Land Information New Zealand
Toitū te whenua

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112 Tuam Street
Private Bag 4721
Christchurch 8140
New Zealand
T 0800 665 463
F +64 3 366 6422
E customersupport@linz.govt.nz
W www.linz.govt.nz

Ref: DOIA 21-032

22 September 2020

[s 9(2)(a)]
By email [s 9(2)(a)] @walkingaccess.govt.nz

Dear [s 9(2)(a)]

Thank you for your official information request received on 11 August 2020 for *a copy of any correspondence or survey reports which LINZ commissioned, within the past ten years more or less, specifically relating to the investigation of either the actual physical level o boundary of Lake Wanaka*".

Please find enclosed three reports and their associated appendic s th t meet the criteria of your request. We are of the view that withholding that info mation is not outweighed by other considerations which render it desirable in the public inte est to make that information available. Please note some personal details have been withheld unde Section 9(2)(a) of the Official Information Act 1981 to protect the privacy of the i dividuals. Details from each report are summarised below.

- 2010 Mt Burke Station Foreshore I vestigation TL Survey Services Report
- 2010 Mt Burke Station Foreshore Investigation TL Survey Services Appendices
- 2016 Mt Burke Station Uncontrolled Lakes Report
- 2018 Mt Burke Stati n Inspection Report (Assessment of Qualifying Waterbodies) TL Survey Services Report
- 2018 Mt Burke Station Inspection Report (Assessment of Qualifying Waterbodies) TL Survey Services – Scheme plan

2010 Mt Burke Station Foreshore Investigation Report

Thi inves igation was commissioned as part of the tenure review process for Mt Burke, due to uncertainty regarding the position of the landward margin between Lake Wanaka and the lease and because the definition at that time would have been unsuitable to raise title at the end of the review.

The report did not determine the position of the fixed marginal strip (as depicted on SO 968), which separates the lease from Lake Wanaka, or the position of the normal level of the lakebed.

However, the report found the contour level of 279.3m is generally in close agreement with the fixed marginal strip. The report also notes that one area is markedly different from the fixed marginal strip boundary but does not go further to determine the position of that boundary.

Proactive Release

2016 Mt Burke Station Uncontrolled Lakes Report

This report was commissioned to address the complexities of defining the lakebed of Lake Wanaka. It notes that the definition of the normal level of the lakebed is difficult to determine as it is prone to flooding, that current guidelines are vague, and that further advice is required before the boundary and marginal strip could be determined with accuracy.

2018 Mt Burke Station Assessment of Qualifying Waterbodies Report

This report assessed the waterways on the Mt Burke pastoral lease to determine whether they qualified for marginal strips prior to the 1 July 2020 lease renewal. The report notes there is uncertainty regarding the exact location of the existing fixed marginal strip, which would be addressed if the lease were surveyed for tenure review. There was no further guidance available at the time of this report that could be used to determine the lakebed of an uncontrolled lake.

In summary, further work (a full survey of the area) is required to conclude with certainty where the landward position of the lakebed is as the Conservation Act 1987 is vague and does not provide guidance with respect of uncontrolled lakes (in this case Lake Wanaka).

Access to Lake Wanaka

The Commissioner of Crown Lands is actively working with several parties, including the Mt Burke lessee, the Department of Conservation and the Queenstown Lakes District Council, to explore options for resolving the complex access issues at this location.

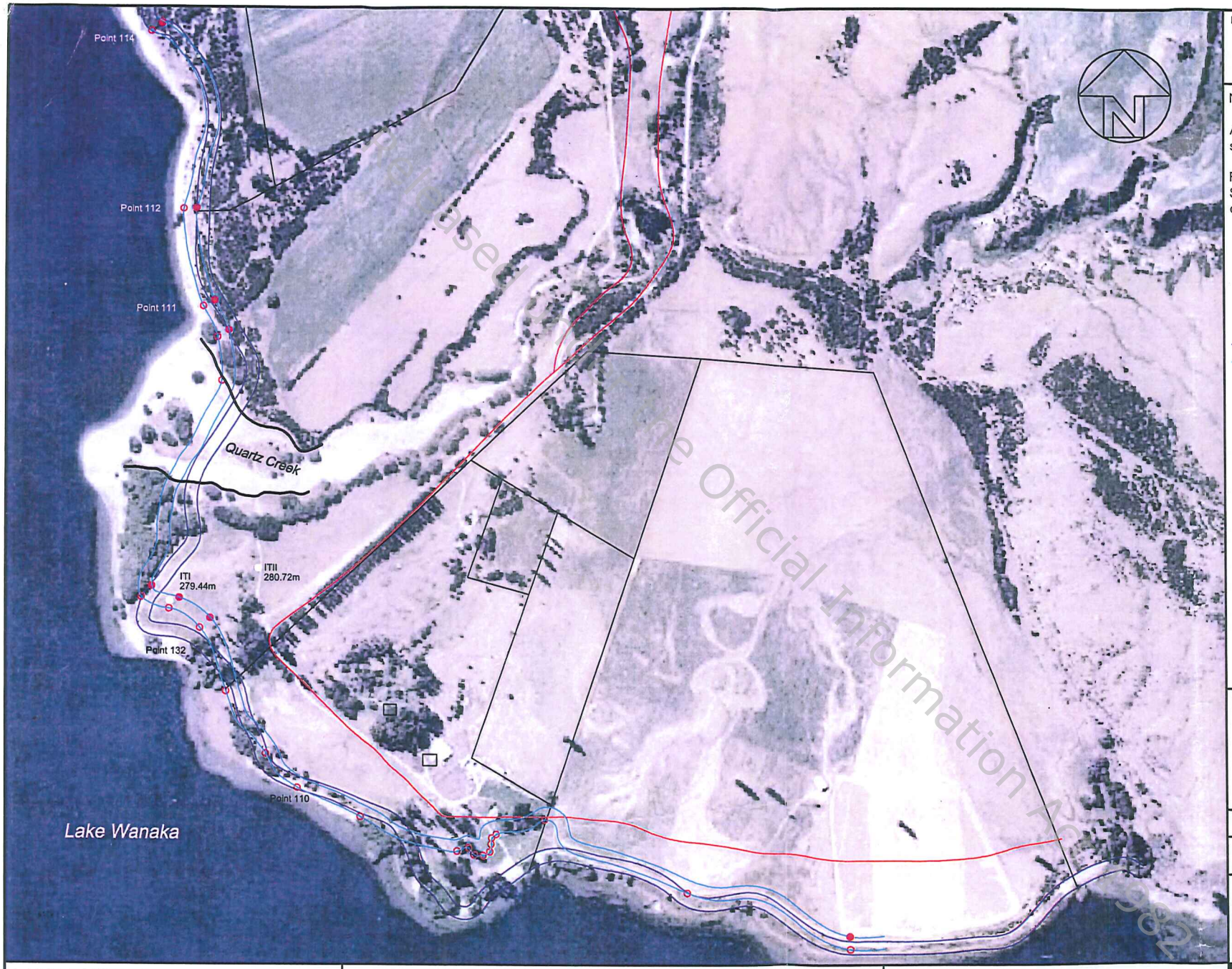
If you have any questions, or require any further assistance, please do not hesitate to contact Nick Sinclair-Butterick, Portfolio Manager at NSinclair-Butterick@linz.govt.nz.

You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Yours sincerely

Lydia Bloy
Group Manager, Crown Property Christchurch

Proactive Release



Prepared For:

Opus International

NOTE:

All dimensions and areas are subject to final survey

Fence lines, the road centre lines and the Sec 24(3) marginal strip as shown have been digitized from SO968.

- Bench Mark
- Point on 279.3m contour
- Stake placed 20.12 back from 279.3m contour
- Foreshore SO968
- Approximate foreshore based on 279.3m contour

Drawing Title:

Lake Wanaka Foreshore Investigation Mt Burke Station Pt Run 800

Total Area

Comprised in

Survey Services — Surveying Consultants

TL Survey Services Limited

Lower Ground Floor Sport Otago House - 184 High St.
P.O. Box 901 DUNEDIN 9054
Phone (03) 477 1133 Fax (03) 477 1127

Drawing File Mt Burke Investigation

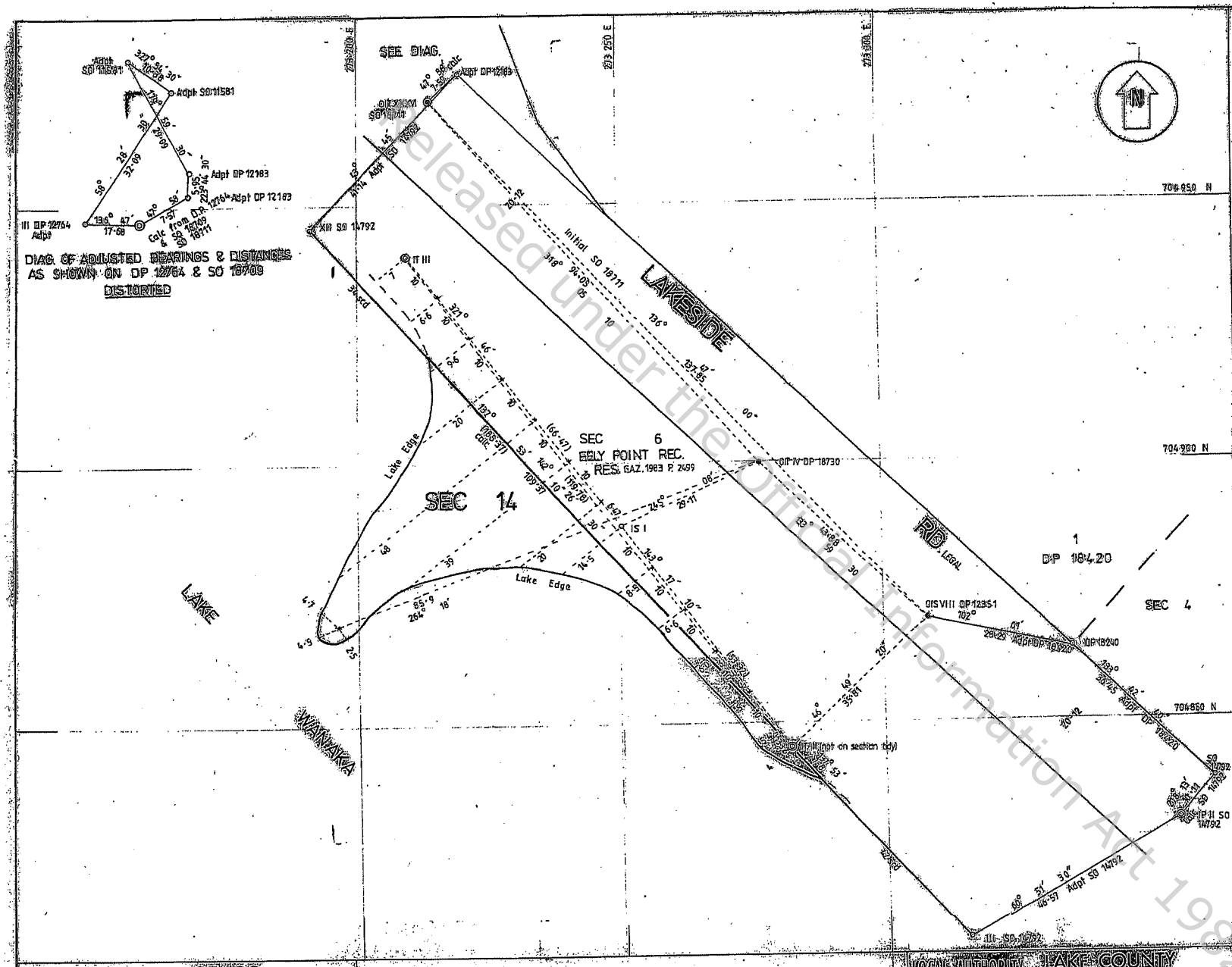
TL Job Number 10135

LAND DISTRICT OTAGO

LAKE WANAKA FORESHORE INVESTIGATION MT BURKE STATION

TERRITORIAL AUTHORITY QUEENSTOWN-LAKES DC
Prepared by TL SURVEY SERVICES LTD
Scale 1:6000@A3 Date September 2010

Released under the Official Information Act 1982



No occupation
All measurements, except offsets, are E.D.M.

COORDINATES

OIS IV DP 18730	704 900·17 N	273 276·60 E
IT II	704 845·19 N	273 282·06 E
IT III	704 940·14 N	273 299·05 E

DATUM: GEODETIC 1949

COORD ORIGIN: LINDIS PEAK

700 000 N. 300 000 E.

Total Area

Comprised in

I, Kenneth Walter Paterson of Wanaka registered surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to the proviso to section 33 (2) of the Surveyors Act 1966) hereby certify that this plan has been made from surveys executed by me or under my directions, and that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972.

Dated at Wanaka this 25th day of February 1986 Signature

Field Book 2270 p. 89 Traverse Book 233 p. 77

Reference Plans SO 14792, 18709, 18711
DP 18730, 18420, 12764, 12351, 12183

Examined Correct

Approved as to Survey 20/3/86

Chief Surveyor

Deposited this day of 19

District Land Registrar

Title
Received
Instructions

LAND DISTRICT OTAGO

SURVEY BLK & DIST XV Tn. of Wanaka

N.Z.M.S. 261 SHEET No. F 40 RM E 40/34-10

PLAN OF SECTION 14

LOCAL AUTHORITY LAKE COUNTY

Surveyed by K. W. Paterson

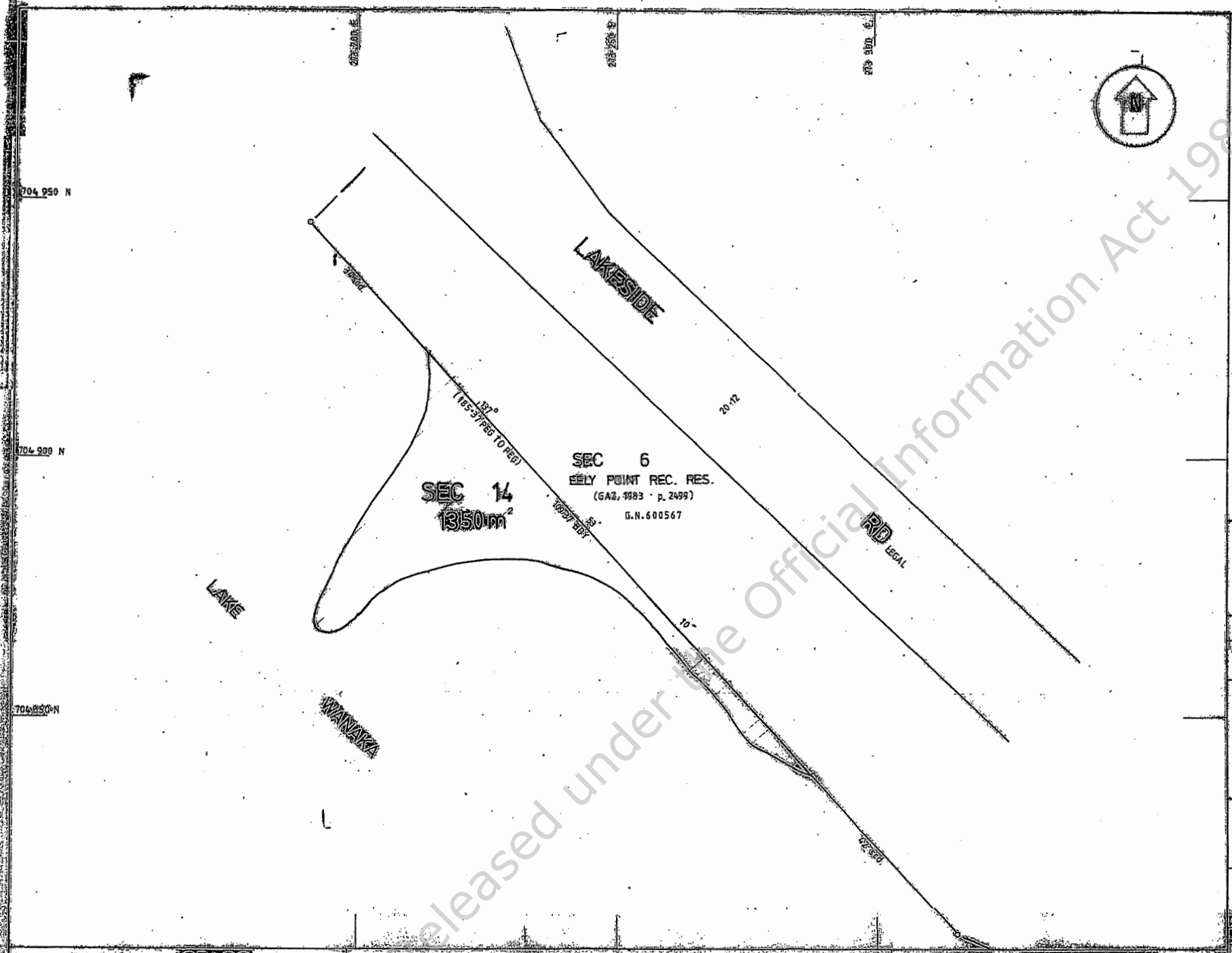
Scale 1 : 500 Date Feb. 1986

SO 21827

Surveyor-General, Department of Lands and Survey, Wellington

LBS FORM N 93

Released under the Official Information Act 1982



FORMERLY BED OF LAKE WANAKA

DATUM: GEODETIC 1949
COORD ORIGIN: LINDIS PEAK
700 000 N. 300 000 E.

Total Area 1350m²
Comprised in

I, Kenneth Walter Paterson of Wanaka registered surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to the proviso to section 33 (2) of the Surveyors Act 1966) hereby certify that this plan has been made from surveys executed by me or under my directions, and that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972.
Dated at Wanaka this 25th day of February 1986 Signature

Field Book 2270 p. 89 Traverse Book 233 p. 77
Reference Plans S.O. 14792, 18709, 18711
D.P. 18730, 18420, 12764, 12351, 12183
Examined Correct
Approved as to Survey 20/3/86
District Surveyor
Day of 19
District Land Registrar

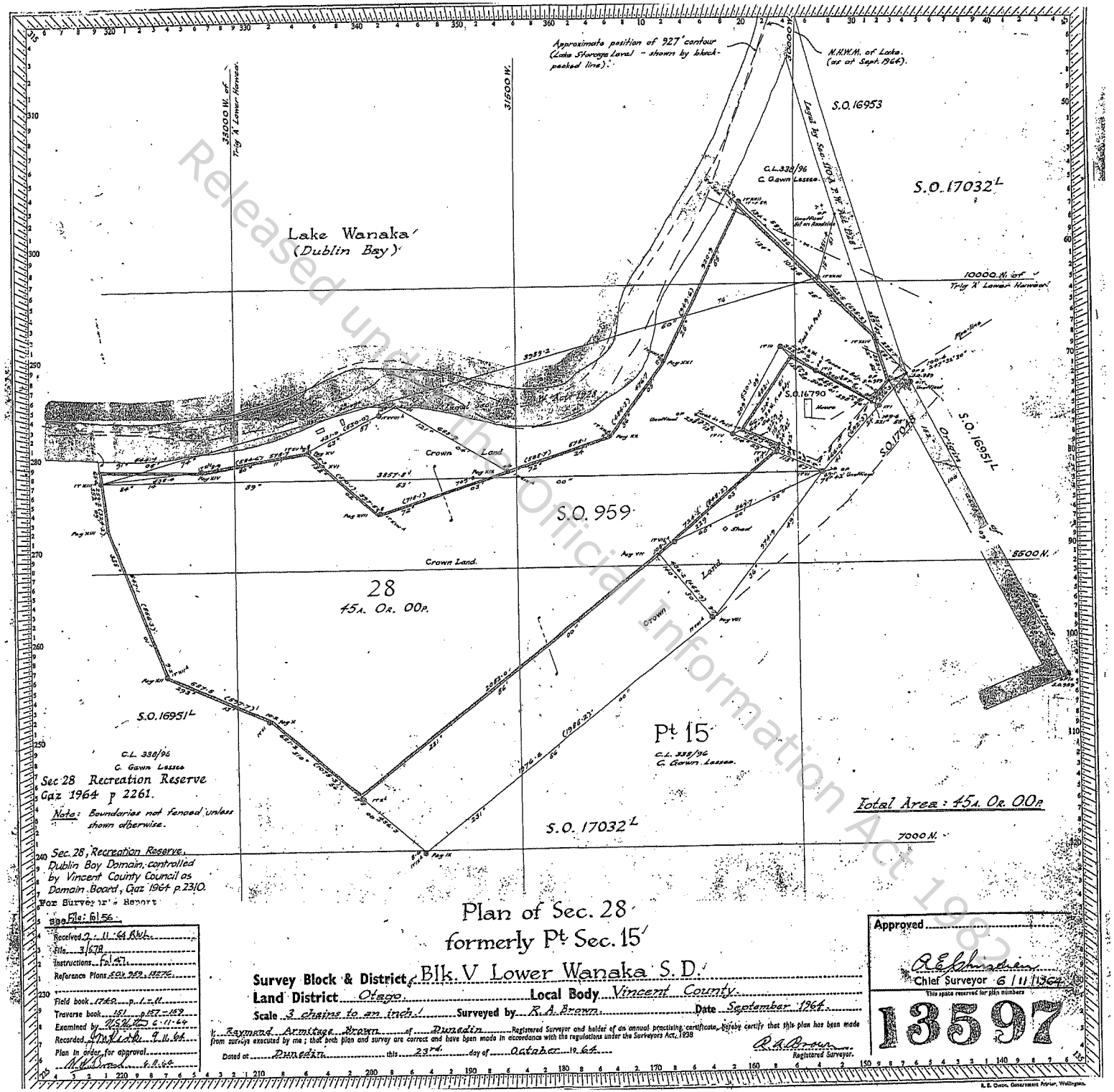
LAND DISTRICT OTAGO
SURVEY DIST. & DIST. VL. Tn. of Wanaka
N.Z.M.S. 261 SHEET No. F40 RMP 40/34-10

PLAN OF SECTION 14

LOCAL AUTHORITY LAKE COUNTY
Surveyed by K. W. Paterson
Scale 1 : 500 Date Feb. 1986

SO 21827

Released under the Official Information Act 1982



Plan of Sec. 28 formerly Pt Sec. 15

Survey Block & District: Blk. V Lower Wanaka S.D.

Land District: Otago. Local Body: Vincent County.

Scale: 3 chains to an inch. Surveyed by: R.A. Brown. Date: September 1964.

I, Raymond Armitage Brown of Dunedin Registered Surveyor and holder of an annual practising certificate, hereby certify that this plan has been made from surveys executed by me; that both plan and survey are correct and have been made in accordance with the regulations under the Surveyors Act, 1938

Dated at Dunedin this 23rd day of October 1964.

R.A. Brown
Registered Surveyor.

Received 9.11.64 RWL
File 3/678
Instructions 6147
Reference Plans S.O. 959, 16876.
Field book 1760 p. 1-11
Traverse book 151 p 157-159
Examined by 6.11.64
Recorded 9.11.64
Plan in order for approval 6.11.64

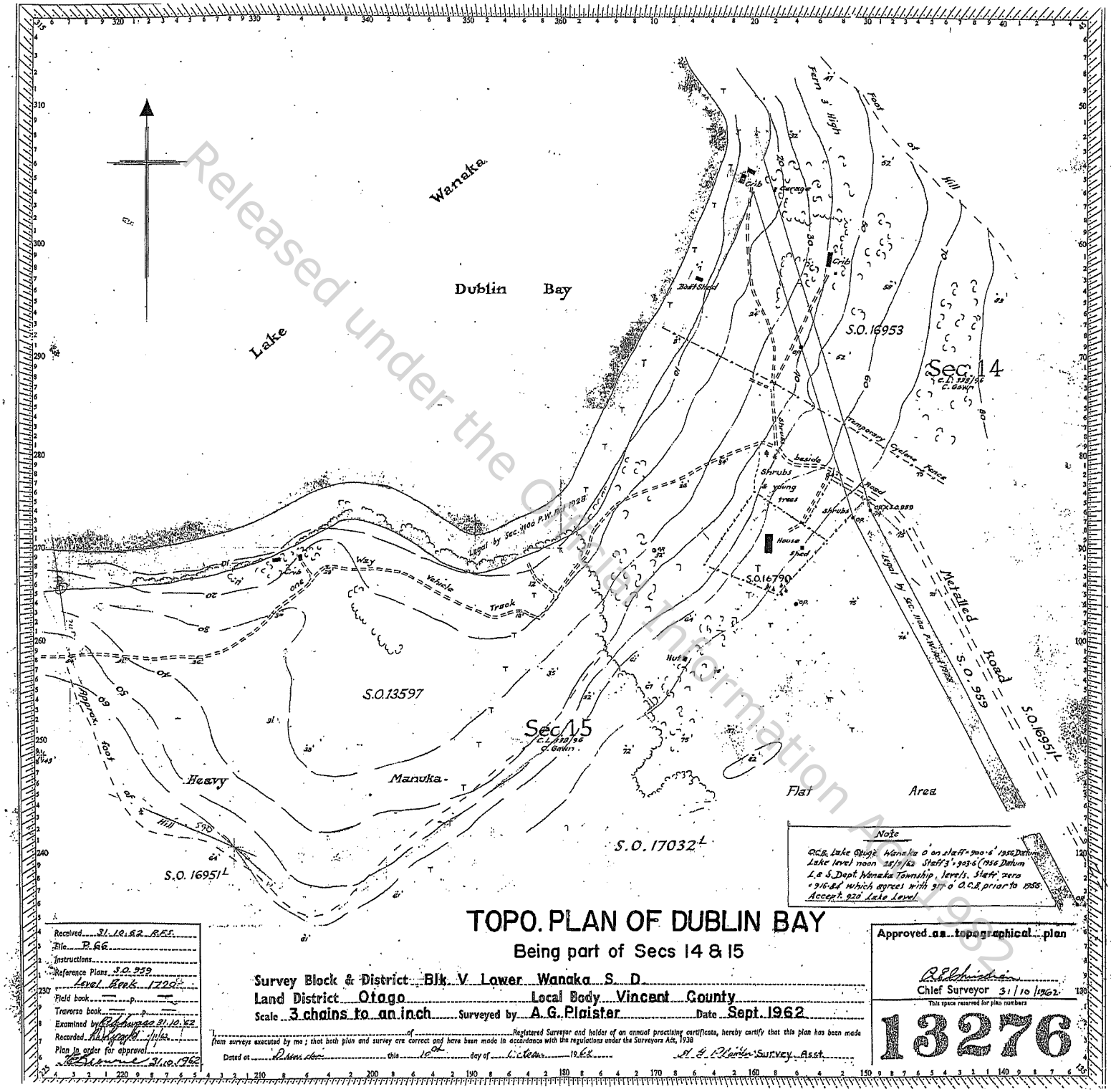
Approved
Chief Surveyor 6/11/1964

This space reserved for plan numbers

13597

Released under the Official Information Act 1982

R. E. Owen, Government Printer, Wellington.



TOPO. PLAN OF DUBLIN BAY

Being part of Secs 14 & 15

Survey Block & District Blk V Lower Wanaka S. D.

Land District Otago Local Body Vincent County

Scale 3 chains to an inch Surveyed by A. G. Plaister Date Sept. 1962

I, ... of ..... Registered Surveyor and holder of an annual practising certificate, hereby certify that this plan has been made from surveys executed by me; that both plan and survey are correct and have been made in accordance with the regulations under the Surveyors Act, 1938

Dated at Queenstown this 18th day of October 1962 A. G. Plaister Survey Asst.

Received 31.10.62 R.F.S.
File P.66
Instructions
Reference Plans S.O. 959
Level Book 1720
Field book — p. —
Traverse book — p. —
Examined by 31.10.62
Recorded
Plan in order for approval 31.10.1962

Approved as topographical plan

Chief Surveyor 31/10/1962.

This space reserved for plan numbers

13276

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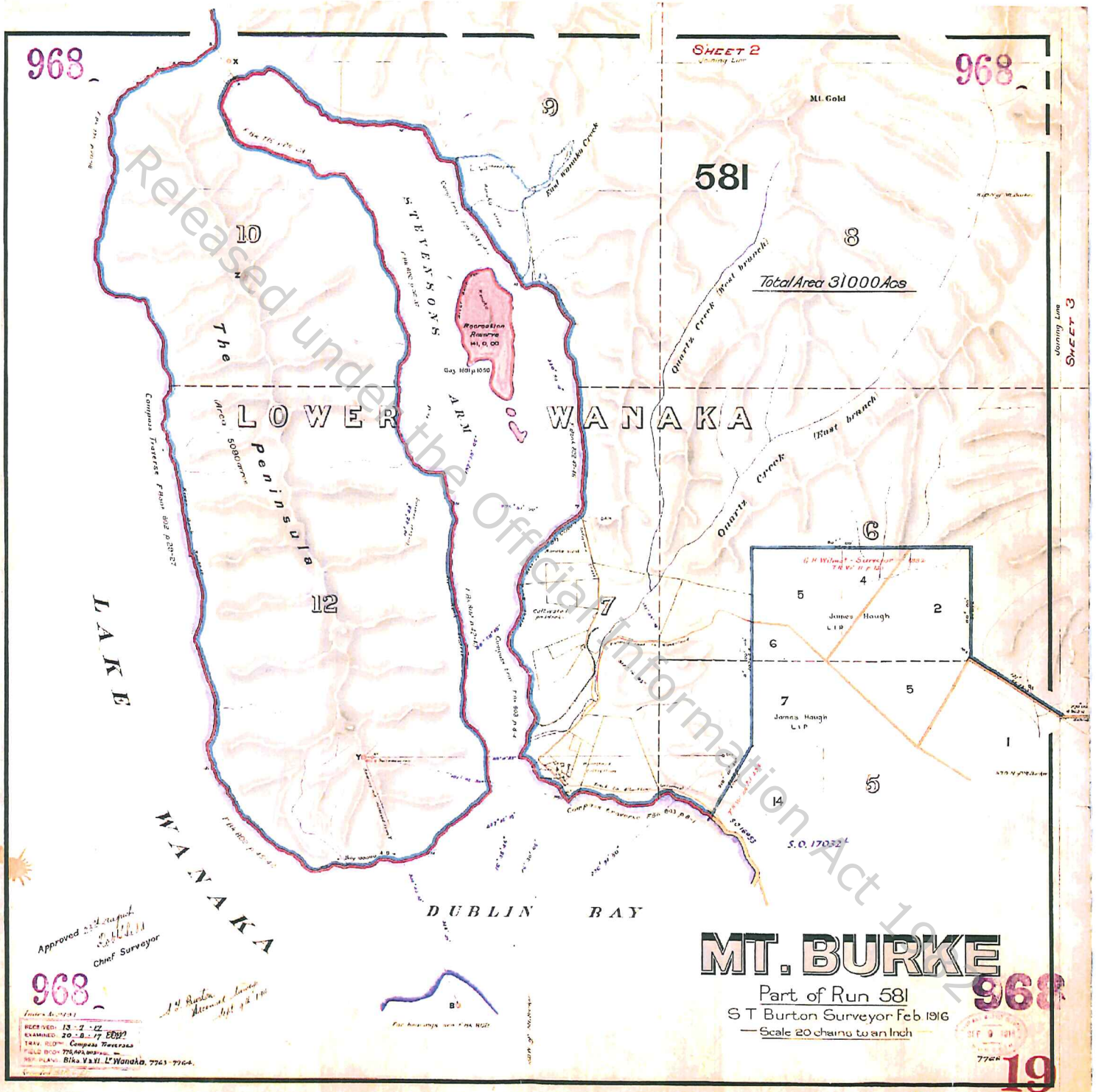

Part of Run 581

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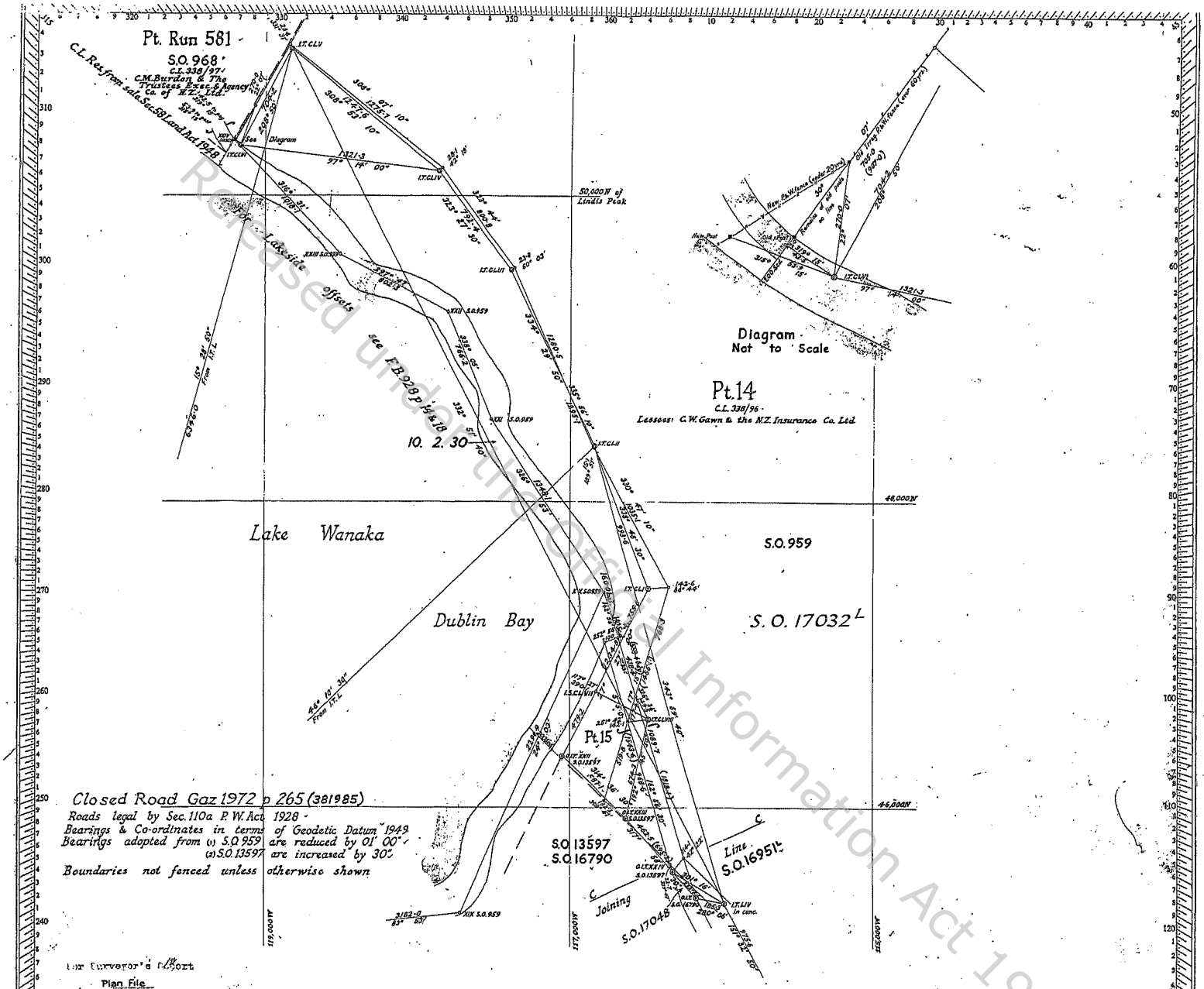

Released under the Official Information Act 1982

For Surveyor's Report
Plan File

Received 18-6-70
File R.L.F. 1122
Instructions Folio 645
Reference Plans S.O. 959, 968, 13276, 13597, 16790, 16951
Field book 1836 p. 4-9
Traverse book 171 p. 188-189
Examined by C.R. Fisher 17.8.1970 (E.B.31)
Recorded
Plan in order for approval
18/8/70

Road to be Closed

Survey Block & District V Lower Wanaka S.D.
Land District OTAGO Local Authority VINCENT COUNTY
Scale 4 Chains to an inch Surveyed by R. S. Adam Date Aug. & Nov. 1969

I, Robert Ralph Shepherd Adam of Dunedin Registered Surveyor and holder of an annual practising certificate, hereby certify that this plan has been made from surveys executed by me; that both plan and survey are correct and have been made in accordance with the regulations under the Surveyors Act, 1966.

Dated at Dunedin this 18th day of June 1970

R.S. Adam
Registered Surveyor.

Approved
Chief Surveyor 25/8/70

This space reserved for plan numbers

16953

Survey Services

TL Survey Services Limited

MT BURKE STATION FORESHORE INVESTIGATION

September 2010

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Survey Services

TL Survey Services Limited

Phone 03 477-1133
Fax 03 477-1127
184 High Street
PO Box 901
Dunedin 9054

Our Reference: 10135
Your Reference:

21 September 2010

Dave Payton
Opus International Consultants Ltd
Private Bag 1913
DUNEDIN 9054

MT BURKE STATION SHORELINE – INVESTIGATION REPORT

On Wednesday 15 September 2010, under instruction from Dave Payton of Opus International Ltd, Bruce Soper of TL Survey Services Ltd undertook an investigation of the lakeside on Mt Burke Station, Wanaka, to determine the legal shoreline of Lake Wanaka. This report has been undertaken under my direction and is in terms of Section 24 and the interpretation section of the Conservation Act 1987.

The weather was fine and calm on the day of inspection. The level of Lake Wanaka was recorded as being 277.4m, slightly above the long-term average of 277.27m. Present on the day of inspection was Tim Burdon (Lessee), Rob Wardle (DOC), Dave Payton (Opus) and Bruce Soper (TL Survey Services surveyor).

Background

Mt Burke Station is currently in the tenure review process and it is important for all parties to have the legal shoreline identified both for public access requirements and farm management purposes.

LINZ has requested an investigation into what level of the lake would be considered the legal cadastral level so that the Sec 24(3) marginal strip can be accurately positioned.

The definition of Mt Burke Station in the vicinity of Stevensons Arm and The Peninsula is recorded on SO968, surveyed by S.T. Burton in February 1916. The plan shows triangulated control from trig stations, topographical data including fences and road patterns in the vicinity of the homestead and a reserve strip around the edge of the lake. The shoreline has been fixed by compass traverses recorded in various field books. There is no level of the lake recorded on the plan face.

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Methodology of Investigation

Research of the existing cadastral record was undertaken to determine if any previous surveys had identified a lake level considered to be the legal level of the bed of the lake.

Information was obtained from various sources to obtain long-term records of the lake level including flood-warning levels for the lake.

Field assessment of the shoreline using RTK GPS technology to accurately record the data to a high standard of horizontal and vertical accuracy. This investigation is in terms of Geodetic Datum 2000, Lindis Peak Circuit. The vertical datum is Dunedin Vertical Datum 1958. The origin for both horizontal and verticals is Trig 11584 (A3PF). The data is based on a single point calibration using the NZVD2009-South Geoid Model.

Two bench marks were established in terms of the recognized datum in the vicinity of the homestead for use at the time of implementation.

Historic Research

Interpretations.

Bed of a Lake – The space of land which the water of the lake cover at its highest level without exceeding the physical margin. *The Conservation Act 1987.*

Natural state - in relation to the water levels of the lake, means the levels the water in the lake attains naturally from time to time without control or obstruction by or through the agency of any person; and, in relation to the shoreline of the lake, means the natural contours of the shoreline formed from time to time by the water levels of the lake, or formed from time to time by natural changes to the shore of the lake. *Lake Wanaka Preservation Act 1973.*

Section 24 of the Conservation Act 1987 states that there shall be deemed to be reserved from the sale or other disposition of any land by the Crown a strip of land 20 metres wide extending along and abutting the landward margin of the normal level of the bed of any lake not subject to the control by artificial means. As the marginal strip is an existing strip under Sec 24(3) the strip of land is 1 chain or 20.12m.

I have interpreted the normal level of the bed of the lake to be the normal flood level before the water of the lake overtops the banks or physical margin. This interpretation seems to fit with the depiction of the lake edge as shown on SO968 as the shape of the foreshore on SO968 is in close agreement with the modern fixes in all but very low lying areas.

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Lake Levels

Trigger Levels

	First warning level	Standby level	Flood (low lying areas)
Lake Wanaka	279.4m	279.8m	280.0m

Reaching this first warning level does not mean there's a flood. It simply means that the Council will begin communicating with businesses and residents that could be affected by a flood and encouraging them to begin implementing their own flood management plan. *(Reference; Queenstown-Lakes District Council Website - Flooding and Lake Levels)*

See also and extract from an Opus report that shows the lake level over the period 1928-2008. *(Reference; Lake Level History prepared for the Electricity Commission by hydrologist James Knight published in February 2009.)*

The Cadastral Record

SO13276, SO13597 and SO21827 are all plans fronting the foreshore of Lake Wanaka. Unfortunately SO21827 doesn't record a level for the definition of Section 14 shown on that plan. The other two plans record levels of the lake that appear to be well above the recognized flood level of the lake ie 920ft = 280.42m on SO13276. Both SO13276 and SO13597 are in terms of heights that were later adjusted in 1965. We have documentary evidence from our work with Lake Hawea that the heights on plans prior to 1965 should be adjusted by –1.89m to bring into terms of the Dunedin Vertical Datum 1958.

Taking a close look at SO968 and superimposing the reserve strip around the edge of the property onto modern photography there appears to be very little difference in the shape of the shoreline. The only noticeable difference is at the Quartz Creek delta where over 90 years of flooding has deposited gravel beyond the surveyed line established in 1916. I have not had the opportunity to examine the field book containing, what I assume to be, a compass traverse of the Lake Wanaka foreshore. From the close match of the shape of the foreshore from 1916 to today I think that it can be assumed that the fix was quite good – at least good enough to show that the developed land and homestead block is above the normal flood level of the lake. The aerial overlay attached to this report shows the digitized topographical features shown on SO968 superimposed onto modern photography using these same features as control.

Field Assessment September 2010

GPS fixes were recorded in two well-separated parts of the lake to form a comparison. Roy's Bay was chosen as the second site because of the intensity of development in this area and because the foreshore on the eastern side of the bay is not subject to long term wave action that could affect the results of the investigation.

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A point was taken on the foreshore opposite the main shopping complexes. The top of the crest approximates the 280m level that would flood low lying areas of the town. Three fixes were taken to grass covered banks close to the waters edge giving an average level of 278m. This bank approximates the vegetation line in this vicinity but this level was considered to be too low when compared to other banks at Mt Burke Station. I do not believe this level satisfies the interpretation of a lake-bed as described in the legislation.

Three separate areas were then evaluated adjoining Lakeside Road generally in the vicinity of Mackay and Winders St. In all three locations there was a clear flotsam line of old leaves and small bits of wood that was left behind following flooding in May 2010. This flood level can be seen in the graph on page 2 of 2 of Water Info/Upper Clutha Catchment attached to this report. A series of photos have been taken of these areas showing the GPS pole on both this contour and the 280m contour. Of significance in these photos is the presence of stored boats and well-established trees below the flotsam line and also seats and walking tracks between the flotsam line and the 280m contour. There was little evidence of banks at either contour along this edge only a slight terrace that had been formed below the seat at point 105. Measurements to this flotsam line ranged between 279.2 to 279.4m with an averaged of 279.3m.

In the afternoon the focus of the investigation was on the foreshore of Mt Burke Station close to the homestead and Quartz Creek.

Following discussions with Tim Burdon with respect to the interpretation of the bed of a lake, Tim was asked if he knew of an area of shoreline that could be considered as the physical margin of the lake. Point 110 is at the crest of a gently sloping beach that Tim considered sheltered from the prevailing wind and wave action. The level of Point 110 is 279.3m. Considering the photo of point 110 I would suggest that this is clearly representative of a physical margin of a lake bed as a water level higher than this would start overtopping the bank and start flooding land beyond.

In order to move forward with the investigative process it was agreed that this level of 279.3m would be used in the interim to place a number of stakes in key locations where both public access and farm management purposes could be seen to be in conflict.

North of the Quartz Creek delta three such positions were marked out with stakes being placed on the sloping vegetated ground around the foreshore. Refer to photos of points 111-114. A reasonably definitive line can be seen especially in the photos of point 111 where the grass stops at the 279.3m contour to give way to the gravel and sand of the beach surrounding the lake. Looking around the lake this line could be clearly seen as the boundary between land that could be considered lake-bed and land that was clearly covered in long term vegetation and pasture.

The next point of interest was the area immediately adjoining the mouth of Quartz Creek. Bruce was asked to give his opinion on the banks of the creek and these are generally shown on the aerial overlay. Due to the presence of trees on the true left

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bank an accurate assessment of the foreshore boundary was not possible on the day. An approximation of the boundary is shown on the aerial overlay in a light blue colour.

ITI is situated in a paddock locally known as the Flax Paddock. This paddock is very low lying and has a gradient of approximately 1:150. Three sets of stakes were placed to define the Sec24(3) marginal strip in this vicinity. Refer to photos of point 132.

An area of considerable concern to Tim Burdon was the area in the immediate vicinity of his killing shed, and the concrete boat ramp in the bay to the south-east of the homestead. This area is undulating with some higher mounds but generally below the 279.3m contour. This definition is markedly different from the definition shown on SO968.

The paddocks to the east of the boat ramp are also low lying and Tim admitted that these paddocks are the first to flood when the lake is high. A gravel ridge along the foreshore approximates the 279.3m contour. It would be difficult to justify extending the lake bed back into these paddocks as they are clearly grazed and managed as farm land for all but short periods of time when flood waters extend beyond the higher gravel bund adjoining the lake.

Bench Marks

ITI and ITII have been placed to provide heights in terms of the official datum in the immediate vicinity. The heights of both of these marks should be checked against another 2V station as a check on their accuracy. The interim heights are as follows:

ITI 279.44m
ITII 280.72m

Summary

This investigation suggests that the 279.3m contour level would satisfy the definition of the bed of Lake Wanaka based on field measurements to features considered to be the physical margin the of the lake and taking into account such things as flood warning levels and historic flood events. This level is also in close agreement with the historic record of SO968. The 279.3m contour is just below the First Flood Warning Level of 279.4m as set down by the Otago Regional Council.

I believe that by adopting the 279.3m contour to define the lake bed that it will not contradict the provisions of the Lake Wanaka Preservation Act 1973 or the those of the Conservation Act 1987.

Yours faithfully

[redacted]

Steve Copson
Licensed Cadastral Surveyor

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3.4 Lake Wanaka

3.4.1 History

Lake Wanaka, the country's fourth largest lake, is more than 300m deep and an altitude of approximately 300m. The surface area of the lake is 192km² with a catchment area of 2576km². The level of this 'natural' is not managed currently. The lake level data are, however, used by Contact Energy to manage the hydro scheme on the Clutha River.

The lake level recorder is located at the Wanaka Township. The earlier lake level records (1929 to 1933) were from a staff gauge installed on the wharf in Roy's Bay (Pembroke Wharf). This gave poor readings as the wharf gradually subsided. A monthly Kent chart recorder was installed near the wharf on 1 February 1933, using the wharf staff gauge as the external staff gauge. This gauge was replaced in 1952 by a new installation approximately 250m northwest of the wharf. This new site began recording in October 1952 with another monthly Kent chart recorder. This continued operating until it was replaced with a Fisher and Porter punched tape recorder in May 1975.

In February 1994, an encoder replaced the tape record and the data are currently telemetered. Outflow is recorded at the south eastern end of the lake which flows into the Clutha River.

Table 3.6 Timeline of Key Events

Period	Recorder
1 Dec 1929	Record commenced. Natural lake – no controls. Possibly backwater effects from high flows in the Hawea River.
7 Dec 1929 to 1 Feb 1933	Staff gauge on Roy's Bay Wharf recorded lake level.
1 Feb 1933 to 2 Oct 1952	Installed a monthly Kent chart recorder on wharf.
2 Oct 1952 to 21 May 1975	Kent chart recorder replaced by another Kent recorder 250m northwest of the wharf as the wharf was sinking and producing poor data.
21 May 1975 to 11 Feb 1994	Kent recorder replaced by a Fischer and Porter digital recorder.
11 Feb 1994 to present	Digital recorder replaced with an Aquitel encoder and telemetry.

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3.4.2 Lake Level

The Lake Wanaka level record is shown in Figure 3.7, and as a strip in Figure 3.8 for more detail.

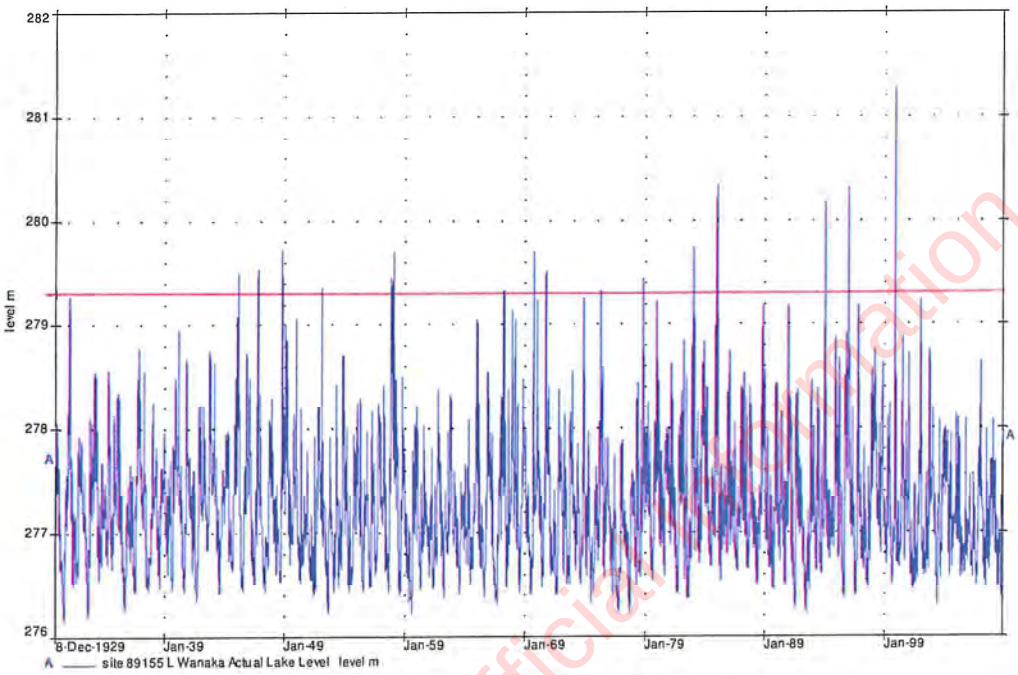

Figure 3.7 Lake Wanaka Level Record (m) 1929 to 2008

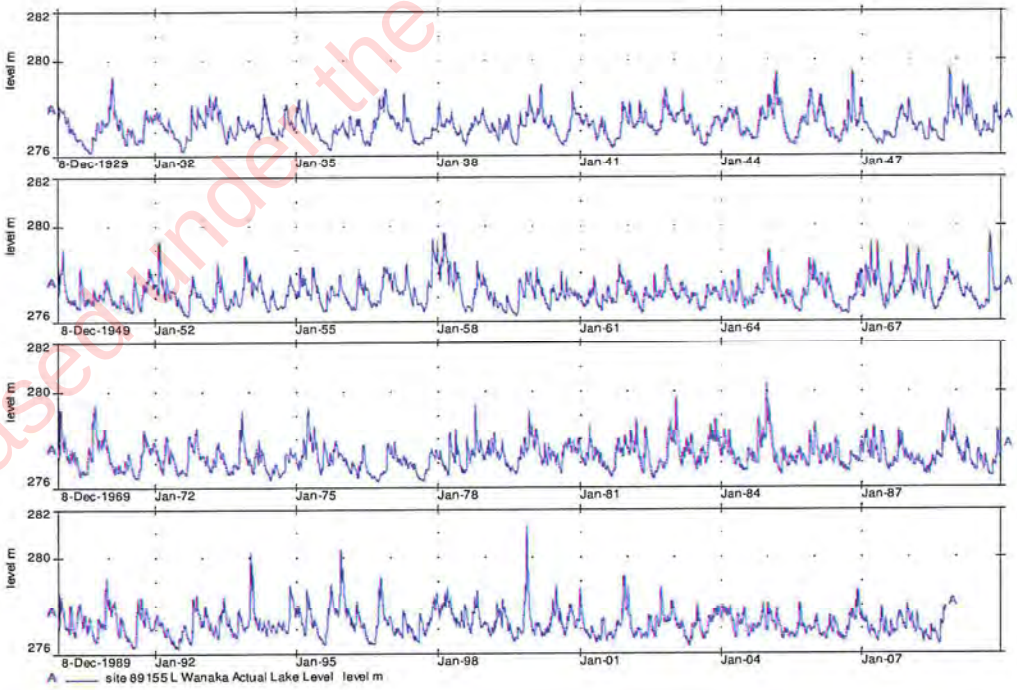

Figure 3.8 Lake Wanaka Level (m) Strip 1929 to 2008

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.govt.nz

Water Info / Upper Clutha Catchment

Water Level at Lake Wanaka

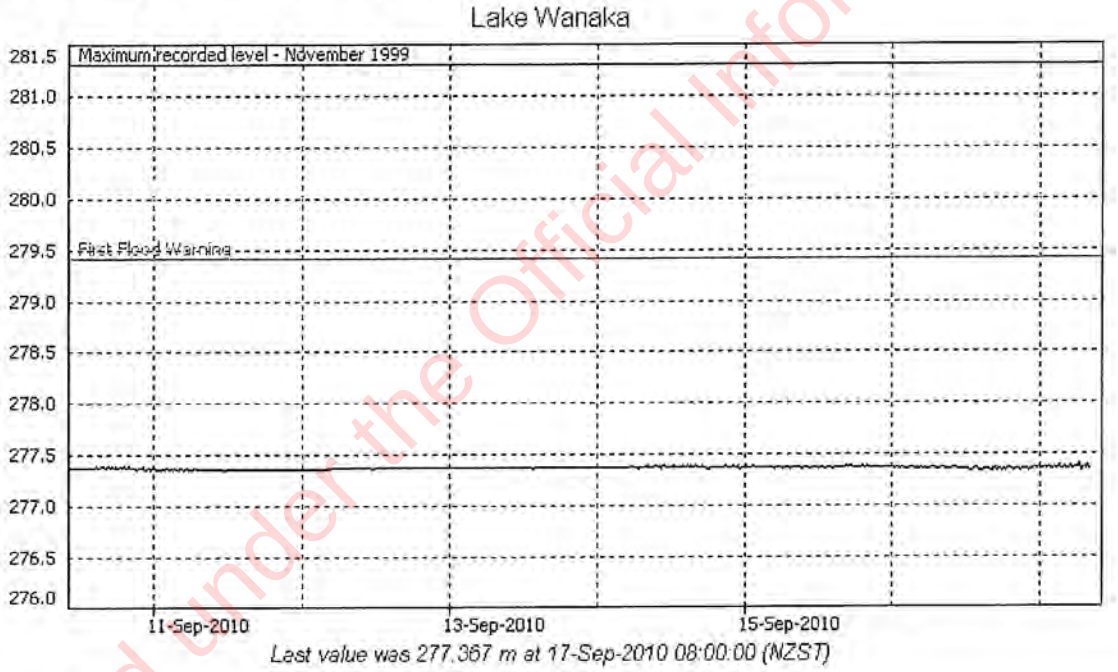
NIWA
Taihoro Nukurangi

Alert Levels for this Site

Alert Title	Alert Details	Alert Type	Alert Threshold Level
Flood	First Flood Warning	High Level	279.400
Flood	Maximum recorded level - November 1999	High Level	281.300
Flood	Possible flooding in Wanaka	High Level	280.000

Hide Alerts in Graph

Graph showing the last 7 days water level in metres



Graph showing the last 180 days water level in metres

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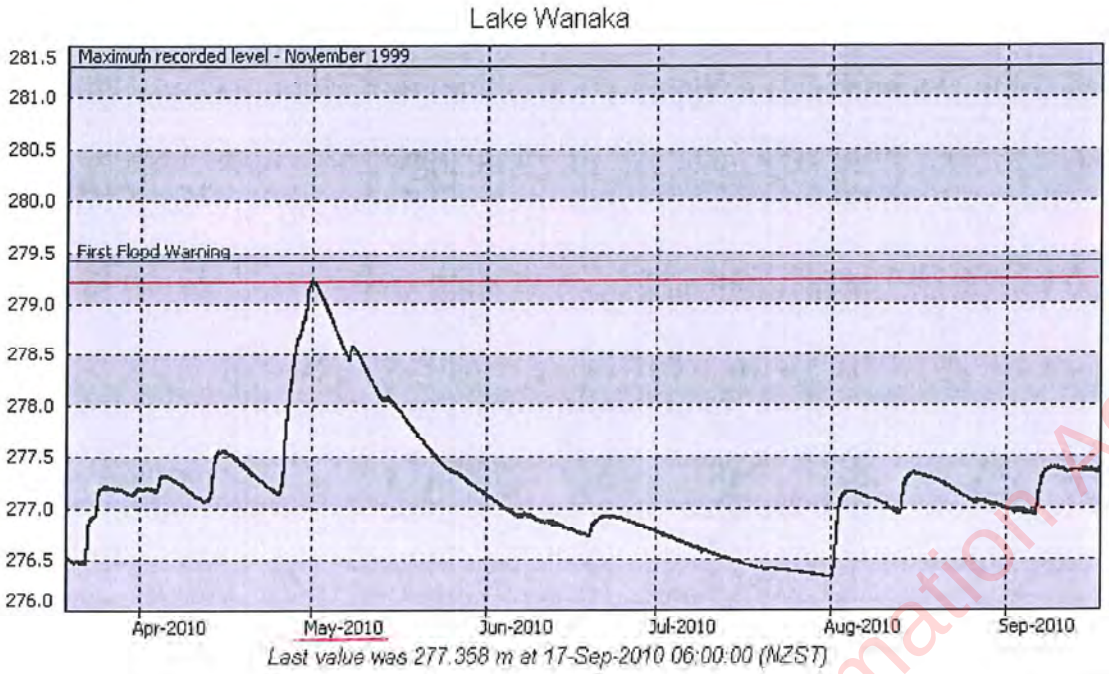

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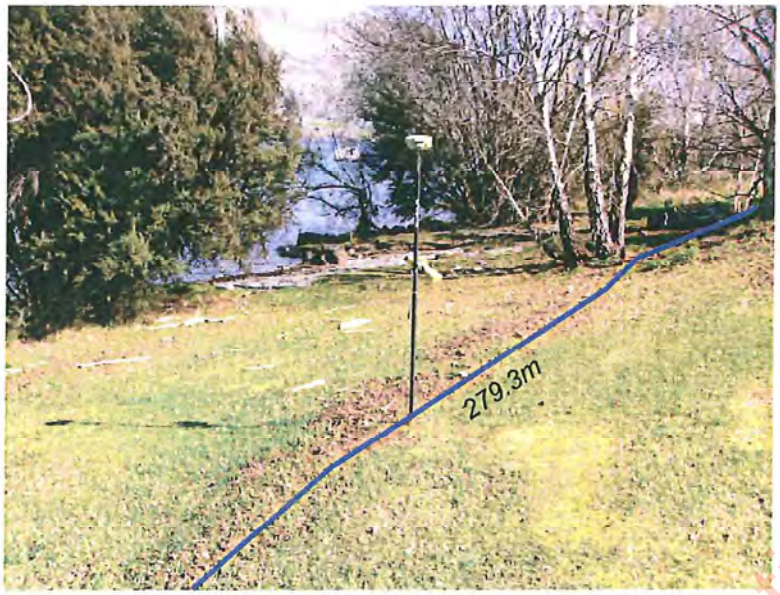
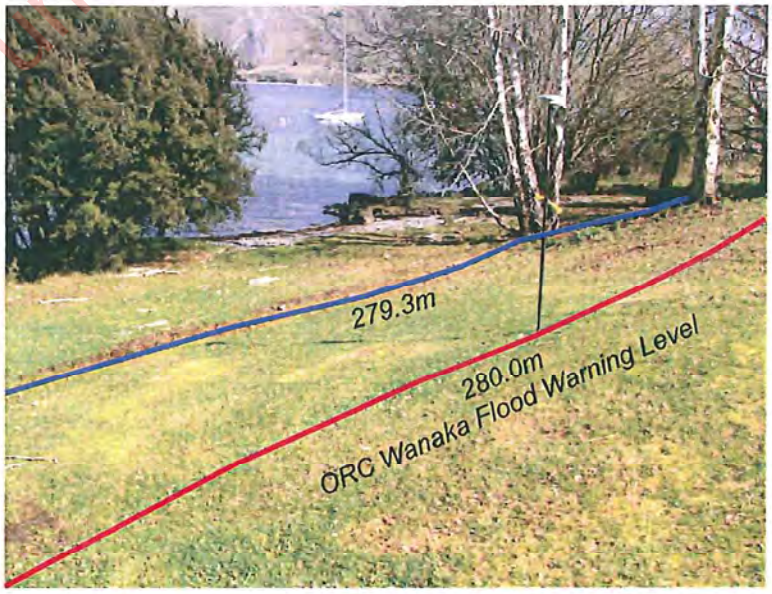
MT BURKE FORESHORE INVESTIGATION
ROYS BAY PHOTOS





All at point 104

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MT BURKE FORESHORE INVESTIGATION

ROYS BAY PHOTOS

At point 105

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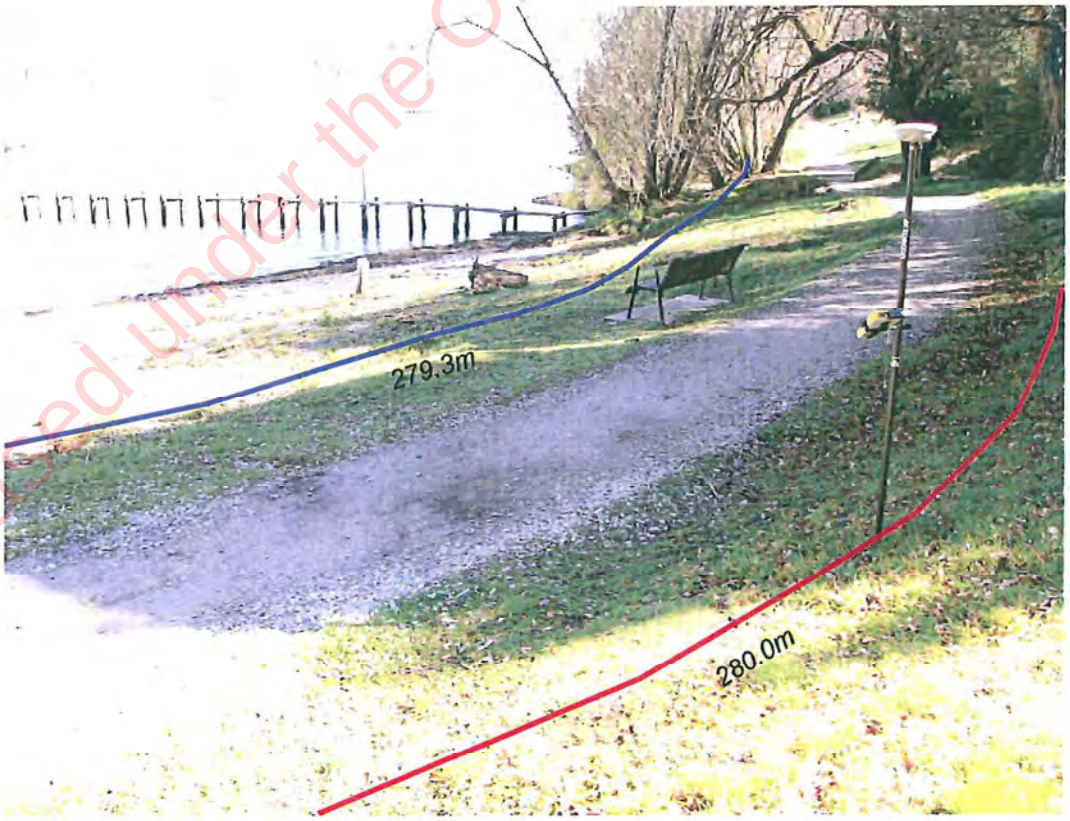
MT BURKE FORESHORE INVESTIGATION

ROYS BAY PHOTOS

At point 107



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MT BURKE FORESHORE INVESTIGATION
MT BURKE PHOTOS

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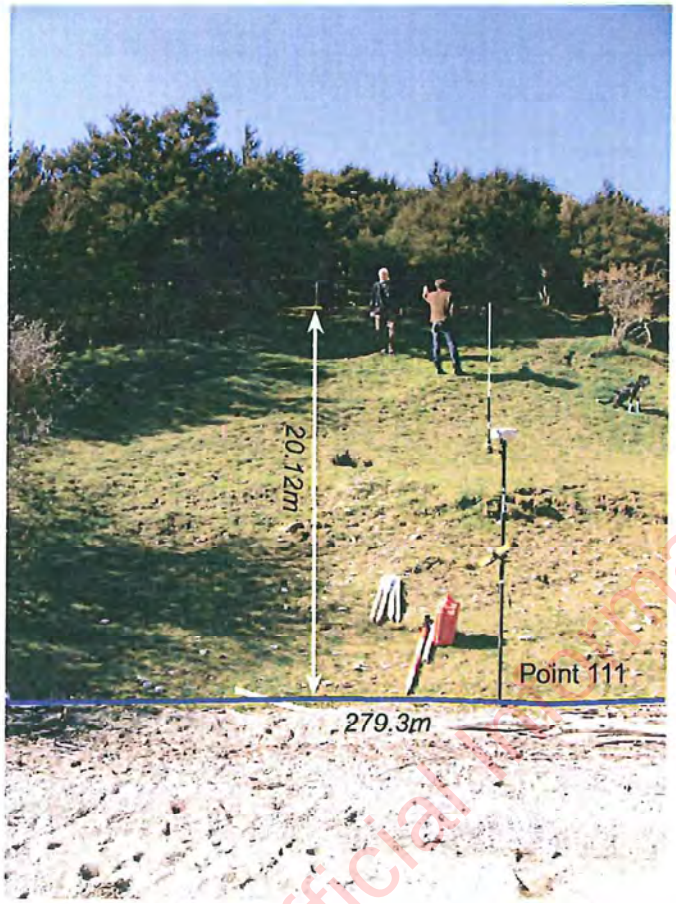
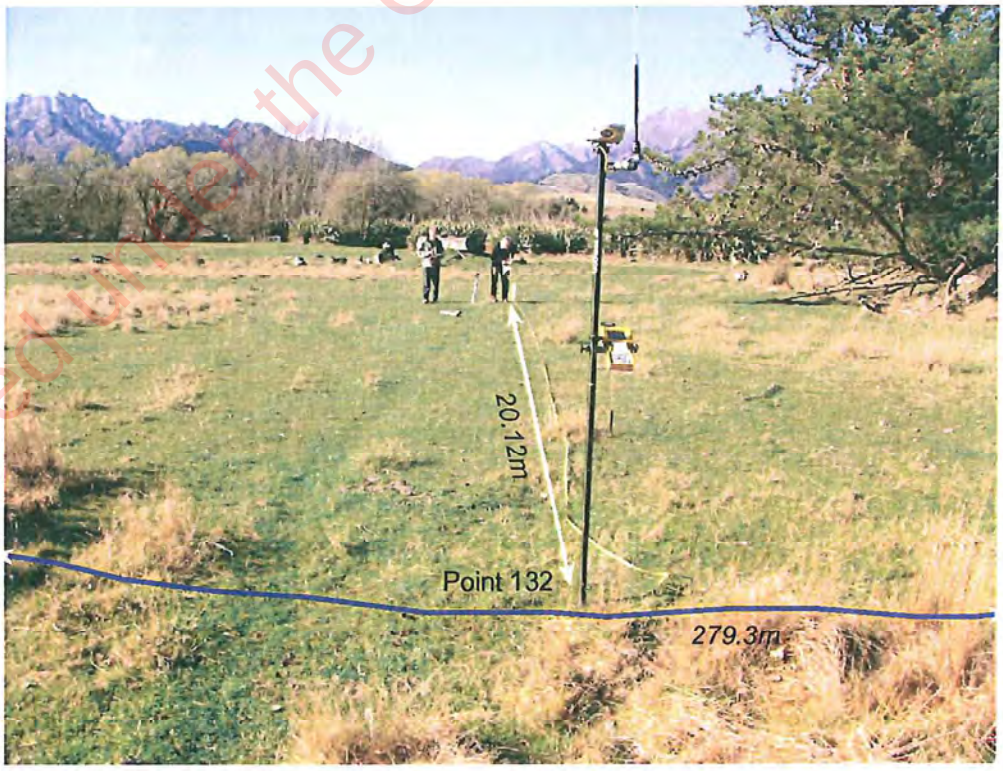
MT BURKE FORESHORE INVESTIGATION

EXAMPLES OF SEC 24(3) MARGINAL STRIP MARKING





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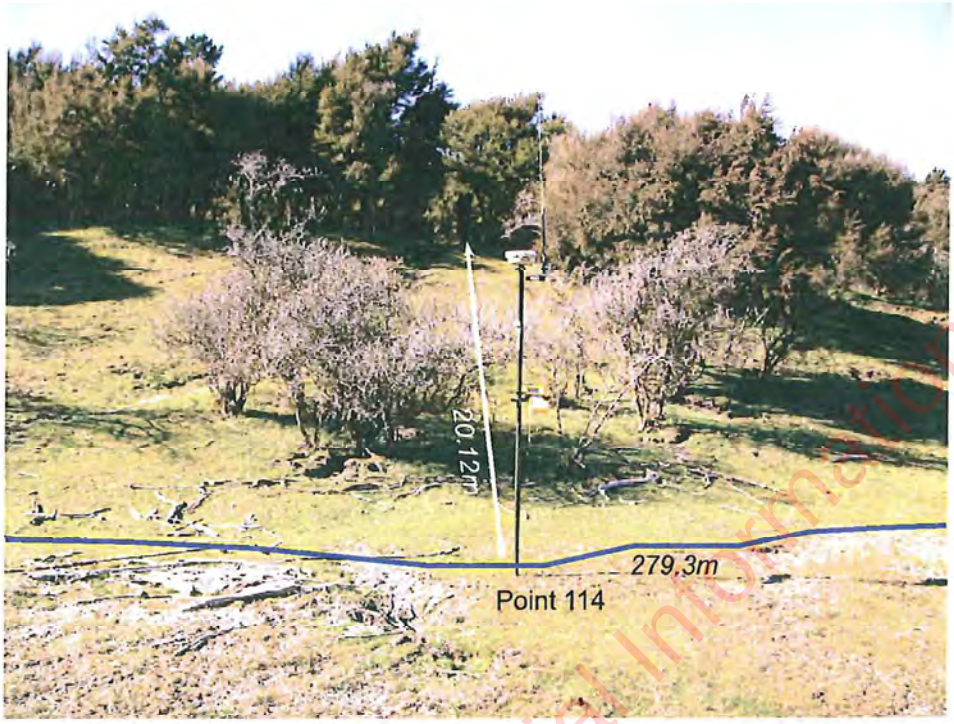
MT BURKE FORESHORE INVESTIGATION

EXAMPLES OF SEC 24(3) MARGINAL STRIP MARKING



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BOUNDARY SOLUTIONS NZ LIMITED

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Email: john.vanbolderen@wrlawyers.co.nz

RECEIVED
22 SEP 2016
LAND INFORMATION NEW ZEALAND
CHRISTCHURCH

19 September 2016

Attention: Murray Mackenzie

Land Information New Zealand
Christchurch Regional Office
112 Tuam Street
Private Bag 4721
Christchurch

Dear Sir

DEFINITION OF THE BED OF UNCONTROLLED LAKES - MT BURKE

Thank you for your instructions requesting a report on the "suitability or robustness" of the existing Surveyor General guidelines and the Department of Conservation guidelines covering the definition of the beds of uncontrolled lakes. There is considerable guidance from the Surveyor General about how to define controlled lakes because these lakes cause specific issues related to hydro-electric generation.

Statutory Provisions in Conservation Act 1987
The Conservation Act 1987 creates Marginal strips over Crown Land on its disposal by the Crown or on the renewal of a pastoral Lease.

Conservation Act 1987 Section 24 (1) states "There shall be deemed to be reserved from sale or other disposition of any land by the Crown a strip of land 20 metres extending along and abutting the landward margin of – (b) the **normal level** of the bed of any lake not subject to control by artificial means:…"

Conservation Act 1987 Section 2 states a "lake means a body of fresh water whose bed has an area of 8 hectares or more and which is entirely or nearly surrounded by land".

Conservation Act 1987 Section 2 states a "bed means – (b) in relation to a lake, the space of land which the waters of the lake cover at its **highest level** without exceeding its physical margin".

The two sections create different definitions as to what is the bed of the lake because the normal level of the lake is not the same as the highest level. Using the standard rules of statutory interpretation, the specific definition on the section creating the right over-rules the general definition set out in the act. The general definition is used where there is no specific definition of the words in the act.

Director
J M van Bolderen

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This conflict within the Conservation Act 1987 has led to the result that there has been no discussion of how to deal with uncontrolled lake beds by either the Surveyor General or the Department of Conservation.

Statutory Provisions in Resource Management Act 1991

The Resource Management Act 1991 creates esplanade reserves, esplanade strips, access strips or other reserve or land owned by the local authority or by the Crown (excluding all land held for a public work except land held, administered or managed under the Conservation 1987 and acts named in the schedule to that Act). This is done over private land with the intention (in conjunction with marginal strips) to provide seamless access to lakes, rivers and foreshore for the public.

The Resource Management Act 1991 Section 230(3) states except where the district plan or resource consent waives or reduces the width ..., "where any allotment of less than 4 hectares is created when land is subdivided an esplanade reserve of 20 metres in width shall be set aside from that allotment ... the margin of any lake...and shall vest in accordance with section 231."

The Resource Management Act 1991 Section 230(4) states "for the purposes of subsection (3) ... a lake means a lake whose bed has an area of 8 hectares or more."

The Resource Management Act 1991 Section 230(5) states where a rule in a district plan so requires but subject to any resource consent which waives or reduces the width of the esplanade reserve or esplanade strips, "where any allotment of 4 hectares or more is created when land is subdivided an esplanade reserve or esplanade strip shall be set aside or created from that allotment ... along the margin of any lake, and shall vest in accordance with section 231 or be created in accordance with section 232 as the case may be."

The effect of Section 230(5) and 77 means that an esplanade reserve and esplanade strip width and lake area may be differently defined in a district plan from that in the Resource Management Act 1991.

The Resource Management Act 1991 Section 2 states an "esplanade reserve means a reserve within the meaning of the Reserves Act 1977 - (a) which is either – (i) a local purpose reserve ... if vested in the territorial authority ...; or a reserve vested in the Crown or a regional council...; and (b) which is vested in the territorial authority, regional council, or the Crown for the purposes set out in section 229.

The Resource Management Act 1991 Section 2 states an "esplanade strip means a strip of land created by the registration of an instrument in accordance with section 232 for the purpose or purposes of section 229."

The Resource Management Act 1991 Section 2 states a "bed means, - (b) in relation to any lake, except a lake controlled by artificial means,- (i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the lake at its annual highest level without exceeding its margin: (ii) in all other cases, the space of land which the waters of the lake cover at its highest level without exceeding its margin:"

In the case of the Director General of Conservation v Ferguson, Judge Smith in the Environment Court (Decision C 19/2006) commented upon the difference in wording in the

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definition of bed as follows: "Having regard to the use of **annual highest level** for the purposes of esplanade reserves and strips (b(i) and the **highest level** otherwise, we have concluded that the Act requires a distinction between the two".

This means that the same lake may have separate definition of its bed depending on the nature of the right to be created along the foreshore e.g. for a marginal strip the **normal level** of the lake, for esplanade reserves and strips the **annual highest level** and otherwise the **highest level**. This does not include the potential differences contained in each district plan.

Therefore no matter how robust the guidance given by the Surveyor General and the Department of Conservation, there is large scope for different interpretations of the bed of any uncontrolled lake for surveyors and results that will leave the public confused.

Director General of Conservation v Ferguson
We have read the decision in Director General of Conservation v Ferguson and it is clear that Judge Smith has only considered the definition of the bed of the lake in terms of the Resource Management Act 1991 and has not considered the definitions in the Conservation Act 1987.

In Rhodes & Co opinion of 20 November 2010 in paragraph 6 "The definitions of "bed" under the Conservation Act 1987 and the Resource Management Act 1991 are identical save for the use of the word "margin" as compared to "physical margin". We doubt anything turns on this" In our opinion this is not correct and ignores the words of Judge Smith when commenting on the different words for different purposes of the edge of the lake to define the bed of the lake.

Therefore in our opinion it would be best if there was one definition of the bed of the lake to be used for all purposes just as there is for the foreshore. Rhodes & Co appear to support this view because the whole basis of their letter is based on the premise that this is effectively already the case. They have provided no reasoning for their position.

Assumption that Section 24 is Correct
For the balance of this opinion we have assumed that we are correct that the surveyor must follow the requirements of Section 24 of the Conservation Act 1987 when working out the position of the marginal strip. This means that the surveyor must work out the **normal level** of the lake bed.

This assumption is based upon the rule of Statutory Interpretation – "Expressio unius est exclusion alterius" which means the express mention of one thing implies the exclusion of all others. Therefore the express mention of the definition of lake bed in Section 24 must exclude the general definition in Section 2 the definition section.

Definition of the Normal Level of the Lake Bed
In our opinion, 'Normal Level' infers some sort of medium or average level has to be considered when determining the level of an uncontrolled lake bed. Records are available for Lake Wanaka where an average lake level could be derived. However is this the appropriate definition of 'normal level' with which to apply a marginal strip? For a lake that is close to the qualifying area of 8 hectares the determination of the normal level boundary of the lake becomes crucial as to whether marginal strips will apply or not.

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For a coastal property the rules for determining the foreshore has been determined as MHWS, a level that can be determined through tide gauge observations over an extended period of time. The inference here is that the higher level of the sea is considered as being the basis for coastal boundaries. The word normal doesn't feature in foreshore determination.

Although Lake Wanaka is monitored there will be many other lakes that are over the qualifying 8 hectares that are not gauged. In order for the guidelines to be more robust all uncontrolled lakes that qualify for marginal strips should be included in a new definition of 'normal level'.

For surveyors to determine any boundary they must look at all the available evidence. This would normally include a data search of existing records, a search for monuments from those existing datasets and tying to existing occupation along or close to the boundary. The DOC guidelines are too vague as to how existing occupation relates to normal level. On a very large lake such as Wanaka strong winds can have considerable influence of the windward shoreline. You would therefore expect that the flotsam line on such a shoreline would be further inland that that on a leeward shore. The flotsam line will also change depending on the level of the lake on any particular day or period of time. After a flood event the flotsam line will be naturally very high up the shoreline and in periods of very low lake levels a flotsam line could become established unnaturally low on the same shoreline. Our conclusion is that flotsam lines alone are therefore not definitive enough to establish a normal level of a lake such as Wanaka. Few signs of natural benches have been observed at Lake Wanaka but in other lakes, especially smaller lakes, this is quite common and a good indicator of the natural boundary of the lake.

In our opinion when working out what is the normal level of the lake bed, you have to take out any unusual factors. Therefore you would need to take your recordings on a calm day, from a number of different places around the lake and take into account any historic records of the lake level that are available. (See the Wanaka Lake Level History attached for example)

The Department of Conservation Guideline (The Identification of Water Bodies that Qualify for Marginal Strips) is of no help because it states "the boundaries should be determined by locating the lake margin using the usual evidence for locating such natural boundaries." There is no definition of what is meant by the usual evidence. It requires the whole area of the lake to be determined when determining if a marginal strip is required. When determining the area of a lake that may or may not be 8 hectares in area the different definitions in the Conservation Act 1987 and the Resource Management Act 1991 may require esplanade strips but no marginal strips. (i.e. the 'normal level' of the lake bed may produce a lake bed of 7.5 hectares so no marginal strip is required but the highest level' may produce a lake bed of 8.5 hectares so esplanade strips are required).

There is a Surveyor General advisory note determining mean high water springs but none for anything else.

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How is the Normal Level of the Lake Bed to be calculated by the Surveyor?
The LINZ Water Boundary Webinar gives a very useful discussion on the use of the Survey Rules for coastal boundaries and river boundaries but there is no discussion on how these rules are to be applied to uncontrolled lake beds. There is a good guideline on how to deal with the definition of the bed of controlled lakes but this is of little use because both the Conservation Act 1987 and the Resource Management Act 1991 have separate definition for each of these types of lakes.

What records are available from the Otago Regional Council? What records were collected when the lake was considered for the generation of Hydro-electric generation? What do the prior plans give as the lake level? How do the prior plans compare with the Surveyor General's instructions for the calculation of the level of the lake bed?

What work is required by the surveyor to assess the normal level of the lake bed? Given that different lakes have very different sizes from 8 hectares to the size of Lake Wanaka are different amounts of investigation required?

What is the effect of the definition of the First Flood warning level set by the Otago Regional Council? The setting of the lake bed level will also have effects on the ownership of the lake bed (the assumption that may be made is that where the lake bed is over 8 hectares, the lake is navigable so Crown Land) Also if the lake bed level is set too low it may mean that any improvements or infrastructure thereon are uninsurable.

The table below sets out the Alert Levels for Lake Wanaka (taken from ORC Website)

Alert Title	Alert Details	Alert Type	Alert Threshold Level
High	High Lake Level	High Level	279.4
Flood	Possible Flooding in Wanaka	Flood	280.0
Historical Flood	November 1999	Flood	281.3
Historical Flood	May 2010	Flood	279.4

Where are the bench marks to be set to enable subsequent surveyors to find them?

How is the information to be recorded in LINZ records? (Landonline and elsewhere) Is a special data set required?

Is the first recording of the Normal Level of the Lake Bed to be used for all Purposes?
When the first surveyor puts in the information into Landonline setting the normal level of the lake and so defining the lake bed is this definition then to be used for all purposes? There are problems with this approach because there are different definitions of the lake bed depending on the purpose of the subdivision as set out above.

The result of giving different levels for different purposes can be demonstrated with the copy of spatial map of the Cliffs Road end of St Clair beach at Dunedin. There are numerous different levels shown for the seabed in this area due to the age of the plans and the different purposes for which the plans were produced. In the case of Lake Wanaka, there are a number of reproducible datasets around the lake that have used slightly different levels for the lake so the stepped boundary may also occur.

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What is the Effect of a Better Definition of an old survey on the Lake Bed?
In the case of Mt Burke Station the original survey was undertaken in 1916 for leasing purposes. This survey was undertaken by a compass traverse. Therefore more modern equipment and methods will produce different results.

This has particular practical difficulties for surveyors when we come to look at the definition of Mt Burke when it comes to a tenure review. The original surveyor has used the water edge of the lake as his base line and measured 20 metres back to the landward side for the position of the marginal strip. The landward side of the marginal strip is a fixed boundary and the lake edge is a movable boundary. In any resurvey of the lease there will need to be a better fix of the landward side of the marginal strip and this can only be calculated from the definition of the bed of the lake, hence the importance of the definition of the bed of the lake. An example of what happens when you use different basis for calculating the foreshore is shown in the attached copy of QuickMap.

In the case of Mt Burke Station, the lease does not have a lake edge as a boundary so does the lake edge get ignored and the surveyor attempt to reproduce the fixed boundary of the lease.

There are practical problems caused on a day to day basis for the lessee and the general public because of the very old definition of the marginal strip. In particular of the public use of the boat launch ramp near the Mt Burke homestead and farm buildings. Without knowing how to calculate the bed of the lake, you cannot know if the boat ramp and adjacent parking area is in the marginal strip or in the leasehold land. This is a major cause of friction between the lessee and the public. In this case there is a temptation to survey the parts of the lake bed adjacent to the areas of friction between the public and the lessee. In these cases the Survey General needs to provide guidance on how the additional information is brought into Landonline for the renewal of leases. In the case of a tenure review the whole lake edge is surveyed so there is no problem with new information.

Robust Instructions
In our opinion, the Department of Conservation Guidelines are no help to surveyors in establishing what is the normal level of an uncontrolled lake bed because it refers to the usual methods for their definition without pointing to those methods. This applies to both surveys for tenure review purposes and for renewal of lease purposes.

In our opinion, the Surveyor General's Guidelines "Survey Prescription for surveys recording movable marginal strips for the purpose of Crown pastoral lease renewals" are satisfactory where the existing plans are to be adopted. These guidelines could be expanded to specifically refer to the recording of marginal strips around the beds of uncontrolled lakes. There needs to be some reference as to how any new information is to be included if at all.

In our opinion, the Surveyor General's Guidelines are not adequate because there appears to be no specific guideline for dealing with the beds of uncontrolled lakes as there is for controlled lakes. When you look at the LINZ Water Boundary Webinar (2014 by Stacey Spooner) it deals with Coastal and River Boundaries as far as the Surveyor General's Rules are concerned but there is nothing about lakes. There is a clear need for the Surveyor General to definite the normal level of the bed of any uncontrolled lake.

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The useful Crown Property paper "Identifying marginal strips on Crown Land" (Crown Property Practice Note 2014/001) sets out the process for the portfolio managers but is no help answering the practical questions for the surveyor as to how to define the Marginal strip around the bed of an uncontrolled lake.

Please let us know if you require any further information.

Yours faithfully

BOUNDARY SOLUTIONS NZ LIMITED	**TL SURVEY SERVICES LIMITED**
[redacted]	
JOHN VAN BOLDEREN **Consultant** Email: john.vanbolderen@wrlawyers.co.nz Direct Dial: (03) 471 7547	**STEVE COPSON** **Registered Surveyor** Email: steve@tlsurvey.co.nz Mobile: 027 436 7885

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QuickMap
Custom Software Ltd

0 25 50 75 100 125 150 175 200 225 250m

Any person wishing to rely on the information shown on this map must independently verify the information

Scale 1:2013 Topographical and Cadastral map derived from LINZ data. Printed: 12/09/2016 10:38.

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3.4.2 Lake Level

The Lake Wanaka level record is shown in Figure 3.7, and as a strip in Figure 3.8 for more detail.

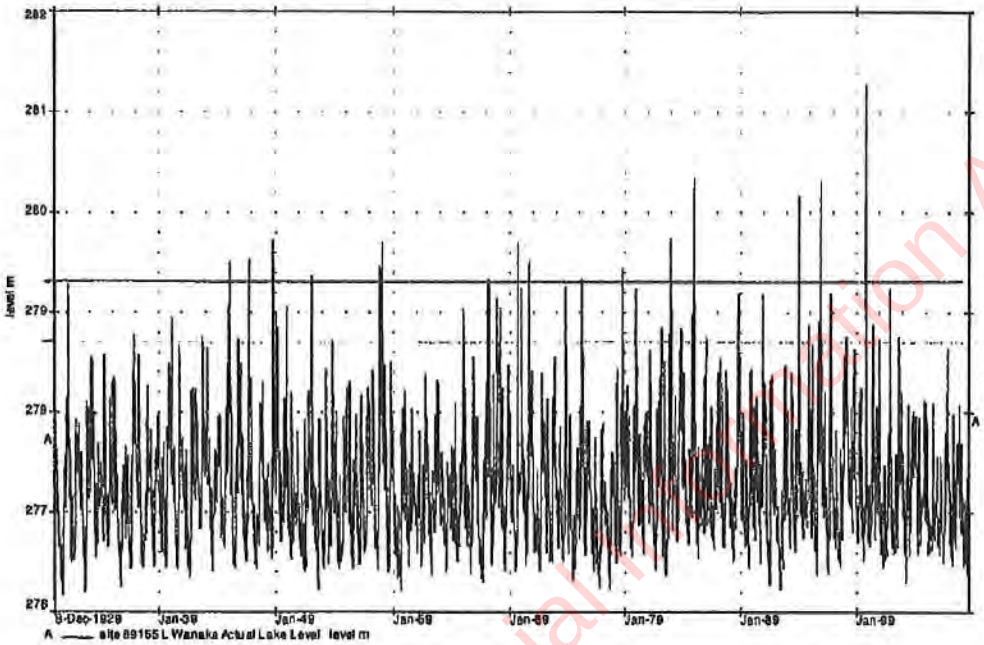
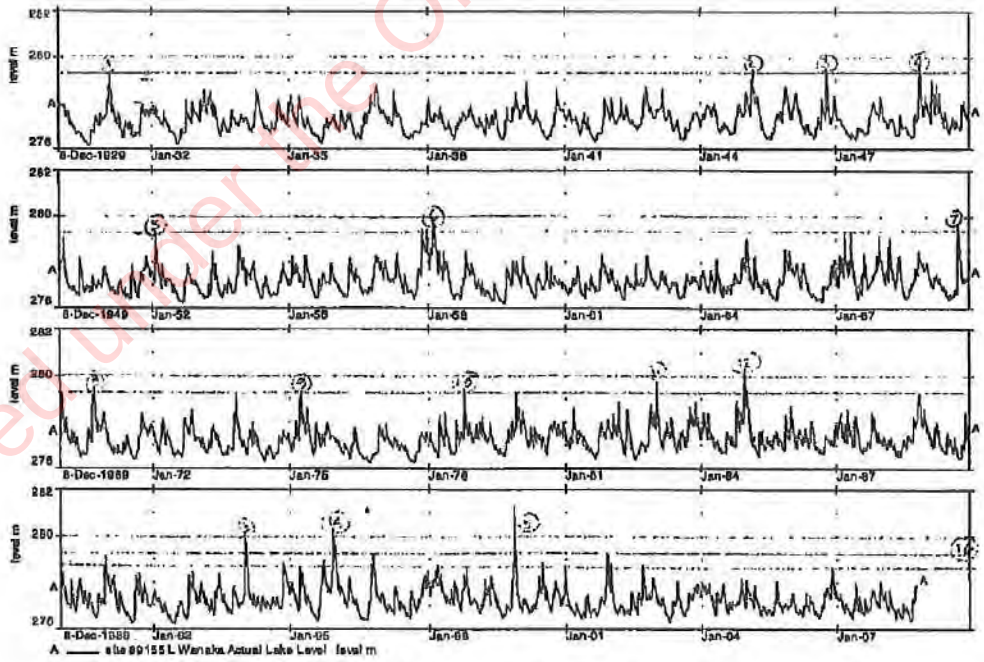


Figure 3.7 Lake Wanaka Level Record (m) 1929 to 2008



May 2010

Figure 3.8 Lake Wanaka Level (m) Strip 1929 to 2008

14

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Survey Services

TL Survey Services Limited

Phone 03 477-1133
Fax 03 477-1127
4th Floor Queens Building
109 Princes Street
PO Box 901
Dunedin 9054

Our Reference: 18052
Your Reference:

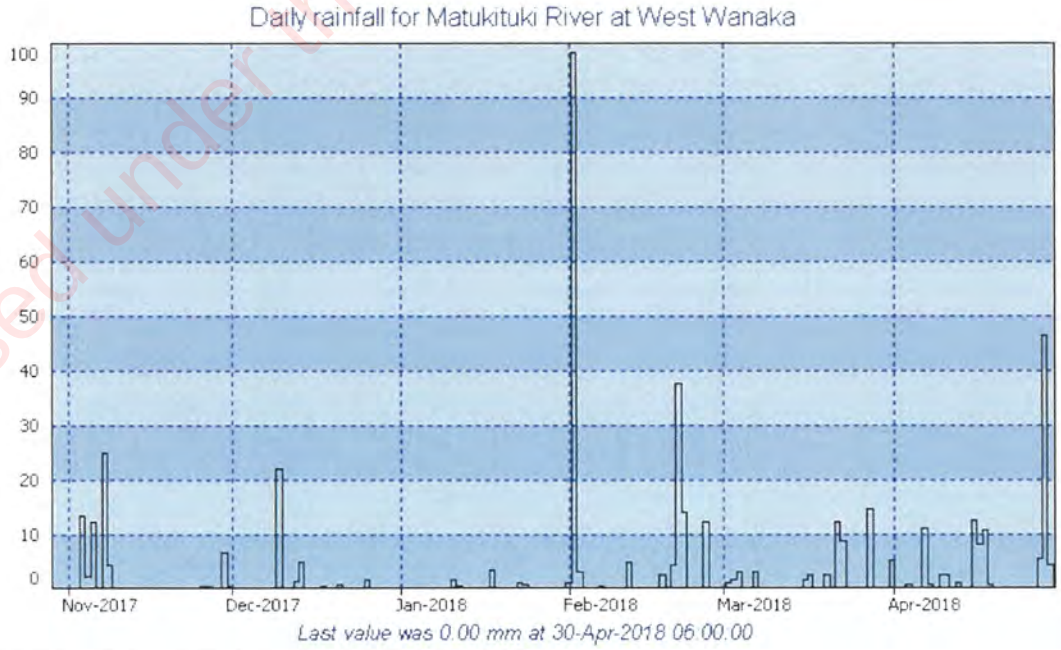
3 May 2018

Murray Mackenzie
LINZ, Crown Property & Investment – Pastoral
CBRE House
112 Tuam St
Private Bag 4721
CHRISTCHURCH 8140

WATERWAYS ON MT BURKE STATION INSPECTION REPORT

On Wednesday 25th April 2018, under instruction from Murray Mackenzie of LINZ, Crown Property & Investment Pastoral, Bruce Soper, under the direction of Mark Geddes, Licensed Cadastral Surveyor, undertook an inspection of waterways on Mt Burke Station pastoral lease to determine stream widths.

The weather was fine at the time of inspection. The last recorded rainfall was 12mm around April 16th, 2018 and the last significant fall being 38mm in late February. The streams were running high and clear and within their normal flood banks.



Courtesy of the Otago Regional Council Website

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Methodology of Investigation

The streams were visually inspected to ascertain a typical section of the stream over which to make the measurements. Areas where the stream was either wider than normal, such as at corners, or narrower than normal, were excluded from measurement.
Photographs were taken of each stream and waypoints taken as a reference for the photos. Generally, the photos have a point of reference being a 3m pole placed in the centre of the stream.
The measurements were tallied and an average width derived.

Existing marginal strips

There are existing Sec 24(3) marginal strips on the boundaries in common with Lake Wanaka. Refer to further comments below under Lake Wanaka.

The Waterways

East Wanaka Creek

This waterway drains southwest from Mt Burke and Mt Gold and joins the Stevenson's Arm of Lake Wanaka north of Stevenson's Island. The waterway is generally well confined in a steep sided gorge with very limited access due to thick vegetation. Approximately 1500m upstream of the lake the stream splits into two branches. No measurements were possible in the right branch but a visual inspection from the air would suggest that this branch would not qualify. Measurements taken above the confluence on the left branch suggest that this branch will qualify to the confluence at waypoint 4.
On the day of the inspection, there was a good flow of water in the stream suggestive of a qualifying flow. The banks were well established and stable.

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Waypoint 1, a typical section under bush canopy, good water flow and stable well-developed banks with an average width of 3-4m.

Waypoint 3, a typical section with good water flow and stable well-developed banks with an average width of 3-3.5m.

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Quartz Creek

This creek is the largest waterway on the property. There are two named branches being the west and east branch and both drain in a southwest direction to join the lake near the homestead. It was obvious from the air that the lower section was well qualifying being an estimated 6-8m wide. The west branch is significantly smaller than the east branch and was only visually inspected from the air. Measurements taken on the east branch suggest that the upstream terminal is at the confluence of branches at waypoint 8.

Waypoint 5, a typical section with good water flow and stable well-developed banks with an average width of 3.5-4m.

Mount Burke Creek

Mt Burke Creek forms part of the northern boundary of the lease and drains east from Mt Burke. The waterway lies in a steep-sided and well-vegetated gorge that was visually inspected from the air. The streambed was heavily obstructed with fallen branches and trees ruling out a ground inspection due to the considerable health and safety concerns. From what could be seen through the canopy there was a good flow of water. The confluence at waypoint 9 would be a consistent upstream terminal when compared to the similar sized East Wanaka Creek on the western slopes of Mt Burke.

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Lake Wanaka

An existing Sec 24(3) strip separates the lease from the lake. The strip was surveyed in Feb 1916 and is recorded on SO 968. Due to the lower accuracy of the field survey, there is uncertainty as to the exact location of this strip. An investigation undertaken by TL Survey Services Ltd has already been tabled with LINZ. A letter from John Hook of LINZ Crown Property summaries the situation identified in the TL report and is tabled with this report.

A report by the lessee's surveyor suggests the level of the lake bed should be 278.9m while the TL Survey Services Ltd level was 279.3m based on direct observations when the lake was high but below the first alert level of 279.4. Our stance has always been that to protect future development around the lake the higher lake bed level would seem the more appropriate. Whether this level equates to the highest seasonal level as suggested by John Hook is a matter of conjecture and will be addressed at the time of the tenure review survey.

Summary

East Wanaka Creek, Quartz Creek, Quartz Creek East Branch and Mt Burke Creek all qualify as waterways that average 3m or more in width. Upon disposition, these waterways will be subject to Sec 24 of the Conservation Act 1987 and marginal strips will be applied.

No other streams in the lease qualify.

I confirm that this report has been certified as being conducted in accordance with the Department of Conservation Guidelines current at the time of this assessment and have been duly signed by myself as a Licensed Cadastral Surveyor.

Yours faithfully

[redacted]

Mark Geddes
Licensed Cadastral Surveyor

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Land Information New Zealand
Toitū te whenua

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Radio NZ House
Level 7, 155 The Terrace
PO Box 5501
WELLINGTON 6145
New Zealand
T 0800 665 463
E info@linz.govt.nz
www.linz.govt.nz

30th January 2017

Tim Burdon
MT BURKE
RD 2
WANAKA 9382

Dear Tim

Mt Burke Pastoral Lease – Placement of Marginal Strips

As the lessee of Mt Burke pastoral lease you have made enquiries regarding how LINZ would in tenure review treat the placements of marginal strips on your property, especially in the Dublin Bay area.

Mt Burke currently has a Land Act 1948 s.58 fixed marginal strip which is depicted on survey plan (SO 968 1916). This potentially means that during tenure review this s.58 fixed marginal strip will be fixed to the landward margin of the Lake Wanaka lake bed.

As you are aware, the legislation that governs marginal strips is now the Conservation Act 1987, specifically Part 4A s.24. This section of the Act provides good guidance in respect of controlled lakes however the guidance in respect of uncontrolled lakes such as Lake Wanaka can be unclear in some situations especially when the surrounding land is relatively flat and prone to flooding. The Act uses the following to describe the placement of a marginal strip; "abutting the landward margin of the normal level of the lake bed of any lake not subject to control by artificial means". This means that the landward margin or edge of the lake has to be identified for a marginal strip to be abutted to.

You indicated in our conversation last year, that areas of your pastoral lease flooded and that this flooding would impact on where the marginal strip would be placed. In consultation with the Surveyor-General's office, they were able to locate a Crown Law opinion on defining the normal level of Lake Taupo before it was artificially controlled. Our interpretation of this opinion is that the landward margin of the bed of a lake extends to the point reached by the water at its highest seasonal level, excluding however its height in exceptional instances happening once in every two to three years.

As previously stated, Mt Burke pastoral lease is currently subject to a Land Act 1948 S.58 surveyed fixed marginal strip, which is depicted on survey plan (SO 968 1916). Therefore unless the landward margin of the Lake Wanaka lake bed has moved to a more landward position than the depicted s.58 fixed marginal strip then Mt Burke pastoral lease does not have a boundary with Lake Wanaka.

Our practice in tenure review when dealing with S.58 fixed marginal strips is to determine the landward margin of the lake and abut the s.58 fixed marginal strip. If however, the landward margin of the lake bed is further landward of the depicted S.58 fixed marginal strip then we will survey in a new movable marginal strip for those areas, in accordance with Part 4A of the Conservation Act 1987.

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As the lessee, you would be in a position to identify sections of the Lake Wanaka lake bed where the landward margin is clearly definable. In these situations you may need to employ the services of a qualified surveyor to ascertain where the landward margin is in relation to the depicted S.58 fixed marginal strip. In other areas especially those prone to flooding, the landward margin may not be easily identifiable and in these situations you will need to engage the services of a qualified surveyor.

I have enclosed details of the lake level provided to LINZ by Opus back in 2009 and also a link to Otago Reginal Council website that has a chart which shows the alert levels for Lake Wanaka and the High lake Level reading to be 279.4m above sea level.

http://water.orc.govt.nz/WaterInfo/Site.aspx?s=Wanaka

I trust this information will assist you in your future decision making.

Yours sincerely

[redacted]

John Hook
Group Manager Crown Property

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3.4.2 Lake Level

The Lake Wanaka level record is shown in Figure 3.7, and as a strip in Figure 3.8 for more detail.

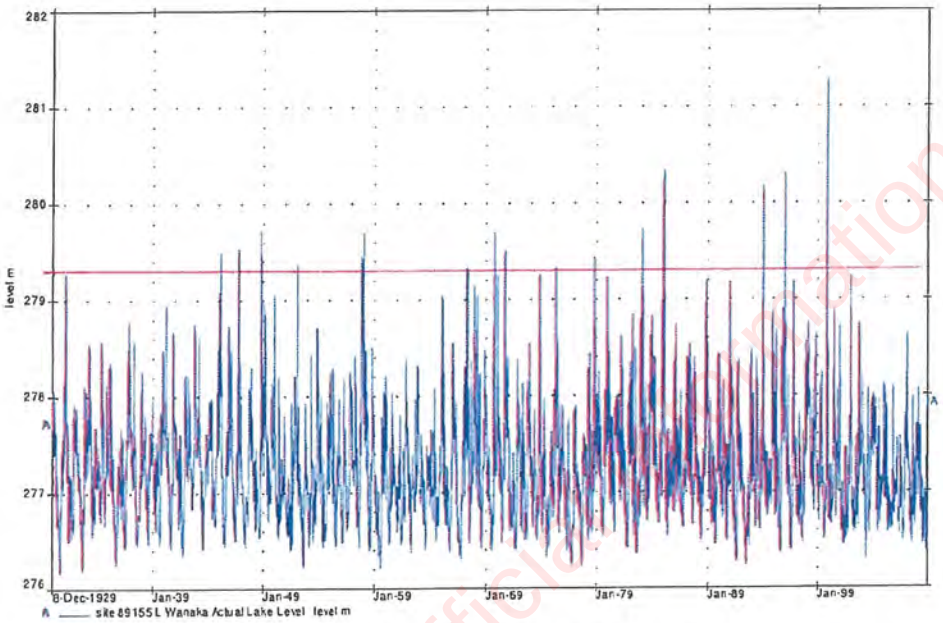

Figure 3.7 Lake Wanaka Level Record (m) 1929 to 2008

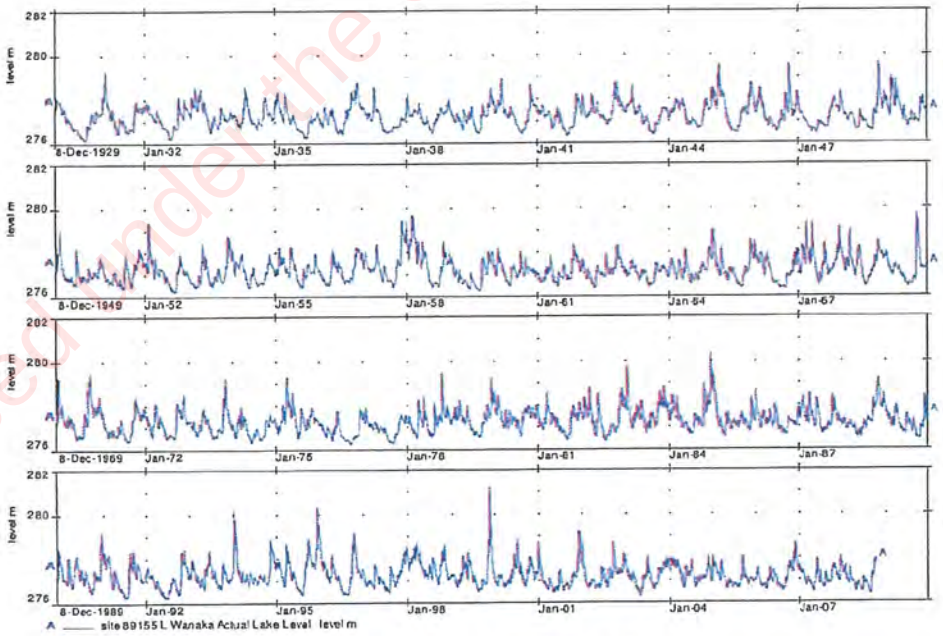

Figure 3.8 Lake Wanaka Level (m) Strip 1929 to 2008

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Prepared For:

LINZ - Crown Property & Investment - Pastoral

Waterways that are 3m or more in width at time of survey inspection will qualify for marginal strips upon disposition pursuant to Section 24 of the Conservation Act 1987.

Qualifying waterway:

Drawing Title:

Scheme Plan
Qualifying Water Bodies

Mt Burke Station

Survey Services
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Drawing File Mt Burke QWB Scheme

TL Job Number 18052

LAND DISTRICT OTAGO

MT BURKE

QUALIFYING WATER BODIES - SCHEME PLAN

PREPARED BY TL SURVEY SERVICES LTD

Scale 1:50,000 @A3 Date APRIL 2018

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