

1945  
NEW ZEALAND

---

DEPARTMENT OF LANDS AND SURVEY  
**SURVEYS**

(ANNUAL REPORT ON)

---

*Presented to both Houses of the General Assembly by Command of His Excellency*

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Wellington, 22nd August, 1945.

THE SURVEYOR-GENERAL to the Hon. the MINISTER OF LANDS.

SIR,—

I have the honour to present herewith my report on the survey operations of the Department for the year ended 31st March, 1945.

I have, &c.,  
R. G. DICK,  
Surveyor-General.

The Hon. the Minister of Lands.

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**REPORT**

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DURING the past year the technical branch of the Department has been unable to cope with the many demands made on its staff for special works brought about by the activities of Government in rehabilitation and post-war reconstruction. It has been necessary to concentrate on such projects as land settlement surveys, holding other works such as topographical mapping and regional planning in abeyance pending the return of staff from overseas.

The following summarizes briefly the various activities carried out by the Department during the past year:—

## ROUTINE ACTIVITIES

*Land Surveys*

The following table summarizes the various classes of survey work carried out by staff and contract surveyors for the year ended 31st March, 1945. This does not include the cost of topographical mapping carried out by the Department for the Army Department, which is dealt with under a special heading:—

*Summary of Field-work*

Class of Survey.	Area, Mileage, &c.	Average Cost.	Total Cost.
			£ s. d.
Minor triangulation .. .. .	36 square miles	1.4d. per acre ..	137 0 0
Topographical survey for settlement .. .. .	71,515 acres ..	4.91d. per acre ..	1,462 0 3
Topographical survey for housing .. .. .	130 acres ..	13.2s. per acre ..	85 14 6
Rural and settlement surveys .. .. .	45,495 acres ..	2.49s. per acre ..	5,671 9 8
Village and suburban surveys (2 acres to 10 acres)	284 acres ..	49.07s. per acre	696 16 1
Town sections (including housing) .. .. .	2,177 sections	£3.2 per section	6,968 3 5
Standard traverse surveys .. .. .	8 miles ..	£40 per mile ..	320 0 6
Maori land surveys .. .. .	412 acres ..	10.34s. per acre	212 17 10
Road and railway surveys .. .. .	42 miles ..	£55.29 per mile ..	2,322 2 5
Maintenance of survey marks .. .. .	.. .. .	.. .. .	167 6 0
Inspection and investigation surveys .. .. .	.. .. .	.. .. .	1,084 17 3
Location of boundaries and compass surveys .. .. .	.. .. .	.. .. .	1,948 0 10
Precise levelling .. .. .	35.15 miles ..	£53.3 per mile ..	1,875 2 9
Topographical mapping (ground control) .. .. .	.. .. .	.. .. .	1,928 1 6
Specialized surveys (radio location, defence posts, chain testing, &c.) .. .. .	.. .. .	.. .. .	733 6 7
Police Department (accident sites, &c.) .. .. .	.. .. .	.. .. .	148 7 7
Miscellaneous (reports, &c.) .. .. .	.. .. .	.. .. .	506 9 2
Total cost .. .. .	.. .. .	.. .. .	26,267 16 4

It will be noted that the expenditure under this heading is more than double the relative expenditure for the previous year—namely, £12,667—due to the almost complete transfer of field staff from military mapping to land-settlement surveys. These latter surveys include preliminary topographical surveys for the scheming of subdivisions and the classification of the land, as well as the final land survey for title purposes.

Preliminary surveys for settlement embrace an area of 71,515 acres, as against 5,646 acres for the previous year, while rural and settlement title surveys have increased from 27,459 acres to 45,495 acres. So far these surveys have been kept up to date, the preliminary survey work being in advance and in many cases awaiting final action in respect to purchase.

Any acceleration in purchases for settlement will tax the capacity of the field staff to the utmost and have a detrimental effect on the accumulated arrears of other classes of survey work. So far it has not been necessary to employ private surveyors under contract on this class of work to any great extent. Surveyors in private practice are fully engaged on land-transfer surveys and will probably be unable to render much assistance.

There has been over 100 per cent. increase in the number of town sections surveyed for housing purposes. Most of this work has been carried out under contract by private surveyors. A large increase in this type of work can be anticipated with the acceleration of the housing programme.

The total expenditure and the field staff engaged on survey work is distributed among the various districts as follows:—

District.	Totals.	Percentage.	Number of Staff Surveyors.	Number of Contract Surveyors.
	£ s. d.			
Auckland and North Auckland .. .. .	10,355 18 11	39.4	8	28
Gisborne .. .. .	406 16 2	1.6	2	2
Hawke's Bay .. .. .	1,660 15 6	6.3	2	4
Taranaki .. .. .	1,106 7 3	4.2	1	2
Wellington .. .. .	2,232 13 0	8.5	4	..
Marlborough .. .. .	1,860 6 2	7.1	1	1
Nelson .. .. .	768 15 4	2.9	2	1
Westland .. .. .	350 15 1	1.3	..	2
Canterbury .. .. .	4,275 10 9	16.3	3	8
Otago .. .. .	1,920 4 10	7.3	1	6
Southland .. .. .	1,329 13 4	5.1	3	1
Totals .. .. .	26,267 16 4	100	27	55

The number of staff surveyors employed on survey work has been reduced from 35 to 27, due to the promotion of surveyors to executive posts and the transfer of surveyors to purely land-development work. More use has been made of the services of private practising surveyors, the number employed increasing from 52 to 55.

It should be noted that there has been a slight increase in survey work for roads and railways due to the resumption of the Public Works Department operations. The post-war period will bring a great influx of survey work as the country resumes its normal public-works programme. To cope with this and the many other survey works that are now held in abeyance the field staff will have to be materially increased. There will be a lapse of a year or more before survey Cadets at present serving with the forces will be able to qualify.

#### *Field-work in Hand*

The following summarizes the field-work for land-title purposes that is at present awaiting action :—

Rural and settlement surveys .. .. .	64,530 acres.
Maori land surveys .. .. .	1,826 acres.
Road and railway surveys .. .. .	107 miles.
Town section surveys (housing) .. .. .	2,000 sections.

The major portion of the area under rural and settlement surveys includes blocks that have been purchased but are awaiting other action before final surveys can be put in hand.

#### *Town Scheme Subdivisions*

The following table summarizes the number of plans, saleable lots, and areas dealt with under the provisions of section 16 of the Land Act, 1924, for the year ended 31st March, 1945 :—

District.	Number of Plans.	Number of Saleable Lots.	Total Area.
			A. R. P.
Auckland and North Auckland	144	1,522	577 1 12
Gisborne .. .. .	5	17	5 3 19
Hawke's Bay .. .. .	3	9	2 2 34
Taranaki .. .. .	2	6	3 2 07
Wellington .. .. .	30	407	167 0 35
Marlborough .. .. .	11	40	35 0 18
Nelson .. .. .	14	67	24 0 19
Westland .. .. .	3	26	6 3 16
Canterbury .. .. .	50	431	133 0 26
Otago .. .. .	9	27	8 2 24
Southland .. .. .	..	..	..
Totals .. .. .	271	2,552	969 2 10

This return indicates that there is an ever-increasing demand for house sites outside the limits of municipalities. At no period since prior to the depression years has this demand been greater, the only comparable figure being that of the year 1938-39, when 2,098 saleable lots were dealt with.

There is an urgent need for amending legislation to provide for the better control of subdivisions, the making of more adequate provision for the setting-aside of areas for reserves, and the limitation of closer urban development to assure of more economy in roading, and drainage and water-supply services. The following problems have been revealed in dealing with subdivisions during the past year.

- (1) Approximately 50 per cent. of the areas dealt with are near and adjoining the more closely built up areas of the cities, boroughs, and town districts. The demand for housing sites in these areas is to some extent influenced by the lower rating in the counties. In a number of cases it is evident that the boundaries of the municipalities should be extended to embrace these rapidly developing areas. Drainage and water-supply services within the municipal areas can generally be easily extended to serve these new subdivisions :
- (2) There is a tendency for the owners of properties adjoining main highways and existing formed roads to subdivide only the land fronting such roads creating a ribbon development that increases the traffic problem, particularly on main highways and adds to the cost of providing the necessary services. Steps have been taken from time to time to limit this development by requiring owners to develop more compact areas and to provide suitable parking spaces and service roads to relieve traffic congestion on main highways :
- (3) The closer subdivision of small farm areas creates a problem in the provision of reasonable roading lay-outs. Some success has been achieved in requiring adjoining owners to co-operate by providing new roads either on their common boundary or intersecting their properties to assure of future extension. The local authorities concerned can render greater assistance in this respect if they will be prepared to form road links which are no direct benefit to the owner but which would assure of an economic and planned development.

The amending legislation at present under review will greatly assist in the better administration of newly developing urban areas.

*Office Work (Plan Examination)*

The office work carried out in connection with land survey plans and documents for the year ended 31st March, 1945, is scheduled hereunder:—

District.	Plans placed on Instruments of Title.	Survey Plans examined and approved.			
		Crown.	Other Depart- ments.	Maori.	Land Transfer.
Auckland and North Auckland ..	11,309	130	208	46	602
Gisborne .. .. .	518	24	..	6	30
Hawke's Bay .. .. .	1,045	16	16	6	78
Taranaki .. .. .	862	13	23	5	58
Wellington .. .. .	3,725	21	125	7	219
Marlborough .. .. .	371	7	12	2	34
Nelson .. .. .	1,271	15	16	..	120
Westland .. .. .	551	15	9	..	21
Canterbury .. .. .	3,159	8	39	..	200
Otago .. .. .	1,418	19	46	..	87
Southland .. .. .	714	4	16	..	40
Totals .. .. .	24,943 (21,359)	272 (246)	510 (393)	72 (75)	1,489 (1,176)

Last year's returns shown in parenthesis.

The increase on the previous year is approximately 20 per cent. To cope with this increase in the larger districts it has been necessary to employ staff on overtime. Land transactions and land title registrations for the Dominion are dependent on this essential service, which must take priority over any other classes of work.

*Other Office Work*

The following schedule summarizes the routine miscellaneous office work carried out by the staff during the year, the figures for the previous year being shown in parenthesis:—

Record maps (revised or redrawn) .. .. .	47	(32)
Cadastral maps (revised or redrawn) .. .. .	17	(Nil)
Tracings .. .. .	4,842	(3,209)
Photostats and prints .. .. .	40,333	(53,644)

The drop in the number of photostats and prints produced by the Department is due to the falling-off of the demands of the armed services and the United States Forces. The three photostat machines installed have, however, been working to capacity, though there has been a reduction in the overtime over the period.

The slight easing up in the number of drawings required for topographical maps has permitted the employment of a small staff on the drawing of record and cadastral maps. This vital work is approximately ten years in arrears, and will have to be brought up to date. The preparation of maps for census purposes, referred to hereunder, revealed the lack of up-to-date cadastral maps, many of which had to be reprinted without revision. Efficiency in land administration which is a function of many Departments of State is dependent on the availability of complete and up-to-date record and cadastral maps. A large staff will have to be employed in the post-war years to overtake the arrears in this class of work.

*Census, 1945*

In August, 1944, in anticipation of the census which is to be taken in September, 1945, it was necessary to put in hand the preparation of enumerator and sub-enumerator maps for the purpose of the division of the Dominion into population mesh blocks. The first step in this work was the preparation in duplicate of 89 enumerator maps on a scale of 1 mile to an inch of each of the counties and, on larger scales, some of the major cities and boroughs showing enumerator, county, borough, town district, and riding boundaries. These maps were prepared by the Head Office staff, the new 1 mile to an inch topographical series being used where available.

These enumerator maps were then forwarded to the Government Statistician, whose responsibility it is to subdivide each enumerator district into sub-enumerator districts for the subsequent preparation of sub-enumerator maps by each Chief Surveyor's Office. This involves the preparation of 1,325 sub-enumerator maps and the division of each district into population mesh blocks and the showing of local authority district boundaries, electoral districts, urban areas, &c. This work was put in hand late in March and must be available to the Government Statistician in the first week in August, 1945.

Approximately 40 per cent. of the office staff have been diverted from other work to cope with this large undertaking.

*Warrants*

During the year 103 warrants for certificates of title comprising 468 items and 12 proclamations of road-lines under the Native Land Act, 1931, were dealt with.

*Summarized Expenditure*

The following schedule sets out the salary expenditure for the year ended 31st March, 1945, as apportioned among the various classes of work carried out during the year. In each case the relative amount expended the previous year is shown in parenthesis. The salaries of both field and office staff are included in this summary:—

	£	s.	d.	£	s.	d.
General (Crown surveys, records, investigations, tracings, diagrams, and general office work) .. .. .	34,300	15	4	(31,172	8	11)
Triangulation .. .. .	882	1	11	(839	6	8)
Topographical mapping .. .. .	4,218	5	6	(9,435	8	7)
Standard traverse .. .. .	591	8	10	(7	8	6)
Survey maintenance (standard blocks and trig signals) .. .. .	144	6	6	(24	19	11)
Precise levelling .. .. .	1,807	19	3	(286	0	4)
Inspection and investigation .. .. .	708	11	2	(282	1	5)
Town scheme plans (section 16, Land Act, 1924) .. .. .	464	15	4	(260	11	0)
Land development (topographical and schemes) .. .. .	2,274	7	7	(244	16	5)
Tidal analyses .. .. .	295	15	2	(125	3	5)
Work for—						
Native Department .. .. .	1,450	9	1	(1,735	2	4)
Lands and Deeds Department .. .. .	9,863	15	6	(8,425	10	3)
Public Works Department .. .. .	4,439	6	4	(3,278	3	11)
Housing Department .. .. .	1,442	3	5	(1,673	18	4)
Other Departments .. .. .	31,349	0	1	(45,615	6	6)
	£94,233	1	0	(103,406	6	6)

There has been a sharp decline in the work carried out for other Departments, due largely to the drop in Armed Services requirements. This is also reflected in the falling-off of expenditure in topographical mapping, staff having been transferred to the more urgent land-settlement work.

The total expenditure apportioned among the various districts is as follows:—

District.	Expenditure.			Percentage.
	£	s.	d.	
Head Office .. .. .	7,839	0	8	8·0
Auckland and North Auckland .. .. .	32,046	18	8	34·0
Gisborne .. .. .	2,343	8	3	2·5
Hawke's Bay .. .. .	4,665	7	0	5·0
Taranaki .. .. .	3,531	6	11	4·0
Wellington .. .. .	12,894	0	8	14·0
Marlborough .. .. .	3,071	2	9	3·0
Nelson .. .. .	4,552	2	9	5·0
Westland .. .. .	905	8	2	1·0
Canterbury .. .. .	9,533	19	5	10·0
Otago .. .. .	4,747	3	9	5·0
Southland .. .. .	8,103	2	0	8·5
Total .. .. .	94,233	1	0	100·0

*Map Sales*

The restriction on the sale of cadastral maps was uplifted during the year. Negotiations for the release of the new 1 mile to an inch and 1:25,000 topographical series are being pursued with the Army Department, and it is expected that these maps will be available for sale to the public early in the next financial year. These latter maps will be most popular editions, and it is anticipated that existing stocks will have to be replenished at an early date. To date they have been used extensively for many purposes of Government enabling decisions in respect to proposed development works to be made without the need for extensive field investigations.

The following is a schedule of the returns from the maps sold or issued to other Departments:—

	£	s.	d.
Survey district and county maps .. .. .	900	14	6
City, borough, and town maps .. .. .	300	15	0
4-mile territorial series .. .. .	825	11	6
Topographical maps .. .. .	432	18	6
General and miscellaneous maps .. .. .	433	14	0
Total .. .. .	£2,893	13	6

The bulk of the topographical maps was disposed of by Head Office to other Departments with the prior approval of the Army Department.

### *Specialized Activities*

Owing to the urgency of land-settlement work it has not been possible to undertake on any large scale any special works. The staff engaged on topographical mapping has been depleted to cope with normal routine activities. Until additional staff is available it will not be possible to proceed with certain classes of work that are urgently required for national post-war development. A brief statement of the present position in respect to these activities is given hereunder :—

### *Triangulation*

*Geodetic Triangulation.*—As reported last year, this work, commenced in 1910, could be finalized in two years if the staff were available. It is hoped that some progress will be made during the ensuing year. The Head Office computing branch has carried out some computation work preparatory to the final adjustment of the South Island triangulation net, which cannot be finalized until further field-work is carried out.

*Second Order Triangulation.*—During the winter months the Southland mapping party was taken off the high country and employed on the second order triangulation of portion of the Southland district where the old original triangulation circuits laid down in the “sixties” require considerable adjustment and co-ordination for land survey and mapping purposes. It is proposed to complete a further triangulation net in this district with the same party during the coming winter months.

*Tidal Analysis and Special Computations.*—Five analyses for the Port of Auckland and one for the Port of Lyttelton were computed during the year for tidal prediction purposes. Mean sea-level for the Port of Greymouth was computed from existing tide gauge records.

An inspection of the tide gauges operated by the Harbour Boards at Auckland, Wellington, Lyttelton, Dunedin, and Bluff, was carried out by the Senior Computer. Certain defects in the operation of tide gauge equipment were thus corrected, and in two cases surveys were subsequently carried out to tie in gauges to nearby standard bench marks.

As a result of investigations carried out by the Senior Computer into the methods employed for the computation of tidal analyses it has now been decided to adopt the method devised by Dr. A. T. Doodson, of the Liverpool Tidal Institute, in substitution of Darwin's method.

Other work carried out by the computing branch includes the computation of map projections, triangulation and traverse adjustments, and the compilation of miscellaneous tables.

### *Precise Levelling*

It will be noted in the summary of field-work at the beginning of the report that 35 miles of precise levelling has been carried out. This additional work was required by the Public Works Department for the purpose of controlling engineering levels in connection with the drainage of Lake Ellesmere in the Canterbury District. The traverse was linked to the existing precise level traverse between Lyttelton and Timaru tide gauges.

At two or three of the major ports the standard tide gauge datum has been checked and referenced to fundamental marks. This is a requisite preliminary to the establishment of fundamental marks throughout the Dominion which will be subsequently referenced to mean sea-level by a series of precise level traverses, thus establishing a common datum for all engineering projects. The necessity for a common level datum has become more urgent in view of the comprehensive nature of such projected works as irrigation, river control, drainage and hydro-electric development.

### *Topographical Mapping*

As already indicated in this report, it has been necessary to considerably curtail this important work. The urgency for the production of topographical maps for purely military purposes had disappeared. The major portion of the staff engaged on the work has been released either for overseas service or diverted to rehabilitation settlement surveys. Only four small parties have been engaged on mapping work in the field during the year—namely, in Auckland, Wellington, Canterbury, and Southland.

The urgency of other work has also had a serious effect on the drawing of the final maps for reproduction, the services of draughtsmen being required to cope with the large increase in routine activities. A number of draft maps compiled for both the 1 : 25,000 and 1 in. provisional series are awaiting final drawing for reproduction.

The following schedules summarize the present position in respect to the 1 : 25,000 series, and 1 mile to an inch provisional series :—

### *1 : 25,000 Series*

	Area (Square Miles).	Number of Sheets.
Maps published as at 31st March, 1944 ..	950	22
Maps published during year .. ..	150	6
Mapping in hand .. ..	1,330	26
Totals .. ..	2,430	54

*1 Mile to an Inch Provisional Series*

	North Island.		South Island.		Totals.	
	Area (Square Miles).	Sheets.	Area (Square Miles).	Sheets.	Area (Square Miles).	Sheets.
Published at 31st March, 1944 ..	12,025	48	15,225	49	27,250	97
Published during year .. ..	4,098	17	7,600	23	11,698	40
Drawings completed .. ..	436	1	935	4	1,371	5
Mapping in hand (completed) ..	5,696	24	4,010	15	9,706	39
Totals .. .. .	22,255	90	27,770	91	50,025	181

The progress made in the mapping for the 1 : 25,000 and 1 mile to an inch provisional series is illustrated on the index maps attached to this report.

A further 7,700 square miles of mapping on a scale of 1 mile to an inch was completed during the year, making a total area of 50,025 square miles mapped to date. Mapping activities will be severely curtailed during the coming year.

The production of the 1 : 25,000 series of the more closely settled areas has virtually come to a standstill, the small staff originally engaged on the work being concentrated on the following special topographical mapping :—

Hawke's Bay (Forestry Department) .. ..	20.5 square miles for afforestation purposes.
Gisborne (Catchment Board) .. ..	7 square miles for river control purposes.
Fiji (Fiji Government) .. ..	70 square miles for map publication.

The latter work was undertaken at the request of the Fiji Government embracing areas in the environs of Suva and Lautoka. New Zealand Aerial Mapping, Ltd., carried out the photography, while two officers of the Department proceeded to Fiji, and with field assistance from the Lands Department, Suva, carried out the necessary ground control surveys. The plotting and drawing of these sheets are at present in hand.

There is an ever-increasing demand from Public Works, Forestry, and Scientific and Industrial Research Departments for special topographical plans and maps for immediate post-war development purposes. Every endeavour is being made to fulfil their requirements, but until there is an increase in staff much of the work will have to be held in abeyance.

During the year the equipment installed in the Aerial Mapping Branch has been supplemented by the addition of a Saltzman Projection Printer for the preparation of enlargements and ratioed prints. Improved plotting methods have been developed during the year, which, when extra staff are available, will increase the effectiveness and efficiency of the branch in its contribution towards the topographical mapping of the Department.

*Aerial Photography*

New Zealand Aerial Mapping, Ltd., Hastings, have had the new Beechcraft aircraft in full operation during the year. A total of 5,800 square miles was photographed for mapping and development works.

The demand for photographs and mosaics has been steadily on the increase. The index and library maintained at Head Office is proving of great value to all State Departments. The establishment of similar libraries in the various districts is proceeding.

During the year the following photography has been completed and new prints indexed. Last year's figures are in parenthesis :—

Area photographed .. .. .	5,800 square miles (5,160)
Number of photographs indexed .. .. .	11,500 square miles (11,654)

*Town-planning Act, 1926*

Early in the year the Department undertook for the Raglan County Council an extra-urban survey of the Huntly-Pukemiro Mining District comprising approximately 37,000 acres and embracing all mining townships, industrial works, and other factors that have any bearing on the development of the district. The purpose of the survey was to study the housing conditions in the mining townships and to bring down recommendation to the Raglan County Council for the future development of the district as a mining centre. It is anticipated that the final scheme will be submitted to the Town-planning Board in the near future.

The Department also has under action two other extra-urban schemes—namely, at Wanaka and Lake Tekapo. These schemes are primarily for the purpose of providing for the development of the two centres as tourist holiday and health resorts.

*Regional Planning*

As part of the post-war reconstruction and rehabilitation programme the Organization for National Development called meetings of the representatives of local authorities in the twenty-four regions—previously determined as defining communities of interest—for the purpose of recommending to Government works and projects that could immediately be put in hand and also, as a long-term project, to bring down regional plans that would provide for the future development of each region.

The preparation and assembly of data for the regional planning is to be undertaken by the Department in collaboration with the regional councils. The task is stupendous and cannot be put in hand until staff in excess of normal requirements is made available. Some experimental work in the methods of presentation of the data has been carried out, the results of which will be passed on to the various districts to assure of uniformity in the methods of assembly and representation. Some of the features and factors that will have to be dealt with in this survey are land slopes, vegetation, population, geology, soil fertility, utilities and amenities, climate, valuation, land uses, production, and any other features that may have a bearing on the planning of a region. A considerable portion of this data is available from various governmental and private sources, while some features will necessitate the employment of field officers.

#### HONORARY GEOGRAPHIC BOARD

The nineteenth annual meeting of the Board was held in Wellington on 29th June, 1944, when 129 place-names were approved. This Board is comprised of leading authorities in nomenclature in the Dominion and is responsible for the correct spelling of place-names appearing on departmental maps.

#### SURVEY BOARD

The examinations for the qualification of surveyors was held by the Survey Board during the year, the results of these examinations being as follows:—

*September, 1944.*—Fourteen candidates, all obtaining credits in various subjects:

*March, 1945.*—Seventeen candidates, one passing the final examination, while twelve obtained credits in various subjects.

The number of students registered during the year were as follows:—

Lands and Survey Department .. .. .	6
To private surveyors .. .. .	13
Total .. .. .	19

#### GENERAL

In January, at the invitation of the Commonwealth Government of Australia, I attended at Canberra a conference of representatives of all State and Commonwealth authorities to consider the setting-up of a central authority for the co-ordination of the mapping policy for the whole of Australia. The Australian authorities were anxious to obtain first-hand information of the methods adopted by the Dominion in the production of topographical maps for the New Zealand Army. The work carried out by New Zealand was very favourably commented on by the Australian authorities, some of the methods being adopted as a basis for the mapping of Australia. While in Australia I took the opportunity of visiting and inspecting the Service mapping establishments and Departments in Sydney and Melbourne.

I wish to express my thanks and appreciation of the loyal co-operation of the staff during the past year.

*Approximate Cost of Paper.*—Preparation, not given; printing (725 copies, including maps,) £17 10s.

By Authority: E. V. PAUL, Government Printer, Wellington.—1945

Price 6d.]



# NORTH ISLAND NEW ZEALAND

INDEX TO  
1:63360 AND 1:25000 TOPOGRAPHICAL SERIES  
TRANSVERSE MERCATOR PROJECTION

Scale of Miles



### Reference

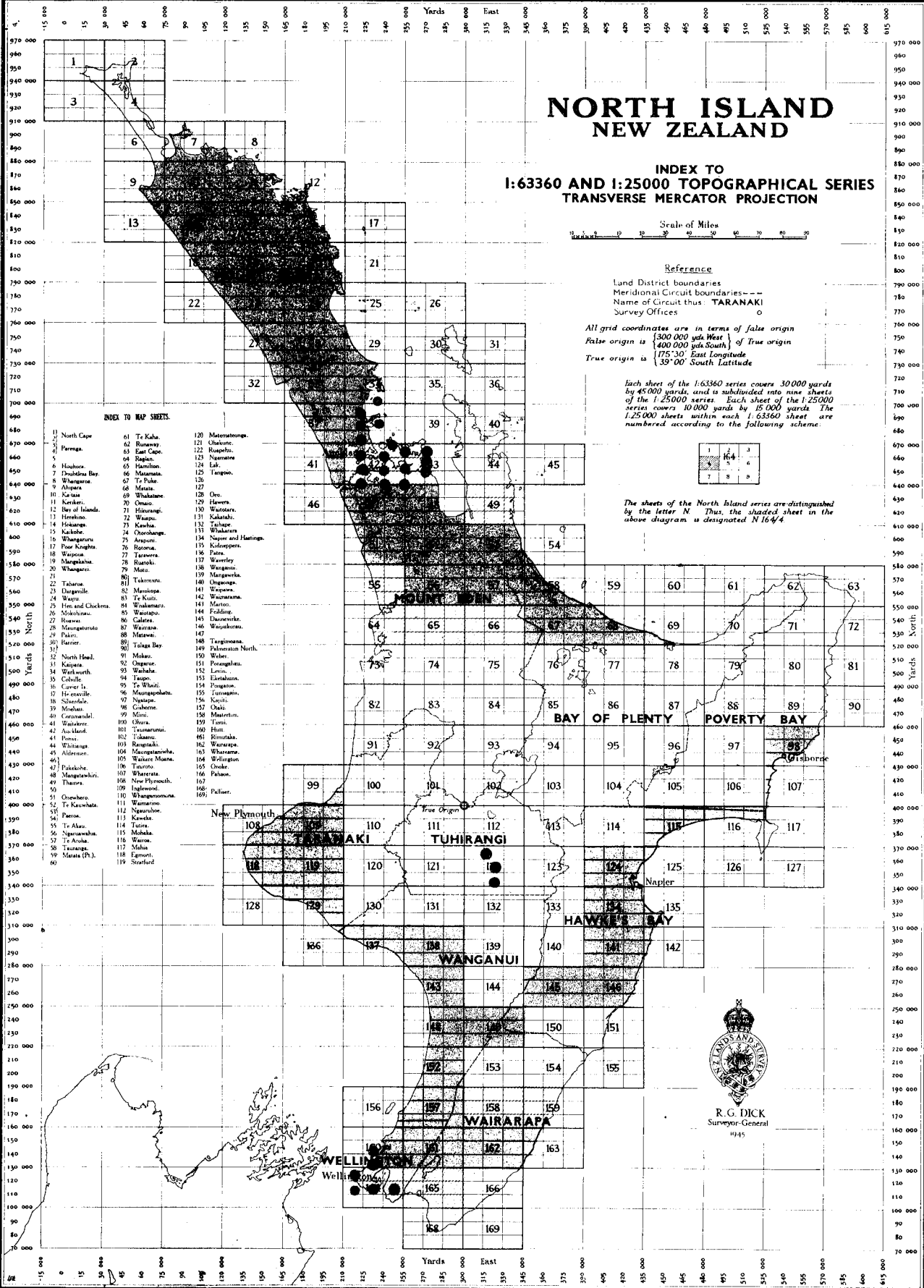
Land District boundaries  
Meridional Circuit boundaries ---  
Name of Circuit thus: TARANAKI  
Survey Offices

All grid coordinates are in terms of false origin  
False origin is { 300 000 yds West } of True origin  
                  { 400 000 yds South }  
True origin is { 175° 30' East Longitude }  
                  { 39° 00' South Latitude }

Each sheet of the 1:63360 series covers 30 000 yards  
by 45 000 yards, and is subdivided into nine sheets  
of the 1:25000 series. Each sheet of the 1:25000  
series covers 10 000 yards by 15 000 yards. The  
1:25000 sheets within each 1:63360 sheet are  
numbered according to the following scheme:



The sheets of the North Island series are distinguished  
by the letter N. Thus, the shaded sheet in the  
above diagram is designated N 164/4



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| 26 Waipoua        | 76 Rotorua    | 135 Kaitiaki            |
| 27 Waipoua        | 77 Tairāhapa  | 136 Patu                |
| 28 Waipoua        | 78 Waipoua    | 137 Waiteke             |
| 29 Waipoua        | 79 Mata       | 138 Waipoua             |
| 30 Waipoua        | 80 Tokomaru   | 139 Mangereke           |
| 31 Waipoua        | 81 Manakopu   | 140 Oropoua             |
| 32 Waipoua        | 82 Te Kaiti   | 141 Waipoua             |
| 33 Waipoua        | 83 Te Kaiti   | 142 Waipoua             |
| 34 Waipoua        | 84 Te Kaiti   | 143 Manakopu            |
| 35 Waipoua        | 85 Waipoua    | 144 Fielding            |
| 36 Waipoua        | 86 Waipoua    | 145 Dunstons            |
| 37 Waipoua        | 87 Waipoua    | 146 Waipoua             |
| 38 Waipoua        | 88 Matawai    | 147                     |
| 39 Waipoua        | 89 Tokai Bay  | 148 Tairāhapa           |
| 40 Waipoua        | 90 Tokai Bay  | 149 Palmerston North    |
| 41 Waipoua        | 91 Tokai Bay  | 150 Weber               |
| 42 Waipoua        | 92 Tokai Bay  | 151 Pungarehu           |
| 43 Waipoua        | 93 Waikato    | 152 Levin               |
| 44 Waipoua        | 94 Waipoua    | 153 Eketahuna           |
| 45 Waipoua        | 95 Waipoua    | 154 Pungarehu           |
| 46 Waipoua        | 96 Waipoua    | 155 Taranaki            |
| 47 Waipoua        | 97 Waipoua    | 156 Kapiti              |
| 48 Waipoua        | 98 Waipoua    | 157 Oaki                |
| 49 Waipoua        | 99 Waipoua    | 158 Marton              |
| 50 Waipoua        | 100 Waipoua   | 159 Tairāhapa           |
| 51 Waipoua        | 101 Waipoua   | 160 Hutt                |
| 52 Waipoua        | 102 Waipoua   | 161 Rimutaka            |
| 53 Waipoua        | 103 Waipoua   | 162 Waipoua             |
| 54 Waipoua        | 104 Waipoua   | 163 Whararapa           |
| 55 Waipoua        | 105 Waipoua   | 164 Wellington          |
| 56 Waipoua        | 106 Waipoua   | 165 Okeana              |
| 57 Waipoua        | 107 Waipoua   | 166 Pahaia              |
| 58 Waipoua        | 108 Waipoua   | 167                     |
| 59 Waipoua        | 109 Waipoua   | 168                     |
| 60 Waipoua        | 110 Waipoua   | 169 Palmer              |

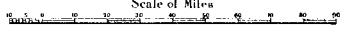


R. G. DICK  
Surveyor-General  
1945



# SOUTH ISLAND NEW ZEALAND

INDEX TO  
1:63360 AND 1:25000 TOPOGRAPHICAL SERIES  
TRANSVERSE MERCATOR PROJECTION



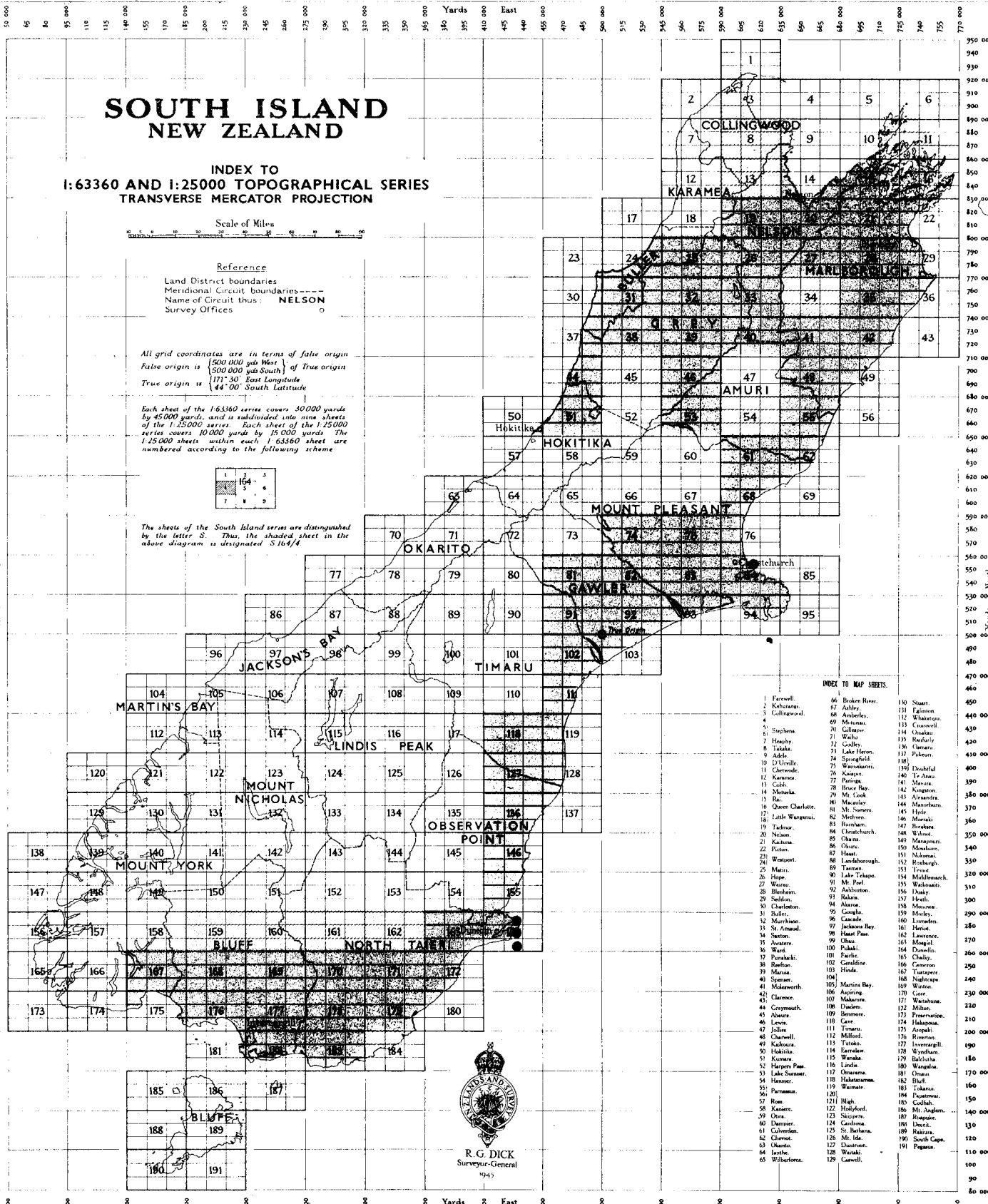
Reference  
Land District boundaries  
Meridional Circuit boundaries  
Name of Circuit thus: NELSON  
Survey Offices

All grid coordinates are in terms of false origin  
False origin is { 500 000 yds West } of True origin  
True origin is { 171° 30' East Longitude }  
{ 44° 00' South Latitude }

Each sheet of the 1:63360 series covers 30 000 yards  
by 45 000 yards, and is subdivided into nine sheets  
of the 1:25000 series. Each sheet of the 1:25000  
series covers 10 000 yards by 15 000 yards. The  
1:25000 sheets within each 1:63360 sheet are  
numbered according to the following scheme



The sheets of the South Island series are distinguished  
by the letter S. Thus, the shaded sheet in the  
above diagram is designated S 164/4.



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2 Kaiteraki.	67 Ashley.	131 Taimoni.
3 Collingwood.	68 Amberley.	132 Waikare.
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9 D'Urville.	74 Springfield.	138
10 Chertwood.	75 Waikare.	139 Dunblair.
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22 Nelson.	87 Dunedin.	151 Maitai.
23 Nelson.	88 Dunedin.	152 Rosburgh.
24 Nelson.	89 Dunedin.	153 Teviot.
25 Nelson.	90 Lake Taupo.	154 Middlemarch.
26 Nelson.	91 Mt. Peel.	155 Waikouaiti.
27 Nelson.	92 Waikouaiti.	156 Dunlop.
28 Nelson.	93 Rakaia.	157 Waikouaiti.
29 Nelson.	94 Altona.	158 Moutere.
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31 Nelson.	96 Cascade.	160 Moutere.
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40 Nelson.	105 Martin Bay.	169 Winton.
41 Nelson.	106 Nelson.	170 Gore.
42 Nelson.	107 Nelson.	171 Waikouaiti.
43 Nelson.	108 Nelson.	172 Milton.
44 Nelson.	109 Nelson.	173 Papatuanuku.
45 Nelson.	110 Nelson.	174 Hakarua.
46 Nelson.	111 Timaru.	175 Aroha.
47 Nelson.	112 Timaru.	176 Timaru.
48 Nelson.	113 Timaru.	177 Timaru.
49 Nelson.	114 Timaru.	178 Timaru.
50 Nelson.	115 Timaru.	179 Timaru.
51 Nelson.	116 Timaru.	180 Timaru.
52 Nelson.	117 Timaru.	181 Timaru.
53 Nelson.	118 Timaru.	182 Timaru.
54 Nelson.	119 Timaru.	183 Timaru.
55 Nelson.	120 Timaru.	184 Timaru.
56 Nelson.	121 Bluff.	185 Bluff.
57 Nelson.	122 Bluff.	186 Bluff.
58 Nelson.	123 Bluff.	187 Bluff.
59 Nelson.	124 Bluff.	188 Bluff.
60 Nelson.	125 Bluff.	189 Bluff.
61 Nelson.	126 Bluff.	190 Bluff.
62 Nelson.	127 Bluff.	191 Bluff.
63 Nelson.	128 Bluff.	
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65 Nelson.	130 Bluff.	



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