

## **Review of Historic Exploration Drill Sites and Survey of Legacy Effects in the Puhipuhi area, Northland**

Fifty exploration test holes were drilled in the Puhipuhi area at various times between 1984 and 2008, with 40 of these holes being drilled in the 1980s (Figure 1). Initially, three diamond core holes were drilled between March and October 1984 (DDH1 to DDH3) followed by a further 35 holes that were drilled by reverse circulation (RC) methods between July 1987 and May 1988 (PPRC01 to PPRC34 and PPRC34A). Two additional diamond core holes were drilled in 1989 (PDDH-4 and PDDH-4A). No further drilling occurred for approximately 20 years, when 10 reverse circulation holes were completed during March 2008 (PRC35 to PRC44). These holes have an average depth of 120m and ranged in depth from 17m to 220m, with one single hole being drilled to 620m.

The 50 drill holes are spread over 39 separate sites as there are 11 sites on each of which two holes were drilled in close proximity (Table 1). The drill holes and their locations are described in a series of mineral exploration reports that are available from New Zealand Petroleum and Minerals. The report titles are indicated in Table 1. Location data has been transformed to the NZTM2000 map grid.

In February 2016, Evolution Mining NZ Pty Ltd started a program of locating and surveying the historic drill sites. By mid-April 2016 34 drill sites, accounting for 42 drill holes, had been inspected by Evolution staff to evaluate the degree of rehabilitation that has occurred and to assess any environmental effects. The final 5 sites (accounting for 8 drill holes) were inspected in November 2016. The historic drill sites were evaluated against the following restoration values: contour of the site and access tracks, soil cover and vegetation regrowth. The condition of the sites was further assessed through recording the presence or absence of groundwater seepage, subsidence, soil erosion, hydrocarbon spills and general drilling-related rubbish. Individual site descriptions and photographs are included as Appendix 1.

Of the 50 holes, 37 were sited on farmland, 8 holes were sited within the Department of Conservation (DOC) administered block north of Gibbs Road and 5 within the commercial forestry block administered by Rayonier.

### **Farm Sites**

Twenty seven exploration holes sited on farmland were drilled in 1987 and 1988, with a further 10 holes being drilled in March 2008. Physical evidence for the drill holes on farmland cannot be found, with the exception of historic drill hole PPRC27.



The drill collars were capped below the ground surface and attempts to locate the buried collar caps with a probe were generally unsuccessful.

Soil and vegetation conditions at the drill sites are indistinguishable from those within the immediate farm environment. The surface contour at these drill sites is in keeping with the character of the surrounding topography and is not modified by drilling-related earthworks.

There is no evidence for subsidence or soil erosion at these sites, nor is there any evidence for hydrocarbon spills. Although most of the holes on farmland were drilled by RC methods, no spoil heaps of rock cuttings were located.

Groundwater seepage was observed only at one site, PPRC27, where recent earthworks by the landowner has exposed the drill collar. The water discharge from this hole is <5 L/minute.

### **DOC Sites**

The sites of the 8 historic drill holes that fall within the DOC land parcel north of Gibbs Road are characterised by regenerating scrub that includes manuka, totara, fern and gorse that is in keeping with the surrounding area. These holes were drilled between 1984 and 1988.

The general environment at 3 of these sites (PPRC1, PPRC2 and PPRC13) was indistinguishable from the surrounding area. At the remaining sites, evidence of drill site location is weakly visible mainly through noting that the scrub growing over these drill sites is somewhat less dense or less mature than the immediate surrounds, although the undergrowth at all of these sites is generally dense.

The drill collars were not located at any of these sites, having been capped below surface. There is no evidence of soil erosion or groundwater seepage at these sites. Small fragments of drill core were found at the site of DDH2 and a piece of PVC pipe, possibly representing the cut-off upper section of drill collar casing, was found at the site of PPRC3. Photographs of these articles are included with the site descriptions in Appendix 1. The remains of a vehicle access track are discernible in places. The track is extensively revegetated but evidence of wheel ruts remain as linear depressions approximately 10cm deep (photo, PPRC13, Appendix 1).

### **Forestry Sites**

Five exploration drill holes were sited at three locations within the southern parts of the forestry land parcel. These holes were drilled in 1987 and 1988. Of these, one site (PPRC10) is located within an area that has been significantly modified by recent harvesting and the planting of pine saplings. No physical evidence of the drill site is evident. The remaining 4 holes are sited at two locations (PPRC11 with PPRC33, and PPRC34 with PPRC34A) within an area of regenerating native scrub dominated by manuka. At these two locations evidence of drill site position is visible in so far as the undergrowth is less dense relative to the surrounding area. The drill collar of PPRC34 and PPRC34A is visible although the hole is blocked at a depth of approximately 1m.



**Table 1:** Drill hole ID numbers, locations of drill collars and mineral report references. Drill holes that share the same site are colour-shaded.

Drill hole ID:	NZTM East	NZTM North	Inspected by Evolution staff	Current Land Use	Mineral Report
DDH1	1713882	6071021	Yes	DoC	MR2413
PPRC12	1713892	6071021	Yes	DoC	MR120
DDH2	1713799	6070814	Yes	DoC	MR2413
DDH3	1713638	6073626	Yes	Farm	MR2413
PDDH-4	1713881	6071643	Yes	Farm	MR2478
PDDH-4A	1713880	6071643	Yes	Farm	MR2478
PPRC1	1713518	6070477	Yes	DoC	MR188
PPRC2	1713594	6070526	Yes	DoC	MR188
PPRC3	1713755	6071178	Yes	DoC	MR188
PPRC4	1713832	6071252	Yes	DoC	MR188
PPRC5	1714022	6071538	Yes	Farm	MR188
PPRC6	1714012	6071538	Yes	Farm	MR188
PPRC7	1715255	6072266	Yes	Farm	MR188
PPRC8	1715265	6072266	Yes	Farm	MR188
PPRC9	1715258	6072176	Yes	Farm	MR188
PPRC10	1714174	6074007	Yes	Forestry	MR188
PPRC11	1714087	6073793	Yes	Forestry	MR188
PPRC33	1714087	6073793	Yes	Forestry	MR120
PPRC13	1713835	6071037	Yes	DoC	MR120
PPRC14	1714129	6073376	Yes	Farm	MR120
PPRC15	1714207	6073387	Yes	Farm	MR120
PPRC16	1714207	6073387	Yes	Farm	MR120
PPRC17	1713787	6073802	Yes	Farm	MR120
PPRC18	1713787	6073802	Yes	Farm	MR120
PPRC19	1713742	6073803	Yes	Farm	MR120
PPRC20	1713704	6073663	Yes	Farm	MR120
PPRC21	1714059	6072742	Yes	Farm	MR120
PPRC22	1714056	6072743	Yes	Farm	MR120
PPRC23	1714021	6072758	Yes	Farm	MR120
PPRC24	1714436	6072891	Yes	Farm	MR120
PPRC25	1714473	6072990	Yes	Farm	MR120
PPRC26	1715243	6072176	Yes	Farm	MR120
PPRC27	1713614	6072596	Yes	Farm	MR120
PPRC28	1713610	6072597	Yes	Farm	MR120
PPRC29	1714090	6071431	Yes	Farm	MR120
PPRC30	1714065	6071555	Yes	Farm	MR120
PPRC31	1714065	6071555	Yes	Farm	MR120
PPRC32	1714050	6073798	No	Farm	MR120
PPRC34	1714046	6073794	Yes	Forestry	MR120
PPRC34A	1714046	6073794	Yes	Forestry	MR120
PRC35	1713912	6073466	Yes	Farm	MR4436
PRC36	1713943	6073408	Yes	Farm	MR4436
PRC37	1714322	6073243	Yes	Farm	MR4436
PRC38	1714321	6073157	Yes	Farm	MR4436
PRC39	1714370	6072817	Yes	Farm	MR4436
PRC40	1714370	6072766	Yes	Farm	MR4436
PRC41	1714371	6072717	Yes	Farm	MR4436
PRC42	1713926	6072069	Yes	Farm	MR4436
PRC43	1713927	6072022	Yes	Farm	MR4436
PRC44	1713926	6071969	Yes	Farm	MR4436

## Conclusions

Of the 50 historic drill holes inspected by Evolution staff, 37 are located on farmland, 8 within a parcel of land administered by DOC and 5 within the commercial forestry block.

Significant physical evidence for the drill sites is extremely rare. On farmland the drill sites are indistinguishable from the surrounding environment. Within the DOC and forestry land parcels, some drill sites are evidenced mainly by observation that native and exotic vegetation regrowth is less dense relative to the surroundings, whereas at a number of these sites the character of the regrowth matches the surroundings completely.

There is no evidence of soil erosion or subsidence at any of the drill sites. Groundwater seepage was noted at one site where the hole has been uncapped. Only one other open drill hole collar was located, but this has been blocked 1m below ground surface. Fragments of drill core were located at one site and a small length of PVC piping located at another.



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\*Note that the original version of this report, dated 9 May 2016, described 42 of the 50 historic drill holes and has been amended to include the remaining 8 drill holes.

# **Review of Historic Exploration Drill Sites and Survey of Legacy Effects**

## **Appendix 1: Drill Site Survey Records**

**Drill Hole Id: DDH1**  
**NZTM East: 1713882**  
**Date drilled: 21/05/1984**

**NZTM North: 6071021**  
**Date of site survey: 04/02/2016**

**Drill Hole Id: PPRC12**  
**NZTM East: 1713892**  
**Date drilled: 23/02/1988**

**NZTM North: 6071021**  
**Date of site survey: 04/02/2016**

Drill holes DDH1 and PPRC12 were sited in close proximity to each other and are described as one site.

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area; sump not located (in-filled?)
2. Soil Cover: in keeping with surrounding area
3. Vegetation: dense native scrub, abundant manuka and tree fern, some gorse
4. Access to site: densely revegetated vehicle track, wheel ruts visible in places

**Assessment Summary / Comments:**

The drill site is characterised by dense regenerating scrub that is in keeping with surrounding area, except that scrub growth is marginally less dense over former drill site in comparison to surrounding area.



**Site of DDH1** viewed to the EAST



**Site of PPRC12** (viewed to the EAST)

**Drill Hole Id: DDH2**

**NZTM East: 1713799**

**Date drilled: 08/08/1984**

**NZTM North: 6070814**

**Date of site survey: 04/02/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. Several pieces of 10-20c m long lengths of drill core found.
3. Sediment Control: no sign of sediment runoff.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area; sump not located (in-filled?)
2. Soil Cover: in keeping with surrounding area
3. Vegetation: dense native scrub, abundant manuka and tree fern
4. Access to site: densely revegetated native scrub

**Assessment Summary / Comments:**

Drill site characterised by dense regenerating scrub that is in keeping with surrounding area, except that scrub growth is marginally less dense over former drill site in comparison to surrounding area. Area surrounding has common totara which is absent on the drill site.



**Site of DDH2 viewed to the EAST**



**Site of DDH2 viewed to the NORTH**





**Fragments of core at the site of DDH2**

**Drill Hole Id: DDH3**

**NZTM East: 1713638**

**Date drilled: 15/10/1984**

**NZTM North: 6073626**

**Date of site survey: 07/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion.
3. Sediment Control: no sign of sediment runoff.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area; sump not located (in-filled?)
2. Soil Cover: drill site is on farm race, modified surface
3. Vegetation: none (farm race)
4. Access to site: graded (farm race)

**Assessment Summary / Comments:**

Drill collar not located, the drill site is located on an established farm race.

**Drill Hole Id: PDDH4A**  
**NZTM East: 1713880**  
**Date drilled: 26/01/1987**

**NZTM North: 6071643**  
**Date of site survey: 10/11/2016**

**Drill Hole Id: PDDH4**  
**NZTM East: 1713881**  
**Date drilled: 20/02/1987**

**NZTM North: 6071643**  
**Date of site survey: 10/11/2016**

Drill holes PDDH4A and PDDH4 were sited in close proximity to each other and are described as one site:

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill sites found. Drill collar not definitively located with probe.



**Site of PDDH4A and PDDH4 (viewed to the NORTH)**

**Drill Hole Id: PPRC1**

**NZTM East: 1713518**

**Date drilled: 25/07/1987**

**NZTM North: 6070477**

**Date of site survey: 12/02/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: native scrub
4. Access to site: revegetated

**Assessment Summary / Comments:**

Area characterized by abundant gorse, fern and various ground-cover plant species. Regrowth over ~30 years since completion of this drill hole makes it difficult to determine the precise location of the previously disturbed drill area.



**Site of PPRC1 (viewed to the WEST)**



**Drill Hole Id: PPRC2**

**NZTM East: 1713594**

**Date drilled: 5/08/1987**

**NZTM North: 6070526**

**Date of site survey: 12/02/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: native scrub
4. Access to site: revegetated

**Assessment Summary / Comments:**

Area characterized by abundant manuka, fern and various ground-cover plant species. Regrowth over ~30 years since completion of this drill hole makes it difficult to determine the precise location of the previously disturbed drill area. No obvious signs of earthworks.



**Site of PPRC2 (viewed to the WEST)**



**Site of PPRC2 (viewed to the NORTH)**



**Drill Hole Id: PPRC3**

**NZTM East: 1713755**

**Date drilled: 09/08/1987**

**NZTM North: 6071178**

**Date of site survey: 12/02/2016**

**Drill Site Condition:**

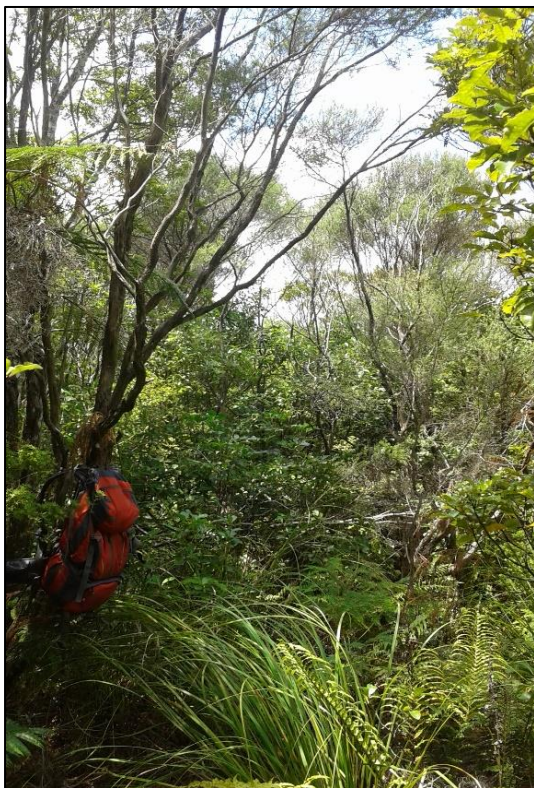
1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. Rubbish had been removed (a 10cm length of 130mm PVC pipe found).
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: native scrub
4. Access to site: revegetated

**Assessment Summary / Comments:**

Drill site characterised by dense regenerating scrub that is in keeping with surrounding area, except that scrub growth is marginally less dense over former drill site in comparison to surrounding area. 10cm length of PVC pipe (drill collar casing?) found near site.



**Site of PPRC3** (viewed to the NORTH)



**Site of PPRC3** (piece of PVC piping found at site)

**Drill Hole Id: PPRC4**

**NZTM East: 1713832**

**Date drilled: 10/08/1987**

**NZTM North: 6071252**

**Date of site survey: 12/02/2016**

**Drill Site Condition:**

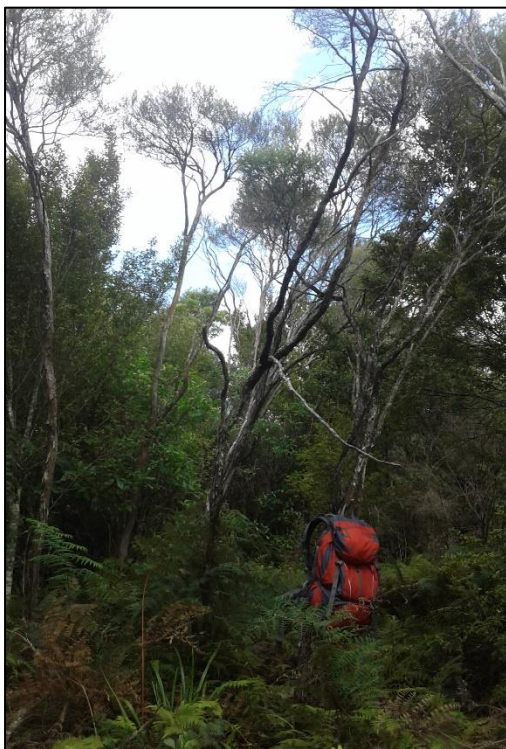
1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: native scrub
4. Access to site: revegetated

**Assessment Summary / Comments:**

The drill site is characterised by scrub growth (abundant fern and ground cover) that is less dense than the surrounding area which is defined by abundant manuka.



**Site of PPRC4** (viewed to the WEST)

**Drill Hole Id: PPRC5**  
**NZTM East: 1714022**  
**Date drilled: 11/08/1987**

**NZTM North: 6071538**  
**Date of site survey: 10/11/2016**

**Drill Hole Id: PPRC6**  
**NZTM East: 1714012**  
**Date drilled: 11/08/1987**

**NZTM North: 6071538**  
**Date of site survey: 10/11/2016**

Drill holes PPRC5 and PPRC6 were sited in close proximity to each other in a paddock and are described as one site:

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collars not definitively located with probe due to (buried) boulders present in the area.



**Site of PPRC5 collar (viewed to the NORTH)**



**Site of PPRC6 collar (viewed to the NORTH)**



**Drill Hole Id: PPRC7**  
**NZTM East: 1715255**  
**Date drilled: 12/08/1987**

**NZTM North: 6072266**  
**Date of site survey: 22/01/2016**

**Drill Hole Id: PPRC8**  
**NZTM East: 1715265**  
**Date drilled: 18/08/1987**

**NZTM North: 6072266**  
**Date of site survey: 22/01/2016**

Drill holes PPRC7 and PPRC8 were sited in close proximity to each other in a paddock and are described as one site:

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture
4. Access to site: revegetated

**Assessment Summary / Comments:**

Drill collars not located. No physical or environmental evidence of drill site found. Area located between 5m and 25m from river bank.



**Site of PPRC7 (viewed to the NORTH)**

**Drill Hole Id: PPRC9**

**NZTM East: 1715258**

**Date drilled: 14/08/1987**

**NZTM North: 6072176**

**Date of site survey: 22/01/2016**

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture
4. Access to site: revegetated

**Assessment Summary / Comments:**

Drill collar not found. Area located within paddock that encloses outcropping rock with scattered pine trees and totara. No physical or environmental evidence of a drill site.



**Site of PPRC9** (viewed to the SOUTH-EAST)

**Drill Hole Id: PPRC10**  
**NZTM East: 1714174**  
**Date drilled: 14/08/1987**

**NZTM North: 6074007**  
**Date of site survey: 11/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: rehabilitation not determined due to recent forestry activity.
2. Soil Cover: possibly disturbed by recent forestry activity.
3. Vegetation: plantation forest.
4. Access to site: revegetated, original track obscured.

**Assessment Summary / Comments:**

Drill Collar was unable to be located. Very dense gorse, scrub and juvenile Radiata pine trees. Difficult to assess current state of surface or any potential disturbance from drill activities due to recent forestry harvesting and replanting.



**Site of PPRC10** (viewed to the NORTH)



**Drill Hole Id: PPRC11**  
**NZTM East: 1714087**  
**Date drilled: 17/08/1987**

**NZTM North: 6073793**  
**Date of site survey: 11/04/2016**

**Drill Hole Id: PPRC33**  
**NZTM East: 1714078**  
**Date drilled: 02/05/1988**

**NZTM North: 6073793**  
**Date of site survey: 11/04/2016**

Drill holes PPRC11 and PPRC33 were sited in close proximity to each other and are described as one site:

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed. Two shallow pools of standing water, 2-4m wide, at edge of site.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: cleared surface (rubble only). No clear benching of contours.
2. Soil Cover: thin layer of soil present.
3. Vegetation: native scrub (predominantly manuka), thinner undergrowth on pads relative to uncleared land.
4. Access to site: natural revegetation of graded track, parts of the track remain visible (photo)

**Assessment Summary / Comments:**

Drill collar was not located. Site clearance activities are evident as minor grading of ground surface. The site is characterised by abundant “pole” manuka (trunk width 2cm to 5cm) and a marked reduction in undergrowth relative to undisturbed land. The site has an approximate diameter of 12m. There are two small areas of shallow standing water at edges of site but unclear of their relation to the holes and probably represent rainwater pooling in low points.



Site of PPRC11 and PPRC33 (viewed to the NORTH)



Track leading to Site of PPRC11 and PPRC33



**Drill Hole Id: PPRC13**  
**NZTM East: 1713835**  
**Date drilled: 27/02/1988**

**NZTM North: 6071033**  
**Date of site survey: 04/02/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

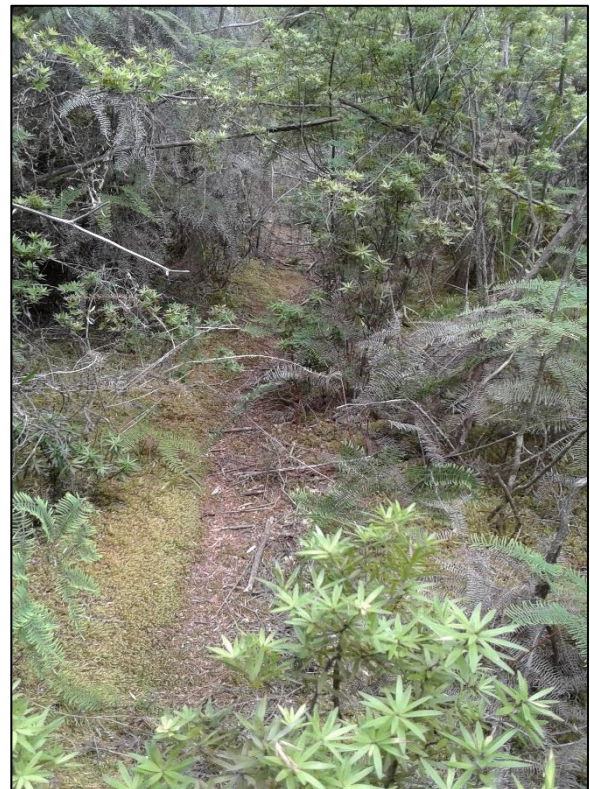
1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: native scrub (predominantly manuka); minor gorse.
4. Access to site: Revegetated.

**Assessment Summary / Comments:**

Drill collar not located. No physical or environmental evidence of drill site found. Remains of vehicle track discernible in places.



**Site of PPRC13 (viewed to the NORTH)**



**Track to PPRC13 (viewed to the WEST)**

**Drill Hole Id: PPRC14**  
**NZTM East: 1714129**  
**Date drilled: 29/02/1988**

**NZTM North: 6073376**  
**Date of site survey: 08/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not located. No physical or environmental evidence of drill site found.



**Site of PPRC14 (viewed to the SOUTH)**



**Site of PPRC14 (viewed to the NORTH)**



**Drill Hole Id: PPRC15 & PPRC16**

**NZTM East: 1714207**

**Date drilled: 06/03/1988**

**NZTM North: 6073387**

**Date of site survey: 08/04/2016**

**Drill Site Condition:**

1. Drill Collars: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture
4. Access to site: revegetated.

**Assessment Summary / Comments:**

PPRC15 and PPRC16 have the same collar location. Drill collars not located. No physical or environmental evidence of drill site found.



**Site of PPRC15 and PPRC16 (viewed to the EAST)**



**Site of PPRC15 and PPRC16 (viewed to the SOUTH)**

**Drill Hole Id: PPRC17 & PPRC18**

**NZTM East: 1713787**

**Date drilled: 13/03/1988**

**NZTM North: 6073802**

**Date of site survey: 07/04/2016**

Holes PPRC17 and PPRC18 were drilled from the same location

**Drill Site Condition:**

1. Drill Collars: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

PPRC17 and PPRC18 have the same collar location. No physical or environmental evidence of drill site found. Drill collars / caps not definitively located with probe due to abundant boulders (sinter) present in the area.



**Site of PPRC17 and PPRC18 (viewed to the EAST)**



**Drill Hole Id: PPRC19**  
**NZTM East: 1713742**  
**Date drilled: 20/03/1988**

**NZTM North: 6073803**  
**Date of site survey: 07/04/2016**

**Drill Site Condition:**

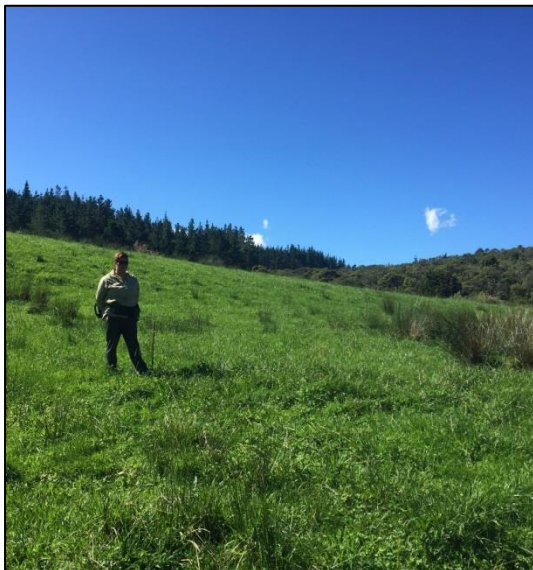
1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collar / cap not definitively located with probe due to (buried) boulders present in the area.



**Site of PPRC19** (viewed to the NORTH)

**Drill Hole Id: PPRC20**  
**NZTM East: 1713704**  
**Date drilled: March 1988**

**NZTM North: 6073663**  
**Date of site survey: 07/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collar / cap not definitively located with probe due to (buried) boulders present in the area.



**Site of PPRC20 (viewed to the EAST)**



**Site of PPRC20 (viewed to the NORTHEAST)**

**Drill Hole Id: PPRC21**  
**NZTM East: 1714059**  
**Date drilled: March 1988**

**NZTM North: 6072742**  
**Date of site survey: 06/04/2016**

**Drill Hole Id: PPRC22**  
**NZTM East: 1714056**  
**Date drilled: 26/03/1988**

**NZTM North: 6072743**  
**Date of site survey: 06/04/2016**

Drill holes PPRC21 and PPRC22 were sited in close proximity to each other and are described as one site:

**Drill Site Condition:**

1. Drill Collars: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collars / caps not definitively located with probe due to (buried) boulders present in the area.



**Site of PPRC21 and PPRC22 (viewed to the EAST)**



**Site of PPRC21 and PPRC22 (viewed to the SOUTH)**

**Drill Hole Id: PPRC23**  
**NZTM East: 1714021**  
**Date drilled: March 1988**

**NZTM North: 6072758**  
**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collar / cap not definitively located with probe due to (buried) boulders present in the area. (Not photographed)



**Drill Hole Id: PPRC24**  
**NZTM East: 1714436**  
**Date drilled: 29/03/1988**

**NZTM North: 6072891**  
**Date of site survey: 26/01/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture and scattered gorse scrub.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not located. Area located in paddock with scattered gorse. No physical or environmental evidence of drill site found.

**Site Photo** (viewed to the NORTH)



**Site of PPRC24** (viewed to the NORTH)

**Drill Hole Id: PPRC25**  
**NZTM East: 1714473**  
**Date drilled: 02/04/1988**

**NZTM North: 6072990**  
**Date of site survey: 26/01/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture and gorse scrub.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not found. Drill site located at the base of gorse-covered hill. No physical or environmental evidence for drill site found.



**Site of PPRC25 (viewed to the WEST)**

**Drill Hole Id: PPRC26**  
**NZTM East: 1715243**  
**Date drilled: 08/04/1988**

**NZTM North: 6072176**  
**Date of site survey: 22/01/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture and mixed native and exotic (pine) trees.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not found. Area located in paddock that encloses outcropping sinter, with scattered pine trees and totara. No physical or environmental evidence of Drillsite found.



**Site of PPRC26 (viewed to the EAST)**



**Drill Hole Id: PPRC27**  
**NZTM East: 1713614**  
**Date drilled: 10/04/1988**

**NZTM North: 6072596**  
**Date of site survey: 05/04/2016**

**Drill Site Condition:**

1. Drill Collar: buried drill collar located.
2. Site Condition: visible groundwater seepage, no subsidence, erosion or hydrocarbons.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: recently modified by landowner (excavation of drainage trenches).
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture with abundant weeds.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

The site occurs at the edge of a boggy area characterised by tall weed growth. In 2014 the new land owner excavated a series of trenches in order to drain this boggy pasture, and in the process exposed the collar of PPRC27. Water is expressing from the collar of this drill hole at a flow rate <5L/minute and passes into a drainage trench. The collar had previously been fitted with a PVC T-piece to which alkathene piping had been fitted to manage the artesian flow (fragments located). The collar possibly had a small concrete cap (fragment located).



**Site of PPRC27 (marked with a black-handled probe) and PPRC28 (marked by the clipboard) (view to SOUTH)**



**PPRC27**



PPRC27



PPRC27

**Drill Hole Id: PPRC28**  
**NZTM East: 1713610**  
**Date drilled: 13/04/1988**

**NZTM North: 6072597**  
**Date of site survey: 05/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed and possibly located at a depth of 50cm.
2. Site Condition: no visible groundwater seepage but site occurs within a boggy area approximately 3m W of PPRC27. No visible subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: No sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area, modified by recent excavations by the land owner.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture and abundant weed
4. Access to site: revegetated.

**Assessment Summary / Comments:**

PPRC28 was drilled approximately 3m W of PPRC27. Collar not located but a possible buried collar cap was located at a depth of 50cm. The site lies on the edge of a boggy area characterised by tall weed growth.



**Site of PPRC28 (viewed to the SOUTH)**



**Drill Hole Id: PPRC29**  
**NZTM East: 1714090**  
**Date drilled: 14/04/1988**

**NZTM North: 6071431**  
**Date of site survey: 10/11/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collar not definitively located with probe due to (buried) boulders present in the area.



**Site of PPRC29 (viewed to the NORTH)**

**Drill Hole Id: PPRC30 & PPRC31****NZTM East: 1714065****Date drilled: 20/04/1988****NZTM North: 6071555****Date of site survey: 10/11/2016**

Holes PPRC30 and PPRC31 were drilled from the same location.

**Drill Site Condition:**

1. Drill Collars: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Holes PPRC30 and PPRC31 were drilled from the same location. No physical or environmental evidence of drill site found. Drill collar not definitively located with probe due to (buried) boulders present in the area.



**Site of PPRC30 and PPRC31 (viewed to the NORTH)**

**Drill Hole Id: PPRC32**  
**NZTM East: 1713997**  
**Date drilled: 29/04/1988**

**NZTM North: 6071308**  
**Date of site survey: 10/11/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible signs of groundwater seepage, subsidence, hydrocarbons or erosion. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area
2. Soil Cover: in keeping with surrounding area
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

No physical or environmental evidence of drill site found. Drill collar not definitively located with probe.



**Site of PPRC32 (viewed to the NORTH)**



**Drill Hole Id: PPRC34 & PPRC34A**

**NZTM East: 1714046**

**Date drilled: 06/05/1988**

**NZTM North: 6073794**

**Date of site survey: 11/04/2016**

PPRC34 and PPRC34A have the same collar location (the two holes were collared from the same position).

**Drill Site Condition:**

1. Drill Collar: collar located, half capped with wood. Casing not visible.
2. Site Condition: drill hole was plumbed and found to be closed (collapsed) at 1.25m depth. Water has collected above the blockage to a depth of 0.25mm below the surface.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: minor levelling has occurred, a small bench to level the drill pad.
2. Soil Cover: thin soil cover- moderately disturbed for vegetation clearance, not markedly distinguishable from soils of the surrounding area.
3. Vegetation: native scrub, thinner undergrowth on pads relative to uncleared land.
4. Access to site: natural regrowth over access track which remains weakly visible in places.

**Assessment Summary / Comments:**

Minor surface levelling on topographic high-point is evident. Collar located, partially capped with a wooden block. The drill hole is blocked 1.25m below surface (water has pooled above the blockage). The site is characterised by dense manuka scrub, with thinner undergrowth relative to the surrounding area.



**Site of PPRC34 and PPRC34A (viewed to the SOUTH)**



**Site of PPRC34 and PPRC34A (viewed to the WEST)**



**PPRC34 and PPRC34A collar**

**Drill Hole Id: PRC35**

**NZTM East: 1713912**

**Date drilled: March 2008**

**NZTM North: 6073466**

**Date of site survey: 08/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible and not located by probing. No physical or environmental evidence of drill site found. The land owner asked the surveyor to account for discolouration in the general area of the drill site. No discolouration was found.



**Site of PRC35 (viewed to the EAST)**



**Site of PRC35 (viewed to the NORTH)**



**Drill Hole Id: PRC36**

**NZTM East: 1713943**

**Date drilled: March 2008**

**NZTM North: 6073408**

**Date of site survey: 08/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible and not located by probing. No physical or environmental evidence of drill site found.



**Site of PRC36 (viewed to the NORTH)**



**Site of PRC36 (viewed to the WEST)**

**Drill Hole Id: PRC37**

**NZTM East: 1714322**

**Date drilled: March 2008**

**NZTM North: 6073243**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

The site is located on the flat crest of a low hill. Drill collar not visible and not located by probing. No physical or environmental evidence of drill site found.



**Site of PRC37 (viewed to the SOUTH)**



**Site of PRC37 (viewed to the NORTHEAST)**

**Drill Hole Id: PRC38**

**NZTM East: 1714321**

**Date drilled: March 2008**

**NZTM North: 6073157**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible and not located by probing due to abundant buried boulders. No physical or environmental evidence of drill site found.



**Site of PRC38 (viewed to the EAST)**



**Site of PRC38 (viewed to the NORTH)**



**Drill Hole Id: PRC39**

**NZTM East: 1714370**

**Date drilled: March 2008**

**NZTM North: 6072817**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, probed but not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with the surrounding area.
2. Soil Cover: in keeping with the surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible and not located by probing. No physical or environmental evidence of drill site found.



**Site of PRC39 (viewed to the NORTHEAST)**



**Site of PRC40 (viewed to the NORTH)**

**Drill Hole Id: PRC40**

**NZTM East: 1714370**

**Date drilled: March 2008**

**NZTM North: 6072766**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: Drill collar not visible, not located.
2. Site Condition: No visible Groundwater seepage, Subsidence or Hydrocarbons. All rubbish had been removed.
3. Sediment Control: No sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: Original contour restored.
2. Soil Cover: Original soil replaced.
3. Vegetation: Pasture.
4. Access to site: Revegetated.

**Assessment Summary / Comments:**

Drill collar not visible and not located by probing. No physical or environmental evidence of drill site found.

**Drill Hole Id: PRC41**

**NZTM East: 1714371**

**Date drilled: March 2008**

**NZTM North: 6072717**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, possibly located by probe at a depth of 40-50cm.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible but possibly located by probing . No physical or environmental evidence of drill site found. A low mound of soil (grassed) occurs approximately 5m east of collar site (approx. 1m high, 2.5m wide) but believed to be an agricultural feature.



**Site of PRC41 (viewed to the EAST)**



**Site of PRC41 (viewed to the SOUTH)**



**Drill Hole Id: PRC42**

**NZTM East: 1713926**

**Date drilled: March 2008**

**NZTM North: 6072069**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, not located.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible but possibly located by probe . No physical or environmental evidence of drill site found.



**Site of PRC42 (viewed to the EAST)**



**Site Photo 2 (viewed to the WEST)**

**Drill Hole Id: PRC43**

**NZTM East: 1713927**

**Date drilled: March 2008**

**NZTM North: 6072022**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, possibly located by probe (40-50cm below surface).
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible but possibly located by probe. No physical or environmental evidence of drill site found.



**Site of PRC43 (viewed to the EAST)**



**Site of PRC43 (viewed to the SOUTH)**

**Drill Hole Id: PRC44**

**NZTM East: 1713926**

**Date drilled: March 2008**

**NZTM North: 6071969**

**Date of site survey: 06/04/2016**

**Drill Site Condition:**

1. Drill Collar: not visible, possibly located by probe at 40cm below surface.
2. Site Condition: no visible groundwater seepage, subsidence, erosion or hydrocarbons. All rubbish had been removed.
3. Sediment Control: no sign of sediment runoff, all cuttings have been removed.

**Rehabilitation Assessment:**

1. Land contour: in keeping with surrounding area.
2. Soil Cover: in keeping with surrounding area.
3. Vegetation: pasture.
4. Access to site: revegetated.

**Assessment Summary / Comments:**

Drill collar not visible but possibly located by probe. No physical or environmental evidence of drill site found.



Site of PRC44 (viewed to the SOUTH)



Site of PRC44 (viewed to the EAST)