Ground Doctor Pty Ltd

Preliminary Site Investigation with Targeted Sampling

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Proposed Subdivision within
Thredbo Golf Course
Thredbo, NSW

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On Behalf Of:
Kosciuszko Thredbo Pty Ltd

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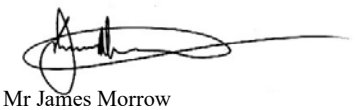
Approved By:	 Mr James Morrow Environmental Engineer Certified Environmental Practitioner No.: 1194 site Contamination Specialist No.: SC41087
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1 Introduction

Ground Doctor Pty Ltd (Ground Doctor) was commissioned by Kosciuszko Thredbo Pty Ltd (KT) to conduct a Preliminary Site Investigation (PSI) with Targeted Sampling of land proposed for subdivision within Thredbo Golf Course.

Thredbo Golf Course is located at Crackenback Drive, Thredbo, NSW. The approximate boundary of land within the golf course that is proposed for subdivision (the site) is shown in *Figure 1* of *Annex A*.

1.1 Assessment Objectives

The objectives of the PSI with Targeted Sampling were to:

- Identify past and present land uses within the site and within adjoining land.
- Identify potential sources of land contamination associated with identified past and present use of the site and associated potential contaminants of concern.
- Collect environmental data to characterise the identified potential areas of environmental concern.
- Use field observations and analytical data to assess the suitability of the site for future residential use.

1.2 Scope of Work

Ground Doctor completed the following work.

- Inspected the site to establish current conditions, surrounding land uses and potential human and environmental receptors located at/near the site.
- Reviewed and presented aerial photography of the site dated 1964, 1968, 1979, 1988, 1999, 2012, 2016 and 2020.
- Conducted a search of property records held by NSW Department of Planning and Environment (DPE) - Alpine Resorts Team and NSW National Parks and Wildlife (NPWS) for information relevant to the site.
- Interviewed green keeping staff at Thredbo Golf Course to assess maintenance practices at the course.
- Obtained land titles records for the site which outlined historical property transactions and property ownership records.
- Conducted a search of NSW Environment Protection Authority (EPA) database for notices pertaining to the site under the Contaminated Land Management Act 1997.
- Conducted a search of NSW Environment Protection Authority (EPA) public register of licences, applications and notices made under the Protection of the Environment Operations (POEO) Act 1997, or records of NSW EPA regulated activities that do not require a license, related to the site.
- Conducted a search of the NSW SafeWork dangerous goods licensing database for records of dangerous goods storage within the site.

- Reviewed available soil and geology maps to assess subsurface conditions within the site.
- Conducted a search of the Water NSW registered groundwater works database to identify groundwater works located within 1km of the site.
- Identified relevant human health and environmental risk pathways relevant to the proposed future use of the site for residential purposes.
- Developed a sampling and analytical plan to assess areas of environmental concern identified by the PSI.
- Developed assessment criteria for compounds of concern and aesthetic issues based on future residential use of the site and the identified subsurface conditions.
- Sampled near surface soil at seven locations within the site.
- Logged soil conditions and sampling intervals at each borehole location and screened soil samples at regular intervals for the presence of volatile organic compounds (VOCs) using a photo ionisation detector (PID).
- Subcontracted an appropriately accredited laboratory to analyse soil samples for the identified potential contaminants of concern.
- Compared field observations and analytical results to the assessment criteria.
- Prepared this report which outlined the methodology and findings of the PSI with Targeted Sampling.

1.3 Limitations of this Report

The findings of this assessment are based on the Scope of Work summarised in *Section 1.2* and detailed in later sections of this report. Ground Doctor performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. No warranties, express or implied are made.

The results of this assessment are based upon the information documented and presented in this report. All conclusions and recommendations regarding the site are the professional opinions of Ground Doctor personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, Ground Doctor assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Ground Doctor, or developments resulting from situations outside the scope of this assessment.

Ground Doctor assessed soil and groundwater at locations targeting specific areas of environmental concern identified by the investigation. The absence of the compounds of concern in soil samples collected at the selected investigation locations cannot be interpreted as a guarantee that such materials, or other potentially toxic or hazardous compounds, do not exist at the site in soil, water or other media.

2 Site Description

2.1 The Site

The site location and setting is shown in *Figure 1* of *Annex A*.

The layout of the proposed subdivision (the site) is shown in *Figure 2* of *Annex A*. The proposed subdivision creates 19 new lots with a total area of approximate 14,751m^2. The site also includes additional area proposed for driveways and drainage easements.

The site is located within Thredbo Golf Course, which is located at Crackenback Drive, Thredbo, NSW. The site is located within Lot 876 DP 1243112, which is a large parcel of land encompassing most of KTs resort activities including the Golf course, snow skiing, mountain biking areas and parts of Thredbo Village.

The Snowy River Local Environment Plan (LEP) 2013 indicates that the site and adjacent land is zoned "*C1 National Parks and Nature Reserves*". The "C1" zoning allows for development which is permitted under the NSW National Parks and Wildlife Act 1974.

The site is located within Kosciuszko National Park (KNP). Development within KNP is controlled by the KNP Plan of Management 2006. Under the KNP Plan of Management 2006 the site falls within the "*Thredbo Management Unit*".

Site details are summarised in *Table 1*.

Table 1: Summary of site Details

	Description
Street Address:	Crackenback Drive, Thredbo, NSW 2625
Lot and DP Number:	Part of Lot 876 DP 1243112
Local Government Area:	Snowy Monaro Regional Council
Relevant Planning Authority	NSW Department of Planning and Environment (DPE) Alpine Resorts Team
Zoning	C1-National Parks and Nature Reserves Within "Thredbo Management Unit" as prescribed by the KNP Plan of Management 2006.
Geographical Coordinates (GDA2020 MGA Zone 55):	East 616150 North 5958920 (Approximate site centre)

2.2 Site Layout and Features

An inspection of the site was conducted by Mr James Morrow of Ground Doctor on 23 May 2022.

The site layout and features at the time of inspection are shown in *Figure 3* of *Annex A*. Photographs of the site taken during the site inspections are presented as *Annex J*.

The site was located within the Thredbo Golf Course. The site encompassed the following golf course features.

- Part of the 1st Hole fairway and green.
- Part of the 3rd Hole fairway and green.
- The 4th hole including tee area, fairway and green.

- Areas of "rough" and vegetation between and surrounding the golf course features outlined above. This included grassed open space with scattered trees and heavily vegetated areas with heath and tree cover.

Open parts of the site were turfed. Sand filled "bunkers" were situated adjacent to each of the greens within the site.

Infrastructure within the site was limited to pathways, seating and underground drainage and water reticulation systems.

2.3 Adjoining Land-use

The site was situated centrally within the Thredbo Golf Course. The nearest surrounding land uses were as follows:

- The Thredbo Golf Course greenkeepers shed was situated approximately 140m north west of the site. The shed was used to store golf course maintenance equipment, fuel, fertilisers, herbicides and pesticides used on the golf course.

- Low density residential lots were situated along Crackenback Drive, approximately 100m north of the site.

- Residential lots were situated approximately 120m east of the site.

- Thredbo River was situated approximately 40m south east of the site at its closest point.

2.4 Topography and Hydrology

The site is situated on the lower south east slope of the Rams Head Range. Rams Head Range reaches a maximum elevation exceeding 2100m AHD approximately 3.7km north west of the site.

Surface elevation data presented in *Figure 2* of *Annex A* indicates that the site is situated between approximately 1380m AHD to 1395m AHD. The site has a general slope toward Thredbo River, to the east and south east. At its closest point to the site, Thredbo River has an elevation of approximately 1375m AHD. The average gradient of the site is approximately 8-12%.

The site surface appeared consistent with the pre-development ground level. There was no evidence of significant excavation or filling within the site, with the exception of areas occupied by tees and greens, which appeared to have been constructed by cut and fill to create relatively level surfaces.

2.5 Geology and Soils

The geology map "*Tallangatta 1:250000 Geological Series Sheet SJ 55-3 (1966)"* indicates the site is underlain by granite of the Lower Devonian period. The strata is described as "*granite, granodiorite and tonalite. Mainly gneissic to massive magmatic intrusives*".

Previous experience in the Thredbo region suggests that the site is underlain by weathered granite soil with the texture of clayey sand and gravel. Organic sandy silt are typically located close to the ground surface.

2.6 Hydrogeology

Ground Doctor conducted a search of the Water NSW registered groundwater works database (https://realtimedata.waternsw.com.au, 1 August 2022) for registered groundwater works located within 1000m of the site. No registered groundwater works were identified within the search area.

Based on the site location and setting and the underlying soils and geology it is likely that groundwater exists beneath the site as follows.

- Relatively uniformly within the underlying weathered profile of granite in the upper 5m of the subsurface.

- Localised subsurface flows along drainage depressions. Groundwater would be expected to be present in the upper 3m of the soil profile. It is likely that some leveling of drainages occurred during construction of the golf course. There may be piped drainage in some areas of the site to control water (if present).

- Potential for springs from fractures in underlying granite bedrock. These would typically be localised flows (if present).

Groundwater flow beneath the site would be expected to be in a generally south east direction toward Thredbo River and Thredbo River would be the nearest groundwater receiving environment. Thredbo River is a fresh water aquatic ecosystem.

The site is located within an upland environment close to the Great Dividing Range. Groundwater quality would be expected to be fresh and suitable for all beneficial use categories.

2.7 Sensitive Environments

Sensitive environments identified around the site are summarised as follows.

- The nearest low density residential property was located approximately 100m north of the site.

- The nearest permanent surface water body is Thredbo River, which is located approximately 40m south east of the site at the closest down gradient point.

3 Site History and Relevant Information

3.1 Land Title Records

A search of land titles records was undertaken by Advanced Legal Searchers on behalf of Ground Doctor. Results of the search are presented as *Annex C*. The search was completed on 21 April 2022.

The site is within Lot 876 DP 1243112, which is a large lot encompassing the most of the Thredbo resort. Land title records were retrieved back to 1884. A summary of the history of land ownership is presented in *Table 2*.

The site was Crown Land until 2007. Ownership of the site was transferred to The Stae of NSW in 2007 and remained under the same ownership at the time of the land title search.

Land title information indicates the site was part of the Crackenback Goldfield Extension from 1884 to 1967. The site was part of land dedicated Kosciuszko National Park in 1967 and remained part of the KNP at the time of assessment.

Land titles indicate the site was leased to KT from 1981 to the time of the land title search.

Several changes in lot description were identified over the search period. These typically relate to subdivision or boundary changes to parts of the lot that are not near the site.

3.2 Kosciuszko Thredbo Information

KT provided scanned copies of photographs of the course construction works and these are presented as *Annex I*. The photos show fairways being constructed with slashing and leveling with earthmoving equipment. Photographs show photos of cut and fill around some of the greens and tees and drainages. There are photos of trenching for irrigation and drainage.

There appears to be imported sand placed as a base for the greens.

Ground Doctor spoke to Mr Graham Bailey, the greenkeeper at the time of assessment regarding practises at the golf course. Mr Bailey indicated that application of fertilisers, herbicides and pesticides was on an as needed basis, rather than systematic. Application was occasional only depending on seasonal conditions. There may be no need for pesticide or herbicide application for two years and then a need to apply chemical more than once in a single season to control a season specific problem (e.g. a burrowing turf eating insect, fungus or moss).

KT provided a list of chemicals previously used at the golf course. The products used and active ingredients are summarised in *Table 3*.

Table 2: Summary of Ownership – Lot 876 DP 1243112

Period	Title Owner(s)
	(Lot 876 DP 1243112)
14 Feb 2019	The State of New South Wales
(04 Apr 2007 – todate)	*(current lease to Kosciuszko Thredbo Pty Limited)*
(2019 – todate)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 874 DP 1232149)
21 Jun 2018	The State of New South Wales
(2018 – 2019)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2018 – 2019)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 872 DP 1217781)
23 Sep 2016	The State of New South Wales
(2016 – 2018)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2016 – 2018)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 868 DP 1192567)
31 Jul 2014	The State of New South Wales
(2014 – 2016)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2014 – 2016)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 788 DP 1119757)
26 Feb 2008	The State of New South Wales
(2008 – 2014)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2008 – 2014)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 666 DP 1118588)
20 Dec 2007	The State of New South Wales
(2007 – 2008)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2007 – 2008)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 562 DP 1118421)
19 Dec 2007	*The State of New South Wales*
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2007 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 538 DP 1118419)
19 Dec 2007	*The State of New South Wales*
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2007 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 1 DP 1112911)
30 Jul 2007	*The State of New South Wales*
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*
(2007 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Lot 29 DP 727592)
29 Aug 1990	*Crown Land*
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*
(1990 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*
(1990 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*
	(Portion 13 Parish Kosciusko)
Prior – 29 Aug 1990	*Crown Land*
(1981 – 1990)	*(lease to Kosciuszko Thredbo Pty Limited)*
(1967 – 1974)	*(Dedicated a National Park known as Kosciuszko National Park vide Government Gazette 22 Sept 1967)*
(1884 – 1967)	*(Part of The Crackenback Gold Field Extension vide Govt Gazette 21 Mar 1884)*

Table 3: Register of Chemicals Used on the Golf Course

Product Name	Active Ingredients	Contaminant Group
Spearhead selective herbicide	MCPA, clopyralid, diflufenicon, 1,2-propandiol	Herbicides
Verdict 520 herbicide	Methyl esters, methyl ethers.	Herbicides
Yates surrender mosskiller	Ammonia compounds, alkyl benzyldimethyl chlorides	Herbicides
Kamba 500 selective herbicide	Dicamba	Herbicides
Amine 625 selective herbicide	2,4-D	Herbicides
Algo	Benzoalkonium chloride	Not of concern
Dacogreen 720	Chlorothalonil	Herbicides
Exporsan selective herbicide	Bensulide, Aromatic hydrocarbons	Herbicides, BTEX
Fusillade forte 128 EC herbicide	Flazifop-p-butyl	Herbicides
Rygel metsulfuron 600 WG herbicide	Metsulfuron Methyl	Herbicides
Meridian turf insecticide	Thiamethoxam	Pesticide
Impede insecticide (used in last 10 years)	Fipronil	Pesticide
Chlordane (1980, used on all greens)	Chlordane	Organochlorine Pesticide
Lime sulphur	Calcium sulphide	Not of concern
Headwaymaxx (used >10 years ago)	Tetrahydro-2-furylmethanol, propiconazole, azoxystrobin	Herbicides
Monster SC fungicide	Flutolanil	Herbicides
Chipco GT fungicide	Iprodione, 1,2-propandiol, diesel, 1,2-benzisothiazal	Herbicides
Shirleys no 17 (used every 10 years but not used in last 10 years).	Fertiliser - Nutrients	Metals
Fertech greens and tees	Fertiliser - Nutrients	NA
Calcium nitrate solution	Fertiliser - Nutrients	NA
Noculate complete	Fertiliser - Nutrients	NA
Huma-balane XL w/bio-Cat	Fertiliser - Nutrients	NA
Shortstop 200SC turf growth regulator	Paclobutriazol	

3.3 Aerial Photography Review

Ground Doctor reviewed aerial photographs of the site dated 1964, 1968, 1979, 1988, 1999, 2012, 2016 and 2020 to assess past land uses within the site and on adjoining properties. The photographs reviewed are presented in the Lotsearch (2022) aerial photography report (*Annex E)*.

3.3.1 The Site

The earliest aerial photograph of the site identified in the Lotsearch (2022) property report was dated 1964. In the 1964 aerial photograph the golf course is not present. The site appears to be largely vacant grassed open space. Some trees are present in the western portion of the site. Tracks are visible in some of the open space surrounding the site, indicating that the area may have been used for livestock grazing. The visible tracks may also be associated with previous prospecting for gold, may be tracks made by wildlife, or recreation users of the area.

In the 1968 aerial photo the golf course appears to be under construction. Clear land is visible in the areas currently occupied by fairways, indicating fairway preparation had been undertaken or was underway at the time of the photo. There are vehicle tracks visible across the golf course indicating vehicle movements, presumably associated with construction activity. Areas now occupied by greens and tees and the immediate surrounds are overexposed (appear white) in the aerial photo. It is likely that the light coloured areas are freshly disturbed ground (from cut and fill activity), and/or areas where imported fill may have been used to build greens and tees. Some trees remain in areas that are not part of tees, fairways and greens.

In the 1979 aerial photograph the golf course appears largely consistent with the layout which remained at the time of assessment. There are no notable changes to the site appearance in all aerial photographs from 1979 to 2020 with the exception that vegetation in areas surrounding the golf holes become more dense.

3.3.2 Adjacent Land Use

The areas immediately surrounding the site appear similar to the site in all photographs. That is, the surrounds are vacant open space in the 1964 aerial photograph. The golf course is under construction at the time of the 1968 aerial photograph. In all subsequent aerial photos the golf course is present and the only notable change is increased density of vegetation in areas between holes.

The Alpine Way is present approximately 160m south east of the site in all aerial photographs.

Kosciuszko Thredbo Pty Ltd indicated that the green keepers shed was originally located to the north of the site. A square shaped building is first visible approximately 150m north of the site in the 1979 aerial photo. The building is situated close to the present location of Crackenback Drive (which does not exist at the time of the 1979 photo). The building remains the only structure in this area in the 1988 aerial photo. In the 1999 aerial photo the building is no longer present to the north of the site. A building is visible in the current location of the greenkeepers shed. The photographs indicate that the green keepers shed changed some time in the period 1988 to 1999.

Documents provided by NSW NPWS (refer to *Section 3.5*) indicate that the building was likely constructed circa 1971, which matches the aerial photo history.

Crackenback Drive is first visible in the 1999 aerial photo. There are some structures present along Crackenback Drive, presumably the residential dwellings or lodges that remain in the area at the time of the assessment. The density of development along Crackenback Drive increases between the 1999 photo and the 2012 photo. The Crackenback Drive area appears largely unchanged in the 2016 and 2020 aerial photographs.

The development situated approximately 120m east of the site is first visible in the 1999 aerial photo and remains largely unchanged in subsequent aerial photos.

In the 1979 aerial photo a clearing is visible in a heavily wooded area approximately 200m to the north west of the site. A track extends from the golf course to the clearing indicating it may be a borrow pit or a laydown area. The cleared area becomes less obvious in subsequent aerial photos due to regrowth of vegetation. The identified clearing is consistent with an area described in NSW NPWS records as being used as a borrow pit for soil that was subsequently used to top dress fairways on the golf course (see *Section 3.5*).

3.4 NSW Department of Planning and Environment Records

Ground Doctor contacted NSW DPE (Alpine Resorts Team) on 14 April 2022 to request a search of property records relevant to the Thredbo Golf Course. Ground Doctor received a response by email from Mr Daniel James on 11 May 2022 (see *Annex H*). The response indicated that NSW DPE only held records from 2002 onwards. DPE found one record for a development application within the golf course. The development application was made in 2016 and was regarding installation of a disc (frisbee) golf course. The development was minor in nature and the documents supporting the application did not contain any information relevant to the contamination assessment.

NSW DPE recommended that Ground Doctor contact NSW NPWS to obtain property records preceding 2002, as NSW NPWS was the consent authority for the site prior to 2002.

3.5 NSW National Parks and Wildlife Services Records

Ground Doctor contacted NSW NPWS on 5 May 2022 to request a search of property records relevant to the Thredbo Golf Course prior to 2002. NSW NPWS were the consent authority for the site in the period 1967 to 2002. NSW NPWS sent a scanned copy of files held relevant to Thredbo Golf Course. A review of the files identified the following records.

- Correspondence dated 1968 regarding proposed construction of a small dam on a nearby watercourse to supply water to the golf course. This dam remained at the time of the assessment and was situated approximately 430m north of the site.

- Correspondence dated 1968 outlines the process for construction of fairways. The process was slashing of vegetation close to ground level, scarifying the soil and sowing grass into the prepared soil. There was no mention of importing fill to the site.

- Correspondence dated 1969 gives approval for construction of pathways and maintenance vehicle tracks in parts of the golf course. The approval discusses the use of drainage and retaining walls constructed of rocks removed during construction of the course and grooming of the rough.

- Correspondence dated 1969 gives approval for construction of a temporary shed to house maintenance equipment and materials. The approval indicates the shed was to be located along the 9th Hole, approximately 120m north of the site, close to the current location of Crackenback Drive.

- Correspondence dated 1970 gives approval to construct a permanent maintenance shed at the same location as the temporary shed. One of the conditions of approval was not the building contain no cemented fibre sheeting.

- Correspondence dated 1970 discussed obtaining approval for borrow pits at three locations within Thredbo to obtain soil to be used to top dress the fairways of the golf course. Sketch maps included in the correspondence indicate that one of the borrow pits was located "108 yard north west of the 7th fairway". Two other borrow pits were to be located adjacent to Merrits Road, presumably in the vicinity of the present location of Friday Flat, approximately 1.3km north east of the site.

- Correspondence dated 1970 granted approval for construction of two tennis courts near the bridge over the Thredbo River that provided access to the golf course. These were not located within the site.

- Correspondence dated 1971 requests permission to widen fairways of the golf course using slashing, raking and over sowing.

- Correspondence dated 1971 requests permission to construct an access driveway to the maintenance shed from the bridge over the Thredbo River. This track is likely to be the earliest form of Crackenback Drive.

- Correspondence dated 1971 requests permission to construct a septic system for a toilet to be installed at the maintenance shed.

- Correspondence dated 1971 requests permission to construct a bridle path and walking track around / through the golf course looping around to valley terminal.

- Correspondence dated 1977 requests permission to construct a clubhouse / ticket office for the Golf Course, presumably close to the Thredbo River bridge where the golf shop remains.

3.6 SafeWork NSW Dangerous Goods License Search

Ground Doctor conducted a search of the SafeWork NSW dangerous goods licencing records for Thredbo Golf Course, Crackenback Drive, Thredbo, NSW. SafeWork NSW provided an email on 16 May 2022 indicated that they could not find any records for Thredbo Golf Course. Results of the SafeWork NSW search are presented as *Annex G*.

3.7 NSW EPA Notified Contaminated Sites

Ground Doctor conducted a search of the NSW EPA list of properties notified under Section 60 of the Contaminated Land Management (CLM) Act 1997. The search was conducted on 2 August 2022. The most up to date list of notified sites at the time of the search was dated 7 July 2022. There were no notified properties located within a 1000m buffer of the site.

3.8 Protection of the Environment Operations Act 1997 Registers

The NSW EPA maintains a list of activities which are licensed under the Protection of the Environment Operations (POEO) Act 1997, and delicensed activities that are still regulated by the NSW EPA. The database was searched on 2 August 2022.

The only licensed activity identified within Thredbo Village was for operation of the sewage treatment plant at Friday Drive, approximately 2.1km north east of the site.

3.9 Naturally Occurring Asbestos

Ground Doctor reviewed publicly available NSW government mapping of Naturally Occurring Asbestos in the vicinity of the site. (https://trade.maps.arcgis.com/apps/PublicInformation/index.html, 2 August 2022). The site is not within a naturally occurring asbestos risk area and there are no risk areas within 1000m of the site.

3.10 Section 10.7 Planning Certificate

Ground Doctor spoke with NSW DPE (Alpine Resorts Team) on 14 April 2022 regarding preparation of a Section 10.7 Planning Certificate for the site. NSW DPE indicated that it held no records indicating that the site is potentially contaminated and indicated the certificate would be based on this knowledge. Ground Doctor did not request the certificate as it would not have provided any additional information to the PSI.

4 Potential Areas of Environmental Concern

4.1 Summary of Site History

Kosciuszko National Park was first known as National Chase Snowy Mountains in 1906. It became known as Kosciuszko State Park in 1944 and was known as Kosciuszko National Park from 1967 onwards.

Prior to 1968 there is no evidence of intensive land use or development of the site. Possible uses of the site prior to 1968 include livestock grazing, alluvial gold prospecting and recreation.

Land title records indicate the site was part of the Crackenback Goldfields from 1884 to 1967. Mining in the area was focussed on recovery of alluvial gold along the Thredbo River.

Construction of the Thredbo Golf Course commenced circa 1968. NSW NPWS documents, and photographs of golf course construction, suggest that the course was constructed by slashing, raking scarifying and over sowing soils found on-site. There is evidence that additional imported fill was obtained from previously undeveloped areas around Thredbo to top dress fairways in years following the initial development. Some sand may have been imported to the site to create bases for greens and tees. These surfaces typically require well-draining soil and as such it is likely any imported soil would have virgin excavated material free of debris.

The site and immediate surrounds have remained largely unchanged since the golf course was established. Development associated with the golf course included maintenance sheds in two locations, both more than 100m from the site.

Maintenance of healthy turf within golf courses relies on application of fertilisers, herbicides and pesticides. Information provided by KT indicated these products have been applied at the site during operation of the golf course and KT provided a list of chemicals previously used (see *Table 3*). Chemical application has typically occurred on an as needed basis and was typically conducted infrequently.

4.2 Potential Areas of Environmental Concern

Ground Doctor assessed potential areas of environmental concern within the site based on the information presented in *Sections 2 and 3*. Potential areas of environmental concern are discussed in *Table 4*.

Table 4: Summary of Potential Areas of Environmental Concern

Potential Area of Concern	Summary of Issue	Potential Contaminants of Concern / Hazards	Potential Area of Impact
Golf Course Construction	The information reviewed in Sections 2 and 3 indicates that there was unlikely to have been significant uncontrolled filling within the site. The golf course appears to have been constructed by slashing, raking, scarifying and sowing rather than importing fill. There appears to have been some cut and fill around greens and tees to create relatively level surfaces. There may have been some clean sand imported to form a base for the greens, which require well drained soil. NSW NPWS records indicate that some fill was imported to the golf course in the early 1970s, however, this was virgin excavated natural material sourced from borrow pits in previously undeveloped parts of Thredbo. There is drainage and reticulated water beneath parts of the golf course.	None.	Thedbo indicated that existing drainage and water reticulation beneath the golf course is constructed with PVC and concrete pipes.
Golf Course Operation	Golf course green staff have applied pesticides, herbicides and fertilisers to the golf course periodically since the course has been in operation. A list of chemicals previously used at the site are presented in *Table 3*.	Herbicides, pesticides, metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX).	Chemicals were applied at the ground surface. Greens are most susceptible to pests and are the areas where chemical was likely to have been applied most frequently. Teeing areas and fairways where other areas where chemicals may have been applied. Chemical application is rare outside of these parts of a golf course.
Previous Mining	Land title records indicate that the site was located within the former Crackenback Goldfield. Mining in the Thredbo area targeted alluvial gold in the Thredbo River and surrounding alluvial plains (not located within the site). Mining of alluvial gold is typically limited to washing and sorting alluvium to separate gold.	None.	Previous alluvial mining unlikely to have resulted in chemical contamination of land.
Previous Grazing of Livestock	The earliest aerial photograph of the site (1964) does not show any evidence of intensive livestock grazing. Previous use of the site for this purpose would most likely have been limited to seasonal grazing associated with movement of stock to and from the high country, or rangeland grazing.	None.	There was no evidence of intensive livestock grazing, yarding or penning at the site. Therefore it is unlikely that there would have been any stock treatment with pesticides on or near the site.

5 Sampling Analytical and Quality Plan

The Data Quality Objectives (DQOs) process is a systematic planning tool based on the scientific method for establishing criteria for data quality and for developing data collection designs. The DQO define the experimental process required to test a hypothesis.

The DQO process was adopted to ensure that:

- Data could be collected in a cost effective manner by eliminating any unnecessary or overly precise data and the need to revisit the site on multiple occasions.
- Enough data was collected to make an informed decision regarding the contamination status of the site.
- Data collected was of sufficient quality to be relied upon by the people that are required to make a decisions regarding contamination at the site.

It is recognised that the most efficient way to accomplish these goals is to establish criteria for defensible decision making before the data collection begins, and then develop a data collection design based on these criteria.

5.1 State the Problem

5.1.1 Conceptual Site Model

5.1.2 Potential Areas of Environmental Concern

Table 4 summarises the potential areas of environmental concern identified within the site. The only potential source of contaminations that warranted assess was application of herbicides, pesticides and fertilisers to parts of the site occupied by turf surfaces of the golf course.

5.1.2.1 Chemicals of Concern

Primary chemicals of concern at the site are listed in *Table 4* and summarised as follows.

- Herbicides
- Pesticides
- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc)
- Total recoverable hydrocarbons (TRH)
- Benzene, toluene, ethylbenzene and xylenes (BTEX)

5.1.3 Potential Fate of Contaminants

Application of turf maintenance chemicals is a diffuse source with chemical mixture applied evenly and sparingly at the ground surface across treated areas.

Chemicals (if present) would most likely be present in near surface soils.

The chemicals of concern are primarily organic. They would be expected to bind to other organic material within soil and become immobile soon after application close to the ground surface.

Organic contaminants including petroleum hydrocarbon, pesticides and herbicides typically degrade in the environment to less harmful compounds by processes which can include volatilisation, chemical degradation, microbial degradation and/or photodegradation. Organic contaminants generally only pose a problem to the environment where excessive loss or application has occurred.

Some compounds of concern (such as organochlorine pesticides) are resistant to degradation and may be persistent in soil.

Periodic application of turf chemical in accordance with prescribed application methods would not be expected to result in gross contamination of soil and unlikely to result in groundwater impacts.

5.1.4 Human Health Exposure Pathways

The following human health exposure scenarios are relevant for assessing risks associated with proposed low density residential use of the site.

- Vapour intrusion of volatile contaminants into buildings used for residential or commercial purposes.
- Direct contact with soil, inhalation or ingestion of contaminants of concern in soil in a low density residential setting.
- Vapour intrusion, direct contact or dust ingestion for construction workers or maintenance workers during any future development and operation of the site.

5.1.5 Environmental Exposure Pathways

Potential environmental exposure pathways relevant to the assessment were ecological impacts to flora and fauna from contaminants in the upper 3m of the subsurface.

5.2 Identify the Decision

The site is proposed for residential subdivision. The PSI with Targeted Sampling was required to assess the suitability of the land for future low density residential use.

5.3 Identify Inputs to the Decision

Inputs to the decision included:

- Establishing the site history so that potential contaminating activities and potential contaminants of concern and areas most likely to be impacted could be identified.
- Assessment of soil within and beneath identified areas of concern.
- Consider the need for further assessment (including groundwater assessment) based on the results of targeted soil sampling.

5.4 Define the Site Boundary

The investigation was limited to assessing land within the site boundary (marked on *Figure 1* of *Annex A)*. Ground Doctor did not assess the footprint of the proposed access road between the site and Crackenback Drive. Proposed future use of this area as a road did not represent a more sensitive use than the present use.

5.5 Decision Rule – Assessment Criteria

Soil analytical data was assessed against relevant thresholds published in the National Environment Protect Council (NEPC) (1999) National Environment Protection (Assessment of Contamination) Measure (NEPM) (revised April 2013).

Soil Investigation Levels (SILs) published in the National Environment Protect Council (NEPC) (1999) National Environment Protection (Assessment of Contamination) Measure (NEPM) (revised April 2013) were used to assess concentrations of chemicals of concern in soil.

The NEPM (2013) outlines three levels of Tier 1 assessment of petroleum hydrocarbon impacted soil. These include the following criteria which were applied in the order listed.

1. **Health Screening Levels (HSLs)** for the assessment of potential human health impacts associated with vapour migration from petroleum hydrocarbon impacts in soil, groundwater and soil vapour;

2. **Ecological Screening Levels (ESLs)** for the assessment of potential ecological impacts associated with hydrocarbon impacts in soil; and

3. **Management Limits** for the assessment of other potential impacts associated with hydrocarbon impacted soil including direct contact with soil, potential for explosive vapours to accumulate in underground infrastructure, impacts on underground service conduits and infrastructure and the potential for the formation (and potential migration) of light non-aqueous phase liquid (LNAPL).

The NEPM (2013) **Health Investigation Levels (HILs)** and **Ecological Investigation Levels (EILs)** were adopted to assess concentrations of non-petroleum contaminants of concern in soil.

5.5.1 Health Screening Levels

The NEPM (2013) HSLs for petroleum hydrocarbons were used to assess soil analytical results from the targeted soil assessment. The HSLs are used to assess potential vapour intrusion risks associated with subsurface contaminants. That is, to assess whether hydrocarbon vapours from soil contamination have potential to migrate into overlying or nearby buildings at unacceptable concentrations.

Ground Doctor adopted the most conservative HSLs. These were HSLs apply to sandy soil in the upper 1m of the subsurface. The adopted HSLs for assessment of soil data are presented in *Table 5*.

5.5.2 Ecological Screening Levels

The ESLs are designed to assess potential impacts of petroleum hydrocarbons in soil to flora and fauna. The ESLs apply to soil encountered within the upper 3m of the subsurface.

Ground Doctor adopted ESLs applicable to the assessment of low density residential land as the preliminary screening criteria. The adopted ESLs for assessing soil are presented in *Table 5*.

5.5.3 Management Limits

Management limits are set to trigger consideration of other potential risks posed by petroleum hydrocarbon impacts in soil to human health and the environment. These may include potential for groundwater contamination, potential for free phase LNAPL to be present, potential for vapour to impact underground services or infrastructure and potential for land users, public or maintenance workers to come into direct contact with soil.

Ground Doctor adopted Management Limits applicable to low density residential land as preliminary screening criteria. The adopted Management Limits for assessing soil are presented in *Table 5*.

5.5.4 Health Investigation Levels

Ground Doctor adopted Health Investigation Levels (HILs) outlined in the NEPM (2013) for assessment of non-petroleum hydrocarbon impacts in soil. Ground Doctor adopted HIL A (low density residential land use) as preliminary screening criteria. The adopted HILs for assessment of soil are presented in *Table 5*.

Where no HIL is published for analytes of concern, Ground Doctor used detection of any such compound as a preliminary screening criteria.

5.5.5 Ecological Investigation Levels

Ground Doctor adopted EILs for low density residential land as preliminary screening criteria.

The EILs presented in the NEPM (amended 2013) are fixed for arsenic. The EILs for copper, chromium, lead, nickel and zinc apply to the "added contaminant limit (ACL)". The ACL applies to the concentration of contaminant above the ambient background concentration (ABC). The ACL for copper, chromium, nickel and zinc is variable depending on the soil pH, soil cation exchange capacity (CEC) and/or the percentage of clay in the soil.

In the absence of reference data to provide an estimate of the ABC, soil pH data and soil CEC data, Ground Doctor assessed reported metal concentrations against the most conservative ACL where provided. This was considered a conservative approach.

The adopted EILs are presented in *Table 5*.

5.5.6 Aesthetics

The NEPM (2013) requires the assessment to consider aesthetics. Aesthetic impacts can include discoloured and odorous soil and/or presence of synthetic materials such as ash and building demolition waste. Consideration of aesthetics must take the nature and depth of the aesthetic impacts into consideration, as well as the intended land use.

5.5.7 Soil Decision Rule

Contaminant concentrations should not exceed the adopted assessment criteria. When assessing diffuse sources the 95% upper confidence limit of the average contaminant concentration in the assessed media should not exceed the adopted assessment criteria and any single result should not exceed the adopted assessment criteria by more than 250%.

The adopted assessment criteria were not intended to be a validation or clean-up goal for the site. The assessment criteria were intended to provide some preliminary limits which highlight areas in which contamination has been identified that may pose an unacceptable risk to human health or the environment. Results exceeding the adopted assessment criteria would prompt further assessment of the area of concern, or consideration of specific risks for the site setting.

Table 5: Adopted NEPM (2013) Soil Investigation Levels (SILs)

Analyte	HSLA Sand - 0-<1m	ESLA (Fine Grained)	Management Limits (Fine Grained)	HILA	EILA
TRH and BTEXN					
TRH C6 - C10	-	180	800	na	na
TRH C6 - C10 less BTEX	45	-	-	na	na
TRH >C10-C16	-	120	1000	na	na
TRH >C10 - C16 less Naph	110	-	-	na	na
TRH >C16-C34	NL	1300	3500	na	na
TRH >C34-C40	NL	5600	10000	na	na
Benzene	0.5	65	-	na	na
Toluene	160	105	-	na	na
Ethylbenzene	55	125	-	na	na
naphthalene	3	170	-	na	na
Total +ve Xylenes	40	45	-	na	na
PAHs					
Naphthalene	na	na	na	-	170
Benzo(a)pyrene	na	0.7	na	-	-
Total +vePAH's	na	na	na	300	-
Benzo(a)pyrene TEQ	na	na	na	3	-
OCPs					
HCB	na	na	na	10	-
Heptachlor	na	na	na	6	-
Aldrin	na	na	na	6a	-
gamma-Chlordane	na	na	na	50b	-
alpha-chlordane	na	na	na	50b	-
Endosulfan I	na	na	na	270d	-
DDE	na	na	na	240c	-
Dieldrin	na	na	na	6a	-
Endrin	na	na	na	10	-
Endosulfan II	na	na	na	270d	-
DDD	na	na	na	240c	-
DDT	na	na	na	240c	180
Methoxychlor	na	na	na	300	-
Total +ve DDT+DDD+DDE	na	na	na	240	-
OPPs					
Chlorpyriphos	na	na	na	160	-
PCBs					
Total +ve PCBs (1016-1260)	na	na	na	1	-
Metals					
Arsenic	na	na	na	100	100
Cadmium	na	na	na	20	-
Chromium (Hexavalent)	na	na	na	100	190*
Copper	na	na	na	6000	60*
Lead	na	na	na	300	1100*
Mercury	na	na	na	40	-
Nickel	na	na	na	400	30*
Zinc	na	na	na	7400	70*
Herbicides					
Atrazine	na	na	na	320	-
MCPP	na	na	na	600	-
MCPA	na	na	na	600	-
2,4-D	na	na	na	900	-
2,4,5-T	na	na	na	600	-
MCPB	na	na	na	600	-
Picloram	na	na	na	4500	-

All thresholds expressed as mg/kg.
na – not applicable.
NL - non-limiting. The compound(s) do not pose an unacceptable vapour risk, even when NAPL is present.
a – threshold applies to the sum of aldrin and dieldrin.
b – threshold applies to the sum of alpha and gamma chlordane.
c – threshold applies to the sum of DDE, DDD and DDT
d – threshold applies to the sum of endosulfan 1 and 2.

5.6 Specify Limits on Decision Errors

Ground Doctor analysed a number of samples that were used for quality assurance and quality control (QAQC). The adopted QAQC sampling regime and criteria for assessing the quality of analytical data are outlined in the following sections.

5.6.1 Field Duplicates

Field duplicates were collected at a minimum rate of 1 duplicate sample per 10 primary samples. Ground Doctor adopted the following criteria with which to assess the results of duplicate sampling:

- Calculated relative percentage difference (RPD) values should be less than 50% where the reported concentrations of analytes are greater than 10 times the practical quantification limit (PQL).
- Calculated RPD values should be less than 75% where the reported concentrations of analytes are greater than 5 times the PQL but less than 10 times the PQL.
- Calculated RPD values should be less than 100% where the reported concentrations of analytes are less than 5 times the PQL.

5.6.2 Trip Spikes

A trip spike accompanied samples to the analytical laboratory. The trip spike was used to assess potential losses of volatile compounds during sample storage and transport. The trip spike was analysed for volatile BTEX compounds as these are indicative of compounds most likely to be lost during sample storage and transport.

The adopted acceptable trip spike recovery was 60-140%.

5.6.3 Trip Blanks

A trip blank accompanied samples to the analytical laboratory. The trip blank was used to assess potential reporting of false positives related to cross contamination of samples during storage or transport. The blank was analysed for BTEX compounds.

Reported concentrations of all analytes were to be less than the PQL.

5.6.4 Holding Times

Ground Doctor reviewed analytical reports to ensure samples analysed as part of the works were analysed within the appropriate technical holding times, or that exceedances of holding times were documented and considered in the assessment of results.

Samples were transported to the laboratory by Ground Doctor personnel to minimise transit time and ensure samples remain cool during transit. Ground Doctor ensured that samples arrived at the analytical laboratory within the technical holding times for the requested analysis.

5.6.5 Lab Surrogate Recovery

Recovery of surrogates were required to be 60-140%.

5.6.6 Lab Matrix Spikes

Matrix spike recovery were required to be 60-140% for organics and 70-130% for inorganics.

5.6.7 Lab Method Blanks

Reported concentrations of all analytes within lab blanks were required to be less than the PQL.

5.6.8 Laboratory Control Samples / Spikes

Recovery of spiked compounds in laboratory control samples and spikes were to be 60-140% for organics and between 70-130% for inorganics.

5.6.9 Laboratory Duplicates

Acceptance criteria for duplicate samples are outlined in *Section 5.6.1*.

5.7 Optimise the Design for Collecting Data

5.7.1 Soil Sampling Locations

The soil assessment was preliminary in nature. Ground Doctor assessed near surface soil at 7 locations within the site. The selected sampling locations are shown in *Figure 3* of *Annex A*.

The selected locations targeted each of the three greens within the site, each of the two tee areas within the site and one of the fairways within the site. Greens were the part of the site where chemicals would have been applied most frequently as short turf is typically more susceptible to pests and disease. Tees and fairways were also areas where chemical was likely to have been applied. Areas of rough were less likely to have had chemical application and were not assessed.

The soil sampling and analytical plan is summarised in *Table 6*.

Table 6: Sampling and Analytical Plan Summary

Sample ID	Rationale for Location	Sample Analysis
1G	Located within the 1st green.	Near surface sample from each location analysed for: -TRH -BTEX -PAHs -Organochlorine pesticides (OCPs) -Organophosphorus pesticides (OPPs) -Polychlorinated biphenyls (PCBs) -Full Herbicide Suite -M8 Metals
3G	Located within the 3rd green.	
4G	Located within the 4th green.	
4T1	Located within the westernmost teeing area of the 4th hole.	
4T2	Located within the central teeing area of the 4th hole. .	
3F1	Located in the fairway of the 3rd hole.	
3F2	Located in the fairway of the 3rd hole.	

5.7.2 Soil Sampling Methodology

Soil sampling targeted near surface soil samples as the identified area of concern was application of fertilisers, pesticides and herbicides at the ground surface.

Near surface soil samples were collected with the aid of a golf hole cutter. The hole cutter retrieved a soil core from the upper 0.2m of soil. Ground Doctor collected a sample from the retrieved core by hand. The sampled soil was collected immediately below the root zone. Care was taken to avoid collecting soil from the outside of the core, which had come into contact with the hole cutter.

The sampler wore a new pair of disposable nitrile gloves whilst collecting each soil sample. Soil samples were collected into a 125mL laboratory supplied glass jar marked with the appropriate identification, and then placed on ice inside an esky. Additional sample was collected into a plastic snap lock bag for field screening with a photo-ionisation detector (PID). Care was taken to minimise potential loss of volatile hydrocarbons including collecting the least disturbed sample,

minimising head space in sample containers and storing samples on ice immediately after collection.

The PID used for field screening of soil samples was zeroed in fresh air and calibrated using 100ppm isobutylene calibration gas on the day of sample screening.

5.7.3 Soil Sample Analysis

Soil sampled at each location was analysed for the suite of analytes listed in *Table 6*.

5.7.4 Sample Storage and Transport

Soil samples were placed on ice inside an esky immediately after collection to minimise the potential loss of contaminants during storage and transport. The eskies were maintained to ensure the samples remained cool and that samples were not flooded with melt water from ice.

Ground Doctor delivered samples directly to the analytical laboratory.

5.7.5 Analytical Laboratory

Sample analysis was sub-contracted to Envirolab Services (Sydney). Envirolab Services had National Association of Testing Authorities (NATA) accreditation for the proposed analysis and used analytical methods which comply with the NEPM (2013) guidelines.

6 Soil Results

6.1 Field Observations

Soil encountered in all sampling locations was typically light brown clayey sand, indicative of weathered granite. The clayey sand was typically comprised of fine to coarse grained sand. Dark brown /black organic clayey sandy silt was encountered at sample location "3F2". The organic soil encountered at this location appeared to be indicative of naturally occurring organic material.

Ground Doctor did not identify any signs of chemical contamination in any of the soil samples. Soils were free of unnatural discolouration and odour. PID screening results for soil samples were less than 1ppm in all samples.

PID screening results are summarised in *Table 7*.

Table 7: PID Screening Results Summary

Sampling Location	Headspace PID Reading
1G	0.2ppm
3G	0.1ppm
4G	0.0ppm
4T1	0.0ppm
4T2	0.0ppm
3F1	0.0ppm
3F2	0.3ppm

6.2 Analytical Results

Laboratory analytical results for soil samples are summarised and compared to the adopted assessment criteria in *Table B1* of *Annex B*.

Laboratory certificates of analysis are presented as *Annex C*.

6.2.1 TRH

Reported TRH concentrations in soil samples were less than the PQLs and the adopted SILs.

6.2.2 BTEX

Reported BTEX concentrations in soil samples were less than the PQLs and the adopted SILs.

6.2.3 PAHs

Reported PAH concentrations in soil samples were less than the PQLs and adopted SILs.

6.2.4 PCBs

Reported PCB concentrations in soil samples were less than the PQLs and the adopted SILs.

6.2.5 Herbicides

Reported herbicides concentrations in soil samples were less than the PQLs and the adopted SILs.

6.2.6 Organochlorine Pesticides

Reported OCPs concentrations in all soil samples were less than the PQLs or the adopted SILs.

Chlordane was detected in soil sampled from each of the greens (1st, 3rd and 4th greens) and from the 3rd fairway (sample"3F1") but at concentrations well below the adopted SIL. DDD and DDT were detected in a duplicate sample of sample "3G", at concentrations well below the adopted SILs.

6.2.7 Organophosphorus Pesticides

Reported OPP concentrations in soil samples were less than the PQLs and the adopted SILs.

6.2.8 Metals

Reported concentrations of metals in soil samples were below the adopted HILA and EILA thresholds.

6.3 Revised Conceptual Site Model

Soil was assessed at seven locations with the highest potential to have been impacted by application of turf maintenance chemicals within the golf course. No significant chemical residue was identified in soil samples collected from the site. Where minor impacts were identified, the reported concentrations of the compounds of concern were well below the adopted SILs.

The results indicate there are no unacceptable impacts to human health via the identified relevant exposure pathways (see *Section 5.1.4*) and no unacceptable ecological impacts (see *Section 5.1.5*).

The absence of significant soil impacts indicate that groundwater impacts are unlikely and groundwater assessment is not warranted.

7 Data Quality Review

A detailed review of project quality assurance and quality control (QAQC) is presented as *Annex D*.

The level of data QAQC was considered appropriate given the objectives of the investigation. Results for QAQC parameters indicate that data was of acceptable quality to make conclusions regarding the suitability of the site for future residential use.

8 Conclusions

A Preliminary Site Investigation was undertaken to establish the site history and to identify previous land uses, and potential areas of environmental concern associated with previous land uses.

The only area of environmental concern identified by the PSI was application of turf maintenance chemicals to the golf course.

Ground Doctor assessed near surface soil at seven locations within the site, targeting putting greens, teeing areas and fairways of the golf course, where chemical application was likely to have been most frequent. Soil was assessed for a range of potential contaminants of concern identified by the PSI.

Reported concentrations of contaminants of concern in soil samples collected at the site from the assessed locations were less than the adopted SILs. The only contaminants of concern reported above the laboratory PQLs were chlordane, DDD and DDT, which are persistent OCPs. The reported concentrations of these compounds were only marginally above the laboratory PQLs and at least an order of magnitude below the respective SILs.

The results of the assessment indicate that the site is suitable for the proposed residential subdivision.

9 References

- Snowy River Local Environment Plan 2013.
- Lotsearch (2022), *Aerial Photos, Part of Thredbo Golf Course, Thredbo, NSW 2625*, Reference: LS031369 EA, 21 April 2022.
- National Environment Protect Council (NEPC) (1999) *National Environment Protection (Assessment of Contamination) Measure* (NEPM) (revised April 2013).
- NSW Department of Mines (1966), *Tallangatta 1:250000 Geological Series Sheet SJ 55-3,* First Edition.
- NSW Government Mapping of Naturally Occurring Asbestos in the vicinity of the site, 2 August 2022 (https://trade.maps.arcgis.com/apps/PublicInformation/index.html).
- NSW Water (1 August 2022), Groundwater Works Database Website, https://realtimedata.waternsw.com.au/water.stm.

Annex A

Figures

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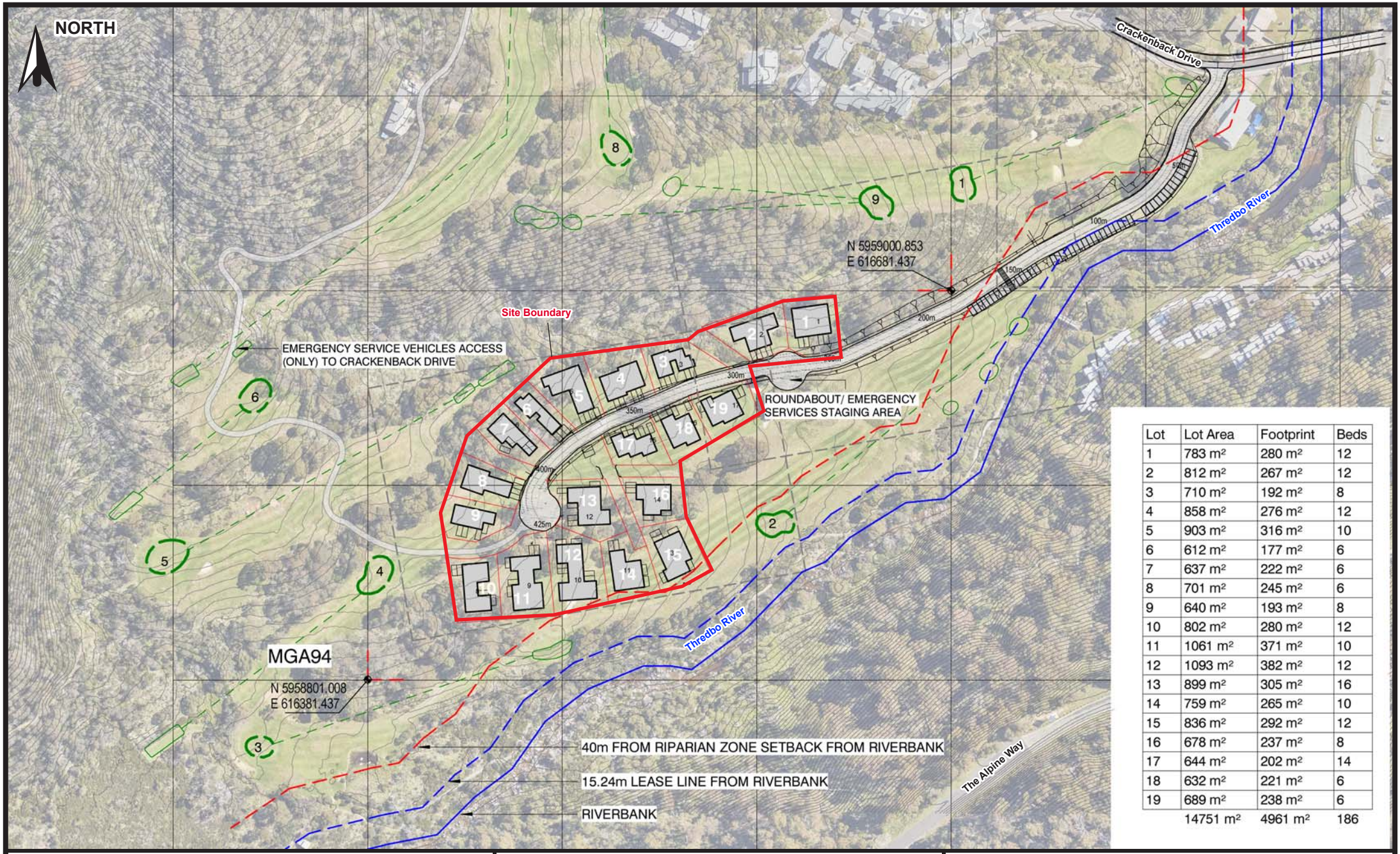
Project Number:	2022-GD012

Figure 1

Site Location and Setting



Lot	Lot Area	Footprint	Beds
1	783 m²	280 m²	12
2	812 m²	267 m²	12
3	710 m²	192 m²	8
4	858 m²	276 m²	12
5	903 m²	316 m²	10
6	612 m²	177 m²	6
7	637 m²	222 m²	6
8	701 m²	245 m²	6
9	640 m²	193 m²	8
10	802 m²	280 m²	12
11	1061 m²	371 m²	10
12	1093 m²	382 m²	12
13	899 m²	305 m²	16
14	759 m²	265 m²	10
15	836 m²	292 m²	12
16	678 m²	237 m²	8
17	644 m²	202 m²	14
18	632 m²	221 m²	6
19	689 m²	238 m²	6
	14751 m²	4961 m²	186

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Figure 2

Proposed Subdivision Layout and Site Boundary

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Project Number:	2022-GD012	Soil Sampling Locations

Annex **B**

Analytical Results Summary Table

Table B1: Summary of Soil Analytical Data and Comparison to the NEPM (2013) Soil Investigation Levels

Sample	PQL	NEPM (2013) Assessment Criteria - Soil Investigation Levels					1G	3G	4G	3F1	3F2	4T1	4T2
Depth		HSLA	ESLA	Manage Limits	HILA	EILA	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		Sand (0-<1m)	Fine Grain	Fine Grain			23/05/22	23/05/22	23/05/22	23/05/22	23/05/22	23/05/22	23/05/22
TRH and BTEXN													
TRH C6 - C9	25						<25	<25	<25	<25	<25	<25	<25
TRH C6 - C10	25	-	180	800	na	na	<25	<25	<25	<25	<25	<25	<25
vTPH C6 - C10 less BTEX (F1)	25	45	-	-	na	na	<25	<25	<25	<25	<25	<25	<25
Benzene	0.2	0.5	65	-	na	na	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	160	105	-	na	na	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	1	55	125	-	na	na	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	2	-	-	-	na	na	<2	<2	<2	<2	<2	<2	<2
o-Xylene	1	-	-	-	na	na	<1	<1	<1	<1	<1	<1	<1
naphthalene	1	3	170	-	na	170	<1	<1	<1	<1	<1	<1	<1
Total +ve Xylenes	3	40	45	-	na	na	<3	<3	<3	<3	<3	<3	<3
TRH C10 - C14	50	-	-	-	na	na	<50	<50	<50	<50	<50	<50	<50
TRH C15 - C28	100	-	-	-	na	na	<100	<100	<100	<100	<100	<100	<100
TRH C29 - C36	100	-	-	-	na	na	<100	<100	<100	<100	<100	<100	<100
TRH >C10-C16	50	NL	120	1000	na	na	<50	<50	<50	<50	<50	<50	<50
TRH >C10 - C16 less Naph (F2	50	110	-	-	na	na	<50	<50	<50	<50	<50	<50	<50
TRH >C16-C34	100	NL	1300	3500	na	na	<100	<100	<100	<100	<100	<100	<100
TRH >C34-C40	100	NL	5600	10000	na	na	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	50	-	-	-	na	na	<50	<50	<50	<50	<50	<50	<50
PAHs													
Naphthalene	0.1	--	--	--	--	170	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.05	--	--	--	--	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total +vePAH's	0.05	--	--	--	300	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero	0.5	--	--	--	3	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	0.5	--	--	--	3	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	0.5	--	--	--	3	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OCPs													
alpha-BHC	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	0.1	--	--	--	10	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	0.1	--	--	--	6	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	0.1	--	--	--	6a	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	0.1	--	--	--	50b	--	1.1	0.6	0.2	0.2	<0.1	<0.1	<0.1
alpha-chlordane	0.1	--	--	--	50b	--	0.9	0.5	0.2	0.2	<0.1	<0.1	<0.1
Endosulfan I	0.1	--	--	--	270d	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	0.1	--	--	--	240c	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	0.1	--	--	--	6a	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	0.1	--	--	--	10	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	0.1	--	--	--	270d	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	0.1	--	--	--	240c	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	0.1	--	--	--	240c	180	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	0.1	--	--	--	300	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	0.1	--	--	--	240	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
OPPs													
Dichlorvos	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	0.1	--	--	--	160	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs													
Aroclor 1016	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	0.1	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	0.1	--	--	--	1	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Metals													
Arsenic	4	--	--	--	100	100	<4	<4	<4	<4	<4	<4	<4
Cadmium	0.4	--	--	--	20	--	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	1	--	--	--	100	190*	11	12	6	25	18	9	20
Copper	1	--	--	--	6000	60*	3	7	4	11	7	5	11
Lead	1	--	--	--	300	1100*	3	7	5	12	9	6	11
Mercury	0.1	--	--	--	40	--	<0.1	1.7	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	1	--	--	--	400	30*	5	6	4	12	9	5	10
Zinc	1	--	--	--	7400	70*	21	28	17	44	50	21	38
Atrazine Herbicides													

Table B1: Summary of Soil Analytical Data and Comparison to the NEPM (2013) Soil Investigation Levels

Sample	PQL	NEPM (2013) Assessment Criteria - Soil Investigation Levels					1G	3G	4G	3F1	3F2	4T1	4T2
Depth		HSLA	ESLA	Manage Limits	HILA	EILA	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		Sand (0-<1m)	Fine Grain	Fine Grain			23/05/22	23/05/22	23/05/22	23/05/22	23/05/22	23/05/22	23/05/22
Simazine	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Atrazine	0.5	--	--	--	320	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Propazine	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Terbuthylazine	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Metribuzin	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ametryn	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Prometryn	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutryn	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cyanazine	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Irgarol	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexazinone	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenoxy Acid Herbicides													
Clopyralid	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3,5-Dichlorobenzoic acid	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-chlorophenoxy acetic acid	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-CPA	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dicamba	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MCPP	0.5	--	--	--	600	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MCPA	0.5	--	--	--	600	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorprop	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D	0.5	--	--	--	900	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoxynil	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Triclopyr	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-TP	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-T	0.5	--	--	--	600	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MCPB	0.5	--	--	--	600	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinoseb	1	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1
2,4-DB	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ioxynil	1	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1
Picloram	0.5	--	--	--	4500	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acifluorfen	2	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2
2,4,6-T	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-D	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Other Herbicides													
Glyphosate	1	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1
Tebuthiuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Metsulfuron Methyl	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorsulfuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sulfometuron Methyl	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Carbaryl	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbofuran	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Molinate	0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Aldicarb	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methiocarb	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methomyl	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mexacarbate	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Pebulate*	5	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5
Propham	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Propoxur	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Thiobencarb	0.02	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Vernolate*	5	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5
Fenuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluometuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Diuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Isoproturon	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Linuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Monuron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Neburon	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Siduron	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Imidacloprid	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Imazapyr	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Imazethapyr	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Imazapic	0.02	--	--	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Annex **C**

Laboratory Certificate of Analysis

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Ground Doctor Pty Ltd
Attention	James Morrow

Sample Login Details

Your reference	Thredbo Gold Course PSI
Envirolab Reference	296413
Date Sample Received	25/05/2022
Date Instructions Received	25/05/2022
Date Results Expected to be Reported	03/06/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	10 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Full Herbicides in Soil
1G-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
3G-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
4G-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
3F1-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
3F2-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
4T1-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
4T2-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
30G-0.0-0.2m	✓	✓	✓	✓	✓	✓	✓	✓
TS	✓							
TB	✓							

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 296413

Client Details

Client	Ground Doctor Pty Ltd
Attention	James Morrow
Address	PO Box 6278, Dubbo, NSW, 2830

Sample Details

Your Reference	**Thredbo Gold Course PSI**
Number of Samples	10 Soil
Date samples received	25/05/2022
Date completed instructions received	25/05/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	08/06/2022
Date of Issue	08/06/2022

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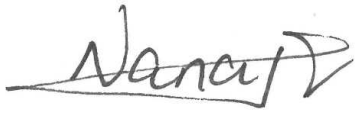
Results Approved By
Greta Petzold, Senior Report Coordinator
Hannah Nguyen, Metals Supervisor
Kyle Gavrily, Chemist
Liam Timmins, Organic Instruments Team Leader
Steven Luong, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	27/05/2022	27/05/2022	27/05/2022	27/05/2022	27/05/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	70	68	79	72	72

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		296413-6	296413-7	296413-8	296413-9	296413-10
Your Reference	UNITS	4T1	4T2	30G	TS	TB
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	-	-
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	27/05/2022	27/05/2022	27/05/2022	27/05/2022	27/05/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	[NA]	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	[NA]	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	[NA]	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	94%	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	94%	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	93%	<1
m+p-xylene	mg/kg	<2	<2	<2	94%	<2
o-Xylene	mg/kg	<1	<1	<1	94%	<1
Naphthalene	mg/kg	<1	<1	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	71	69	69	93	80

svTRH (C10-C40) in Soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	77	85	77	79

svTRH (C10-C40) in Soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	75	80	80

PAHs in Soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	80	81	74	78	89

PAHs in Soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	85	85	99

Organochlorine Pesticides in soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	1.1	0.6	0.2	0.2	<0.1
alpha-chlordane	mg/kg	0.9	0.5	0.2	0.2	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	76	76	81	77	87

Organochlorine Pesticides in soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	1.3
alpha-chlordane	mg/kg	<0.1	<0.1	1.2
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	0.2
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	0.3
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	0.6
Surrogate TCMX	%	83	80	93

Organophosphorus Pesticides in Soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	76	76	81	77	87

Organophosphorus Pesticides in Soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	80	93

PCBs in Soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	76	76	81	77	87

PCBs in Soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	26/05/2022	26/05/2022	26/05/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	80	93

Acid Extractable metals in soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2022	27/05/2022	27/05/2022	27/05/2022	27/05/2022
Date analysed	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	12	6	25	18
Copper	mg/kg	3	7	4	11	7
Lead	mg/kg	3	7	5	12	9
Mercury	mg/kg	<0.1	1.7	0.1	<0.1	<0.1
Nickel	mg/kg	5	6	4	12	9
Zinc	mg/kg	21	28	17	44	50

Acid Extractable metals in soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date prepared	-	27/05/2022	27/05/2022	27/05/2022
Date analysed	-	30/05/2022	30/05/2022	30/05/2022
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	9	20	14
Copper	mg/kg	5	11	5
Lead	mg/kg	6	11	5
Mercury	mg/kg	<0.1	<0.1	1.3
Nickel	mg/kg	5	10	7
Zinc	mg/kg	21	38	33

Moisture						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/05/2022	26/05/2022	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	27/05/2022	27/05/2022	27/05/2022	27/05/2022	27/05/2022
Moisture	%	21	39	12	34	33

Moisture				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date prepared	-	26/05/2022	26/05/2022	26/05/2022
Date analysed	-	27/05/2022	27/05/2022	27/05/2022
Moisture	%	5.7	32	30

Full Herbicides in Soil						
Our Reference		296413-1	296413-2	296413-3	296413-4	296413-5
Your Reference	UNITS	1G	3G	4G	3F1	3F2
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	01/06/2022	01/06/2022	01/06/2022	01/06/2022	01/06/2022

Full Herbicides in Soil				
Our Reference		296413-6	296413-7	296413-8
Your Reference	UNITS	4T1	4T2	30G
Depth		0.0-0.2m	0.0-0.2m	0.0-0.2m
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	01/06/2022	01/06/2022	01/06/2022

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date extracted	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Date analysed	-			27/05/2022	1	27/05/2022	27/05/2022		27/05/2022	27/05/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	95	95
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	95	95
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	103	105
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	100	102
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	80	80
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	97	95
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	96	97
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	76	1	70	67	4	86	69

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date extracted	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Date analysed	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	110	103
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	108	116
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	133	83
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	110	103
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	108	116
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	133	83
Surrogate o-Terphenyl	%		Org-020	77	1	77	76	1	84	98

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date extracted	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Date analysed	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	90
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	87	84
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	94
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	86
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	97
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	88
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	71
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	76	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	88	1	80	78	3	83	75

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date extracted	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Date analysed	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	75
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117	108
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	86
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	81
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	110
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	1.1	0.7	44	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	0.9	0.6	40	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	91
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	96
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	94
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	115
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	102
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	78	1	76	76	0	77	82

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date extracted	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Date analysed	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	104
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	110	107
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	125	122
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	114
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	127
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	94
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	125	112
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	78	1	76	76	0	77	82

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date extracted	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Date analysed	-			26/05/2022	1	26/05/2022	26/05/2022		26/05/2022	26/05/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	80	96
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	78	1	76	76	0	77	82

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	296413-2
Date prepared	-			27/05/2022	1	27/05/2022	27/05/2022		27/05/2022	27/05/2022
Date analysed	-			30/05/2022	1	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	92	89
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	88	85
Chromium	mg/kg	1	Metals-020	<1	1	11	8	32	98	90
Copper	mg/kg	1	Metals-020	<1	1	3	2	40	93	95
Lead	mg/kg	1	Metals-020	<1	1	3	3	0	97	84
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	109	#
Nickel	mg/kg	1	Metals-020	<1	1	5	3	50	97	84
Zinc	mg/kg	1	Metals-020	<1	1	21	15	33	103	86

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

8 metals in soil - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Herbicides analysed by MPL Laboratories. Report No. 282359
View attached report

Envirolab Services (WA) Pty Ltd trading as MPL Laboratories
ABN 53 140 099 207
16-18 Hayden Court Myaree WA 6154
ph 08 9317 2505 fax 08 9317 4163
lab@mpl.com.au
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CERTIFICATE OF ANALYSIS 282359

Client Details

Client	Envirolab Services - Sydney
Attention	Aileen Hie
Address	12 Ashley St, CHATSWOOD, NSW, 2057

Sample Details

Your Reference	**296413**
Number of Samples	8 Soil
Date samples received	27/05/2022
Date completed instructions received	27/05/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	08/06/2022
Date of Issue	08/06/2022

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Michael Kubiak, Laboratory Manager
Travis Carey, Organics - Team Leader

Authorised By

Michael Kubiak, Laboratory Manager

Herbicides - Full Suite - Soil						
Our Reference		282359-1	282359-2	282359-3	282359-4	282359-5
Your Reference	UNITS	296413-1	296413-2	296413-3	296413-4	296413-5
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample ID		1G	3G	4G	3F1	3F2
Date extracted	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	01/06/2022	01/06/2022	01/06/2022	01/06/2022	01/06/2022
Metsulfuron Methyl	µg/kg	<20	<20	<20	<20	<20
Chlorsulfuron	µg/kg	<20	<20	<20	<20	<20
Sulfometuron Methyl	µg/kg	<20	<20	<20	<20	<20
Carbaryl	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbofuran	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Molinate	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Aldicarb	µg/kg	<20	<20	<20	<20	<20
Methiocarb	µg/kg	<20	<20	<20	<20	<20
Methomyl	µg/kg	<20	<20	<20	<20	<20
Mexacarbate	µg/kg	<20	<20	<20	<20	<20
Oxamyl	µg/kg	<20	<20	<20	<20	<20
Pebulate*	mg/kg	<5	<5	<5	<5	<5
Propham	µg/kg	<20	<20	<20	<20	<20
Propoxur	µg/kg	<20	<20	<20	<20	<20
Thiobencarb	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Vernolate*	mg/kg	<5	<5	<5	<5	<5
Fenuron	µg/kg	<20	<20	<20	<20	<20
Fluometuron	µg/kg	<20	<20	<20	<20	<20
Diuron	µg/kg	<20	<20	<20	<20	<20
Isoproturon	µg/kg	<20	<20	<20	<20	<20
Linuron	µg/kg	<20	<20	<20	<20	<20
Monuron	µg/kg	<20	<20	<20	<20	<20
Neburon	µg/kg	<20	<20	<20	<20	<20
Siduron	µg/kg	<20	<20	<20	<20	<20
Tebuthiuron	µg/kg	<20	<20	<20	<20	<20
Imidacloprid	µg/kg	<20	<20	<20	<20	<20
Imazapyr	µg/kg	<20	<20	<20	<20	<20
Imazethapyr	µg/kg	<20	<20	<20	<20	<20
Imazapic	µg/kg	<20	<20	<20	<20	<20
2,4-D	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Glyphosate	mg/kg	<1	<1	<1	<1	<1
2,4,5-TP (Silvex)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Picloram	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Herbicides - Full Suite - Soil						
Our Reference		282359-1	282359-2	282359-3	282359-4	282359-5
Your Reference	UNITS	296413-1	296413-2	296413-3	296413-4	296413-5
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample ID		1G	3G	4G	3F1	3F2
Dicamba	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Clopyralid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Mecoprop (MCPP)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dinoseb	mg/kg	<1	<1	<1	<1	<1
2,4-DB	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ioxynil	mg/kg	<1	<1	<1	<1	<1
Acifluorfen	mg/kg	<2	<2	<2	<2	<2
2,6-D	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-T	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Simazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutylazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-D_{14}	%	93	90	96	93	89
Surrogate: 2,4-DCPA	%	96	99	98	101	96

Herbicides - Full Suite - Soil				
Our Reference		282359-6	282359-7	282359-8
Your Reference	UNITS	296413-6	296413-7	296413-8
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Sample ID		4T1	4T2	30G
Date extracted	-	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	01/06/2022	01/06/2022	01/06/2022
Metsulfuron Methyl	µg/kg	<20	<20	<20
Chlorsulfuron	µg/kg	<20	<20	<20
Sulfometuron Methyl	µg/kg	<20	<20	<20
Carbaryl	mg/kg	<0.5	<0.5	<0.5
Carbofuran	mg/kg	<0.5	<0.5	<0.5
Molinate	mg/kg	<0.5	<0.5	<0.5
Aldicarb	µg/kg	<20	<20	<20
Methiocarb	µg/kg	<20	<20	<20
Methomyl	µg/kg	<20	<20	<20
Mexacarbate	µg/kg	<20	<20	<20
Oxamyl	µg/kg	<20	<20	<20
Pebulate*	mg/kg	<5	<5	<5
Propham	µg/kg	<20	<20	<20
Propoxur	µg/kg	<20	<20	<20
Thiobencarb	mg/kg	<0.2	<0.2	<0.2
Vernolate*	mg/kg	<5	<5	<5
Fenuron	µg/kg	<20	<20	<20
Fluometuron	µg/kg	<20	<20	<20
Diuron	µg/kg	<20	<20	<20
Isoproturon	µg/kg	<20	<20	<20
Linuron	µg/kg	<20	<20	<20
Monuron	µg/kg	<20	<20	<20
Neburon	µg/kg	<20	<20	<20
Siduron	µg/kg	<20	<20	<20
Tebuthiuron	µg/kg	<20	<20	<20
Imidacloprid	µg/kg	<20	<20	<20
Imazapyr	µg/kg	<20	<20	<20
Imazethapyr	µg/kg	<20	<20	<20
Imazapic	µg/kg	<20	<20	<20
2,4-D	mg/kg	<0.5	<0.5	<0.5
Glyphosate	mg/kg	<1	<1	<1
2,4,5-TP (Silvex)	mg/kg	<0.5	<0.5	<0.5
Picloram	mg/kg	<0.5	<0.5	<0.5

Herbicides - Full Suite - Soil				
Our Reference		282359-6	282359-7	282359-8
Your Reference	UNITS	296413-6	296413-7	296413-8
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Sample ID		4T1	4T2	30G
Dicamba	mg/kg	<0.5	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5	<0.5
Clopyralid	mg/kg	<0.5	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5	<0.5
Mecoprop (MCPP)	mg/kg	<0.5	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5	<0.5
Dinoseb	mg/kg	<1	<1	<1
2,4-DB	mg/kg	<0.5	<0.5	<0.5
Ioxynil	mg/kg	<1	<1	<1
Acifluorfen	mg/kg	<2	<2	<2
2,6-D	mg/kg	<0.5	<0.5	<0.5
2,4,6-T	mg/kg	<0.5	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5	<0.5
Simazine	mg/kg	<0.5	<0.5	<0.5
Terbutylazine	mg/kg	<0.5	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-D_{14}	%	93	91	88
Surrogate: 2,4-DCPA	%	107	97	103

Moisture						
Our Reference		282359-1	282359-2	282359-3	282359-4	282359-5
Your Reference	UNITS	296413-1	296413-2	296413-3	296413-4	296413-5
Date Sampled		23/05/2022	23/05/2022	23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample ID		1G	3G	4G	3F1	3F2
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Moisture	%	16	35	40	21	9.3

Moisture				
Our Reference		282359-6	282359-7	282359-8
Your Reference	UNITS	296413-6	296413-7	296413-8
Date Sampled		23/05/2022	23/05/2022	23/05/2022
Type of sample		Soil	Soil	Soil
Sample ID		4T1	4T2	30G
Date prepared	-	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022
Moisture	%	4.3	28	33

Method ID	Methodology Summary
AT012	Glyphosate in soil and water by HPLC
INORG-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Org-021/022/025	Acid herbicides and speciated phenols in soil by DCM:Acetone extraction with derivatisation and determination by GC-MS/GC-MSMS. Haloacetic acids in waters are derivatised and analysed by GC-ECD. Acid herbicides, speciated phenols, carbamates and ureas in water by DCM extraction with derivatisation and determination by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.

QUALITY CONTROL: Herbicides - Full Suite - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	282359-2
Date extracted	-			31/05/2022	1	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Date analysed	-			01/06/2022	1	01/06/2022	01/06/2022		01/06/2022	01/06/2022
Metsulfuron Methyl	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	104	99
Chlorsulfuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	107	103
Sulfometuron Methyl	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	106	94
Carbaryl	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Carbofuran	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		110	[NT]
Molinate	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Aldicarb	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Methiocarb	µg/kg	20	Org-022/025	<20	1	<20	<20	0	131	83
Methomyl	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Mexacarbate	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Oxamyl	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Pebulate*	mg/kg	5	Org-022/025	<5	1	<5	[NT]		108	[NT]
Propham	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Propoxur	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Thiobencarb	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Vernolate*	mg/kg	5	Org-022/025	<5	1	<5	[NT]		111	[NT]
Fenuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	[NT]	[NT]
Fluometuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	103	78
Diuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	100	102
Isoproturon	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	[NT]	[NT]
Linuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	[NT]	[NT]
Monuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	[NT]	[NT]
Neburon	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	[NT]	[NT]
Siduron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	[NT]	[NT]
Tebuthiuron	µg/kg	20	Org-021/022/025	<20	1	<20	<20	0	119	93
Imidacloprid	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Imazapyr	µg/kg	20	Org-022/025	<20	1	<20	<20	0	91	86
Imazethapyr	µg/kg	20	Org-022/025	<20	1	<20	<20	0	[NT]	[NT]
Imazapic	µg/kg	20	Org-022/025	<20	1	<20	<20	0	98	89
2,4-D	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		98	[NT]
Glyphosate	mg/kg	1	AT012	<1	1	<1	<1	0	95	[NT]
2,4,5-TP (Silvex)	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Picloram	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Dicamba	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		105	[NT]
Triclopyr	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Clopyralid	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
3,5-Dichlorobenzoic acid	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
o-chlorophenoxy acetic acid	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]

QUALITY CONTROL: Herbicides - Full Suite - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	282359-2
4-CPA	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Mecoprop (MCPP)	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		94	[NT]
MCPA	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		96	[NT]
Dichlorprop	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Bromoxynil	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
2,4,5-T	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		95	[NT]
MCPB	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Dinoseb	mg/kg	1	Org-021/022/025	<1	1	<1	[NT]		[NT]	[NT]
2,4-DB	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Ioxynil	mg/kg	1	Org-021/022/025	<1	1	<1	[NT]		[NT]	[NT]
Acifluorfen	mg/kg	2	Org-021/022/025	<2	1	<2	[NT]		[NT]	[NT]
2,6-D	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
2,4,6-T	mg/kg	0.5	Org-021/022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Atrazine	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		87	[NT]
Ametryn	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Cyanazine	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Hexazinone	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Irgarol	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Metribuzin	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Propazine	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		92	[NT]
Prometryn	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		90	[NT]
Simazine	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Terbutylazine	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Terbutryn	mg/kg	0.5	Org-022/025	<0.5	1	<0.5	[NT]		[NT]	[NT]
Surrogate p-Terphenyl-D_{14}	%		Org-022/025	100	1	93	[NT]		94	[NT]
Surrogate: 2,4-DCPA	%		Org-021/022/025	107	1	96	[NT]		94	[NT]

QUALITY CONTROL: Herbicides - Full Suite - Soil						Duplicate				Spike Recovery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	282359-6
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	31/05/2022
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	01/06/2022
Glyphosate	mg/kg	1	AT012	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	116

QUALITY CONTROL: Moisture						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			30/05/2022	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Date analysed	-			31/05/2022	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Moisture	%	0.1	INORG-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Annex **D**

Review of
Quality Assurance and Quality Control

REVIEW OF QUALITY ASSURANCE AND QUALITY CONTROL PSI WITH TARGETED SAMPLING – SUBDIVSIION WITH THREDBO GOLF COURSE, THREDBO, NSW

Ground Doctor QAQC

Item	Comments
Personnel	The PSI and targeted sampling works were managed and conducted by Mr James Morrow. James has over 22 years of experience working as an Environmental Engineer specialising in contaminated land assessment. James is a CEnvP Certified Site Contamination Specialist.
PSI	Ground Doctor reviewed a comprehensive suite of historical information to ascertain the site history. Where overlapping sources of site history were obtained, they were found to be consistent indicating that the site history, which forms the basis of the sampling analytical and quality plan, and is considered in the interpretation of analytical data, was robust and reliable.
Soil Sampling Locations	Specific point sources of contamination were not identified by the PSI. The area of concern was application of turf management pesticides and herbicides to turfed areas of the site. The areas where these chemicals would be applied with the highest frequency were putting greens, teeing areas and fairways, in that order. Soil samples were collected from the three putting greens and two teeing areas within the site as these locations represented the areas where contamination was most likely to be encountered – if present at the site. Two additional sampling locations targeted a fairway area. The number of sampling locations was appropriate to support preliminary assessment of the site and to determine whether more detailed assessment (with higher sampling density) was warranted.
Soil Sampling Methodology	Soil sampling targeted near surface soil samples as the identified area of concern was application of fertilisers, pesticides and herbicides at the ground surface. Near surface soil samples were collected with the aid of a golf hole cutter. The hole cutter retrieved a soil core from the upper 0.2m of soil. Ground Doctor collected a sample from the retrieved core by hand. The sampled soil was collected immediately below the root zone. Care was taken to avoid collecting soil from the outside of the core, which had come into contact with the hole cutter. Samples were screened for the presence of VOCs using a handheld PID in the field to assess potential presence of VOCs. The absence of elevated PID readings across all sampling locations indicated that VOCs were unlikely to be present in soil at the site. The sampler wore a new pair of disposable nitrile gloves whilst collecting each soil sample. Soil samples were collected into a 125mL laboratory supplied glass jar marked with the appropriate identification, and then placed on ice inside an esky. Additional sample was collected into a plastic snap lock bag for field screening with a photo-ionisation detector (PID). Care was taken to minimise potential loss of volatile hydrocarbons including collecting the least disturbed sample, minimising head space in sample containers and storing samples on ice immediately after collection.
Analytes of Concern	Soil samples were analysed for a broad range of pesticides and herbicides as well as petroleum hydrocarbons, common aromatic hydrocarbons heavy metals and other common contaminants of concern. Some of the compounds identified in products recorded as having been used at the site were not included in the analytical suite as commercial environmental laboratories do not have methods to assess the compounds. Analytical suites provided by environmental laboratories cover compounds likely to persist in the environment and known potential human health effects and those which guidance is provided. The analytical suite used were considered acceptable to assess the status of soil within the site.
Instruments and Calibration	A PID was used to assess soil samples in the field. The PID was zeroed in fresh air and spanned with a 100ppm isobutylene calibration standard immediately before screening soil samples.
Equipment Decontamination	The hole cutter used to collect soil samples was not decontaminated between sampling locations. The tool retrieved a soil core that was 108mm diameter. Ground Doctor ensured the collected sample was from the centre of the core and did not come into direct contact with the hole cutter.

Item	Comments
Sample Preservation, Storage and Transport	Soil samples were placed into new laboratory supplied jars marked with appropriate identification. Samples were placed on ice inside an esky immediately after sampling. Samples were kept on ice during storage on site and prior to dispatch to the laboratory. Samples were delivered directly to the laboratory to ensure samples remained cool during transit. Sample receipt advice received from Envirolab for each batch of samples indicated that samples had been stored on ice in an esky.
Field Duplicates	Duplicate samples were analysed at a rate of at least 1 sample per 10 primary samples. Results of field duplicate sample analysis are presented in Table D1 (Attached). The reported concentrations of most analytes in the primary and duplicate samples were less than the PQL indicating good agreement. The only analytes detected in the samples were OCPs and metals. RPDs for reported metals concentrations in the primary and duplicate sample were within the acceptance limits. The RPD for OCPs were within the acceptance range with the exception of the RPDs for alpha and gamma chlordane. Chlordane was detected in both the primary and duplicate sample at concentrations less than 15 times the PQL and at least one order of magnitude below the adopted assessment criteria for chlordane. The discrepancy is attributed to sample heterogeneity. The results are considered suitable to demonstrate that concentrations of chlordane are well below the assessment criteria. Overall, the results of duplicate sampling and analysis indicated good agreement and demonstrated that the sampling and analytical methods adopted could produce repeatable results that could be relied on to make conclusions regarding suitability of the site for future residential use.
Trip Blank	A Trip Blank (TB) accompanied soil samples to the analytical laboratory. The trip blank was analysed for BTEX. Analytes were less than the PQL in the trip blank (see Table D1 attached). The absence of analytes in the trip blank samples indicated that cross contamination was unlikely to have occurred during sample storage and transit. Absence of elevated analyte concentrations in any of the primary samples also indicates a low potential for cross contamination.
Trip Spikes	A Trip Spike (TS) accompanied soil samples to the analytical laboratory. The trip blank was analysed for BTEX. Reported recoveries of BTEX compounds are presented in Table D1 (attached). Recoveries ranged 93-94%, which were within the desired range. The results indicated that volatile components were adequately preserved during sample storage and transit.

Laboratory QAQC

Item	Comments
Batch ID	296413 (Sydney) and 282359 (Perth) – Envirolab Soil samples collected on 23 May 2022.
Sample Receipt	Samples were received on ice and were 4 degrees Celsius upon receipt. Samples were received in appropriate sample containers.
Holding Times	Soil samples were extracted within technical holding times.
Analytical Procedures	Soil samples were analysed using NATA accredited analytical methods and those recommended in the NEPM (2013).
Surrogate Recovery	Ranged 68-107% and were within the target range for organics of 60-140%.
Matrix Spike	Ranged 69-127% and were within the target range for organics of 60-140% and 70-130% for inorganics. The matrix spike recovery for mercury could not be calculated due to detection of mercury in the spiked sample (sample "3G"). The lab reported an acceptable recovery of mercury in the laboratory control sample.
Method Blank	Method blank samples were analysed as part of the batch. Reported concentrations of all analytes within the method blank were less than the PQL.
Laboratory Control Sample	Ranged 76-133% and were within the target range of 60-140% for organics and 70-130% for inorganics.
Laboratory Duplicate	Calculated RPDs ranged 0-50% for the lab duplicate samples were within the desired range for all lab duplicate samples.
Detection Limits	The detection limits of all compounds of concern in soil were below the adopted SILs.

Table D1: Quality Assurance and Quality Control Sample Analytical Results - Soil Samples

Sample	PQL		3G	30G	RPD		TS	TB
Depth			0.0-0.2m	0.0-0.2m	%		-	-
Date Sampled			23/05/22	23/05/22			23/05/22	23/05/22
TRH and BTEXN								
TRH C6 - C9	25		<25	<25	--		--	<25
TRH C6 - C10	25		<25	<25	--		--	<25
vTPH C6 - C10 lessBTEX (F1)	25		<25	<25	--		--	<25
Benzene	0.2		<0.2	<0.2	--		**94**	<0.2
Toluene	0.5		<0.5	<0.5	--		**94**	<0.5
Ethylbenzene	1		<1	<1	--		**93**	<1
m+p-xylene	2		<2	<2	--		**94**	<2
o-Xylene	1		<1	<1	--		**94**	<1
naphthalene	1		<1	<1	--		--	<1
Total +ve Xylenes	3		<3	<3	--		--	<3
TRH C10 - C14	50		<50	<50	--		--	--
TRH C15 - C28	100		<100	<100	--		--	--
TRH C29 - C36	100		<100	<100	--		--	--
TRH >C10-C16	50		<50	<50	--		--	--
TRH >C10 - C16less Naphthalene (F2)	50		<50	<50	--		--	--
TRH >C16-C34	100		<100	<100	--		--	--
TRH >C34-C40	100		<100	<100	--		--	--
Total +ve TRH (>C10-C40)	50		<50	<50	--		--	--
PAHs								
Naphthalene	0.1		<0.1	<0.1	--		--	--
Acenaphthylene	0.1		<0.1	<0.1	--		--	--
Acenaphthene	0.1		<0.1	<0.1	--		--	--
Fluorene	0.1		<0.1	<0.1	--		--	--
Phenanthrene	0.1		<0.1	<0.1	--		--	--
Anthracene	0.1		<0.1	<0.1	--		--	--
Fluoranthene	0.1		<0.1	<0.1	--		--	--
Pyrene	0.1		<0.1	<0.1	--		--	--
Benzo(a)anthracene	0.1		<0.1	<0.1	--		--	--
Chrysene	0.1		<0.1	<0.1	--		--	--
Benzo(b,j+k)fluoranthene	0.2		<0.2	<0.2	--		--	--
Benzo(a)pyrene	0.05		<0.05	<0.05	--		--	--
Indeno(1,2,3-c,d)pyrene	0.1		<0.1	<0.1	--		--	--
Dibenzo(a,h)anthracene	0.1		<0.1	<0.1	--		--	--
Benzo(g,h,i)perylene	0.1		<0.1	<0.1	--		--	--
Total +vePAH's	0.05		<0.05	<0.05	--		--	--
Benzo(a)pyrene TEQ calc (zero)	0.5		<0.5	<0.5	--		--	--
Benzo(a)pyrene TEQ calc(half)	0.5		<0.5	<0.5	--		--	--
Benzo(a)pyrene TEQ calc(PQL)	0.5		<0.5	<0.5	--		--	--
OCPs								
alpha-BHC	0.1		<0.1	<0.1	--		--	--
HCB	0.1		<0.1	<0.1	--		--	--
beta-BHC	0.1		<0.1	<0.1	--		--	--
gamma-BHC	0.1		<0.1	<0.1	--		--	--
Heptachlor	0.1		<0.1	<0.1	--		--	--
delta-BHC	0.1		<0.1	<0.1	--		--	--
Aldrin	0.1		<0.1	<0.1	--		--	--
Heptachlor Epoxide	0.1		<0.1	<0.1	--		--	--
gamma-Chlordane	0.1		**0.6**	**1.3**	**74**		--	--
alpha-chlordane	0.1		**0.5**	**1.2**	**82**		--	--
Endosulfan I	0.1		<0.1	<0.1	--		--	--
pp-DDE	0.1		<0.1	<0.1	--		--	--
Dieldrin	0.1		<0.1	<0.1	--		--	--
Endrin	0.1		<0.1	<0.1	--		--	--
Endosulfan II	0.1		<0.1	<0.1	--		--	--
pp-DDD	0.1		**0.1**	**0.2**	**67**		--	--
Endrin Aldehyde	0.1		<0.1	<0.1	--		--	--
pp-DDT	0.1		**0.1**	**0.3**	**100**		--	--
Endosulfan Sulphate	0.1		<0.1	<0.1	--		--	--
Methoxychlor	0.1		<0.1	<0.1	--		--	--
OPPs								
Dichlorvos	0.1		<0.1	<0.1	--		--	--
Dimethoate	0.1		<0.1	<0.1	--		--	--
Diazinon	0.1		<0.1	<0.1	--		--	--
Chlorpyriphos-methyl	0.1		<0.1	<0.1	--		--	--
Ronnel	0.1		<0.1	<0.1	--		--	--
Fenitrothion	0.1		<0.1	<0.1	--		--	--
Malathion	0.1		<0.1	<0.1	--		--	--
Chlorpyriphos	0.1		<0.1	<0.1	--		--	--
Parathion	0.1		<0.1	<0.1	--		--	--
Bromophos-ethyl	0.1		<0.1	<0.1	--		--	--
Ethion	0.1		<0.1	<0.1	--		--	--
Azinphos-methyl (Guthion)	0.1		<0.1	<0.1	--		--	--
PCBs								
Aroclor 1016	0.1		<0.1	<0.1	--		--	--
Aroclor 1221	0.1		<0.1	<0.1	--		--	--
Aroclor 1232	0.1		<0.1	<0.1	--		--	--
Aroclor 1242	0.1		<0.1	<0.1	--		--	--
Aroclor 1248	0.1		<0.1	<0.1	--		--	--
Aroclor 1254	0.1		<0.1	<0.1	--		--	--
Aroclor 1260	0.1		<0.1	<0.1	--		--	--
Total +ve PCBs (1016-1260)	0.1		<0.1	<0.1	--		--	--
Metals								
Arsenic	4		<4	<4	--		--	--
Cadmium	0.4		<0.4	<0.4	--		--	--
Chromium	1		**12**	**14**	**15**		--	--
Copper	1		**7**	**5**	**33**		--	--
Lead	1		**7**	**5**	**33**		--	--
Mercury	0.1		**1.7**	**1.3**	**27**		--	--
Nickel	1		**6**	**7**	**15**		--	--
Zinc	1		**28**	**33**	**16**		--	--

Table D1: Quality Assurance and Quality Control Sample Analytical Results - Soil Samples

Sample	PQL		3G	30G	RPD		TS	TB
Depth			**0.0-0.2m**	**0.0-0.2m**	**%**		**-**	**-**
Date Sampled			**23/05/22**	**23/05/22**			**23/05/22**	**23/05/22**
Atrazine Herbicides								
Simazine	0.5		<0.5	<0.5	--		--	--
Atrazine	0.5		<0.5	<0.5	--		--	--
Propazine	0.5		<0.5	<0.5	--		--	--
Terbuthylazine	0.5		<0.5	<0.5	--		--	--
Metribuzin	0.5		<0.5	<0.5	--		--	--
Ametryn	0.5		<0.5	<0.5	--		--	--
Prometryn	0.5		<0.5	<0.5	--		--	--
Terbutryn	0.5		<0.5	<0.5	--		--	--
Cyanazine	0.5		<0.5	<0.5	--		--	--
Irgarol	0.5		<0.5	<0.5	--		--	--
Hexazinone	0.5		<0.5	<0.5	--		--	--
Phenoxy Acid Herbicides								
Clopyralid	0.5		<0.5	<0.5	--		--	--
3,5-Dichlorobenzoic acid	0.5		<0.5	<0.5	--		--	--
o-chlorophenoxy acetic acid	0.5		<0.5	<0.5	--		--	--
4-CPA	0.5		<0.5	<0.5	--		--	--
Dicamba	0.5		<0.5	<0.5	--		--	--
MCPP	0.5		<0.5	<0.5	--		--	--
MCPA	0.5		<0.5	<0.5	--		--	--
Dichlorprop	0.5		<0.5	<0.5	--		--	--
2,4-D	0.5		<0.5	<0.5	--		--	--
Bromoxynil	0.5		<0.5	<0.5	--		--	--
Triclopyr	0.5		<0.5	<0.5	--		--	--
2,4,5-TP	0.5		<0.5	<0.5	--		--	--
2,4,5-T	0.5		<0.5	<0.5	--		--	--
MCPB	0.5		<0.5	<0.5	--		--	--
Dinoseb	1		<1	<1	--		--	--
2,4-DB	0.5		<0.5	<0.5	--		--	--
Ioxynil	1		<1	<1	--		--	--
Picloram	0.5		<0.5	<0.5	--		--	--
Acifluorfen	2		<2	<2	--		--	--
2,4,6-T	0.5		<0.5	<0.5	--		--	--
2,6-D	0.5		<0.5	<0.5	--		--	--
Other Herbicides								
Glyphosate	1		<1	<1	--		--	--
Tebuthiuron	0.02		<0.02	<0.02	--		--	--
Metsulfuron Methyl	0.02		<0.02	<0.02	--		--	--
Chlorsulfuron	0.02		<0.02	<0.02	--		--	--
Sulfometuron Methyl	0.02		<0.02	<0.02	--		--	--
Carbaryl	0.5		<0.5	<0.5	--		--	--
Carbofuran	0.5		<0.5	<0.5	--		--	--
Molinate	0.5		<0.5	<0.5	--		--	--
Aldicarb	0.02		<0.02	<0.02	--		--	--
Methiocarb	0.02		<0.02	<0.02	--		--	--
Methomyl	0.02		<0.02	<0.02	--		--	--
Mexacarbate	0.02		<0.02	<0.02	--		--	--
Oxamyl	0.02		<0.02	<0.02	--		--	--
Pebulate*	5		<5	<5	--		--	--
Propham	0.02		<0.02	<0.02	--		--	--
Propoxur	0.02		<0.02	<0.02	--		--	--
Thiobencarb	0.02		<0.2	<0.2	--		--	--
Vernolate*	5		<5	<5	--		--	--
Fenuron	0.02		<0.02	<0.02	--		--	--
Fluometuron	0.02		<0.02	<0.02	--		--	--
Diuron	0.02		<0.02	<0.02	--		--	--
Isoproturon	0.02		<0.02	<0.02	--		--	--
Linuron	0.02		<0.02	<0.02	--		--	--
Monuron	0.02		<0.02	<0.02	--		--	--
Neburon	0.02		<0.02	<0.02	--		--	--
Siduron	0.02		<0.02	<0.02	--		--	--
Imidacloprid	0.02		<0.02	<0.02	--		--	--
Imazapyr	0.02		<0.02	<0.02	--		--	--
Imazethapyr	0.02		<0.02	<0.02	--		--	--
Imazapic	0.02		<0.02	<0.02	--		--	--

Annex **E**

Historical Aerial Photographs

LOTSEARCH

LOTSEARCH AERIALS

Date: 21 Apr 2022

Reference: LS031369 EA

Address: Part of Thredbo Golf Course, Thredbo, NSW 2625

Aerial Imagery 2020

Part of Thredbo Golf Course, Thredbo, NSW 2625

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 21 April 2022
0 30 60 90 120 Meters	© Aerometrex Pty Ltd	GDA 1994 MGA Zone 56	

Aerial Imagery 2016

Part of Thredbo Golf Course, Thredbo, NSW 2625

Scale: 0 30 60 90 120 Meters	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 20 April 2022

Aerial Imagery 2012

Part of Thredbo Golf Course, Thredbo, NSW 2625

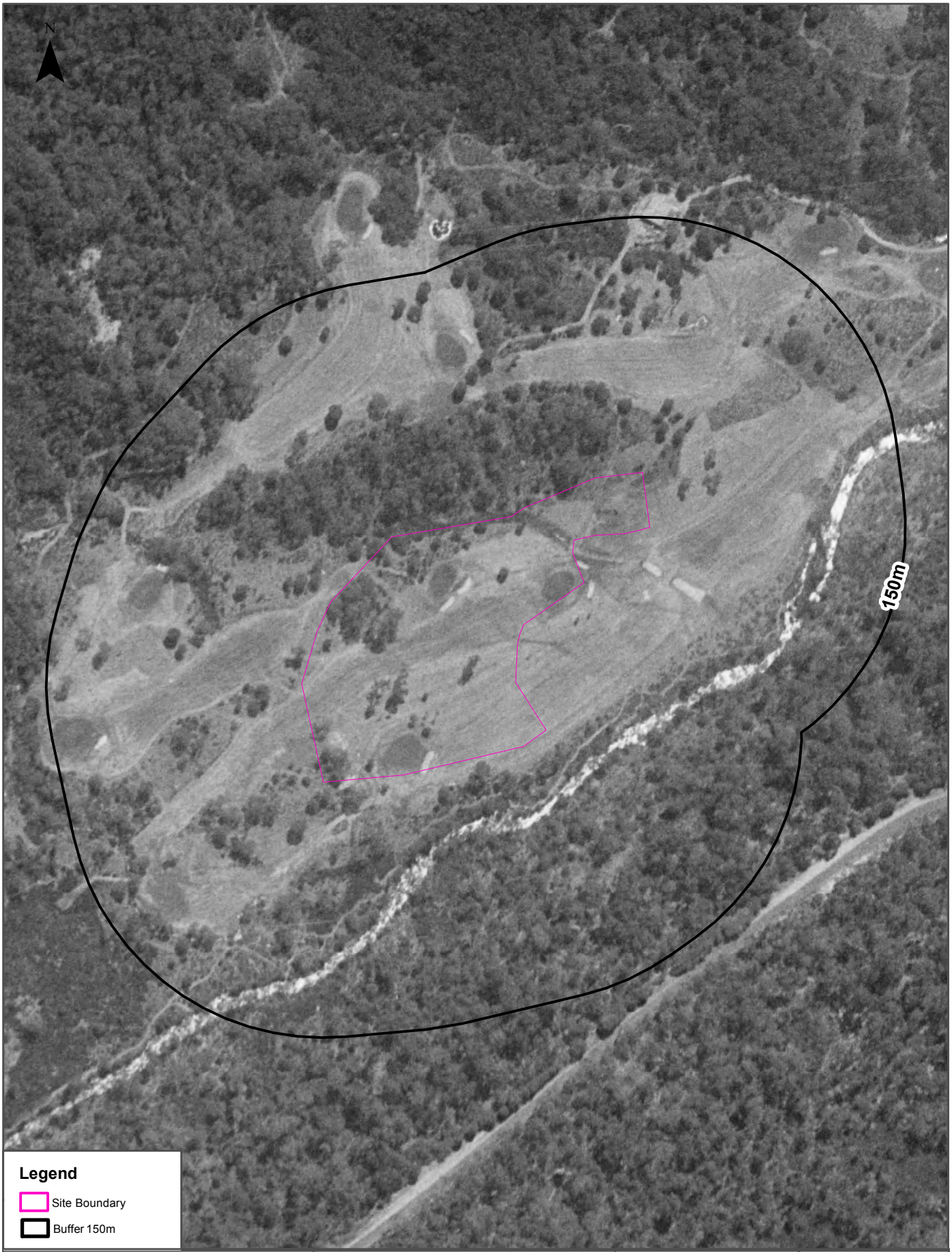
Scale: 0 30 60 90 120 Meters	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 20 April 2022

Aerial Imagery 1999

Part of Thredbo Golf Course, Thredbo, NSW 2625

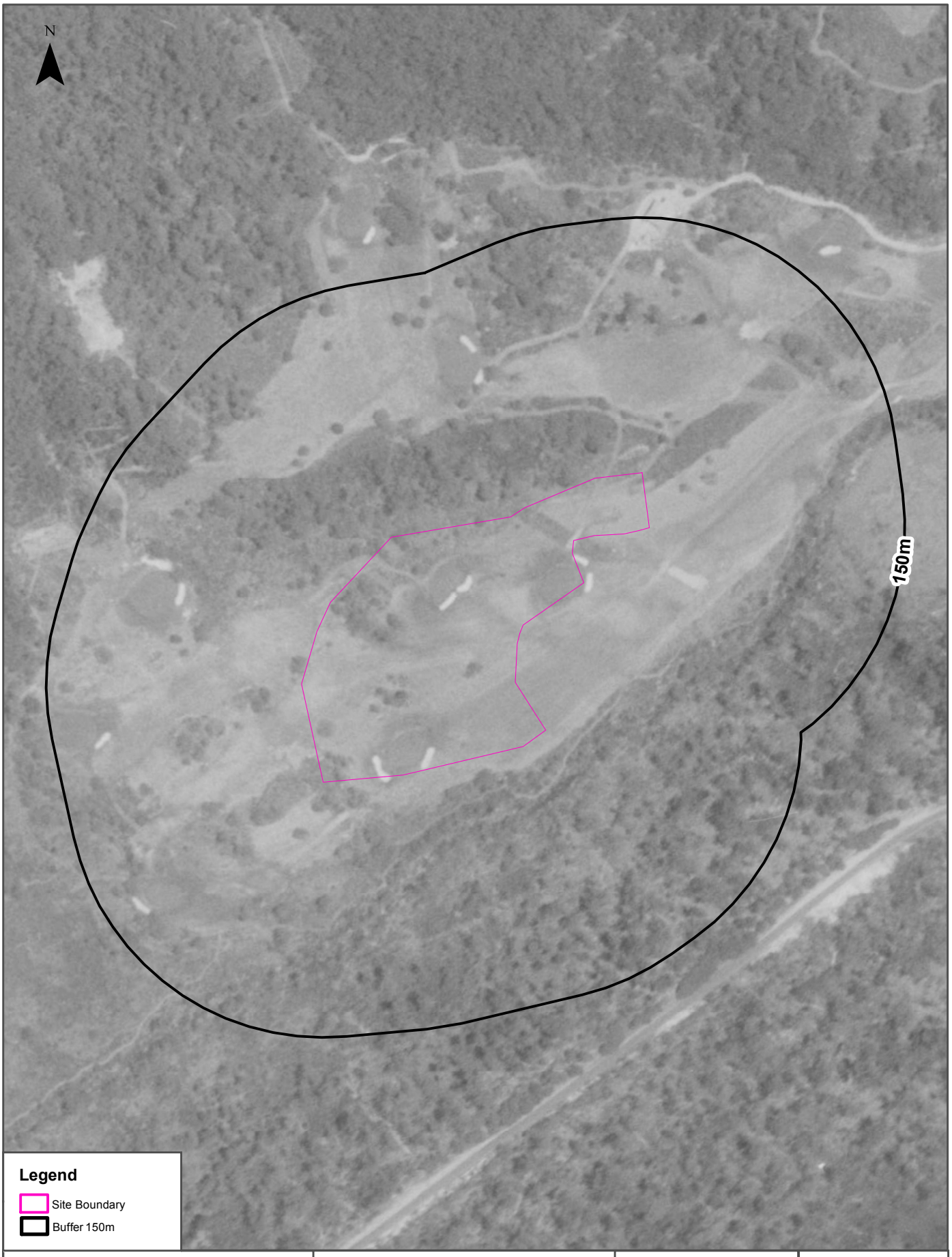
Aerial Imagery 1988

Part of Thredbo Golf Course, Thredbo, NSW 2625



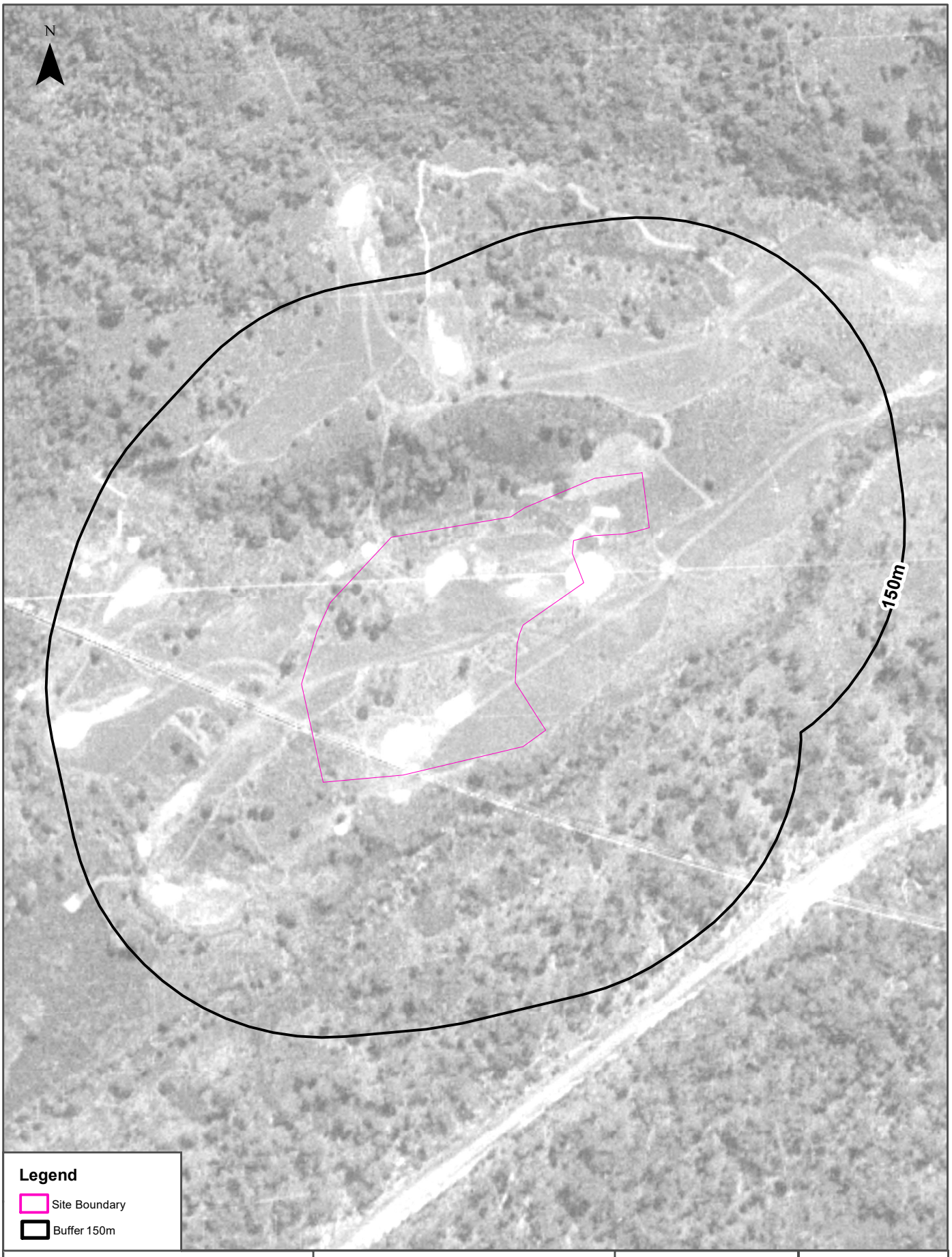
Aerial Imagery 1979

Part of Thredbo Golf Course, Thredbo, NSW 2625



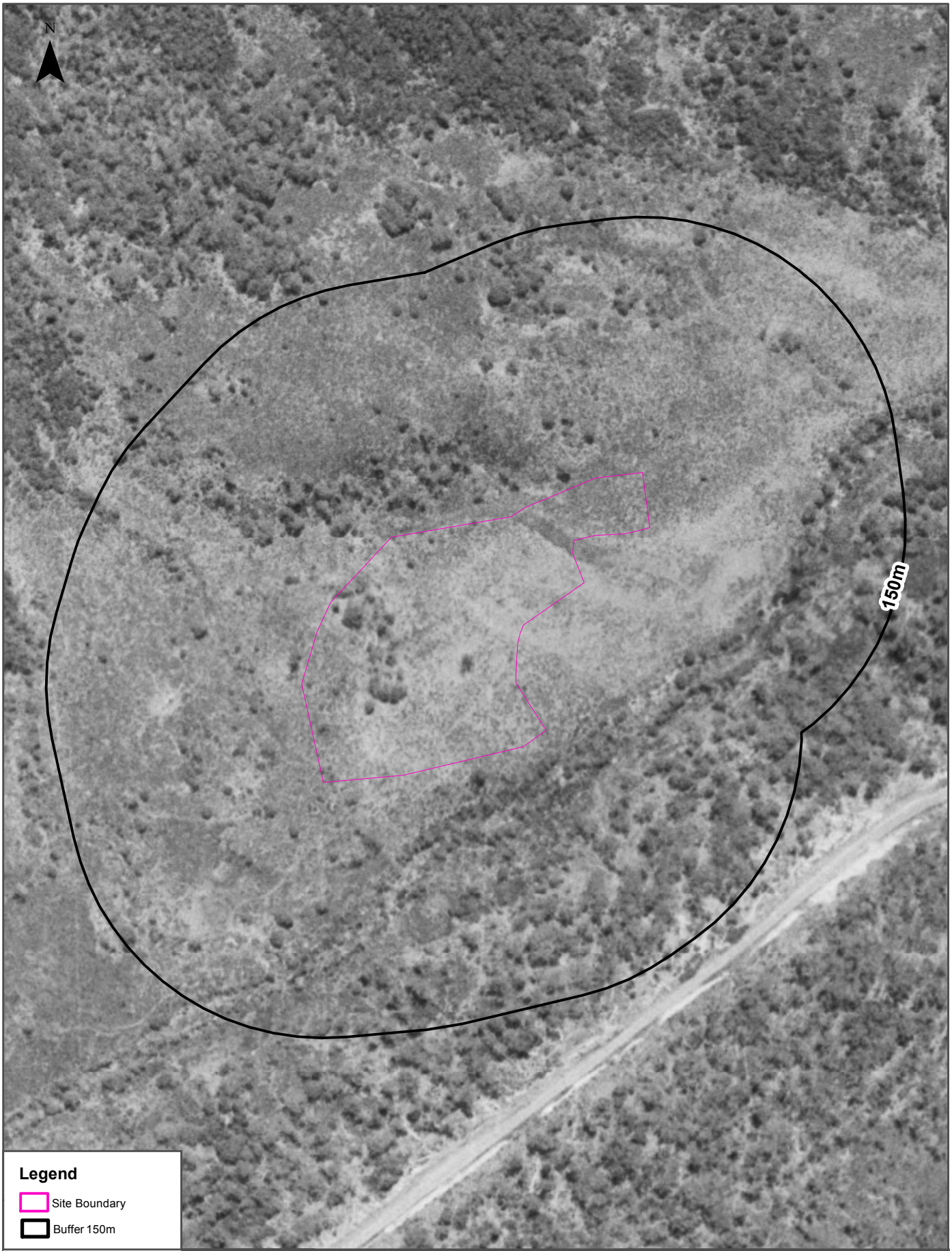
Aerial Imagery 1968

Part of Thredbo Golf Course, Thredbo, NSW 2625



Aerial Imagery 1964

Part of Thredbo Golf Course, Thredbo, NSW 2625



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12. These Terms are subject to New South Wales law.

Annex **F**

Land Title Records

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Mobile: 0412 169 809
Email: search@alsearchers.com.au

21st April, 2022

GROUND DOCTOR PTY LTD
22 Tamworth Street,
PO Box 6278
DUBBO. NSW 2830

Attention: James Morrow,

RE: **Thredbo Golf Course,**
Thredbo

Current Search

Folio Identifier 876/1243112 (title attached)
DP 1243112 (plan attached)
Dated 18th April, 2022
Registered Proprietor:
THE STATE OF NEW SOUTH WALES

Title Tree
Lot 876 DP 1243112

Folio Identifier 876/1243112

Folio Identifier 874/1232149

Folio Identifier 872/1217781

Folio Identifier 868/1192567

Folio Identifier 788/1119757

Folio Identifier 666/1118588

Folio Identifier 562/1118421

Folio Identifier 538/1118419

Folio Identifier 1/1112911

Folio Identifier 29/727592

Crown Land

Government Gazette 24 November 1967 Folio 4363

****

Index

APP – Application
DD – Departmental Dealing
C – Conveyance

****

Summary of proprietor(s)
Lot 876 DP 1243112

Year	Proprietor(s)	
	(Lot 876 DP 1243112)	
14 Feb 2019	The State of New South Wales	
(04 Apr 2007 – todate)	*(current lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2019 – todate)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 874 DP 1232149)	
21 Jun 2018	The State of New South Wales	
(2018 – 2019)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2018 – 2019)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 872 DP 1217781)	
23 Sep 2016	The State of New South Wales	
(2016 – 2018)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2016 – 2018)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 868 DP 1192567)	
31 Jul 2014	The State of New South Wales	
(2014 – 2016)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2014 – 2016)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 788 DP 1119757)	
26 Feb 2008	The State of New South Wales	
(2008 – 2014)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2008 – 2014)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 666 DP 1118588)	
20 Dec 2007	The State of New South Wales	
(2007 – 2008)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2007 – 2008)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	

Cont.

Cont.

	(Lot 562 DP 1118421)	
19 Dec 2007	The State of New South Wales	
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2007 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 538 DP 1118419)	
19 Dec 2007	The State of New South Wales	
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2007 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 1 DP 1112911)	
30 Jul 2007	The State of New South Wales	
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(2007 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Lot 29 DP 727592)	
29 Aug 1990	Crown Land	
(2007 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(1990 – 2007)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(1990 – 2007)	*(Reserved under the National Parks and Wildlife Act, 1974 as a National Park known as Kosciuszko National Park)*	
	(Portion 13 Parish Kosciusko)	
Prior – 29 Aug 1990	Crown Land	
(1981 – 1990)	*(lease to Kosciuszko Thredbo Pty Limited)*	*(L)*
(1967 – 1974)	*(Dedicated a National Park known as Kosciuszko National Park vide Government Gazette 22 Sept 1967)*	
(1884 – 1967)	*(Part of The Crackenback Gold Field Extension vide Govt Gazette 21 Mar 1884)*	

****

Cadastral Records Enquiry Report : Lot 538 DP 1118419

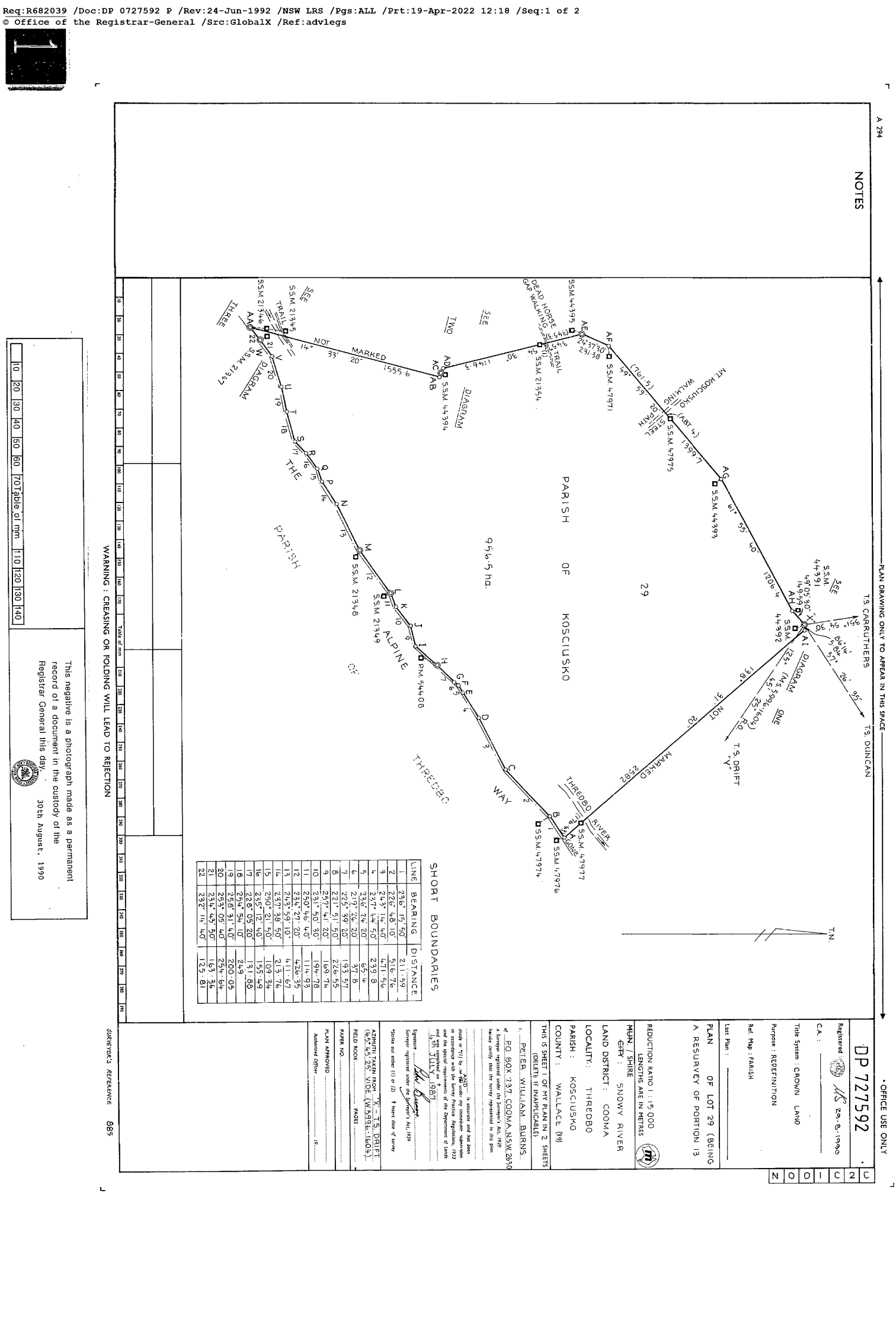
Ref : NOUSER

Locality : THREDBO
Parish : KOSCIUSZKO
LGA : SNOWY MONARO REGIONAL
County : WALLACE

This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

	Status	Surv/Comp	Purpose
DP1118419			
Lot(s): 526, 527, 529, 530			
DP1119757	REGISTERED	SURVEY	SUBDIVISION
DP1128686	REGISTERED	SURVEY	SUBDIVISION
Lot(s): 524, 526, 527, 529, 530			
DP1118421	REGISTERED	SURVEY	SUBDIVISION
Lot(s): 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 540			
DP1112911	HISTORICAL	SURVEY	REDEFINITION
DP1119757			
Lot(s): 772			
DP1128686	REGISTERED	SURVEY	SUBDIVISION
Lot(s): 766, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 838, 839, 840, 841, 842, 843			
DP1112911	HISTORICAL	SURVEY	REDEFINITION
DP1118419	HISTORICAL	SURVEY	SUBDIVISION
DP1118421	HISTORICAL	SURVEY	SUBDIVISION
DP1118588	HISTORICAL	SURVEY	SUBDIVISION
DP1243112			
Lot(s): 876			
DP1112911	HISTORICAL	SURVEY	REDEFINITION
DP1118419	HISTORICAL	SURVEY	SUBDIVISION
DP1118421	HISTORICAL	SURVEY	SUBDIVISION
DP1118588	HISTORICAL	SURVEY	SUBDIVISION
DP1119757	HISTORICAL	SURVEY	SUBDIVISION
DP1128686	HISTORICAL	SURVEY	SUBDIVISION
DP1192567	HISTORICAL	SURVEY	SUBDIVISION
DP1217781	HISTORICAL	SURVEY	SUBDIVISION
DP1232149	HISTORICAL	SURVEY	SUBDIVISION
Road			
Polygon Id(s): 155592396			
PA82657 - LOT 701 DP1067707, LOTS 801-809 DP1067709, LOTS 401-417 DP1067711, LOTS 501-522 DP1067715, LOTS 601-605 DP1067724, LOTS 101-107 DP1067727, LOT 201 DP1067728, LOTS 301-313 DP1067729 AND LOT 901 DP1067730			
Unidentified			
Polygon Id(s): 158479658			
AREA COMPRISES 3759.1 SQ METRES BETWEEN POINT 1235 AND POINT 1236 SHOWN IN DP1067707 ALONG ALPINE WAY			
DP1185192	REGISTERED	SURVEY	SUBDIVISION
CA176305 - LOT 1 DP1185192			

Plan	Surv/Comp	Purpose
DP1118419	SURVEY	SUBDIVISION
DP1119757	SURVEY	SUBDIVISION
DP1243112	UNRESEARCHED	SUBDIVISION
DP1243112	SURVEY	SUBDIVISION



A 295 TO BE USED IN CONJUNCTION WITH A 294

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 727592

Registered: 29.8.1990

THIS IS SHEET 2 OF MY PLAN IN 2 SHEETS DATED 4th JULY, 1987

Surveyor registered under Surveyors Act 1929.

PLAN APPROVED .....

Authorized Officer ..... 19.....

NOTES

REDUCTION RATIO 1 : N.T.S.

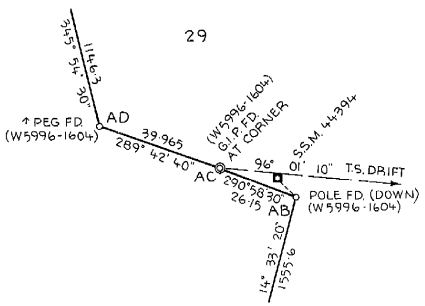


DIAGRAM TWO

(NOT TO SCALE)

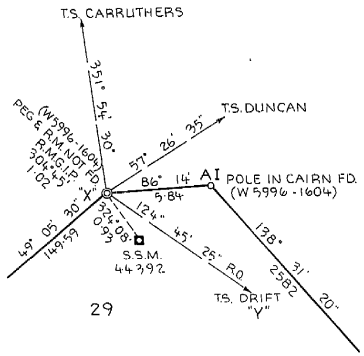


DIAGRAM ONE

(NOT TO SCALE)

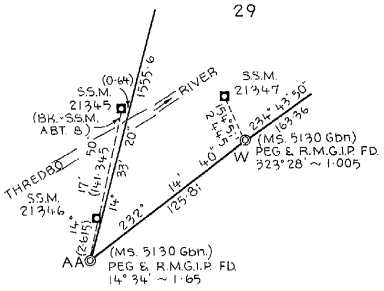


DIAGRAM THREE

(NOT TO SCALE)

REFERENCE TO CORNERS

CNR.	BEARING	DISTANCE	FROM
A	↑ PEG AT CORNER		
	138° 31' 20"	176.43	S.S.M. 47977
	345° 07' 00"	23.645	S.S.M. 47976
B	↑ PEG FD.		
	327° 26' 00"	22.17	S.S.M. 47974
C	↑ PEG FD.		
D	↑ PEG PLACED IN ROCK CAIRN FD.		
E	↑ PEG AT CORNER		
F	↑ PEG AT CORNER		
G	↑ PEG AT CORNER		
H	↑ PEG FD.		
	313° 45' 00"	0.94	R.M.G.I.P. FD.
	31° 07' 40"	84.41	P.M.54408
I	↑ PEG AT CORNER		
J	↑ PEG FD.		
K	↑ PEG AT CORNER		
L	↑ PEG FD.		
	332° 38' 00"	1.025	R.M.G.I.P. FD.
	338° 02' 00"	12.885	S.S.M. 21349
M	↑ PEG FD.		
	329° 13' 00"	1.005	R.M.G.I.P. FD.
	303° 44' 00"	15.405	S.S.M. 21348
N	↑ PEG FD.		
P	↑ PEG FD.		
Q	↑ PEG FD.		
R	↑ PEG FD.		

CNR.	BEARING	DISTANCE	FROM
S	↑ PEG FD.		
T	↑ PEG FD.		
U	↑ PEG FD.		
V	↑ PEG FD.		
W	↑ PEG FD.		
	323° 28' 00"	1.005	R.M.G.I.P. FD.
	154° 51' 00"	2.445	S.S.M. 21347
AA	↑ PEG FD.		
	14° 34' 00"	1.65	R.M.G.I.P. FD.
	194° 17' 50"	2.615	S.S.M. 21346
	194° 17' 50"	143.96	S.S.M. 21345
AB	↑ PEG AT CORNER		
	134° 07' 00"	5.175	S.S.M. 44394
AC	G.I.P. FD. AT CORNER		
AD	↑ PEG FD.		
AE	↑ PEG FD.		
	103° 10' 00"	3.105	R.M.G.I.P. FD.
	23° 07' 00"	3.365	S.S.M. 44395
AF	↑ PEG FD.		
	261° 28' 00"	5.485	S.S.M. 47971
AG	↑ PEG FD.		
	328° 36' 00"	2.475	S.S.M. 44393
AH	↑ PEG FD.		
	191° 29' 00"	5.59	S.S.M. 44391
"X"	↑ PEG PLACED		
	304° 45' 00"	1.02	R.M.G.I.P.
	324° 08' 00"	0.93	S.S.M. 44392

PLAN DRAWING ONLY TO APPEAR IN THIS SPACE

SURVEYOR'S REFERENCE 885

10 20 30 40 50 60 70 Table of mm 110 120 130 140

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 30th August, 1990

2

PLAN FORM 2 (APPROVED FORM 3)

Plan Drawing only to appear in this space

CA 119181

SIGNATURES, AND SEALS ONLY

EXECUTED BY KOSCIUSZKO THREDBO PTY. LIMITED ACN 000 139 015 IN ACCORDANCE WITH S 127 OF THE CORPORATIONS ACT

PETER WILLIAM HORTON
DIRECTOR

GREGORY CHARLES DEAN
SECRETARY.

SIGNED BY ME, ANTHONY FLEMING AS DELEGATE FOR THE MINISTER ADMINISTERING THE NATIONAL PARKS AND WILDLIFE ACT, 1974.

Department of Lands Approval

I ..... in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown hereon have been given.

Signature: .....

Date: .....

File No.: .....

Office: .....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed

REDEFINITION
.....set out herein
*(insert 'subdivision' or 'new road')

.....
*Authorised Person/General Manager/Accredited Certifier

Consent Authority: ~~PARKS AND WILDLIFE ACT 1974~~ THE MINISTER ADMINISTERING THE NATIONAL PARKS AND WILDLIFE ACT 1974

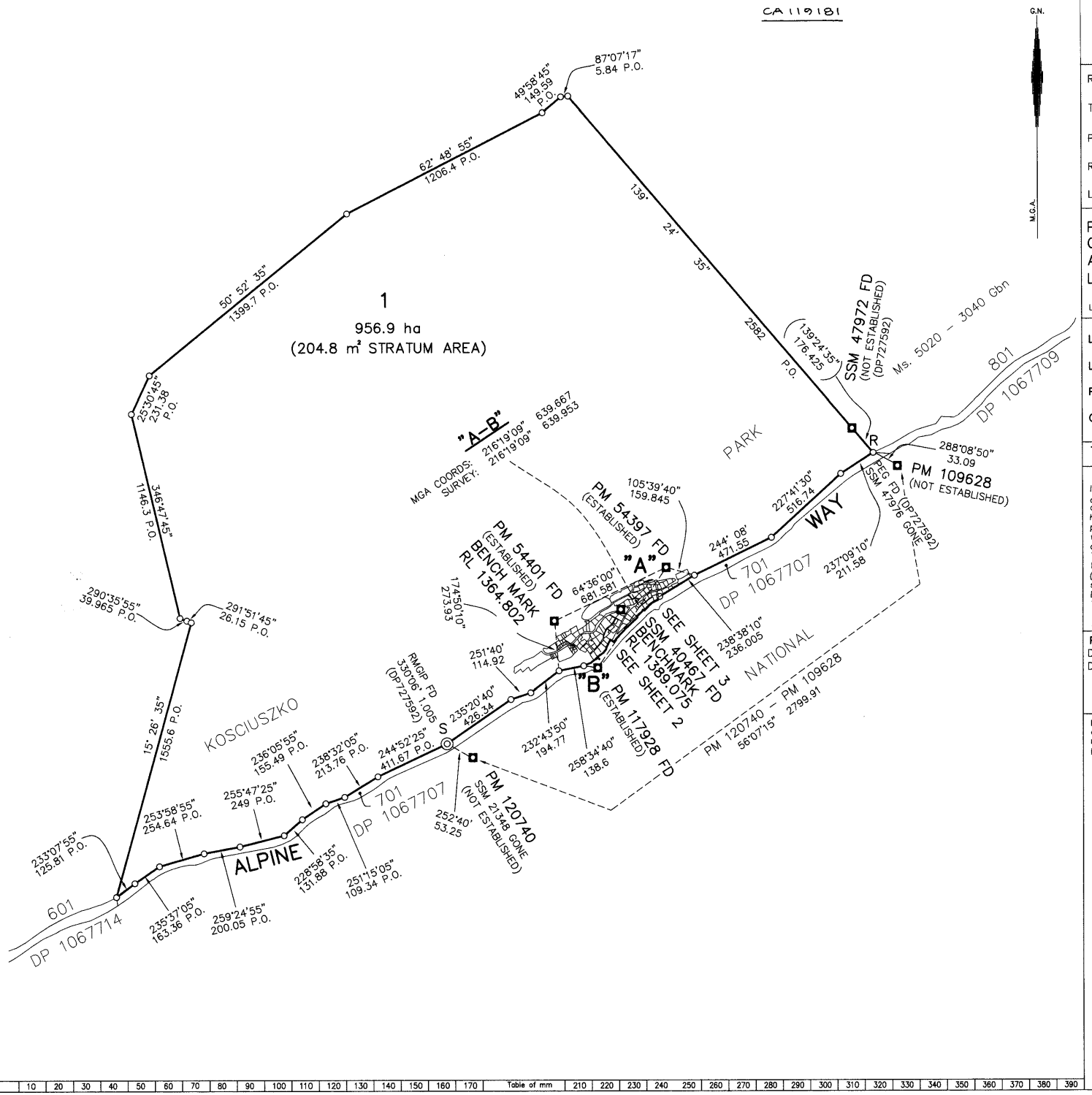
Date of Endorsement: 27 JUNE 2007

Accreditation no: N/A

Subdivision Certificate no: N/A

File no: .....

*Delete whichever is inapplicable



DP1112911 (E)

Registered: SB 10.9.2007

Title System: OLD SYSTEM

Purpose: REDEFINITION

Ref.Map: PARISH

Last Plan: DP727592

PLAN OF REDEFINITION OF LOT 29 DP 727592 AFTER EXCISION OF LOT 701 DP 1067707

Lengths are in metres. Reduction Ratio 1: 15000

L.G.A.: SNOWY RIVER

Locality: THREDBO

Parish: ~~THREDBO~~ KOSCIUSKO

County: WALLACE

This is Sheet 1 of my plan in 5 sheets.
(Delete if inapplicable)

Surveying Regulation 2006

I, PETER WILLIAM BURNS
of PO BOX 737, COOMA 2630
a surveyor registered under the Surveying Act 2002, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveying Regulation 2006 and was completed on 15/5/2007
The survey relates to "A–B" AND CONNECTIONS BETWEEN "R" – "S"
(here specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)
Datum Line: "A–B"
Type: ~~Urban~~/Rural
(Signature)..... Dated: 15/5/07
Surveyor registered under the ~~Surveying~~ Act, 2002

Plans used in preparation of Survey/~~Compilation~~
DP 727592 DP 1067707 DP 1067709
DP 1067714

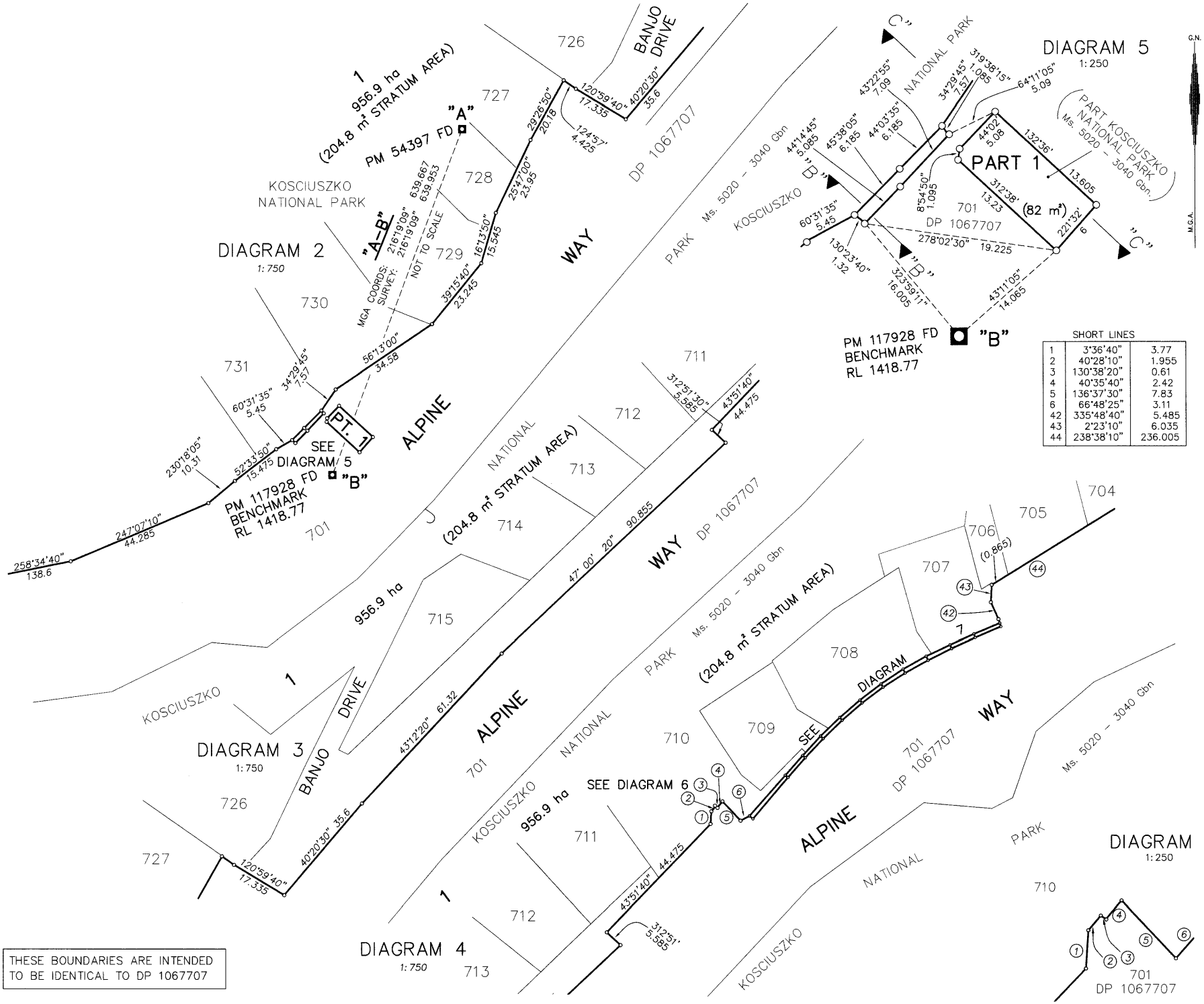
PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

* OFFICE USE ONLY

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 Table of mm 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390

SURVEYOR'S REFERENCE: 4023/HEADLEASE CHECKLIST EXEMPTION 2007M102

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION



SHORT LINES		
1	3°36'40"	3.77
2	40°28'10"	1.955
3	130°38'20"	0.61
4	40°35'40"	2.42
5	136°37'30"	7.83
6	66°48'25"	3.11
42	335°48'40"	5.485
43	2°23'10"	6.035
44	238°38'10"	236.005

THESE BOUNDARIES ARE INTENDED TO BE IDENTICAL TO DP 1067707

DP1112911

Registered: SB 10.9.2007

This is sheet 2 of my plan in 5 sheets dated 15/5/2007

Surveyor registered under the Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: 7500

*OFFICE USE ONLY

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: 4023/HEADLEASE

PLAN FORM 3 (APPROVED FORM 5) **To be used in Conjunction with Plan Form 2**

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP1112911

Registered: 10.9.2007 *

This is sheet 3 of my plan in 5 sheets dated 15/5/2007

Surveyor registered under the Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2

*OFFICE USE ONLY

G.N.

M.G.A.

DIAGRAM 7

1:250

1
956.9 ha
(204.8 m² STRATUM AREA)

Ms. 5020 – 3040 Gbn.

PARK 707

NATIONAL 708

KOSCIUSZKO 709

710

ALPINE

WAY

DP 1067707

701

P

Q

SHORT LINES		
5	136°37'30"	7.83
6	66°48'25"	3.11
7	40°22'05"	16.04
8	41°29'10"	7.77
9	43°18'10"	7.775
10	45°51'40"	7.83
11	49°04'00"	7.84
12	53°13'40"	7.8
13	57°38'20"	7.77
14	61°05'10"	7.83
15	63°46'50"	7.81
16	65°52'00"	7.77
17	67°04'55"	8.285
18	342°04'05"	1.05
19	247°37'25"	8.315
20	246°10'55"	7.825
21	245°07'20"	7.87
22	240°52'10"	7.855
23	236°16'35"	7.90
24	232°50'05"	7.915
25	229°07'25"	7.895
26	226°06'55"	7.895
27	222°30'30"	7.785
28	221°42'30"	7.845
29	221°29'00"	16.135
30	127°13'15"	1.34
31	311°16'00"	1.025
32	315°21'50"	0.995
33	315°31'00"	1.105
34	319°06'40"	1.07
35	321°59'00"	1.065
36	327°45'25"	1.125
37	333°17'00"	1.32
38	334°20'00"	1.35
39	337°10'10"	1.165
40	339°59'50"	1.125
41	342°04'05"	1.25
42	335°48'40"	5.485

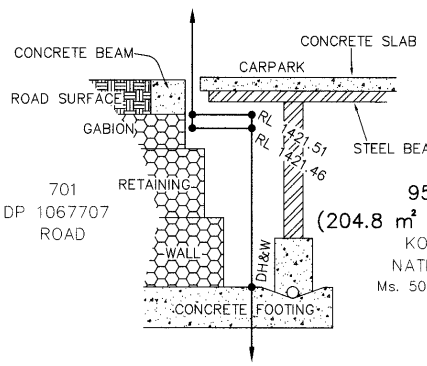
THESE BOUNDARIES ARE INTENDED TO BE IDENTICAL TO DP 1067707

Reduction Ratio 1: 250

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: 4023/HEADLEASE

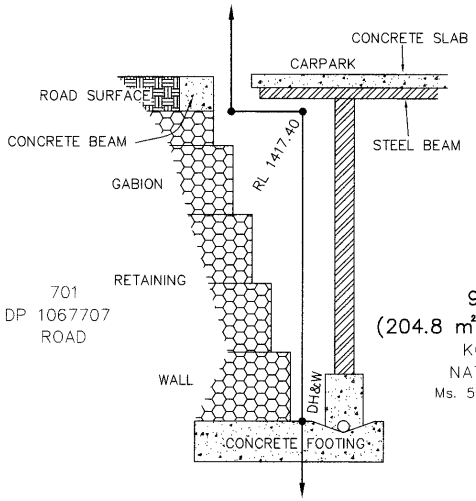
SECTION "A–A"
(NOT TO SCALE)



701
DP 1067707
ROAD

1
956.9 ha
(204.8 m² STRATUM AREA)
KOSCIUSZKO
NATIONAL
PARK
Ms. 5020 – 3040 Gbn.

SECTION "B–B"
(NOT TO SCALE)

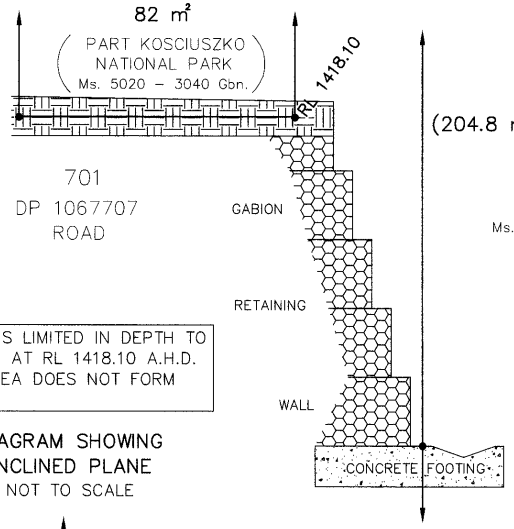


701
DP 1067707
ROAD

1
956.9 ha
(204.8 m² STRATUM AREA)
KOSCIUSZKO
NATIONAL PARK
Ms. 5020 – 3040 Gbn.

THESE BOUNDARIES ARE INTENDED TO BE IDENTICAL TO DP 1067707

SECTION "C–C"
(NOT TO SCALE)



701
DP 1067707
ROAD

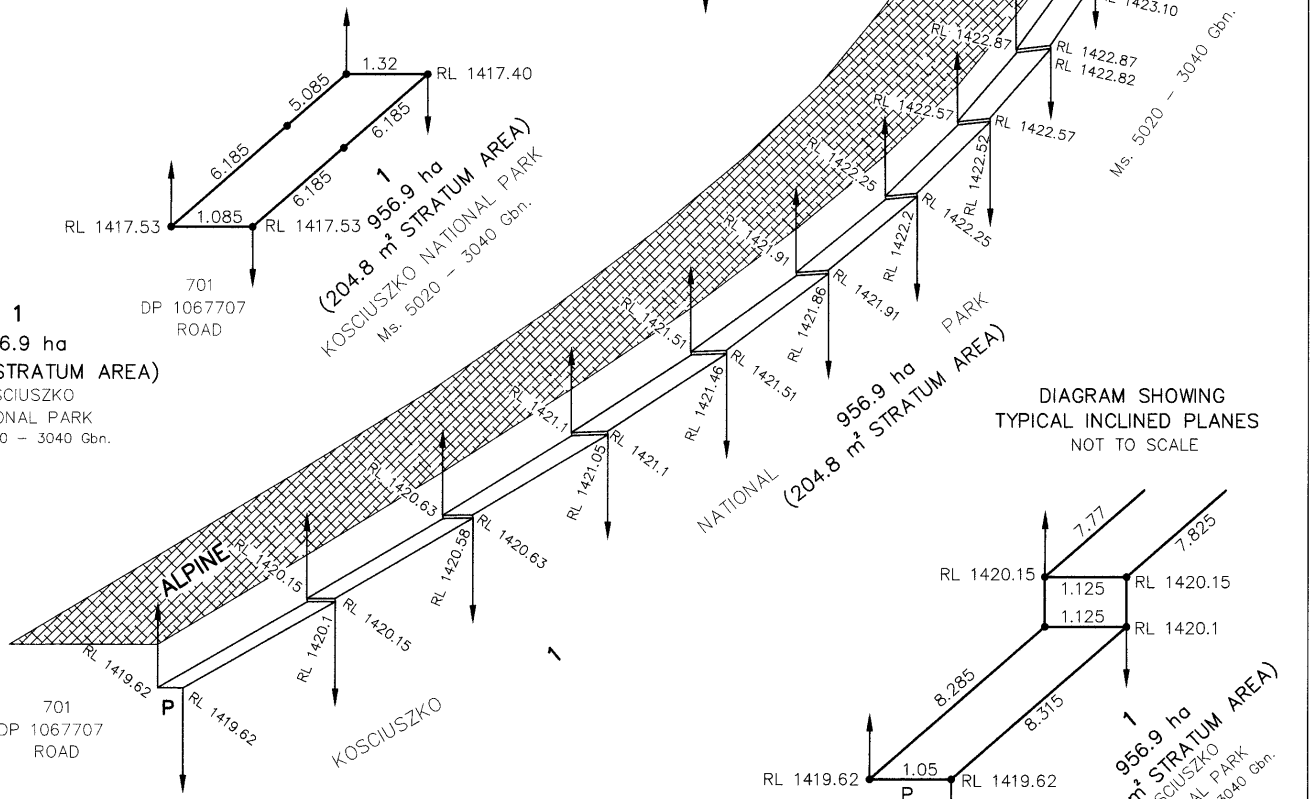
PART LOT 1 (82 m²) IS LIMITED IN DEPTH TO A HORIZONTAL PLANE AT RL 1418.10 A.H.D. (THE CARPARKING AREA DOES NOT FORM PART OF THE ROAD)

1
956.9 ha
(204.8 m² STRATUM AREA)
KOSCIUSZKO
NATIONAL
PARK
Ms. 5020 – 3040 Gbn.

DIAGRAM SHOWING INCLINED PLANE
NOT TO SCALE

701
DP 1067707
ROAD

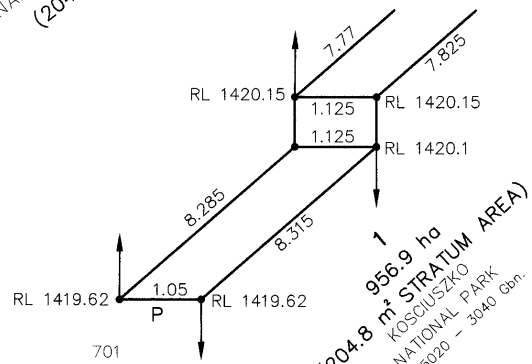
1
956.9 ha
(204.8 m² STRATUM AREA)
KOSCIUSZKO NATIONAL PARK
Ms. 5020 – 3040 Gbn.



701
DP 1067707
ROAD

1
956.9 ha
(204.8 m² STRATUM AREA)
KOSCIUSZKO
NATIONAL PARK
Ms. 5020 – 3040 Gbn.

DIAGRAM SHOWING TYPICAL INCLINED PLANES
NOT TO SCALE



701
DP 1067707
ROAD

1
956.9 ha
(204.8 m² STRATUM AREA)
KOSCIUSZKO
NATIONAL PARK
Ms. 5020 – 3040 Gbn.

DP1112911

Registered: 10.9.2007

This is sheet 4 of my plan in 5 sheets dated 15/5/2007

Surveyor registered under the Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: NOT TO SCALE

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: 4023/HEADLEASE

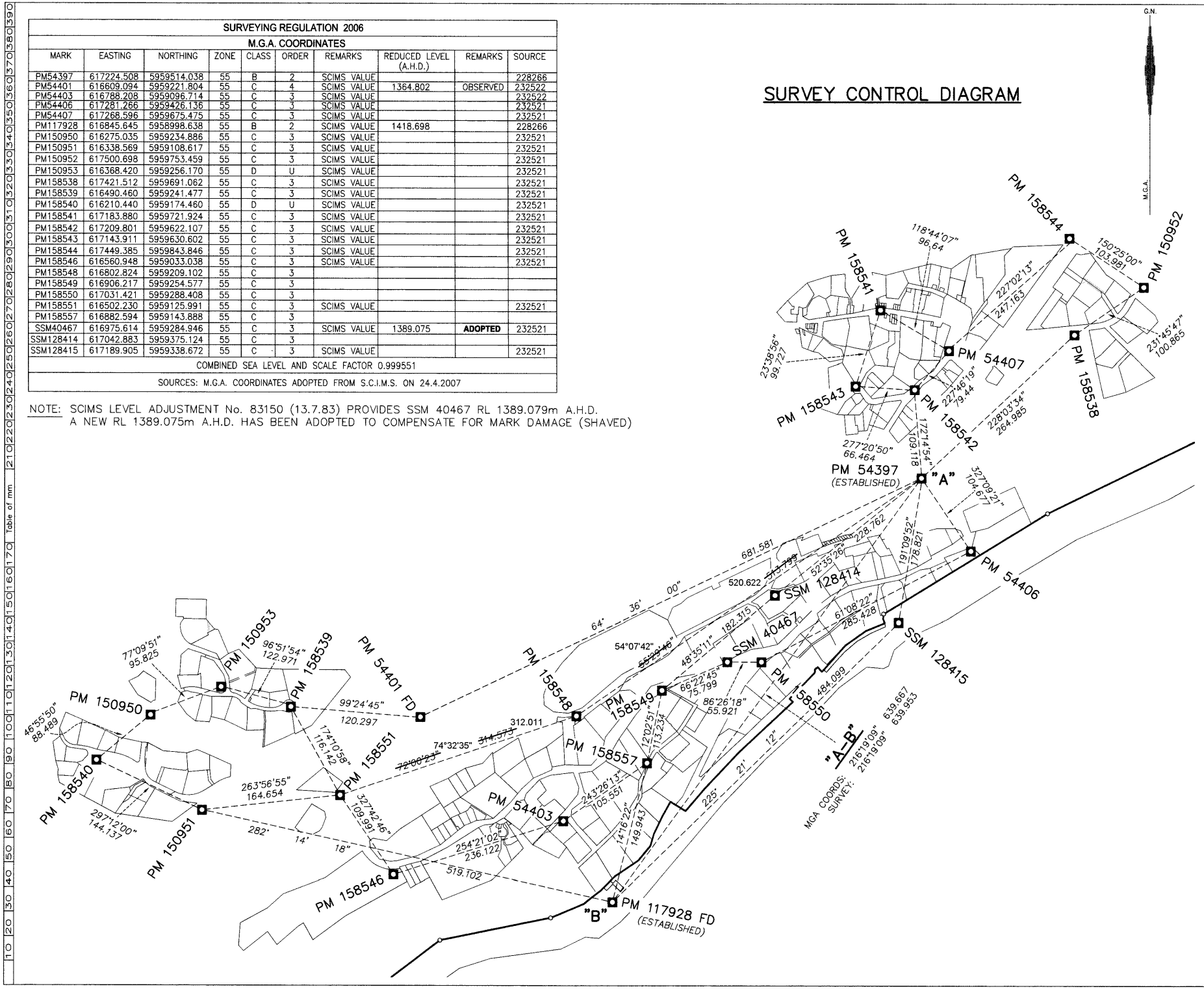
PLAN FORM 3 (APPROVED FORM 5) **To be used in Conjunction with Plan Form 2**

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

SURVEYING REGULATION 2006									
M.G.A. COORDINATES									
MARK	EASTING	NORTHING	ZONE	CLASS	ORDER	REMARKS	REDUCED LEVEL (A.H.D.)	REMARKS	SOURCE
PM54397	617224.508	5959514.038	55	B	2	SCIMS VALUE			228266
PM54401	616609.094	5959221.804	55	C	4	SCIMS VALUE	1364.802	OBSERVED	232522
PM54403	616788.208	5959096.714	55	C	3	SCIMS VALUE			232522
PM54406	617281.266	5959426.136	55	C	3	SCIMS VALUE			232521
PM54407	617268.596	5959675.475	55	C	3	SCIMS VALUE			232521
PM117928	616845.645	5958998.638	55	B	2	SCIMS VALUE	1418.698		228266
PM150950	616275.035	5959234.886	55	C	3	SCIMS VALUE			232521
PM150951	616338.569	5959108.617	55	C	3	SCIMS VALUE			232521
PM150952	617500.698	5959753.459	55	C	3	SCIMS VALUE			232521
PM150953	616368.420	5959256.170	55	D	U	SCIMS VALUE			232521
PM158538	617421.512	5959691.062	55	C	3	SCIMS VALUE			232521
PM158539	616490.460	5959241.477	55	C	3	SCIMS VALUE			232521
PM158540	616210.440	5959174.460	55	D	U	SCIMS VALUE			232521
PM158541	617183.880	5959721.924	55	C	3	SCIMS VALUE			232521
PM158542	617209.801	5959622.107	55	C	3	SCIMS VALUE			232521
PM158543	617143.911	5959630.602	55	C	3	SCIMS VALUE			232521
PM158544	617449.385	5959843.846	55	C	3	SCIMS VALUE			232521
PM158546	616560.948	5959033.038	55	C	3	SCIMS VALUE			232521
PM158548	616802.824	5959209.102	55	C	3				
PM158549	616906.217	5959254.577	55	C	3				
PM158550	617031.421	5959288.408	55	C	3				
PM158551	616502.230	5959125.991	55	C	3	SCIMS VALUE			232521
PM158557	616882.594	5959143.888	55	C	3				
SSM40467	616975.614	5959284.946	55	C	3	SCIMS VALUE	1389.075	**ADOPTED**	232521
SSM128414	617042.883	5959375.124	55	C	3				
SSM128415	617189.905	5959338.672	55	C	3	SCIMS VALUE			232521
COMBINED SEA LEVEL AND SCALE FACTOR 0.999551									
SOURCES: M.G.A. COORDINATES ADOPTED FROM S.C.I.M.S. ON 24.4.2007									

NOTE: SCIMS LEVEL ADJUSTMENT No. 83150 (13.7.83) PROVIDES SSM 40467 RL 1389.079m A.H.D.
A NEW RL 1389.075m A.H.D. HAS BEEN ADOPTED TO COMPENSATE FOR MARK DAMAGE (SHAVED)

SURVEY CONTROL DIAGRAM



DP1112911

Registered: 10.9.2007 *

This is sheet 5 of my plan in 5 sheets dated 15/5/2007

Surveyor registered under the Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: 3000

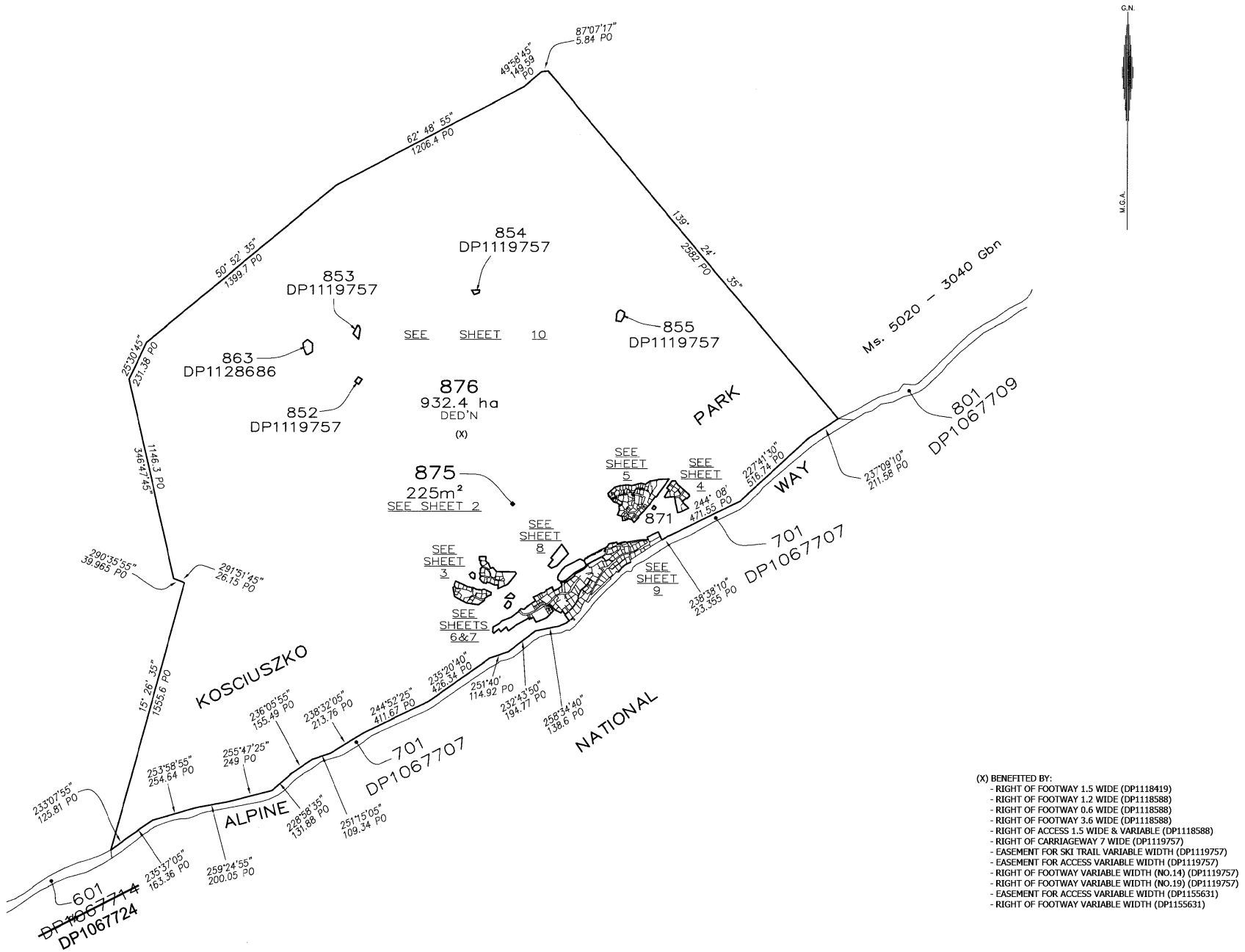
*OFFICE USE ONLY

MB 28.11.2007

BEARINGS & DISTANCES FROM PM1585551 TO PM158548 & FROM PM158548 TO PM54397 AMENDED IN LPI AT SURVEYOR'S REQUSET VIDE 20072049

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: 4023/HEADLEASE

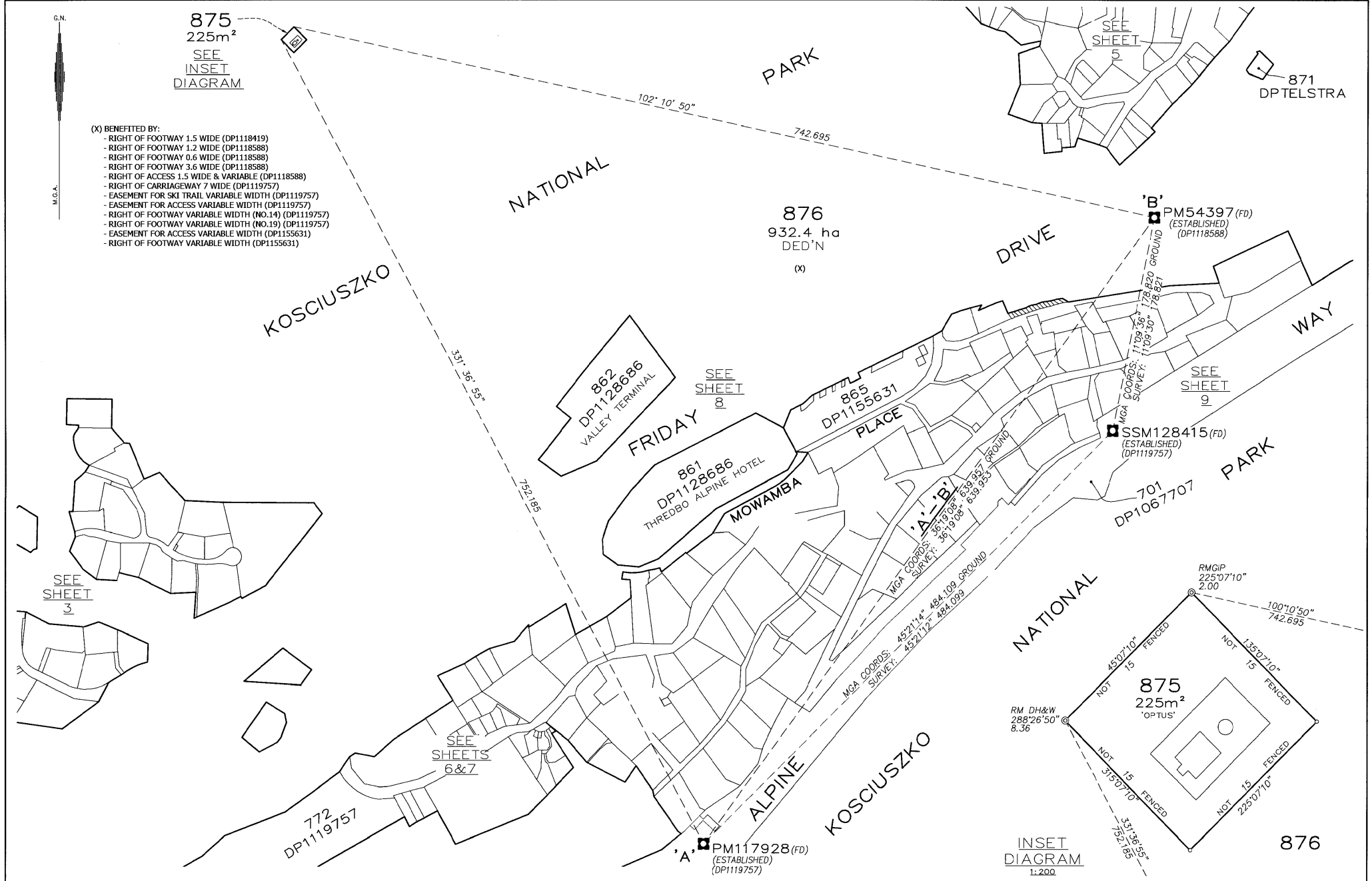


(X) BENEFITED BY:
- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
- RIGHT OF FOOTWAY 0.6 WIDE (DP1118588)
- RIGHT OF FOOTWAY 3.6 WIDE (DP1118588)
- RIGHT OF ACCESS 1.5 WIDE & VARIABLE (DP1118588)
- RIGHT OF CARRIAGEWAY 7 WIDE (DP1119757)
- EASEMENT FOR SKI TRAIL VARIABLE WIDTH (DP1119757)
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1119757)
- RIGHT OF FOOTWAY VARIABLE WIDTH (NO.14) (DP1119757)
- RIGHT OF FOOTWAY VARIABLE WIDTH (NO.19) (DP1119757)
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL Locality: THREDBO ~~KOSCIUSZKO NAT.PARK (THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:15000	Registered 14.02.2019	DP1243112 P

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



SURVEYING AND SPATIAL INFORMATION REGULATION 2012						
M.G.A. COORDINATES						
MARK	EASTING	NORTHING	ZONE	CLASS	ORDER	REMARKS
PM54397	617224.5	5959514.031	55	B	2	SCIMS
PM117928	616845.637	5958998.63	55	B	2	SCIMS
SSM128415	617189.905	5959338.672	55	C	3	SCIMS
COMBINED SCALE FACTOR 0.999 548		SCIMS CHECKED 15.08.2017				

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

Surveyor: PETER W. BURNS
Date of Survey: 15.08.17
Surveyor's Ref: 4753
EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS

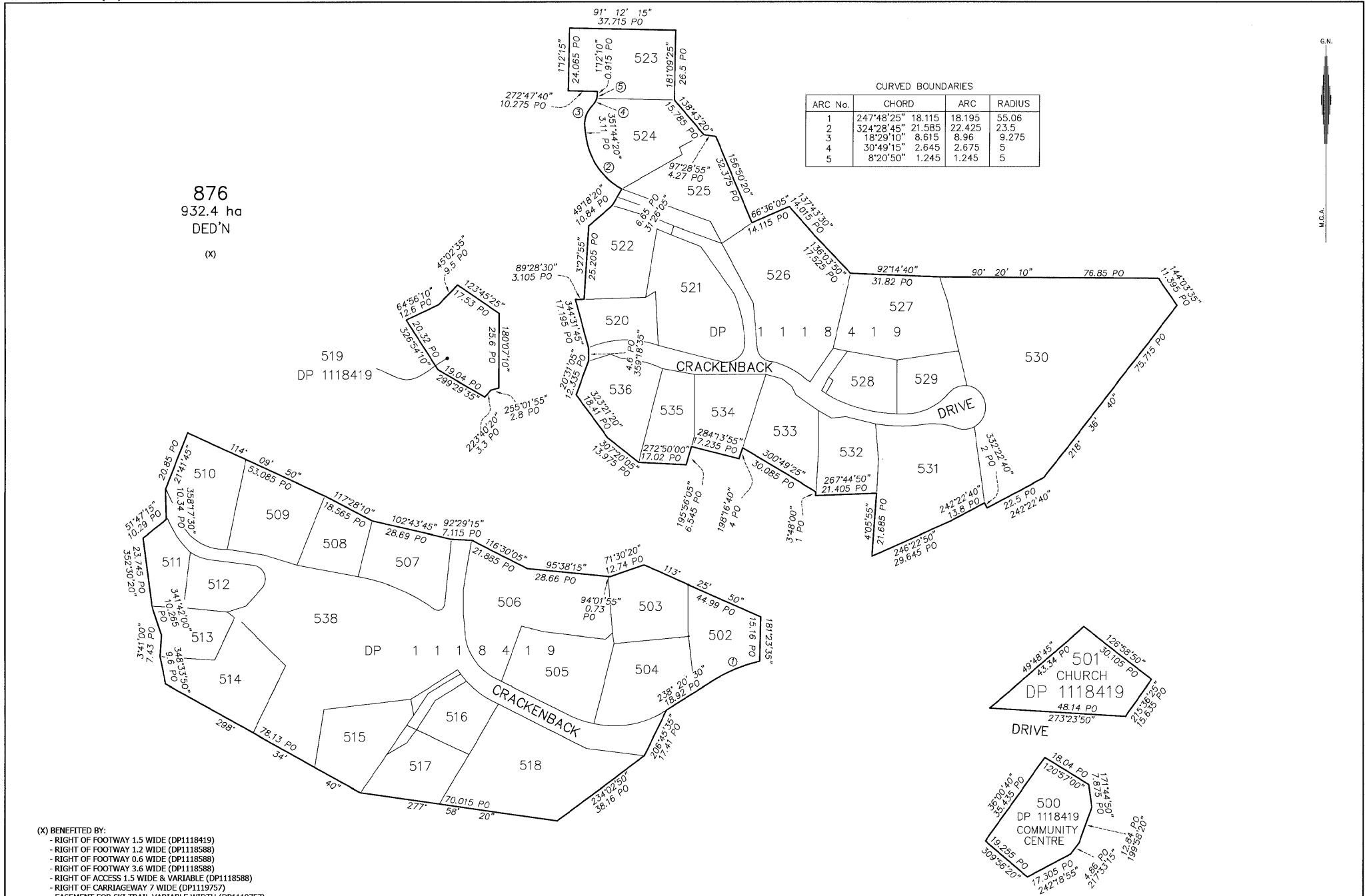
PLAN OF SUBDIVISION OF LOT 874 DP1232149

L.G.A.: SNOWY MONARO REGIONAL
Locality: THREDBO ~~KOSCIUSZKO NAT.PARK (THREDBO VILLAGE)~~
Subdivision No: SC 01-05-2018
Lengths are in metres. Reduction Ratio 1:NTS

Registered 14.02.2019

DP1243112

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



CURVED BOUNDARIES

ARC No.	CHORD	ARC	RADIUS
1	247°48'25" 18.115	18.195	55.06
2	324°28'45" 21.585	22.425	23.5
3	18°29'10" 8.615	8.96	9.275
4	30°49'15" 2.645	2.675	5
5	8°20'50" 1.245	1.245	5

(X) BENEFITED BY:
- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
- RIGHT OF FOOTWAY 0.6 WIDE (DP1118588)
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- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL Locality: THREDBO ~~KOSCIUSZKO NAT.PARK (THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:850	Registered 14.02.2019	DP1243112

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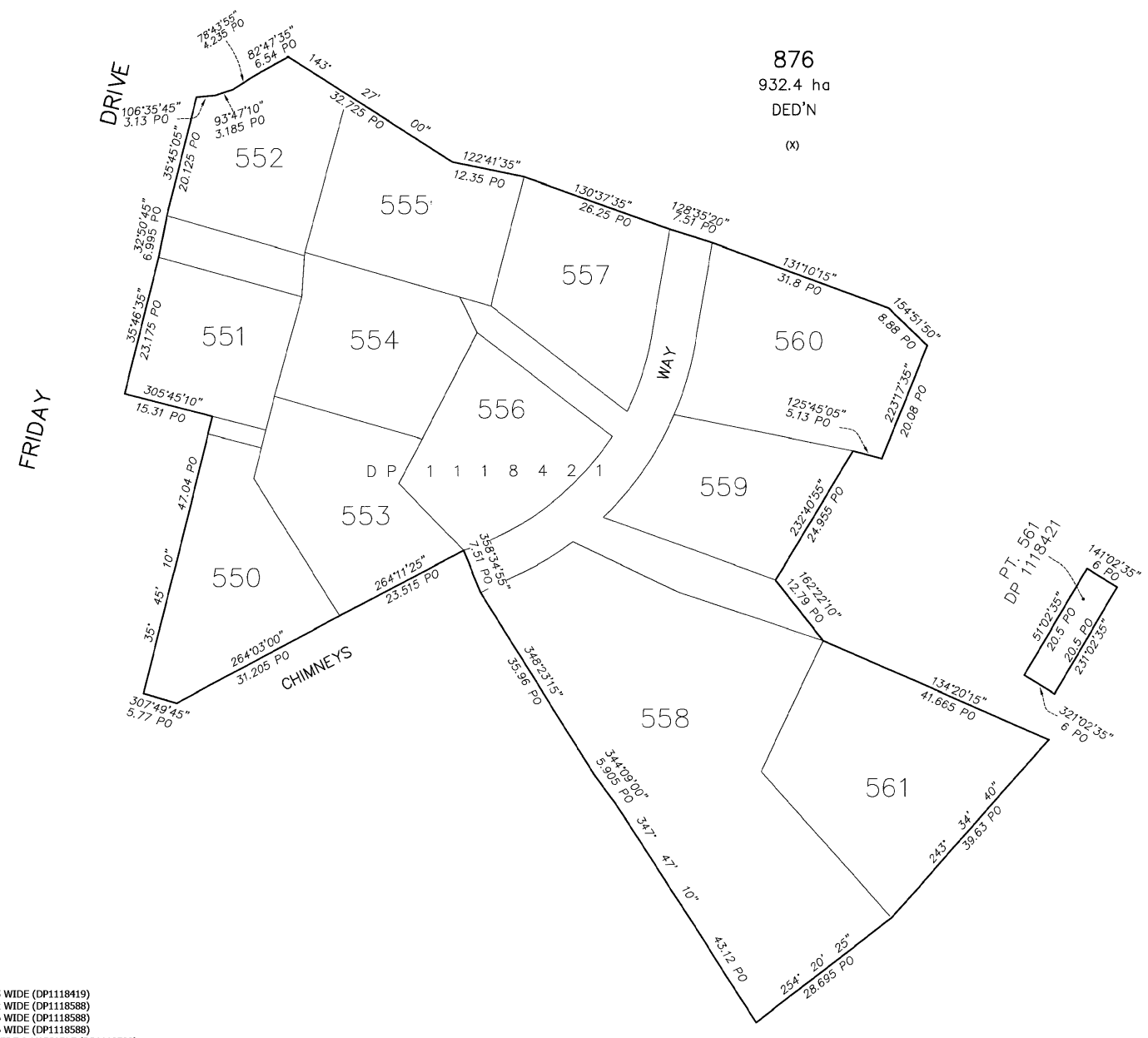
AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



(X) BENEFITTED BY:
- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
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- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(159)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL Locality: THREDBO ~~KOSCIUSZKO NAT.PARK (THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:500	Registered 14.02.2019	DP1243112

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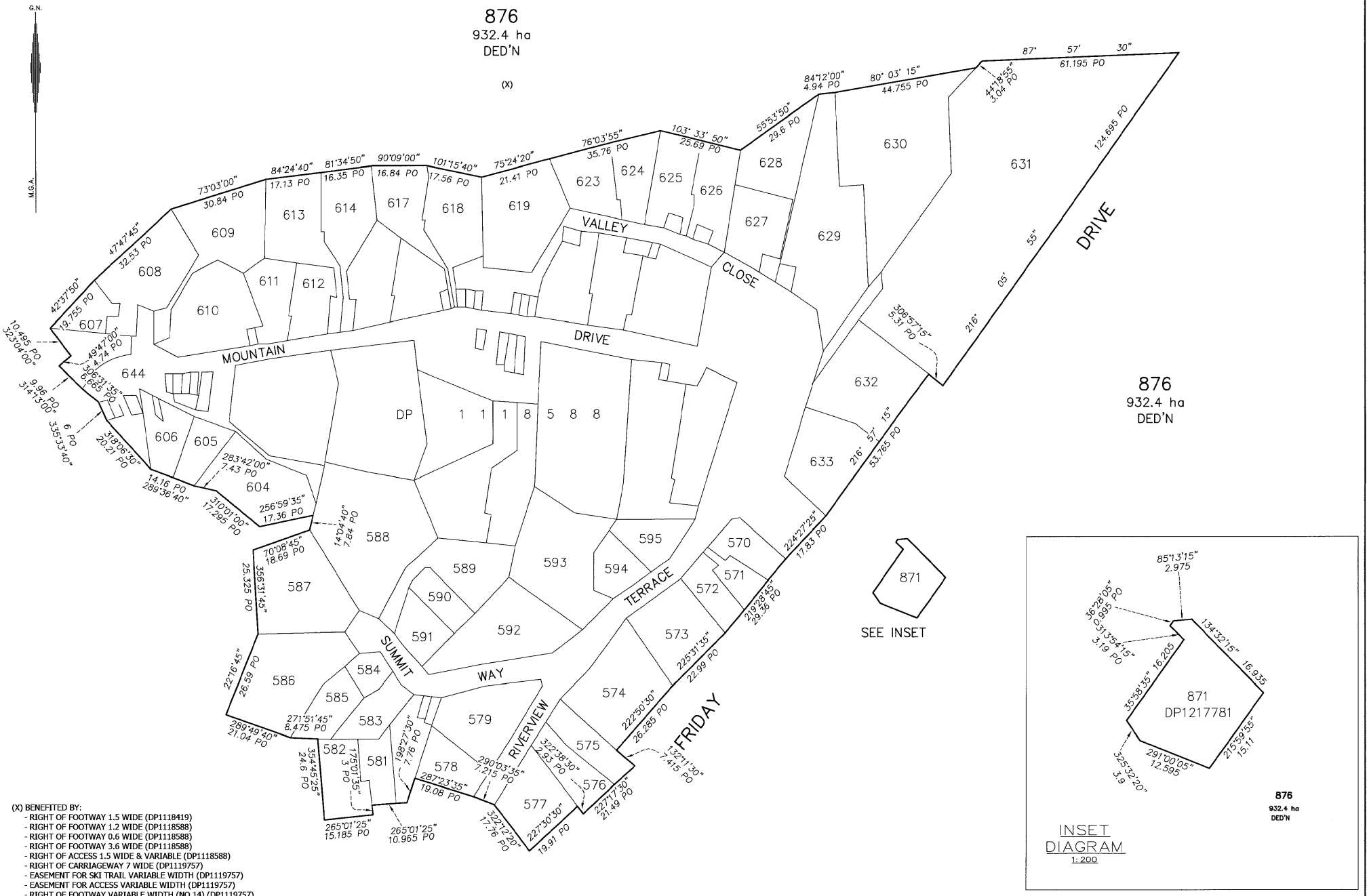
AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



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- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
- RIGHT OF FOOTWAY 0.6 WIDE (DP1118588)
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- RIGHT OF CARRIAGEWAY 7 WIDE (DP1119757)
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- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
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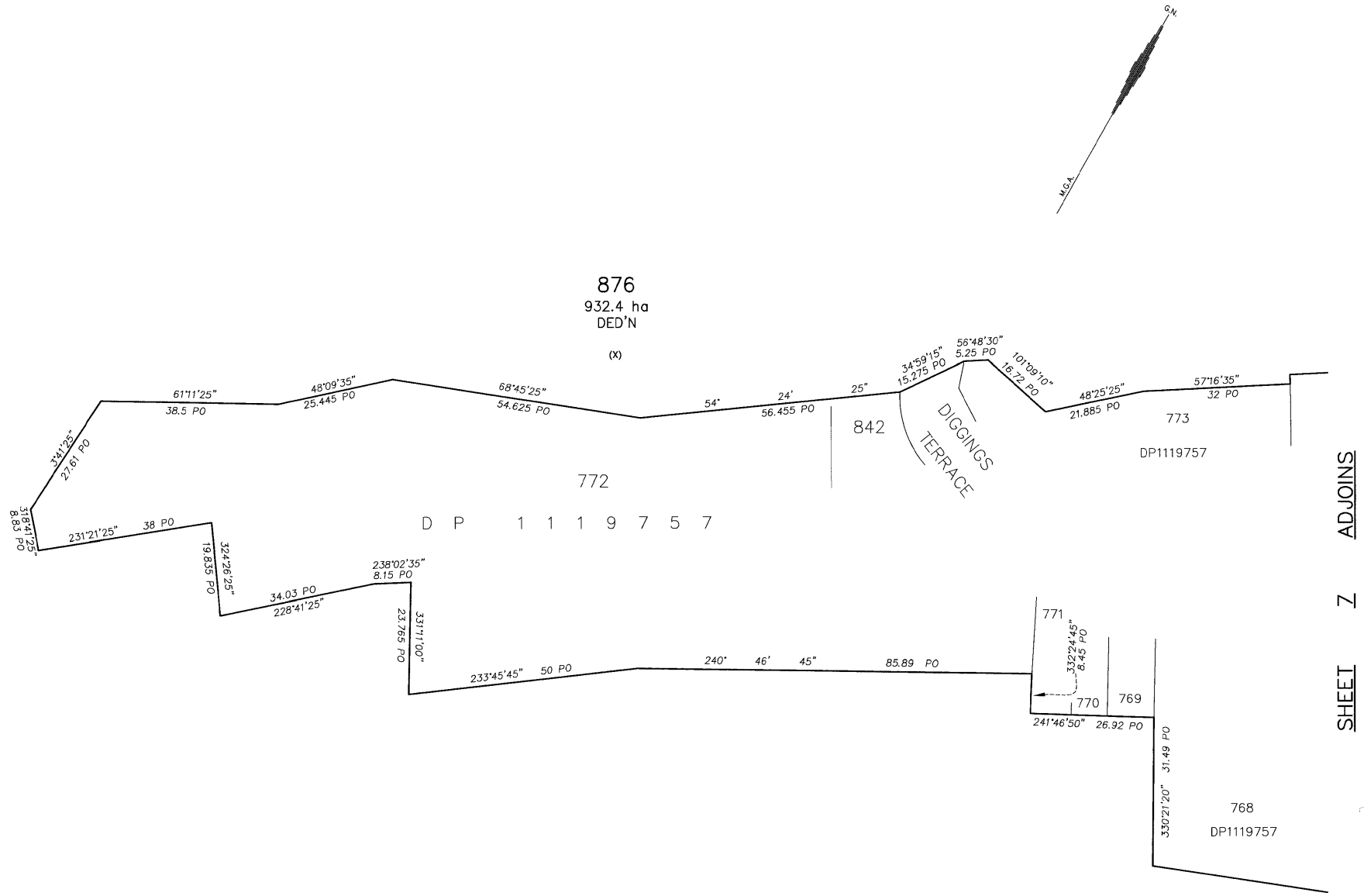
Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL Locality: THREDBO ~~KOSCIUSZKO NAT.PARK (THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:750	Registered 14.02.2019	DP1243112

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



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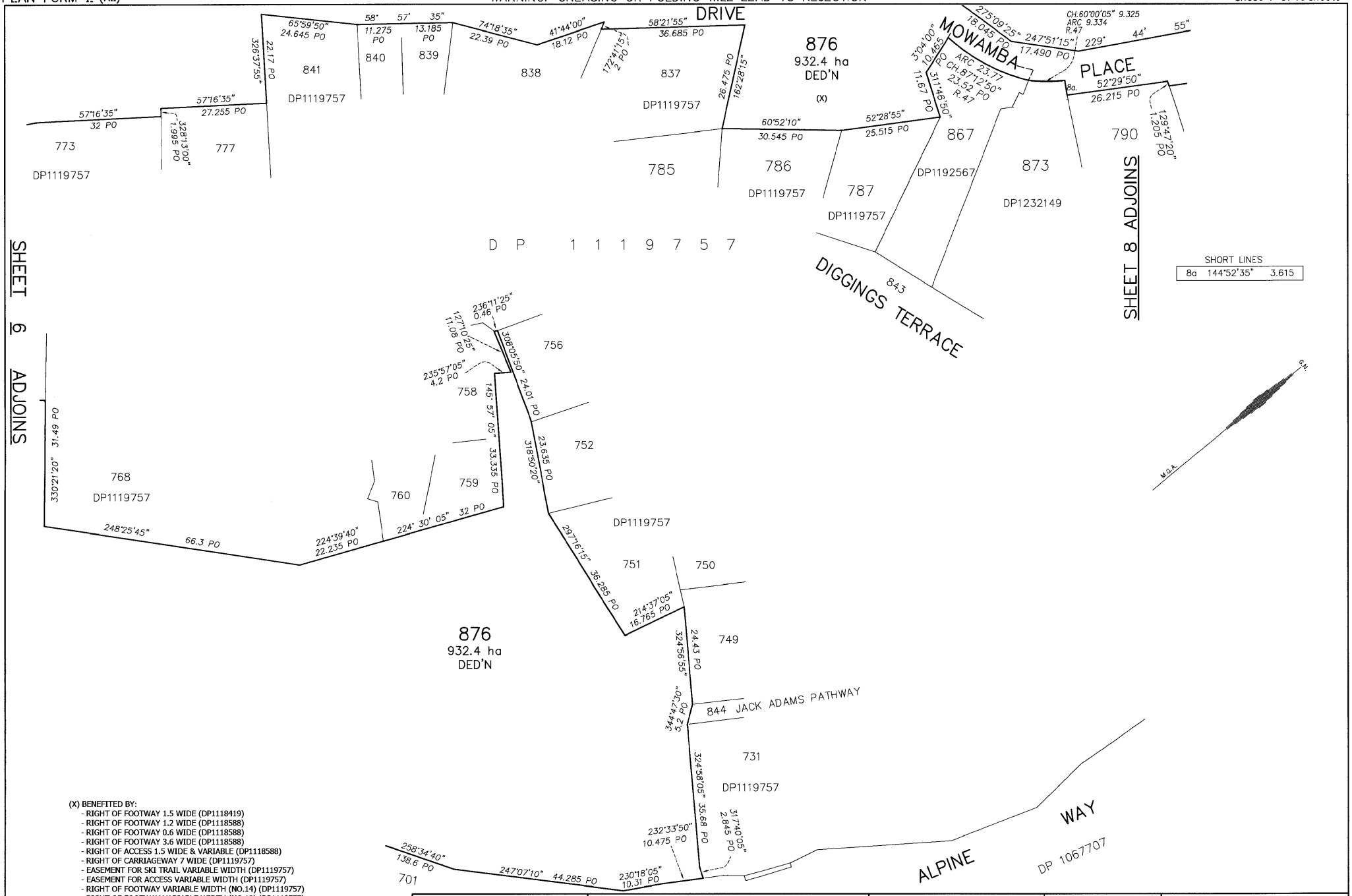
Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL THREDBO Locality: ~~KOSCIUSZKO NAT.PARK~~ ~~(THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:600	Registered 14.02.2019	DP1243112

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



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- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
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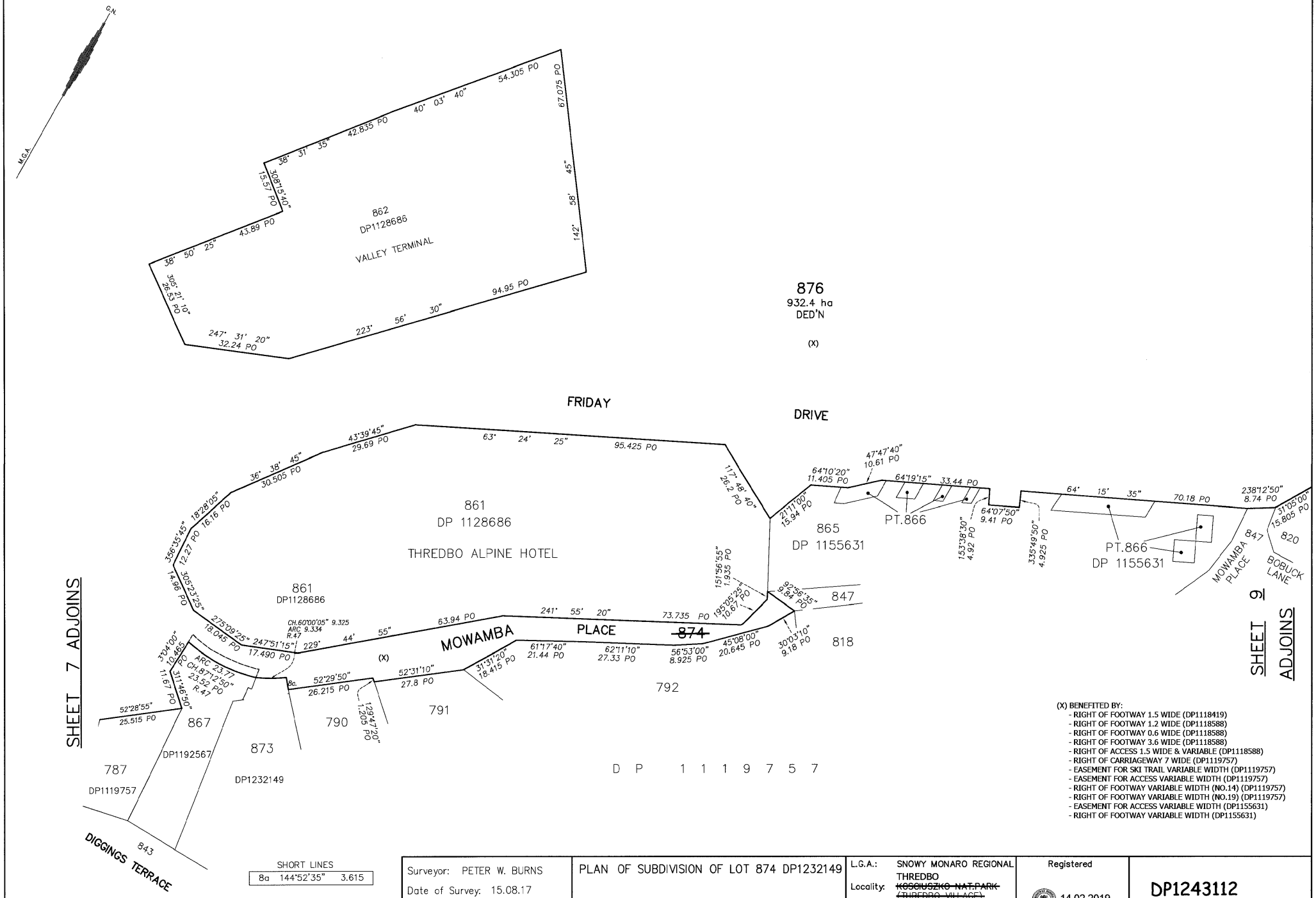
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL THREDBO Locality: ~~KOSCIUSZKO NAT.PARK~~ ~~(THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:600	Registered 14.02.2019	DP1243112

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



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- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
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- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

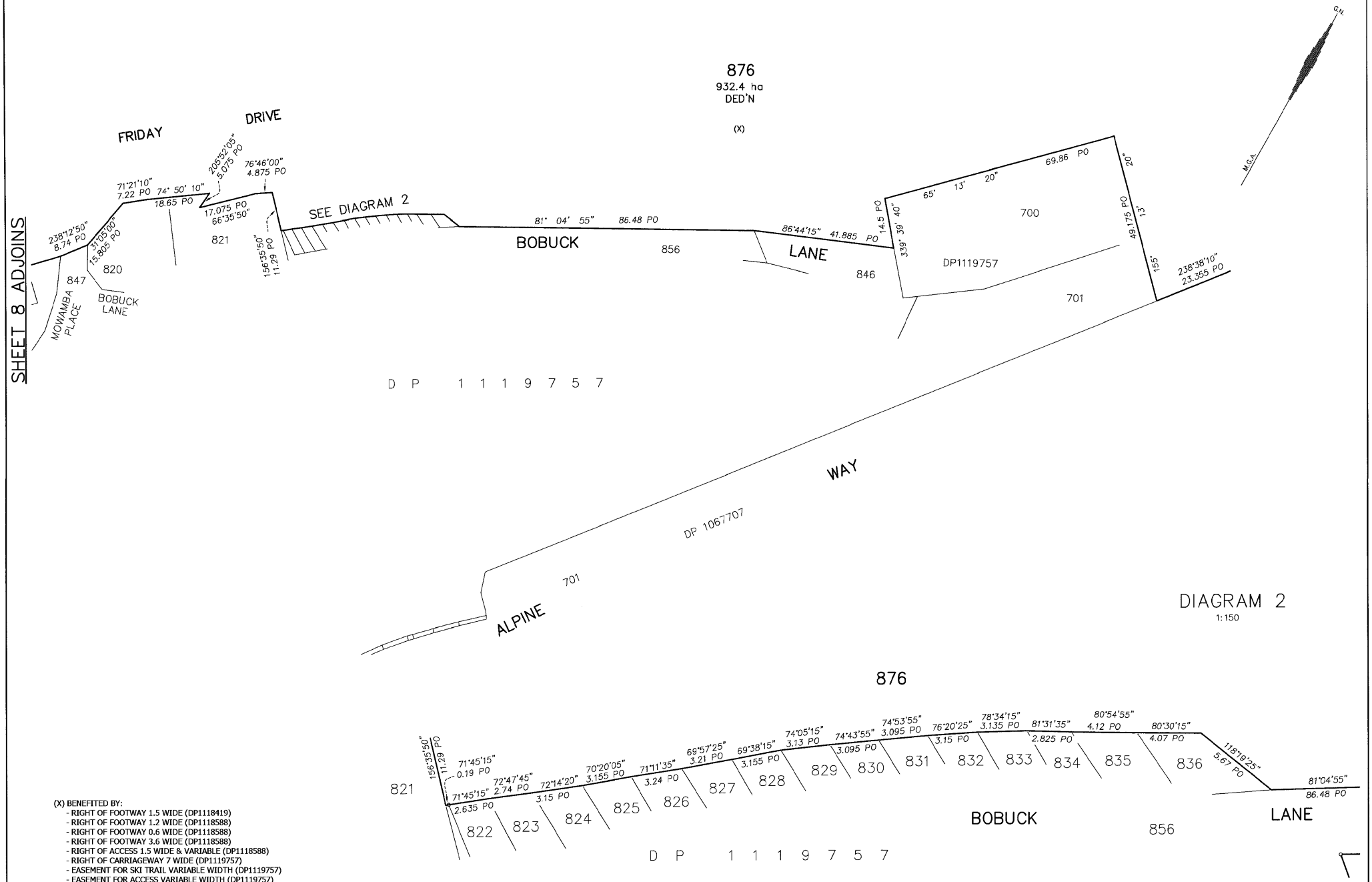
SHORT LINES

8a	144°52'35"	3.615

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL Locality: THREDBO ~~KOSCIUSZKO NAT.PARK (THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:700	Registered 14.02.2019	DP1243112

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019

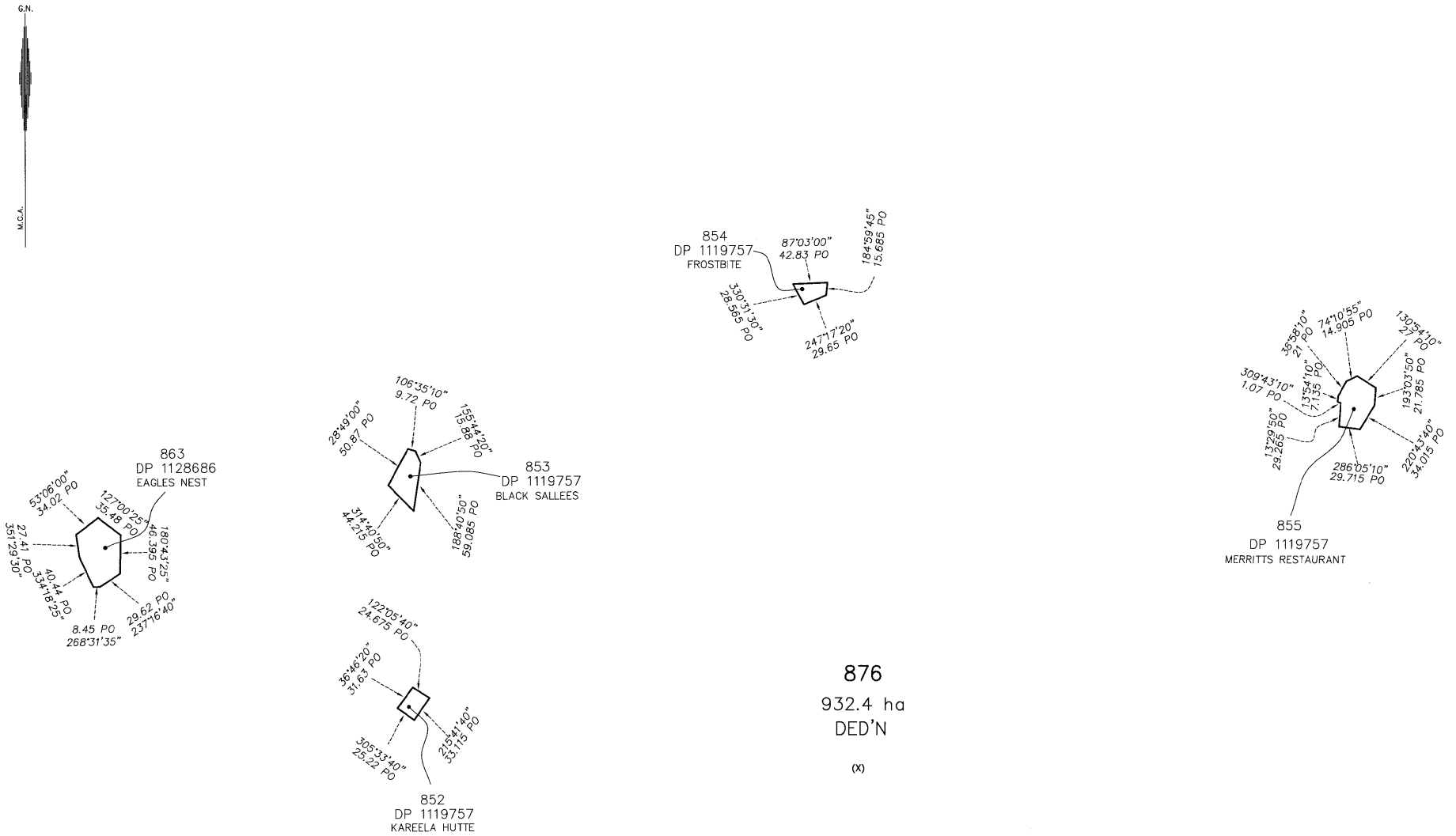


(X) BENEFITTED BY:
- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
- RIGHT OF FOOTWAY 0.6 WIDE (DP1118588)
- RIGHT OF FOOTWAY 3.6 WIDE (DP1118588)
- RIGHT OF ACCESS 1.5 WIDE & VARIABLE (DP1118588)
- RIGHT OF CARRIAGEWAY 7 WIDE (DP1119757)
- EASEMENT FOR SKI TRAIL VARIABLE WIDTH (DP1119757)
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1119757)
- RIGHT OF FOOTWAY VARIABLE WIDTH (NO.14) (DP1119757)
- RIGHT OF FOOTWAY VARIABLE WIDTH (NO.19) (DP1119757)
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL THREDBO Locality: ~~KOSCIUSZKO NAT.PARK~~ ~~(THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1:700	Registered 14.02.2019	DP1243112

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019



(X) BENEFITED BY:
- RIGHT OF FOOTWAY 1.5 WIDE (DP1118419)
- RIGHT OF FOOTWAY 1.2 WIDE (DP1118588)
- RIGHT OF FOOTWAY 0.6 WIDE (DP1118588)
- RIGHT OF FOOTWAY 3.6 WIDE (DP1118588)
- RIGHT OF ACCESS 1.5 WIDE & VARIABLE (DP1118588)
- RIGHT OF CARRIAGEWAY 7 WIDE (DP1119757)
- EASEMENT FOR SKI TRAIL VARIABLE WIDTH (DP1119757)
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1119757)
- RIGHT OF FOOTWAY VARIABLE WIDTH (NO.14) (DP1119757)
- RIGHT OF FOOTWAY VARIABLE WIDTH (NO.19) (DP1119757)
- EASEMENT FOR ACCESS VARIABLE WIDTH (DP1155631)
- RIGHT OF FOOTWAY VARIABLE WIDTH (DP1155631)

Surveyor: PETER W. BURNS Date of Survey: 15.08.17 Surveyor's Ref: 4753 EXEMPTION No.2016M7100(169)ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 874 DP1232149	L.G.A.: SNOWY MONARO REGIONAL THREDBO Locality: ~~KOSCIUSZKO NAT.PARK~~ ~~(THREDBO VILLAGE)~~ Subdivision No: SC 01-05-2018 Lengths are in metres. Reduction Ratio 1: N.T.S.	Registered 14.02.2019	DP1243112

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

AMENDED IN NSW LRS AT THE SURVEYOR'S REQUEST 13.02.2019

PLAN FORM 6 (2012) WARNING: Creasing or folding will lead to rejection

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 14.02.2019

Title System: TORRENS

Purpose: SUBDIVISION

Use Only

DP1243112 S

PLAN OF SUBDIVISION OF LOT 874

DP1232149

LGA: **SNOWY MONARO REGIONAL**

Locality: ~~**KOSCIUSZKO NATIONAL PARK**~~ **THREDBO**

Parish: **KOSCIUSZKO**

County: **WALLACE**

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature: .....

Date: .....

File Number: .....

Office: .....

Subdivision Certificate

I, Daniel James

*Authorised Person/*General Manager/*Accredited Certifier, certify that the provisions of s.109J of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: .....

Accreditation number: .....

Consent Authority: Minister for Planning

Date of endorsement: 15/11/2018

Subdivision Certificate number: SC 01-05-2018

File number: 18/7061

*Strike through if inapplicable.

Survey Certificate

I, PETER WILLIAM BURNS

of P.O. BOX 737 COOMA. NSW 2630

a Surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

*(a) ~~The land shown in the plan was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on....~~

*(b) The land shown in the plan being Lot 875 was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on 15/08/2017, the part not surveyed was compiled in accordance with that Regulation.

*(c) ~~The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2012*.~~

Signature: ..... Dated: 15/08/2017

Surveyor ID: 690

Datum Line: "A –B"

Type: *Urban/*~~Rural~~

The terrain is *~~Level-Undulating~~ / *Steep-Mountainous.

*Strike through if inapplicable.

^Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Statements of intention to dedicate public roads, public reserves and drainage reserves.

Plans used in the preparation of survey/~~compilation~~.

DP1119757 DP1192567 DP1217781 DP1232149

If space is insufficient continue on PLAN FORM 6A

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

Surveyor's Reference: 4753

EXEMPTION NO. 2016M7100(169) ADDITIONAL SHEETS

PLAN FORM 6A (2012) WARNING: Creasing or folding will lead to rejection

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 14.02.2019

Office Use Only

DP1243112

PLAN OF SUBDIVISION OF LOT 874 DP1232149

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Subdivision Certificate number: SC 01-05-2018

Date of Endorsement: 15/11/2018

STREET ADDRESS

Lot No.	Street No.	Street Name	Street Type	Locality
875	NOT AVAILABLE			KOSCIUSZKO NATIONAL PARK (THREDBO)
876	NOT AVAILABLE			KOSCIUSZKO NATIONAL PARK (THREDBO)

MICHAEL PETTITT

FOR AND ON BEHALF OF THE MINISTER ADMINISTERING THE NATIONAL PARKS AND WILDLIFE ACT

WITNESS: K Field

WITNESS NAME: KAREN FIELD
49 KOSCIUSZKO ROAD
JINDABYNE NSW

EXECUTED FOR KOSCIUSZKO THREDBO PTY LTD:
ACN 000 139 015

Gregory Dean
DIRECTOR

David Stone
SECRETARY

If space is insufficient use additional annexure sheet

Surveyor's Reference: 4753 EXEMPTION NO. 2016M7100(169) ADDITIONAL SHEETS

PLAN FORM 6A (2012) WARNING: Creasing or folding will lead to rejection

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 14.02.2019

: Only

DP1243112

PLAN OF SUBDIVISION OF LOT 874
DP1232149

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Subdivision Certificate number: SC 01-05-2018

Date of Endorsement: 15/11/2018

If space is insufficient use additional annexure sheet

Surveyor's Reference: 4753 EXEMPTION NO. 2016M7100(169) ADDITIONAL SHEETS

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 876/1243112

SEARCH DATE	TIME	EDITION NO	DATE
18/4/2022	10:59 AM	1	14/2/2019

LAND

LOT 876 IN DEPOSITED PLAN 1243112
AT THREDBO
LOCAL GOVERNMENT AREA SNOWY MONARO REGIONAL
PARISH OF KOSCIUSZKO COUNTY OF WALLACE
TITLE DIAGRAM DP1243112

FIRST SCHEDULE

THE STATE OF NEW SOUTH WALES

SECOND SCHEDULE (16 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 THE LAND ABOVE DESCRIBED IS RESERVED UNDER THE NATIONAL PARKS AND WILDLIFE ACT 1974 AS A NATIONAL PARK KNOWN AS KOSCIUSZKO NATIONAL PARK, SEE GOVERNMENT GAZETTE DATED 22/9/1967, NO. 103
3 BK 4513 NO 643 LEASE TO KOSCIUSZKO THREDBO PTY LIMITED EXPIRES: 28/6/2057.
4 DP1118419 RIGHT OF FOOTWAY 1.5 METRE(S) WIDE APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
5 DP1118588 RIGHT OF FOOTWAY 1.2 METRE(S) WIDE APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
6 DP1118588 RIGHT OF FOOTWAY 0.6 METRE(S) WIDE APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
7 DP1118588 RIGHT OF FOOTWAY 3.6 METRE(S) WIDE APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
8 DP1118588 RIGHT OF ACCESS 1.5 METRE(S) WIDE AND VARIABLE APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
9 DP1119757 RIGHT OF CARRIAGEWAY 7 METRE(S) WIDE APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
10 DP1119757 RIGHT OF FOOTWAY VARIABLE WIDTH REFERRED TO AND NUMBERED (6) IN THE S.88B INSTRUMENT APPURTENANT TO THE PART(S) OF THE LAND SHOWN SO BENEFITED IN THE TITLE DIAGRAM
11 DP1119757 EASEMENT FOR SKI TRAIL VARIABLE WIDTH APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
12 DP1119757 RIGHT OF ACCESS VARIABLE WIDTH (LIMITED IN STRATUM) APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM
13 DP1119757 RIGHT OF FOOTWAY VARIABLE WIDTH REFERRED TO AND

END OF PAGE 1 - CONTINUED OVER

SECOND SCHEDULE (16 NOTIFICATIONS) (CONTINUED)

NUMBERED (14) IN THE S.88B INSTRUMENT APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM

14 DP1119757 RIGHT OF FOOTWAY VARIABLE WIDTH REFERRED TO AND NUMBERED (19) IN THE S88B INSTRUMENT APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM

15 DP1155631 EASEMENT FOR ACCESS VARIABLE WIDTH APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM

16 DP1155631 RIGHT OF FOOTWAY VARIABLE WIDTH APPURTENANT TO THE PART(S) SHOWN SO BENEFITED IN THE TITLE DIAGRAM

NOTATIONS

THIS LAND MAY BE SUBJECT TO SUBSISTING INTERESTS THAT HAVE NOT BEEN RECORDED. BEFORE DEALING WITH THIS LAND INQUIRIES SHOULD BE MADE WITH NATIONAL PARKS AND WILDLIFE SERVICES

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Annex **G**

NSW SafeWork
Dangerous Goods Records Search Results

James Morrow

From: Licensing <licensing@safework.nsw.gov.au>
Sent: Monday, 16 May 2022 5:13 PM
To: James Morrow
Subject: SafeWork NSW: 00697700 –Site Search application – Result not found [ref:_00D281hl6J._5004a8BFh6:ref]

Security Classification: Sensitive Personal
Please do not amend the subject line of this email

Dear James

Re: Site Search for Schedule 11 Hazardous Chemicals on premises Application – Result not found

I refer to your application for a Site Search for Schedule 11 Hazardous Chemicals on premises for the following site: Thredbo Golf Course - Crackenback Drive Thredbo NSW 2625.

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

If you have any further information or if you have any questions, please use one of the following options, quoting the SafeWork NSW enquiry reference number: 00697700

- Email: licensing@safework.nsw.gov.au
- Phone: 13 10 50

Kind regards

Gabriela Draper

Licensing Representative
SafeWork NSW | Better Regulation Division
Department of Customer Service
p- 13 10 50
e- licensing@safework.nsw.gov.au | www.customerservice.nsw.gov.au
Level 3, 32 Mann Street, Gosford, NSW 2250

ref:_00D281hl6J._5004a8BFh6:ref

Annex **H**

NSW DPE and
NSW NPWS Property Records

James Morrow

From: Daniel James <Daniel.James@planning.nsw.gov.au>
Sent: Wednesday, 11 May 2022 6:40 PM
To: James Morrow
Cc: 'Chloe Chalk'
Subject: RE: Property Records for Thredbo Golf Course

Hi James,

The only information that I have been able to track down in our records is a DA for disc golf which was approved in December 2016 (details in the link below). No contamination issues arose during our assessment of the DA.
https://www.planningportal.nsw.gov.au/development-assessment/state-significant-applications/projects/state-development-applications/da-8053-friday-flat-and-thredbo-golf-course-thredbo-construct-2-x-disc-golf-courses

As previously mentioned, our records only go back as far as 2002. For any historic information prior to then you would need to contact NPWS.

Please let me know if you require any other information.

Regards,

Daniel James
Team Leader
Alpine Resorts Team | Regional Assessments
Key Sites and Regional Assessments | Department of Planning and Environment
T 02 6448 8500 (Office) or 02 6448 8501 (Direct) | **M** 0438 441 671 | **E** daniel.james@planning.nsw.gov.au
Shop 5A, 19 Snowy River Avenue | PO Box 36 | Jindabyne NSW 2627
https://www.planning.nsw.gov.au

NSW GOVERNMENT
Planning and Environment

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders' past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Daniel James
Sent: Tuesday, 3 May 2022 10:41 PM
To: James Morrow <james.morrow@grounddoc.com.au>
Cc: Chloe Chalk <chloe_chalk@evt.com>
Subject: RE: Property Records for Thredbo Golf Course

Hi James,

I am still looking into this one for you. Nothing has turned up yet though.

Our records only go back as far as 2002. I would recommend sending the same notification to Kelsey and Karen at NPWS
kelsey.boreham@environment.nsw.gov.au
Karen.Field@environment.nsw.gov.au

Regards,

Daniel James
Team Leader
Alpine Resorts Team | Regional Assessments
Regions, Industry and Key Sites | Department of Planning, Industry and Environment
T 02 6448 8500 (Office) or 02 6448 8501 (Direct) | **M** 0438 441 671 | **E** daniel.james@planning.nsw.gov.au
Shop 5A, 19 Snowy River Avenue | PO Box 36 | Jindabyne NSW 2627
www.dpie.nsw.gov.au

The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders' past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: James Morrow <james.morrow@grounddoc.com.au>
Sent: Thursday, 14 April 2022 4:35 PM
To: Daniel James <Daniel.James@planning.nsw.gov.au>
Cc: Chloe Chalk <chloe_chalk@evt.com>
Subject: Property Records for Thredbo Golf Course

Hi Daniel,

Ground Doctor Pty ltd (Ground Doctor) has been engaged by Kosciuszko Thredbo Pty Ltd (Thredbo) to conduct a Preliminary Site Investigation (PSI) with some targeted soil sampling of a proposed subdivision within Thredbo Golf Course. The proposed subdivision layout is shown in the attached figure. The subdivision is located within Lot 876 DP 1243112, which is a large lot encompassing most of the open space within Thredbo's lease area.

When conducting a PSI we try to find as much information as possible regarding historical land use of the site and immediate surrounds. This would typically include a search of the relevant Council's archives for records related to a property. Archived information typically relates to historical development or building applications for a given property. Given that NSW Department of Planning and Environment (DPE) is the consent authority for Thredbo it would be most appropriate to request a search of DPE records for any information which may help establish or confirm the suspected history of land within the assessment area. Could you please confirm whether you could conduct a search of this nature, or provide a summary of any information you hold for the property? Could you please advise me of any costs associated with a search of this nature?

We would also typically obtain a copy of the Section 10.7 Certificate, as these typically outline whether the consent authority is aware of any contamination issues on the subject land. Are you able to provide a certificate or alternatively, provide written information regarding knowledge of potentially contaminating activities within the assessment area and/or any knowledge of contamination issues that may be or have been regulated by the NSW EPA under the provisions of the Contaminated Land Management Act 1997? A copy of a typical statement made on a Section 10.7 Certificate is as follows:

Note: *The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate.*

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act-if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued.	*None apply*
(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act-if it is subject to such an order at the date when the certificate is issued.	*None apply*
(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act-if it is the subject of such an approved proposal at the date when the certificate is issued.	*None apply*
(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act-if it is subject to such an order at the date when the certificate is issued.	*None apply*
(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act-if a copy of such a statement has been provided at any time to the local authority issuing the certificate.	*None apply*

Contaminated Land
Council's records indicate that a past use of the site may have resulted in the contamination of part or all of the site, which may restrict future development of the site. Consideration of relevant provision under relevant State legislation is warranted.

The work is being managed by Chloe Chalk (Thredbo) and I have copied Chloe into this email. Chloe can confirm we have permission to access any information relevant to the assessment if required.

If you require any further information please call me on 0407 875 302.

Kind Regards,
James Morrow
Environmental Engineer (Hydrogeologist)
Certified Environmental Practitioner No.: 1194
Site Contamination Specialist No.: SC41087

Ground Doctor Pty Ltd

Ground Doctor Pty Ltd

22 Tamworth Street
PO Box 6278
DUBBO NSW 2830

Ph: 0407 875 302
www.grounddoc.com.au

15A/33

GOLF COURSE

OLD FILE No. 7711

NEW 04/1120

FILE No.	NAME OR SUBJECT	ADDRESS	Date
			From ____ 19
			To ____ 19
			Reference ____

KOSCIUSKO THRSDAO PL

KOSCIUSKO NATIONAL PARK.

BUILDING PERMIT.

Permission is hereby granted to commence site preparation and building construction on the following site:

SURVEY PORTION NO. GOLF COURSE

LOCATION THREDBO STAGE —

BUILDER KOSCIUSKO THREDBO P/L

LESSEE OR SUB-LESSEE AS ABOVE

NATURE OF WORK GOLF COURSE CLUB HOUSE

LETTER OF APPROVAL 1/12/77

PLANS APPROVED K.N.P. 1/12/77

PLANS APPROVED BY SNOWY RIVER SHIRE

BUILDING FEE ($ 30) PAID 29/11/77

PERFORMANCE BOND ($ NIL) LODGED N/A (SEE LIST)

Prior to commencement, this Permit must be endorsed by an Authorised Kosciusko National Park Officer, who may impose special conditions applicable to individual sites.

Permit Officer

Date 1/12/77

SPECIAL CONDITIONS.

SNOWY RIVER SHIRE APPROVAL REQUIRED

Site Inspected by
(Authorised Officer, K.N.P.)

Date 1/12/77

Kosciusko Thredbo Pty. Limited

Thredbo Alpine Village, N.S.W. 2627. Phone: Thredbo 76333 Area Code 0648

159/83

25th November, 1977.

The Superintendant,
Kosciusko National Park,
Private Mail Bag,
via COOMA.

RECEIVED
29 NOV 1977
KOSCIUSKO NATIONAL PARK

Attention Mr. W. A. Daggar.

Dear Sir,

Re: RESITED TICKET OFFICE FOR THREDBO GOLF COURSE.

The company accepts responsibility for construction, management and maintainance of this building which will be resited on the area between the southern corner of the tennis courts and the putting green as discussed on site with yourself on the 24th of October, 1977.

It is proposed that the verandahs will be 1.80 m deep with the roof extensions being supported by 200 x 75 beams and 125 x 125 posts. Rafters shall be 100 x 50 with facias at 200 x 25. The building will be repainted to match the timber corners of the tennis courts.

Attached is our cheque for $30.00 in payment of the building fee.

Yours faithfully,
KOSCIUSKO THREDBO PTY.LTD.,

J. B. Chappell

J. B. CHAPPELL,
MANAGER.

DATE 29.11.77
AMT. 30.00
R/No. 40844
INIT. L Shaw

Mr Daggar 1/12/77

23rd November, 77

WAD/mrp 15A/33

Mr. W.A. Dagger,
Clerk of Works.

Mr. J. Chappell,
Village Manager,
Kosciusko Thredbo Pty Ltd
Thredbo Alpine Village
via JINDABYNE N.S.W. 2627

Dear Sir,

I wish to confirm approval in principle for the re siting and re-construction of the old ski school ticket office for the Thredbo Golf Club House, adjacent the tennis courts, in accordance with drawing 53093:SK7 and conditions as follows:

1. Standard Park Building Conditions.
(Your building fee is $30.00 Sundry Debtor Note No 14985 attached)

2. Special Conditions.

(a) The Kosciusko Thredbo Company must accept responsibility for construction, management and maintenance of the building because "Resident Members" are not a legal entity capable of taking up a sub-lease.

(b) The Company shall confirm the acceptance of 2a above in writing and advise dimensions of the following:

Depth of proposed verandahs.
Dimensions of posts, beams, rafters, fascias etc.

(c) The 50ft Thredbo River limitation shall be maintained and the building re sited accordingly.

(d) Building work shall be completed and the site revegetated before the 31-5-78.

Yours faithfully,

for J. Robson,
Superintendent
KOSCIUSKO DISTRICT

c.c.
The Director,
Attention: Mr. A. Bielschowsky.

c.c.
Senior Ranger,
Thredbo Sub District.

c.c.
Mr. D. McCarthy
Snowy River Shire Council,
Myack Street
BERRIDALE N.S.W. 2628

17 MAR 1977

9.00 AM.

~~15A/1~~.

15A/33

KOSCI AA61030

NAPAW AA26034

17.3.77 9.00AM

NP 3167.

CAHILL

YOUR 15A/1 RE GOLF COURSE OFFICE.

UNDERSTAND SOME CHANGED USE INVOLVED AND NOW TO BE PARTLY USED AS CLUB HOUSE.

COMPANY MUST CONTINUE TO ACCEPT RESPONSIBILITY FOR MANAGEMENT AND MAINTENANCE SINCE 'RESIDENT MEMBERS' NOT LEGAL ENTITY CAPABLE OF TAKING SUBLEASE.

IF SO PROPOSITION UNOBJECTIONABLE.

SEE ALSO TECH SERVICES MEMO OF 14TH MARCH.

NEARY.....

KOSCI AA61030

P.6250
AB:ST
TECH. SERVICES.

Proposed Golf Course Club House, Thredbo.

On 11th November, 1976, the Park Clerk of Works and I discussed a possible relocation of the existing ski school ticket office on site with the Village Manager Jim Chappell.

The resident members of the Thredbo golf club wish to re-use this (now superfluous) little building as a mini-club-house plus store and ticket office and also wish to add verandahs to both eaves.

During the site inspection I could see no real objections to the relocation to the site shown of this perfectly good little building. The Village Manager has been advised that approval will depend on the appearance of the building once the verandahs had been added and where the building shall be re-erected.

The attached drawing 53093:SK7 is considered satisfactory for an approval in principle.

For a building permit, the lessee shall supply ~~discussions~~ mch for the depth of the proposed verandahs and for all new timbers, such as posts, beams, fascias, exposed rafters, etc.

If the company and/or the golf club are in a hurry to relocate the building before winter, the dimensions mch can be added to drawing 53093:SK7 or can be specified in a covering letter.

The matter must of course be cleared by Concessions and Leasing section.

H. Bielschowsky

H. Bielschowsky,
Architect - Technical Services.

14th March, 1977.

1. ~~H.T.S.~~
2. ~~O.I.C. C.&.L.~~

c.c. The Superintendent,
KOSCIUSKO DISTRICT.

Attention: Mr. W. A. Dagger.

RECEIVED
18 MAR 1977
KOSCIUSKO NATIONAL PARK

mr smith
mr Dagger 21/3. BUILDING FEE $30-
MR CAHILL PLEASE PREPARE & SEND LETTER OF APPROVAL IN PRINCIPAL IN STANDARD MANNER

Kosciusko National Park.

WAD/mrp 15A/1

7th March, 1977.

SUBJECT:- Proposed Building Works - Valley Terminal Area - Thredbo Village.

Enclosed please find two copies of drawings 53093 SK6, SK7 and SK8 from the Kosciusko Thredbo Company and a photocopy of their letter of intent.

The drawings cover the upgrading of the ski school ticket office, golf course club house and a proposed ski race office.

Please review the plans architecturally and administratively and advise of approval.

for J.A. Erskine,
Superintendent
KOSCIUSKO DISTRICT

The Director.
Attention: Messrs Neary and Bielschowsky.

c.c.
File 15A/5(15)

c.c.
File 15A/33

Kosciusko Thredbo Pty. Limited

Thredbo Alpine Village, N.S.W. 2627 □ Phone: Thredbo 441 Telex 61089

T5

January 4, 1971.

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA....2630

Attention: Mr. J. Govan

Dear Sir,

Please find enclosed, sketches of signs proposed for a bridle-path and a walking path on the Golf Course and in the Village.

These signs are to be routed and stained in accordance with your standard layout, on a background of 5" wide by 3'6" long by 1" thick boards.

The letter sizes are shown, but the two insignia - i.e. the triangle and the square, should be block routed and painted red and blue respectively.

It would be appreciated if you could confirm a completion date for this work. We enclose herewith our official order.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LTD.

J. D. Drayton,
VILLAGE MANAGER.

Original on 154/25

Kosciusko Thredbo Pty. Limited

Thredbo Alpine Village NSW 2627 ◻ Phone Thredbo 441 Telex 61089

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January 4, 1971.

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA...2630

Attention: Mr. J. Quoos

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Yours faithfully,
KOSCIUSKO THREDBO PTY. LTD.

J. D. Drayton,
VILLAGE MANAGER.

Location of Thredbo Alpine Village — in the Kosciusko National Park — Old Thredbo area 2.0210 Portland 6.1091 Melbourne

PLEASE CONSTRUCT THE FOLLOWING SIGNS:

lettering	Number
TENNIS COUR$S	1 only
TENNIS COURTS	1 only
GOLF COURSE WALK	2 only (on both signs)
VALLEY TERMINAL	1 only
THYNE REID'S PATH	2 only (on one sign only)
DEAD HORSE GAP BRIDLE PATH	1 only

ALL ABOVE SIGNS ON 5" WIDE x 3'6" LONG BOARDS, 1" THICK,

WITH 2" WHITE ROUTED LETTERS.

THE FOLLOWING NOTICES TO BE MADE, HAVING 1" ROUTED WHITE LETTERS, WITH 1" SPACING.

BOARD SIZE TO BE 3'0" LONG BY WHATEVER WIDTH NECESSARY.

Follow markers. This path is about 1½ miles and finishes at the Valley Terminal or here	1 only
Follow markers This path is ½ mile and finishes at the Valley Terminal	1 only
Partly constructed Continues for 1 mile Return along same path/	1 only

ORDER FROM —

KOSCIUSKO THREDBO Pty. Limited

THREDBO INTERNATIONAL VILLAGE
N.S.W., 2627
Tel.: Thredbo 441

39th LEVEL, AUSTRALIA SQUARE
SYDNEY, 2000
Tel.: 20572

1 2 1972

M The N P W S
Sawpit Ck

Please supply per ..... Marked ..... Terms .....
the following:

Signs as detailed on
the attached sheet

for Kosciusko Thredbo Pty. Limited

No 11497

NUMBER OF ORDER MUST BE QUOTED ON INVOICE

19th October, 71.

JCC:JIT 15A/33

Mr. Govan
Your Ref: T5

Mr. D. Drayton,
Village Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

Dear Mr. Drayton,

Re: Maintenance Shed - Golf Course

I write to confirm approval for the addition of a toilet and hand basin for the use of staff only in the Maintenance Shed on the Golf Course.

This approval is issued subject to you obtaining the approval of the Snowy River Shire Council for the proposed trench and septic tank and to your completion of revegetation of any disturbed ground associated with the project before February, 1972. Revegetation must of course be in accordance with methods acceptable to the Superintendent.

The Ranger-in-Charge of Thredbo district will be pleased to discuss the project with you at a convenient time.

This approval also covers your proposed new nursery area.

Yours faithfully,

dcal

F. S. Neary,
Acting Superintendent.

c.c. Mr. R. A. Jones.

c.c. Ranger Robson.

R/S 24/11/71

No action necessary unless requested by Mr Robson.

File please

Kosciusko Thredbo Pty. Limited

Thredbo Alpine Village, N.S.W. 2627 □ Phone: Thredbo 441 Telex 61089

15.9/33

T5

October 11, 1971

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA.....2630

Attention: Mr. J. Govan

Dear Sir,

RE: IMPROVEMENTS TO GOLF COURSE SHED

The company intends to instal a toilet and handbasin in the golf course shed for the use of workmen on the course. Because this area is too low to be connected to our sewerage system, it is proposed to instal a 500 gallon septic tank and soakage trench. The normal workforce for the golf course is 3 men, and this system will be quite adequate for this purpose.

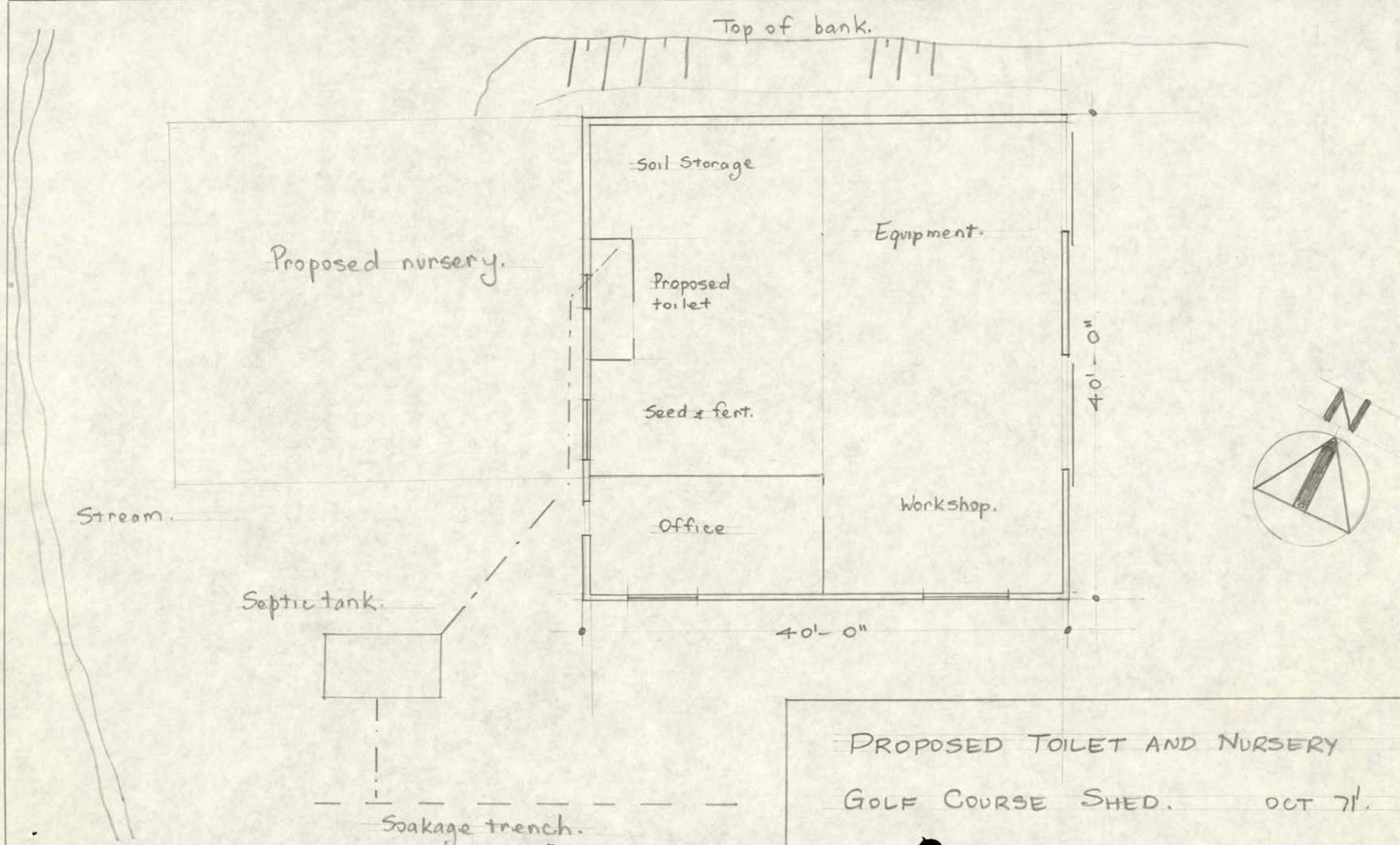
The nursery which was used last year will now be used as a putting green and it is proposed to construct a new nursery on the southern side of the golf course shed.

Please find enclosed, a sketch of the outlined work, and we hope to hear your comments shortly.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

J. D. Drayton,
VILLAGE MANAGER.

Mr Govan



PROPOSED TOILET AND NURSERY

GOLF COURSE SHED. OCT 71'.

15A/33.

To; Superintendent.

Attention: J. Goven.

Subject: Thredbo Golf Course Maintenance; and proposed new work.

---

1. Clearing Rough:

Work is being carried out, under the approval granted 13/1/71. Attached for your information is a copy of the contract, under which, Mr. O. Kucharski is carring out this work.
Rock collected, is to be used in the following:

(a) Culvert pipe heads on access road, approved 28/4/71.
(b) Retaining walls in village.
(c) Retaining walls around tees on golf course.
(d) Stored for future use.

2. Kosciusko Thredbo Pty. Ltd. will be applying, to carry out the following work.

(a) Indoor toilet, golf course maintenance building, conected to a septic tank.
(b) Nursery area, for grasses used on the golf course.

Comments.

(1) Site inspections of the above proposals' have been carried out.
(2) The proposal's are satisfactory, to park requirements.
(3) The toilet and septic tank requires inspection and approval by the health inspector also.

J. W. Trudgeon
Acting District Ranger.
Thredbo
4/10/71.

MW Goven 7/10.

No action necessary until applications received from K.T. for approvals for proposed works
R/S Nov 7.

SPECIFICATION

CONTRACT FOR CLEARING ROUGH

THREDBO GOLF COURSE

The following areas to be cleaned as specified:

A. SCRUB VIRGIN

Cut all material to within 2" of ground surface, rake and remove all cut material including dead timber, and dump as directed. This includes trimming to rock outcrops as directed.

TOTAL AREA - 520 SQUARES

B. SCRUB - CHAIN SLASHED - Clear as above

TOTAL AREA 172 SQUARES

C. ROCKS AND DEAD TREES

Clear all loose rocks and dead timber from the above areas including dead trees and rock piles specified outside these areas. Clear unless specified elsewhere all rocks within a 10' margin of all fairways.

K.T. to blast loose rocks which cannot be man-handled.

Contractor allowed use of 6x6 and loader for this work.

Unless specified otherwise, rocks to be loaded on 6x6.

GENERAL CONDITIONS:

1. Worked to be commenced by 1st September, and carried our on a continuous basis and to be completed before 31st October (weather permitting).

2. Penalty $50/day for not reporting to L. Spellman during term of contract if for any reason work cannot proceed on that day.

3. Contractor to supply evidence of Workers' Compensation cover.

4. All work to be to the satisfaction of Mr. L. Spellman.

5. Contractor is responsible for damage of K.T. equipment which is used.

THIS WORK IS TO BE CARRIED OUT FOR THE SUM OF $.....

and in accordance with the above specification.

....

CONTRACTOR for KOSCIUSKO THREDBO PTY. LTD.

....

DATE WITNESS

PALMERS.

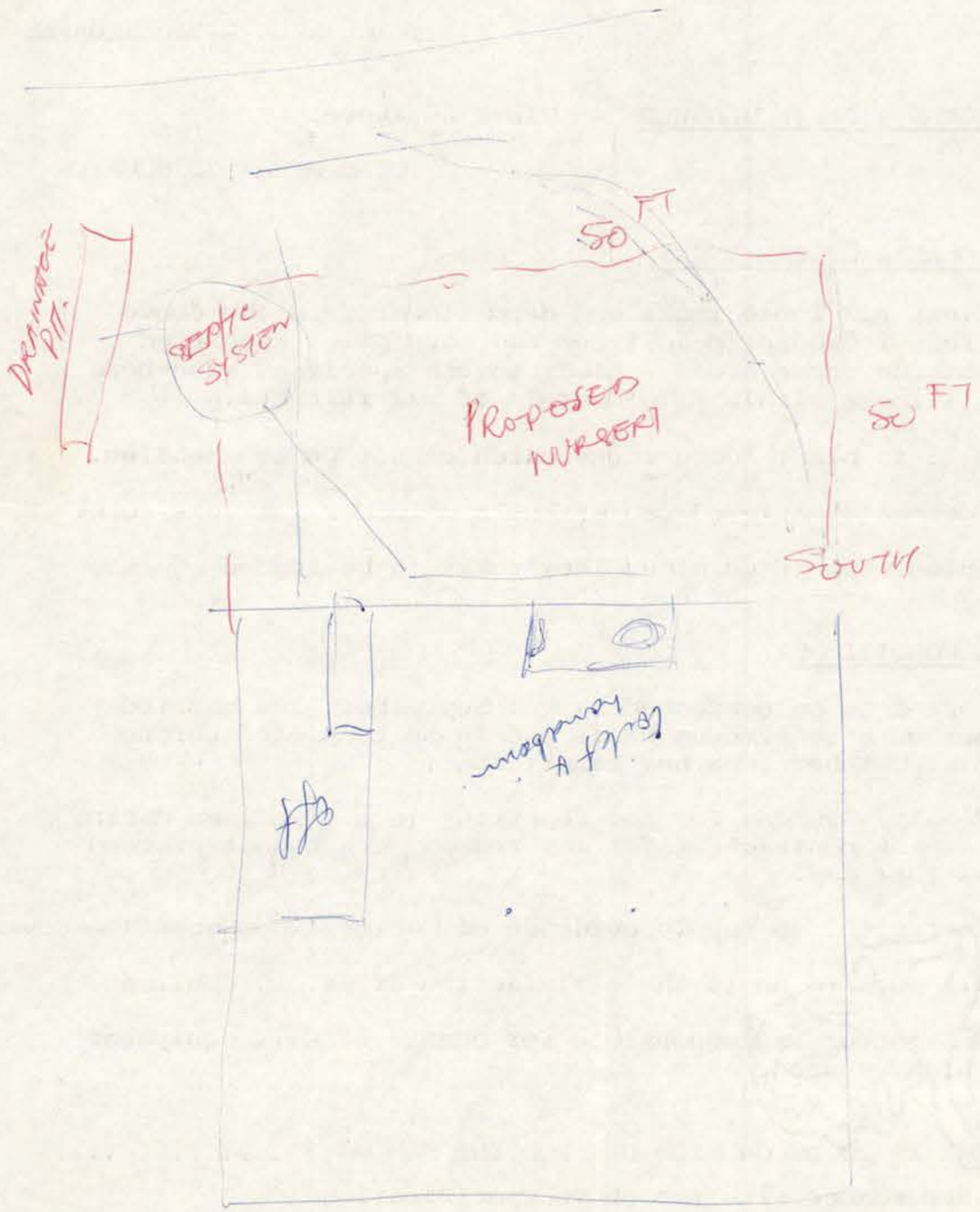
ROCK

(I) CULVERT PIPES

(II) RETAINING WALLS IN VILLAGE —— (I) PALMERS.

(III) STORE.

(INDOOR TOILET MAINTENANCE BUILDING
(SEPTIC TANK



28th June, 71.

JCC:JIT 15A/33

The Village Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

Mr. Govan

Dear Sir,

Re: Golf Course

I write to confirm approval to construct a new access track on the Golf Course as discussed on site with Ranger Robson recently.

The track, as marked on your plan, is to start from the bridge over the Thredbo River and run up the right bank of the creek to the Maintenance Shed and then across to join the existing track below No. 8 Green.

Existing tracks N.E. of No. 4 Tee are to be revegetated.

Two rock retaining walls and two culvert pipes are to be installed as discussed with Ranger Robson and specifications for these should be to his satisfaction.

Your general co-operation and liaison with Ranger Robson in this project is appreciated.

Yours faithfully,

M. R. Jarrett,
Acting Superintendent.

c.c. Ranger Robson.

R/S 24/7/71

No further action necessary unless requested by Mr Robson

File please.
JG 27/7/71

154/33

65

THREDBO RANGER STN.
28-4-71

TO SUPERINTENDENT
MR. M. JARRETT.
ATTENTION MR. J. GOVAN.
SUBJECT:- GOLF COURSE DEVELOPMENT T.V.

ENCLOSED MAP INDICATES A PROPOSED ACCESS ROAD FROM ENTRANCE POINT OF GOLF COURSE TO THE MAINTENANCE BUILDING AND ACROSS TO A POINT ADJACENT TO GREEN No 8. THE SECTION OF ROAD UP TO THE MAINT^N. BUILDING WILL BE PERMANENT AND WILL ELIMINATE THE PRESENT TEMPORARY ACCESS ROADS EAST OF TEE No 4. [THIS SECTION OF THE TEMPORARY ROAD WORKS WILL BE RE SEEDED & FORM PART OF THE FAIRWAYS]

A DETAILED INSPECTION WOULD INDICATE THAT TWO SMALL ROCK RETAINING WALLS (AS INDICATED) SHOULD BE CONSTRUCTED AND IT WILL ALSO BE NECESSARY TO INSTALL TWO CONCRETE PIPES (AS INDICATED) TO CARRY SURFACE WATER WHICH FLOWS IN THESE AREAS.

THIS ACCESS RD TO THE BUILDING (AS A PERMANENT RD) IS WELL LOCATED.

J. ROBSON
D/R THREDBO

M Govan 5/5/71.

3rd February, 71.

15A/33. JG:CL.

Mr. Govan.

The Village Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
VIA COOMA. 2630.

Dear Sir,

Golf Course.

I would confirm verbal approval for the widening of fairways on the golf course as requested in your letter of 19th January, 1971.

The areas to be cleared are as discussed with Ranger Robson, who will call at your Office shortly and mark the approximate boundaries of these areas on your Golf Course Plan.

Yours faithfully,

M. R. JARRETT,
ACTING SUPERINTENDENT.

c.c. Ranger Robson - Please return this Drawing when you find your copy.

R/d 5/2/71 OK 9/2

15A/33

Kosciusko Thredbo Pty. Limited

THREDBO INTERNATIONAL VILLAGE, N.S.W. 2627 ■ PHONE: THREDBO VILLAGE 441

02-(2)

January 19, 1971.

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA.....2630

Dear Sir,

RE: GOLF COURSE GROOMING

The grooming of areas adjacent to the fairways is now necessary to a larger extent than was originally approved.

The original approval permitted the cutting of a 15' wide strip of rough adjacent to each fairway by mowing the natural vegetation to approximately 6" high and oversowing and fertilising.

The District Ranger has inspected the areas in which this work would be carried out, with our Greenkeeper. The work will be done with a "Tritter" slashing machine which the Service has approved for similar trail grooming operations on the mountain. Where it is not possible to use this machine, hand grooming will be carried out using scrub cutters. The slashed material will be carted away and used for mulching elsewhere.

Your early consideration of this proposal would be appreciated.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

J. D. Drayton,
VILLAGE MANAGER.

RECEIVED 22 JAN 1971 KOSCIUSKO NATIONAL PARK

LETTER ACKNOWLEDGED
DATE 22-1-71
KOSCIUSKO NATIONAL PARK

4th January, 71.

15A/33. JG:CL.

Mr. Govan.

The Area Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
VIA COOMA. 2630.

Attention Mr. Drayton.

Dear Sir,

Golf Course Development - Your Reference 02-(2).

I refer to your recent application for approval to construct access roads on the Golf Course.

Following an inspection last week by Ranger Robson, I am now able to confirm approval for the tracks marked in Blue on the attached drawing by Green and Knight, Golf Course Architects.

The maintenance of these tracks is to be of a standard satisfactory to the Superintendent and traffic should be kept to a minimum.

It is understood that the two sections marked 'Proposed Access Road' not coloured blue on the drawing are not required at this stage of development. I would be happy to consider these sections at a later date if necessary.

Two copies of the Approved Drawings are enclosed.

Yours faithfully,

M. R. JARRETT,
ACTING SUPERINTENDENT.

cc Ranger Robson DR 12/1/71

57

THREDBO RANGER
STATION
18·12·70
FILE # 15A/33

TO SUPERINTENDENT
MR. M. JARRETT

ATTENTION :- MR. J. GOUAN

SUBJECT :- GOLF COURSE DEVELOPMENT.

FURTHER TO N.P.W.S. LETTER DATED 26TH OCT 70 AN INSPECTION WAS CARRIED OUT OF THE GOLF COURSE AREA IN RELATION TO ACCESS ROADS.

THE ENCLOSED MAP INDICATES IN BLUE BROKEN LINE THE DESIRED ROAD SYSTEM AT THIS STAGE OF THE DEVELOPMENT WORK. MOST OF THE INITIAL ACCESS ROADS HAVE BEEN REVEGETATED AND IN MOST CASES FORM THE EDGE OF FAIRWAYS.

THE MAP ALSO HAS DRAWN ON IT TWO PROPOSED ACCESS ROADS - ONE NEAR GREEN #6 THE OTHER NEAR GREEN #7. THERE HAS BEEN NO REQUEST FOR APPROVAL FOR THEIR

Plan Registered

CONSTRUCTION AT THIS STAGE AND IT MAY BE POSSIBLE THAT THEY WILL NOT BE CONSTRUCTED IN THE FUTURE.

AS THE GOLF COURSE APPROACHES COMPLETION THESE ACCESS ROADS WILL BE DEMINISHED AND WILL FORM PART OF THE FAIRWAYS.

THE PROPOSED ROAD SYSTEM SHOULD BE MOST EFFECTIVE AT THIS STAGE OF DEVELOPMENT.

J. ROBSON
D/R THREDBO.

11th November, 70.

154/33. JG:CL.
~~154/32~~.

Mr. Govan.

The Area Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
VIA COOMA. 2630.

Dear Sir,

Golf Course Development.

Maintenance Area:

Further to our letter of 26th October, I am now able to confirm approval for the erection of the Maintenance Shed as shown on Drawing No. 8101/3 providing that the following amendments are included:-

1. Local granite foundations are to be incorporated in the building to a minimum height of 1'6" around its perimeter.

2. External walls are to be of 6" x 1" vertical weather boards with 2" x 1" battens over joins. All to be treated with a timber stain of approved colour.

Three copies of the approved Drawing 8101/3 are enclosed.

For the purpose of assessing a Building Fee for this Maintenance Area and Shed a cost estimation of $5,000 has been adopted, resulting in a Fee of $50.00.

Tennis Court:

A cost estimate of $12,000 has been adopted for the Courts approved in our letter of 26th October, resulting in an Engineering Fee of $120.00.

A Sundry Debtor Note is enclosed for $170.00 covering both the above projects.

Yours faithfully,

M. R. JARRETT,
ACTING SUPERINTENDENT.

c.c. The Director, Attention Mr. Loder.

Ranger Robson - Please report on 'Access Roads' referred to in our letter to Kosciusko Thredbo of 26th October.

R/S: 5/12/70
JG

Kosciusko Thredbo Pty. Limited

THREDBO INTERNATIONAL VILLAGE, N.S.W. 2627 ■ PHONE: THREDBO VILLAGE 441

November 9, 1970 02-(2)

The Superintendent,
National Parks and Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA.....2630

Dear Sir,

RE: GOLF COURSE DEVELOPMENT (Your reference 15A/33).

From your letter of 26th October 1970, and discussions with Mr. J. Govan, I understand that the National Parks and Wildlife Service will not approve the use of asbestos linings for our maintenance shed. Mr. Govan intimated that the use of timber boarding and stonework to each elevation would be an acceptable alternative.

We feel that the conditions imposed are unreasonable - but owing to the urgency of the work, we seek approval on the following basis:

1. All external linings to be timber, excepting sliding doors which would be galvanised iron sheeting, painted to match the timberwork.

2. 18" high stone facing to all elevations - 6" thick - incorporating a loose-packed stone gutter to eliminate erosion from roof water run-off.

Your early consideration of this work would be appreciated.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

J. D. Drayton,
VILLAGE MANAGER.

Mr Govan.

LETTER ACKNOWLEDGED
DATE 11-11-70
KOSCIUSKO NATIONAL PARK

KOSCIUSKO NATIONAL PARK
11 NOV 1970
RECEIVED

26th October 70.

The Area Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

JCH:JTT 154/33

Mr. Govan

Dear Sir,

Re: Golf Course Development

I write in relation to your letter of 9th September, 1970.

Item 1 - Tennis Courts (Drawings Nos. 8101/1 and 335/472):

This proposal is approved with a condition that the creek diversion work is to be carried out to the satisfaction of the Ranger-in-Charge of the District, Ranger Robson.

The project is to be discussed on site with him and any added conditions he thinks necessary are to be considered part of this approval.

Three copies of approved Drawings No. 8101 and 335/472 are enclosed.

Item 2 - Maintenance Area (8101/3):

Levelling of the site is approved, but the proposed design for the Maintenance Shed is not acceptable at this stage.

It is considered that this building, being of a permanent nature, should be more in keeping with the Building Code.

Would you please submit an amended design showing stone-work and timber cladding as discussed with Ranger Govan.

The Plant Nursery and Soil Storage Area are approved as on Plan.

Ranger Robson should be consulted in relation to the use of machinery for levelling work and he may impose conditions on site.

Item 3 - Access Roads:

Due to absence of Ranger Robson over the past week, I have not been able to get a local report on your Access Road proposal and consequently am not able to confirm approval at the moment.

I am not aware of any difficulties in relation to the construction and maintenance of the track, but will confirm approval (or otherwise) immediately upon the return of Ranger Robson.

Yours faithfully,

R/S 6.11.70.

M. R. Jarrett,
Acting Superintendent.

c.c. The Director.

c.c. Ranger Robson.

NATIONAL PARKS AND WILDLIFE SERVICE

KOSCIUSKO NATIONAL PARK.

Tennis Court & Maintenance Shed at Thredbo.

P/422
BDL:MG

Detail drawings of the above proposals, submitted on behalf of Kosciusko Thredbo Pty. Ltd., were examined by the Advisory Committee of Architects at the meeting on 12th October 1970.

Its findings were

1. that the design and siting of tennis courts be approved,

2. that the design of the maintenance shed be not approved in its present form.

It further recommended that the Company be advised that a similar structure proposed by the N.P.W.S. Planning/Design Section for a helicopter hangar had been rejected and design amendments required to comply with the intent of the Building Code. It recommended that a copy of the amended design be submitted to the Company for their information.

Copy of preliminary working drawing enclosed.

D.F. McMICHAEL.
Director.

per

16th October 1970.

The Superintendent,
KOSCIUSKO NATIONAL PARK.

19/10/70

M 6161

29th September, 70.

15A/33. JG:CL.

Mr. Govan.

Messrs. Brewster, Murray & Partners Pty. Ltd.,
165 Walker Street,
NORTH SYDNEY. 2060.

Attention Mr. R. A. Jones.

Dear Sir,

Thredbo - Tennis Court and Maintenance Area.

Under separate cover I have forwarded drawings as listed in attached letter, showing details of a proposed Maintenance Shed and Tennis Courts.

Would you please submit your report on the architectural aspects of these proposals.

Yours faithfully,

N. C. CARE,
SUPERINTENDENT.

c.c. The Director. (Attention Mr. Loder). Copy of Drawings under separate cover.

RJS 10/10/70

JG

15A/32 033

Kosciusko Thredbo Pty. Limited

THREDBO INTERNATIONAL VILLAGE, N.S.W. 2627 ■ PHONE: THREDBO VILLAGE 441

File 03-(2)
DD/jh

9th September, 1970

The Superintendent
Mr. N.C. Gare
National Parks and
Wildlife Service
Private Bag
VIA COOMA

Dear Sir,

The Company now seeks approval for the following works to be carried out during Summer on the Thredbo Golf Course -

1. Tennis Courts (Drawing Nos. 8101/1 and 335/472)

The two double courts are to be located near the entrance to the Golf course approx. 50' S-W of the Western abuttment on the entrance bridge. The court surface is to be of laykold construction placed on two feet of consolidated fill.

The two courts will be located in an area 100' x 120' and enclosed by a screen. Particular attention has been paid to the screening detail to ensure that it is not unsightly.

Each corner of the enclosure will be constructed in timber boarding which will incorporate gates and benches. The infills between these corners will be in plastic coated wire mesh supported on timber posts and straining wires (refer to detail sheet).

It will be necessary to divert the small creek running past this area and it is intended to do this initially in the construction programme and then landscape and lower the creek bed. Once the relocation of the creek has been carried out the diversion canal will be backfilled and the area bulldozed to levels indicated.

2. Maintenance Area (8101/3)

It is proposed to locate this area behind the 9th green approx. 1000' from the entrance bridge to the course.

COPY ON 15A/321

This area was selected after serious consideration because, although it is located relatively close to the main access to the course it is shielded from view from Friday Drive and nearly all portions on the course.

The maintenance area will require a levelled site approx. 80' x 64'. This area will incorporate a plant nursery, soil storage area and maintenance shed.

The maintenance shed will be 40' square with a steel supporting frame, cladd with shadowline asbestos sheeting on walls and galv. decking roof. The floor will be 4" reinforced concrete with two steel sliding doors and aluminium windows.

The walls will be stained to a natural timber colour.

3. Access Roads

To facilitate easy access to all parts of the course without having to drive over fairways continually, especially to gain access to greens and fairways No 2, 3, 5, 6 & 7, it is proposed to construct a track from the maintenance shed to the borrow pit area. To complete this route a shorter track will be required from the 7th fairway to the 5th fairway. It is intended to construct these tracks using rocks cleaned from the fairways and as there are many tons to be removed each year it would solve the problem of disposing of the rocks.

The Thredbo Golf Course main sheet has been updated to incorporate these proposals and any other relevant information.

Find enclosed the following drawings -

- Tennis Courts - 7 copies - 8101/1 and 335/472
- Maintenance Shed - 7 copies - 8101/3
- Thredbo Golf Course Layout - 7 copies

Your early consideration of the above proposals would be appreciated as it is anticipated that construction (if approval is granted) will commence in October, 1970.

Yours faithfully
Kosciusko Thredbo P/Ltd.

D. Drayton
Village Manager

No gowar 29/9/70

2/...

This area was selected after serious consideration because, although it is located relatively close to the main access to the course it is shielded from view from Priddy Drive and nearly all portions on the course.

The maintenance area will require a levelled site approx. 80' x 60'. This area will incorporate a plant nursery, soil storage area and maintenance shed.

The maintenance shed will be 40' square with a steel supporting frame, clad with sheeting on walls and gable roof. The floor will be 4" reinforced concrete with two steel sliding doors and aluminium windows.

The walls will be stained to a natural timber colour.

3. Access Roads

To facilitate easy access to all parts of the course without having to drive over fairways continually, especially to gain access to greens and fairways No 2, 3, 5, 6 & 7, it is proposed to construct a track from the maintenance shed to the borrow pit area. To complete this route a shorter track will be required from the 7th fairway to the 8th fairway. It is intended to construct these tracks using rocks cleaned from the fairways and as there are many tons to be removed each year it would solve the problem of disposing of the rocks.

The Thredbo Golf Course main sheet has been updated to incorporate these proposals and any other relevant information.

Find enclosed the following drawings -

. Tennis Courts - 7 copies - 810\1 and 335\472
. Maintenance Shed - 7 copies - 810\3
. Thredbo Golf Course Layout - 7 copies

Your early consideration of the above proposals would be appreciated as it is anticipated that construction (if approved) will commence in October, 1970.

Yours faithfully
Kosciusko Thredbo P/Ltd.

D. Drayton
Village Manager

MEMORANDUM

FROM

TO

DATE

St 1575

Equipment Building - Golf Course

5/5/70

Daryl Drayton was advised today by telephone that ~~be~~ copies of Plans etc. must be submitted before application can be processed.

J. G. Lowman
5/5/70

2 copies of Plan to be forwarded to Ray Jones when received.

J. G. 6/5/70

THREDBO RANGER
STATION
29·4·70

TO SUPERINTENDENT
MR·N·C·GARE

ATTENTION MR·F NEARY

SUBJECT:- GOLF COURSE MAINTENANCE AREA BUILDING.

WITH REFERENCE TO N·P·W·S LETTER (24TH JULY 69 FILE 15A/33) APPROVAL WAS GIVEN FOR THE ERECTION OF A TEMPORARY TYPE STRUCTURE WITHIN THE GOLF COURSE AREA.

KOSCIUSKO THREDBO PTY LTD WILL BE REQUESTING APPROVAL FOR PERMISSION TO ERECT A PERMANENT BUILDING FOR MAINTENANCE AND FOR HOUSING GOLF COURSE MACHINERY. AS THE EXISTING TEMPORARY SITE IS IN FULL VIEW OF THE VILLAGE IT WOULD NOT BE DESIRABLE TO ERECT A PERMANENT STRUCTURE ON THIS SITE BECAUSE OF THE FOLLOWING

① BUILDING WOULD HAVE TO BE SCREENED FROM VIEW.

(2) MAINTENANCE WORK ON MACHINES WOULD BE IN VIEW OF THE PUBLIC

(3) SCREENING OF SOIL - TOP DRESSING FOR GREENS AND FAIRWAYS WOULD ALSO BE IN VIEW OF THE PUBLIC.

AN ALTERNATIVE SITE HAS BEEN INSPECTED. THIS SITE IS APPROX. 150 FT NORTH EAST OF THE NINTH GREEN. THE AREA WOULD BE SUITABLE FOR A BUILDING OF THE PROPOSED SIZE AND IN ADDITION IS OUT OF SIGHT FROM THE VILLAGE AREA.

THE SITE IS CLOSER TO THE EXISTING SOIL 'BORROW' PIT AND WOULD RESULT IS LESS HANDLING OF TOP DRESSING MATERIAL.

PLANS FOR THE PROPOSED BUILDING WILL BE SUBMITTED BY KOSCIUSKO THREDBO IN THE IMMEDIATE FUTURE.

J. Rolton
D/R THREDBO.

Kosciusko Thredbo Pty. Limited

THREDBO INTERNATIONAL VILLAGE, N.S.W. 2627 ■ PHONE: THREDBO VILLAGE 441

02-1

April 3, 1970

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA.....2630

Dear Sir,

Thank you for your letter of 31st March regarding a borrow area on the golf course.

I accept the conditions outlined in your letter regarding the use of this area.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

G. W. van der Lee,
AREA MANAGER.

Mrs Neary 7/4/70
Mrs Goodall

cc. Mrs Robson 7/4.

Recorded TVR. 7/4.

RECEIVED
-7 APR 1970
KOSCIUSKO NATIONAL PARK

Telephone Jindabyne 271.

Kosciusko National Park,
Private Bag,
via COOMA. N.S.W. 2630.

Reference: PEH:JIT 154/33

Enquiries: Mr. Neary

31st March, 1970.

The Area Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

Dear Sir,

Reference is made to your letter of 9th March, 1970, (02-1), concerning establishment of a borrow area for extraction of topsoil, to use on your Golf Links.

While our policy still must remain generally restrictive on extraction of materials from the Park, sympathetic consideration will always be given to a Lessee's legitimate requirements, provided that such extraction does not result in aesthetic deterioration or erosion problems.

In this particular case, approval is given for you to establish a borrow area in the location shown on your own sketch plan (copy attached), west of No. 7 Fairway on the Golf Course, such location to be pegged on-site by the Ranger-in-Charge.

Trees at present on the actual borrow area may be removed for this purpose.

Topsoil may then be removed from that area, to a depth up to 3'6", but not to such a depth as to create drainage or erosion problems.

Sufficient topsoil is to be stockpiled alongside the borrow area, to be used subsequently in the revegetation of the disturbed area.

Final contours of the re-established surface are to be settled in discussion with the Ranger-in-Charge, and revegetation is to be carried out within twelve months from this date, to the satisfaction of the Ranger-in-Charge.

This particular site is favoured because the area is relatively screened from public view, and its location is such that machine work and transport will be confined to the Golf Course area. These considerations, resulting in minimum disturbance and access problems, are important from both our viewpoints.

Extraction may commence immediately after the boundaries are pegged by the Ranger-in-Charge, but I would appreciate your written acceptance of the conditions outlined.

Yours faithfully,

N. C. Gare,
Superintendent.

c.c. Ranger Robson. R/S 20/4/70

c.c. Reading File.

Kosciusko Thredbo pty. limited

THREDBO ALPINE VILLAGE, N.S.W. Telephone: Crackenback 441 or 442

26th March 1970.

The Superintendent,
National Parks and Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
Via COOMA. N.S.W. 2630.

Dear Sir,

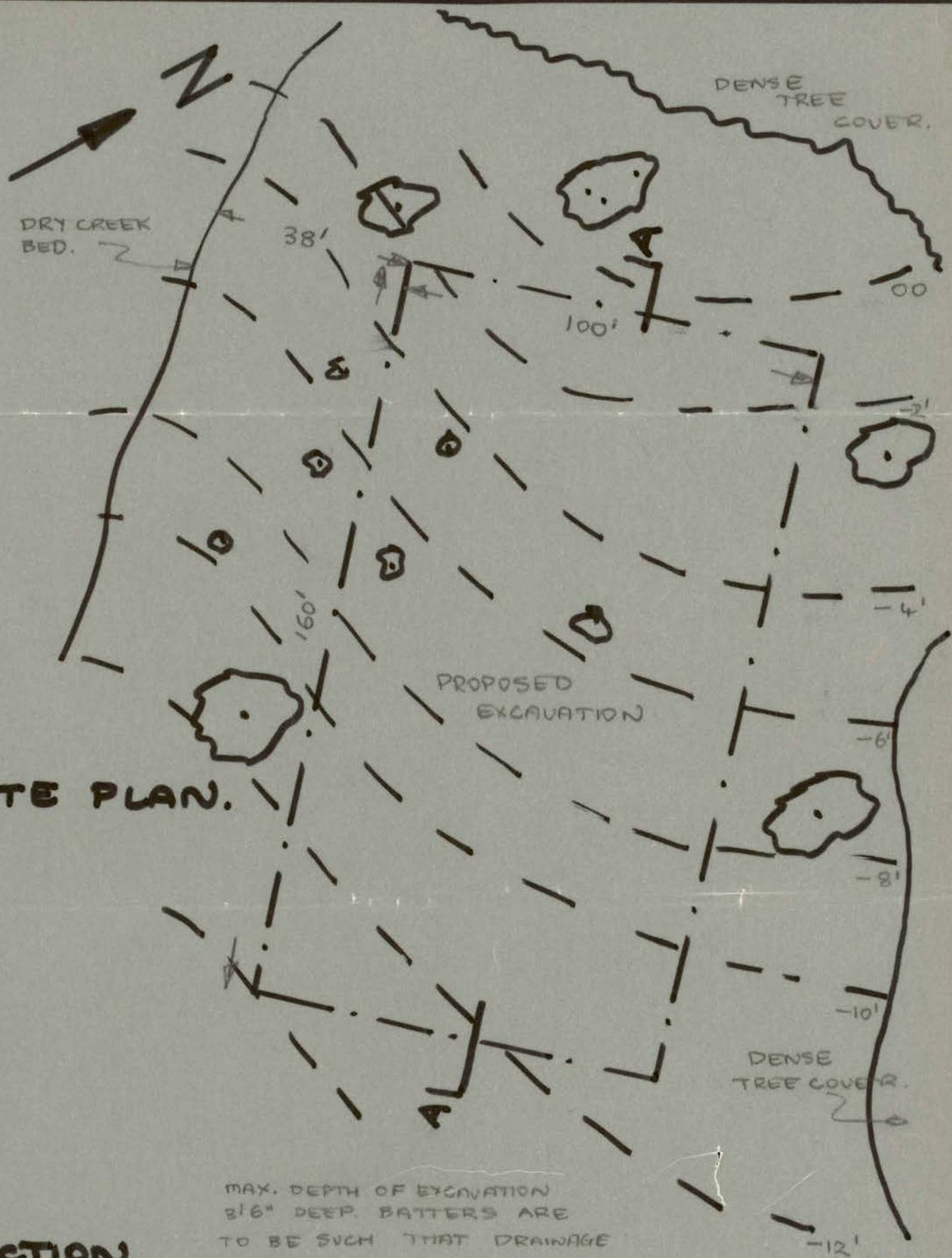
Please find enclosed as requested a sketch of the proposed Landscaping of the Borow Pit located approximately 108 yds. north west of the seventh fairway.

On completion of the removal of the material, the area will be contoured and reseeded as shown on the sketch.

Yours faithfully,

D. Drayton.

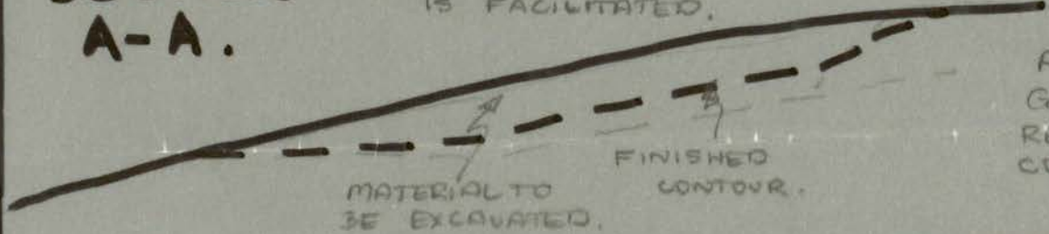
AREA ENGINEER.



SITE PLAN.

MAX. DEPTH OF EXCAVATION 8'6" DEEP. BATTERS ARE TO BE SUCH THAT DRAINAGE IS FACILITATED.

SECTION A-A.



PROPOSED BORROW PIT FOR TOP DRESSING - GOLF COURSE - THREDBO

DATE 22.3.70.

SITE PLAN.

SECTION
A-A.

PROPOSED BORROW PIT — THREDBO
FOR TOP DRESSING — Grade Corse

DATE

THREDBO RANGER
STATION
23-3-70

TO SUPERINTENDENT
MR. N. C. GARE

SUBJECT : SOIL REMOVAL WITHIN KOSCIUSKO THREDBO LEASE AREA FOR TOP DRESSING OF GOLF COURSE

FROM THE LATEST GOLF COURSE DRAWING (AMENDMENT TO DRG 68407:GA:2) THE TOTAL LENGTH OF FAIRWAY BEING APPROX 2450 YDS AND ALLOWING AN AVERAGE WIDTH OF 22 YARDS THIS GIVES A TOTAL AREA OF 11 ACRES

IF INITIAL TOP DRESSING IS TO BE ONE INCH AS AN AVERAGE GUIDE THE TOTAL AMOUNT OF SOIL REQUIRED WOULD BE

ACRES SQ FT TO ACRE FT TOP DRESSING CUBIC FT TO CUBIC YDS

$$11 \times 43560 \times \frac{1}{12} \times \frac{1}{27}$$

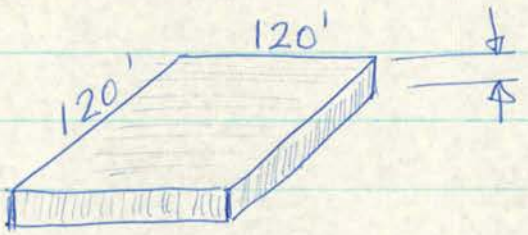
= 1480 CUBIC YARDS

SAY 1500 CUBIC YARDS

Mr Neary

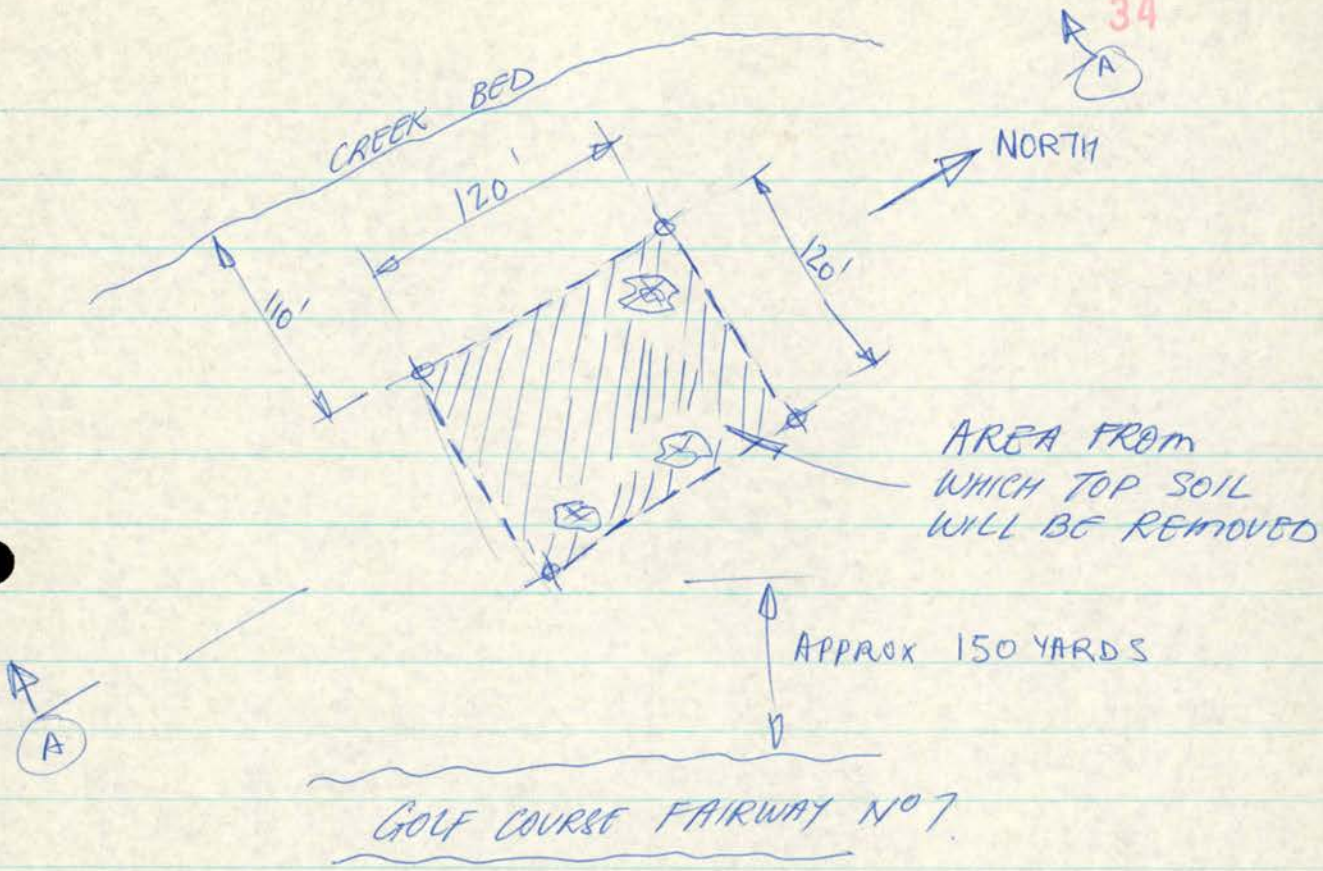
FROM DETAILED INSPECTION OF SITES WITHIN THE LEASE AREA A MAXIMUM DEPTH OF (THREE FT) 3'-0" CAN BE EXPECTED
ALLOWING THIS DEPTH OF 1YD. TOTAL AREA REQUIRED 38·8 YDS SQUARE SAY 40 YDS SQUARE.

(IP) AREA REQUIRED

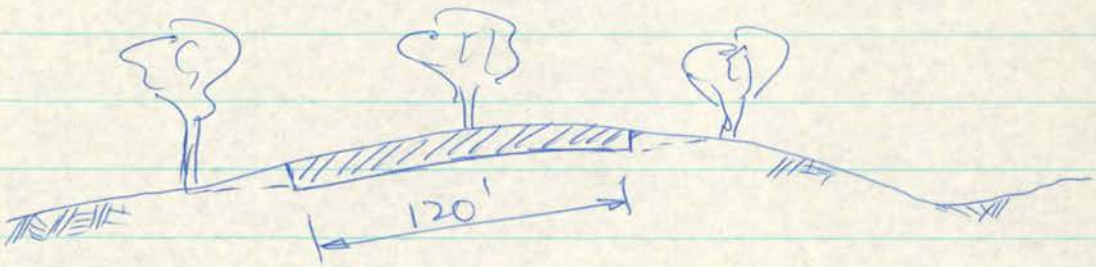


THIS AMOUNT OF SOIL WOULD BE SUFFICIENT FOR AN INITIAL TOP DRESSING OF 1"
IT WOULD BE NECESSARY TO TOP DRESS THE GOLF COURSE YEARLY TO MAINTAIN A REASONABLE STANDARD TO THE SURFACE.
IF APPROVAL IS GRANTED FOR AN INITIAL AREA IT WOULD BE REASONABLE TO ASSUME THAT FUTURE DEMANDS WOULD BE PLACED ON THE SERVICE FOR ADDITIONAL AREAS; WITH THIS IN MIND THREE SITES WERE INSPECTED ON 20TH MARCH 1970

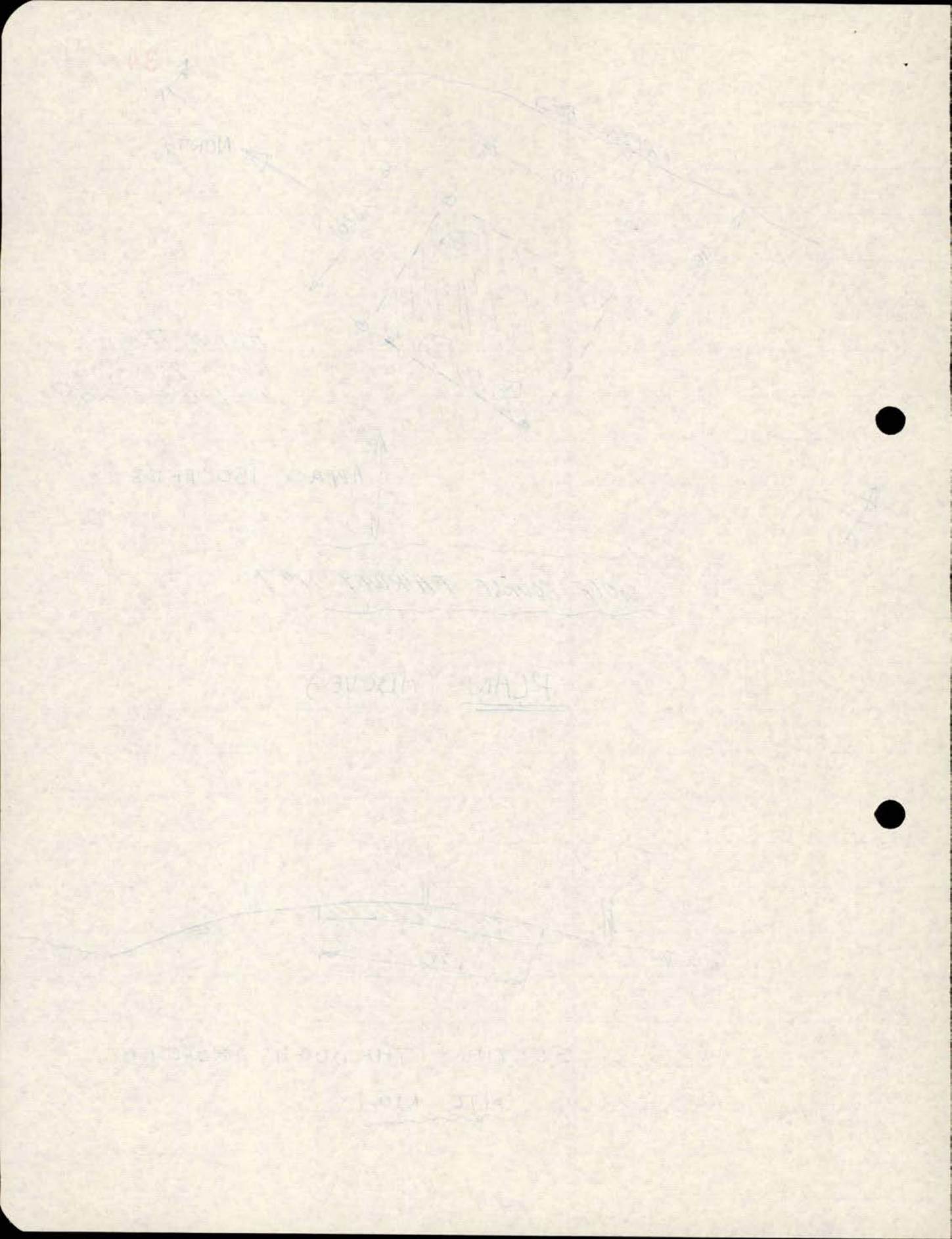
FIRST SITE INSPECTED WAS AN AREA LOCATED APPROX 150 YARDS NORTH OF NO 7 FAIRWAY
THIS IS LOCATED ON A SMALL KNOLL (SEE SKETCH



PLAN (ABOVE)



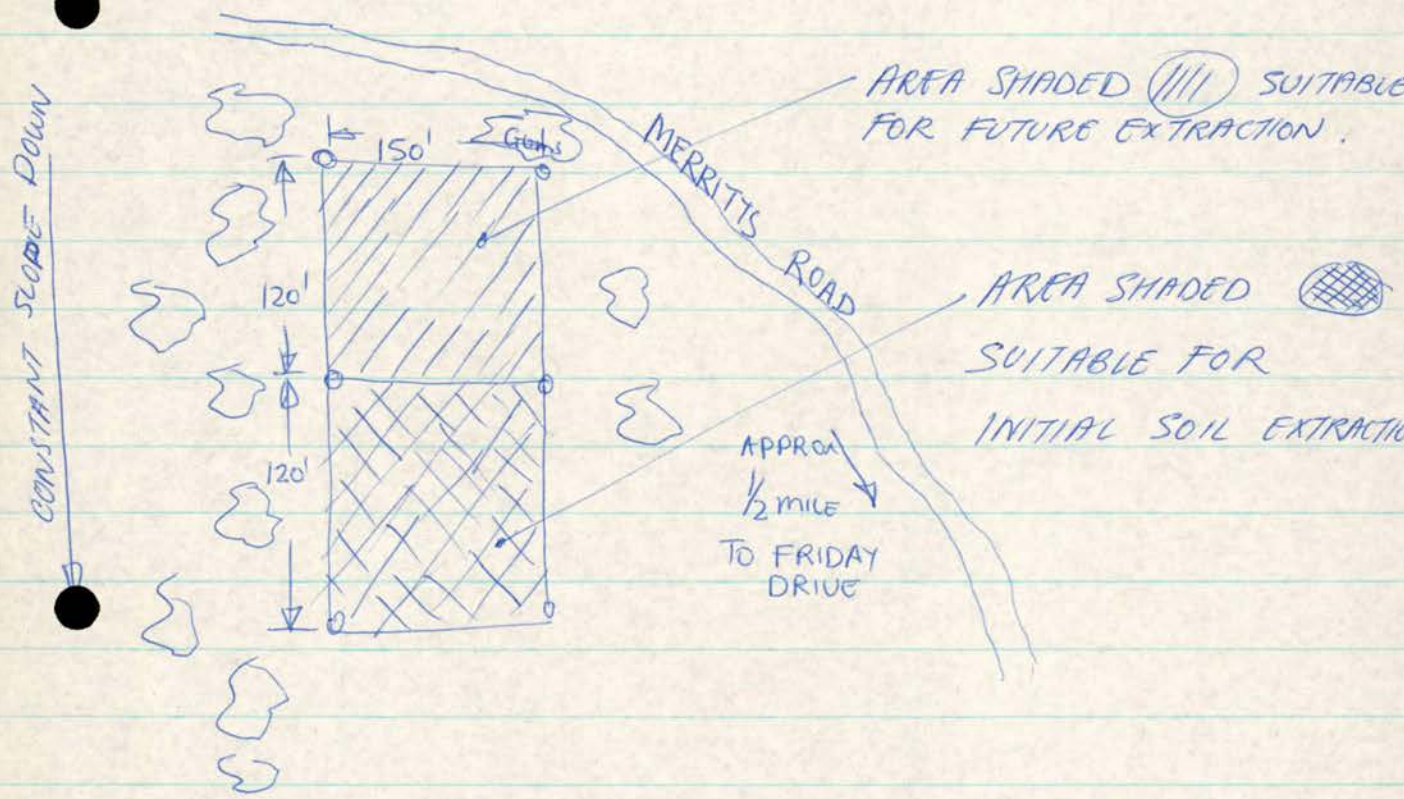
'AA'
SECTION THROUGH PROPOSED
SITE NO 1



IT WOULD BE NECESSARY TO REMOVE APPROX SIX TREES FROM THE AREA

SECOND SITE

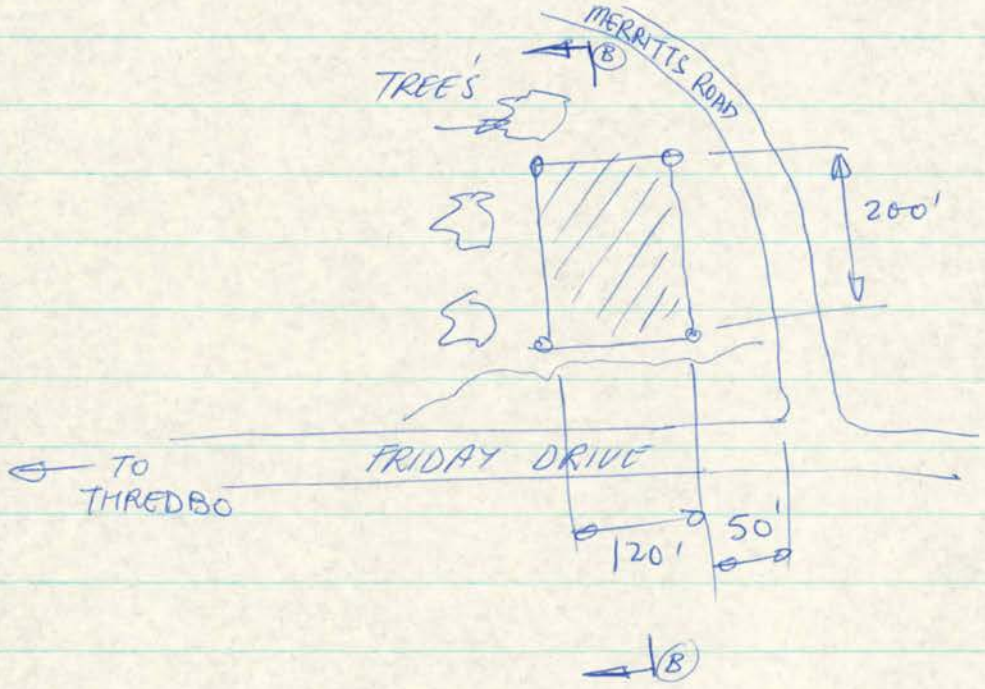
THIS SITE IS LOCATED ADJACENT TO MERRITTS ROAD APPROX ½ MILE FROM FRIDAY DRIVE SEE SKETCH BELOW.



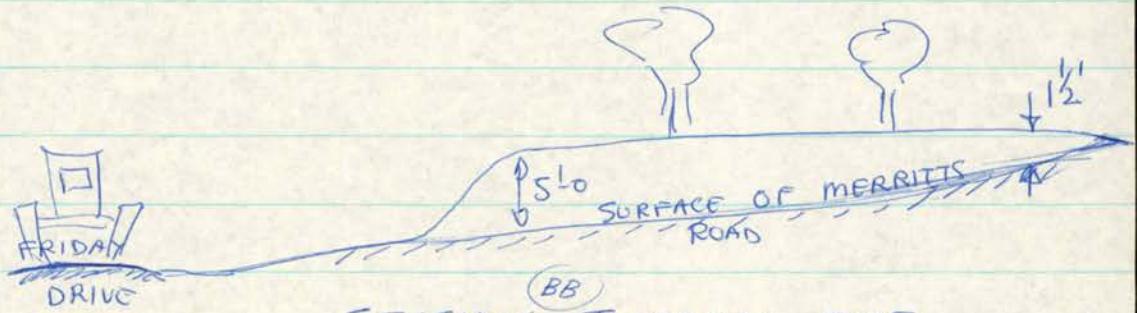
THE EXISTING CLEARED AREA IS SUFFICIENT IN SIZE TO ALLOW FOR THE INITIAL EXTRACTION OF TOPSOIL AND FOR A SECOND FUTURE EXTRACTION

THIRD SITE

THIS SITE IS LOCATED ADJACENT TO THE JUNCTION OF MERRITTS ROAD & FRIDAY DRIVE
THIS SITE AT PRESENT HAS LIGHT GRASS & MINOR SHRUB COVER AS IT WAS INITIALLY USED (1967-1968) AS AN AREA FOR THE STOCK-PILING OF CRUSHED ROCK & GRAVEL



PLAN



SECTION THROUGH SITE

SUMMATION OF SITE LOCATIONS

SITE 1.

(a) LOCATED WITHIN THE GENERAL AREA OF THE GOLF COURSE EARTH MOVING CONSTRUCTION WORK

(b) MACHINE WORK AND MOVEMENTS CONFINED TO THE GOLF COURSE AREA (IE) MINIMUM TRANSPORT OF MATERIAL

(c) AREA (IN GENERAL) IS SCREENED FROM NORMAL PUBLIC AREAS

(d) APPROX SIX TREES TO BE REMOVED FROM SITE

(e) AREA COULD BE UTILISED FOR A NURSERY IN THE RECLAIMING PROCESS. (IE) GRASS GROWN COULD BE USED FOR "PATCHING" OF PUTTING GREENS AND OR BOWLING GREEN.

(f) SOIL (IN THE OPINION OF GOLF COURSE MANAGER) IS NOT UP TO THE STANDARD OF THE SOIL IN THE OTHER TWO AREAS — APPARENTLY MORE PEATY

SITE 2

(a) LOCATED APPROX ½ MILE EAST OF THE GOLF COURSE AREA

(b) AREA IS VISIBLE ~~FROM~~ FROM FRIDAY DRIVE ALTHOUGH SOME LIGHT SCREENING IS PROVIDED BY TREES BETWEEN THE SITE AND FRIDAY DRIVE

(c) EASY ACCESS IS OBTAINED BY VEHICLES TO THIS AREA FROM MERRITTS ROAD.

(d) BEING RELATIVELY FLAT THEN VEHICLES COULD MANOEVER WITH EASE WITHIN THIS AREA

(e) AREA IS SUFFICIENT IN SIZE TO BE ABLE TO SUPPLY DOUBLE THE AMOUNT CACULATED IN REPORT

(f) NO TREES WOULD HAVE TO BE REMOVED

SITE 3

(a) LOCATED APPROX ½ MILE EAST OF THE GOLF COURSE AREA

(b) AREA IS VISIBLE FROM FRIDAY DRIVE NO SCREENING IS PROVIDED

(c) EASY ACCESS IS OBTAINED BY VEHICLES TO THIS AREA BOTH FROM MERRITTS RD & FRIDAY DRIVE

(d) VEHICLES COULD MANOEUVER WITH EASE WITHIN THIS AREA

(e) AREA WOULD BE APPROX DOUBLE THAT REQUIRED FOR INITIAL SOIL QUANTITIES.

(f) NO TREES WOULD HAVE TO BE REMOVED.

CONCLUSION

① BEFORE A SITE IS APPROVED BY N.P.W.S. THE COMPANY SHOULD BE REQUESTED TO SUBMIT A (LANDSCAPE) DRAWING OF THE THREE SITES INSPECTED. THIS DRAWING SHOULD SHOW BOTH A PLAN VIEW TOGETHER WITH A CROSS SECTIONAL VIEW

② APPROVAL SHOULD LIMIT THE (COMPANY (KOSCIUSKO THREDBO PTY LTD) TO A DEFINED AREA WHICH SHOULD BE INDICATED ON A CONTOUR PLAN

(b) AREA TO BE MARKED ON SITE

(c) MAXIMUM DEPTH TO BE SPECIFIED

(d) ALL GRADED SLOPES FROM NATURAL SURFACE TO CUT SURFACE TO BE SPECIFIED FOR GRADIENT AND TO BE SHOWN ON LANDSCAPE DRAWING

③ INITIAL QUANTITY OF SOIL TO BE LIMITED TO THE AMOUNT CACULATED IN REPORT AND ALL REVEGATION WORK TO BE CARRIED OUT

(f) BEFORE FURTHER TOP SOIL IS REMOVED (THIS WILL APPLY IF APPROVAL IS GIVEN TO AN AREA WHICH EXCEEDS CALCULATED SURFACE AREA)

(g) REVEGETATION WORK TO BE COMPLETED WITHIN 12 MONTHS OF THE APPROVAL BEING ISSUED SUBJECT TO THE SUPERINTENDENTS SATISFACTION.

(h) SUFFICIENT TOP SOIL TO BE SET ASIDE ADJACENT TO WORKED SITE. THIS SOIL TO BE USED IN THE REVEGETATION OF THE WORKED AREA.

J. Robson
D/R THREDBO.

I have discussed this submission with Jim Robson by phone.

He has not submitted any report at this stage, but would like some idea if the suggestion would receive consideration.

He does not suggest that pits be formed but rather mounds be removed say 50 yds x 100 yds carried out in sections and re-vegetated as each section is completed.

Area to be surveyed prior to any work being carried out to enable strict control of depth of soil removed.

Jim agrees that strict control must be exercised over works of this nature. In his primary discussion with Drayton there was no suggestion of Permanent Pits as stated in this request.

Kosciusko Thredbo Pty. Limited

THREDBO INTERNATIONAL VILLAGE, N.S.W. 2627 ■ PHONE: THREDBO VILLAGE 441

O2-1

March 9, 1970

The Superintendent,
National Parks and Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA.....2630

Dear Sir,

The Thredbo Golf Course is in the final stages of repairs to damage suffered during the heavy spring rain-storms. Mulching of all greens has been carried out, but because of washing away occurring on the course, considerable amounts of topsoil have been eroded from green banks and fairways.

To restore these areas, it will be necessary to topdress with local material which is required to maintain the natural soil balance (inorganic and organic matter). There is a considerable amount of this work to be carried out, and it is proposed to establish a permanent borrow pit in the Lease Area. Three sites have been considered, and the District Ranger has inspected them.

Your early consideration of this proposal would be appreciated.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

J. D. Drayton,
AREA ENGINEER.

Mr Garrett
Mr Oldfield

Recorded TJR

copy Ranger Robinson for Report 18/3

THREDBO RANGER
STATION.
30 · 12 · 69

TO SUPERINTENDENT
MR. N. C. CARE

SUBJECT :- GOLF COURSE THREDBO VILLAGE, PROPOSED MODIFICATION TO ACCESS TRACKS.

PLEASE FIND ENCLOSED A MARKED PRINT OF THE GOLF COURSE LAYOUT. THE BROKEN RED LINE IS THE PROPOSED ACCESS TRACKS TO GREENS Nº 7, 1, 5 AND 6

THESE NEW ACCESS TRACKS ARE NECESSARY TO ENABLE THE CONSTRUCTED FAIRWAYS TO BE GRASS SEEDED ALONG THE STRIPS WHICH ARE PRESENTLY BEING USED AS TRACKING ROUTES

I HAVE INSPECTED THE PROPOSED ROUTES AND CONSIDER THAT THEY ARE WELL LOCATED.

File back to me 6/1 - to discuss with JCG JCG 6/1/70
Plan received PIR. 6.1.70.

VERBAL APPROVAL HAS BEEN GIVEN TO KOSCIUSKO THREDBO PTY LTD TO USE THE STRIPS FOR ACCESS AND TO COMMENCE RESEEDING.

THERE MAY BE NO NECESSITY TO ISSUE WRITTEN APPROVAL AS THERE WILL BE NO EARTHMOVING WORK IN FORMATION OF THESE TRACK (10) THEY WILL BE VEHICLE TRACKS ONLY AND WILL BE USED IN FUTURE TO TRANSPORT EQUIPMENT (MOWERS ETC) TO THE GOLF COURSE GREENS AND THEY ARE ONLY MINOR INTERNAL MODIFICATIONS OF THE OVERALL APPROVED GOLF COURSE DEVELOPMENT.

17/3/70

J. Robson
O/R/ THREDBO.

Agreed. Advised J.R verbally 12/1/70.

Plan filed. No 10 Cabinet 2.

24th July, 69.

JCC:JT 15A/33

Mr. Govan

Mr. G. W. van der Lee,
Resident Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

Dear Sir,

Re: Golf Course Maintenance Area

I write to confirm verbal approval for the erection of a temporary structure, as described in your letter of May 9th, on the site nominated during recent discussions between Ranger Burrell and Mr. Drayton.

Due to the nature of the structure, i.e. galvanised iron, this approval is ~~verbal~~ VALID only until March 31st, 1970, by which time the building is to be removed or brought up to a satisfactory standard in accordance with approved plans and specifications.

Further conditions attached to this approval are as follows:-

1. The Thredbo River and the hill system north west of the site are not to be dammed, diverted or polluted in any way by the erection of the building or any work associated with the Golf Course Maintenance Area.

2. Any soil conservation works made necessary by the project are to be completed to the satisfaction of the Superintendent prior to December 31st, 1969.

3. Any scrap building materials or debris related to the project are to be removed from the site as directed by Ranger Burrell

4. A Building Fee will be charged for the permanent building, but such Fee will apply during the term of this approval. A — NOT JC

Yours faithfully,

N. C. Gare,
Superintendent.

c.c. Ranger Burrell.

Subject: Golf Course Maintenance Area.

To: Ranger Govan.

The site indicated for the above area, by Mr Drayton, is between the Golf Course bridge and number nine green.

I have no objections to the proposed construction, but the following conditions should be emphasized to the Company:

1. A definite time limit should be set for the construction of permanent facilities. Say, 31 March '70.
2. The Rhodbo River, and the hill system north west of the site must not be dammed, deverted or polluted in any way.
3. Any necessary soil conservation works, resulting from vegetation damage, must be completed to the Superintendents satisfaction by

mr Govan

28 Feb 70 Memo following

31 December 1969.

4. Any building materials or debris must be removed from the site upon completion of the building./

A/Bunell
Kenya Rhodbo.
3 June 69.

KOSCIUSKO NATIONAL PARK

MEMORANDUM

DATE ISSUED: 2nd June, 1969 TO: Ranger Burrell

SUBJECT: Golf Course

LOCATION: Thredbo Village

FILE NO: 15A/33

DETAILS: Have you any objections to the proposed temporary building or the site indicated by Mr. Drayton.

See memo. of 22.5.69.

FOR ... ... INSPECTION:

REPORT: Immediately.

ACTION:

JCG/28.1.69/F23

N. C. Gare,
Superintendent.

R/S 12/6

KOSCIUSKO NATIONAL PARK

MEMORANDUM

DATE ISSUED: 22nd May, 1969 TO: Ranger Burrell

SUBJECT: Golf Course

LOCATION: Thredbo Village

FILE NO: 154/33

DETAILS: Have you any objections to the proposed temporary building or the site indicated by Mr. Drayton.

Copy of letter attached of 9.5.69.

FOR ... ... INSPECTION:

REPORT: Soon as convenient

ACTION:

JCG/28.1.69/F23

N. C. Gare,
Superintendent.

R/S 29.5.69

Reminder please on 2/6/69
JCG

KOSCIUSKO THREDBO PTY. LTD.
THREDBO INTERNATIONAL VILLAGE, N.S.W.
TELEPHONE CRACKENBACK 441

9th May, 1969.

Mr. J. Burrell,
National Park and Wild Life Service,
Kosciusko National Park,
Private Mail Bag,
via COOMA.. NSW..

Re: Golf Course Maintenance Area

Dear Sir,

On a site visit with yourself and Ranger Andy Williams, I discussed the location of the Maintenance area and servicing facilities for the Golf Course and the Bowling Green.

We require an area approximately 100ft square to act as a compound which would be eventually fenced and a shed and seed beds constructed inside.

Because the future requirements cannot be assessed at this stage we propose to erect a temporary structure this year, with the view to preparing final plans for the area during the next Construction season.

The temporary structure would be a glav. iron shed approximately 20ft long x 8ft wide, sited on a cleared area which would be used for parking maintenance vehicles. The site discussed with yourself would suit our requirements at this stage.

KOSCIUSKO NATIONAL PARK
RECEIVED
21 MAY 1969

Mr Govan

Yours faithfully,

D. Drayton,

Area Engineer

6th March, 69.

15A/33. RAO:CA.

Mr. Oldfield.

Mr. T. D. Drayton,
Area Engineer,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Alpine Village,
Kosciusko National Park,
VIA COOMA. 2630.

Dear Sir,

Golf Course - Thredbo Village.

Further to my letter of 31st January, 1969, approval is granted for the construction of headwalls on culverts, the path linking the 7th Tee and the 7th Fairway and the water reticulation for the golf course.

Approval is subject to the work being carried out to the specifications supplied and to the satisfaction of the Superintendent, Kosciusko National Park.

Yours faithfully,

N. C. CARR,
SUPERINTENDENT.

c.c. Mr. van der Lee.

Ranger Burrell.

31st January, 69

15A/33

Mr. T.D. Drayton,
Area Engineer,
Kosciusko Thredbo Pty. Ltd.,
THREDBO ALPINE VILLAGE.
Via Cooma. 2630

Dear Sir,

Golf Course - Thredbo Village

Your letter of 29th January last, together with five plans of the water reticulation system; specification of headwalls on creek crossings and detailed proposals of the path linking the 7th tee and the 7th fairway has been received in this office.

The matter is receiving attention and you will be advised in due course.

Yours faithfully,

M.R. JARRETT,
Acting Superintendent.

Mr Govan

To RAO. for approval & Drawing JG 7/2.

To RAO please JG 25/2.
(Compare to van der Lei)

KOSCIUSKO THREDBO PTY. LTD.
THREDBO INTERNATIONAL VILLAGE, N.S.W.
TELEPHONE CRACKENBACK 441

January 29, 1969.

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
VIA COOMA.....N.S.W. 2630

Dear Sir,

RE: GOLF COURSE, THREDBO VILLAGE

Reference is made to your letter (FSN:FP 15A/33) of January 6 last.

Your request for the submission of:

1. Five plans of the water reticulation system
2. Typical plans and specification of headwalls on creek crossings
3. Detailed proposals of the path linking the 7th tee and the 7th fairway is hereby fulfilled by the accompanying enclosures.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

T. D. Drayton,
AREA ENGINEER.

Mr Graham
Mr Neary

S P E C I F I C A T I O N
****

HEADWALLS ON CROSSINGS ON GOLF COURSE FAIRWAYS AT THREDBO VILLAGE

1. MATERIALS

1.1. WALL MATERIAL - natural stone as found on site

1.2. BONDING MATERIAL - cement mix 3 sand to 1 of cement

2. FOUNDATIONS AND FOOTINGS

2.1. FOUNDATIONS

2.1.1. The footings must be dug down until a solid bed of either stone or river sand or gravel is reached

2.2. FOOTINGS

2.2.1. Footings shall be of large stones properly bedded in mortar in the foundation.

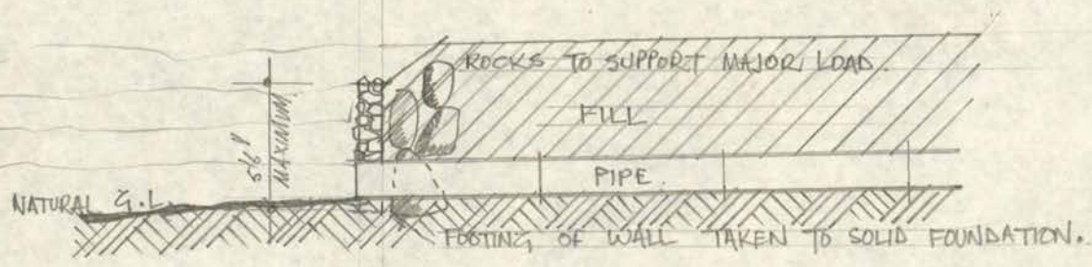
3. CONSTRUCTION

3.1. Footing of wall to be on solid stable foundation.

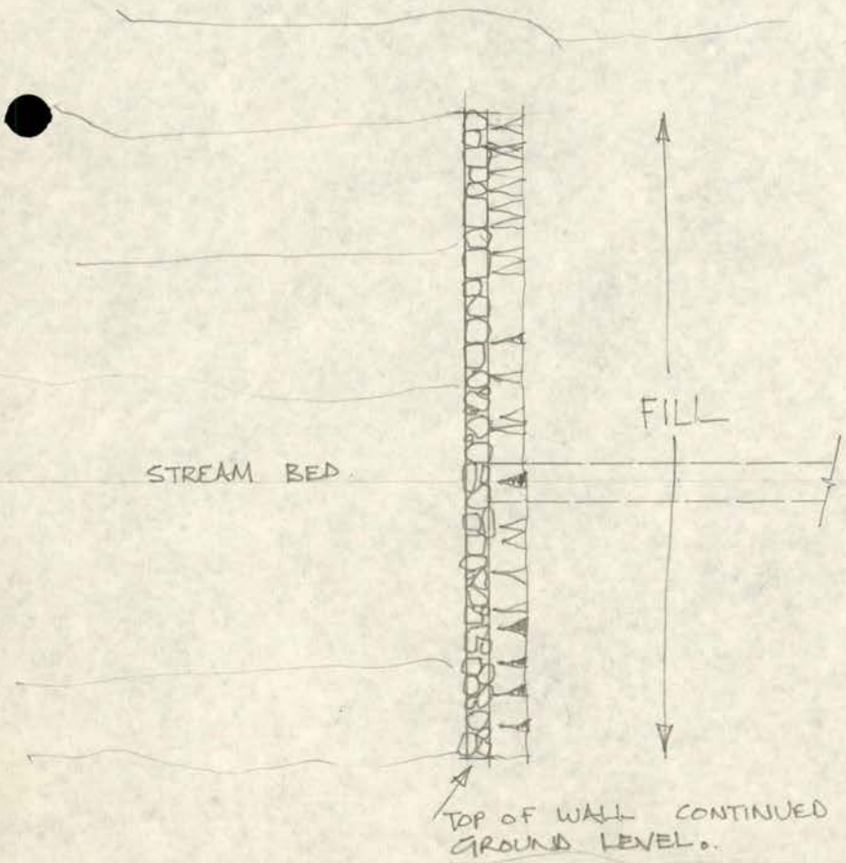
3.2. Wall shall be built of good rock and cement with an even balance of large and small stones

3.3. Walls on the upstream side of the crossing should extend the whole width of the water course to ensure that all soakage is cut off. In addition, cut off trenches should be dug several feet further upstream so that water may be led into the pipe.

3.4. All stones shall be properly bedded to ensure structural stability.



SECTION OF TYPICAL HEADWALL.



~~PLAN OF TYPICAL HEADWALL.~~

DRAWINGS OF HEADWALL CONSTRUCTION - THREDBO GOLF COURSE.
29th JANUARY 1969 - SCALE APPROX 1" - 8'0" MK.

PROPOSED PATH ON THE 7TH HOLE FROM THE 7TH TEE

TO THE START OF THE 7TH FAIRWAY

As the Service will be aware, through the advice of Ranger J. Burrell, the proposed path crosses a rather deep and wide gulley. A water course passes through the gulley on the Tee side - the remainder of the gulley being free of water except maybe for excess water during the Spring thaw.

The gradients on both sides of the gulley are too steep for direct vehicular access, and apart from the fact that construction of a road is unreasonable, the design of the Golf Course calls only for pedestrian traffic.

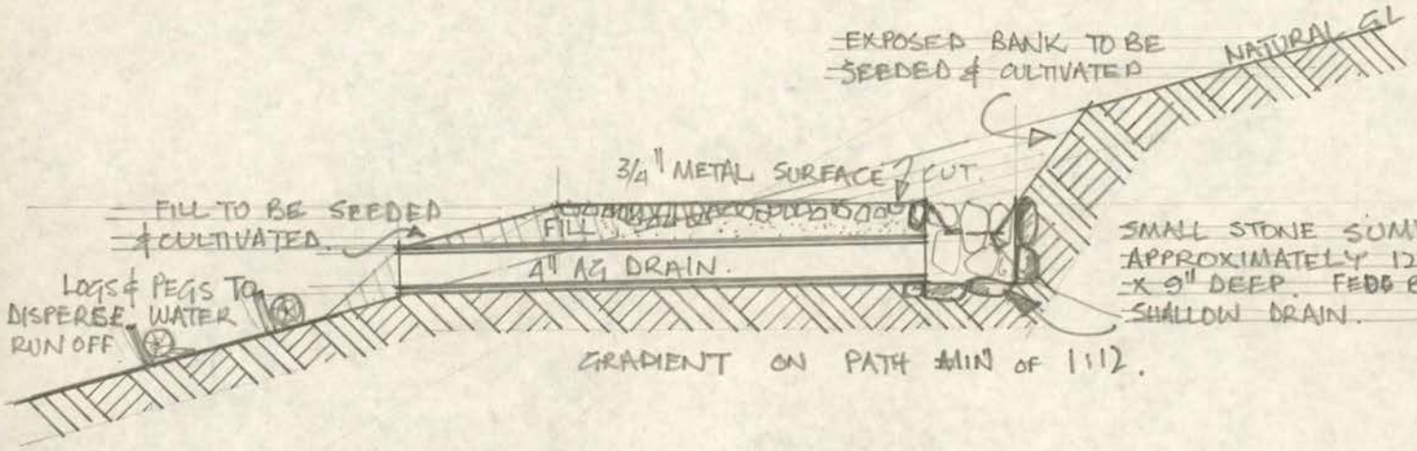
It is therefore proposed that a hand cut path be cut for the use of golfers.

The track will be approximately 4' wide, for the passage of buggies and will require small cuts and fill to ensure a minimum gradient of 1:12. The path will follow an old wombat trail which appears to offer the best path.

Probably the most important thing in this regard is the treatment of the cut and fill with regards erosion. We propose to seed all bare earth with the view to having grass banks all the way down.

On the path itself, we would propose to put agricultural pipe cross drains every 20' with a small sump, and a shallow scoop drain on the uphill side of the path. The actual bed of the path would be $\frac{3}{4}$" blue metal rolled into the surface.

These proposals should adequately satisfy the Park Service in regards to their interest in preserving the natural state of the bushland.



TYPICAL CROSS SECTION OF PATH ON 7TH HOLE OF GOLF COURSE AT THREDBO ALPINE VILLAGE.

29TH JANUARY 1969. APPROX SCALE 1"=2'0" MG.

K O S C I U S K O N A T I O N A L P A R K

MEMORANDUM

Date Issued: January 28, 1969. To: Ranger Burrell.

SUBJECT: Water Reticulation

LOCATION: Golf Course - Thredbo Village.

FILE NO. 154/33

DETAILS: Could you please report on above matter.

Details of water reticulation have not been submitted for approval.

FOR: ..... INSPECTION *

REPORT: by February 10, 1969.

ACTION:

N. C. Gare,
Superintendent.

R/S.13.2.69

KOSCIUSKO NATIONAL PARK

MEMORANDUM

Date Issued: January 28, 1969. To: Ranger Burrell.

SUBJECT: Water Reticulation

LOCATION: Golf Course - Thredbo Village.

FILE NO. 15A/33

DETAILS: Could you please report on above matter.

Details of water reticulation have not been submitted for approval.

FOR: ..... INSPECTION *

REPORT: by February 10, 1969.

ACTION:

N. C. Gare,
Superintendent.

R/S 10-2-69.

MEMORANDUM

FROM J.C.G

TO Eng. RAO.

DATE 23-1-69

St 1575

Ross

Have you heard any advice re K.T. water reticulation for Golf Course

Jim G
23/1.

They are proceeding with work but no written application has been received.

R. AO.
23/1/69.

January 6, 69.

FSM:FP 15A/33

Mr. Neary.

Mr. G. W. van der Lee,
Resident Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

Dear Mr. van der Lee,

Reference is made to your letter of December 17, 1968, concerning the proposed golf course at Thredbo Village.

The plan submitted has been studied, and on-site inspections of proposed cut and fill areas completed.

Approval is now given to this project, as outlined on the attached plan, and specified in your letter, subject to the following conditions:-

1. Area marked "A" on the southern side of the 2nd fairway, halfway to the 2nd green, is a natural soak area. For this reason, any filling is discouraged and you should discuss on-site with Ranger Burrell the practicability of widening the fairway boundary on the other (northern) side to avoid disturbance of this area.

2. The diagramming of work on No. 6 green omitted to show the filling of the north-eastern side. This work may be carried out, provided all earthworks are kept clear of the trees there, to a distance of at least 6 feet.

3. The track and bridging between the 7th tee and the beginning of the fairway will not be as depicted. The actual track route will need to be as pegged out on-site in discussions with Ranger Burrell. There will also be a need to remove 5 trees where the track meets the fairway, as shown on the plan.

4. The track between No. 7 green and No. 8 tee will need to be varied, as amended on the plan, and this should be discussed on-site with Ranger Burrell.

5. The temporary green and temporary tee on No. 9 fairway, not now required, are to be revegetated.

6. All trees removed are to be lopped and stacked, and burnt or otherwise disposed of as instructed by Ranger Burrell.

.../2

R/S 20/1/69 re letter returned via J.G.

To Mr. Neary re 16/12/68 letter!
What action necessary?

7. Creek crossings piped are to be filled over to at least 18 inches depth wherever they will be subject to plant or vehicle traffic. Headwalls are to be constructed at all pipe entrances and exits, either of natural stone or faced with natural stone, to a standard plan and specification to be submitted for separate approval.

8. All precautions are to be taken against deposition of earth or other pollution in streams.

9. Disturbed earth surfaces are to be repaired and revegetated, and such work is to be completed by not later than May 31, 1969. Further, revegetation shall be maintained to the satisfaction of the Director.

10. In the operation and maintenance of this golf course, after completion, all plant and vehicle routes should be carefully planned to avoid concentrated damage to earth surfaces which might constitute an erosion hazard.

As forecast in the 3rd paragraph of your letter, I look forward to your submission of a separate plan of the water reticulation system.

A final condition for construction of the golf course is payment of the appropriate Engineering Submission Fee, based on 1% of the first $20,000, then ½% of the next $80,000, of the estimated cost of your 1968/69 Summer Works Programme (excluding building projects such as Holiday Apartments, Chairlift Extension, etc.).

The fee is calculated at $405.00 on an estimated total value of work of $61,000, which covers the projects of Golf Course, Mountain Clearing, Summer Sports Area, Landscaping and the Horse yards.

* Our account is enclosed in this connection.

Yours faithfully,

N. C. Gare,
Superintendent.

* Encs. (2)

c.c. Ranger Burrell - Copy for your information and further discussions with the Company as indicated. Please also follow up on submission of separate plans and specifications for water reticulation and culvert headwalls.

c.c. Reading File

N. C. Gare,
Superintendent.

KOSCIUSKO THREDBO PTY. LTD.
THREDBO INTERNATIONAL VILLAGE, N.S.W.
TELEPHONE CRACKENBACK 441

15A/33

December 17, 1968 260/C5

The Superintendent,
National Parks & Wildlife Service,
Kosciusko National Park,
Private Mail Bag,
via COOMA. N.S.W. 2630

Dear Sir,

RE: GOLF COURSE - THREDBO

We enclose 3 copies of a plan prepared by Golf Course Architects - Green and Knight, dated December 1968, showing final 9 hole layout of the proposed Golf Course.

These plans show approximate locations of tracking routes for vehicular access during construction, extend of fairways, approximate positions of tees and greens, proposed creek crossings, including piped crossings and bridges, tracks intended for walking and use by golf buggies between greens and tees, areas in which trees are to be removed and areas in which earthworks are to be carried out.

It also shows the location of the trunk feed of the water supply to the course. A separate plan showing the reticulation of greens and fairways will be submitted as soon as our consultants have finalised the layout and design.

Method of construction of piped creek crossings and footbridges, walking tracks, water supply dam and trunk line, fairways, greens and tees will be as outlined in our letter dated November 27, 1968, and as discussed with Ranger Burrell on site.

Cut trees will be disposed of as directed by Ranger Burrell.

Mrs. Pat Allen.
Mr. Gale
Mr Govan JG 1/1

..../2

Trenches for water reticulation will be excavated to a minimum depth of 1 foot, sods removed prior to excavation and replaced after backfilling.

In areas of cut and fill, top soil will be removed, stockpiled, and used to redress disturbed areas before regrassing which will be completed before 30th April, 1969.

Before stripping top soil, the existing vegetation will be slashed, raked and removed as in other areas to retain a maximum quantity of top soil for dressing.

It is proposed to sow and fertilise the fairways, tees and greens as specified below by our consultants. The details here have been discussed with Mr. Roger Good, of the Soil Conservation Service, and he considers the proposal to be suitable for this area.

The fairways and tees are to be cleared using a rotary slasher and the vegetation raked into heaps and carted away. The surface is then scarified and fertilised using the following mixture;-

Shirleys No. 17 (2 cwt/acre) and blood and bone (11 cwt/acre)

The areas are then sewn using Crested Dogstail (71 lbs/acre) Kentucky Blue Grass (20 lbs/acre), Chewings Fescue (20 lbs/acre) and Agnostis Tenuis (20 lbs/acre). The seed is sewn just below the surface using a seedbox. Six weeks after sewing, a light dressing of Urea (1 cwt/acre) is prepared.

Marginal areas of approximately 15' wide between fairways and natural vegetation will be mown to approximately 6" high to facilitate a transition between fairways and natural vegetation. If this proves ineffective, then clear by rotary slasher and seed with Chewings Fescue and Kentucky Blue Grass (20 lbs/acre).

The sewing bed on the greens will have an even depth and texture and be thoroughly compacted. The greens shall be fertilised as suggested for fairways and sewn with Agnostis Tenuis (51 lbs/per 1000 square feet), predusted with T.M.T.D. The seed is mixed with sand and broadcasted evenly, and raked into the surface lightly.

We hope that the above information satisfies your requirements.

Your early attention to finalise approval of this altered layout of the original approved scheme would be much appreciated.

Yours faithfully,
KOSCIUSKO THREDBO PTY. LIMITED.

G. W. van der Lee,
RESIDENT MANAGER.

12/12

C O P Y

SUBJECT: KOSCIUSKO THREDBO PTY. LTD. - CONFERENCE NOTES
DECEMBER 7, 1968

Present: Mr. G. W. van der Lee, Mr. D. Drayton, Ranger Burrell.

Matters Discussed:

1. Mountain Clearing Programme

A point by point discussion of the programme was undertaken. I indicated that approval of specific matters could be anticipated shortly, and agreed to further on site discussions of contentious matters.

2. Bowling Green Construction

I expressed the concern of the NPWS over the apparent lack of preparation and planning, and construction supervision in this project. I stated that the resultant siltation of the Crackenback River was excessive and unsatisfactory.

Mr. van der Lee replied that the Bowling Green construction had proved very difficult. The severe drainage problem had not been anticipated. Every effort would be made to minimise siltation in the future.

NOTE: A comprehensive report shall be prepared on this matter outlining the Company's disregard for approved conditions of construction.

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3. Golf Course Construction.

A general discussion of the Golf Course construction was undertaken. Mr. van der Lee stated that his Company now proposed to complete the nine holes this summer. The greens and fairways would be marked out during the next week. He considered the stamped plan 68407: GA:2 to be sufficient approval, subject to an on site inspection.

I indicated that the above plan had been discredited as lacking in detail and inaccurate, and stated that a new plan should be submitted for approval. I expressed willingness for on site inspections at any time.

The matter remains unresolved.

NOTE: The Company is most anxious not to get involved in submitting detailed, specific plans. Its attitude is one of "trust us and everything will be alright". In the undersigned's opinion any latitude in dealing with the Company is fatal, and will be ruthlessly exploited by them. This discussion taken account of in new policy in dealing with Co. 1966

---

4. Tennis Court

Mr. van der Lee stated that it had been decided not to proceed with construction, for the time being

NOTE: The undersigned has inspected four different sites for tennis courts and each has subsequently been cancelled, despite exhortations to speed up the approvals. This should be remembered when the Company complains at delays in approvals.

5. Horse Paddock Construction

It was agreed that progress in this project was satisfactory.

6. Lease Area Erosion Survey

I informed Mr. van der Lee that erosion maps of the village and Merritts area had been completed. I indicated that details of this would be supplied to him in the near future.

7. Golf Course Bridge

I informed Mr. van der Lee that a considerable amount of debris from this construction had been deposited in the Crookenback River. This breached the conditions of approval and further increased the serious pollution of the river.

Mr. van der Lee stated that the debris would be removed immediately. Report noted by Supt

8. Park Use Fees

I outlined the increases in the above fees.

9. Gold Panning

I drew attention to the fact that the Company had been hiring gold pans, from its information centre, and advertising gold panning in its literature. I indicated that this could be aiding and abetting in the breaching of NPWS Reg 3 (D) (i).

Mr. van der Lee stated that any persons hiring gold pans were advised of the Regulations. In any case the pans were intended more as souvenirs, rather than for actual panning. The promotion would probably be cancelled.

10. "Ski-Kite" Flying

I drew Mr. van der Lee's attention to newspaper articles describing "Ski Kite" flying on the ski slopes in the Company's lease area. I enquired if the Company permitted or promoted the activity.

Mr. van der Lee stated that the activity had occurred, and consideration was being given to its future promotion.

I quoted NPWS Reg 3(W) to Mr. van der Lee - indicating that the Director had recently laid down policy prohibiting parachuting in Parks - and advised him to seek the Director's approval before permitting or promoting "Ski Kite" flying

Agreed to by Mr. van der Lee.

11. Village Violence

A general discussion of this subject was undertaken. A separate report on the matter is in preparation.

12. Talks - Slide Programmes

I requested that reasonable notice be given if the above activities were required of KNP staff. I indicated that one weeks' notice was the absolute minimum, and that programmes were always subordinate to KNP staff requirements.

Agreed to by Mr. van der Lee.

13. Walking track

An on site inspection for a proposed walking track, nature trail - north of the horse paddock - was arranged for Dec. 9, 1968.

14. Contact Centre

In response to my query, Mr. van der Lee agreed that any paint used to prepare the Centre would be paid for by his Company.

Mr. van der Lee asked for clarification of the rental agreement, stating that he had forgotten his original proposals.

I stated that I would discuss the matter with the Superintendent.

NOTE: Original proposal. Rent $5.00 per week - to cover service costs - payable only during periods of year when centre actually used by the NPWS e.g. six-eight weeks

The following matters were raised by Mr. van der Lee.

1. Walking Track

Mr. van der Lee stated that his Company was considering converting the sewer line easement - between the Village and the municipal area - into a walking track. I stated that detailed plans and specifications should be submitted to the NPWS before construction commenced.

2. Weed Killer

Mr. van der Lee requested early approval for use of weed killer in the village.

I indicated that the matter would be followed up.

3. Signs

Mr. van der Lee stated that a system of "Summer signs" for the village was being investigated.

I indicated that designs, materials and locations would require NPWS approval.

Agreed to by Mr. van der Lee.

NOTE: Before terminating the conference I handed Mr. van der Lee ten copies of the KNP NO. 1 handbook.

C. J. Burrell,
Ranger, Thredbo.

December 8, 1968.

16th December, 68.

15A/1. PSM:CA.

Mr. Neary.

Mr. G. W. van der Lee,
Resident Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Alpine Village,
Kosciusko National Park,
VIA COOMA. 2630.

Dear Mr. van der Lee,

Golf Course Water Supply.

Approval is hereby confirmed for matters as listed below discussed on site, Friday, 6th December, 1968, by Ranger Burrell and Mr. D. Drayton.

1. Construction of a dam on the creek - unnamed - at the location indicated by Mr. Drayton to Ranger Burrell.

2. Clearing of timber and vegetation.

3. Excavation of water pipe trench.

Approval is confirmed subject to the following conditions:-

1. Dam wall to be of stone and cement not more than twenty-four inches in height.

2. No rock is to be removed from the creek for construction material.

3. All necessary precautions to be taken to prevent foreign matter or construction debris entering creek.

4. Width of clearing for trench construction not to exceed thirty-six inches.

5. Cleared timber and vegetation to be dispersed amongst surrounding vegetation; laid to the contour; upstanding branches lopped to within thirty inches of the ground.

6. Sods from trench excavation to be hand cut, and set aside for use in revegetation.

7. Trench line to be routed south-west of the bog area, as indicated by Ranger Burrell. Bog not to be disturbed.

(1) Mr Cammenter - URGENT - see tab

(2) Mr Govan - for discussion pls on "follow-up" systems ✓

8. Pipeline to be buried beneath the bed of the rill tributary to the main creek, as indicated by Ranger Burrell, at point of crossing.

9. Soil conservation practices as laid down in the Kosciusko National Park Handbook No. 1 - further copies available if required - to be adhered to.

10. Soil conservation works to be carried out to the Superintendent's satisfaction by 31st May, 1969.

11. Conditions of permit and approval for blasting in the Golf Course area to be adhered to.

Yours faithfully,

N. C. GARE,
SUPERINTENDENT.

c.c. Ranger Burrell.

Reading File.

(1+3)

cc Ranger Burnell
Rennie's File

59

RECEIVED
10 DEC 1968
KOSCIUSKO NATIONAL PARK

Approved as drafted
13/12

CMO for action

Mr. G. N. van der Lee,
Resident Manager,
Kosciusko Thredbo Pty Ltd.,
Thredbo Alpine Village,
Kosciusko National Park,
Via Cooma, 2630.

Dear Mr van der Lee,

Golf Course water supply

Approval is hereby confirmed for matters as listed below discussed on site Friday 6 December '68 by Ranger Burnell and Mr. D. Drayton.

1. Construction of a dam on the creek - unnamed - at the location indicated by Mr Drayton to Ranger Burnell.
2. Clearing of timber and vegetation.
3. Excavation of water-pipe trench.

Mr. Gore - URGENT

Approval is confirmed subject to the following conditions.

1. Dam wall to be of stone and cement not more than twenty four inches in height.

2. No rock is to be removed from the creek for construction material.

3. All necessary precautions to be taken to prevent foreign matter as construction debris entering creek.

4. Width of clearing for trench construction not to exceed thirty six inches.

5. Cleared timber and vegetation, to be dispersed amongst surrounding vegetation; laid to the contours; upstanding branches lopped to within thirty inches of the ground.

6. Sods from trench excavation to be hand cut, and set aside for use in revegetation.

7. Trench-line to be routed south-west of the bog area, as indicated by Rangers Burnell. Bog not to be disturbed.

8. Pipeline to be buried beneath the bed of the rill tributary to the main creek, as indicated by Rangers Burnell, at point of crossing.

9. Soil conservation practices as laid down in the K.N.P. handbook, No1 – further copies available if required – to be adhered to.

10. Soil conservation works to be carried out to the Superintendents satisfaction by 31 ~~May~~ May '68

11. Conditions of permit and approval, for blasting in the Golf house area, to be adhered to.

Yours faithfully.

13th December, 68.

FSN:JT 15A/1

Mr. Neary

Mr. G. W. van der Lee,
Resident Manager,
Kosciusko Thredbo Pty. Ltd.,
Thredbo Village,
via COOMA. N.S.W. 2630.

Dear Mr. van der Lee,

Reference is made to my letter of 22nd November, 1968, concerning your proposed Golf Course.

In clarification of my advice therein, I wish to confirm that the original approval for work on the Golf Course is now withdrawn.

I understand that you now propose a further alteration to the whole scheme, deviating from the latest plan held here, showing only the first four holes and substituting a new layout of nine holes.

Would you now please resubmit the whole proposal for fresh consideration.

Much fuller details are needed, including the matters mentioned in my last letter, and including proposals for repair and revegetation of disturbed ground surfaces, which will be required to be completed by 30th May, 1969.

Yours faithfully,

N. C. Carr,
Superintendent.

c.c. Ranger Burrell.

c.c. Reading File.

Neary - Check o/s action on file

Old plan No 10 Cabinet 2

RAO:CA.

SUBJECT: Inspection of Thredbo Franchise Area on 2nd December, 1968.

Present: Ranger C. J. Burrell - Kosciusko National Park.
Mr. D. Drayton - Kosciusko Thredbo Pty. Ltd.
Mr. R. A. Oldfield - Kosciusko National Park.

The first area inspected was the construction works associated with the proposed bowling greens. This area was in a shocking mess and by observation had been in a worse condition. I feel great incompetence was associated with the initial excavations for this area. No provision had been made for reducing the ground water and run-off water from the excavation prior to the construction. Initially this area was very swampy and had numerous little riverlets flowing through it.

I feel the Company should be censured for not having proper supervision of works.

It was discussed with the Resident Engineer, Mr. D. Drayton, that deep cut-off drains should be built approximately 40 ft. above the excavation. They they agreed to do and are proceeding with it at the moment. Filler material of road gravel will be used at the bottom of these drains to stop any scouring.

Golf Links.

The fairway to No. 1 green had been partly slashed and raked, leaving a good root system still in the soil. If seeding proceeds immediately, no loss of top soil will occur. Part of Nos. 3 and 4 fairways had also been cleared using this technique of slashing then raking with a normal stick rake.

The two culverts proposed on the creeks shown on the plans were satisfactory in size. The method of construction was discussed with Mr. Drayton and he stated that the creeks would be diverted well above the actual alignment and they would then trickle over the grass until construction of the culverts had been completed. Normal head walls, e.g., similar to D.M.R., would be constructed so as to contain all flow within the pipes. I feel that from this work no siltation at all will occur in the river.

Construction of the two bridges on the plan was also discussed with Mr. Drayton and satisfactory building techniques will be employed. The bridges will just consist of bearers and decking with log kick rails.

All pipe work associated with the water reticulation system to the various greens and fairways would be dug out by hand throughout, alleviating too much disturbance of the ground.

A satisfactory site was found for the dam at approximately 4,800 ft. level. Mr. Drayton stated that he was still waiting word from his Company in Sydney as to whether they would proceed with the whole links this year. I feel if any approach by the Company is made regarding the implementation of the whole golf links it should not be approved until soil conservation work and the final result of these first holes is satisfactory to the Superintendent.

Merritt's Spur Development.

The first thing I looked at, at the summit, was the toilets and I found that the piping from the actual toilets to the septic tank was broken in several places, the septic tanks had collapsed and the pipe from the tank to the effluent trench was broken and generally much sewerage had flowed all over the area. From observation, the pipes had been broken for some considerable time as so much sewerage material was covering the area. All in all, the construction methods that had been used were extremely poor.

I told Mr. Drayton to close this building immediately and not to let it be used until this severe health hazard had been fixed.

In the area a tremendous amount of soil conservation work is required. Much erosion had occurred and in many areas there was severe rilling and considerable amounts of top soil had been lost. Mr. Drayton assured us that this was in the works programme and would be completed before the winter next year.

The Company submitted a plan to install an incinerator hidden amongst rocks on the top of Merritt's. I feel perhaps that this installation would be a waste of money, considering the failure of our incinerator at Smiggin Holes. If any approval is given for this fire place, I feel some inclusion should be made that if it does not work satisfactorily, it could be pulled down.

Merritt's Road.

The erosion control methods of putting bumps across the road prior to winter have worked reasonably well, although some longitudinal scours are evident. Some culverts should be cleaned out and tail racers adjusted on the ends of some. Soil conservation works along the road have worked reasonably well and there is a reasonably good grass cover. Some cracking is noticeable on the fill batters but I do not think this should cause concern as it is only slight consolidation and not a slip circle failure.

Ross Oldfield.

R. A. OLDFIELD,
ENGINEER.
4th December, 1968.

THE SUPERINTENDENT.

BRITISH

"ELFACO"

FLAT FILES

Supplied in Assorted Colours
and Two Qualities

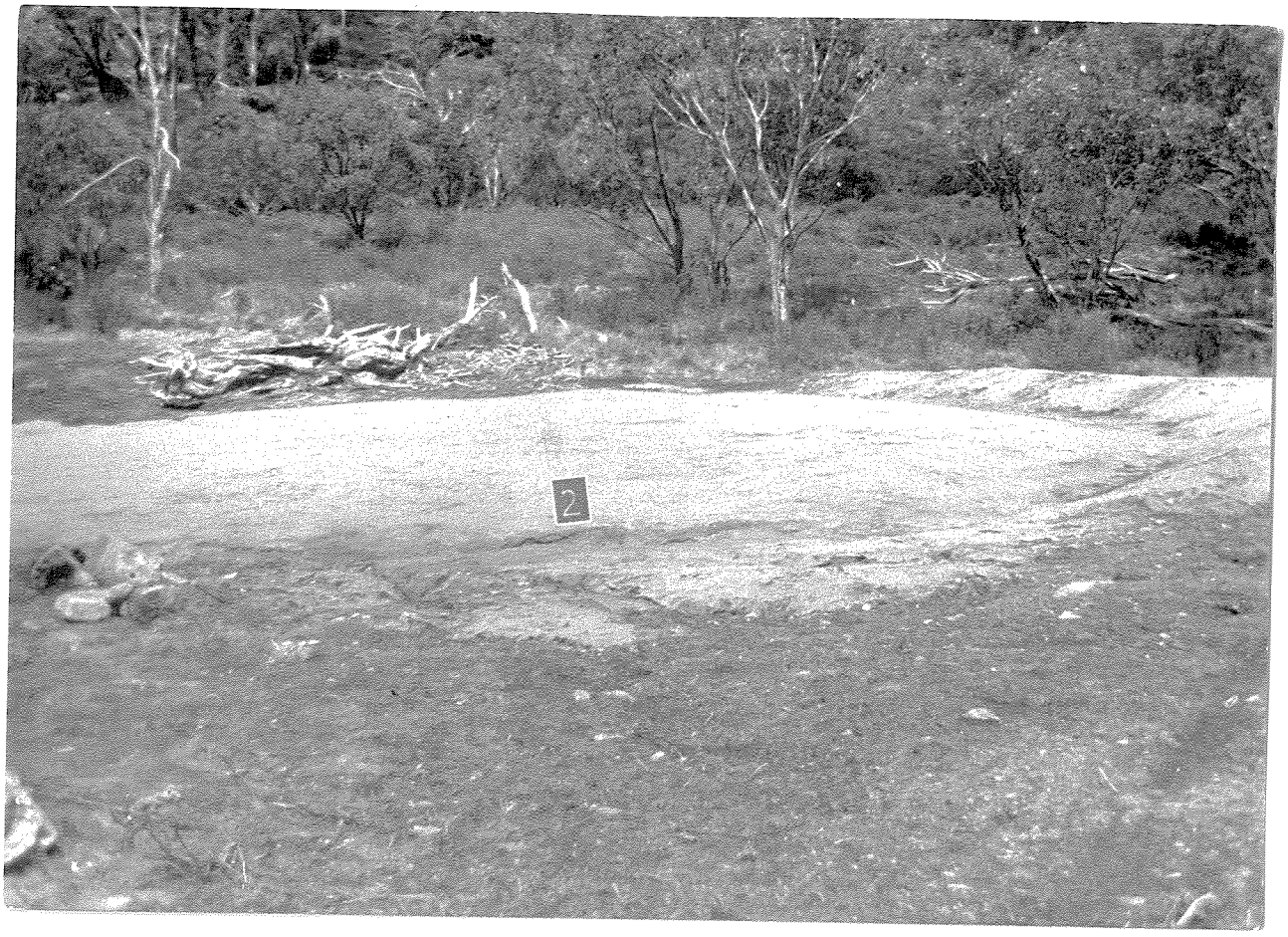
Annex I

Photographs of Golf Course Construction

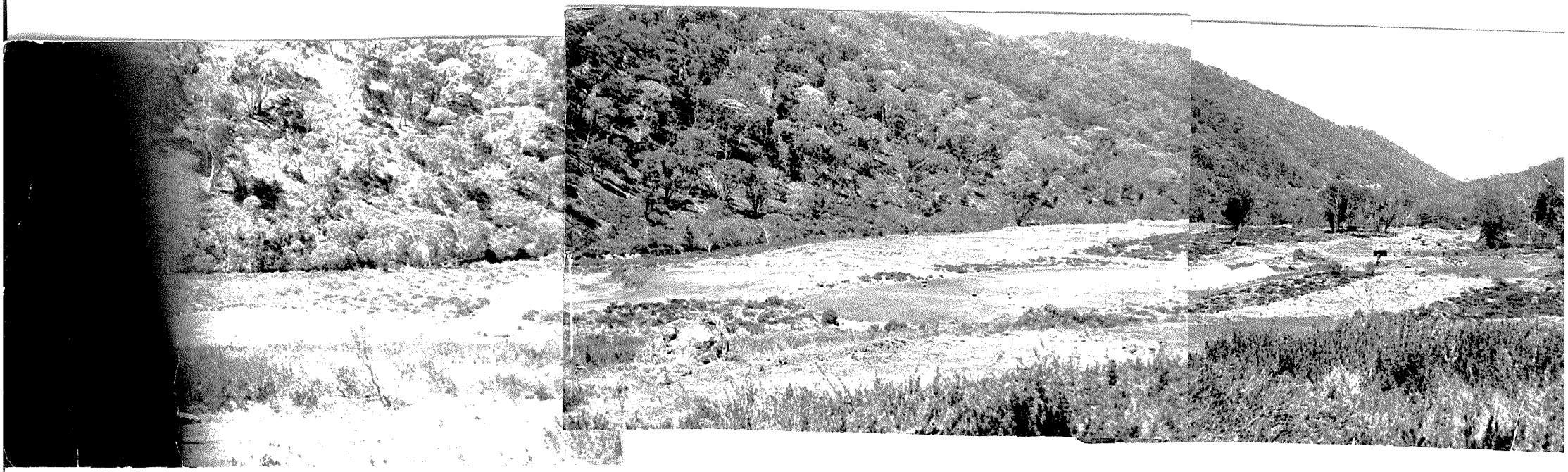

1

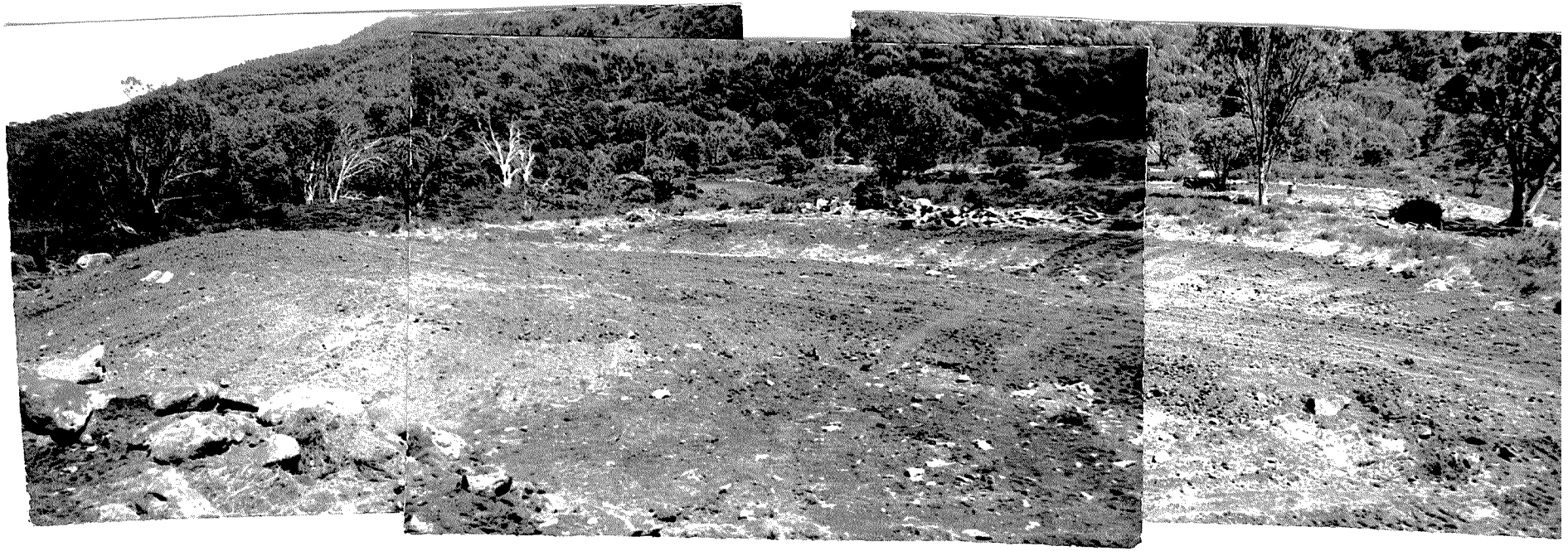

9 HOLE
GOLF COURSE
UNDER CONSTRUCTION

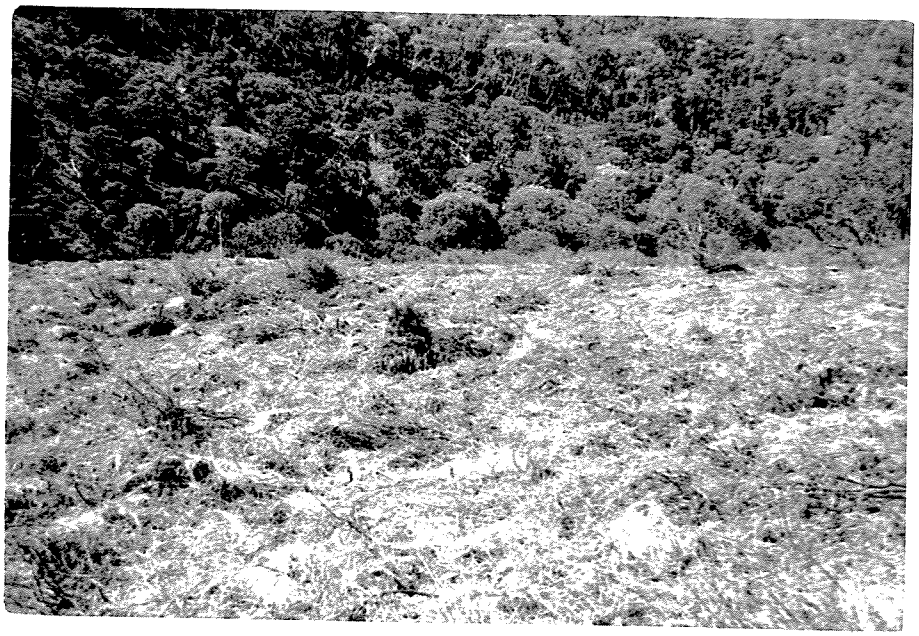

9 HOLE
GOLF COURSE
UNDER CONSTRUCTION

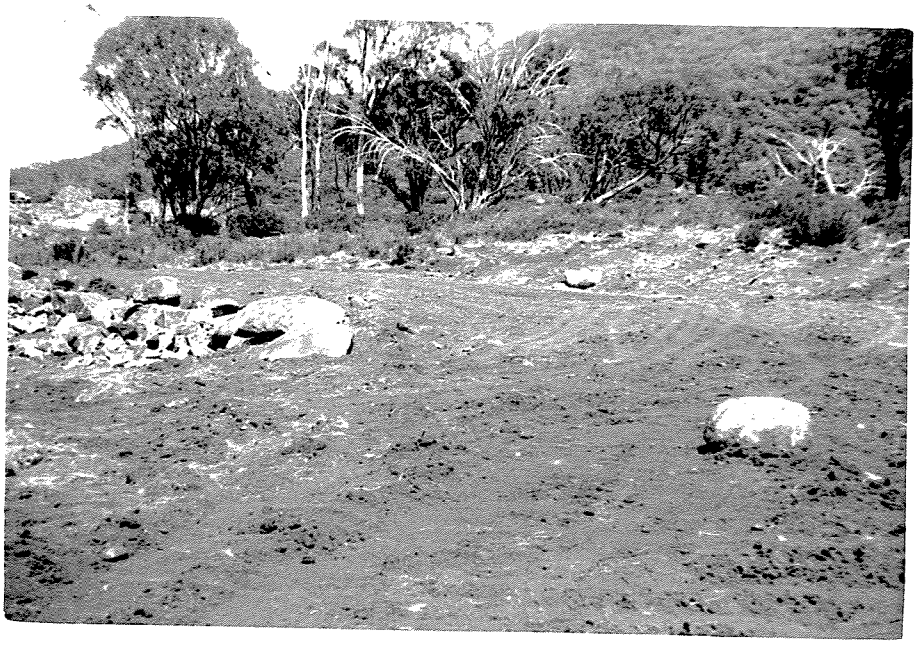

2


3





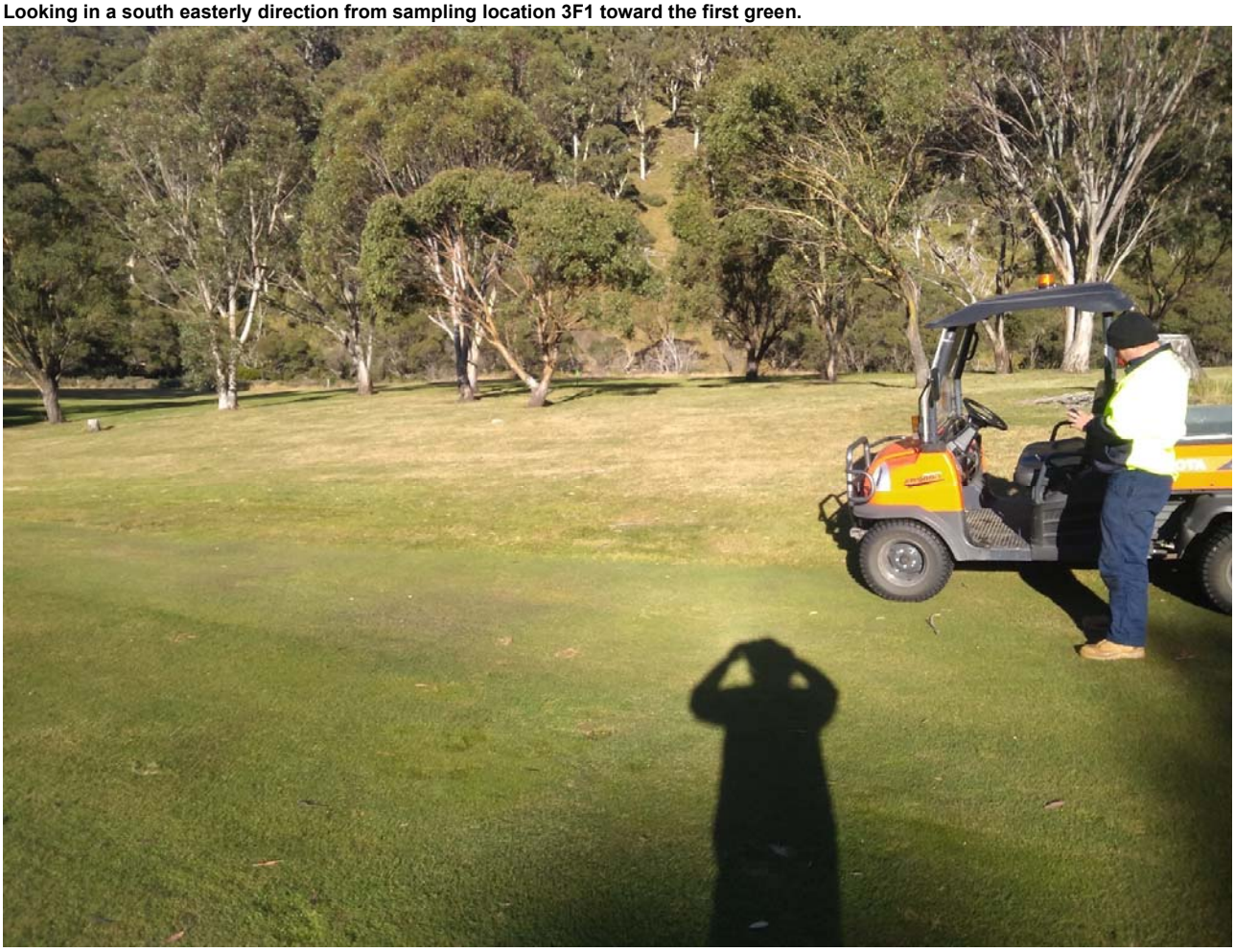




Annex **J**

Site Inspection Photographs

Looking in a south easterly direction from sampling location 3F1 toward the first green.



Looking in a south easterly direction at sampling location 3F2.

Looking in a north easterly direction toward the 3rd Green from sampling location 3F2.

Looking in a south westerly direction from sampling location 4T2 toward the 4th green.

Looking in a south westerly direction from sampling location 4T1 toward the 4th green.

Calibrating the PID prior to Sample Screening.

Oblique Aerial photo looking south west over the Thredbo Golf Course from above Thredbo Village.