SQN. GeoSciences

Preliminary Site Investigation (PSI)

Black Swamp Road PPC, Mangawhai

ct: The Planning Collective

www.sqn.co.nz

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STATEMENT

This Preliminary Site Investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been reviewed and authorised by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the Environment's Contaminated Land Management Guidelines No.1 – Reporting on Contaminated Sites in New Zealand.

SQEP CERTIFICATION

I, Christopher Davies, of SQN Consulting Ltd ('SQN GeoSciences') certify that I meet the qualifications of a suitably qualified and experienced practitioner (SQEP) in contaminated land investigations, remediation, and management as outlined in Section 2.1.1 of the MfE's (2012) *Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Evidence of qualifications and experience can be provided upon request.

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EXECUTIVE SUMMARY

SQN GeoSciences (SQN) have been engaged to conduct a Preliminary Site Investigation (PSI) of the properties under parcel descriptions Lot 3 DP 177202 (Property A), Lot 1 DP 29903 (Property B), Sec 3 Blk IV Mangawhai SD (Property C), owned by Pro Land Matters Company Ltd, and Lot 2 DP 29902 (Property D), owned by Cabra Mangawhai Ltd (collectively referred to as 'the site'), located along Black Swamp Road, Mangawhai. The PSI has been conducted to a proposed private plan change (PPPC) which will enable future residential development with a small commercial centre at the site.

The PSI included a desktop review and a site inspection to identify potentially contaminating activities listed on the Ministry for the Environment's (MfE) Hazardous Activities and Industries List (HAIL). It was determined that the following potentially contaminating activities may have occurred at the site:

- Property A: Application of persistent pesticides (HAIL A.10),
- Properties C & D: Deterioration of building materials (HAIL E1 & I), and
- Properties C & D: Improper demolition of buildings (HAIL I).

Limited soil sampling was conducted during the site visit at Properties A-C, to support the findings of the desktop review and confirm whether the HAIL activities have occurred at the site. It is noted that, at the client's request, no soil sampling was conducted at Property D. The soil sampling comprised the collection and analysis of three composite (COMP1-COMP3) and one discrete soil samples (SS1). The analytical results identified the following:

- Heavy metal concentrations (arsenic, cadmium and/or zinc) in two locations marginally exceeded the predicted background concentrations (PBCs) for the site. All remaining contaminant concentrations were within the PBCs, and below the adopted guideline values for the protection of human health and the environment.
- However, the following is noted regarding the analytical results:
    - In the context of the remaining analytical results for the area of market gardening, the single marginal arsenic exceedance is not considered sufficient to conclude that the application of persistent pesticides (HAIL A.10) has occurred at the site.
    - While cadmium and zinc concentrations within SS1, collected from the location of the former shed (A), exceeded the PBCs, the analytical results indicate that contamination is not present in a '*sufficient quantity that it could be a risk to human health or the environment*'. Therefore, the removal/demolition of the former shed has not resulted in any soil contamination that meets HAIL I.

Based on the findings of the PSI, the following conclusions have been made:

- As no evidence of any current or historic HAIL activities have been identified at Properties A-C, these portions of the site do not meet the definition of land to which the NES applies under regulation 5(7).
- Further investigation is required to assess the potential for HAIL activities to have occurred at Property D.
- As potential HAIL activities have been identified at Property D, these areas meet the definition of *potentially contaminated land* under the Proposed Regional Plan for Northland.

While potentially contaminating activities have been identified onsite, this does not preclude the land uses proposed by the PPPC; provided further investigation and remediation (if required) is completed prior to disturbing the soil or utilising the site for residential purposes. Therefore, there are no limitations on the PPPC in relation to contaminated land.

A Detailed Site Investigation (DSI) or PSI addendum with limited soil sampling of the HAIL areas will be required for future earthworks or change in land use in the potential HAIL areas within Property D, to characterise the potential contamination resulting from these activities. The DSI shall be completed by a Suitable Qualified and Experienced Practitioner (SQEP) in accordance with the Contaminated Land Management Guidelines.

1 INTRODUCTION

SQN Geosciences (SQN) has prepared the following report for The Planning Collective in accordance with the SQN proposal, Ref: *Pro-240199/Mar24*, dated the 9th of March 2024.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG) No. 1 *Guidelines for Reporting on Contaminated Sites in New Zealand* and No. 5 *Site Investigation and Analysis of Soils* (MfE 2021a & 2021b).

2 PROPERTY DETAILS

TABLE 1 PROPERTY DETAILS

Address	Legal Description	Area (ha)	Property Identifier	Zoning
45 Black Swamp Road, Mangawhai	Lot 3 DP 177202	5.2950	A	Rural
Black Swamp Road, Mangawhai	Lot 1 DP 29903	19.0126	B	
	Sec 3 Blk IV Mangawhai SD	8.1569	C	
18A Black Swamp Road, Mangawhai	Lot 2 DP 29903	30.7839	D	
Total Investigation Area		63.2484 ha		

The properties at the above identifiers, hereafter referred to (collectively) as 'the site', are located in a predominantly rural area within the Kaipara District, approximately 1 km to the southeast of Mangawhai (Figure 1). The site is rural in use (agricultural farming and pastureland), with greenhouses situated in Property A.

Mangawhai Estuary is situated approximately 50 m west of the site, and wetland areas with mangroves and saltmarshes border and encroach into the north-western side of Property D. A recreational campground is located approximately 50 m west of Property A.

2.1 ENVIRONMENTAL CONTEXT

2.1.1 GEOLOGY & GEOHYDROLOGY

The online Geological Map of New Zealand dataset (1:250k) provided by GNS Science (2020) identifies the underlying geology of the southern portion of Property D as '*alternating thick-bedded, volcanic-rich, graded sandstone and siltstone*' of the Pakiri Formation of the Warkworth Subgroup. The remaining areas of the site are classified as OIS5 (Late Pleistocene) river deposits.

Review of data held within Northland Regional Council's (NRC) Local Maps indicates that the southern portion of Property D lies within an unmapped Groundwater Management Unit (GMU) groundwater zone under the Proposed Regional Plan for Northland (RPN). The remainder of the site falls within the Mangawhai South GMU (coastal aquifer).

Review of NRC's online Hazard Maps indicate that portions of Property D, in the vicinity of the estuary and permanent streams, lie within current coastal flood and river flooding hazard zones.

2.1.2 Topography and Drainage

A review of elevation data (2018 LiDAR) available from LINZ was conducted as part of this PSI.

Property D is undulating, with a general downward slope towards the northeast. The remaining areas of the site are relatively flat, with a general downward slope towards the north. Site levels vary between 55 m above sea level (masl) at the crest of a hill in the southern-most corner of Property D and 1 masl in the centre of the site along the stream estuary between Property D's northern boundary and Black Swamp Road.

As the site is predominately grassed, drainage is via overland flow paths and soakage. Surface runoff would likely flow towards intermittent and permanent streams located across Property D, or drainage ditches established across the site. These streams and drainage ditches would likely direct surface flows to site ponds or the Mangawhai Estuary and Mangawhai Harbour, situated approximately 50 m west of the site at its nearest point.

The site is within the Mangawhai River catchment, defined as a Coastal River Water Quantity Management Unit under the RPN.

3 Proposed Private Plan Change (PPPC)

The proposed private plan change (PPPC) seeks to rezone the site from its current Rural zoning to a mix of Large Lot, Low Density, and Medium Density Residential zones, a Neighbourhood Centre Zone, and a Mixed Use Zone. The proposed zoning change will enable future mixed residential development with associated amenities, roads, and services. The zone change will therefore allow a future change in land use from the current production land to various residential and commercial land uses.

It is noted that the scope of this report is limited to Properties A-D (as defined in Section 2) and does not include an assessment of the remaining properties included in the PPPC.

A copy of the proposed plan change zones is included in Appendix A.

4 Standards and Regulations

As a result of the proposed change in land use outlined above, it will be necessary to address the requirements of the following applicable standards and regulations for the site in the context of potential contaminated land.

4.1 National Environmental Standard (NES)

The *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NES), which came into effect on 1 January 2012, ensures that land affected by contaminants in soil is appropriately identified and assessed when soil disturbance and/or land development activities take place and, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, a change in land use, subdivision, or soil disturbance on HAIL land requires a preliminary site investigation (PSI) of the piece of land to determine if there is a risk to human health as a result of the former activities, site and if so, whether it is likely to present a risk to human health under the proposed activity.

The NES defines five standard land use scenarios for which soil contaminant standards have been derived. Standards applicable to future changes in land use following rezoning of the site will be subject to the specific configuration of each development under assessment at the time, but will likely include all five land use scenarios described by the NES.

4.2 Regional Plan For Northland (RPN)

Section 30(1)(ca) and (f) of the Resource Management Act provides the Northland Regional Council with a statutory duty to investigate land for the purposes of identifying and monitoring contaminated land and for the control of discharges of contaminants into or onto land or water and discharges of water into water. The Proposed Regional Plan for Northland (PRPN) was formally notified in September 2017. Following approval by the Minister of Conservation on 13 October 2023, the Rules of the PRPN are treated as operative with regards to contaminated land in accordance with Section 86F of the Resource Management Act (1991).

Chapter C.6.8 *Contaminated Land* deals with the actual or potential release of contaminants to land and water, during investigation, use, or remediation of contaminated land. These rules apply to the entire Northland region, unless a rule specifically states otherwise.

4.3 Operative Kaipara District Plan (OKDP)

Section 31(1)(b)(iia) of the RMA provides the Kaipara District Council with a statutory duty to control with the aim of preventing or mitigating any actual or potential adverse effects of the development, subdivision, or use of contaminated land.

The Kaipara District Plan, which became operative on the 1st of November 2013 and came under review in 2020, sets out the rules, policies, and objectives for sustainably managing natural and physical resources in the Kaipara District. Chapter 8 *Hazardous Facilities and Contaminated Sites* of Part A of the KDP deals specifically with contaminated land. The rules restrict activities on a piece of land prior to remediation of contamination to ensure that the risk to human health and safety is minimised. To achieve this, the KDP references and defers to the Regulations of the NES with regards to actual or potential contamination.

5 Objectives and Project Design

The primary objective of this investigation is to identify whether the site has been, is or is more likely than not to have been subject to any actually or potentially contaminating activities. Consequently, this investigation also provides an assessment of risks associated with actual or potential soil contamination and the applicability of the NES and / or the RPN.

To achieve the primary objectives, SQN has undertaken a PSI comprising the following scope of work:

- Completed an historic appraisal of the property via a desktop review of the following:
  - Available historical aerial photographs.
  - Current and historic certificates of titles.
  - Council-held property files.
  - Previous environmental / geotechnical reports.
  - Northland Regional Council's Selected Land Use Register (SLUR).
- Completed a site visit and walkover of the property.
- Developed a preliminary conceptual site model (CSM).

- Completed a limited intrusive site investigation of Properties A-C comprising the collection and analysis of representative soil samples, based on the preliminary CSM, to support the findings of the desktop review.
- Completed a preliminary risk assessment and regulatory assessments for the site, based on the findings of the investigation, and in the context of the NES, RPN, and KDP.
- Prepared this PSI report in accordance with CLMG No.1 (MfE, 2021a) detailing the findings of this investigation, including recommendations and relevant consenting requirements under the NES, RPN, and KDP.

6 Site History

A desktop study of publicly available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating land uses.

6.1 Records of Title

SQN has reviewed a copy of the current and historical search copies of the Records of Title for the site, including any instruments on the title which detail relevant property information such as: current ownership, registered interests, easements, covenants, lease restrictions and transmissions, to determine if pre-existing consent notices or other restrictions / notifications which may be relevant to historic uses or potential soil contamination are held against the property.

Property A was transferred to Three 'G' Orchard (date not provided). No further notes of interest pertaining to actual or potential contamination were recorded on the titles.

Copies of these documents are attached in Appendix B.

6.2 Property Files

A review of the site's property files held by Kaipara District Council was conducted as part of this PSI. Relevant files are summarised below:

- Property A: Building consents dated 2020 to construct greenhouses (BC200410) and packing shed (BC200515), with stormwater tanks and gravel driveway.
- Property D: Resource consent (for subdivision and associated earthworks for a 27-lot residential subdivision (N.B. this application is currently being processed). A geotechnical report prepared by Wiley Geotechnical ((Wiley) was included in the application (*Geotechnical Investigation for Proposed Plan Change at 18A Black Swamp Road, Mangawhai (Lot 2 DP 29903 & Section 25 Block IV Mangawhai SD*, dated May 2024). The following was noted:
    - 23 Hand augers were established to a maximum depth of 3.0 mbgl across the property.
    - Topsoil extended to maximum depths between 0.1 and 0.4 mbgl.
    - Topsoil was underlain by natural soil, generally consisting of grey to dark brown silt or sand soils. No fill material was encountered.
    - Water was encountered between 1.6 and 2.8 mbgl.

It is noted that no relevant documents for Properties B and C were included in the property file at the time of review.

6.3 HISTORIC AERIAL PHOTOGRAPHS

A review of publicly available historical imagery dated between 1980 and 1996 sourced from Retrolens, imagery dated 2003 and 2015 from LINZ and 2024 Google Earth imagery were reviewed as part of this PSI. Key findings are summarised below, with extant (numbered) and removed (lettered) features noted on Figures 2A, 2B, and 2C. Historical aerials are included as Appendix C.

1960-1977 The site and surrounding area are vacant pasture. Limited development is evident in the north-western corner of Property D, with the dwelling, minor dwelling and shed (1-3 & C), barn (9) and milk shed (12) visible.

Two additional sheds are present in the north-eastern portion of Property C (feature A), and north-eastern corner (B) of Property D, and occasional shelterbelts are present across Properties C & D. From 1977 an additional shed (7) the west of the dwelling and the wood barn (21) along the southern boundary of Property C can be observed.

Limited rural residential development can be observed to the west and north of the site.

1982-2003 Horticultural market gardens are present across Property A and the surrounding land to the west and north. Effluent ponds (11 & 13) are visible in the north-western development of Property D. Land clearing to the north of the residence can be observed.

The holiday park has been established to the west of the site.

2015-2024 The horticulture on Property A has ceased. Two sheds (3 & 5) and a rain tank (6) are present to the west of the residence, the hay barn (14) in the centre of Property D, and sheds (18) have been established in the northern portion of Property A. Shed (4) is present from 2017.

From 2024 the development of the northern section of Property A is underway, with the nursery yard (17), packing shed (19) and greenhouses (20) visible. The shipping container (15) and wood stockpile (16) are present to the west of the hay barn in Property D.

Based on the above, the following pertinent information is noted:

- Property A has been subject to historic horticultural activities between at least 1981 and least 2003. The application of persistent pesticides may have occurred, triggering HAIL A.10 '*Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds'* if present.
- Multiple site structures were constructed prior to the 1980s and may therefore contain hazardous materials including lead-based paints and asbestos. Deterioration of these materials can result in significant contamination of the surrounding soil. Additionally, several structures have been removed from the site. The improper removal of the structures can result in the uncontrolled release of contaminants into the surrounding soils. These activities may trigger HAIL I '*Any other land that has been subject to the intentional or accidental release*

of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment'.

7 SITE INSPECTION

SQN undertook a visual inspection of the site on the 10th of July 2024. The site layout is consistent most recent aerial imagery from Google Earth (2024), with the following key features noted during the inspection:

Property A:

- The property was accessed from the west along Windsor Way.
- The portions of the northern portion of the property were covered in hardstand and being developed as a plant nursery. A greenhouse and warehouse building were located in the north-eastern portion of the site.
- The remainder of the site comprised grassed paddocks in use for grazing, separated by drainage channels.

Property B:

- The property comprised vacant paddocks, with an access track extending through the centre of Property B.
- A large unpainted steel barn was located along the southern boundary. The barn contained chopped wood. No stored hazardous substances were identified within the barn.

Property C:

- The property comprised vacant paddocks, with several drainage ditches.
- No current site features were identified.

Property D (18a Black Swamp Road):

- The property was access from the northwest off Black Swamp Road.
- A residential dwelling, minor dwelling, and shed were located in the north-western portion of the site:
    - All three buildings were constructed of painted timber baseboards and potential asbestos-containing fibre cement cladding, gable ends, and soffits.
    - Fibre cement fragments identified as a potential asbestos-containing material (ACM) were located on the soil surface beneath the dwelling's northern stairs.
    - The buildings were in good condition, with minimal deterioration/damage noted.
- Three small metal sheds (one painted) and a rain tank were located northwest of the dwelling.
- A large barn, milk shed and associated pens and effluent pond were located southwest of the residence:
    - The barn was constructed of painted corrugated metal on a hardfill /concrete base. The barn was in use for stables and the storage of farm implements, including a small (25 gallon) weed sprayer.
    - The milk shed was constructed of painted concrete, corrugated metal, timber and fibre cement (potential ACM).
    - The buildings were in moderate condition, with some deterioration to the paintwork noted, and minimal damage the potential ACM.

    - A concreted animal thoroughfare and holding pens were located north of and between the barn and milk shed.
- A small (2 m radius) burn patch was noted northwest of the barn. Charcoal, nails and partially burned timber were noted within the area. The property owner indicated that 'untreated' pine timber from a former cattle loading race was burned.
- Two effluent ponds were located east of the residence.
- An unpainted corrugated steel haybarn was located in the north-eastern portion of the site. The barn was constructed on a concrete slab and was utilised for the storage of hay and timber. A locked shipping container and a large timber pile were located to the west of the barn. The timber pile appeared to predominantly comprise felled trees.

No visual or olfactory evidence of significant actual or potential contamination was identified during the site inspection. Site photographs are attached as Appendix D, and relevant site features are shown in Figures 2A – 2C.

8 PRELIMINARY CONCEPTUAL SITE MODEL FOR POTENTIAL CONTAMINATION

Based on the findings of the desktop review and site inspection, SQN has developed the following preliminary conceptual site model (CSM) for potential contamination on the site, discussed in Table 2. Based on the composition and extent of the burn patch, it is considered unlikely that this activity has resulted in soil contamination at levels that would pose a significant risk to human health or the environment, and therefore does not qualify as HAIL Item I.

TABLE 2 PRELIMINARY CONCEPTUAL SITE MODEL

Land Use / Activity	HAIL Item*	Contaminants of Concern	Comment/ Description	Expected Distribution	Investigation Requirements
Deteriorating Building Materials	E1 & I	Lead & asbestos	Several site structures (existing and removed) were constructed prior to 1980s, and therefore may contain ACM and lead-based paint. The degradation or improper demolition of these material can result in contamination of the surrounding soils. Excluding the suspected ACM fragments identified beneath the northern stairs of the dwelling (1), all potential ACM building materials appeared to be in good condition.	Due to low mobility of lead and asbestos, contamination (if present) would be confined to surficial (<75 mm) of soil in the vicinity of the building. Contaminant concentrations are expected to be negatively correlated with distance from the dwelling (vertically and laterally).	Targeted sampling of surface soils.
Improper Demolition of Buildings	I	Heavy metals, polycyclic aromatic hydrocarbons (PAHs) & asbestos	Several site structures identified in the aerial imagery have been subsequently removed from site. The improper removal of structures can result in the uncontrolled release of contaminants.	Due to low mobility of these contaminants, contamination (if present) would be confined to surficial (<75 mm) soil in the vicinity of the former structures. Contaminant concentrations are expected to be negatively correlated with distance from each (vertically and laterally).	Targeted sampling of surface soils.
Application of Persistent Pesticides	A.10	Arsenic, copper, lead & organochlorine pesticides (OCPs)	Horticultural market gardens were formerly established across Property A between at least 1982 and 2003, and therefore may have been subject to the application of persistent pesticides.	A uniform application of pesticides across the former orchards is expected. The contaminant concentrations would likely have a low mobility, with highest concentrations in the surficial soil (<75 mm).	Systematic sampling of surface soils across the areas of orcharding.

* Activities or industries potentially encompassed by HAIL Item I require quantification of risk via soil sampling and analysis to determine if a risk to human health or the environment is present; however, based on previous experience, these are regarded as 'more likely than not' in the context of the NES until proven otherwise.

8.1 Deterioration of Building Materials

The following painted site structures were constructed prior to the 1980s and therefore may have been subject to the application of lead-based paint:

- Former Sheds (A-D),
- The dwelling (1) and minor dwelling (2),
- Shed (7), and
- The barn (10 & 11) and milk shed (13).

The discharge of lead from painted surfaces, through deterioration or maintenance, may result in a build-up of lead in surrounding soil. Elevated concentrations in soil are positively correlated with building age and the number of applications of lead-based paint to the surface, with buildings constructed prior to 1950 often resulting in significant contamination compared to the relatively lower impacts around buildings constructed prior to 1980.

All potential ACM building material on the current site structures appeared to be good condition, with no significant signs of damage or deterioration noted. Potential ACM fragments were identified beneath the northern stairs of the dwelling; however, these do not appear to be associated with damage to any current site structures and the source of the fragments could not be determined. Therefore, HAIL E1 is limited to the area of potential ACM identified beneath the dwelling stairs, and the former sheds (A-D).

9 Screening Soil Sampling and Analysis

Based on the preliminary CSM and investigation requirements noted in Section 8, limited soil sampling was conducted to further evaluate whether the HAIL activities identified had occurred on portions of the site. SQN personnel collected a total of three composite samples (COMP1-COMP3) and one discrete soil sample (SS1) from across Properties A and C, as summarised in Table 3.

Surface soil samples were collected from the uppermost 0-75 mm of topsoil using a stainless-steel hand trowel. Samples were placed directly into laboratory supplied sample containers labelled with the date, sample identification number, sample depth, and initials of the sampler.

Soil sampling equipment was decontaminated in between samples using a soft soap solution in accordance with SQN internal quality control procedures. The soil sampling was conducted in accordance with the CLMG No. 5 *Site Investigation and Analysis of Soils.*

Soil sample locations are shown in Figure 3, and the sample analytical schedule is summarised in Table 3.

Table 3 Soil Sampling and Analytical Schedule

Location	Area	Soil Sample No.	Depth (mm)	Analytes
Area of historic orcharding	Property A	COMP1 – COMP3	0-75	Arsenic, copper, lead, OCPs
Former Shed (A)	Property C	SS1	0-75	Heavy metals, PAHs, asbestos

Notes:

1. OCPS = Organochlorine pesticides, PAHs = polycyclic aromatic hydrocarbons

10 LABORATORY ANALYSIS AND ACCREDITATION

The laboratory supplied sample containers were placed in a box with ice and a chain of custody document (COC) indicating the analysis to be performed, as summarised in Table 3, and were dispatched to Eurofins Scientific in Auckland for analysis.

Eurofins Scientific are accredited by International Accreditation New Zealand for the analysis conducted.

10.1 QUALITY ASSURANCE AND QUALITY CONTROL

SQN field staff are appropriately qualified, suitably trained and experienced in undertaking contaminated land assessments. Personnel are cognisant of the requirements for sample handling and storage, and equipment decontamination procedures alongside completion of field assessments, notes and record keeping and documentation.

During this assessment, appropriate sample handling and storage protocols were followed to ensure sample integrity was maintained during sampling and transport while laboratory analysis has been undertaken at an IANZ accredited laboratory.

Consequently, it is considered that appropriate QA/QC has been met for this investigation.

10.2 ACCEPTANCE CRITERIA AND RELEVANT GUIDELINES

In accordance with CLMG No. 2 *Hierarchy and Application in New Zealand of Environmental Guideline Values* (Revised 2011), the guideline values summarised in Table 4 below have been adopted for the site. As all samples were collected within proposed Low Density Residential Zone (minimum 750 m^2 lots), the residential land use scenario described by the NES as '*standard residential lot, for single dwelling sites with gardens, including home-grown produce consumption (10 per cent)*' is the most appropriate standard.

TABLE 4 ADOPTED GUIDELINE VALUES

Assessment Category	Reference Document
Human Health	1. NES, Soil Contaminant Standards for residential land use. 2. BRANZ, *New Zealand Guidelines for Assessing and Managing Asbestos in Soil,* asbestos thresholds for residential land use. 3. Australian Government, *National Environment Protection (Assessment of Site Contamination) Measure 1999* – Health Investigation Levels (HIL) A for low density residential land use.
Environmental Protection	1. Landcare Research Contract Report LC2605 (2019a) *Updated Development of soil guideline values for the protection of ecological receptors* (Eco-SGVs) – Technical Document (LOEC/EC30), Eco-SGVs (EC_{30}, aged soil + median predicted background concentration). 2. AUP (OP), Chapter E30, *permitted activity soil acceptance criteria* (Table E30.6.1.4.1).
Natural Background Concentrations	Landcare Research (2015) *Background soil concentrations of selected trace elements and organic contaminants in New Zealand* (LC2440) – Mudstone Pakihi (upper 95th confidence limit of the mean).

11 ANALYTICAL RESULTS

A comparison of the analytical results with the relevant guideline criteria is provided in Table 5 and Table 6 below. Copies of the laboratory chain of custody document (COC) and analytical transcripts are attached in Appendix E, while a discussion of the results is provided below.

TABLE 5 ANALYTICAL RESULTS – HEAVY METALS[1]

Sample	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
SS1	2.8	**0.88**	7.0	29	6.4	3.8	**120**
COMP1	1.5			39	4.4		
COMP2	1.6			44	5.7		
COMP3	**11**			40	4.2		
NES[2]	20	3	460	>10,000	210	400[5]	8,000[5]
EcoSGV[3]	57.38	12.065	394.76	208.23	907.11	105[6]	296.61
Background[4]	9.97	0.33	56.88	48.14	25.83	35.15	97.97

Notes:

1. All metal concentrations measured in mg/kg, unless otherwise specified
2. NES, Soil Contaminant Standards for residential land use.
3. [Calculated] Landcare (2019a), Eco-SGVs.
4. Landcare Research (2019b). *Predicted Background Soil Concentrations.*
5. [Adopted] Australian Government National Environment Protection (Assessment of Site Contamination) Measure 1999 – HIL Residential A.
6. [Adopted] AUP (OP), Chapter E30, permitted activity soil acceptance criteria as no Eco-SGV calculated for Nickel.
7. Values in ***ITALIC RED*** exceed the Human Health criteria, values **UNDERLINED BLUE** exceed the Environmental Protection criteria, Values in **BOLD** exceed the Background Ranges.
8. NA = Not applicable / NL = No Limit / ND= not detected

TABLE 6 ANALYTICAL RESULTS – ORGANIC COMPOUNDS

	Asbestos (Presence/Absence)[1]	B[a]P[2]	Total ΣDDT[2]
SS1	ND	<0.02	
COMP1			< 0.02
COMP2			< 0.02
COMP3			< 0.02
NES[3]	<0.001[4]	10	70
Eco-SGV[5]	N/A	22	12.0
Background	ND	ND	ND

Notes:

1. Presence/absence analysis only. Measured in % w/w.
2. Measured in mg/kg.
3. NES, Soil Contaminant Standards for residential land use.
4. BRANZ (2017), *New Zealand Guidelines for Assessing and Managing Asbestos in Soils*,
5. [Calculated] Landcare (2019a), Eco-SGVs.
6. Total ΣDDT includes the sum of DDT, DDD and DDE isomers.
7. Values in ***ITALIC RED*** exceed the Human Health criteria, values **UNDERLINED BLUE** exceed the Environmental criteria, Values in **BOLD** exceed the Background Ranges.
8. NA = Not applicable / NL = No Limit / ND= not detected

11.1 RESULTS DISCUSSION

Minor exceedances of the predicted background concentrations (PBCs) for the site were reported for select heavy metals (arsenic, cadmium, or zinc) in two samples (COMP1 and SS1). No exceedances of the calculated Eco-SGVs or the guideline values for the protection of human health under the NES were reported. No asbestos, PAH, or total DDT were detected in any sample analysed.

12 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the investigation, the following conclusions are made:

- The desktop review and site inspection determined that the following potentially contaminant activities may have occurred at the site:
    - Property A: Application of persistent pesticides (HAIL A.10),
    - Properties C & D: Deterioration of building materials (HAIL E1 & I), and
    - Properties C &D: Improper demolition of buildings (HAIL I).
- Limited soil sampling was conducted across Properties A and C to assess the potential for these HAIL activities to have occurred; an assessment of HAIL activities at Property D was not completed.
- Heavy metal concentrations (arsenic, cadmium and/or zinc) in two locations marginally exceeded the predicted background concentrations (PBCs) for the site. All remaining

contaminant concentrations were within the PBCs, and below the adopted guideline values for the protection of human health and the environment.

- However, the following is noted regarding the analytical results:
    - In the context of the remaining analytical results for the area of market gardening, the single marginal arsenic exceedance is not considered sufficient to conclude that the application of persistent pesticides (HAIL A.10) has occurred at the site.
    - While cadmium and zinc concentrations within SS1, collected from the location of the former shed (A), exceeded the PBCs, the analytical results indicate that contamination is not present in a '*sufficient quantity that it could be a risk to human health or the environment*' in the context of the proposed zoning changes. Therefore, the removal/demolition of the former shed has not resulted in any soil contamination that meets HAIL I.
- While potentially contaminating activities have been identified onsite, this does not preclude the land uses proposed by the PPPC, provided further investigation and remediation (if found to be necessary) is completed prior to commencing residential development. Therefore, there are no limitations on the PPPC in relation to contaminated land.
- As no evidence of any current or historic HAIL activities have been identified at Properties A-C, these portions of the site do not meet the definition of land to which the NES applies under regulation 5(7).
- Further investigation of Property D will be required prior to residential development to determine whether HAIL Items E.1 and I (as shown in Figure 4) are present or not.

As the site contains potential HAIL activities, the Regulations of the NES and contaminated land rules of the RPN must be addressed, as discussed below.

As structures are present on site that were constructed prior to 1 January 2000, appropriate asbestos material surveys must be completed prior to the structures' demolition or removal in accordance with the Health and Safety at Work (Asbestos) Regulations 2016.

12.1 The National Environmental Standards (NES)

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the HAIL has been, is, or is more likely than not to have been, undertaken on the land.

Based on the findings of the desktop review and limited soil sampling, Properties A-C have not been subject to any HAIL activities. Further soil sampling and analysis of Property D is required to determine whether this property has been subject to the potential HAIL activities identified in the desktop review and site walkover.

As this PSI has identified potential HAIL activities that may have occurred in localised areas of Property D, those areas (shown in Figure 4) meet the definition of land covered under Regulation 5(7)(c) of the NES.

As an intrusive investigation has not been conducted at Property D, it cannot be concluded that a change in land use of the potential HAIL areas of Property D is highly unlikely to present a risk to human health under future residential land use. However, it is noted that the PPPC will not comprise

any soil disturbance, and future resource consent applications will be submitted prior to commencing any subdivision or development to enable future residential land use.

Therefore, any potential soil contamination associated with the potential HAIL activities identified does not pose a risk to human health in the context of the PPPC, provided further investigation and remediation (if deemed necessary) is completed prior to undertaking any activities that will result in the land ceasing to be production land (including soil disturbance associated with residential houses / yards).

A Detailed Site Investigation (DSI) - or PSI addendum with limited soil sampling of the potential HAIL areas shown in Figure 4 - will be required for future earthworks or change in land use in the areas where the potential HAIL activities have been identified. The DSI shall be conducted by a SQEP in accordance with the CLMGs, to characterise the potential contamination resulting from these activities and inform the appropriate management of any contamination identified.

12.2 Proposed Regional Plan for Northland (RPN)

As potential HAIL activities have been identified at Property D, these areas meet the definition of *potentially contaminated land* under the Proposed Regional Plan for Northland (RPN). However, it is noted that the expected contaminant distribution (if present) would be confined to surficial soils in localised areas, with the identified potential HAIL activities being unlikely to generate mobile contaminants likely to create passive discharges from soil in surface or groundwater. As no soil disturbance will occur as part of the PPPC, there are no limitations on the PPPC in relation to contaminated land.

It is noted that, prior to commencing any soil disturbance activities, an intrusive investigation (i.e. DSI) will be required to assess the potential for discharges to land or water to occur during earthworks and determine the consenting requirements under the RNP.

13 REFERENCES

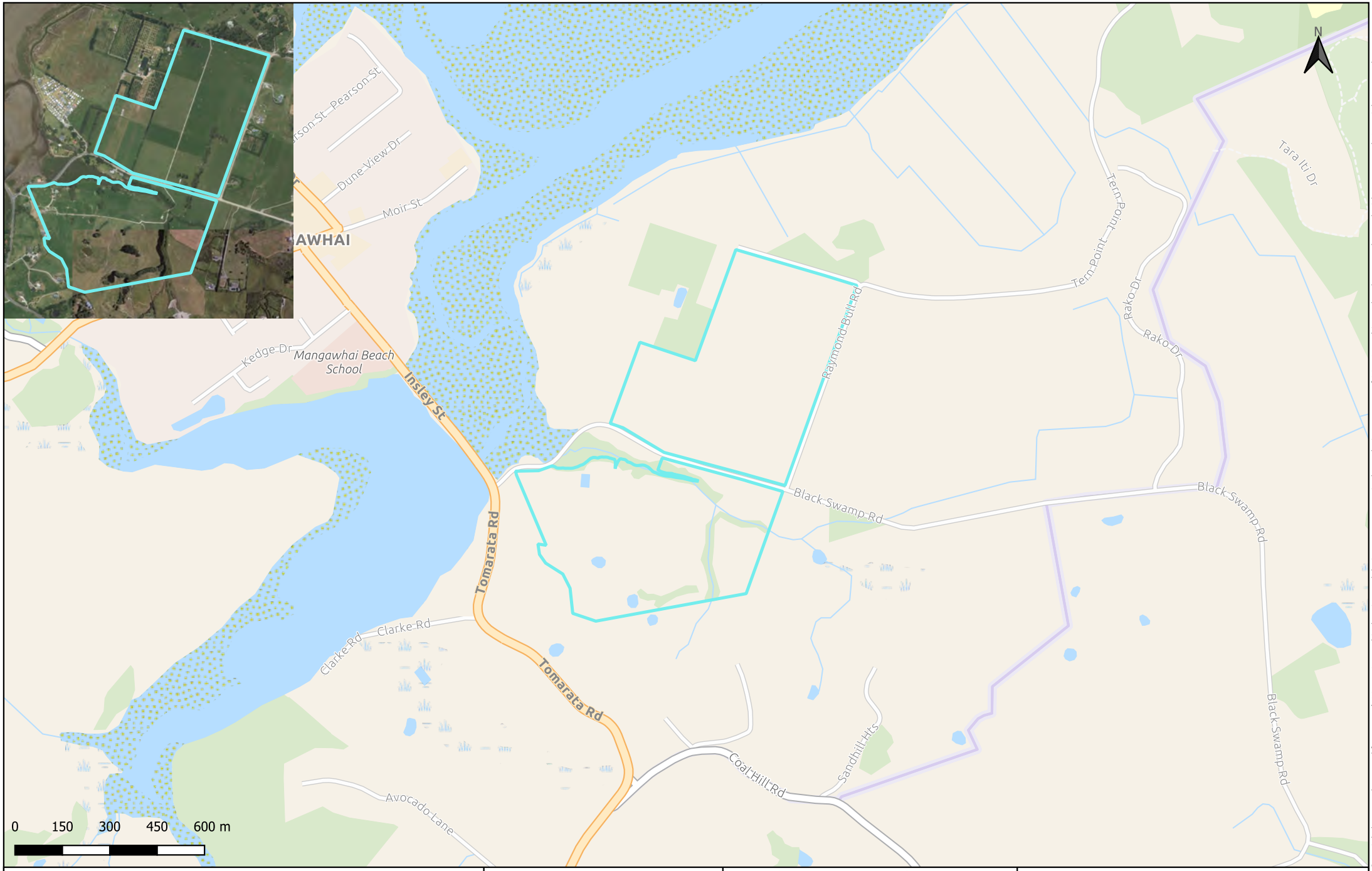
1. Auckland Council (2013) – *Auckland Unitary Plan (Operative in Part)*, Auckland, New Zealand.
2. Auckland Regional Council (2001) – *Background Concentrations of Inorganic Elements in Soils from the Auckland region (TP153)* – Auckland.
3. Auckland Council (2011) - *Auckland Council GEOMaps*. http://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html
4. Australian Government, *National Environment Protection (Assessment of Site Contamination) Measure 1999*.
5. GNS Science (2020) – *Geological Map of New Zealand Online Database (1:250K*).
6. Kaipara District Council (2013) – *Operative Kaipara District Plan.* Mangawhai, Northland, New Zealand.
7. Landcare Research Contract Report LC2595 (2019a) *Updated Development of soil guideline values for the protection of ecological receptors* (Eco-SGVs)
8. Landcare Research (2019b), *Updated User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation Draft.*
9. Ministry for the Environment (2021a) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
10. Ministry for the Environment (2011a) — *Contaminated Land Management Guidelines No.2: Hierarchy and Application in New Zealand of Environmental Guideline Values*. Ministry for the Environment, Wellington, New Zealand.
11. Ministry for the Environment (2021b) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
12. Ministry for the Environment (2011b) – *Hazardous Activities and Industries List (HAIL),* Ministry for the Environment, Wellington, New Zealand, October.
13. Ministry for the Environment (2011c) – *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand.* Ministry for the Environment, Wellington, New Zealand.
14. Ministry for the Environment (2011d) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health.* Ministry for the Environment, Wellington, New Zealand.
15. Proland Matters (2022) – *Planning Design & Assessment Strategy, 18 Black Swamp Road, Mangawhai.*
16. Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011.
17. SiteSafe, Guides & Resources, Practical Safety Advice, Risk Control, https://www.sitesafe.org.nz/guides--resources/practical-safety-advice/risk-control/.

14 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between SQN and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party except for Regional and Territorial authorities in their duties under the Resource Management Act 1991.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by SQN for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. SQN accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to SQN by third parties, SQN has made no independent verification of this information except as expressly stated in the report. SQN assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, SQN has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations or differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and SQN does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, SQN makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1 January 2000 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM .
9. No investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, SQN makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. SQN offers no opinion as to whether the current use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. SQN makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law or for the purposes of Regional & Territorial Authorities discharging their duties under the Resource Management Act 1991, no third party may use, or rely on, this report unless otherwise agreed by SQN in writing. Where such agreement is provided, SQN will provide a letter of reliance to the agreed third party in the form required by SQN.
15. To the extent permitted by law, SQN expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. SQN does not admit that any action, liability or claim may exist or be available to any third party.
16. Except as specifically stated in this section regarding Regional and Territorial Authorities, SQN does not authorise the use of this report by any other third party.

FIGURES



SQN. GeoSciences
Building 1, 1 William Pickering Drive,
Rosedale, Auckland, 0632
PO Box 45053, Waterloo, Lower Hutt, 5042
Tel: 0800 333 287

SITE LOCATION

Black Swamp Road, Mangawhai

DRAWN LC APPROVED CD

NOTES

JOB No. J240658 DATE 2024-07-30

SCALE 1:15,000 (A4) | Inset 1:21,236 (A4)

DWG No. Figure 1 REV 0

SQN. GeoSciences
Building 1, 1 William Pickering Drive,
Rosedale, Auckland, 0632
PO Box 45053, Waterloo, Lower Hutt, 5042
Tel: 0800 333 287

SITE LAYOUT - PROPERTIES A-C

Black Swamp Road, Mangawhai

DRAWN LC APPROVED CD

NOTES:
Property A - Lot 3 DP 177202
Property B - Lot 1 DP 29903
Property C - Sec 3 Blk IV Mangawhai SD
Property D - Lot 2 DP 29903 (18A Black Swamp Rd)

JOB No. J240658 DATE 2024-07-30
SCALE 1:3850 (A4)
DWG No. Figure 2a REV 0

	Site Feature
01	Dwelling
02	Suspected ACM Fragments
03	Minor dwelling
04	Shed
05	Shed
06	Pump shed
07	Rain Tank
08	Shed
09	Burn Patch
10	Barn
11	Barn addition
12	Effluent Pond
13	Milk Shed
14	Effluent Pond
15	Hay Barn
16	Shipping Container
17	Wood stockpile

	Former Structure
A	Shed (ca.1960)
B	Shed (ca. 1961)
C	Shed (ca. 1961)
D	Shed (ca. 1977)

SQN. GeoSciences
Building 1, 1 William Pickering Drive,
Rosedale, Auckland, 0632
PO Box 45053, Waterloo, Lower Hutt, 5042
Tel: 0800 333 287

SITE LAYOUT - PROPERTY D

Black Swamp Road, Mangawhai

DRAWN LC APPROVED CD

NOTES:
Property A - Lot 3 DP 177202
Property B - Lot 1 DP 29903
Property C - Sec 3 Blk IV Mangawhai SD
Property D - Lot 2 DP 29903 (18A Black Swamp Rd)

JOB No. J240658 DATE 2024-07-30
SCALE 1:3200 (A4)
DWG No. Figure 2b REV 0

SQN. GeoSciences
Building 1, 1 William Pickering Drive,
Rosedale, Auckland, 0632
PO Box 45053, Waterloo, Lower Hutt, 5042
Tel: 0800 333 287

SITE LAYOUT - PROPERTY D DEVELOPMENT AREA

Black Swamp Road, Mangawhai

DRAWN LC APPROVED CD

NOTES:
Property A - Lot 3 DP 177202
Property B - Lot 1 DP 29903
Property C - Sec 3 Blk IV Mangawhai SD
Property D - Lot 2 DP 29903 (18A Black Swamp Rd)

JOB No. J240658 DATE 2024-07-30
SCALE 1:850 (A4)
DWG No. Figure 2c REV 0

SQN. GeoSciences
Building 1, 1 William Pickering Drive,
Rosedale, Auckland, 0632
PO Box 45053, Waterloo, Lower Hutt, 5042
Tel: 0800 333 287

SAMPLE PLAN - PROPERTIES A-C

Black Swamp Road, Mangawhai

DRAWN LC APPROVED CD

NOTES:
Property A - Lot 3 DP 177202
Property B - Lot 1 DP 29903
Property C - Sec 3 Blk IV Mangawhai SD
Property D - Lot 2 DP 29903 (18A Black Swamp Rd)

JOB No. J240658 DATE 2024-07-30
SCALE 1:2730 (A4)
DWG No. Figure 3 REV 0

SQN. GeoSciences
Building 1, 1 William Pickering Drive,
Rosedale, Auckland, 0632
PO Box 45053, Waterloo, Lower Hutt, 5042
Tel: 0800 333 287

PROPERTY D - POTENTIAL HAIL AREAS

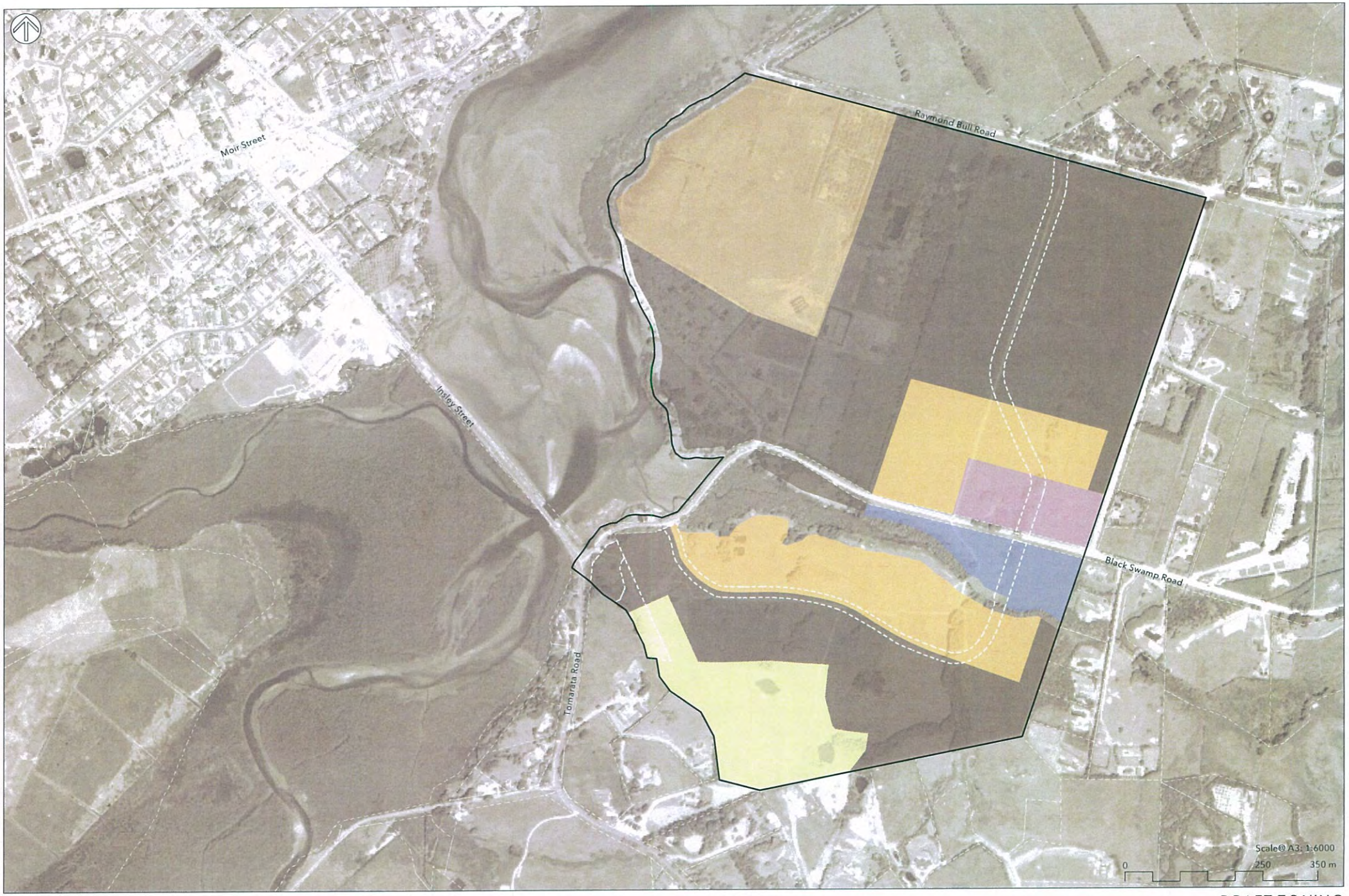
Black Swamp Road, Mangawhai

DRAWN LC APPROVED CD

NOTES:
Property A - Lot 3 DP 177202
Property B - Lot 1 DP 29903
Property C - Sec 3 Blk IV Mangawhai SD
Property D - Lot 2 DP 29903 (18A Black Swamp Rd)

JOB No. J240658 DATE 2024-08-01
SCALE 1:3200 (A4)
DWG No. Figure 4 REV 0

APPENDIX A PROPOSED PLAN CHANGE



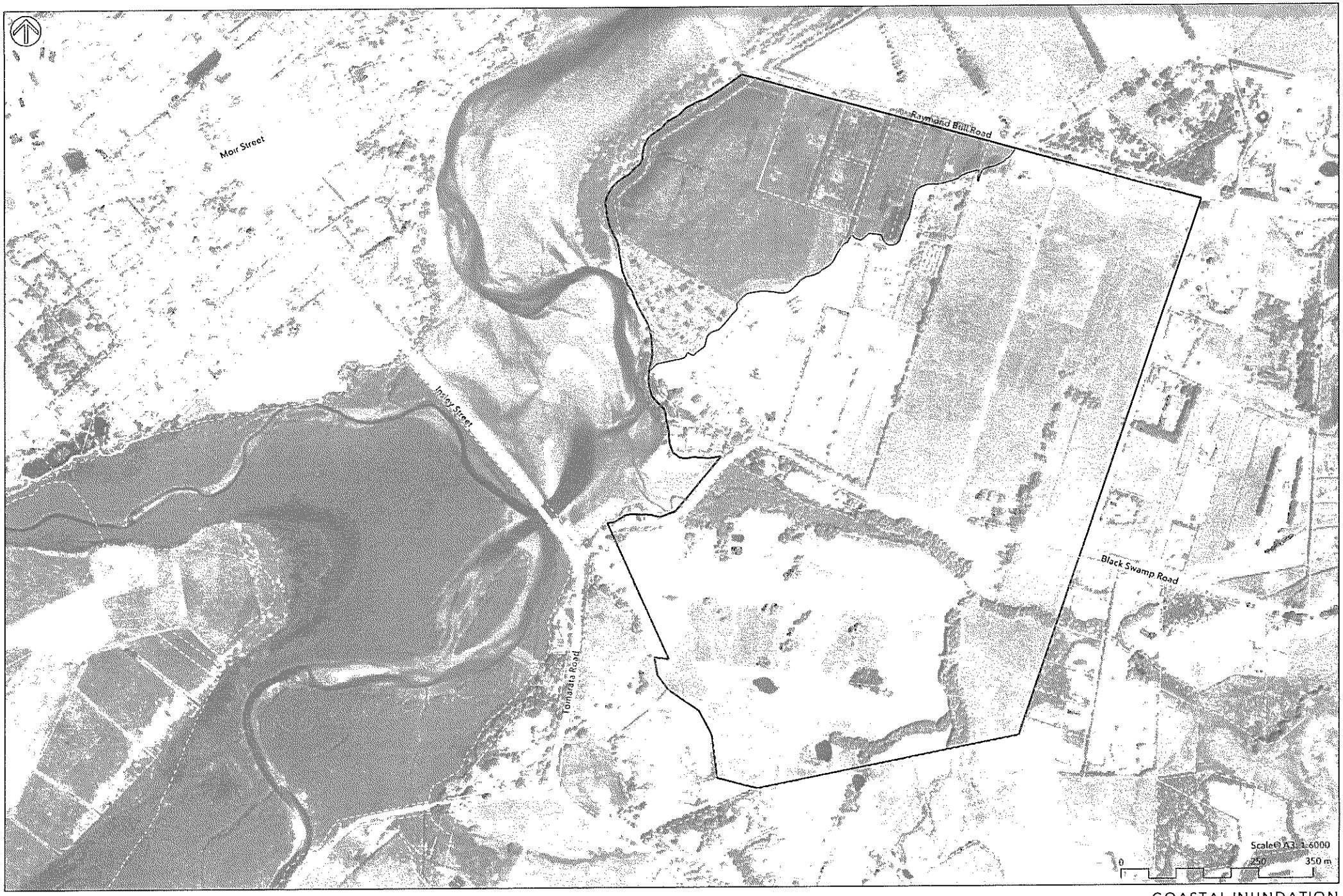
Neighbourhood Centre Zone
Mixed Use Zone
Large Lot Residential
Low Density Residential
Medium Density Residentiall
Rural Lifestyle Zone

DRAFT ZONING PLAN

24 B

21-Aug-24

ISSUE DATE / REF # - A



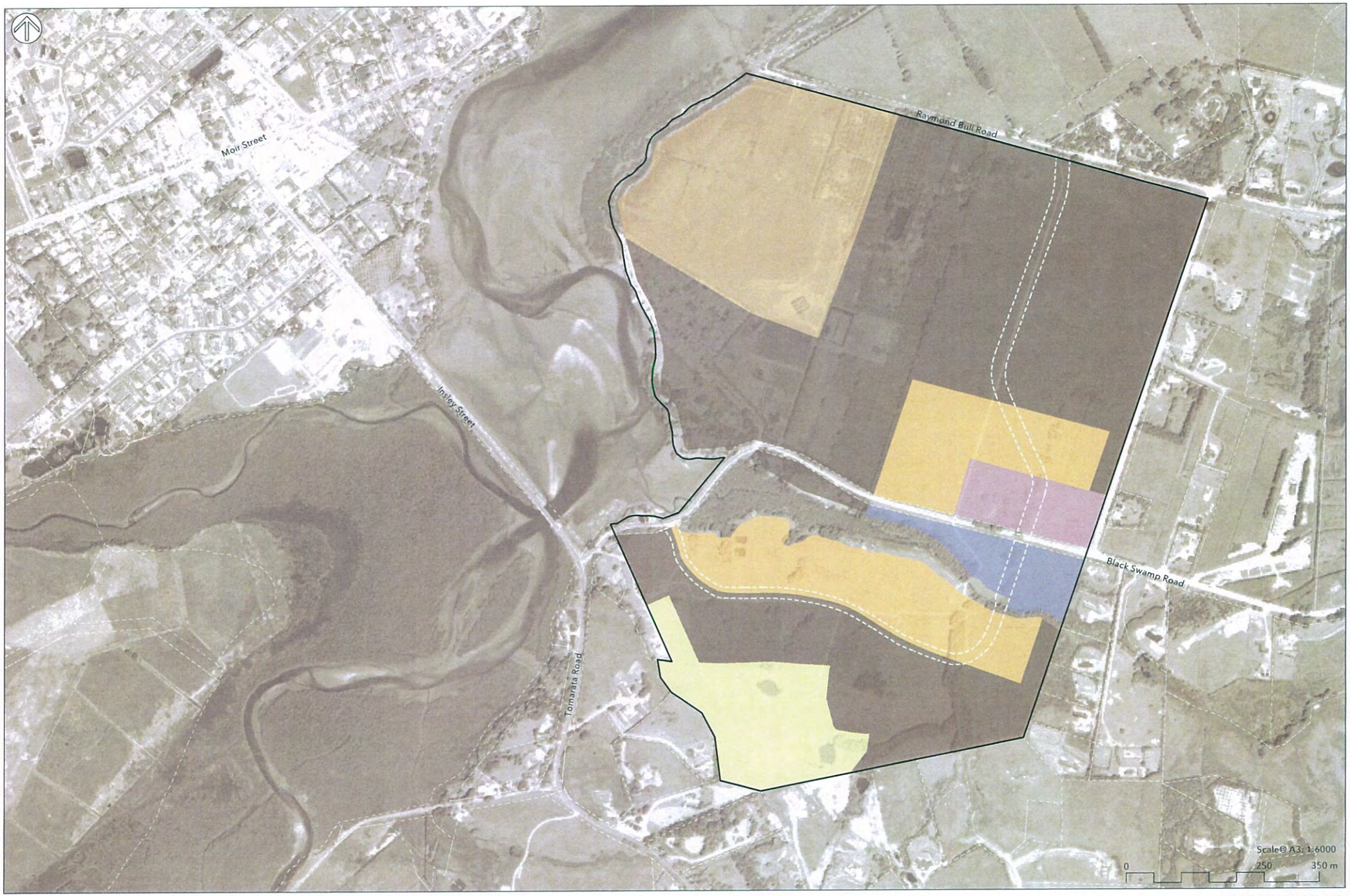
Coastal Inundation Overlay

COASTAL INUNDATION OVERLAY

24

21-Aug-24

A



Neighbourhood Centre Zone
Mixed Use Zone

Large Lot Residential
min 1000m² reticulated ww
/ min 3000m² not reticulated ww

Low Density Residential
min 750m²

Medium Density Residential
min 600m² (vacant lot)
/ min 400m² (per dwelling subject to Resource Consent)

Rural Lifestyle Zone
5000m² - 8000m²

DRAFT ZONING PLAN

24 C

21-Aug-24
ISSUE DATE / REF # - A

APPENDIX B RECORD OF TITLE

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General
of Land

Identifier **NA726/14**

Land Registration District **North Auckland**

Date Issued 22 February 1940

Prior References

NAPR184/365 WA 4062

Estate Fee Simple

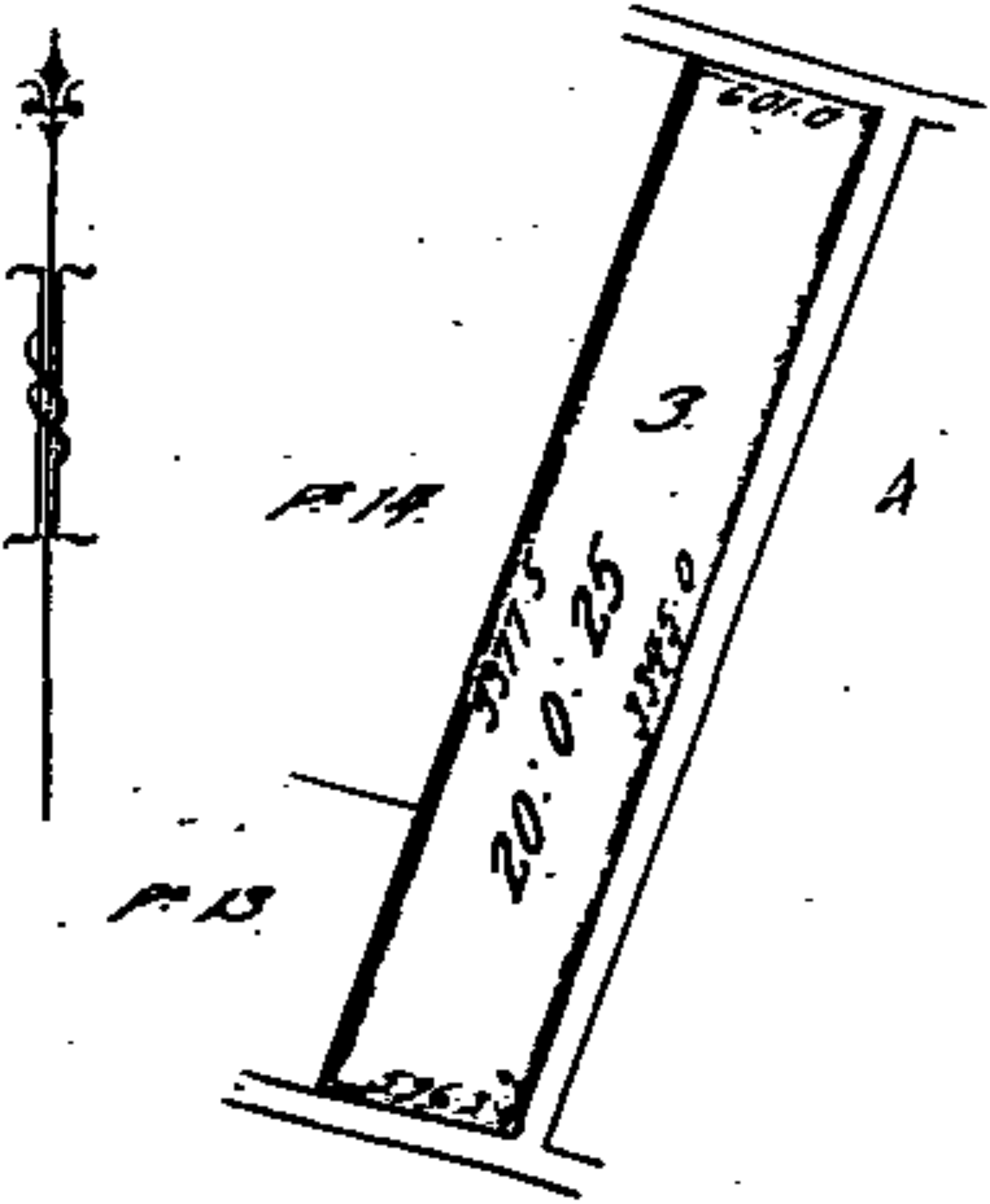
Area 8.1569 hectares more or less

Legal Description Section 3 Block IV Mangawai Survey District

Registered Owners

Cabra Mangawhai Limited

Interests


201.0
3
A
20.0.25

LT 69

References
Prior C/T 42B/294

REGISTER

No. 109B/159

Document No. D.099643.7

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of January one thousand nine hundred and ninety seven under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that SABIO MANAGEMENT LIMITED at Auckland

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 9.7960 hectares more or less being Lot 5 Deposited Plan 177202

Assistant Land Registrar

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND

Interests at date of issue:

C.092570.5 Mortgage to Westpac Banking Corporations - 19.11.1990 at 2.00 o'c

D.099643.3 Consent Notice pursuant to Section 221(1) of the Resource Management Act 1991 - 22.1.1997 at 11.23 o'c

A.L.R.

D.099643.8 CAVEAT BY KOMIN NOMINEE CO. LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D.099643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH, MARILYN GIBLING, JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D328548.1 Transfer to Three 'G' Orchard Limited

D328548.2 Mortgage to ANZ Banking Group (New Zealand) Limited

All 10.11.1998 at 9.50

for DLR

D342490.1 CAVEAT BY KOMIN NOMINEE CO. LIMITED AND ZABA LIMITED 17.12.1998 AT 3.35

FOR DLR

20 JUL 1999

No. 109B/159

LT 69

REGISTER

References:
Prior C/T 428/294

Document No. D.099643.7

No. 10B/159

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

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A.L.R.

D.099643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH, MARILYN GIBLING, JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D328548.1 Transfer to Three 'G' Orchard Limited

D328548.2 Mortgage to ANZ Banking Group (New Zealand) Limited

All 10.11.1998 at 9.50

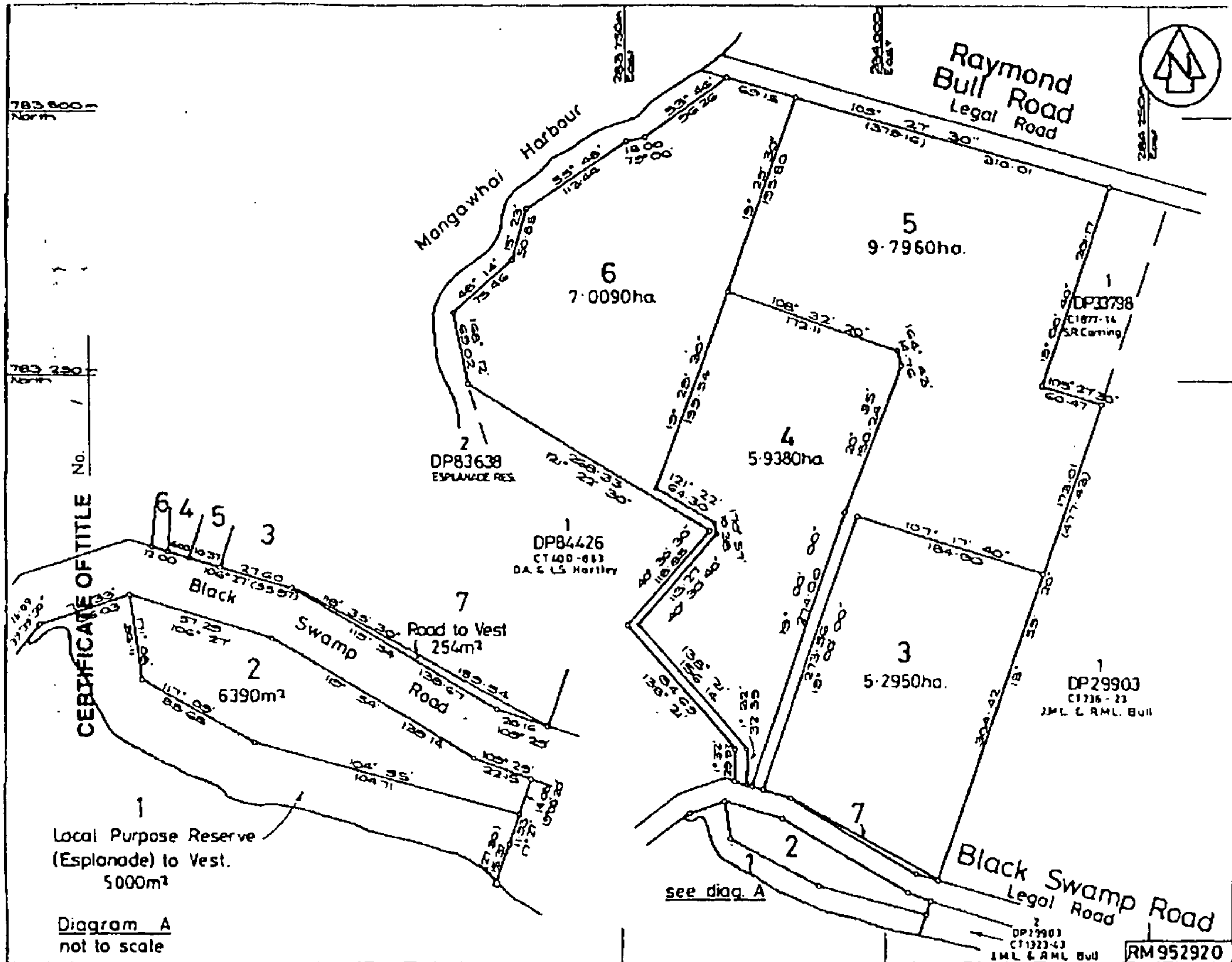
for DLR

D342490.1 CAVEAT BY KOMIN NOMINEE CO. LIMITED AND ZABA LIMITED 17.12.1998 AT 3.35

FOR DLR

20 JUL 1999

CERTIFICATE OF TITLE No. /



LAND DISTRICT North Auckland SURVEY BLK. & DIST. III Mangawhai NZMS 261 SHT .... RECORD MAP No	Lots 1-7 Being Subdivision of Pt. Allots. 13 & 14 Mangawhai Parish	TERRITORIAL AUTHORITY Kaipara District Surveyed by Balam & Associates Ltd Scale 1:2500 Date Aug. 1996

RM 952920

Approvals

A Vallowich (Director)
Bobo Management Ltd
Registered Owners (Director)

Approved pursuant to Sec 223 of the Resource Management Act 1991 on the 16th day of August 1996. The common seal of the Kaipara District Council is affixed in the presence of:

Mayor

General Manager

The Kaipara District Council hereby certifies that no part of the Legal Road is included within the area under survey on this plan.

General Manager

NEW C.T. ALLOCATED

Lot 2	1098/156
Lot 3	1098/157
Lot 4	1098/158
Lot 5	1098/159
Lot 6	1098/160
Lot 1	1098/179

Total Area 29.2024ha

Comprised in CI42B:294 Ltd (All)

I John Russell Balam of Orewa Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from surveys executed by me or under my direction, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Orewa this 10th day of September 1996

Examined DISTRICT

Approved as to Survey

Chief Surveyor

District Land Registrar

DP 177202

81958—18,000/10/96

20 JUL 1999

LT 69

References:
Prior C/T 428/294
Document No. D.099643.7

REGISTER

No. 10 9B / 13 a

CERTJFJCATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of January one thousand nine hundred and ninety seven under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that SABIO MANAGEMENT LIMITED at Auckland

is seised of an estate in fee-simple (subject to such reservations. restrictions. encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described. delineated with bold black lines on the plan hereon. be the several admeasurements a little more or less. that is to say: All that parcel of land containing 5.9380 hectares more or less being Lot 4 Deposited Plan 177202

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND

Assistant Land Registrar

Interests at date of issue:

C.092570.S Mortgage to Westpac Banking Corporations - 19.1.1990 at 1.51 o'c
DISCHARGED 17/6/98

D.099643.3 Consent Notice pursuant to Section 221(1) of the Reoource Management Act 1991 - 22.1.1997 at 11.23 O'C

A.L.R.

D.099643.8 CAVEAT BY KOMIN NOMINEE CO. LIMITED - 22.1.1997 AT 11.23 O'C
17

A.L.R.

D.099643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH, MARILYN GIBLING, JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

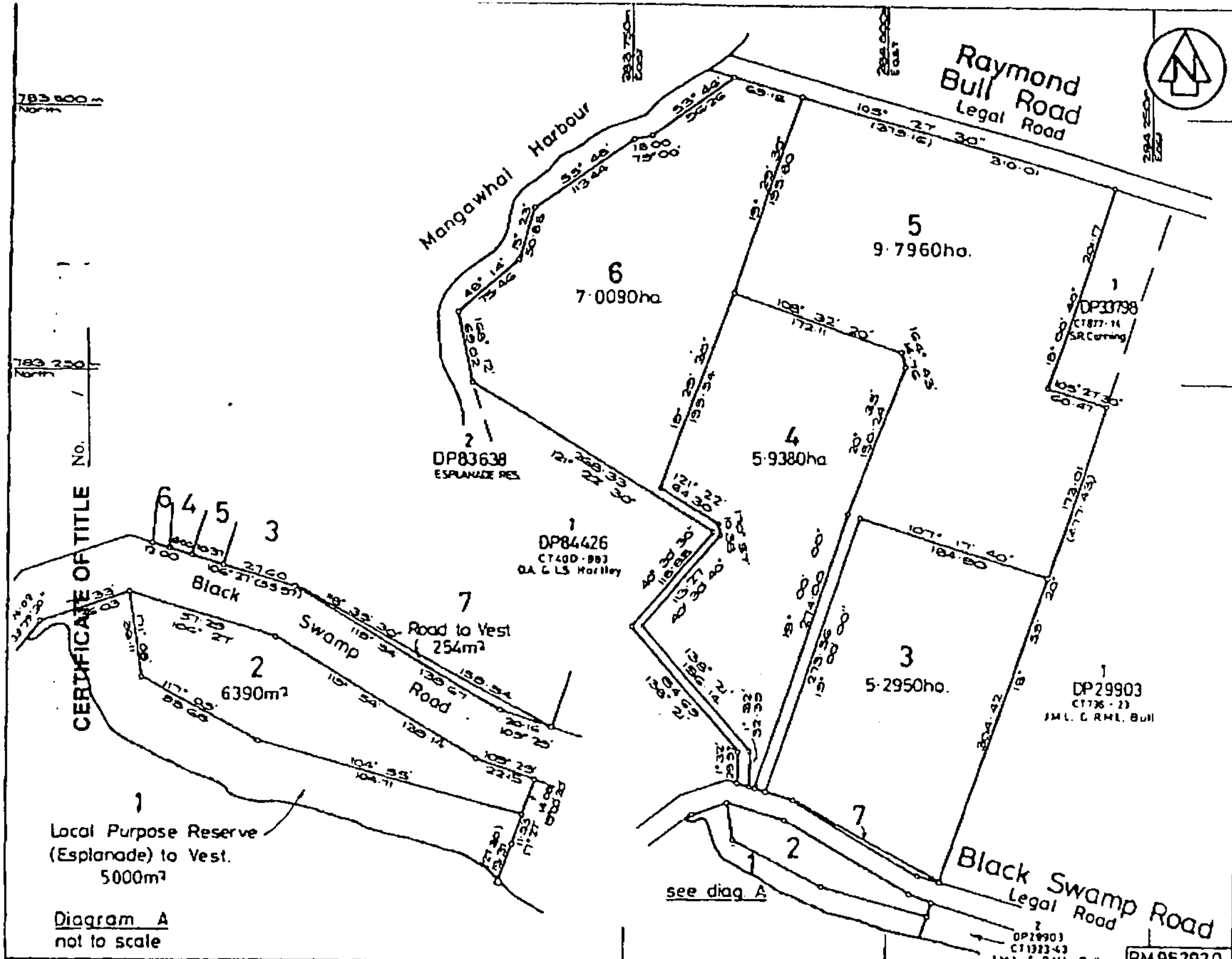
D281960.4 Transfer to Zaba Limited 17.6.1998 at 9.01

for DLR

No 10,9B / 158

20 JUL 1999

CERTIFICATE OF TITLE No. /



LAND DISTRICT ..... North ... Auckland	Lots 1-7 Being Subdivision of Pt. Allots. 13 & 14 Mangawhai Parish	TERRITORIAL AUTHORITY .. Kaipara District	RM952920
SURVEY BLK. & DIST. ..... III ... Mangawhai		Surveyed by .. Bolam & Associates Ltd	
NZMS 261 SHT .... RECORD MAP No		Scale ... 1 : 2 500 .... Date Aug. 1996	DP 177202

Approvals

A. Vallovich (Director)
Bobo Management Ltd
Registered Owners

Approved pursuant to Sec. 223 of the Resource Management Act 1991 on the 16th day of August 1996. The common seal of the Kaipara District Council is affixed in the presence of:

Mayor

General Manager

The Kaipara District Council hereby certifies that no part of the Legal Road is included within the area under survey on this plan.

General Manager

New C.T. Allocated
Lot 2 - 1098/156
Lot 3 - 1098/157
Lot 4 - 1098/158
Lot 5 - 1098/159
Lot 6 - 1098/160
Lot 1 - 1098/17?

Total Area .... 29·2024ha

Comprised in .... CT428-294 Ltd(All)

I, John Russell Brian of Orua, Registered Surveyor and holder of an annual practising certificate ... hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Orua this 10th day of September 1996

Field Book ... Traverse Book ...

Reference Plans

Examined ... DISTRICT

Approved as to Survey ... Chief Surveyor

Deposited this ... District Land Registrar

81958—18,000/10/96

20 JUL 1999

LT 69

References:
Prior C/T 428/294
Document Nu. D.099643.7

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of January one rhousnnd nine hundred and ninety seven undn the seal of the District Land Registrar of rhe Land Registration District of NORTH AUCKLAND

WITNESSETH that SABIO MANAGEMENT LIMITED at Auckland

is seised of an estate in fee-simple (subject to such reservations, restrictions. encumbrances. liens. and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described. delineated wirh bold black lines on the plan hercon, be the several admeasurements a little more or less, that is to ray: All that parcel of land containing 5.2950 hectares mare or less being Lot 3 Deposited Plan 177202

DISTRICT LAND REGISTRAR NORTH AUCKLAND

Assistant Land Registrar

Interesrs at date of issue:

C.092570.5 Mortgage to Westpac Banking Corporations - 19.1.1990 at o'c

0.099643.3 Consent Notice pursuant to Section 221(1) of the Resource Management Act 1991 - 22.1.1997 at 11.23 o'c

A.L.R.

D.099643.8 CAVEAT BY KOMIN NOMINEE CO. LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D.0P9643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH. MARILYN GIBLIWG. JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIWITED - 22.1.1997 AT 11.23 O'C

A.L.R.

ran

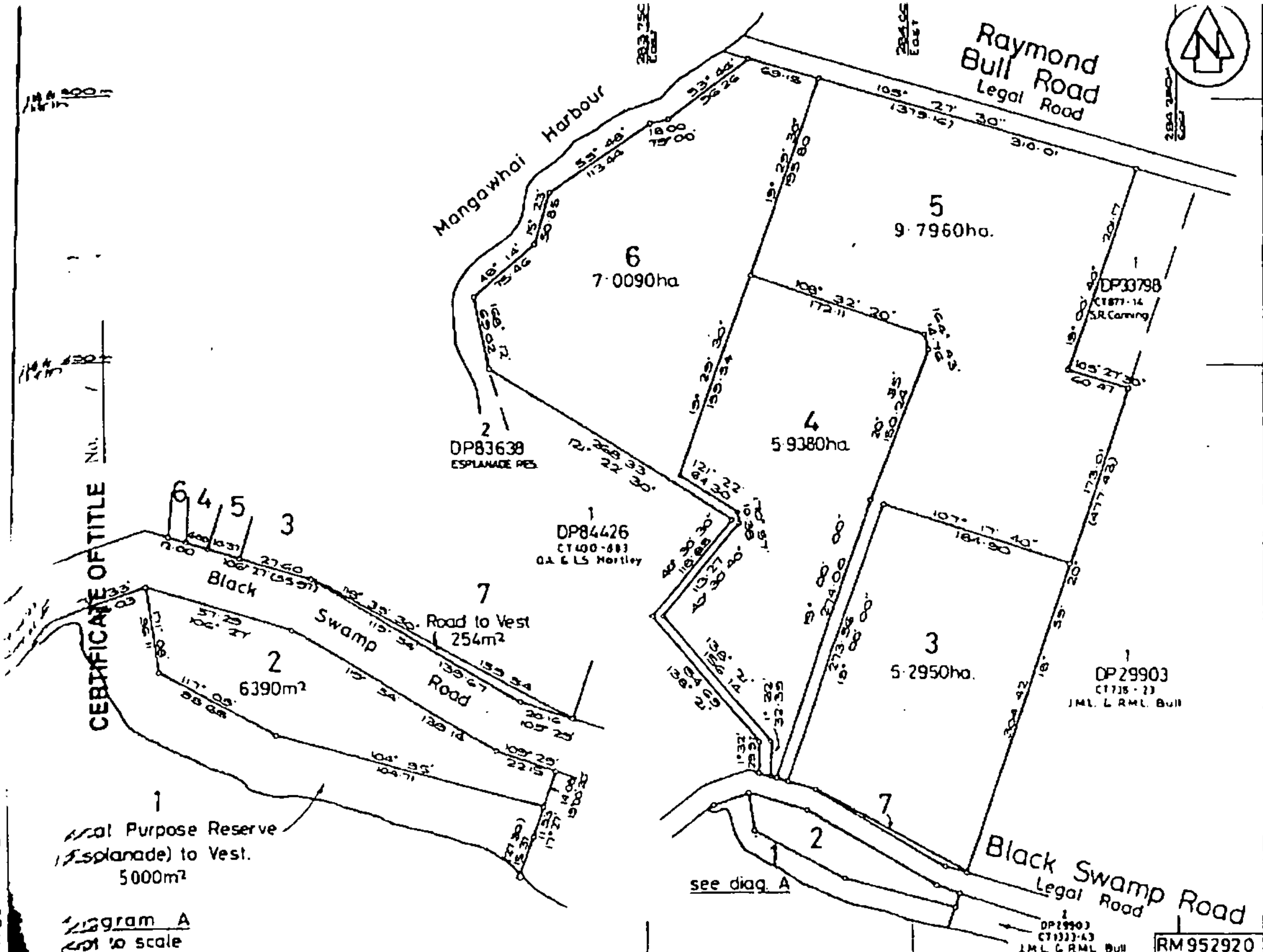
D.287445.5 Transfer to Komln Nominee Co, Limited 30.6.1998 at 3.05

for DLR

No. 10,9B

6661 JUL 02

CERTIFICATE OF TITLE No.



Approved pursuant to Sec 223 of the Resource Management Act 1991 on the 16th day of August 1996. The common seal of the Kaipara District Council is affixed in the presence of:

Mayor

General Manager

The Kaipara District Council hereby certifies that no part of the Legal Road is included within the area under survey on this plan.

General Manager

NEW C.T. ALLOCATED	
Lot 2	1098/156
Lot 3	1098/157
Lot 4	1098/158
Lot 5	1098/159
Lot 6	1098/160
Lot 1	1098/155

Total Area 29·2024ha.

Comprised in CT428-294 Ltd(All)

I John Russell Bolam of Orewa

Land District North Auckland

Survey Block & Dist. III Mangawhai

Record Map No

Lots 1-7 Being Subdivision of Pt. Allots. 13 & 14 Mangawhai Parish

Territorial Authority Kaipara District

Surveyed by Bolam & Associates Ltd

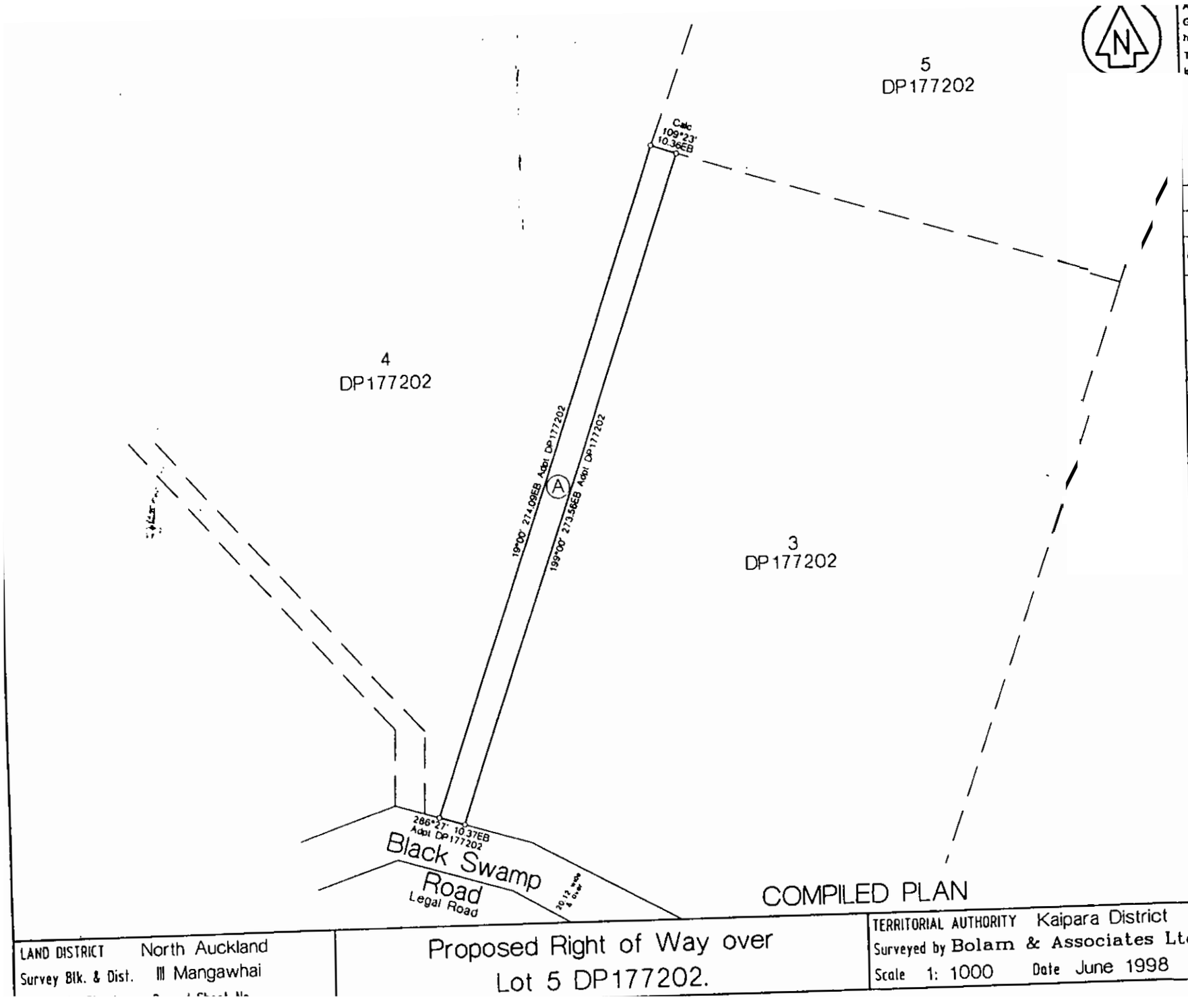
Scale 1:2,500 Date Aug. 1996

RM952920

DP 177202

81958—18,000/10/96

20 JUL 1999



Approved pursuant to Section [illegible] of the Government Act 1974 is the Right of Way shown hereon on this _____ day of _____ 1998.

The Common Seal of the Kaipara District Council is affixed hereto in the presence of:

_____ for Mayor

_____ for General Manager

Proposed Easement

Purpose	Shown	Servient Tenement	Dominant Tenement
Right of Way	A	Lot 5 DP177202	Lots 3&4 DP177202

Bearing Datum: Geodetic 1949
Mt. Eden Circuit Co-ordinates.
Origin: Mt. Eden 700 000m North
300 000m East

Total Area

Comprised in CT 109B/159 (All)

I, Jeffrey Alan Needham of Orewa Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Orewa this _____ day of _____ 19__ Signature _____

Field Book _____ p. _____ Traverse Book _____ p. _____

Reference Plans DP177202, DP190817.

Examined _____ Correct _____

Approved as to Survey

__ / __ / __ Chief Surveyor

Deposited this _____ day of _____ 19____

District Land Registrar

LAND DISTRICT North Auckland
Survey Blk. & Dist. III Mangawhai

Proposed Right of Way over Lot 5 DP177202.

TERRITORIAL AUTHORITY Kaipara District
Surveyed by Bolam & Associates Ltd
Scale 1: 1000 Date June 1998

File 5431-2 JN
Received
Instructions

DP193166

Approved AKLM 97/02

LT 69

References
Prior C/T 42B/294

Document No. D.099643.7

REGISTER

No. 109B/159

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of January one thousand nine hundred and ninety seven under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that SABIO MANAGEMENT LIMITED at Auckland

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 9.7960 hectares more or less being Lot 5 Deposited Plan 177202

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND

Assistant Land Registrar

Interests at date of issue:

C.092570.5 Mortgage to Westpac Banking Corporations - 19.11.1990 at 2.41 o'c

D.099643.3 Consent Notice pursuant to Section 221(1) of the Resource Management Act 1991 - 22.1.1997 at 11.23 o'c

A.L.R.

D.099643.8 CAVEAT BY KOMIN NOMINEE CO. LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D.099643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH, MARILYN GIBLING, JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D328548.1 Transfer to Three 'G' Orchard Limited

D328548.2 Mortgage to ANZ Banking Group (New Zealand) Limited

All 10.11.1998 at 9.50

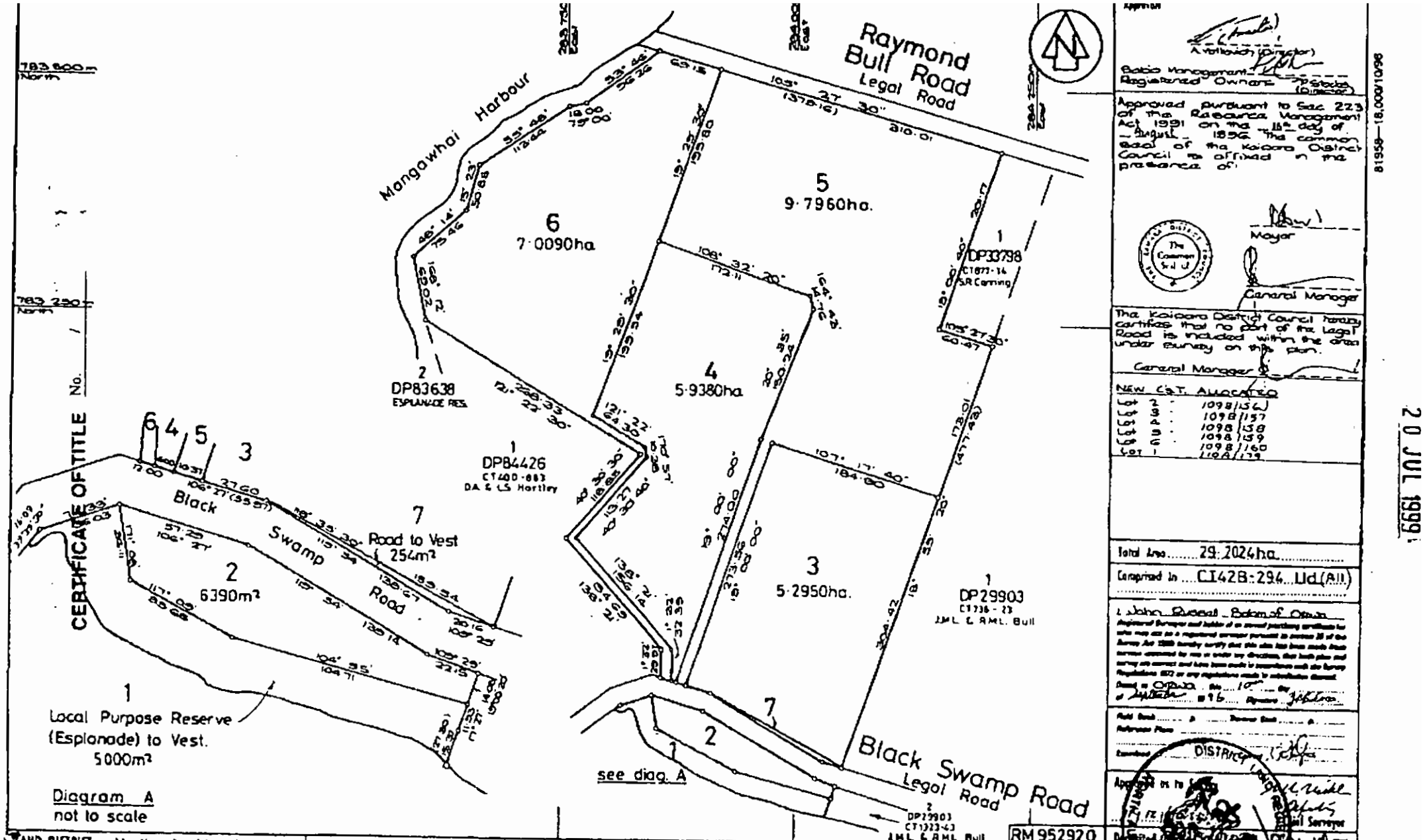
for DLR

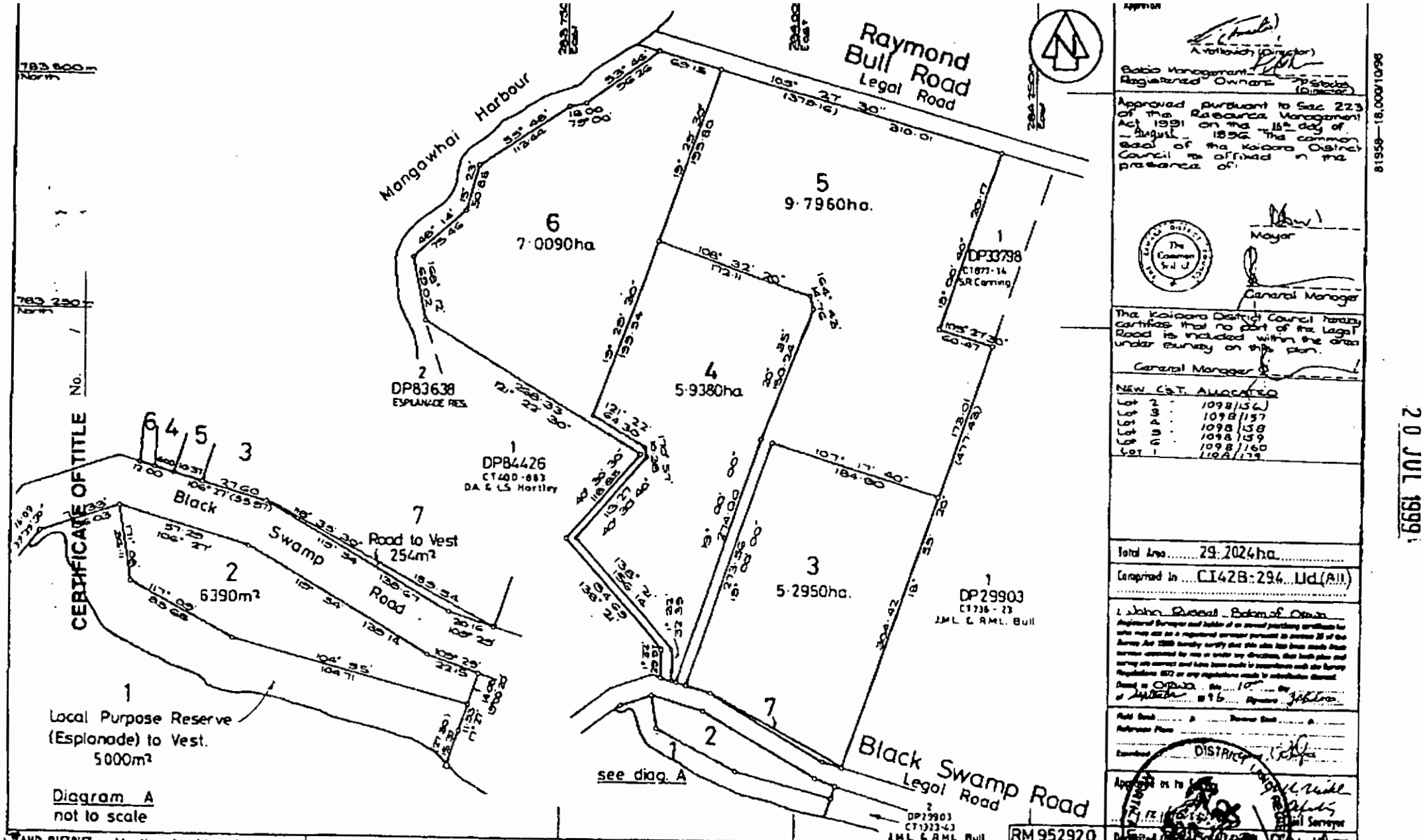
D342490.1 CAVEAT BY KOMIN NOMINEE CO. LIMITED AND ZABA LIMITED 17.12.1998 AT 3.35

FOR DLR

20 JUL 1999

No. 109B/159





LT 69

References:
Prior C/T 42B/294
Document No. D.099643.7

REGISTER No. 109B 158

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of January one thousand nine hundred and ninety seven under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that SABIO MANAGEMENT LIMITED at Auckland

is seised of an estate in fee-simple (subject to such reservations. restrictions. encumbrances, liens, and interests as are notified by memorial underwritten or endoncd hereon) in the land hereinafter described, delineated with bold black lines on the plan hercon. be rhe several admeasurements a little more or less. that is to say: All that parcel of land containing 5.9380 hectares more or less being Lot 4 Deposited Plan 177202

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND

Assistant Land Registrar

Interests at date of issue:

C.092570.5 Mortgage to Westpac Banking Corporations - CHARGED 17.6.1998 at 9.51 o'c

D.099643.3 Consent Notice pursuant to Section 221(1) of the Resource Management Act 1991 - 22.1.1997 at 11.23 o'c

A.L.R.

D.099643.8 CAVEAT BY KOMIN NOMINEE CO. LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

D.099643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH, MARILYN GIBLING, JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIMITED - 22.1.1997 AT 11.23 O'C

A.L.R.

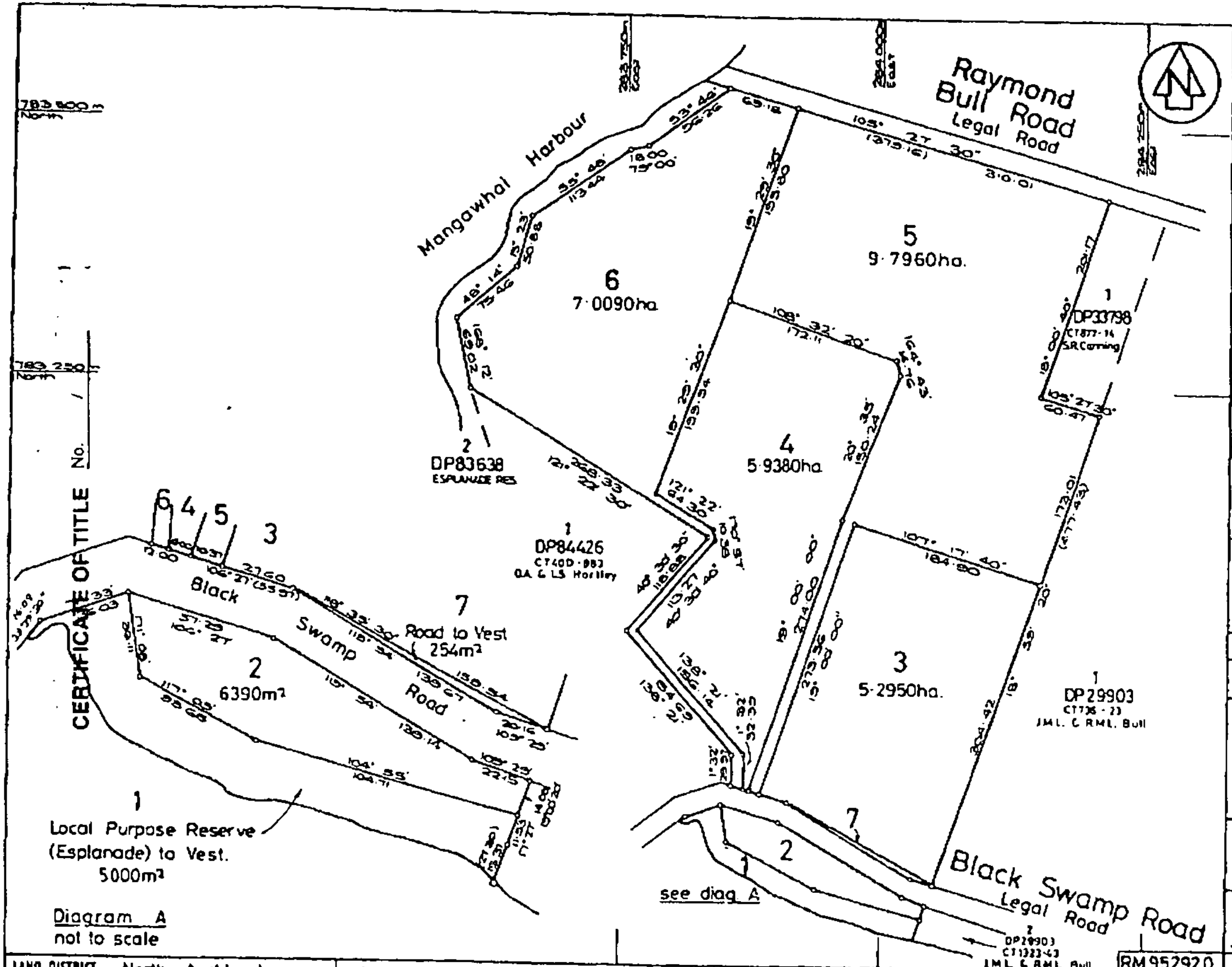
D281960.4 Transfer to Zaba Limited 17.6.1998 at 9.01

for DLR

ran

109B 158

20 JUL 1999



RM952920

LAND DISTRICT North Auckland SURVEY BLK. & DIST. III Mangawhai NZMS [illegible] RECORD MAP No	Lots 1-7 Being Subdivision of Pt. Allots. 13 & 14 Mangawhai Parish	TERRITORIAL AUTHORITY Kaipara District Surveyed by Bolam & Associates Ltd. Scale 1:2500 Date Aug. 1996

Approvals

A. Vallaboch (Director)
Bobo Management Ltd
Registered Owners

Approved pursuant to Sec. 223 of the Resource Management Act 1991 on the 16th day of August 1996. The common seal of the Kaipara District Council is affixed in the presence of:

Mayor

General Manager

The Kaipara District Council hereby certifies that no part of the Legal Road is included within the area under survey on this plan.

General Manager

New C.T. Allocation
Lot 2 . 1098/156
Lot 3 . 1098/157
Lot 4 . 1098/158
Lot 5 . 1098/159
Lot 6 . 1098/160
Lot 1 . 1098/155

Total Area 29.2024ha

Comprised in CT 42B/294 Ltd(All)

John Russell Bolam of Orewa
Registered Surveyor [illegible]

Examined DISTRICT

Approved as to Survey

Deposited

District Land Registrar

DP 177202

81958—18,000/10/96

20 JUL 1999

LT 69

References:
Pr CT 42B/294
Document Nu. D.099643.7

REGISTER

No. 10,9B/157

CERTIFICATE OF TITLE UNDER *LAND* TRANSFER ACT

This Certificate dated the 22nd day of January one thousand nine hundred and ninety seven under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND
WITNESSETH that SABIO MANAGEMENT LIMITED at Auckland

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the lond hereinafter described, delineated with bold black lines on the plan hercon, be the several admeasurements a little more or less, that is to say: All that parcel of land conraining 5.2350 hectares more or less being Lot 3 Deposited Plan 117202

DISTRICT LAND REGISTRAR NORTH AUCKLAND

Assistant Land Registrar

Interests at date of issue:

C.092570.5 Mortgage to Westpac Banking Corporations - 19.1.1990 at 2.52 o'c

D.099643.3 Consent Notice pursuant to Section 221(1) of the Resource Management Act 1991 - 22.1.1997 at 11.23 o'c

A.L.R.

~~D.0P9643.8 CAVEAT BY KOMIN NOMINEE CO. LIMITED - 22.1.1997 AT 11.23 O'C~~

A.L.R.

~~D.099643.9 CAVEAT BY ANTHONY STAN VLATKOVICH, PETER ZARKO VLATKOVICH, MARILYN GIBLING, JOHN RUSSELL BOLAM AND CAMARONE INVESTMENTS LIMITED - 22.1.1997 AT 11.23 O'C~~

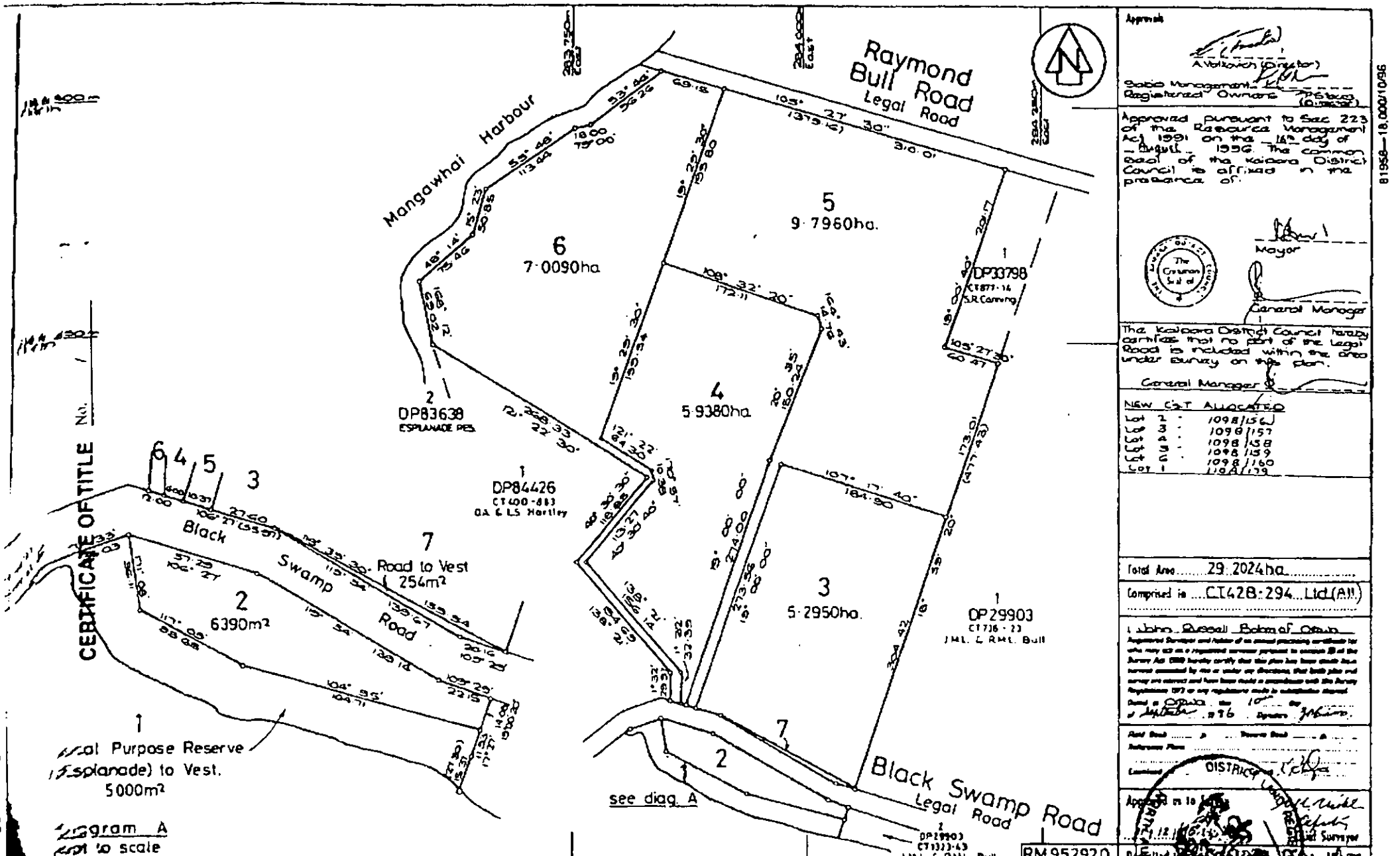
A.L.R.

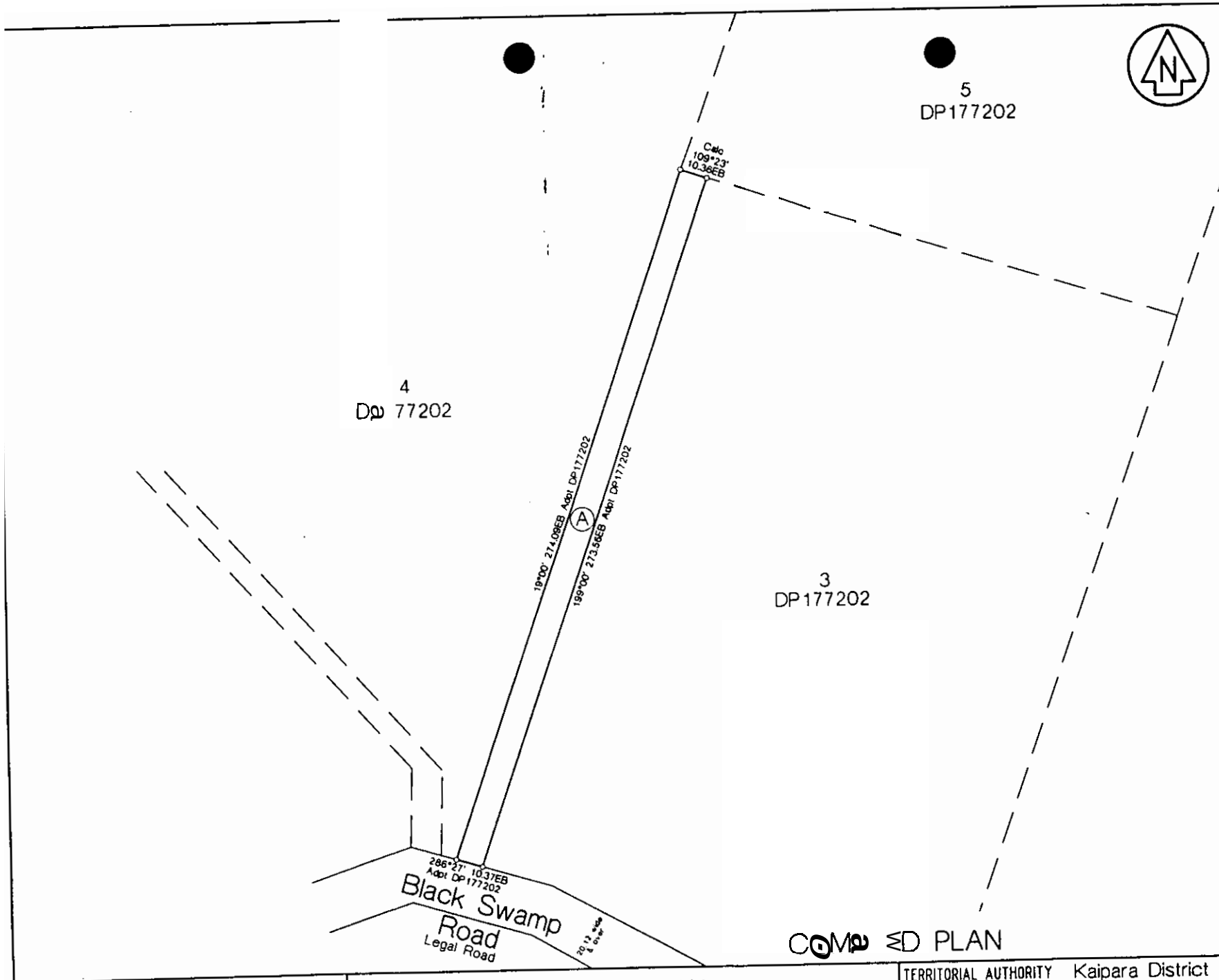
ran

No 10,9B/157

D.287445.5 Transfer to Komln Nominee Co. Limited
30.6.1998 at 3.05

B. Dhemaroa
for DLR





Approvals

Approved pursuant to Section 348 of the Local Government Act 1974 is the Right of Way shown hereon on this _____ day of _____ 1998.

The Common Seal of the Kaipara District Council is affixed hereto in the presence of

_____ for Mayor

_____ for General Manager

Proposed Easement

Purpose	Shown	Servient Tenement	Dominant Tenement
Right of Way	A	Lot 5 DP177202	Lots 3&4 DP177202

Bearing Datum: Geodetic 1949
Mt. Eden Circuit Co-ordinates.
Origin: Mt. Eden 700 000m North
300 000m East

Total Area

Comprised in CT 109B/159 (All)

I, Jeffrey Alan Needham of Orewa
Registered Surveyor and holder of an annual practising certificate for the year act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Orewa this _____ day of _____ 19__ Signature _____

Field Book _____ p. _____ Traverse Book _____ p. _____

Reference Plans DP177202, DP190817.

Examined _____ Correct _____

Approved as to Survey

__ / __ / __ Chief Surveyor

Deposited this _____ day of _____ 19__

District Land Registrar

File Received 5431-2 JN

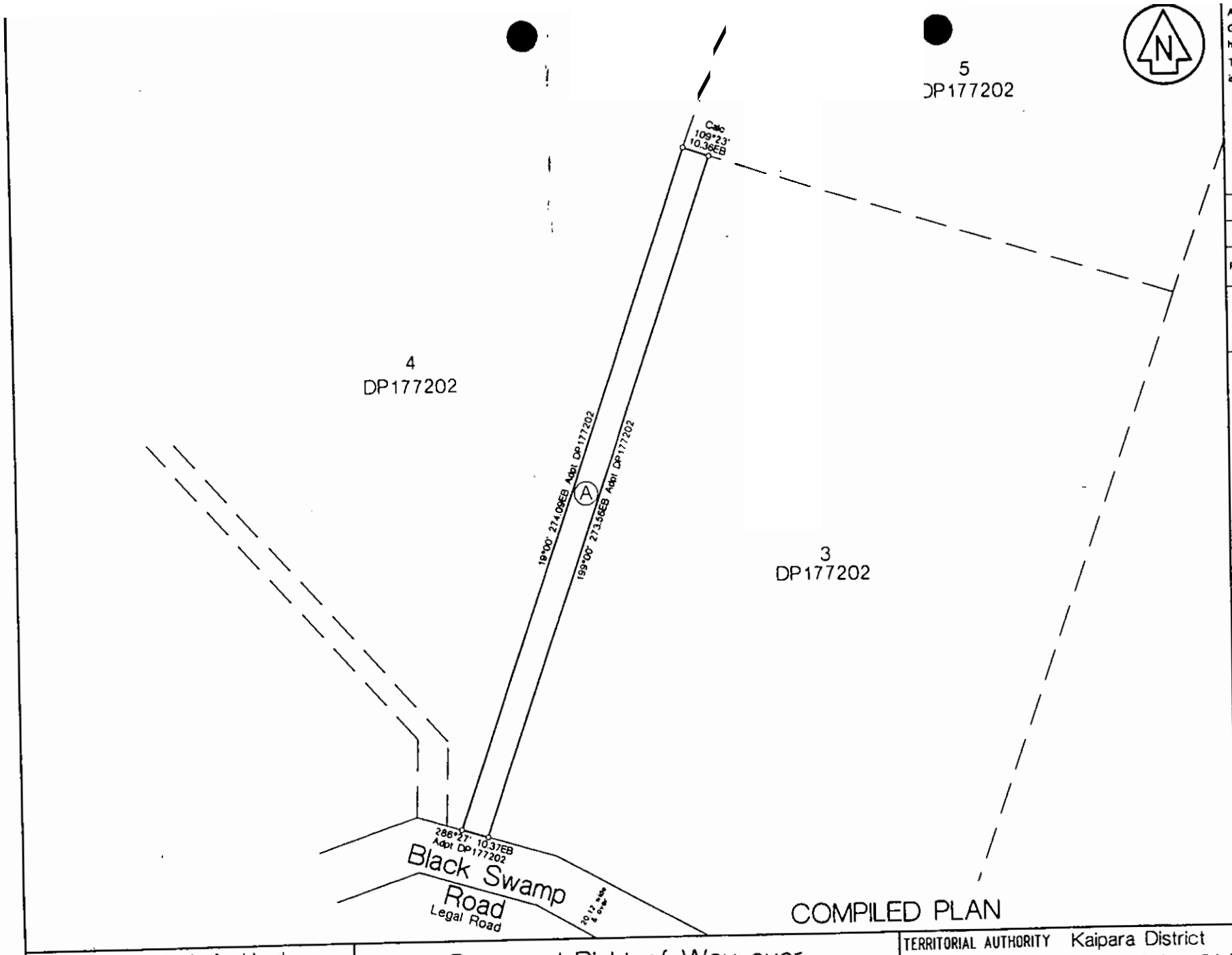
LAND DISTRICT North Auckland

Proposed Right of Way over

TERRITORIAL AUTHORITY Kaipara District

Surveyed by Bolam & Associates Ltd

DP193166



Approved pursuant to Section 348 of the Local Government Act 1974 as the Right of Way shown hereon on this ____ day of _____ 1998.

The Common Seal of the Kaipara District Council is affixed hereto in the presence of

_____ for Mayor

_____ for General Manager

Proposed Easement

Purpose	Shown	Servient Tenement	Dominant Tenement
Right of Way	(A)	Lot 5 DP177202	Lots 3&4 DP177202

Bearing Datum Geodetic 1949
Mt. Eden Circuit Co-ordinates.
Origin Mt. Eden 700 000m North
300 000m East

Total Area

Comprised in CT 109B/159 (All)

I, Jeffrey Alan Needham of Orewa Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Orewa this ____ day of _____ 19__ Signature _____

Field Book ____ p. ____ Traverse Book ____ p. ____

Reference Plans DP177202, DP190817.

Examined _____ Correct _____

Approved as to Survey

__/__/__ Chief Surveyor

Deposited this ____ day of _____ 19____

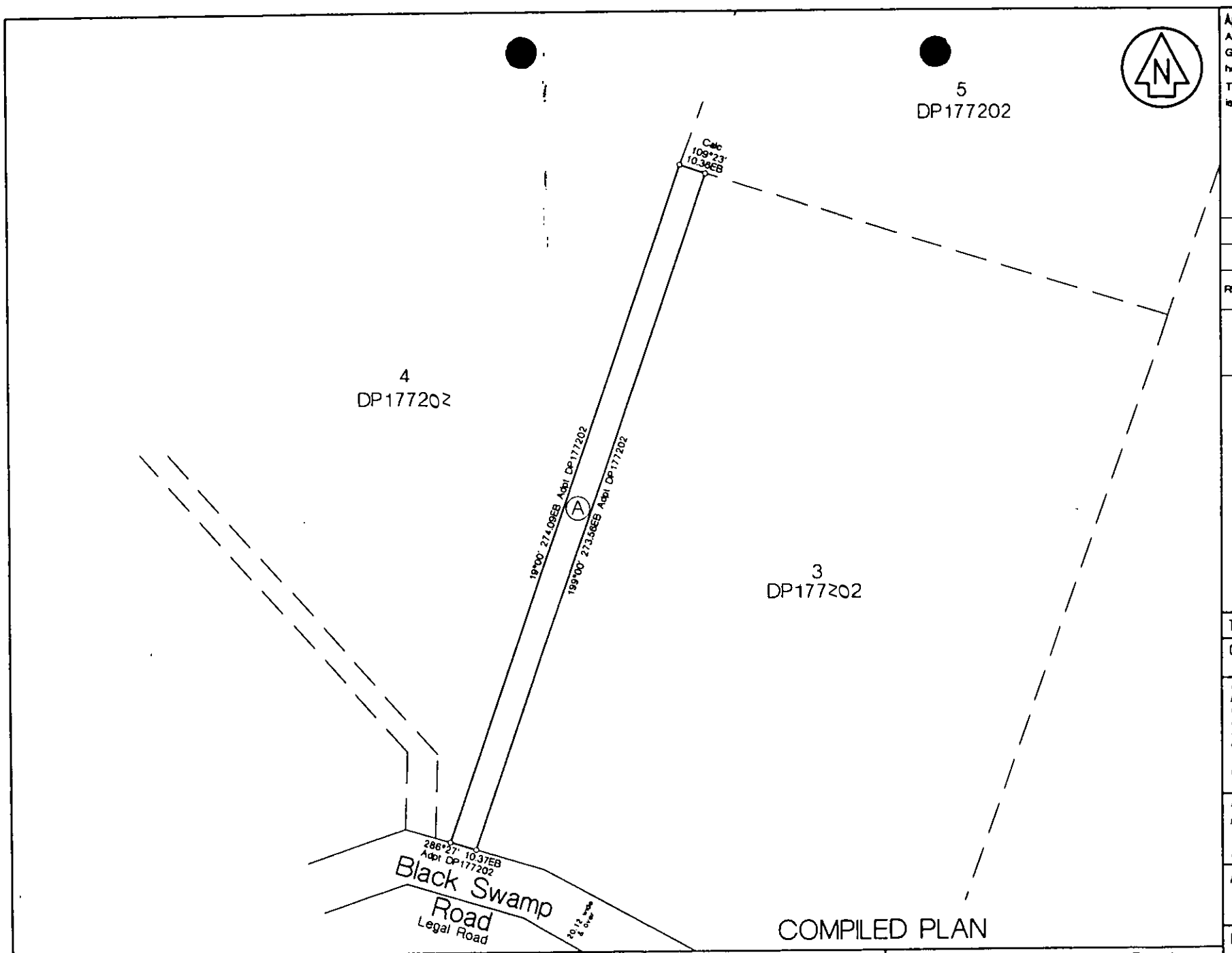
District Land Registrar

LAND DISTRICT North Auckland Survey Blk. & Dist. III Mangawhai NZMS 261 Sheet Record Sheet No.	Proposed Right of Way over Lot 5 DP177202.	TERRITORIAL AUTHORITY Kaipara District Surveyed by Bolam & Associates Ltd Scale 1: 1000 Date June 1998

File 5431-2 JN
Received
Instructions

DP193166

Approved AKLM 97/02



Approvals

Approved pursuant to Section 348 of the Local Government Act 1974 is the Right of Way shown hereon on this ____ day of _____ 1998.

The Common Seal of the Kaipara District Council is affixed hereto in the presence of

_____ for Mayor

_____ for General Manager

Proposed Easement

Purpose	Shown	Servient Tenement	Dominant Tenement
Right of Way	A	Lot 5 DP177202	Lots 3&4 DP177202

Bearing Datum: Geodetic 1949
Mt. Eden Circuit Co-ordinates.
Origin: Mt. Eden 700 000m North
300 000m East

Total Area

Comprised in CT 109B/159 (All)

I, Jeffrey Alan Needham of Orewa

Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Orewa *this* _____ *day of* _____ *19* ___ *Signature* _____

Field Book _____ *p.* _____ *Traverse Book* ___ *p.* ___

Reference Plans DP177202, DP190817.

Examined _____ *Correct* _____

Approved as to Survey

__ / __ / __ Chief Surveyor

Deposited this _____ day of _____ 19____

District Land Registrar

LAND DISTRICT North Auckland	Proposed Right of Way over Lot 5 DP177202.
Survey Blk. & Dist. III Mangawhai	
NZMS 261 Sheet Record Sheet No.	

TERRITORIAL AUTHORITY Kaipara District
Surveyed by Bolam & Associates Ltd.
Scale 1: 1000 Date June 1998

File 5431-2 JN
Received
Instructions

DP193166

Approved AKLM 97/02

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General
of Land

Identifier **NA736/23**

Land Registration District **North Auckland**

Date Issued 02 October 1940

Prior References
NA771/40

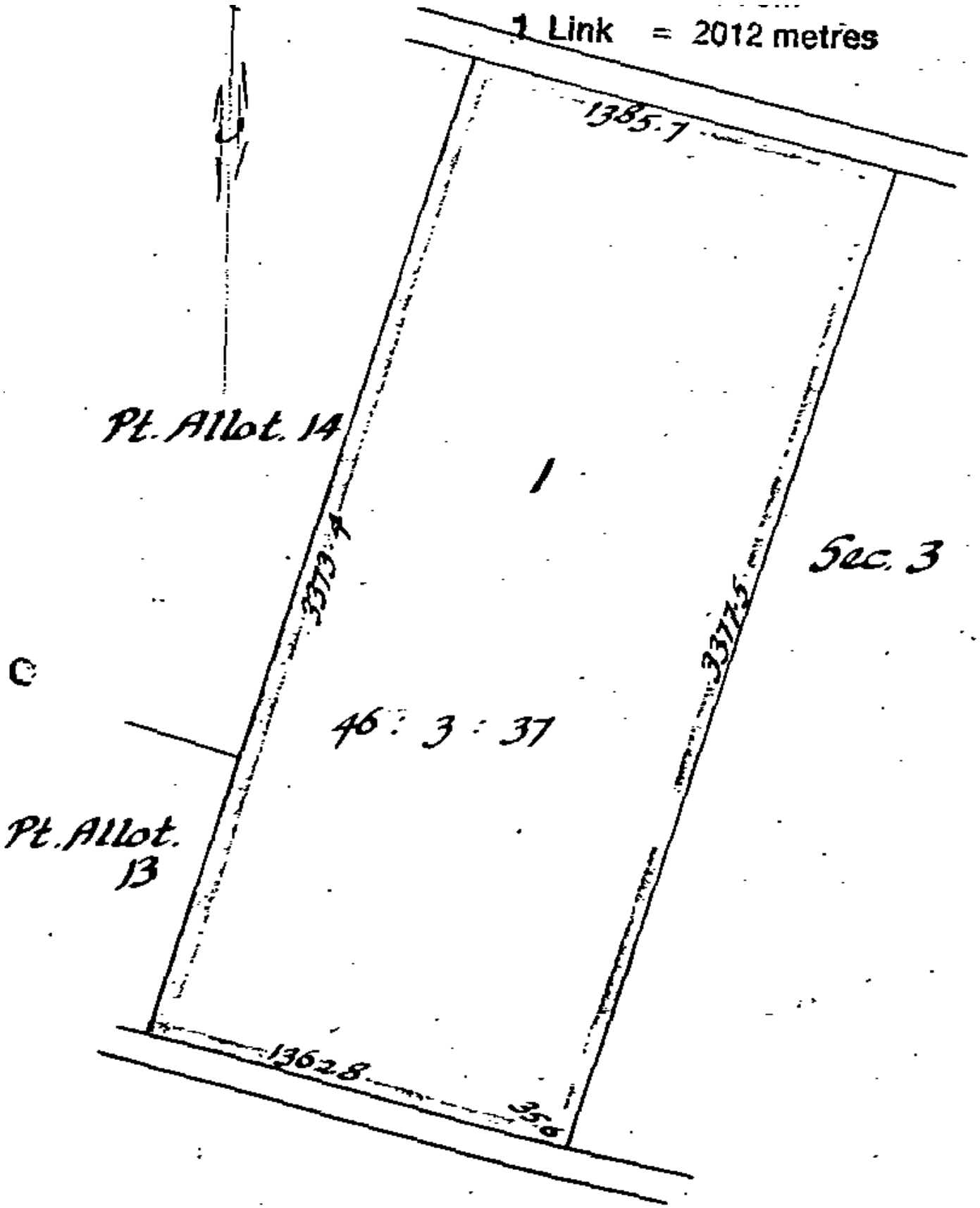
Estate Fee Simple

Area 19.0126 hectares more or less

Legal Description Lot 1 Deposited Plan 29903

Registered Owners
Cabra Mangawhai Limited

Interests


1 Link = 2012 metres
1385.7
Pt. Allot. 14
1
337.4
337.5
Sec. 3
C
46 : 3 : 37
Pt. Allot. 13
1362.8
35.0

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

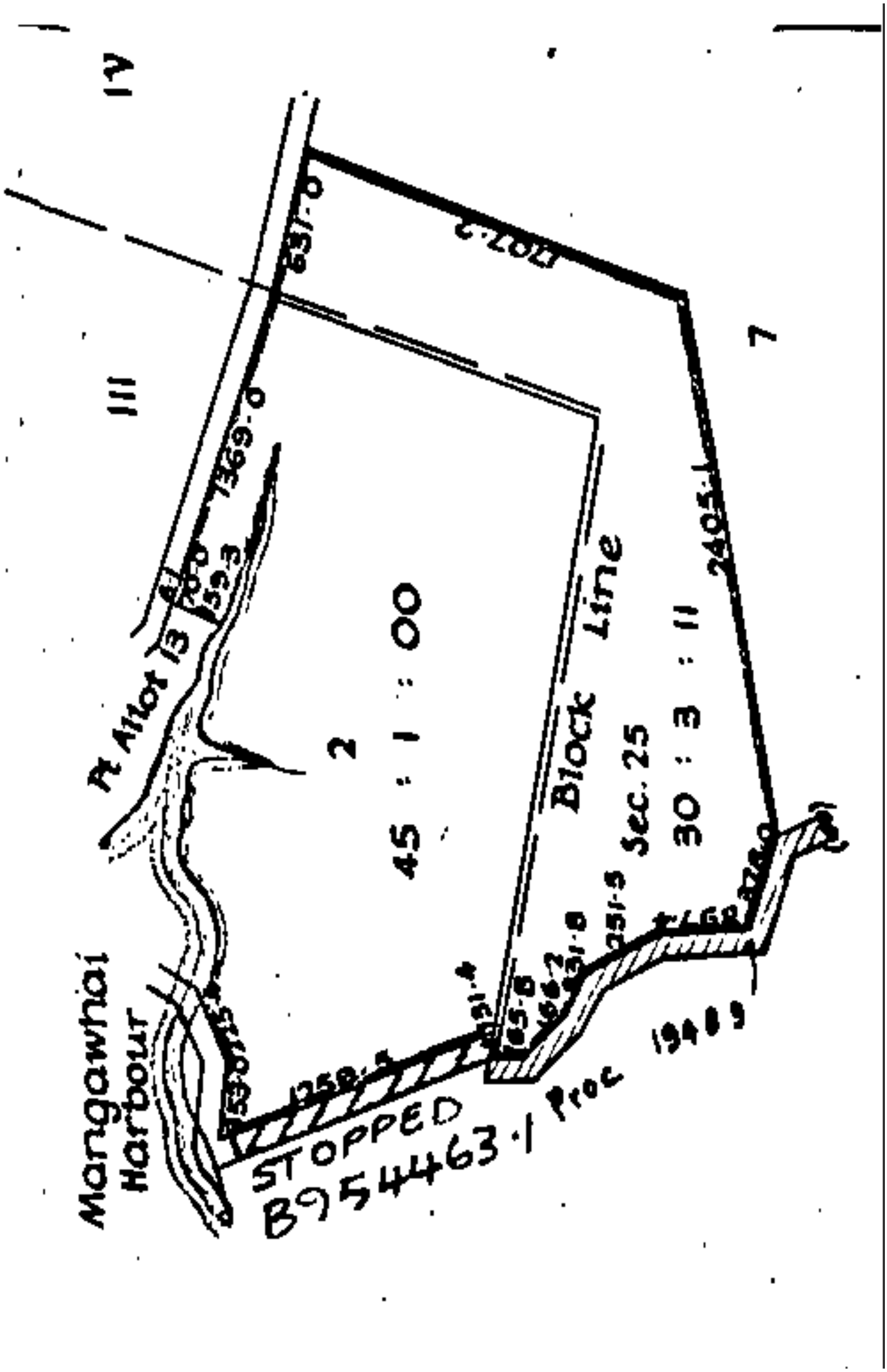
Identifier	**NA1323/43**
Land Registration District	**North Auckland**
Date Issued	06 August 1956

Prior References
NA736/22

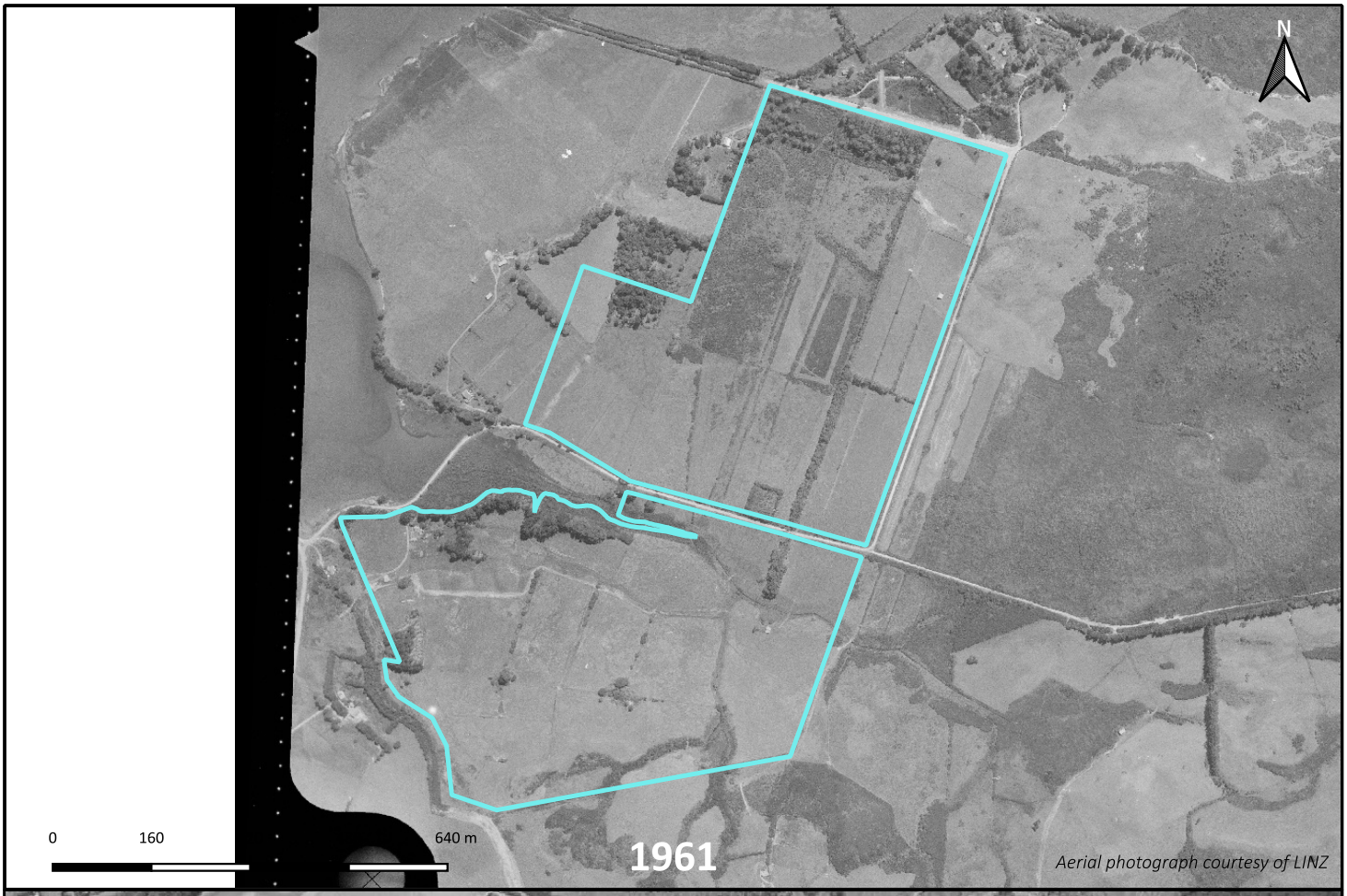
Estate	Fee Simple
Area	30.7839 hectares more or less
Legal Description	Section 25 Block IV Mangawhai Survey District and Lot 2 Deposited Plan 29903

Registered Owners
Pro Land Matters Company Limited

Interests


IV
III
7
Pt Allot 13
2
45 : 1 : 00
Block Line
Sec. 25
30 : 3 : 11
Mangawhai Harbour
STOPPED
B954463.1 Proc 19489
631.0
1707.2
1369.0
2405.1
1258.5

APPENDIX C HISTORICAL AERIAL PHOTOGRAPHS

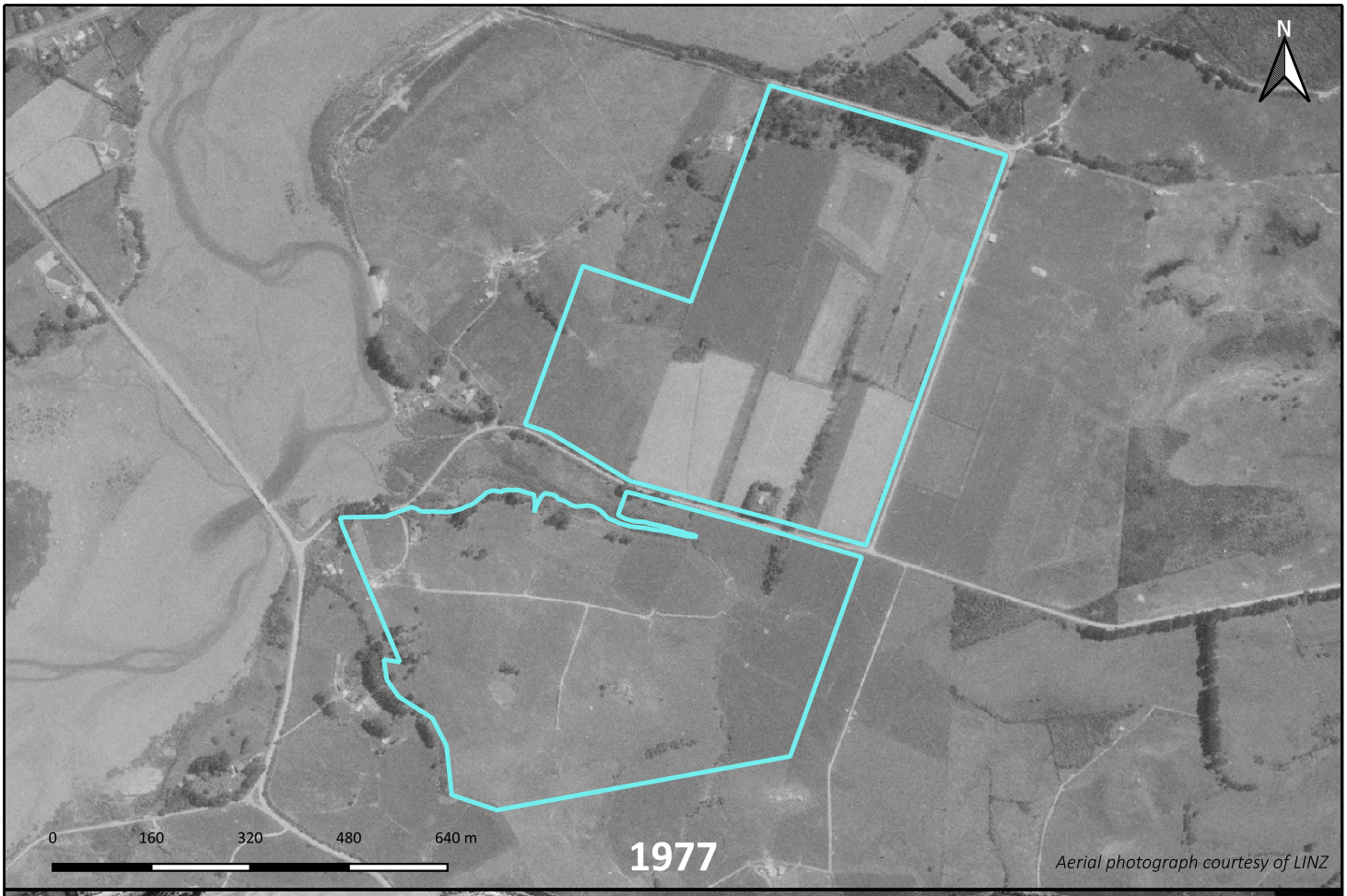


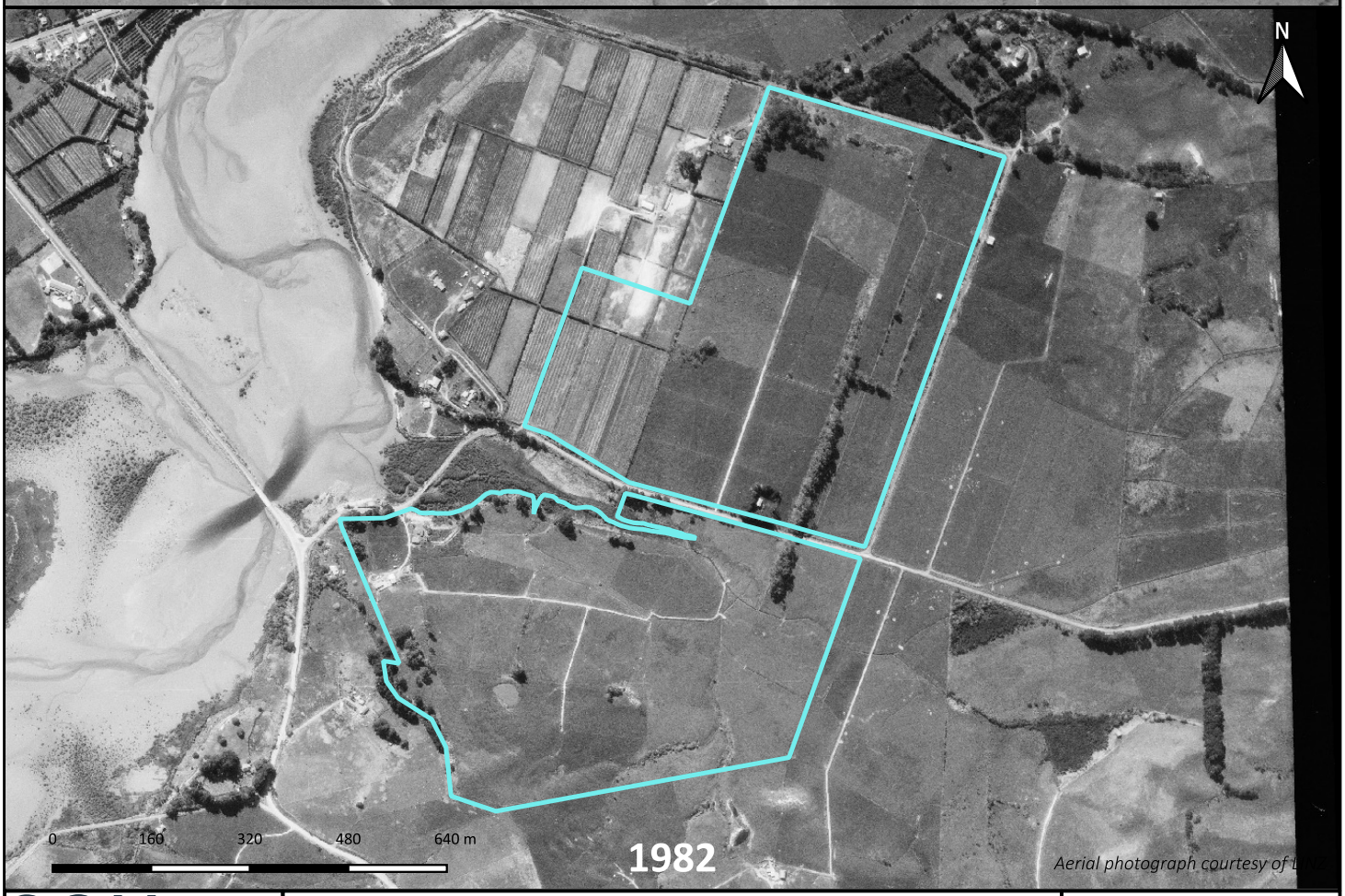
SQN GeoSciences
1 William Pickering Dr, Rosedale, 0632
Tel: 0800 333 287

Historic Aerial Photographs

Black Swamp Road PPC, Mangawhai

Reference: J240658
Date: 2024/07/12
Drawn: LC
Approved: CD



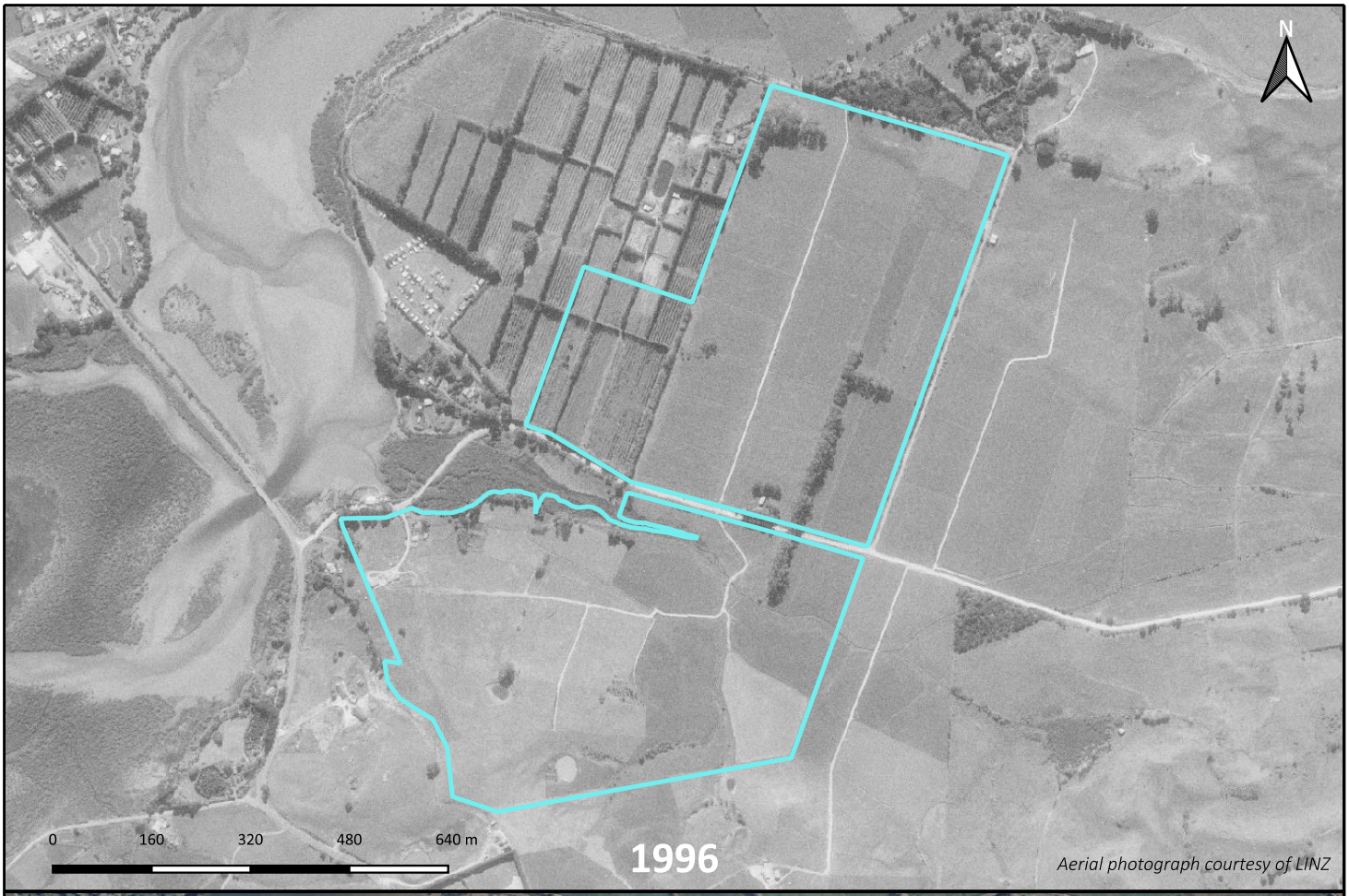


SQN GeoSciences
1 William Pickering Dr, Rosedale, 0632
Tel: 0800 333 287

Historic Aerial Photographs

Black Swamp Road PPC, Mangawhai

Reference: J240658
Date: 2024/07/12
Drawn: LC
Approved: CD

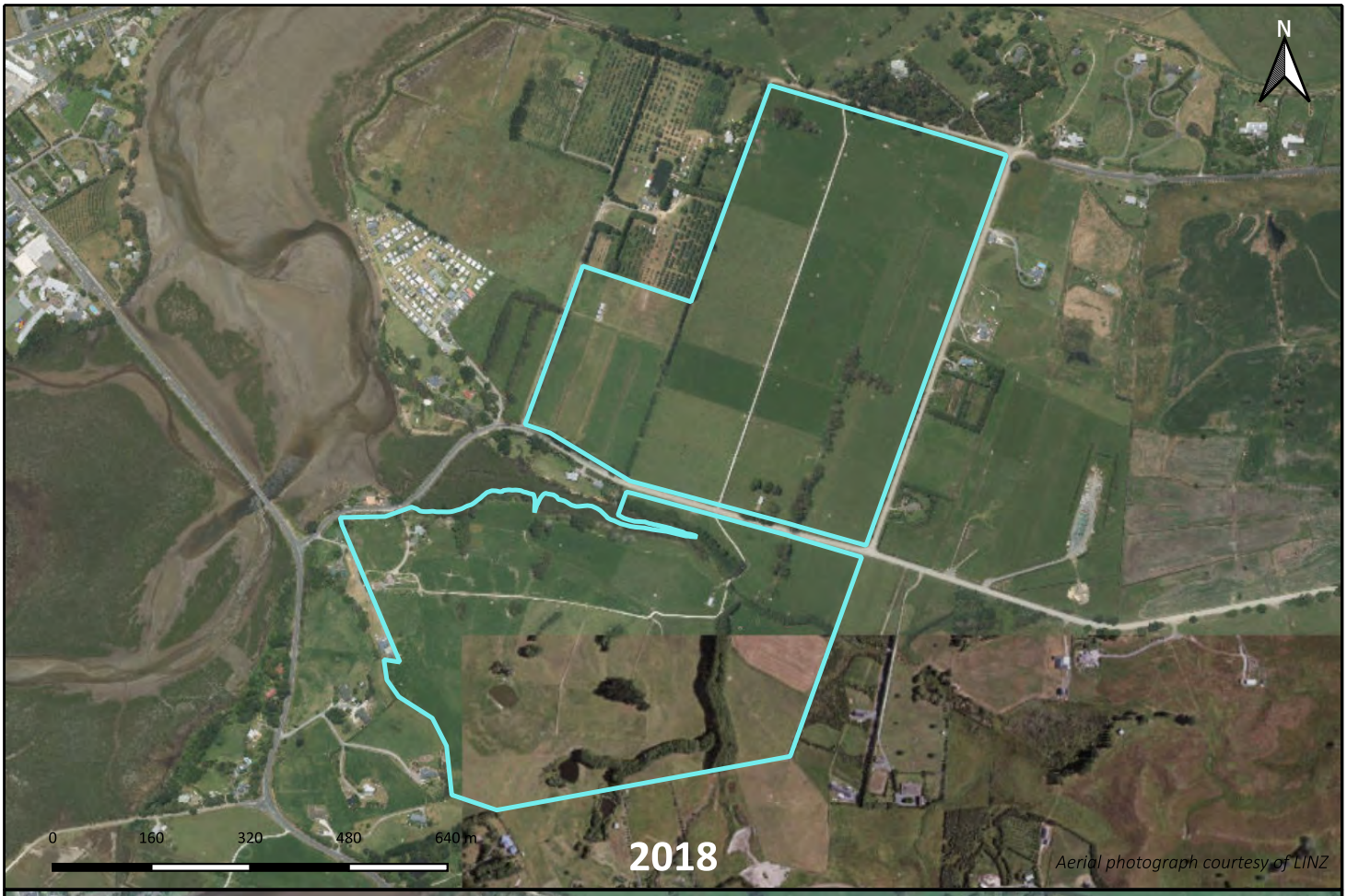


SQN GeoSciences
1 William Pickering Dr, Rosedale, 0632
Tel: 0800 333 287

Historic Aerial Photographs

Black Swamp Road PPC, Mangawhai

Reference: J240658
Date: 2024/07/12
Drawn: LC
Approved: CD



SQN GeoSciences
1 William Pickering Dr, Rosedale, 0632
Tel: 0800 333 287

Historic Aerial Photographs

Black Swamp Road PPC, Mangawhai

Reference: J240658
Date: 2024/07/12
Drawn: LC
Approved: CD

APPENDIX D SITE PHOTOGRAPHS

PROPERTY A

PLATE 1: View of the commercial nursery (under construction), facing north.

PLATE 2: View of the hardfill area in the northern portion of the property, facing east.

PLATE 3: View of the western paddocks, facing south.

PLATE 4: View of shipping containers sheds in the central northern portion of the property, facing northeast

PLATE 5: View of grassed area between nursery and greenhouse, facing south.

PLATE 6: View of the eastern paddocks, facing south.

PLATE 7: View of the packing shed, facing northeast.

PLATE 8: View of the greenhouse in the north-eastern portion of the property, facing north.

PROPERTIES B & C

PLATE 9: View of southern portion of Property B, facing northeast.

PLATE 10: View of central portion of Property B, facing northwest.

PLATE 11: View of the barn along the southern boundary of Property B, facing northeast.

PLATE 12: View of contents of the barn, facing northeast.

PLATE 13: View of the southern portion of Properties B & C, facing east.

PLATE 14: View of the eastern portion of the site, facing south.

PROPERTY D:

PLATE 15: View of the residence in the eastern portion of the property, facing southeast.

PLATE 16: View of the northern aspect of the dwelling.

PLATE 17: View of potential ACM beneath the dwelling stairs.

PLATE 18: View of southern aspect of the dwelling.

PLATE 19: Southern aspects of the shed (3) and minor dwelling (2), facing west.

PLATE 20: View of sheds (4 & 5), facing north.

PLATE 21: View of small burn patch located south of the barn (9).

PLATE 22: Southern aspect of the barn (9).

PLATE 23: View of contents of the barn (9).

PLATE 24: View of milking shed, facing west.

PLATE 25: Western aspect of the milking shed.

PLATE 26: Animal loading ramp and northern aspect of the milking shed.

PLATE 27: Effluent ponds and northern paddocks, facing north.

PLATE 28: View of southern portion of the property.

PLATE 29: View of eastern portion of the property.

PLATE 30: View of hay barn and shipping container, facing south.

PLATE 31: View of timber stockpile adjacent the hay barn.

PLATE 32: Location of former shed in eastern portion of the site, facing east.

APPENDIX E LABORATORY TRANSCRIPTS

eurofins

Environment Testing NZ

ANALYTICAL REPORT

REPORT CODE **AR-24-NU-060235-01** REPORT DATE **22/07/2024**

Attention SQN Consulting Limited
Geo Results
PO Box 45053, Waterloo
5042 Wellington
NEW ZEALAND
Phone
Email georesults@sqn.co.nz

Contact for your orders: Katyana Gausel **Order code:** EUNZAU-00702166
Submission Reference: MANGAWHAI PSI, J240658

SAMPLE CODE **816-2024-00169787**

Sample Name SS1
Reception Date & Time: 11/07/2024 12:30 **Reception temperature:** 15.6 °C
Analysis Started on: 12/07/2024 **Analysis Ending Date:** 21/07/2024
Sampled Date & Time 10/07/2024 00:00 **Attempt to Chill was evident** Yes
Sample correctly preserved Yes **Appropriate sample containers have been used** Yes

		RESULTS		LOQ
NU0M8	**Arsenic (As)**			
	Arsenic (As)	2.8	mg/kg	0.1
④**NU0K9**	**Asbestos ID in Soil**			
	Report Attached	Done		-
NU0V3	**Cadmium (Cd)**			
	Cadmium (Cd)	0.88	mg/kg	0.01
NU0N8	**Chromium (Cr)**			
	Chromium (Cr)	7.0	mg/kg	0.1
NU0P8	**Copper (Cu)**			
	Copper (Cu)	29	mg/kg	0.1
NU0Y3	**Lead (Pb)**			
	Lead (Pb)	6.4	mg/kg	0.1
NU0Q8	**Nickel (Ni)**			
	Nickel (Ni)	3.8	mg/kg	0.1
②**NW248**	**PAH in Soil**			
	Acenaphthene	<0.02	mg/kg	0.0005
	Acenaphthylene	<0.02	mg/kg	0.0005
	Anthracene	<0.02	mg/kg	0.0005
	Benz(a)anthracene	<0.02	mg/kg	0.0005
	Benzo(a)pyrene	<0.02	mg/kg	0.0005
	Benzo(b+k)fluoranthene	<0.04	mg/kg	0.001
	Benzo(g,h,i)perylene	<0.02	mg/kg	0.0005
	Chrysene	<0.02	mg/kg	0.0005
	Dibenz(a,h)anthracene	<0.02	mg/kg	0.0005
	Fluoranthene	<0.02	mg/kg	0.0005
	Fluorene	<0.02	mg/kg	0.0005
	Indeno(1,2,3-cd)pyrene	<0.02	mg/kg	0.0005
	Naphthalene	<0.02	mg/kg	0.0005
	Phenanthrene	<0.02	mg/kg	0.0005

		RESULTS		LOQ
②NW248	**PAH in Soil**			
	Pyrene	<0.02	mg/kg	0.0005
①NU0X3	**Soil Preparation - Metals Digestion**			
	Sample Preparation	Completed		-
NU0U5	**Zinc (Zn)**			
	Zinc (Zn)	120	mg/kg	5

HOLDING TIMES

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NU0M8	Arsenic (As)	10/07/2024	16/07/2024	6	180	True
NU0N8	Chromium (Cr)	10/07/2024	16/07/2024	6	180	True
NU0P8	Copper (Cu)	10/07/2024	16/07/2024	6	180	True
NU0Q8	Nickel (Ni)	10/07/2024	16/07/2024	6	180	True
NU0U5	Zinc (Zn)	10/07/2024	16/07/2024	6	180	True
NU0V3	Cadmium (Cd)	10/07/2024	16/07/2024	6	180	True
NU0Y3	Lead (Pb)	10/07/2024	16/07/2024	6	180	True
NW248	PAH in Soil	10/07/2024	21/07/2024	11	14	True

SAMPLE CODE 816-2024-00169788

Sample Name	COMP1- C1-1,C1-2,C1-3,C1-4		
Reception Date & Time:	11/07/2024 12:30	**Reception temperature:**	15.6 °C
Analysis Started on:	12/07/2024	**Analysis Ending Date:**	22/07/2024
Sampled Date & Time	10/07/2024 00:00	**Attempt to Chill was evident**	Yes
Sample correctly preserved	Yes	**Appropriate sample containers have been used**	Yes

		RESULTS		LOQ
NU0M8	**Arsenic (As)**			
	Arsenic (As)	1.5	mg/kg	0.1
NU0P8	**Copper (Cu)**			
	Copper (Cu)	39	mg/kg	0.1
NU0Y3	**Lead (Pb)**			
	Lead (Pb)	4.4	mg/kg	0.1
②NW04T	**Organochlorine Pesticides**			
	2,3-Diuron	<0.02	mg/kg	0.001
	2,4´-DDT	<0.05	mg/kg	-
	2,4'-DDD	<0.02	mg/kg	-
	2,4'-DDE	<0.02	mg/kg	-
	a-BHC	<0.02	mg/kg	0.0001
	a-chlordane	<0.02	mg/kg	0.0001
	Aldrin	<0.02	mg/kg	0.001
	b-BHC	<0.02	mg/kg	0.0001
	Chlordane (total)	<0.02	mg/kg	-
	cis-Permethrin	<0.02	mg/kg	0.0001
	Dieldrin	<0.02	mg/kg	0.0001
	Endosulfan I	<0.02	mg/kg	0.001
	Endosulfan II	<0.02	mg/kg	0.005
	Endosulfan Sulfate	<0.02	mg/kg	0.0001
	Endrin	<0.02	mg/kg	-
	Endrin Aldehyde	<0.02	mg/kg	0.01
	Endrin ketone	<0.02	mg/kg	0.0001

	RESULTS		LOQ
②NW04T **Organochlorine Pesticides**			
Endrin Ketone	<0.02	mg/kg	0.0001
Gamma-Chlordane	<0.02	mg/kg	0.001
HCH, delta-	<0.02	mg/kg	-
Heptachlor	<0.02	mg/kg	0.0001
Heptachlor Epoxide	<0.02	mg/kg	0.0001
Hexachlorobenzene	<0.02	mg/kg	0.0001
Lindane (g-BHC)	<0.02	mg/kg	0.0001
Methoxychlor	<0.02	mg/kg	0.0001
p,p'-DDD	<0.02	mg/kg	0.0001
p,p'DDE	<0.02	mg/kg	0.0001
p,p'-DDT	<0.05	mg/kg	0.001
Procymidone	<0.02	mg/kg	0.0001
Propanil	<0.02	mg/kg	0.001
Toxaphene	Not Tested	mg/kg	0.02
①NU0X3 **Soil Preparation - Metals Digestion**			
Sample Preparation	Completed		-

HOLDING TIMES

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NU0M8	Arsenic (As)	10/07/2024	16/07/2024	6	180	True
NU0P8	Copper (Cu)	10/07/2024	16/07/2024	6	180	True
NU0Y3	Lead (Pb)	10/07/2024	16/07/2024	6	180	True

SAMPLE CODE **816-2024-00169789**

Sample Name	COMP2- C2-1,C2-2,C2-3,C2-4		
Reception Date & Time:	11/07/2024 12:30	**Reception temperature:**	15.6 °C
Analysis Started on:	12/07/2024	**Analysis Ending Date:**	22/07/2024
Sampled Date & Time	10/07/2024 00:00	**Attempt to Chill was evident**	Yes
Sample correctly preserved	Yes	**Appropriate sample containers have been used**	Yes

	RESULTS		LOQ
NU0M8 **Arsenic (As)**			
Arsenic (As)	1.6	mg/kg	0.1
NU0P8 **Copper (Cu)**			
Copper (Cu)	44	mg/kg	0.1
NU0Y3 **Lead (Pb)**			
Lead (Pb)	5.7	mg/kg	0.1
②NW04T **Organochlorine Pesticides**			
2,3-Diuron	<0.02	mg/kg	0.001
2,4´-DDT	<0.05	mg/kg	-
2,4'-DDD	<0.02	mg/kg	-
2,4'-DDE	<0.02	mg/kg	-
a-BHC	<0.02	mg/kg	0.0001
a-chlordane	<0.02	mg/kg	0.0001
Aldrin	<0.02	mg/kg	0.001
b-BHC	<0.02	mg/kg	0.0001
Chlordane (total)	<0.02	mg/kg	-
cis-Permethrin	<0.02	mg/kg	0.0001
Dieldrin	<0.02	mg/kg	0.0001

		RESULTS		LOQ
②NW04T	**Organochlorine Pesticides**			
	Endosulfan I	<0.02	mg/kg	0.001
	Endosulfan II	<0.02	mg/kg	0.005
	Endosulfan Sulfate	<0.02	mg/kg	0.0001
	Endrin	<0.02	mg/kg	-
	Endrin Aldehyde	<0.02	mg/kg	0.01
	Endrin ketone	<0.02	mg/kg	0.0001
	Endrin Ketone	<0.02	mg/kg	0.0001
	Gamma-Chlordane	<0.02	mg/kg	0.001
	HCH, delta-	<0.02	mg/kg	-
	Heptachlor	<0.02	mg/kg	0.0001
	Heptachlor Epoxide	<0.02	mg/kg	0.0001
	Hexachlorobenzene	<0.02	mg/kg	0.0001
	Lindane (g-BHC)	<0.02	mg/kg	0.0001
	Methoxychlor	<0.02	mg/kg	0.0001
	p,p'-DDD	<0.02	mg/kg	0.0001
	p,p'DDE	<0.02	mg/kg	0.0001
	p,p'-DDT	<0.05	mg/kg	0.001
	Procymidone	<0.02	mg/kg	0.0001
	Propanil	<0.02	mg/kg	0.001
	Toxaphene	Not Tested	mg/kg	0.02
①NU0X3	**Soil Preparation - Metals Digestion**			
	Sample Preparation	Completed		-

HOLDING TIMES

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NU0M8	Arsenic (As)	10/07/2024	16/07/2024	6	180	True
NU0P8	Copper (Cu)	10/07/2024	16/07/2024	6	180	True
NU0Y3	Lead (Pb)	10/07/2024	16/07/2024	6	180	True

SAMPLE CODE 816-2024-00169790

Sample Name	COMP3- C3-1,C3-2,C3-3,C3-4		
Reception Date & Time:	11/07/2024 12:30	**Reception temperature:**	15.6 °C
Analysis Started on:	12/07/2024	**Analysis Ending Date:**	22/07/2024
Sampled Date & Time	10/07/2024 00:00	**Attempt to Chill was evident**	Yes
Sample correctly preserved	Yes	**Appropriate sample containers have been used**	Yes

		RESULTS		LOQ
NU0M8	**Arsenic (As)**			
	Arsenic (As)	11	mg/kg	0.1
NU0P8	**Copper (Cu)**			
	Copper (Cu)	40	mg/kg	0.1
NU0Y3	**Lead (Pb)**			
	Lead (Pb)	4.2	mg/kg	0.1
②NW04T	**Organochlorine Pesticides**			
	2,3-Diuron	<0.02	mg/kg	0.001
	2,4´-DDT	<0.05	mg/kg	-
	2,4'-DDD	<0.02	mg/kg	-
	2,4'-DDE	<0.02	mg/kg	-
	a-BHC	<0.02	mg/kg	0.0001

		RESULTS		LOQ
②NW04T	**Organochlorine Pesticides**			
	a-chlordane	<0.02	mg/kg	0.0001
	Aldrin	<0.02	mg/kg	0.001
	b-BHC	<0.02	mg/kg	0.0001
	Chlordane (total)	<0.02	mg/kg	-
	cis-Permethrin	<0.02	mg/kg	0.0001
	Dieldrin	<0.02	mg/kg	0.0001
	Endosulfan I	<0.02	mg/kg	0.001
	Endosulfan II	<0.02	mg/kg	0.005
	Endosulfan Sulfate	<0.02	mg/kg	0.0001
	Endrin	<0.02	mg/kg	-
	Endrin Aldehyde	<0.02	mg/kg	0.01
	Endrin ketone	<0.02	mg/kg	0.0001
	Endrin Ketone	<0.02	mg/kg	0.0001
	Gamma-Chlordane	<0.02	mg/kg	0.001
	HCH, delta-	<0.02	mg/kg	-
	Heptachlor	<0.02	mg/kg	0.0001
	Heptachlor Epoxide	<0.02	mg/kg	0.0001
	Hexachlorobenzene	<0.02	mg/kg	0.0001
	Lindane (g-BHC)	<0.02	mg/kg	0.0001
	Methoxychlor	<0.02	mg/kg	0.0001
	p,p'-DDD	<0.02	mg/kg	0.0001
	p,p'DDE	<0.02	mg/kg	0.0001
	p,p'-DDT	<0.05	mg/kg	0.001
	Procymidone	<0.02	mg/kg	0.0001
	Propanil	<0.02	mg/kg	0.001
	Toxaphene	Not Tested	mg/kg	0.02
①NU0X3	**Soil Preparation - Metals Digestion**			
	Sample Preparation	Completed		-

HOLDING TIMES

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NU0M8	Arsenic (As)	10/07/2024	16/07/2024	6	180	True
NU0P8	Copper (Cu)	10/07/2024	16/07/2024	6	180	True
NU0Y3	Lead (Pb)	10/07/2024	16/07/2024	6	180	True

LIST OF METHODS

NU0K9 **Asbestos ID in Soil:**

NU0N8 **Chromium (Cr):** Internal Method LTM-MET-3040, ICP-MS

NU0Q8 **Nickel (Ni):** Internal Method LTM-MET-3040, ICP-MS

NU0V3 **Cadmium (Cd):** Internal Method LTM-MET-3040, ICP-MS

NU0Y3 **Lead (Pb):** Internal Method LTM-MET-3040, ICP-MS

NW248 **PAH in Soil:** Internal Method, GC-MS

NU0M8 **Arsenic (As):** Internal Method LTM-MET-3040, ICP-MS

NU0P8 **Copper (Cu):** Internal Method LTM-MET-3040, ICP-MS

NU0U5 **Zinc (Zn):** Internal Method LTM-MET-3040, ICP-MS

NU0X3 **Soil Preparation - Metals Digestion:**

NW04T **Organochlorine Pesticides:** Internal Method, GC-MS/MS

Signature

Gabriela Carvalhaes Manager Chemistry

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification

General

1. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
2. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
3. Actual LOQs are matrix dependent. Quoted LOQs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
5. Analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
6. Samples were analysed on an 'as received' basis.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.
Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.
For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.
Holding times are expressed in days.

Units

mg/kg: milligrams per kilogram
µg/L: micrograms per litre
org/100 mL: Organisms per 100 millilitres
CFU: Colony Forming Unit
mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
Colour: Pt-Co Units (CU)
ppm: parts per million
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
US EPA	United States Environmental Protection Agency

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 35 O'Rorke Road, Penrose, Auckland, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Semi Quantitative Analysis of Soil

Client: Eurofins Environmental Testing New Zealand
Contact: Katyana Gausel
Tel: 095264551
Email: enviroreportsnz@eurofins.com
Address: -

Eurofins | Focus
Unit C1, 4 Pacific Rise
Mount Wellington
Auckland 1060
Tel: +64 (0) 9 525 0568

Site: : PO-EUNZAU-00582816

Date sample(s) received:	12/07/2024	Date sample(s) analysed:	17/07/2024
Samples taken by:	Client	Certificate / Job Number:	Q-00910/PO-EUNZAU-00582816

Qualitative Analysis of Asbestos

Lab ID	Sample ID	Sample Details	Sample Weight (g) (as received)	Fibres Identified
1	816-2024-00169787	SS1	551	**ORF, NAD**

Fibre Identification Key:

CHR – Chrysotile (White Asbestos)
AMO – Amosite (Brown / Grey Asbestos)
CRO – Crocidolite – (Blue Asbestos)
UMF – Unknown Mineral Fibre
ORF – Organic Fibre
SMF – Synthetic Mineral Fibre
NFD – No Fibres Detected
NAD – No Asbestos Detected

Scope of Accreditation:

1. The analytical comments marked (*) stated in the semi-quantitative analysis and the calculations in the semi-quantitative analysis of asbestos in soil are beyond Eurofins | Focus scope of accreditation.
2. The laboratory is not responsible for sampling errors when we have not taken the sample.
3. This certificate should be read in its entirety and shall not be reproduced except in full, without written approval of the laboratory.

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil														
Date sample(s) received: 12/07/2024 Date sample(s) analysed: 17/07/2024														
Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
1	816-2024-00169787	550.7	332.8	39.5	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	117.8	-	NAD	-					
					(<2mm) Fraction	215.0	-	NAD	-					

Analysis Method:

Samples submitted have been analysed to determine the mass fraction of asbestos in soil using low powered stereo microscopy followed by polarised light microscopy (PLM) including dispersion staining techniques as documented in (AS 4964-2004), Method for the qualitative identification of asbestos in bulk samples, BRANZ, New Zealand Guidelines for Assessing and Managing Asbestos in Soils:2017 and (TP 04) our internal method Technical Procedure for Qualitative and Semi Qualitative analysis of asbestos in soil.

Product Identification Key:

BTP	Bituminous Product	LSE	Loose Fill Insulation
CMP	Cement Product	NAD	No Asbestos Detected
COM	Composite	PPR	Paper Product
FFF	Free Fibres	RPL	Reinforced Plastics
FIB	Fibre Board	TXC	Textured Coating
GCP	Gaskets (compressed)	VNP	Vinyl Products
GRW	Gaskets (rope/woven)	VPP	Vinyl with paper backing
INB	Insulating Board	WVP	Woven Product

Interpretation of Key:

[a] Percentage of Asbestos in product is adopted from HSG 264 - 2012, Asbestos the survey guide, Appendix 2, ACMS in buildings and categorized in our internal Technical Procedure (TP04) for Qualitative and Semi-Quantitative analysis of asbestos in soil. A dash (-) denotes that there was no asbestos found in that fraction.

[b] Total Mass of Asbestos is the sum mass of asbestos-by-asbestos type in product type([a]) plus the mass of free fibre asbestos. A dash (-) denotes that there was no total mass of asbestos calculated asbestos found in that fraction.

[c] Bonded Asbestos Containing Material in the greater than 10mm fraction as percentage of the total sample (% w/w). A dash (-) denotes that there was no bonded asbestos containing materials found in that fraction.

[d] Asbestos as Fibrous Asbestos (FA) in greater than 10mm fraction as percentage of total sample (% w/w).

[e] Asbestos as Asbestos Fines (AF) in less than 10mm fraction as a percentage of total sample (% w/w).

[f] Total Friable Asbestos combining Fibrous Asbestos and Asbestos Fines as the percentage weight for weight of the total sample (% w/w).

Sample Retention: Hold soil samples will only be stored for one month from date of receipt.

Analyst Name: Emily Wang **Analyst Signature:** Emily

Reviewed By KTP: Colin Wang **Reviewer Signature:** Colin Wang