriate consent process shall be initiated.
Contact: 03 440 2040 (Alexandra Office).
4. If the site is of Maori origin, the Site/Project Manager shall notify Te Papatipu Rūnanga to determine what further actions are appropriate to safeguard the site or its contents.
5. If skeletal remains are uncovered, the Site/Project Manager shall advise the Police, Heritage New Zealand, and the appropriate iwi contact.
6. Works affecting the archaeological site shall not resume until Heritage New Zealand, the Police (if skeletal remains are involved) and Te Papatipu Rūnanga have each given the appropriate approval for work to continue. This approval shall be transmitted to the Site/Project Manager by the Central Otago District Office unless otherwise arranged.

Note: The Site/Project Manager is someone who is on site throughout works, who can recognise an archaeological site.

Appendix B – Proposed Drill Hole Sampling Sites and Access Track Locations

MATAKANUI GOLD BENDIGO-OPHIR PROJECT 2019 DRILLING SITES & TRACKS UPDATE 31 Jan 19


















Updated track locations (with indicative extent of excavations) are modified from plans submitted with CODC RMA consent application as a consequence of the field visit on 25th January with CODC planner (Oli Monthule-McIntosh) and QV Valuer **Sec 9(2)(a)** for Crown / LINZ Matakanui Station landowner representative).

With RMA consent processing delays currently being experienced at CODC, MGL was recommended to utilize drill-rig capable slopes for access for pre-Winter programme completion. (Tracked drill rig slope capability from 2018 drilling is +/-20°).

Plans (local grid lines and NZTM coordinates) show target extent, track info, <150 mm (diameter), 40-60 metre (depth) indicative drillhole sites (indicative as exact positions are determined once programme commences, rig is on-site and follow-on sites are modified daily as results of prior drillholes are processed).

Zoomed detail plans are annotated with track type, slope angle and 2018 LiDAR 5.0 metre & 0.50 metre topographic contours and orthophotography.

Map Legend - Bendigo-Ophir Project 2019 Dunstan Range - Drillholes & Tracking

	Indicative 2019 Drill (DH) site		Formed Roads / Tracks		Extrapolated Fault zone
	MGL 2018 Drill (DH) site		Existing Ridge / Farm Tracks		2017 Prospect Inferred Resource Extent
	1986 - 2007 Drill (DH) site		Indicative 2019 Ridge DH Access Tracks		2019 Prospect Exploration Focus
	1996 - 2017 Trench Site (Rehabilitated)		Indicative 2019 DH Track side-slope Excavation		2018 LiDAR Derived topographic contours (0.50m)
	Initial 2019 Indicative Tracks Pre-23/01/19 Field visit		Detour (washout Formed Road UTS only)		Mine shafts / trenches / adits / openpits
					
					Land Boundary

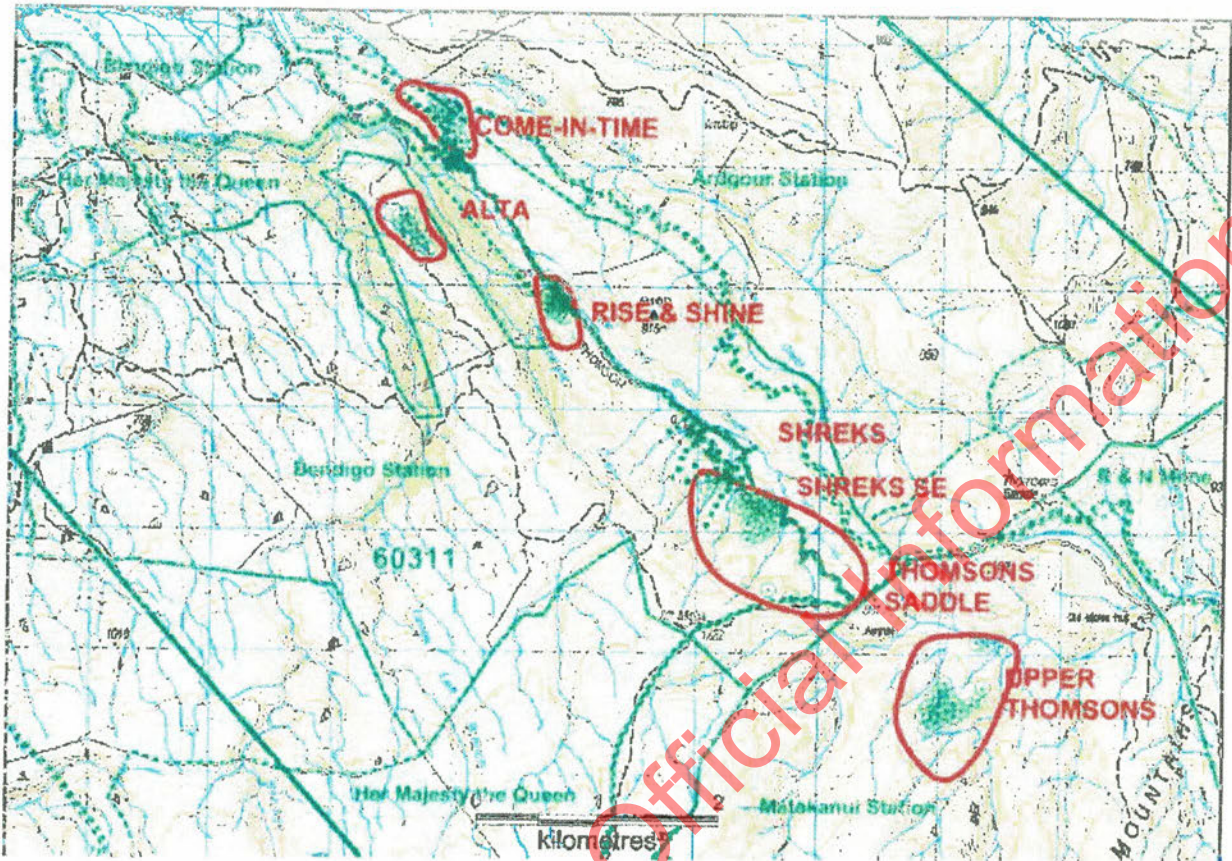
Department of Conservation *Te Papa Atawhai*

Central Otago District Office

PO Box 176, Alexandra 9320

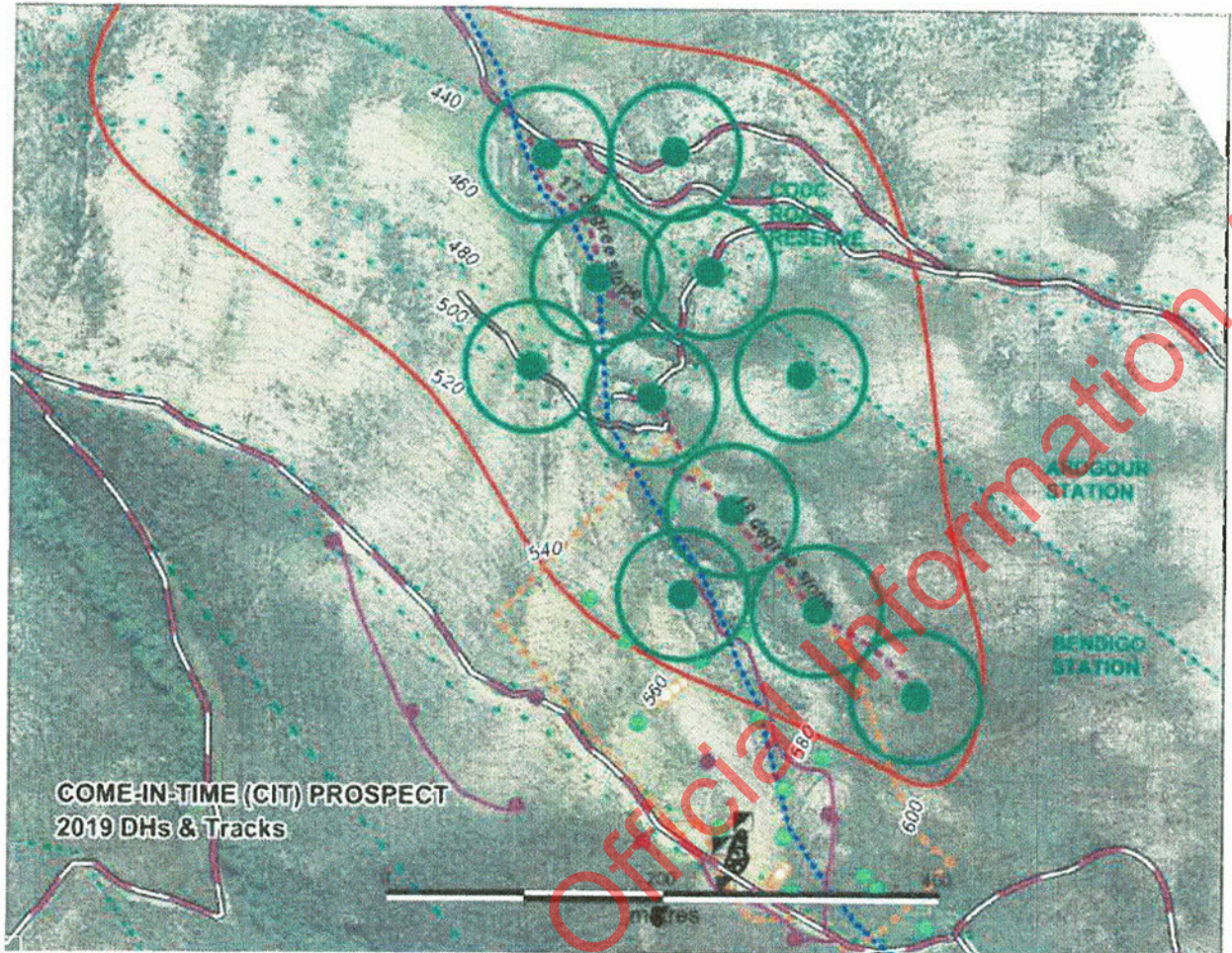
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2019 DRILLING / PROSPECTS / LAND OVERVIEW MAP



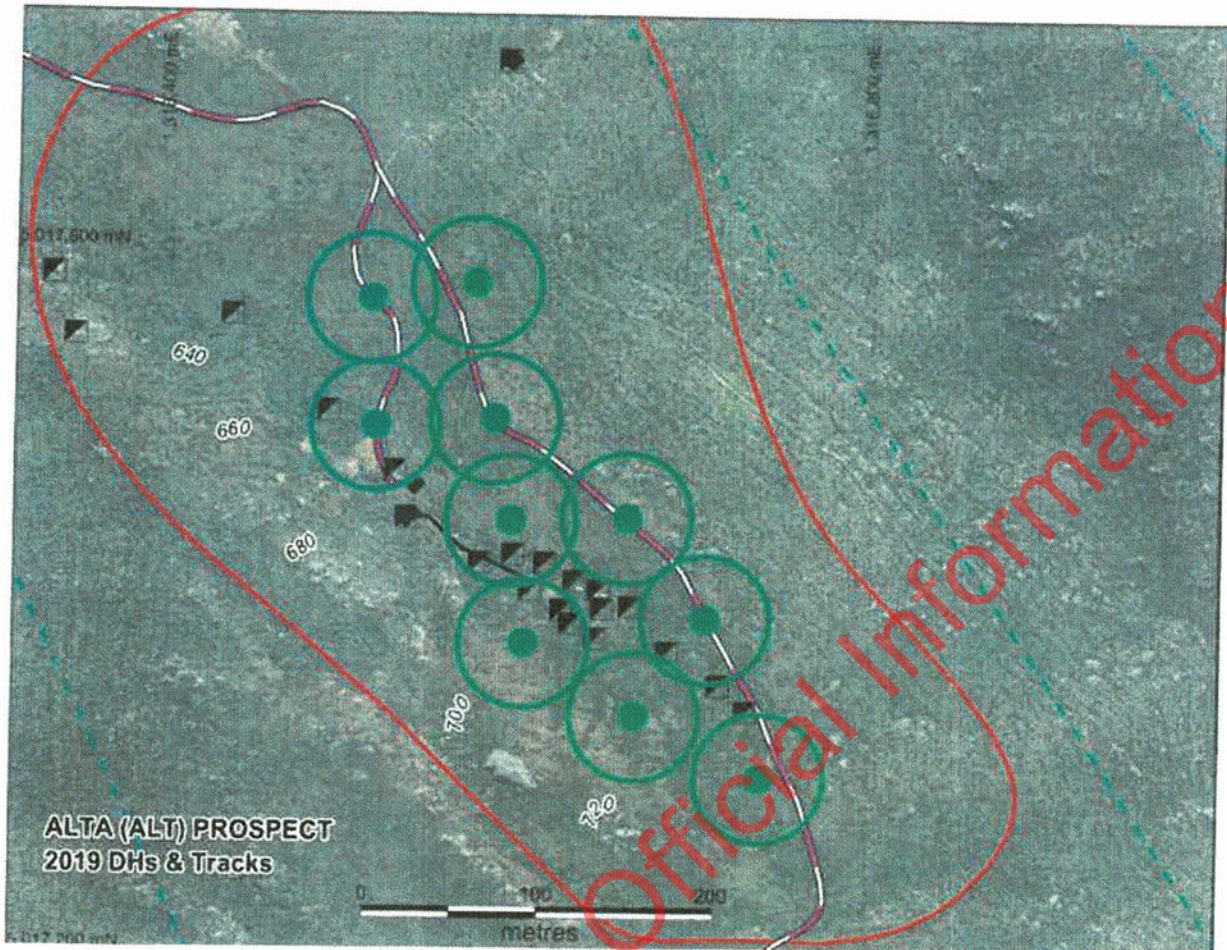
Released under the Official Information Act

COME-IN-TIME (CIT) PROSPECT – BENDIGO & ARDGOUR STATIONS



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ALTA (ALT) PROSPECT – BENDIGO STATION



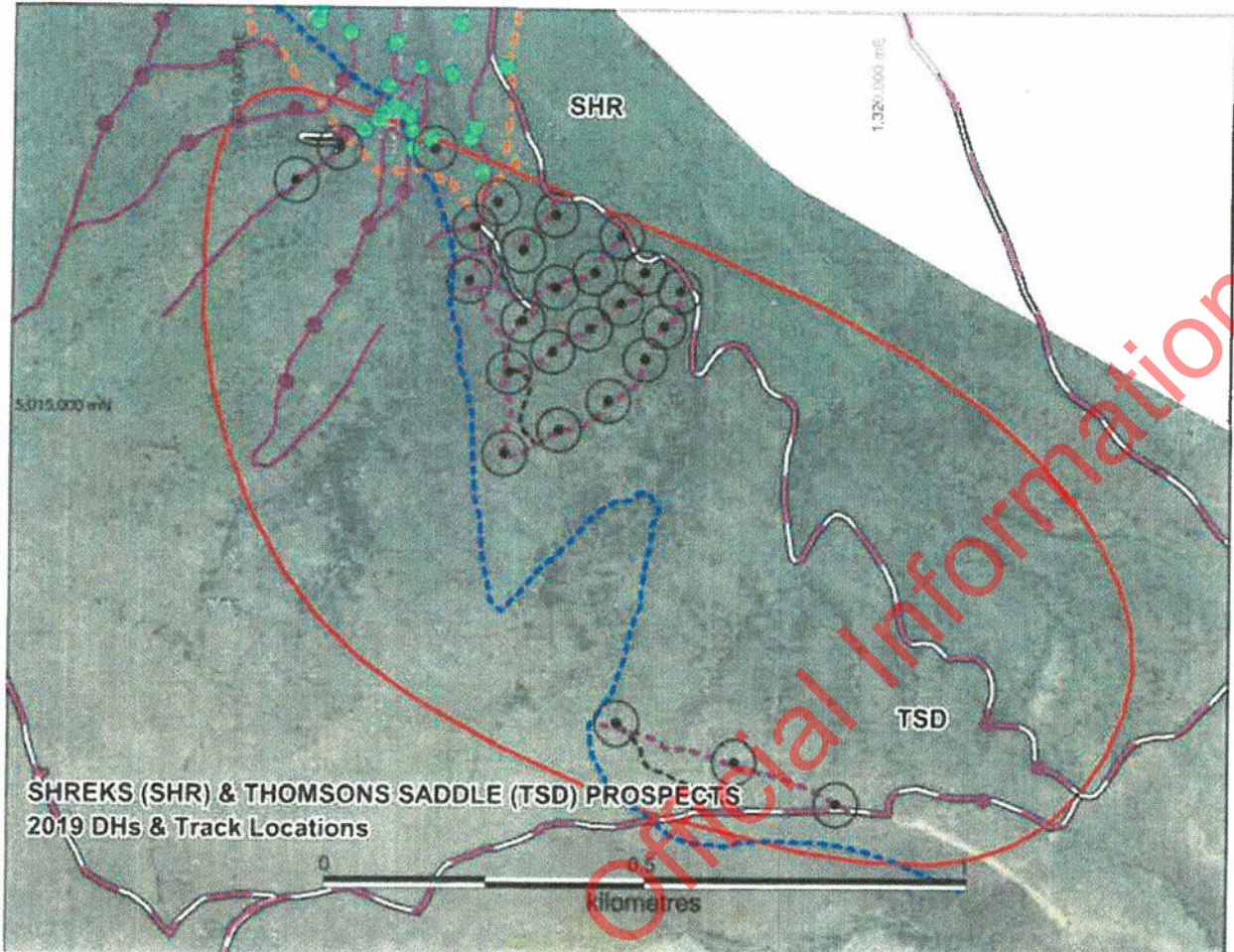
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RISE & SHINE (RAS) PROSPECT – BENDIGO STATION



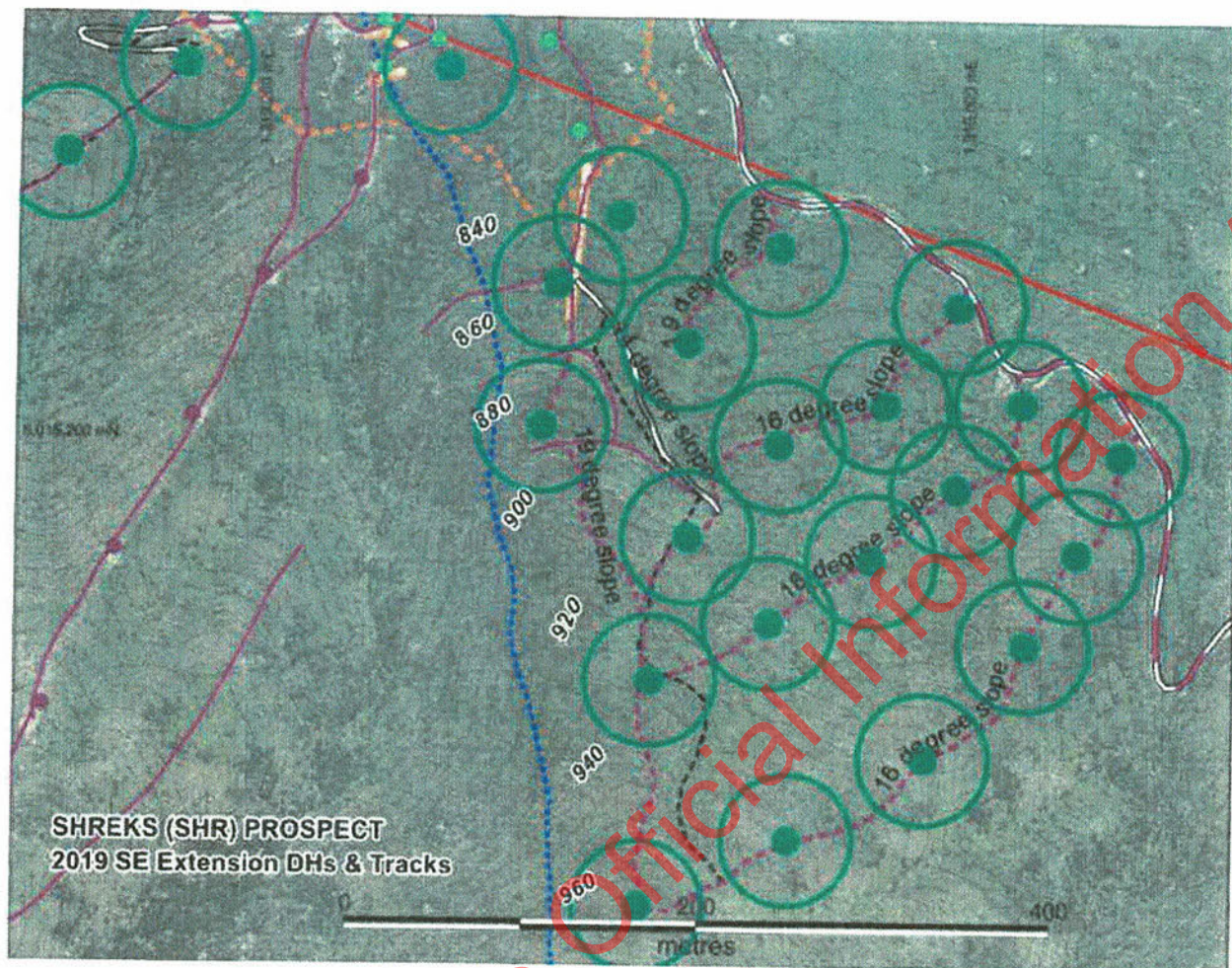
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SHREKS (SHR) & THOMSONS SADDLE (TSD) PROSPECTS – BENDIGO STATION



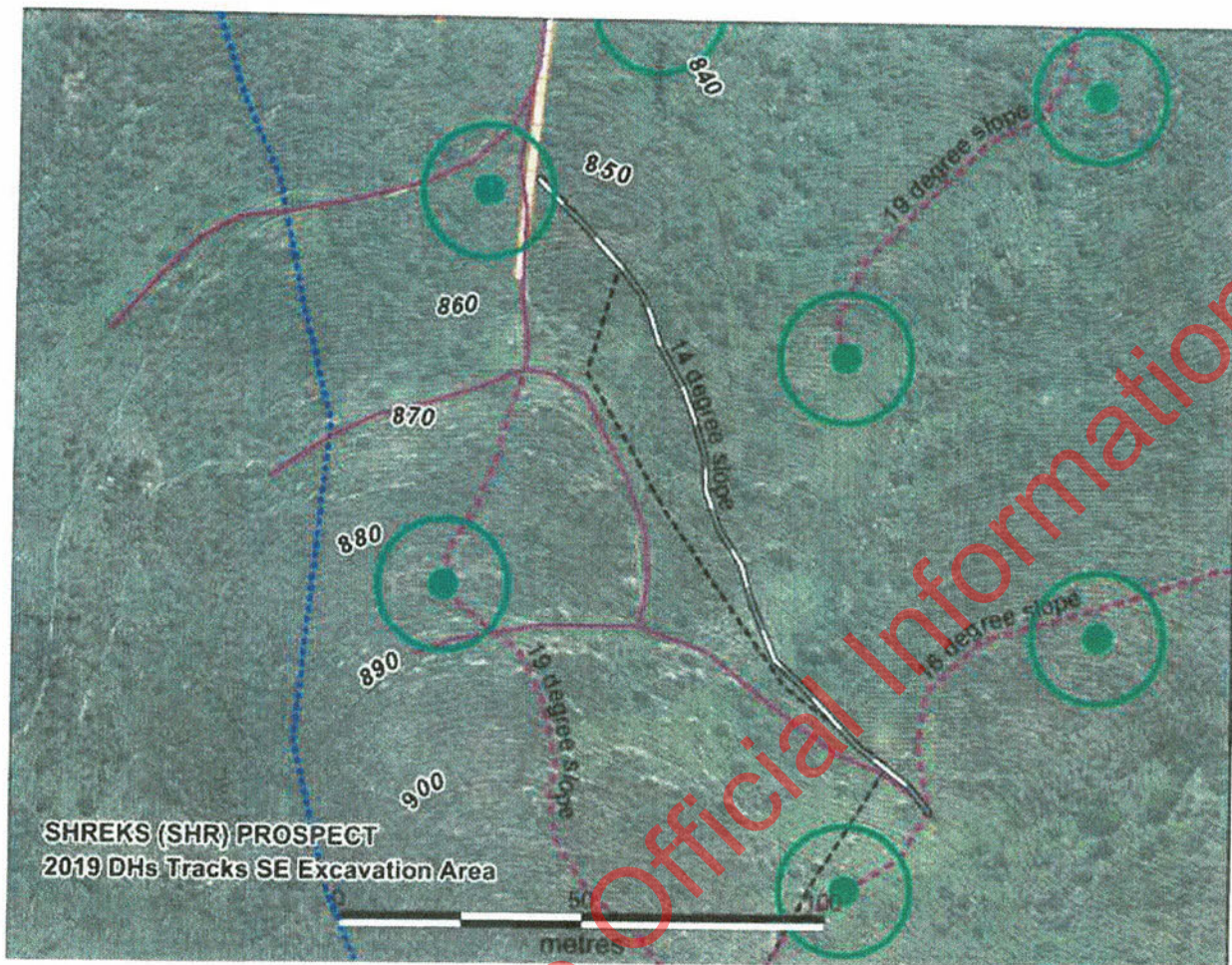
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SHREKS (SHR) PROSPECT – South East - BENDIGO STATION



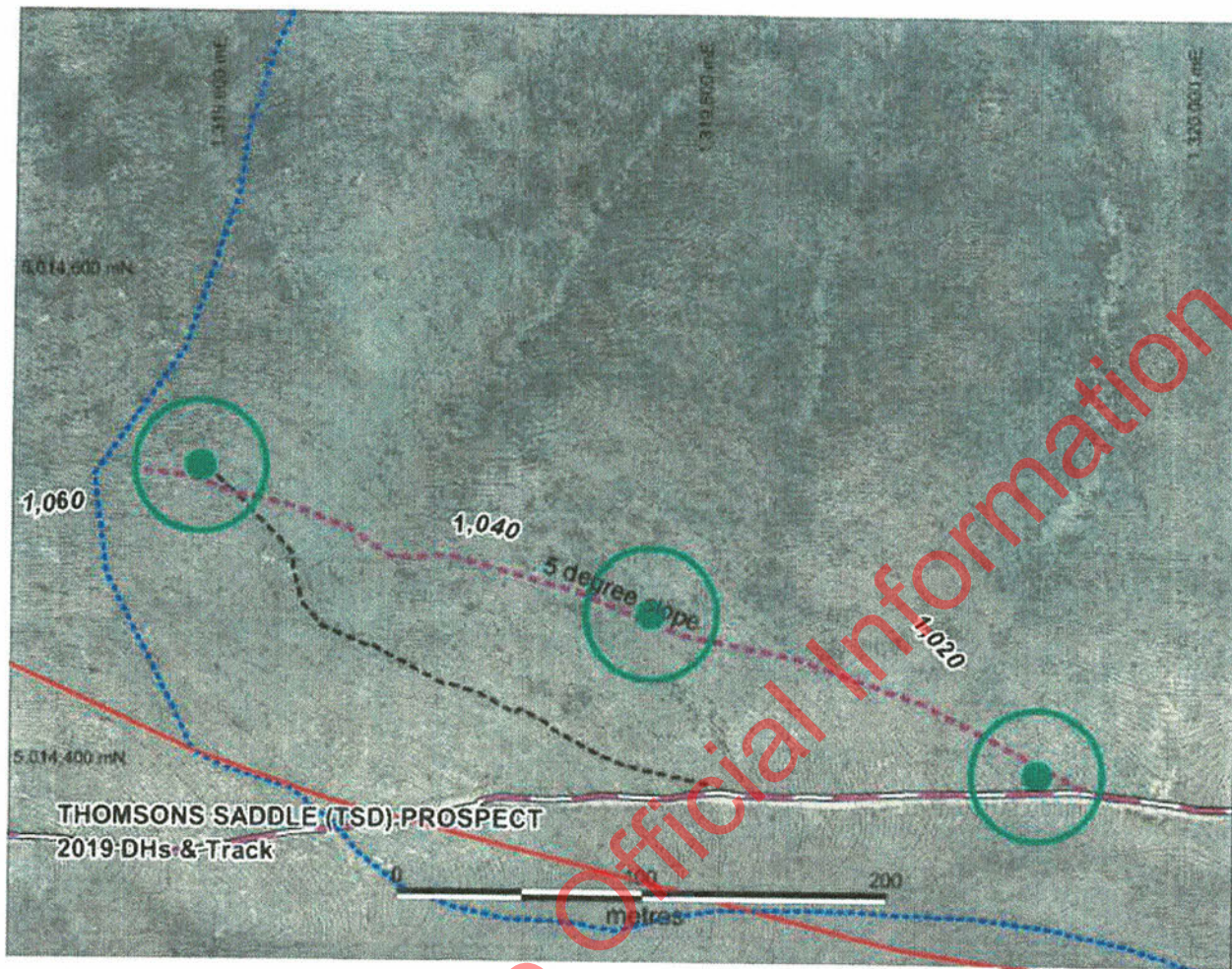
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SHREKS (SHR) PROSPECT – South East - EXCAVATION AREA ZOOM – BENDIGO STATION



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THOMSONS SADDLE (TSD) PROSPECT - BENDIGO STATION



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Released under the Official Information Act



Ref: DOCCM-7183973

25 October 2022

Sec 9(2)(a)

**LETTER OF AUTHORITY: APPROVAL FOR FURTHER MINERAL EXPLORATION
WITHIN BENDIGO CONSERVATION COVENANT**

Approval is granted to you, subject to the conditions outlined in Appendix A of this letter, under Section 77 of the Reserves Act 1977, to authorise Matakanui Gold Limited to undertake the following mineral exploration drilling activities:

- 1) Drilling at 50 sites and to construct temporary drill pads within the target areas identified in the application as Shreks (SHR), Shreks East (SHE) and Thompson Saddle (TSD) – **Section 11 & 15 SO 24641.**
- 2) Construction of a single 800m temporary access track within the target area identified in the application as Shreks (SHR) - **Section 11 SO 24641** (as identified in the covenant document as the 'Rise and Shine Creek' area).
- 3) Construction of no more than 2km of temporary access tracks within the target areas identified in the application as Shreks (SHR), Shreks East (SHE) and Thompson Saddle (TSD) – **Section 15 SO 24641.**

The above activities were considered as described in the application received on 23 May 2022, subsequent emails dated 27 & 28 June 2022, 3 July 2022 and amended application received on the 4 October 2022.

In regards to the approval for activity (2), due to the apparent increasing nature of drilling activities within this area as a whole, the accumulating effects are now deemed to be greater than previously assessed. As such, this will be the final approval for construction of access tracking within the 'Rise and Shine Creek' area (Section 11 & 12 SO 24641). Any future written requests for approval by Matakanui Gold Ltd. to construct access tracks within this area will be declined.

In making my decision, consideration was given to both the specific mention of tracking in Condition 9(d) of the covenant document and the covenant document as a whole, including ensuring the objectives of the covenant are met and consideration of the reports that were referred to when the covenant was agreed.

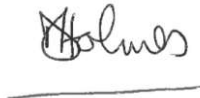
This approval is specific to the application that is described above. It is not indicative of any associated concession or other statutory approval which may be required from the Department in respect to future exploration or mining in the Bendigo Conservation Covenant.

Any change to the application will require that it be resubmitted to me for approval.

Please note that a copy of this letter will also be sent to Matakanui Gold Ltd for their signature of acceptance of the conditions.

Thank you for having regard to the interests of the Department of Conservation (Department).

Nāku noa, nā,



Nicola J Holmes
Pou Matarautaki Operations Manager, Central Otago District
Pursuant to delegated authority

Action Required

A representative from Matakanui Gold Limited is to sign this letter, return it to the Department prior to the commencement of the drilling works, and keep a copy to confirm the conditions.

Representative from Matakanui Gold Limited

Name	Signed	Date
Sec 9(2)(a)	Sec 9(2)(a)	26/10/2022

Position

Planner signing on behalf of Matakanui Gold Limited

Appendix A – Special Conditions

General

1. All necessary resource consents/council approvals, associated with the construction of temporary access tracks and drill pads, must be obtained and conditions adhered to.
2. All conditions and recommendations outlined in the 23 June 2022 archaeological assessment report and June 2021 ecological and botanical report, commissioned by Matakanui Gold Ltd, must be adhered to.
3. All machinery, tools and equipment must be steam cleaned so that it is free of weed seeds, plant fragments and mud prior to entering the land.
4. All machinery, tools and equipment must be re-cleaned after it has operated in previous sections of the land where weed infestations are present.
5. Machinery and equipment used on site must be maintained at all times to prevent leakage of oil and other contaminants on to the land.
6. Any vegetation removal and soil disturbance must be kept to a minimum. No native vegetation is to be disturbed.
7. Prior to construction of temporary access tracks and drill pads a suitably qualified and experienced botanical specialist must identify, and brief contractors, where avoidance of native vegetation is required.
8. Any rocky outcrops found to be present within the affected areas must not be disturbed.
9. Construction of temporary access tracks shall be limited to only what is deemed necessary to achieve a safe gradient for vehicle and drill rig access.
10. Other than required temporary drill pads and access tracks, no campsites or other soil disturbance must be undertaken during the works.
11. Appropriate drill hole warning signs are to be erected and all open drill holes are to be taped off using high visibility tape when unattended.
12. Rehabilitation (recontouring and revegetation) of the single 800m temporary access track, located within Section 11 SO 24641, must be completed by 31 October 2023.
13. All temporary access tracks (within Section 15 SO 24641), drill pads and drill holes must be fully rehabilitated, including revegetated, within three years from the commencement date of construction.
14. Immediately upon the completion of works, Matakanui Gold Ltd. must reinstate the land to the same or better condition it was before works commenced.
15. Rehabilitation of temporary access tracks must follow the previously existing contours of the land.
16. Revegetation planting of disturbed areas must be conducted under the advice of a suitably qualified and experienced botanical specialist (agreed with the Department) and in alignment with the objectives of the covenant.
17. The Department, including any designated representative of the Department, may undertake on-site monitoring to confirm compliance with the conditions contained herein. Matakanui Gold Ltd. shall meet the associated costs of such monitoring undertaken by the Department.

Department of Conservation *Te Papa Atawhai*

Central Otago District Office
PO Box 176, Alexandra 9320
www.doc.govt.nz

Heritage

18. No historic sites identified in the Mamakau (Nichol & Wright) Consultancy 2006 archaeological survey report, the 'Rich Fields of Bendigo' by Jill Hamel 1993 (subsequently identified on the orthophotos provided with the Matakanui Gold Ltd Drilling Programme, received 15 October 2017), the NZ Archaeological Association Site Recording Scheme and the NZ Heritage Properties archaeological assessment dated the 23 June 2022, will be affected when undertaking the work.
19. At any time during the drilling and access track works, in the event of any 'accidental discovery' of suspected archaeological material, including human remains, The Accidental Discovery Protocol must be followed and adhered to.
20. Prior to construction of the single 800m temporary access track within the 'Rise and Shine Creek' area (Section 11 SO 24641), a suitably qualified and experienced archaeologist must:
 - Undertake an on the ground survey of the proposed track alignment to ensure no heritage features are affected.
 - Suitably mark (i.e.: clearly visible tape or marker pegs) any heritage features found to be present in the vicinity of the works, to ensure no accidental damage occurs.
 - Identify and implement suitable photograph monitoring points, by way of ground marker pegs, and take photographs along the full track alignment.

Post rehabilitation of the single 800m temporary access track (recontouring and revegetation):

 - Take photographs along the full track alignment at the aforementioned monitoring points.
 - Provide a final report, including photographs to the Department's Central Otago District Office (alexandra@doc.govt.nz) within one month of the completion of rehabilitation works.

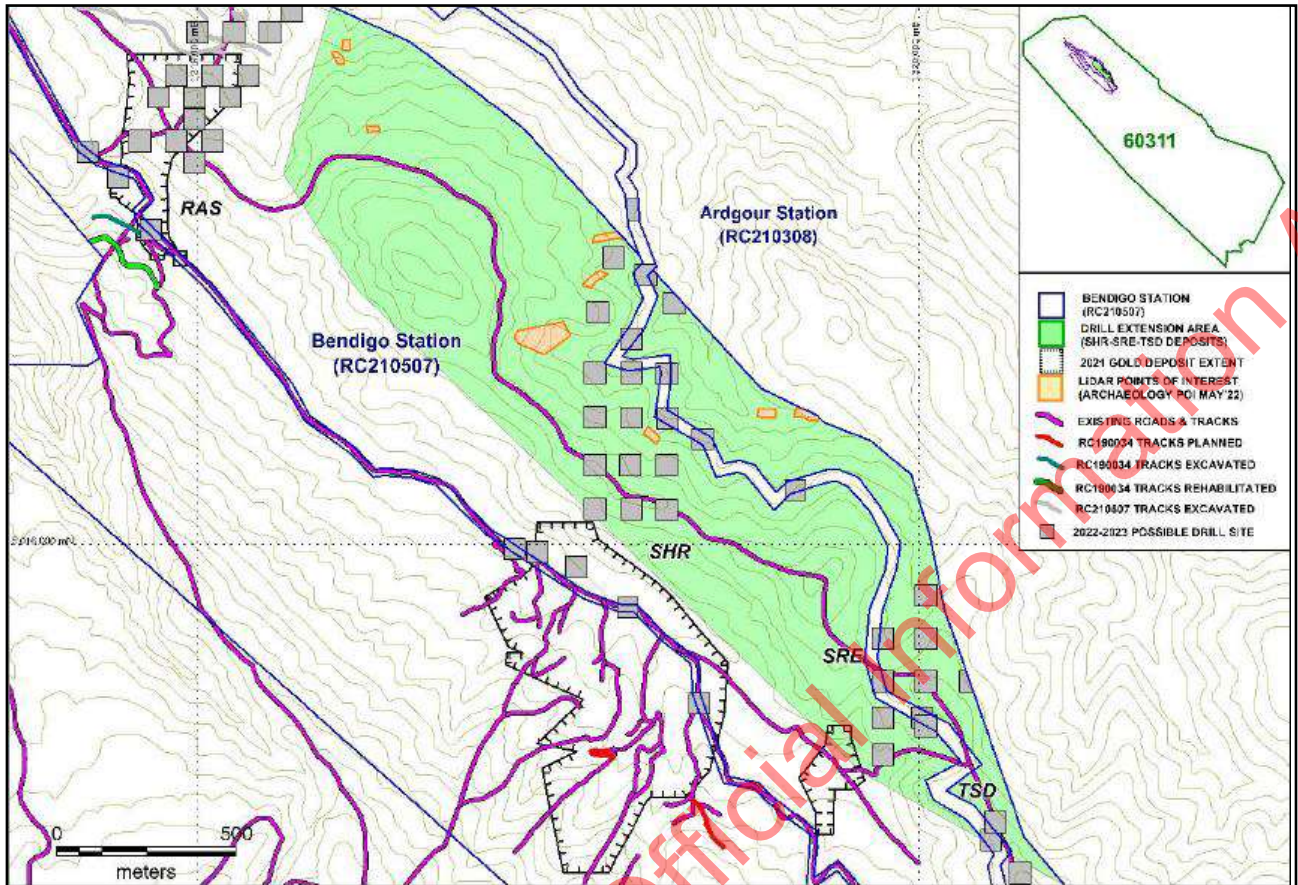
Reporting

21. A detailed annual report must be submitted to the Department's Central Otago District Office (alexandra@doc.govt.nz) by 31 December of each year. The annual report must include, but is not limited to, the following:
 - Topographic location map of rehabilitated drill holes, drill pads and access tracks.
 - Topographic location map of active - yet to be rehabilitated - drill holes, drill pads and access tracks.
 - Photographic record (before construction/post rehabilitation) of rehabilitated drill holes, drill pads and access tracks, cross referenced to the corresponding topographic location map.
 - Construction commencement dates of all active – yet to be rehabilitated - drill holes, drill pads and access tracks, cross referenced to the corresponding topographic location map.
 - Details of plant species planted at each revegetated site.

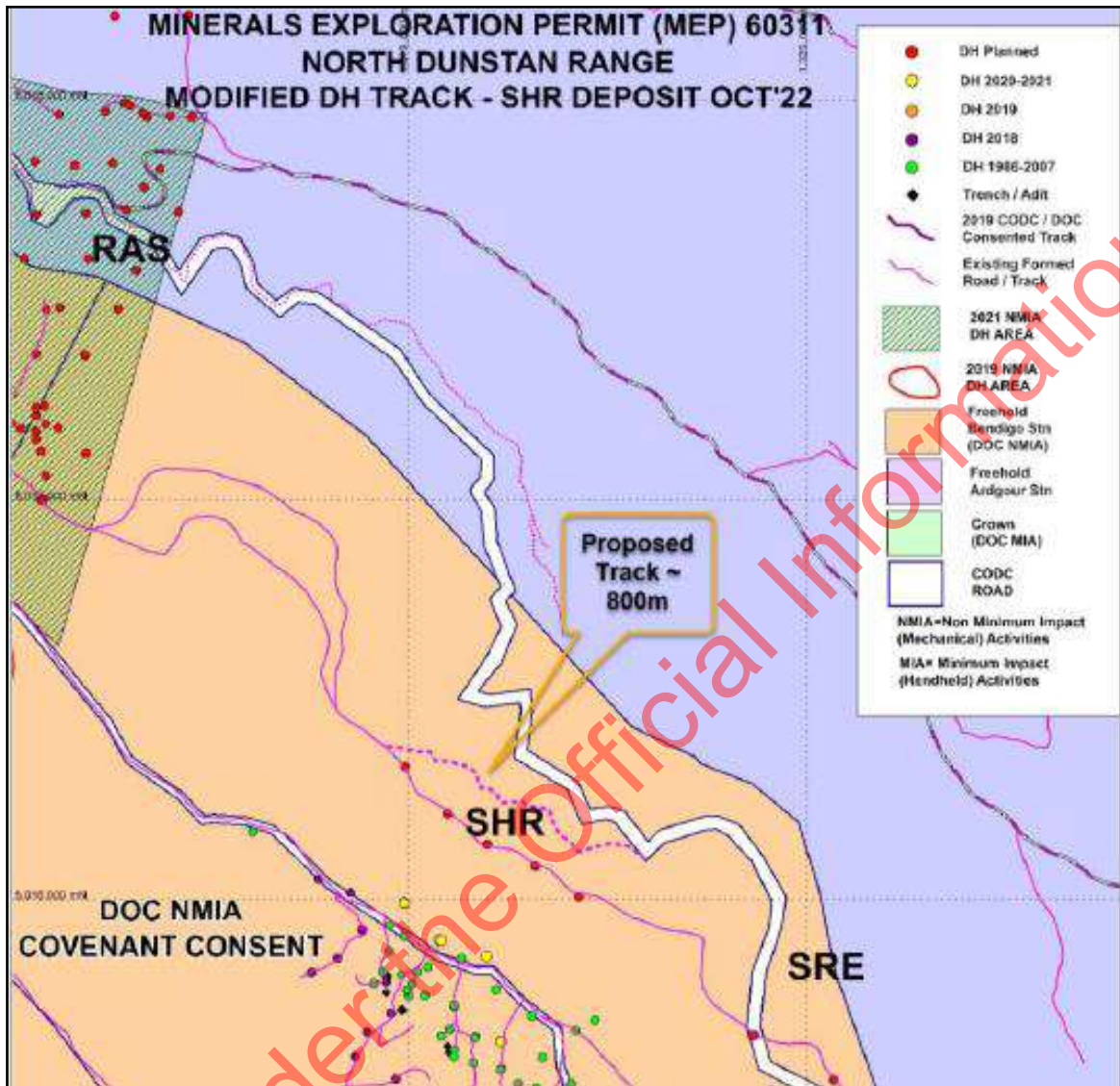
Department of Conservation *Te Papa Atawhai*

Central Otago District Office
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Appendix B – Drilling location sites 2022/2023 (sourced from application)



Appendix C – Single 800m temporary access track location, within Section 11 SO 24641 – ‘Rise and Shine Creek’ area (sourced from application)





Ref: DOC-7264800

17 February 2023

Sec 9(2)(a)

**LETTER OF AUTHORITY: APPROVAL FOR FURTHER MINERAL EXPLORATION
WITHIN BENDIGO CONSERVATION COVENANT**

Approval is granted to you, subject to the conditions outlined in Appendix A of this letter, under Section 77 of the Reserves Act 1977, to authorise Matakanui Gold Limited to undertake the following mineral exploration activities:

- 1) Drilling at a further 50 sites and to construct associated temporary drill pads, within the target area identified in the application as Rise and Shine (RAS).

The above activities were considered as described in the application received on 11 January 2023.

This approval is specific to the application that is described above. It is not indicative of any associated concession or other statutory approval which may be required from the Department in respect to future exploration or mining in the Bendigo Conservation Covenant.

Any change to the application will require that it be resubmitted to me for approval.

Please note that a copy of this letter will also be sent to Matakanui Gold Ltd for their signature of acceptance of the conditions.

Thank you for having regard to the interests of the Department of Conservation (Department).

Ngā mihi,

A handwritten signature in black ink, appearing to read 'Nicola J Holmes', with a horizontal line underneath.

Nicola J Holmes
Pou Matarautaki Operations Manager, Central Otago District
Pursuant to delegated authority

Action Required

A representative from Matakanui Gold Limited is to sign this letter, return it to the Department prior to the commencement of the drilling works, and keep a copy to confirm the conditions.

Representative from Matakanui Gold Limited

Name	Signed	Date
Sec 9(2)(a) [Redacted]	_____	_____
Position		

Released under the Official Information Act

Appendix A – Special Conditions

General

1. All necessary resource consents/council approvals associated with the construction of temporary drill pads, must be obtained and conditions adhered to.
2. All conditions and recommendations outlined in the 9 September 2021 archaeological assessment report and June 2021 ecological and botanical report, commissioned by Matakanui Gold Ltd, must be adhered to.
3. All machinery, tools and equipment must be steam cleaned so that it is free of weed seeds, plant fragments and mud prior to entering the land.
4. All machinery, tools and equipment must be re-cleaned after it has operated in previous sections of the land where weed infestations are present.
5. Machinery and equipment used on site must be maintained at all times to prevent leakage of oil and other contaminants on to the land.
6. Any vegetation removal and soil disturbance must be kept to a minimum. No native vegetation is to be disturbed.
7. Prior to construction of temporary drill pads a suitably qualified and experienced botanical specialist must identify, and brief contractors, where avoidance of native vegetation is required.
8. Any rocky outcrops found to be present within the affected areas must not be disturbed.
9. Other than required temporary drill pads, no access tracks, campsites or other soil disturbance must be undertaken during the works.
10. Appropriate drill hole warning signs are to be erected and all open drill holes are to be taped off using high visibility tape when unattended.
11. All temporary drill pads and drill holes must be fully rehabilitated, including revegetated, within three years from the commencement date of construction.
12. Immediately upon the completion of works, Matakanui Gold Ltd. must reinstate the land to the same or better condition it was before works commenced.
13. Revegetation planting of disturbed areas must be conducted under the advice of a suitably qualified and experienced botanical specialist (agreed with the Department) and in alignment with the objectives of the covenant.
14. The Department, including any designated representative of the Department, may undertake on-site monitoring to confirm compliance with the conditions contained herein. Matakanui Gold Ltd. shall meet the associated costs of such monitoring undertaken by the Department.

Heritage

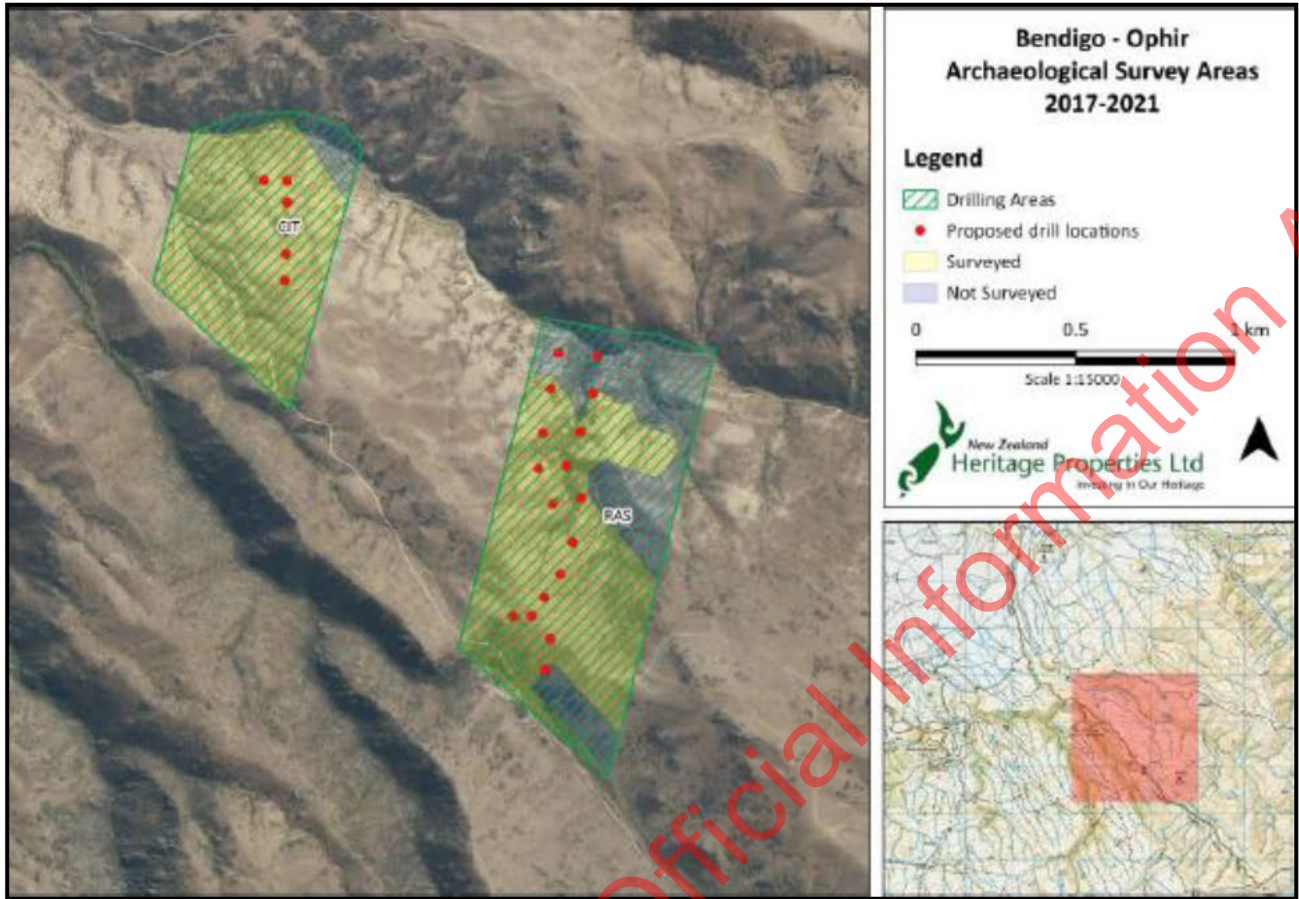
15. No historic sites identified in the Mamakau (Nichol & Wright) Consultancy 2006 archaeological survey report, the 'Rich Fields of Bendigo' by Jill Hamel 1993 (subsequently identified on the orthophotos provided with the Matakanui Gold Ltd Drilling Programme, received 15 October 2017), the NZ Archaeological Association Site Recording Scheme and the NZ Heritage Properties archaeological assessment dated the 13 August 2021, will be affected when undertaking the work.
16. At any time during the drilling and construction of associated drill pads, in the event of any 'accidental discovery' of suspected archaeological material, including human remains, The Accidental Discovery Protocol must be followed and adhered to.

17. Prior to commencement of drilling, and construction of associated drill pads, within areas having previously undergone an archaeological survey by NZ Heritage Properties Limited (attached as Appendix B):
- Consultation must be undertaken with a suitably qualified and experienced archaeologist and resulting recommendations and advice adhered to.
 - Provide the resulting archaeological written advice to the Department's Central Otago District Office (alexandra@doc.govt.nz).
18. Prior to commencement of drilling, and construction of associated drill pads, within areas identified as **not** having previously undergone an archaeological survey (attached as Appendix B), a suitably qualified and experienced archaeologist must:
- Undertake an on the ground survey of the proposed drill hole and drill pad sites to ensure no heritage features are affected.
 - Suitably mark (i.e.: clearly visible tape or marker pegs) any heritage features found to be present in the vicinity of the works, to ensure no accidental damage occurs.
 - Provide an updated archaeological assessment report to the Department's Central Otago District Office (alexandra@doc.govt.nz) within one month of completion of the archaeological ground survey.

Reporting

19. A detailed annual report must be submitted to the Department's Central Otago District Office (alexandra@doc.govt.nz) by 31 December of each year. The annual report must include, but is not limited to, the following:
- Topographic location map of rehabilitated drill holes and drill pads.
 - Topographic location map of active - yet to be rehabilitated - drill holes and drill pads.
 - Photographic record (before construction/post rehabilitation) of rehabilitated drill holes and drill pads, cross referenced to the corresponding topographic location map.
 - Construction commencement dates of all active – yet to be rehabilitated - drill holes and drill pads, cross referenced to the corresponding topographic location map.
 - Details of plant species planted at each revegetated site.

Appendix B – 2021 Archaeological Survey Areas (sourced from 2021 application)



Appendix C – Drilling location area 2023 (sourced from application)

