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# **TE ARA HAUĀURU NORTHWEST RAPID TRANSIT CONTAMINATED LAND PRELIMINARY SITE INVESTIGATION**

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## Qualifications and experience of the author

My name is Terry Widdowson, and I am the Practice Lead for Geosciences and Remediation at AECOM. I am the contaminated land lead for the Project. I hold a Bachelor of Science degree in Earth Sciences (Geology and Geography) and a Master of Science degree in Environmental Geology. I have over 30 years' experience as a contaminated land practitioner.

My experience relevant to this Application includes:

- RiverLink (Lower Hutt) – contamination specialist (SQEP) for the construction of the project which involves urban renewal, transport improvements, and flood protection along a 4km stretch of the Hutt River.
- Eastern Busway Alliance – contamination specialist (SQEP) for Stages 3 and 4 of the project which involves construction of a busway, bus stations, and new bridges in southeast Auckland. I was the contaminated land expert witness at the Council Hearing.
- Auckland City Rail Link – contamination specialist (SQEP) for the assessment of soil and groundwater contamination along the rail alignment. I was the contaminated land expert witness at the Council Hearing.
- Mackays to Peka Peka Expressway, Kāpiti Coast – contamination specialist for assessment of soil and groundwater contamination along the 16km route.
- Waterview Connection, Auckland – contamination specialist for the assessment of soil and groundwater contamination along the 12.5km route. I was the contaminated land expert witness at Environment Court.

Although this matter is not before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses as contained in section 9 of the Environment Court Practice Note 2023. I agree to comply with that Code. My qualifications as an expert are set out above. I am satisfied that the matters which I address in this report are within my area of expertise, except where I state that I am relying on information provided by another person or expert. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

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## Acronyms, definitions and abbreviations

Term	Definition
AC	Auckland Council
ACM	Asbestos containing materials
AEE	Assessment of Environmental Effects
AUP	Auckland Unitary Plan
AVF	Auckland Volcanic Field
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CLMG	Contaminated Land Management Guideline
CLMP	Contaminated Land Management Plan
CSM	Conceptual site model
CoPC	Contaminants of potential concern
DSI	Detailed site investigation
FTAA	Fast-Track Approvals Act 2024
GIS	Geographic Information System
HAIL	Hazardous Activities and Industries List
Indicative Design	The Indicative Design of the Project within the Project Area as shown on the Indicative Design drawings in Part 6 that will be confirmed during detailed design
km	Kilometre(s)
LINZ	Land Information New Zealand
m	Metre(s)
m <sup>2</sup>	Square metre(s)
mbgl	Metres below ground level
MfE	Ministry for the Environment
NES-CS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NZTA	New Zealand Transport Agency Waka Kotahi
OCP	Organochlorine pesticides
ONOP	Organonitrogen and organophosphorus pesticides
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
Project	Te Ara Hauāuru Northwest Rapid Transit
Project Area	The Proposed Designation and the extent of the coastal occupation permits sought
Proposed Designation	The area defined by the Proposed Designation boundary as shown on the Proposed Designation Plans in Part 6
SH16	State Highway 16
SH20	State Highway 20
PSI	Preliminary site investigation
SPR	Source-pathway-receptor
SVOC	Semi volatile organic compounds
SQEP	Suitably qualified and experienced practitioner
TPH	Total petroleum hydrocarbons
VOC	Volatile organic compounds

## 1. Introduction

### 1.1 Purpose and scope of this report

This technical assessment (in the form of a preliminary site investigation (PSI)) has been prepared to support the Substantive Application for the Northwest Rapid Transit Project (the Project) under the Fast-track Approvals Act 2024 (FTAA). It forms part of a suite of specialist reports that collectively support the applications for statutory approvals.

The assessment considers the construction phase of the Project.

This report should be read alongside the Substantive Application including the Assessment of Environmental Effects (AEE) in Part 4, which contains further details on the history and context of the Project. The Substantive Application also contains a description of the Project and the typical construction methodologies that will be used to implement this work (refer to Part 2).

### 1.2 Objectives

The objectives of this PSI are to:

- Assess whether soils within and adjacent to the Proposed Designation (the area defined by the Proposed Designation boundary as shown on the Proposed Designation Plans in Part 6), have been subject to contaminating or potentially contaminating activities, with reference to the Ministry for the Environment (MfE, 2011) Hazardous Activities and Industries List (HAIL);
- Identify contaminants of concern and the risks those contaminants may pose to human health and the environment during Project construction; and
- Document requirements for further investigation of potential contamination.

### 1.3 Scope of work

To meet the objectives, the following scope of work was undertaken:

- Review of project information.
- Review of publicly available environmental information (geology, hydrogeology, etc.).
- Review of Auckland Council information (site contamination, closed landfills).
- Review of historical aerial images (supplied by Auckland Council).
- A 'high level' site walkover, which comprised a drive along the proposed route, with stops at selected and accessible areas of interest.
- Preparation of this PSI report.

This PSI has been prepared in general accordance with MfE (2021) Contaminated Land Management Guidelines No.1: Reporting on Contaminated Sites in New Zealand. This report complies with Regulation 3 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations NES-CS and has been written and certified by suitably qualified and experienced practitioners.

### 1.4 Proposed Designation Assessment Areas

The Proposed Designation extends along State Highway 16 (SH16) for 18km. For this PSI, I have split the Proposed Designation into six assessment areas (Assessment Areas A to F) as shown in Figure 1-1.

The extents of Assessment Areas A to F are described below:

- Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge;
- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge;
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek;

- Assessment Area D: Momutu Stream/Henderson Creek to Whau River;
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge; and
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction.

More detailed Location Plans for each Assessment Area are provided in Appendix A.

This PSI has assessed potential contamination within the Proposed Designation and within 50 metres of the Proposed Designation boundary.



Figure 1-1: Project location plan overview

## 2. Environmental setting

### 2.1 Surrounding land use

The Project is linear (parallel with SH16). A description of land uses on both sides of SH16 for each of the Assessment Areas is given in Table 2-1.

**Table 2-1: Surrounding land uses**

Assessment Area	Surrounding land use description
Area A	East: A mixture of commercial / industrial and rural residential.
	West: Primarily commercial / industrial.
Area B	East: Primarily residential.
	West: Residential and commercial.
Area C	East: Primarily residential.
	West: Primarily residential.
Area D	Northwest: Commercial / industrial. Northeast: Primarily residential.
	Southwest: Primarily commercial / industrial with some residential. Southeast: Primarily residential.
Area E	North: Primarily residential, some commercial/ industrial and recreational use (reserve).
	South: Commercial / industrial, residential and recreational use (golf course).
Area F	North: A mixture of residential and commercial/industrial.
	South: A mixture of residential and commercial/industrial and recreational use.

### 2.2 Geology

The geology of the Proposed Designation is mapped in the 1:250,000 scale geological map “Geology of the Auckland Area” (Edbrooke, 2001).

The western portion of the Proposed Designation (Assessment Areas A to D) is primarily underlain with Tauranga Group alluvial and estuarine sediments (silt, clay, sand and peat). The eastern portion of the Proposed Designation (Assessment Areas E and F) is primarily underlain with East Coast Bays Formation of the Waitematā Group (alternating sandstone and siltstone). There is a localised area in the vicinity of Western Springs is underlain with basaltic deposits of the Auckland Volcanic Field (AVF).

Further information on geology is provided in the Assessment of Groundwater and Settlement Effects report.

### 2.3 Hydrology

Auckland Council GeoMaps shows ten culverts intersect the Project. Five culverts are located in Area A, three in Area B, one in Area C and one in Area E. In addition, Auckland Council GeoMaps and NZ Topo Map indicates that the surface water bodies listed in Table 2-2 are adjacent to or close to the Project Area (the Proposed Designation and the extent of the coastal occupation permits sought).

**Table 2-2: Nearby surface water bodies**

Adjacent surface waters	Assessment Area
Tōtara Creek (a tributary of Brigham Creek)	Area A
Tihema Stream and other tributaries of Mānutewhau Creek	Area B
Rarawaru Stream, Momutu Stream and other tributaries of Te Wai-o-Pareira / Henderson Creek	Areas B and C
Whau River	Area C
Oakley Creek	Area E
Meola Creek	Area E
Motions Creek	Areas E and F

Adjacent surface waters	Assessment Area
Western Springs Lake	Areas E and F
Waitematā Harbour	All Assessment Areas

## 2.4 Hydrogeology

The majority of the Proposed Designation is underlain with alluvium deposits and East Coast Bays siltstone and sandstone (with predominantly low permeability), which streams and creeks have cut into. Therefore, shallow groundwater within the alluvium and East Coast Bays deposits will likely flow horizontally to nearby surface waters.

Further information on hydrogeology is provided in the Assessment of Groundwater and Settlement Effects report.

### 2.4.1 Groundwater bores/wells

Details of bores/wells with known address and relevant information were provided in the site contamination enquiry response in Section 3.2.

Within or within 100m either side of the Proposed Designation, there are records for five bores utilised for the extraction of groundwater for irrigation or domestic and stock supply. Relevant details are provided in Table 2-3.

**Table 2-3: Bores installed for domestic, stock or irrigation uses**

Bore ID	Consent number/ reference	Address	Total depth	Purpose / Use	Approximate location to the Proposed Designation
5653	15969	Hobsonville Road onramp to the Upper Harbour motorway	305m	Irrigation	Within Area A
-	LUC80313246	28 Carrington Road, Mount Albert	Unknown	Domestic supply	South of Area E
-	LUC80312239	22-24 Point Chevalier Road, Point Chevalier	Unknown	Household supply	Adjacent (north) of Area E
5205	14906	Western Springs Lakeside Park	17m	Domestic supply	North of Area E
20657	Not provided	805 Great North Road (MOTAT)	6.8m	Not provided	Adjacent to Area F

### 2.4.2 Depth to groundwater

A geotechnical investigation was undertaken between June and July 2025, which included the drilling of twelve boreholes within the Proposed Designation. Depth to groundwater was between 0.5 and 6.3mbgl. Groundwater flow directions have not been calculated as water depths to relative level are needed, and these have not been provided.

## 3. Information review

### 3.1 Historical aerial images

Historical aerial images from the 1940s to the 2020s were either provided by Auckland Council as a Geographic Information System (GIS) file or taken from the Auckland Council GeoMaps online GIS viewer. The aerial images reviewed are included in Appendix B. A description of the aerial image review for each Assessment Area and the adjacent land parcels is provided in Table B1 in Appendix B.

A summary for each Assessment Area is provided in Table 3-1, focusing on significant observations and changes.

**Table 3-1: Historic aerial image summary**

Assessment Area	Historical aerial summary
<b>Area A</b>	<ul style="list-style-type: none"> <li>1940s – Mostly farmland with orchards in the northern portion and residential and/or farm buildings at the southern extent.</li> <li>1960s – The orchards were removed and converted to farmland.</li> <li>1980s – Farmland in the northern and central portions converted to crops.</li> <li>1990s – Possible orchards in the northern and southern portions. Market gardening in the south.</li> <li>2000s – Expansion of crops in the northern half of the area.</li> <li>2010s – Motorway constructed, some crops and orchards removed. Commercial/industrial development in adjacent areas.</li> <li>2020s – Soil disturbance in the northern portion. Further commercial/industrial development.</li> </ul>
<b>Area B</b>	<ul style="list-style-type: none"> <li>1940s – Mostly farmland with orchards in the southern portion.</li> <li>1950s – Some orchards converted to farmland. Market gardening in the southern extent.</li> <li>1960s – Motorway constructed. Residential development in adjacent areas.</li> <li>1970s – Crops and residential subdivisions adjacent to the motorway in the northern portion.</li> <li>2000s – Motorway has been realigned in the north, replaced with a shopping centre and car parks.</li> </ul>
<b>Area C</b>	<ul style="list-style-type: none"> <li>1940s – Farmland with some orchards in the northern and southern extents. A main road traversed through the southeastern half of the area.</li> <li>1950s – Some farmland was converted to orchards and crops.</li> <li>1960s – Construction of the motorway, replacing the orchards and crops. Some adjacent residential development. Construction of an industrial building adjacent to the central area.</li> <li>1980s – Development of a small shopping centre and service station adjacent to the northern extent of the area.</li> <li>2020s – A small area of soil disturbance in the central part of the area.</li> </ul>
<b>Area D</b>	<ul style="list-style-type: none"> <li>1940s – Mostly farmland or orchards, with some roads and residential or farm buildings.</li> <li>1950s – Construction of the motorway and a bridge over the Whau River was underway. There was a radio tower in the northwestern extent. Development of long buildings in the central area.</li> <li>1960s – Completion of the motorway. Construction of a substation in the central area. Residential developments adjacent to the motorway in the southern extent.</li> <li>1980s – A large building and yard was built in the northwestern extent. Adjacent commercial/industrial development in the northwest.</li> <li>1990s – Development of a service station adjacent to the southeastern extent.</li> <li>2000s – Development of industrial buildings in the central area, replacing orchards.</li> <li>2010s – Potential construction yard in the eastern extent.</li> <li>2020s – Removal of the construction yard.</li> </ul>
<b>Area E</b>	<ul style="list-style-type: none"> <li>1940s – Some areas of farmland with residential properties, a golf course, a small area of market gardening and a main road.</li> <li>1950 – Soil disturbance in the western extent.</li> <li>1960s – Further soil disturbance in the western extent. Minor residential developments replacing the market gardening and some farmland.</li> <li>1970s – The soil disturbance in the western extent is grassed.</li> <li>1980s – Large areas of soil disturbance for the construction of the motorway, replacing residential properties.</li> <li>1990s – Construction of the motorway is completed.</li> <li>2000s – Soil disturbance in the central area.</li> <li>2010s – Construction of motorway onramps and offramps associated with State Highway 20 (SH20) and the Waterview Tunnel. Expansion of the soil disturbance in the central area.</li> <li>2020s – Construction of the motorway onramps and offramps has been completed.</li> </ul>
<b>Area F</b>	<ul style="list-style-type: none"> <li>1940s – Mostly residential properties and roads, with an area of farmland/scrubland in the western extent and an oval track in the centre.</li> <li>1950s – Residential developments replaced the farmland/scrubland, and commercial/industrial buildings constructed in the centre of the oval track.</li> <li>1960s – The oval track had become overgrown. Residential houses have been removed in the eastern extent.</li> <li>1970s – Construction of the motorway has begun, with three bridges constructed over the motorway.</li> </ul>

Assessment Area	Historical aerial summary
	<ul style="list-style-type: none"> <li>1980s – Construction of the motorway has been completed. Soil disturbance and storage of potential shipping containers in the eastern extent.</li> <li>1990s – Road layout changes in the eastern extent associated with the completion of the motorway in Area E. Development of some commercial buildings and carparks in the western extent.</li> <li>2000s – Minor soil disturbance and potential storage of containers or small buildings in the eastern extent.</li> <li>2010s – The St Lukes Road bridge in the western extent has been widened with some associated soil disturbance.</li> <li>2020s – The widening of St Lukes Bridge has been completed.</li> </ul>

## 3.2 Site contamination enquiry

Auckland Council maintains a database of potentially contaminated sites which are known to be or may be contaminated due to activities that are listed on the HAIL. The HAIL is a list of industries and activities that have the potential to cause contamination of soils due to use, storage or disposal of hazardous substances. The site contamination enquiry provided information for an area extending approximately 100m either side of the Project Area (the Area of Interest).

It was noted in the enquiry response that due to the age of some buildings within the Proposed Designation, consideration may need to be given to the potential use of lead-based paints and asbestos containing materials (ACM) within building materials.

The site contamination enquiry report, including two site contamination maps (provided by Auckland Council) is reproduced in Appendix C. One map displays the western area of the Project (Assessment Areas A to D) and the other map shows the eastern area of the Project (Assessment Areas E and F). The site contamination enquiry information is summarised in the following sections.

### 3.2.1 HAIL sites

The site contamination enquiry listed between 435 and 499 properties as contaminated or HAIL sites within, adjacent to or within 100m either side of the Project Designation. Approximately 389 properties were identified as former horticultural sites (HAIL category A10). It appears that horticulture was a common historical land use within or adjacent to the Project Designation, especially within Assessment Areas A to D.

We note that the information from Auckland Council comprised PDF maps, GIS files and an Excel spreadsheet. However, the information was incomplete, with many properties listed without associated contamination information. The Excel spreadsheet included multiple tabs for contamination which was difficult to correlate and summarise. Therefore, the total number of HAIL sites (435-499) is an estimate.

The HAIL sites that were identified in the site contamination enquiry are listed in Table 3-2. Further discussion of these HAIL sites is provided in Section 3.6.

**Table 3-2: HAIL sites identified in the Site Contamination Enquiry**

HAIL Category	Number of sites
<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	389
<b>A17:</b> Storage tanks or drums for fuel, chemicals or liquid waste	3
<b>E1:</b> Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition	2
<b>F4:</b> Motor vehicle workshops	2
<b>F8:</b> Transport depots or yards including areas used for refuelling or the bulk storage of hazardous substances	1
<b>G3:</b> Landfill sites	5
<b>I:</b> 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	2

### 3.2.2 Discharge consents

There were 305 historical or current discharge consents listed in the site contamination enquiry within or within 100m either side of the Project Area. Information on the source or type of discharge was generally not provided. There were multiple Excel spreadsheet tabs for discharge consent information which was difficult to correlate and summarise.

There were 54 listed discharge consents that contained some information relating to a contaminated site and two relating to a landfill discharge. Discharge consents potentially relevant to the Proposed Designation are included in Table C1, Appendix C.

Given the limited information on the nature of the discharges, the consents were not requested from Auckland Council. Information relevant to specific sites of interest can be requested and reviewed during scoping of additional investigations.

### 3.2.3 Pollution incidents

There were 97 pollution incident reports listed in the site contamination enquiry within or within 100m either side of the Project Area. Nine relevant pollution incidents are included in Table C2 in Appendix C.

Given the limited information on the pollution incidents, it is not possible to assess the significance of any contamination with respect to the Proposed Designation. Further information relevant to specific sites of interest can be requested and reviewed during scoping of additional investigations.

## 3.3 Closed landfill enquiry

An Auckland Council closed landfill enquiry was requested for the Proposed Designation. The response identified two closed landfills adjacent to the Project Area. Information relating to the closed landfills was also included in the site contamination enquiry response. Details of the two landfills are provided in Table 3-3.

**Table 3-3: Closed landfills**

Name	Address	Distance to the Proposed Designation	Assessment Area
Jack Colvin Park	44 Titoki Street, Te Atatu Peninsula	Approximately 20m to the north	Adjacent to Area D
Ian McKinnon Drive Reserve	22A Randolph Street, Newton	Adjacent to the southeast	Adjacent to Area F

## 3.4 Property files

Given the scale of the Project, property files were not requested. Property files should be requested for sites where further investigation is recommended.

## 3.5 Other potential sources of contaminants

Roading materials may contain contaminants such as coal tar binder which was used in road construction until the 1980s. In accordance with Guidelines for Assessing and Managing Coal Tar Contamination in Roading (WasteMINZ, 2023), it is recommended that roads be characterised for the presence of coal tar when all the following conditions are met:

- The original road was constructed prior to 1980; and
- The road has not undergone rehabilitation; and
- No testing has been carried out to confirm the absence of coal tar; and
- Coal tar has been found in nearby roads built during a similar time period.

Resurfacing of roads does not require characterisation unless previous investigations have confirmed the presence of coal tar at the road surface. Roads are not considered to be HAIL activities.

## 3.6 Discussion

A summary of the key findings from the information review is provided below. The identification of HAIL sites has utilised all the information reviewed as part of this PSI. Some sites listed in the Auckland Council site contamination enquiry as a HAIL or contaminated site have been excluded due to insufficient information on the type and/or source of contamination. Other sites not listed in the site contamination enquiry have been included based on review of the historical aerial images.

This summary focuses on HAIL sites that are within and adjacent (within 50m) to the Proposed Designation. The use of a 50m cut-off to represent 'adjacent' sites is arbitrary, and this could be refined during later stages of assessment. The HAIL sites are grouped by HAIL activity in Figures D1 and D2 in Appendix D. HAIL site details (address, category, and contaminants of concern) are provided in Table E1 in Appendix E.

I have identified 156 HAIL sites across seven HAIL categories within or adjacent (within 50m) to the Proposed Designation. These are summarised by Assessment Area as follows:

- **Area A:** There are 18 former horticultural sites within and adjacent to this area.
- **Area B:** There is one active transformer/switchyard within the area and 38 former horticultural sites within and adjacent.
- **Area C:** There is one historical filling site within the area and one active service station adjacent. There are 60 former horticultural sites within and adjacent.
- **Area D:** There is one active transformer/switchyard, and one site used for fuel storage and former horticulture. Jack Colvin Park closed landfill (split into two halves) and one active service station are adjacent. There are 25 former horticultural sites within and adjacent.
- **Area E:** Within the area, there is one motor vehicle workshop and service station, one site used for the storage of agrichemicals, and one used for horticulture. Adjacent to the area, there are two active service stations and one former horticultural site.
- **Area F:** There is one active service station within the area. Ian McKinnon Drive Reserve closed landfill is adjacent to the area.

## 4. Conceptual site model / risk assessment

### 4.1 HAIL activities and potential contaminants of concern

The HAIL activities identified within and adjacent (within 50m) to the Proposed Designation are listed in Table 4-1. Potential contaminants of concern based on the guidance document Identifying HAIL Land (MfE, 2023) are included. A detailed breakdown of HAIL sites by Assessment Area is provided in Table E1 in Appendix E.

**Table 4-1: HAIL sites and potential contaminants of concern**

Address	HAIL Category (Source)	Contaminant of Potential Concern
46A Linwood Avenue Mount Albert	<b>A1:</b> Agrichemicals, including commercial premises used by spray contractors for filling, storing or washing out tanks for agrichemical application.	<ul style="list-style-type: none"> <li>▪ Metals and metalloids (arsenic, copper, lead, mercury and zinc).</li> <li>▪ OCP and ONOP pesticides.</li> </ul>
See Table E1, Appendix E as there are many properties	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.	<ul style="list-style-type: none"> <li>▪ Metals and metalloids (arsenic, copper, lead, mercury and zinc).</li> <li>▪ OCP and ONOP pesticides.</li> </ul>
<ul style="list-style-type: none"> <li>▪ 7 Tony Street Henderson.</li> <li>▪ 83 Ivanhoe Road Grey Lynn.</li> </ul>	<b>A17:</b> Storage tanks or drums for fuel, chemicals or liquid waste.	<ul style="list-style-type: none"> <li>▪ Metals</li> <li>▪ OCP and ONOP pesticides.</li> <li>▪ Polycyclic aromatic hydrocarbons (PAH).</li> <li>▪ Total petroleum hydrocarbons (TPH).</li> </ul>

Address	HAIL Category (Source)	Contaminant of Potential Concern
<ul style="list-style-type: none"> <li>▪ 1 Maki Street Massey.</li> <li>▪ 28A Royal View Road Te Atatū South.</li> </ul>	<b>B4:</b> Power stations, substations or switchyards.	<ul style="list-style-type: none"> <li>▪ Metals</li> <li>▪ Polychlorinated biphenyls (PCB).</li> <li>▪ PAH, TPH and asbestos.</li> </ul>
<ul style="list-style-type: none"> <li>▪ 1150 &amp; 1158 Great North Road Point Chevalier.</li> </ul>	<b>F4:</b> Motor vehicle workshop.	<ul style="list-style-type: none"> <li>▪ Metals, PAH, TPH.</li> <li>▪ Benzene, Toluene, Ethylbenzene, and Xylene (BTEX).</li> <li>▪ Semi volatile organic compounds (SVOC).</li> <li>▪ Volatile organic compounds (VOC).</li> </ul>
<ul style="list-style-type: none"> <li>▪ 130-136 Royal Road Massey.</li> <li>▪ 1150 &amp; 1158 Great North Road Point Chevalier.</li> <li>▪ 778-802 Great North Road Grey Lynn.</li> <li>▪ 402 Te Atatū Road Te Atatū Peninsula.</li> <li>▪ 1163-1171 Great North Road Point Chevalier.</li> <li>▪ 1125-1143 Great North Road.</li> </ul>	<b>F7:</b> Service stations.	<ul style="list-style-type: none"> <li>▪ Metals, PAH, TPH and BTEX.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Road corridor – Lincoln Road Off Ramp Bridge.</li> <li>▪ 44 Titoki Street Te Atatū Peninsula.</li> <li>▪ 22A Randolph Street Newton.</li> </ul>	<b>G3:</b> Landfill sites.	<ul style="list-style-type: none"> <li>▪ Metals, PAH, and asbestos.</li> </ul>

## 4.2 Conceptual Site Model

A contaminated land Conceptual Site Model (CSM) sets out the potential sources of contamination, exposure pathway, and receptors. For a contamination risk to exist, there must be a contamination source, a receptor (human health or the environment) and a mechanism (pathway) for the contamination to affect the receptor. A risk is only present if there is a complete source-pathway-receptor (SPR) linkage.

A CSM has been developed based on the available information for the Assessment Areas and the potential effects on human health and the environment. The CSM has been prepared for an exposure scenario (land use) based on the Project construction phase (presented in Table 4-2). The CSM assumes no mitigation of exposure risk to the receptors.

**Table 4-2: Conceptual site model for construction phase**

Contaminant of Potential Concern (CoPC)	Potential exposure pathway	Potential Receptors	Pathway Potentially Complete
<ul style="list-style-type: none"> <li>▪ Metals and metalloids (arsenic, boron, copper, lead, mercury and zinc)</li> <li>▪ OCP and ONOP pesticides</li> <li>▪ PAH</li> <li>▪ TPH</li> <li>▪ BTEX</li> <li>▪ SVOC</li> <li>▪ VOC</li> <li>▪ PCB</li> </ul>	Ingestion and dermal contact of contaminated soil, dust.	<ul style="list-style-type: none"> <li>▪ Construction workers during earthworks.</li> </ul>	<b>Unknown</b> - more information required on type and location of contaminants.
	Inhalation of contaminated dust.	<ul style="list-style-type: none"> <li>▪ Construction workers during earthworks.</li> <li>▪ Neighbouring residents during earthworks.</li> </ul>	<b>Unknown</b> - more information required on type and location of contaminants.
	Generation of contaminated run-off through exposure of contaminated soil to rainfall.	<ul style="list-style-type: none"> <li>▪ Lawsons Creek</li> <li>▪ Tōtara Inlet, Bingham Creek</li> </ul>	<b>Unknown</b> - more information required on type and location of contaminants.

Contaminant of Potential Concern (CoPC)	Potential exposure pathway	Potential Receptors	Pathway Potentially Complete
		<ul style="list-style-type: none"> <li>▪ Te Wai-o-Pareira / Henderson Creek</li> <li>▪ Whau River</li> <li>▪ Waitematā Harbour</li> <li>▪ Oakley Creek</li> <li>▪ Western Springs</li> </ul>	
<ul style="list-style-type: none"> <li>▪ BTEX</li> <li>▪ VOC</li> </ul>	Inhalation of vapours	<ul style="list-style-type: none"> <li>▪ Construction workers during earthworks.</li> </ul>	<b>Unknown</b> - more information required on type and location of contaminants.
<ul style="list-style-type: none"> <li>▪ Asbestos</li> </ul>	Inhalation of fibres	<ul style="list-style-type: none"> <li>▪ Construction workers during earthworks.</li> <li>▪ Neighbouring residents during earthworks.</li> </ul>	<b>Unknown</b> - more information required on presence of asbestos.

**Note:** Groundwater has not been considered as a receptor due to the lack of detailed information on groundwater occurrence and the nature of construction works that could influence groundwater risk (at the time of writing this report). Risk to groundwater from contaminants in soil should be assessed when more detailed information is available on groundwater occurrence and construction activities.

## 5. Management and mitigation of potential contaminated land effects

Based on the findings of this PSI, there is the potential for contaminated soils to be encountered during Project construction, which could pose a hazard to construction workers, the public and the surrounding environment. Detailed site investigations (DSIs) should be undertaken on those properties/areas where HAIL activities have been identified within the Proposed Designation.

A Contaminated Land Management Plan (CLMP) should be prepared incorporating the findings of the DSIs. I expect that any contaminated land effects can be managed or mitigated by implementation of the CLMP.

The CLMP must be prepared by a Suitably Qualified and Experienced Practitioner (SQEP), and it must be updated as further relevant information becomes available. The CLMP should include but not be limited to:

- Summary of the Project construction methodology.
- Summary of the PSI and DSI findings.
- Roles and responsibilities and contact details for the parties involved in the land disturbance activities, including the SQEP.
- Description of contaminated soil hazards.
- Description of procedures to manage and mitigate risks from contaminated soils during soil disturbance, including:
  - Soil management practices
  - Off-site disposal of soil
  - Erosion and sediment control
  - Management of dust
  - Worker health and safety
- Contingency measures in the event of accidental/unexpected discovery (asbestos, fill materials, staining, etc.).

## 6. Conclusions and recommendations

### 6.1 Conclusions

A PSI was undertaken for the Project. The key findings from this PSI are summarised below for each of six Assessment Areas:

- **Area A** - 18 HAIL sites (former horticultural) within and adjacent to the area.
- **Area B** - one transformer/switchyard within the area; 38 former horticultural sites within and adjacent.
- **Area C** - one historical fill site within the area; one adjacent service station; 60 former horticultural sites within and adjacent.
- **Area D** - one transformer/switchyard, one fuel storage site, and one former horticulture site within the area. Jack Colvin Park closed landfill and one adjacent service station; 25 former horticultural sites within and adjacent.
- **Area E** - one motor vehicle workshop/service station, one storage of agrochemicals, and one former horticulture site within the area; two service stations and one former horticultural site adjacent.
- **Area F** - one service station within the area; Ian McKinnon Drive Reserve closed landfill adjacent.

Contaminants of concern associated with identified HAIL activities are metals and metalloids (arsenic, boron, cadmium, chromium, copper, lead, mercury, nickel and zinc), OCP and ONOP pesticides, PAH, TPH, BTEX, SVOC, VOC, PCB, and asbestos.

A CSM was prepared to define risks to human health and the environment from contaminants of concern based on contaminant exposure during project construction works. The risks to human health and the environment from potentially contaminated soils, within and adjacent (within 50m) to the Proposed Designation, are currently unquantified due to a lack of information on the distribution of contaminants in soil.

There is potential for contaminated soil to be encountered during Project construction. However, by implementing a CLMP, I expect that any contaminated land effects on human health and the environment can be managed or mitigated appropriately.

### 6.2 Recommendations

In areas where I have found no evidence of HAIL activities, I consider it unlikely that proposed earthworks will pose a risk to human health or the environment.

In areas where I have identified potential HAIL activities within the Proposed Designation, and where soil disturbance is proposed on that land, I recommend the preparation of a Detailed Site Investigation (DSI) before earthworks commence to characterise and delineate any contamination in soils. See Table E1, Appendix E for a full list of HAIL sites present within and adjacent (within 50m) to the Proposed Designation. The findings of the DSIs should inform the following:

- Remediation and management of contaminated soils.
- Mitigation of risk to construction workers and residents in neighbouring properties during soil disturbance.
- Mitigation of risk to surface water bodies during soil disturbance.
- Preparation of a CLMP.
- Characterisation of soils for reuse or off-site disposal assessment.

## 7. References

Edbrooke, S.E. (compiler) 2001. *Geology of the Auckland Area*. Institute of Geological and Nuclear Sciences 1:250,000 geological map 3.

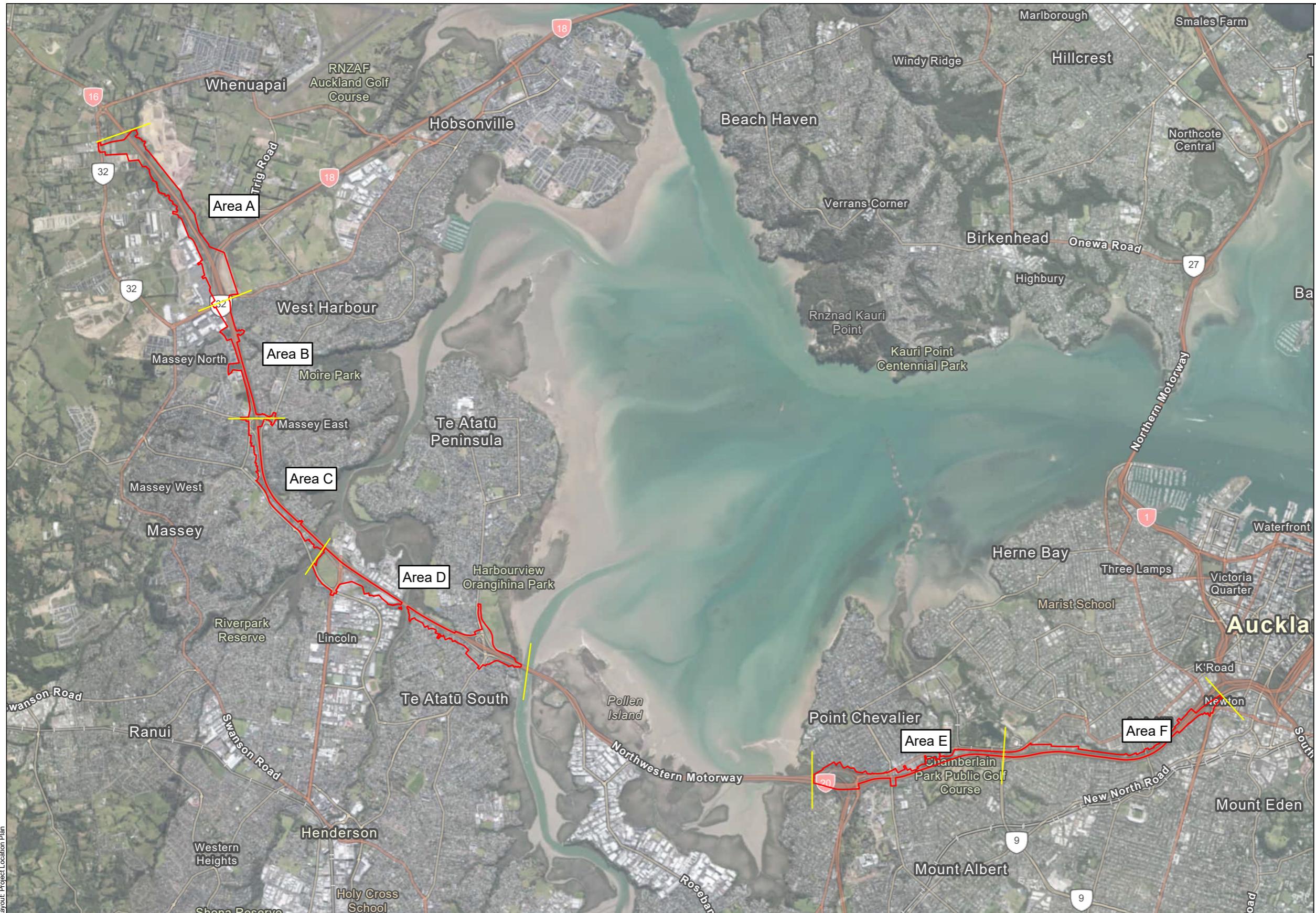
Ministry for the Environment. (2011). *Hazardous Activities and Industries List*. Wellington: Ministry for the Environment.

Ministry for the Environment. (2021). *Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand*. Wellington: Ministry for the Environment.

Ministry for the Environment. (2023). *Hazardous Activities and Industries List Guidance, Identifying HAIL Land*. Wellington: Ministry for the Environment.

Waste Management Institute New Zealand (WasteMINZ). (2023). *Guidelines for Assessing and Managing Coal Tar Contamination in Roading*.

## Appendix A. Location plans

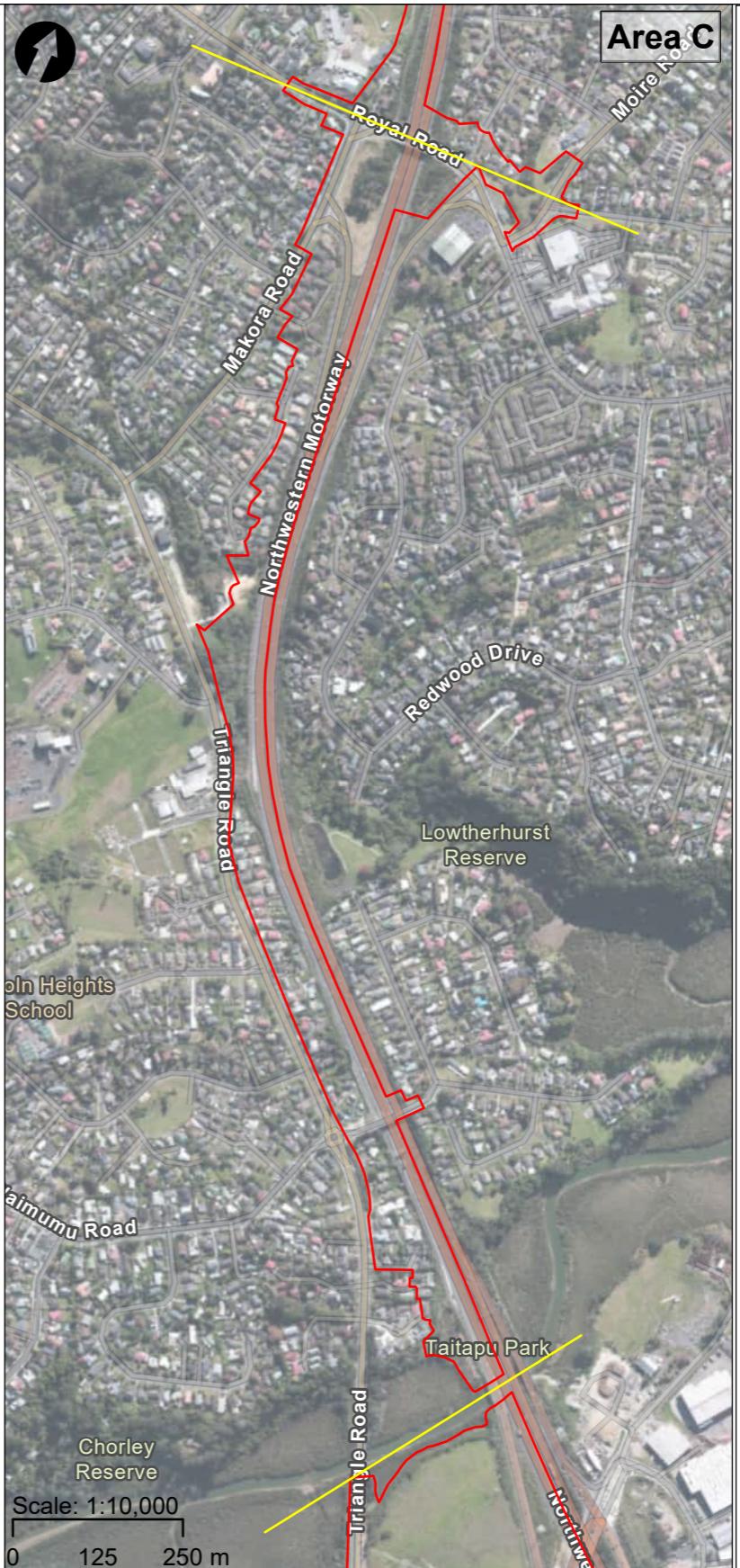
**Legend**

- Project Area Outline
- Area Boundary

**NOTE**

- Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge
- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek
- Assessment Area D: Momutu Stream/Henderson Creek to Whau River
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:		
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DESCRIPTION/ SOURCE:	 Scale: 1:50,000				
Eagle Technology, LINZ, Stats NZ, Esri, TomTom, Garmin, METI/NASA, USGS					
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855		
		PRINT DATE: 12-Nov-25	DRAWING No: FIGURE A1		



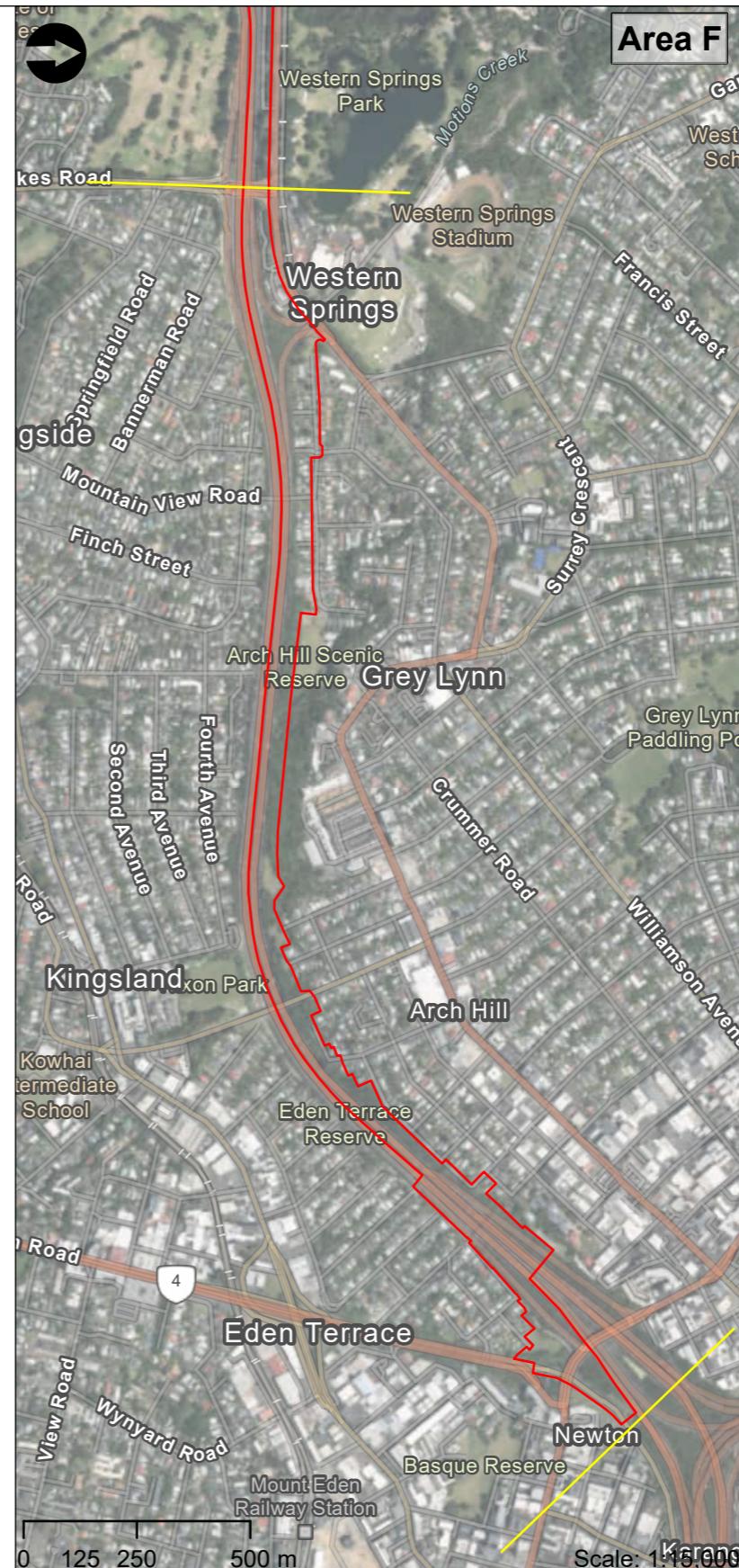
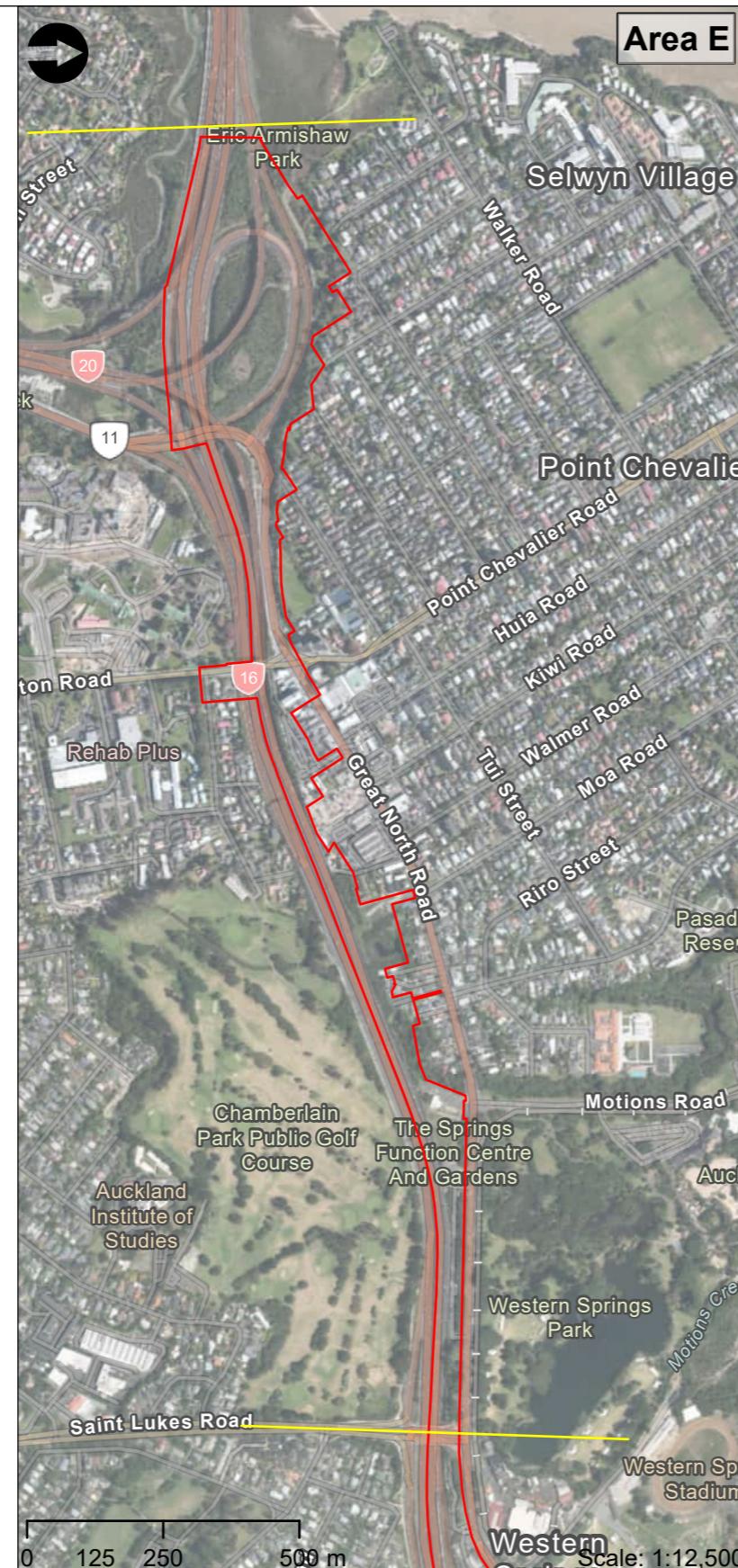
**Legend**

- Area Boundary (Yellow line)
- Project Area Outline (Red line)

**NOTE**

- Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge
- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek
- Assessment Area D: Momutu Stream/Henderson Creek to Whau River
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
AREA LOCATION PLAN - AREAS - A - B - C	SCALE ON IMAGES		
DESCRIPTION/ SOURCE:	NORTHWEST BUSWAY DETAILED BUSINESS CASE		
Esri Community Maps Contributors, LINZ, Stats NZ, Esri, TomTom, Garmin, METI/NASA, USGS, Eagle Technology, LINZ			
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
		PRINT DATE: 12-Nov-25	DRAWING No: FIGURE A2



Legend	
<span style="color: yellow;">—</span>	Area Boundary
<span style="color: red;">—</span>	Project Area Outline
<b>NOTE</b>	
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DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
AREA LOCATION PLAN - AREAS - D - E - F	SCALE ON IMAGES		
DESCRIPTION/ SOURCE:	NORTHWEST BUSWAY DETAILED BUSINESS CASE		
Esri Community Maps Contributors, LINZ, Stats NZ, Esri, TomTom, Garmin, METI/NASA, USGS, Eagle Technology, LINZ			
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PRINT DATE: 12-Nov-25
			PROJECT No: 60721855
			DRAWING No: FIGURE A3

## Appendix B. Historical aerial images

Table B1: Aerial image descriptions

Year and source	Area A - 143 Fred Taylor Drive to Hobsonville Road Bridge	Area B - Hobsonville Road Bridge to Royal Road Bridge	Area C - Royal Road Bridge to Henderson Creek	Area D - Henderson Creek to Whau River	Area E - Eric Armishaw Reserve to St Lukes Bridge	Area F - St Lukes Bridge to Newton Road Bridge
1940s	There appears to be orchards in the northern portion of Area A with rows of trees visible. A grouping of small buildings can be seen in a farmyard along the southern boundary of this area. A stream/channel extends most of the length of Area A in a south to north direction. The remainder of Area A is covered in pasture.	There appears to be orchards in the southern portion of Area B. There is a small building adjacent to a vegetated area at the southern end. The remainder of Area B is farmland with approximately three streams/channels intersecting the Project Area.	There appears to be orchards in the northern and southeastern portions. There is a main road within the southeastern portion, with a smaller road in the north portion. The remainder of this area is farmland, with occasional small buildings located throughout.	A main road extends through the northwestern portion and a main road extends through the southeastern portion of Area D. A river/stream extends through the centre of Area D. Throughout Area D, areas of orchards, surrounded by farmland, with occasional residential and farm buildings can be seen. There is a long building, potentially a greenhouse, in the northwest of Area D.	A main road runs adjacent to and cuts through Area E. There is an area of pasture at the western end of Area E. There are residential properties and a small area of potential market gardening in the western half of Area E. The centre of Area E is vacant and covered in pasture and vegetation adjacent to a stream. The eastern portion is mostly a grassed area, potentially used as a golf course.	The eastern portion of Area F is mostly residential properties and roads. The western portion has some residential properties, surrounded by scrubland or farmland. In the centre of Area F is an oval track with a building near its centre. The oval track is next to a vegetated area that is now called Arch Hill Scenic Reserve.
1950s	Minor additions and removals of small buildings in the southern end of Area A, with one building appeared to have been extended.  Horticultural activities in the northern portion of this area remain visible. The rest of the area remains relatively unchanged.	Some areas of orchards were potentially converted to farmland. Some vegetation at the southern end of Area has been cleared with a small portion converted to market gardening.	There was some expansion of the orchards, addition of some crops and associated construction of horticultural buildings in the southeastern portion of Area C.	Construction of the motorway running inside Area D appears to have started. A bridge and road connection has been constructed over the Whau River. Construction of a potential radio tower has started in the northwest end. Some long buildings have been constructed on the eastern bank of the eastern Henderson Creek tributary. A cluster of small buildings have been constructed at the southeastern end.	There is an area of soil disturbance surrounded some farmland and vegetated areas in the western end of Area E. There have been some residential buildings constructed, with a few larger buildings that are potentially used for commercial purposes in the western half of Area E.	The western and portion of Area F has had most of the scrubland/farmland replaced by residential development. There have been some additional small buildings added in the oval track.
1960s	Horticultural activities in the northern portion of Area A have ceased and this land converted to pasture.	The motorway has been constructed, and it extends the length of Area B. Changes to the 1950s road layout is visible at the southern end. There is a bridge over the main road at the southern boundary of Area B. The small	The orchards and crops have been replaced by the construction of the motorway which extends the length of Area C, with changes to the 1950s road layout. There has been construction of an industrial building adjacent	The motorway running the length of Area D has been constructed, with on ramps and off ramps also constructed. There has been the construction of a substation in the central area. There have been residential developments	The area of soil disturbance in the western end of Area E had expanded. The small area of market gardening has been replaced by residential houses. Some of the farmland in the centre of Area E has had	The oval track in the centre of Area F appears to have become overgrown. A large area of residential houses at the eastern end have been removed.



Year and source	Area A - 143 Fred Taylor Drive to Hobsonville Road Bridge	Area B - Hobsonville Road Bridge to Royal Road Bridge	Area C - Royal Road Bridge to Henderson Creek	Area D - Henderson Creek to Whau River	Area E - Eric Armishaw Reserve to St Lukes Bridge	Area F - St Lukes Bridge to Newton Road Bridge
		building at the southern end has been extended. There has been residential development surrounding in adjacent areas.	to the central portion of Area C. There has been some adjacent residential development.	adjacent to the main road in the southeastern half of Area D.	some residential developments and the construction of a long building, potentially used for commercial or farm purposes.	
1970s	A potential farm building has been constructed in the centre of Area A.	A small portion of farmland at the north end of Area B appears to have been converted to crops. Farmland has been developed into residential areas outside of Area B to the east.	Residential development can be seen in the southern half of Area C.	No significant changes since the 1960s aerial photographs.	The area of soil disturbance in the western area of Area E appears to mostly be covered in grass. No significant changes are observed for the remainder of Area E	Construction of the motorway is visible in and adjacent to the eastern portion. Further residential properties and some vegetation within Area F has been removed. Three bridges that extend over the motorway have been constructed within the eastern half of Area F.
1980s	Parts of the farmland in the northern and centre portions of Area A appear to have changed to crops/market gardens. There have been some buildings constructed near these crop areas. The buildings at the southern end have been removed. Small buildings have been added near the crop area at the northern portion of Area A. A residential house, a large, long building (potentially a greenhouse or farm shed) and some smaller buildings have been constructed by the crop/market garden area in the centre of Area A. At the southern end, a couple of small buildings have been constructed, with hedges removed and a farm road extended.	A farm building has been constructed in the north end of Area B. The crops at the north end have been changed back to farmland. Some residential properties have been built at the south end of Area B.	There has been the development of a small shopping centre and service station adjacent to the northern end of the area. No other significant changes since the 1970s aerial photographs.	No significant changes since the 1970s aerial photographs.	There have been large road developments at the western end of Area E. In the centre of the Area E, the soil disturbance is still ongoing, with some buildings added, potentially site offices for the construction of the motorway.	The motorway has been constructed. There is continued soil disturbance and storage of potential containers at the eastern end of Area F.

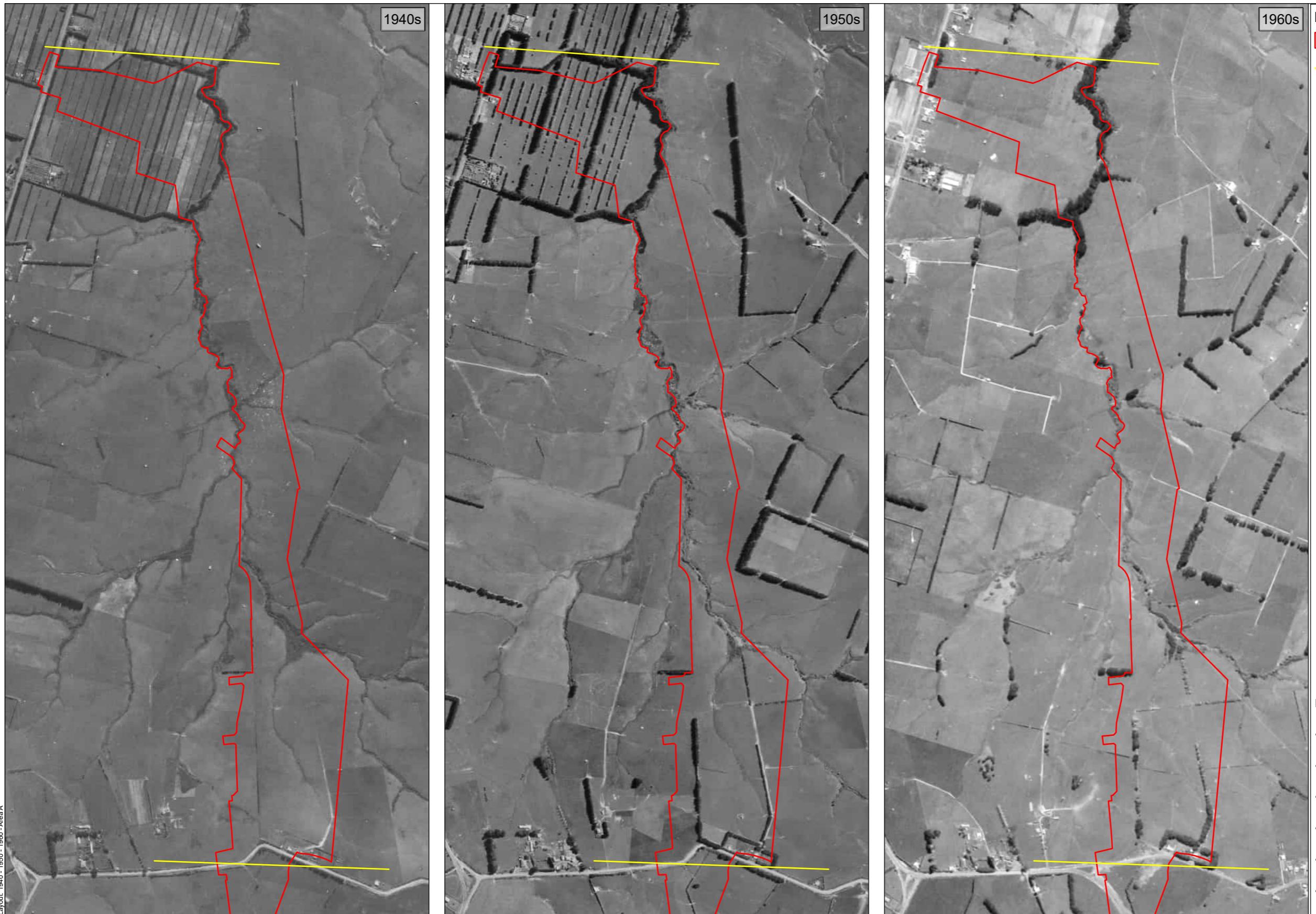
Year and source	Area A - 143 Fred Taylor Drive to Hobsonville Road Bridge	Area B - Hobsonville Road Bridge to Royal Road Bridge	Area C - Royal Road Bridge to Henderson Creek	Area D - Henderson Creek to Whau River	Area E - Eric Armishaw Reserve to St Lukes Bridge	Area F - St Lukes Bridge to Newton Road Bridge
1990s	Some hedges have appeared on farmland in the northern portion of Area A. There has been market gardening, surrounded by hedges added at the southern end.	A residential subdivision at the southern end of Area B can be seen.	Residential intensification can be seen in the southeastern end of Area C.	In the centre of Area D by the eastern Henderson Creek tributary, some vegetation has been cleared and appears to be a gravel area with vehicle tracks. There appears to be a rectangular area of soil disturbance in the grassed area of the northward arm of Area D. There has been the development of a service station adjacent to the southeastern extent.	The motorway has been constructed in and adjacent to Area E, with large onramps and offramps constructed in the western end. The potential site office buildings have been removed in the centre of Area E. A strip of carparking and some circular buildings with gardens have been constructed in the eastern portion. St Lukes bridge has been constructed over the motorway at the eastern end of Area H.	The construction of the motorway and associated soil disturbance has finished, with road layout changes in the eastern end of Area F associated with the completion of the motorway in Area E. The land between the motorway and surrounding roads at the eastern end is grassed with some trees. In the western end of Area F, there have been changes to the buildings with visible carparks, likely for commercial purposes.
2000s	Most of the northern half of Area A and an area at the southern end appears to be used for crops/market garden activities. A building at the southern end of Area A has been removed.	The northern end of the motorway has been reconfigured to the east, which has made way for a large commercial area with carparking to be constructed (a shopping centre).	There have been residential developments adjacent to the motorway in the northern portion of Area C.	Changes to the commercial/industrial buildings east of the radio tower. In the centre of Area D by the eastern Henderson Creek tributary, the gravel area has been developed into a commercial or industrial property, with several large, elongated buildings.	In the centre of Area E an area of minor soil disturbance with a small building can be seen. No other significant changes observed.	There is some minor soil disturbance and potential storage of containers or small buildings at the eastern end of Area F.
2010s	The motorway has been constructed with adjacent commercial/industrial developments. The crops at the north end of Area A appear to have netting over them. Farmland and the hedges with market gardening at the south end have been replaced by commercial or industrial development, with several large buildings and carpark areas visible.	A pedestrian bridge has been built over the motorway. Soil disturbance is visible to the west of the Area B and the construction of residential roads can be seen adjacent to the motorway on both sides.	There have been some further residential developments surrounding the motorway.	A construction yard with cars, machinery and equipment has been constructed in the eastern portion of Area D. Soil disturbance and potential plantings surrounding the motorway interchange can be seen at the eastern end. A footpath has been constructed adjacent to the motorway to its south.	At the western end of Area E, motorway onramps and offramps and soil disturbance associated with SH20 and the Waterview Tunnel are visible. A footpath has been constructed adjacent to the motorway at the western end. The soil disturbance in the centre of Area E has expanded, with stockpiles, construction materials and	The St Lukes Road bridge at the western end of Area F appears to have been widened, with some associated soil disturbance. There is some soil disturbance adjacent to a motorway onramp in the western portion of Area F. A pathway next to the motorway has been constructed in the eastern portion of Area F.



# Te Ara Hauāuru

## Northwest Rapid Transit

Year and source	Area A - 143 Fred Taylor Drive to Hobsonville Road Bridge	Area B - Hobsonville Road Bridge to Royal Road Bridge	Area C - Royal Road Bridge to Henderson Creek	Area D - Henderson Creek to Whau River	Area E - Eric Armishaw Reserve to St Lukes Bridge	Area F - St Lukes Bridge to Newton Road Bridge
					heavy machinery observed.	
2020s	At the northern end of Area A, there is a property with soil disturbance with a construction yard, replacing farmland with hedges. There has been further development of commercial/industrial buildings and carparking on the western side of the motorway. At the north end of Area A, on the eastern side of the motorway adjacent to the Project boundary is a large area of soil disturbance.	Further residential intensification can be seen on the western side of the motorway.	There is a small area of soil disturbance adjacent to the motorway in the centre of Area C.	The construction yards have been removed in the eastern portion of Area D. There has been some commercial development replacing an orchard/farmland adjacent to the western portion of Area D.	Construction of the motorway onramps and offramps at the western end of Area E is complete. The remainder Area E is unchanged.	The widening of St Lukes bridge has been completed, with a pathway parallel to the motorway constructed at the western end of Area F.



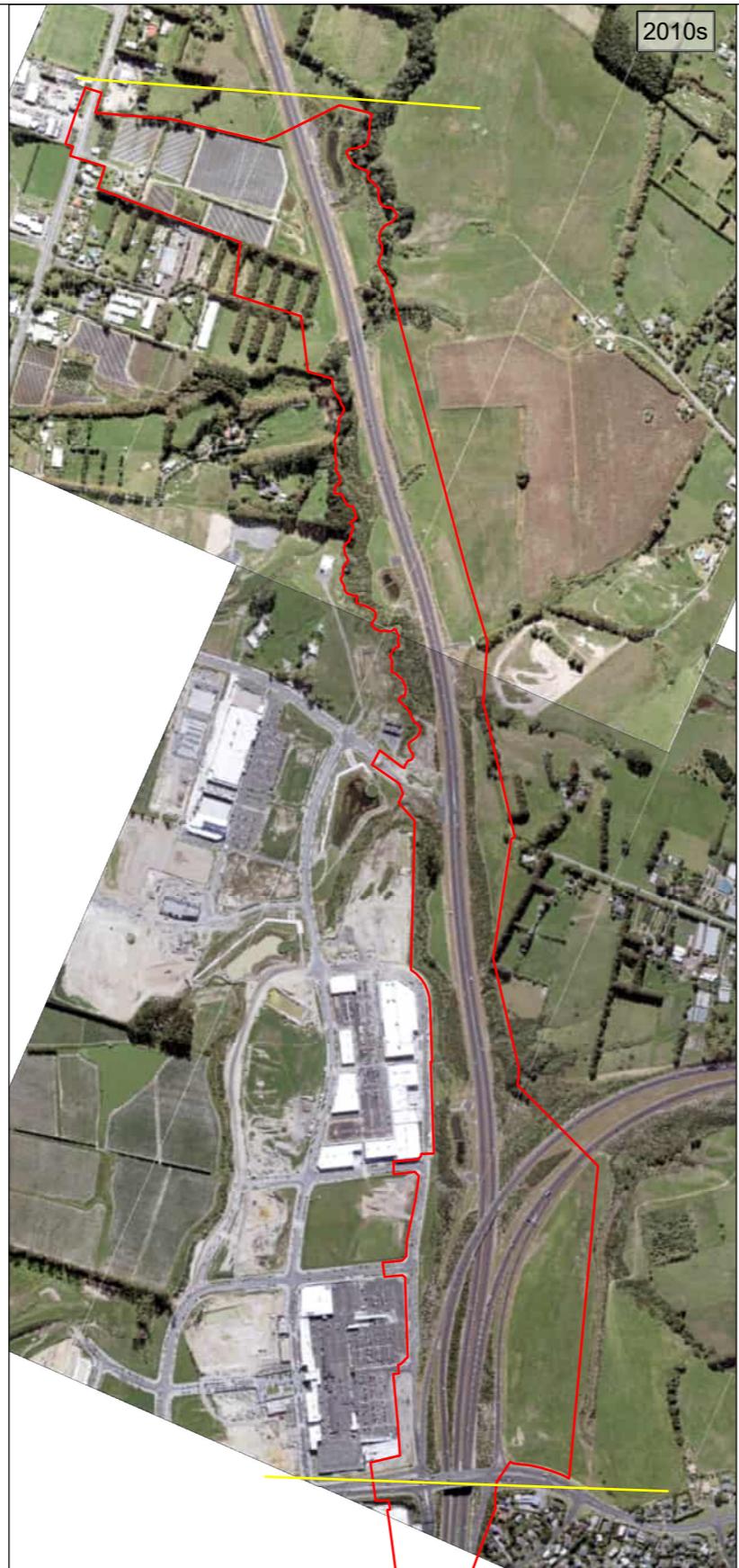
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<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 1px;"></span>	Area Boundary
NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

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			DRAWING No: FIGURE B1



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NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

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			DRAWING No: FIGURE B1



2020s

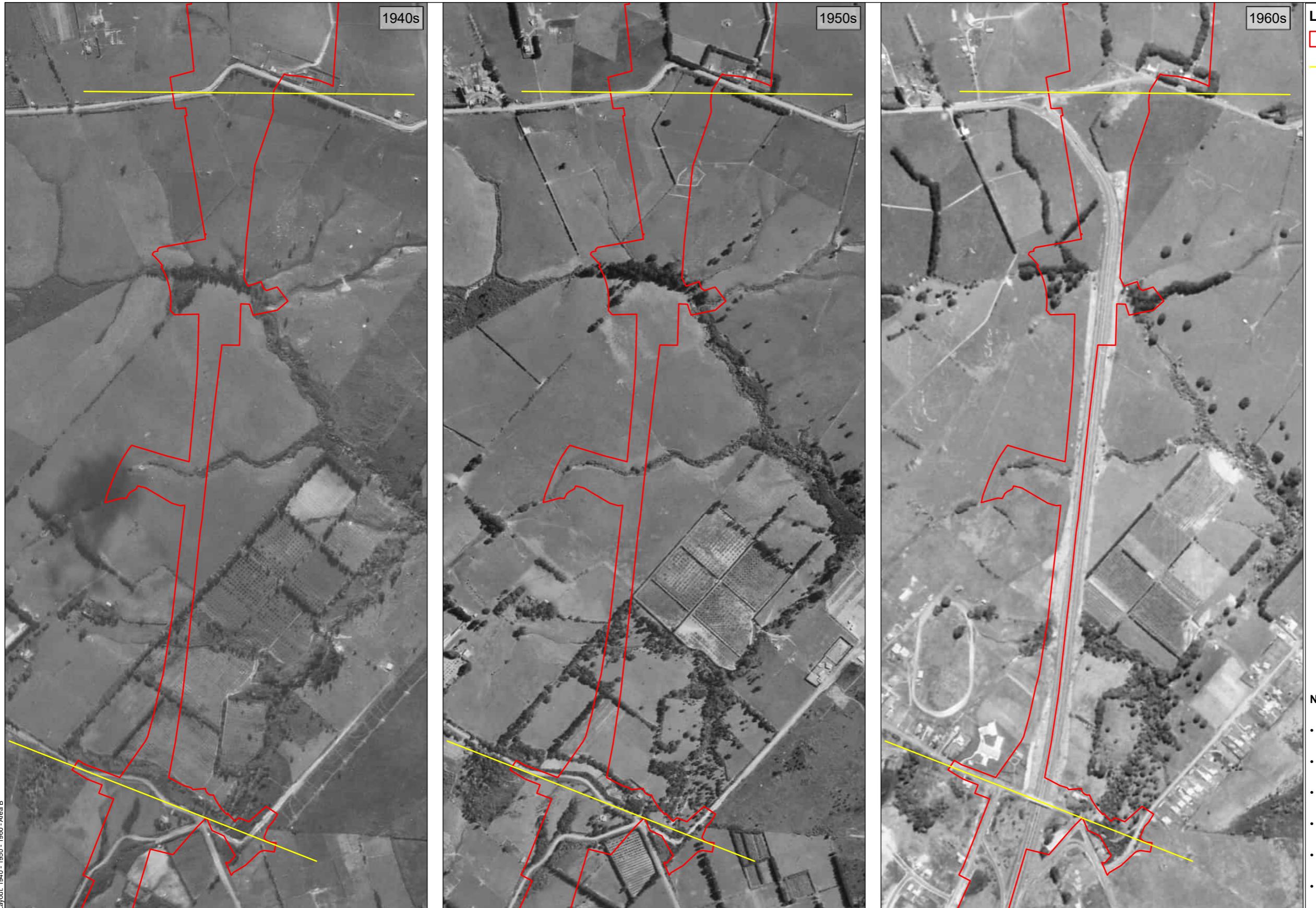
Legend

- Project Area Outline
- Area Boundary

NOTE

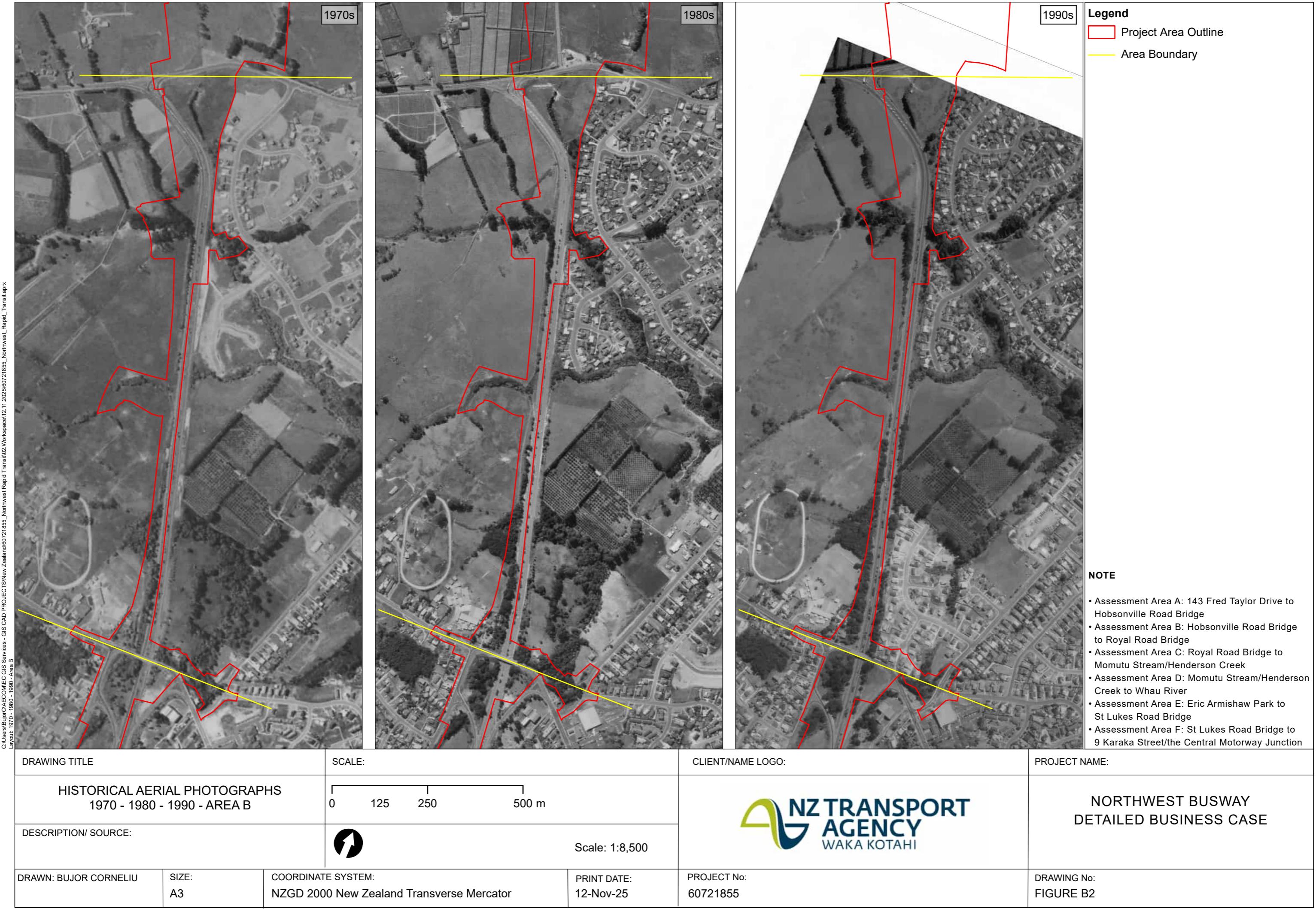
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- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek
- Assessment Area D: Momutu Stream/Henderson Creek to Whau River
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 2000 - 2010 - 2020 - AREA A	0 125 250 500 750 1,000 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
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		PRINT DATE: 12-Nov-25	DRAWING No: FIGURE B1



Legend	
Project Area Outline	
Area Boundary	
NOTE	
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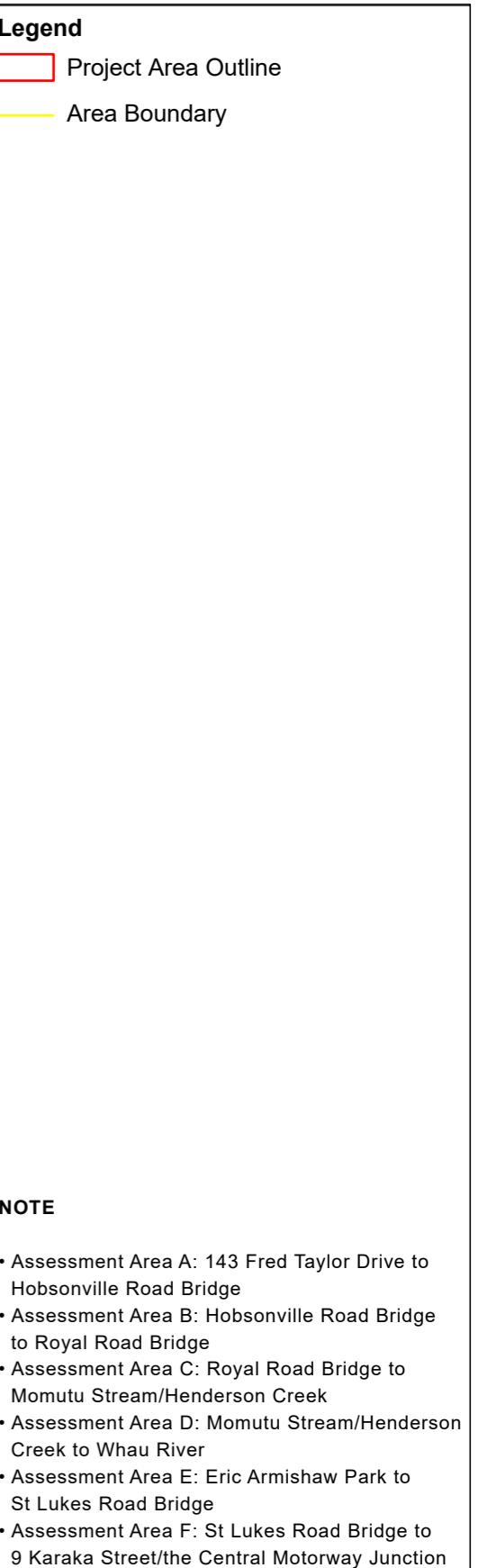
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HISTORICAL AERIAL PHOTOGRAPHS 1940 - 1950 - 1960 - AREA B	0 125 250 500 m	 Scale: 1:8,500	NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:			
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PRINT DATE: 12-Nov-25
			PROJECT No: 60721855
			DRAWING No: FIGURE B2



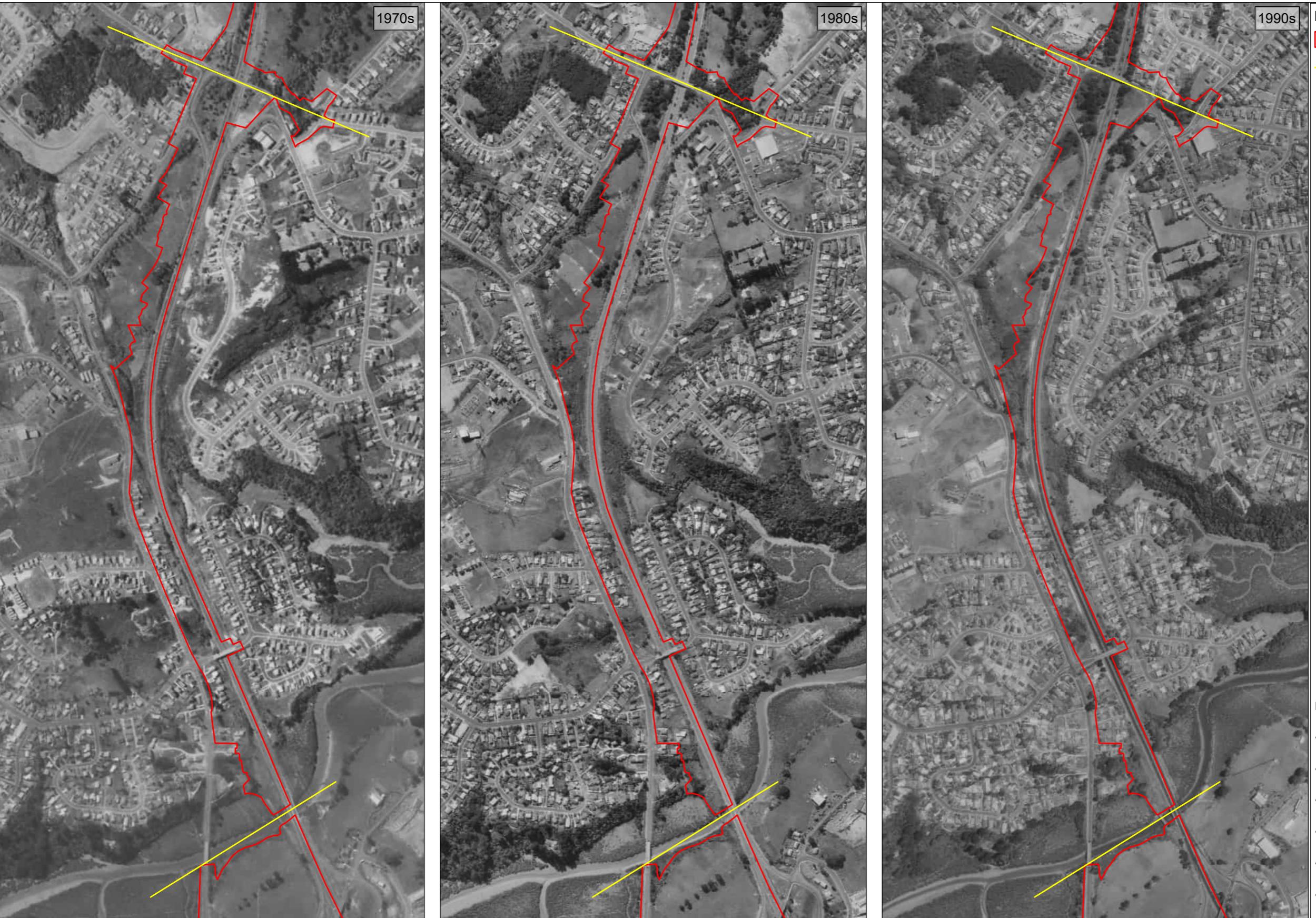


Legend	
Project Area Outline	
Area Boundary	
NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 2000 - 2010 - 2020 - AREA B	0 125 250 500 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:8,500	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B2

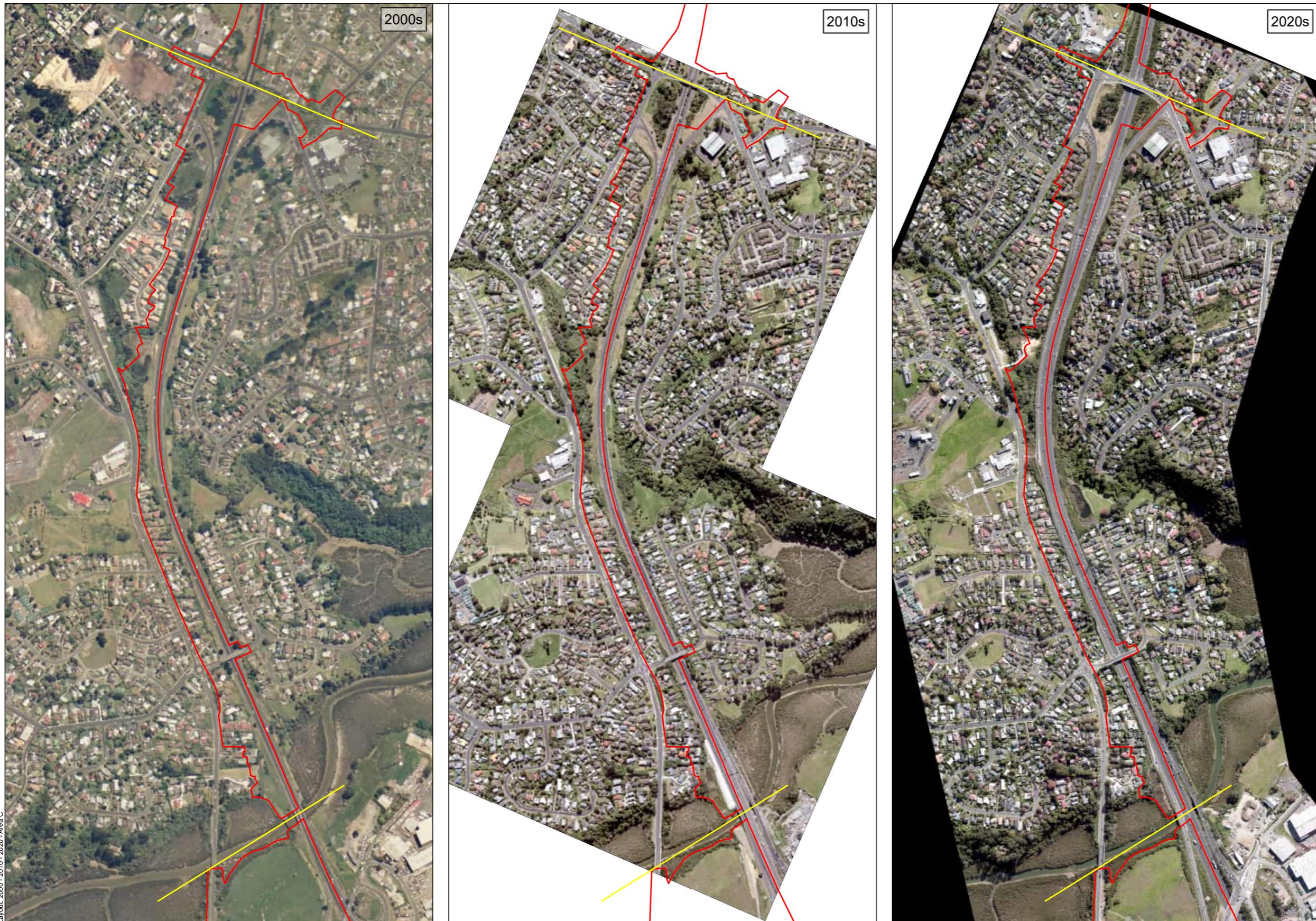


DESCRIPTION/ SOURCE:	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME/DRAWING TITLE:
HISTORICAL AERIAL PHOTOGRAPHS 1940 - 1950 - 1960 - AREA C	0 125 250 500 750 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:	Scale: 1:10,000		
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
		PRINT DATE: 12-Nov-25	DRAWING No: FIGURE B3



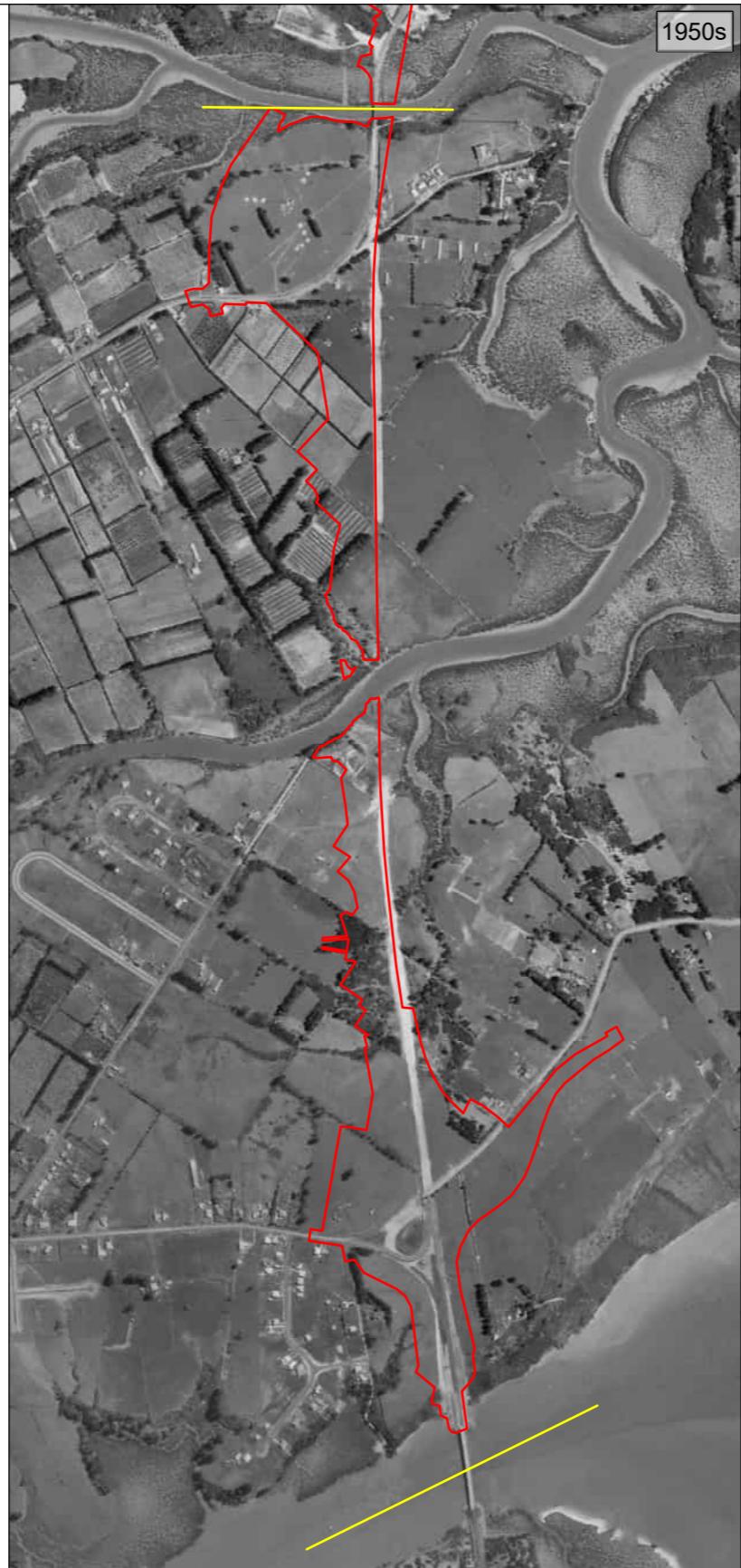
Legend	
Project Area Outline	
NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 1970 - 1980 - 1990 - AREA C	0 125 250 500 750 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:	Scale: 1:10,000		
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B3



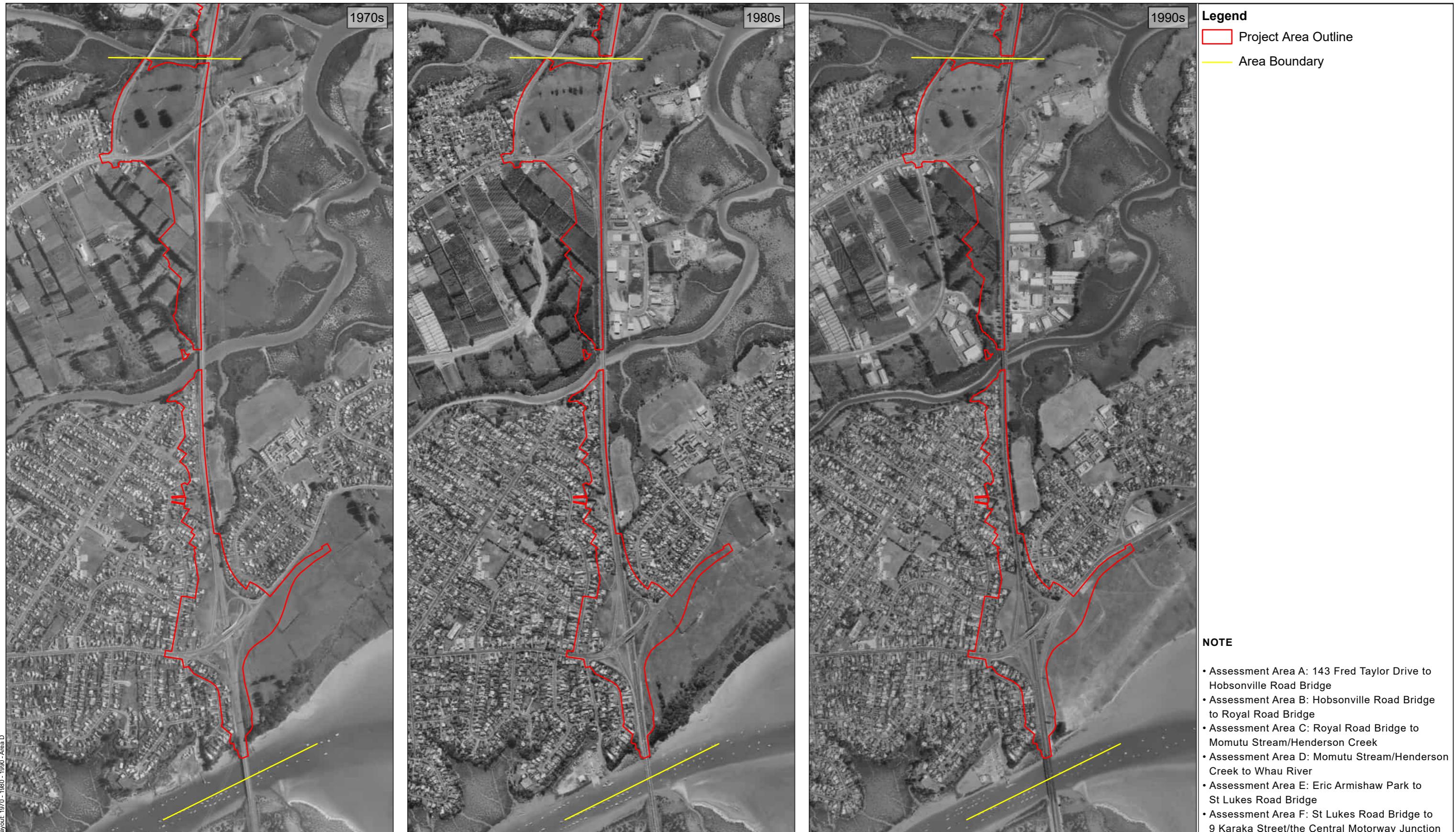
Legend	
<span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span>	Project Area Outline
<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span>	Area Boundary
<b>NOTE</b> <ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 2000 - 2010 - 2020 - AREA C	0 125 250 500 750 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:10,000	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B3



Legend	
<span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span>	Project Area Outline
<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span>	Area Boundary
NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 1940 - 1950 - 1960 - AREA D	0 125 250 500 750 1,000 1,250 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:15,000	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B4



DRAWING TITLE		SCALE:		CLIENT/NAME LOGO:		PROJECT NAME:			
HISTORICAL AERIAL PHOTOGRAPHS 1970 - 1980 - 1990 - AREA D		0 125 250 500 750 1,000 1,250 m		NZ TRANSPORT AGENCY WAKA KOTAH		NORTHWEST BUSWAY DETAILED BUSINESS CASE			
DESCRIPTION/ SOURCE:		 Scale: 1:15,000							
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PRINT DATE: 12-Nov-25	PROJECT No: 60721855	DRAWING No: FIGURE B4				



Legend	
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<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 1px;"></span>	Area Boundary
<b>NOTE</b>	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 2000 - 2010 - 2020 - AREA D	0 125 250 500 750 1,000 1,250 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:15,000	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B4



1940s



1950s



1960s

**Legend**

- Project Area Outline
- Area Boundary

**NOTE**

- Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge
- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek
- Assessment Area D: Momutu Stream/Henderson Creek to Whau River
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 1940 - 1950 - 1960 - AREA E	0 125 250 500 750 1,000 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:12,500	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B5



1970s



1980s



1990s

#### Legend

- Project Area Outline
- Area Boundary

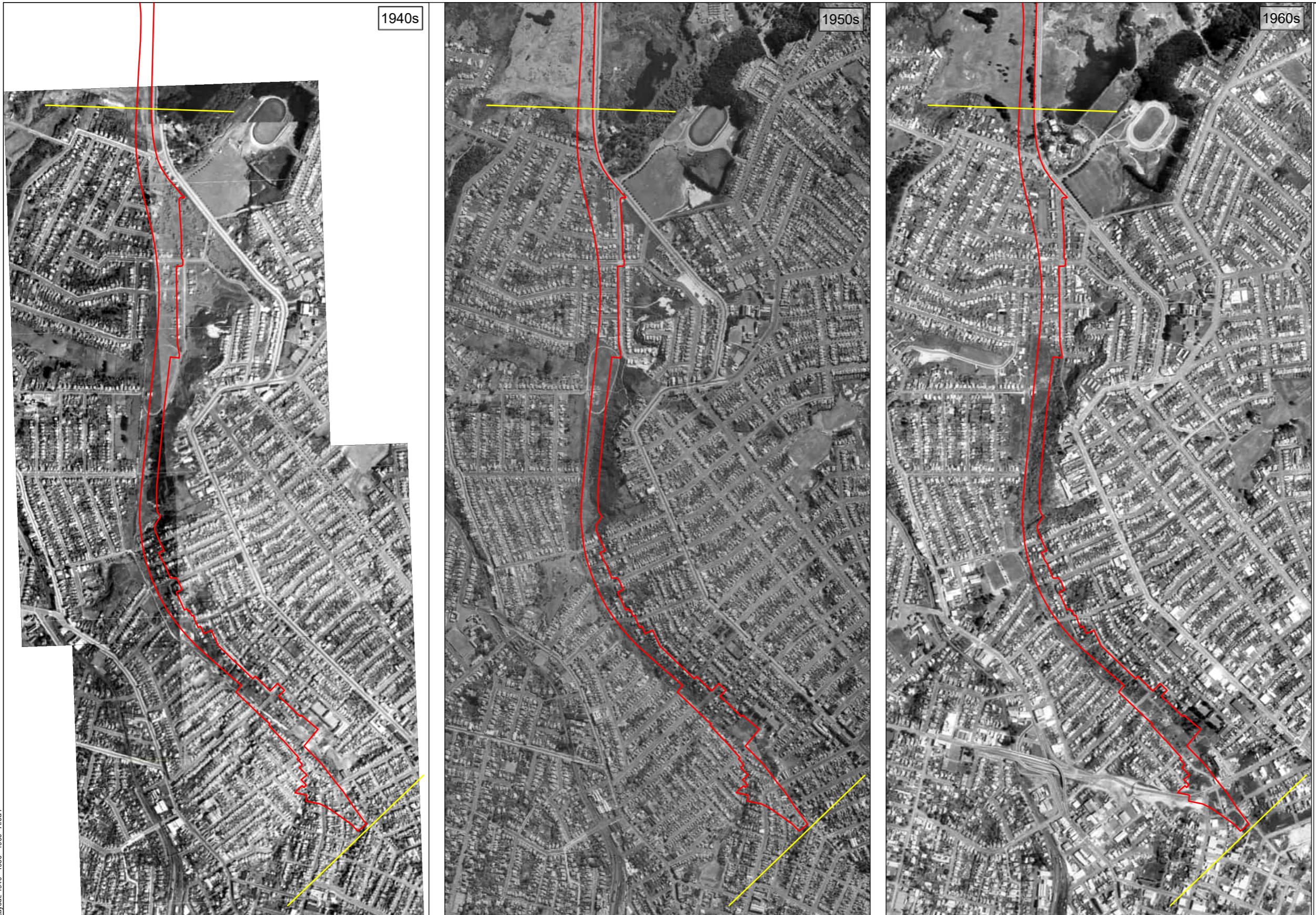
#### NOTE

- Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge
- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek
- Assessment Area D: Momutu Stream/Henderson Creek to Whau River
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction

DRAWING TITLE		SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 1970 - 1980 - 1990 - AREA E		0 125 250 500 750 1,000 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:12,500		
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PRINT DATE: 12-Nov-25	PROJECT No: 60721855
				DRAWING No: FIGURE B5

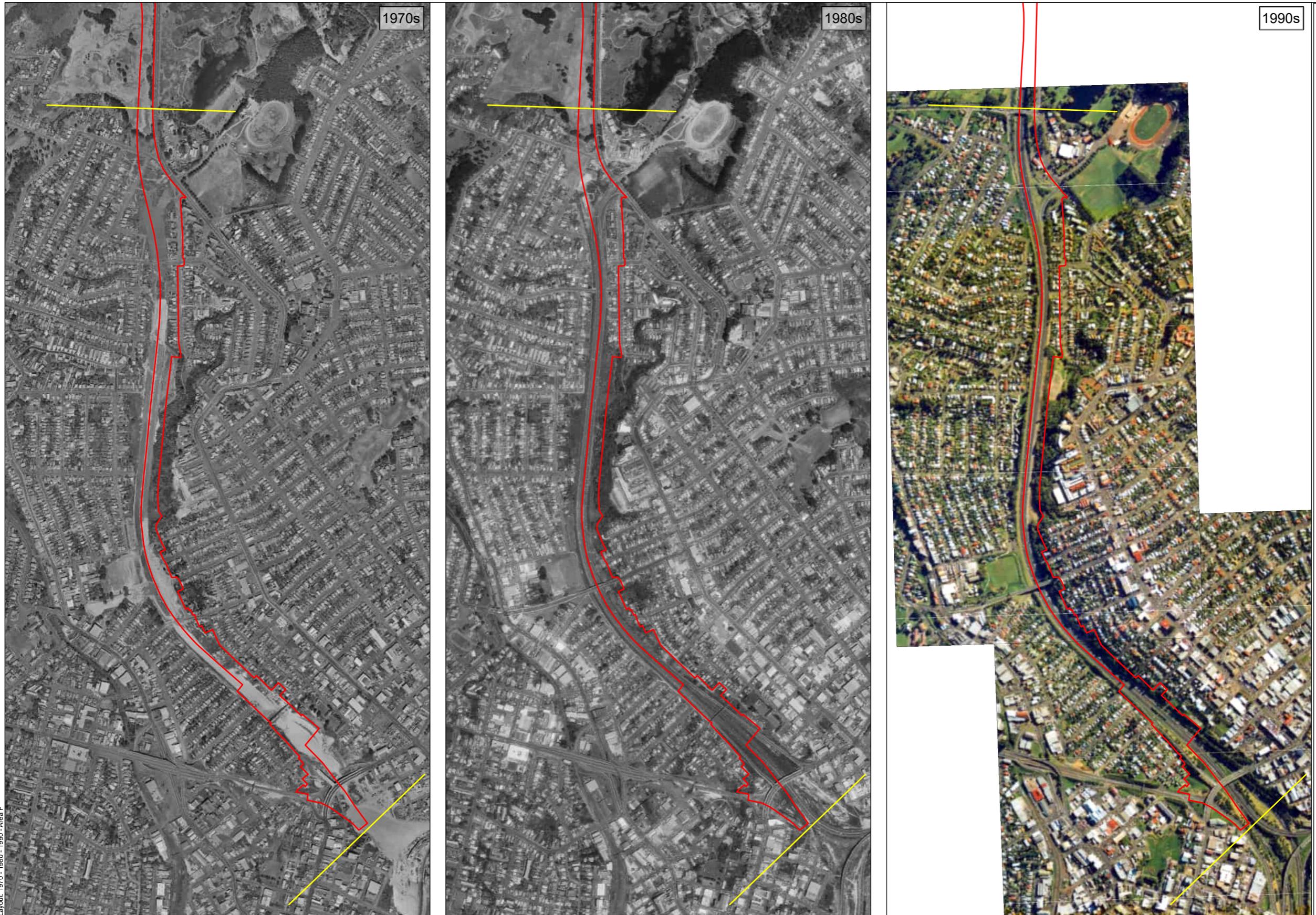


DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 2000 - 2010 - 2020 - AREA E	0 125 250 500 750 1,000 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:12,500	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B5



Legend	
<span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span>	Project Area Outline
<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span>	Area Boundary
NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 1940 - 1950 - 1960 - AREA F	0 125 250 500 750 1,000 1,250 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:15,000	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B6



Legend	
<span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span>	Project Area Outline
<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span>	Area Boundary
NOTE	
<ul style="list-style-type: none"> <li>Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge</li> <li>Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge</li> <li>Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek</li> <li>Assessment Area D: Momutu Stream/Henderson Creek to Whau River</li> <li>Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge</li> <li>Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction</li> </ul>	

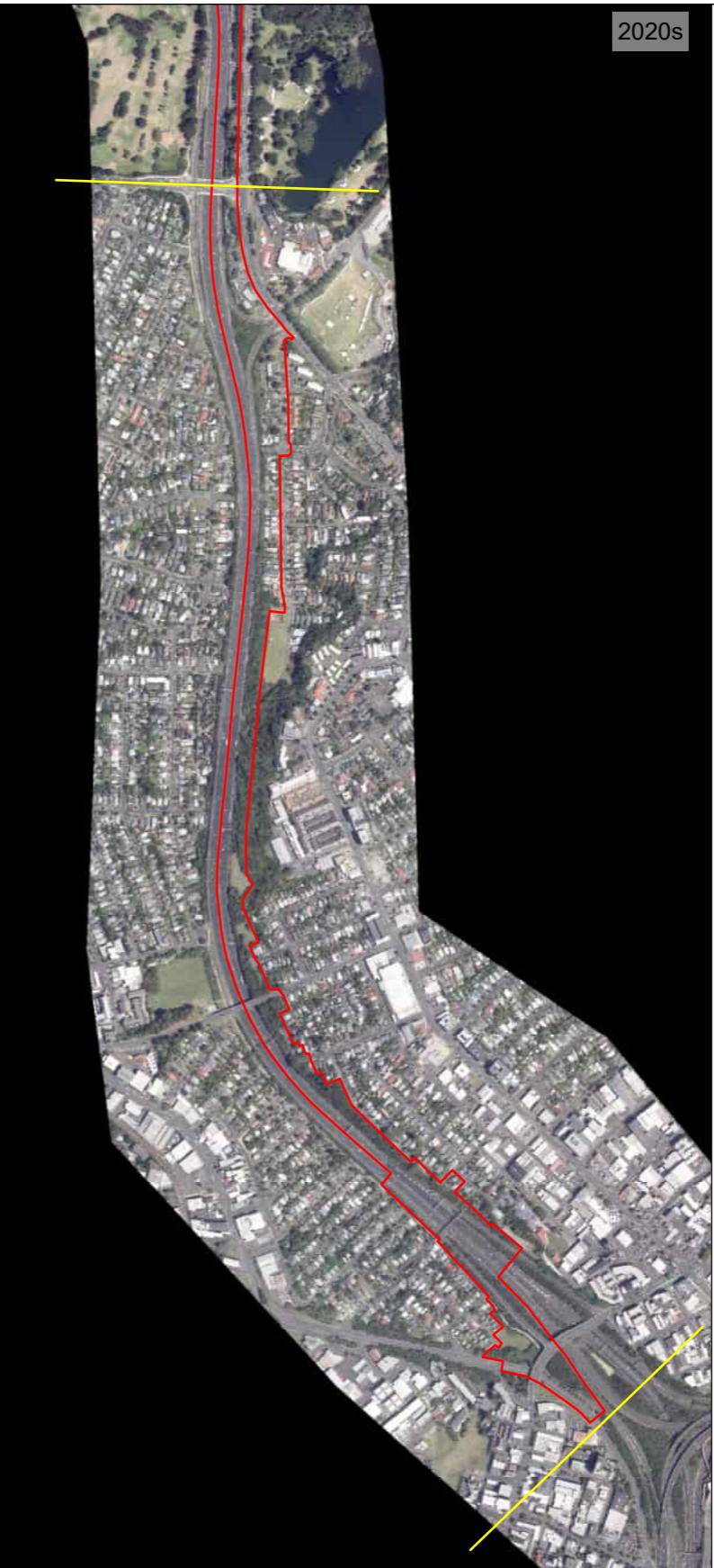
DRAWING TITLE		SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 1970 - 1980 - 1990 - AREA F		0 125 250 500 750 1,000 1,250 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:15,000		
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PRINT DATE: 12-Nov-25	PROJECT No: 60721855
				DRAWING No: FIGURE B6



2000s



2010s



2020s

#### Legend

- Project Area Outline
- Area Boundary

#### NOTE

- Assessment Area A: 143 Fred Taylor Drive to Hobsonville Road Bridge
- Assessment Area B: Hobsonville Road Bridge to Royal Road Bridge
- Assessment Area C: Royal Road Bridge to Momutu Stream/Henderson Creek
- Assessment Area D: Momutu Stream/Henderson Creek to Whau River
- Assessment Area E: Eric Armishaw Park to St Lukes Road Bridge
- Assessment Area F: St Lukes Road Bridge to 9 Karaka Street/the Central Motorway Junction

DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
HISTORICAL AERIAL PHOTOGRAPHS 2000 - 2010 - 2020 - AREA F	0 125 250 500 750 1,000 1,250 m		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:		Scale: 1:15,000	
DRAWN: BUJOR CORNELIU	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
			DRAWING No: FIGURE B6

## Appendix C. Site Contamination Enquiry

**Table C1: Relevant discharge consents**

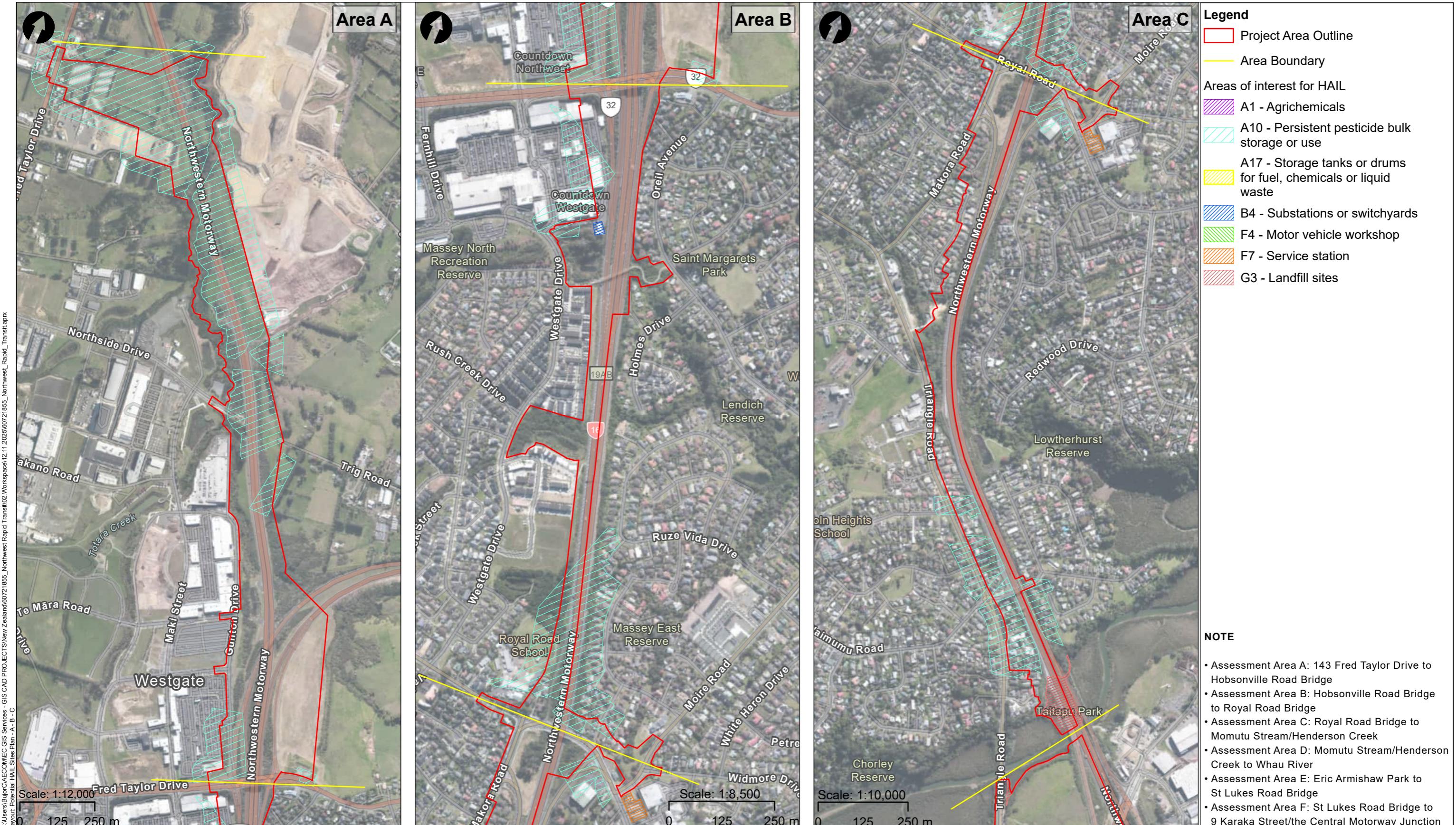
<b>Address</b>	<b>Consent subtype</b>	<b>Discharge consent description</b>
<b>Area A (including adjacent properties)</b>		
15-19 Spedding Road Whenuapai	Other	To authorise the discharge of contaminants to ground from the maintenance of specified unpainted, galvanized power transmission towers.
2 Gunton Drive Westgate	Contaminated Site	Consent is sought to undertake approximately 41.1 hectares of earthworks, reclamation/ filling in of W21 and W22 watercourse.
Gunton Drive Westgate (LINZ parcel IDs 7344595 and 8553179)	Landfill Discharge	Proposed Westgate Station to serve as an interchange bus station between local northwest bus services and bus services to Auckland City Centre.
<b>Area B (including adjacent properties)</b>		
Northwestern motorway road corridor	Contaminated Site	Discharge permit associated with Improvements to State Highway 16
1 Maki Street Massey	Stormwater	Construction, operation and maintenance or an electricity substation.
<b>Area C (including adjacent properties)</b>		
Northwestern motorway road corridor	Contaminated Site	Discharge permit associated with improvements to State Highway 16. To discharge contaminants to land and water from the earthworks associated with the widening of the road corridor and the construction of a new off-road cycle way at the site.
33 & 35 Kopi Place	Contaminated Site	The discharge of contaminants to land or water from disturbing soil under both ALWP and PAUP. Discharge of contaminants to land and water from disturbance of contaminated land.
<b>Area D (including adjacent properties)</b>		
322 Lincoln Road Henderson	Contaminated Site	Contaminated site discharge associated with widening and improving road between Lincoln Road Interchange and Triangle Road intersection (tie in works for the Lincoln Road Improvements Project).
329 Lincoln Road Henderson	Contaminated Site	To discharge contaminants to land or water from land undergoing disturbance, associated with the upgrade of the existing motorway. To undertake the discharge of contaminants to land or water from land undergoing disturbance at 165-183 Central Park Drive and 329 Lincoln Road Henderson.
Jack Colvin Park, 44 Titoki Street Te Atatu Peninsula	Not specified	To authorise the maintenance work, including disturbance to the foreshore and seabed, and discharge of contaminants to the coastal marine area for the purpose of the refurbishment of electricity transmission towers in the Auckland region.
28B Royal View Road Te Atatu South	Not specified	To discharge stormwater from 5.6 ha sub-station site.
Z Service Station, 402 Te Atatu Road Te Atatu Peninsula	Stormwater	To discharge stormwater from a service station.
<b>Area E (including adjacent properties)</b>		
Mobil Service Station, 1163-1171 Great North Road Point Chevalier	Contaminated Site	The discharge of contaminants from contaminated land into land (combined stormwater and wastewater network) during and following the replacement of the fuel storage system.
1150, 1158 & 1160 Great North Road & 8 Parr Road, Point Chevalier	Contaminated Site	Discharge of contaminants associated with a multi storey mixed use development with 178 apartments and 595m <sup>2</sup> retail space.
1136 Great North Road Point Chevalier	Contaminated Site	Discharge of contaminants to land for the redevelopment of a subject site with the construction of a mixed use development.
Z Service Station, 1125-1143 Great North Road & 8 Walmer Road, Point Chevalier	Contaminated Site	Potential to discharge SPH's during UPPS removal and replacement activities. Discharge of contaminants to land and water from the proposed removal and replacement of the underground fuel storage system.
Western Springs Gardens & Chamberlain Park, 49 Sutherland Road, 956 &	Contaminated Site	Discharge of contaminants to land and water from a Community Recycling Centre for Central Auckland.

Address	Consent subtype	Discharge consent description
990 Great North Road Point Chevalier		
Northwestern motorway road corridor, LINZ Parcel ID 7796264	Not specified	Discharge of contaminants to land and water from the importation of non- cleanfill topsoil.
<b>Area F (including adjacent properties)</b>		
Caltex Service Station, 778-802 Great North Road Grey Lynn	Stormwater	To divert and discharge stormwater from a new service station with stormwater from refuelling areas being discharged via a stormwater treatment device.

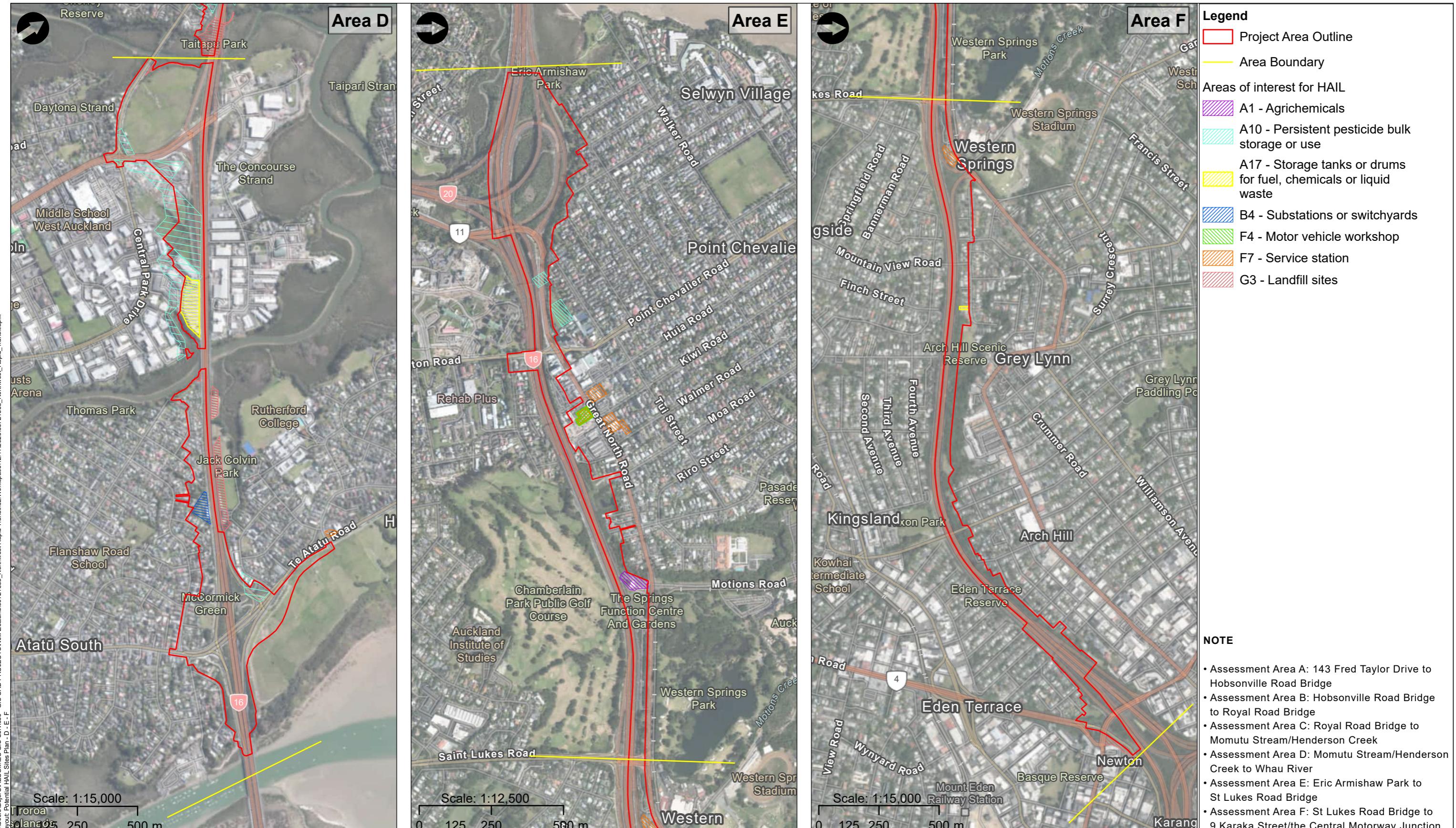
**Table C2: Relevant pollution incidents**

Address	Pollutant or activity	Volume of pollutant
<b>Area A (including adjacent properties)</b>		
74 Trig Road, Whenuapai	Clandestine laboratory	Unknown
<b>Area B (including adjacent properties)</b>		
Nothing relevant		
<b>Area C (including adjacent properties)</b>		
232 Triangle Road, Massey	Clandestine laboratory	Unknown
256 Triangle Road, Massey	Paint / dye / inks – water pollution	Unknown
<b>Area D (including adjacent properties)</b>		
7 Tony Street, Lincoln	Clandestine laboratory	Unknown
<b>Area E (including adjacent properties)</b>		
68 Smale Street, Point Chevalier	Sewage overflow (2x events)	First event >1000L Second event 200 – 1000L
Northwestern motorway (LINZ parcel ID 5076298)	Oil discharge to surface water	>1000L
8a Parr Road North, Point Chevalier	Clandestine laboratory	Unknown
<b>Area F (including adjacent properties)</b>		
8 Ivanhoe Road, Grey Lynn	Clandestine laboratory	Unknown
Northwestern motorway adjacent to Arch Hill Reserve (LINZ parcel ID 5198834)	Diesel spill	10 – 200L

## Appendix D. HAIL figures



DRAWING TITLE	SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
POTENTIAL HAIL SITES PLAN - A - B - C	SCALE ON IMAGES		
DESCRIPTION/ SOURCE:			
Esri Community Maps Contributors, LINZ, Stats NZ, Esri, TomTom, Garmin, METI/NASA, USGS, Eagle Technology, LINZ			NORTHWEST BUSWAY DETAILED BUSINESS CASE
DRAWN: SOVILGAU CAMELIA	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PROJECT No: 60721855
		PRINT DATE: 12-Nov-25	DRAWING No: FIGURE D1



DRAWING TITLE		SCALE:	CLIENT/NAME LOGO:	PROJECT NAME:
POTENTIAL HAIL SITES PLAN - D - E - F		SCALE ON IMAGES		NORTHWEST BUSWAY DETAILED BUSINESS CASE
DESCRIPTION/ SOURCE:  Esri Community Maps Contributors, LINZ, Stats NZ, Esri, TomTom, Garmin, METI/NASA, USGS, Eagle Technology, LINZ				
DRAWN: SOVILGAU CAMELIA	SIZE: A3	COORDINATE SYSTEM: NZGD 2000 New Zealand Transverse Mercator	PRINT DATE: 12-Nov-25	PROJECT No: 60721855

## Appendix E. HAIL information

**Table E1. HAIL Information and contaminants of potential concern (CoPC)**





Within or adjacent the Project Area	Property Address	HAIL Activity and Description	Contaminants of Potential Concern (CoPC)
Adjacent	1/370 Triangle Road Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	322 Lincoln Road Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	324 Lincoln Road Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	329 Lincoln Road Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	337 Lincoln Road Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	195 Central Park Drive Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	3 Tony Street Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	4 Tony Street Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	Tony Street Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	5 Tony Street Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	6 Tony Street Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Within	7 Tony Street Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds <b>A17:</b> Storage tanks or drums for fuel, chemicals or liquid waste	Heavy metals and OCP, ONOP pesticides, PAH, TPH
Adjacent	133 Central Park Drive Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	141-143 Central Park Drive Henderson	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	44 Titoki Street Te Atatu Peninsula	<b>G3:</b> Landfill sites	Heavy metals, PAH, and asbestos
Within	28A Royal View Road Te Atatu South	<b>B4:</b> Power stations, substations or switchyards	Heavy metals, boron, PCB, PAH, TPH and asbestos
Within	8 Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	10A Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	10B Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	10C Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	10D Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	10E Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	12A Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	12B Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	12C Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	18 Titoki Street Te Atatu Peninsula	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	402 Te Atatu Road Te Atatu Peninsula	<b>F7:</b> Service stations, including retail or commercial refuelling facilities	Heavy metals, PAH, TPH and BTEX
<b>Area E</b>			
Within	Road corridor – Great North Road	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	2 Montrose Street Point Chevalier	<b>A10:</b> Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Heavy metals, OCP and ONOP pesticides
Adjacent	1150 & 1158 Great North Road Point Chevalier	<b>F4:</b> Motor vehicle workshops <b>F7:</b> Service stations, including retail or commercial refuelling facilities	Heavy metals, PAH, TPH, BTEX, semi volatile organic compounds (SVOC) and volatile organic compounds (VOC).
Adjacent	1163-1171 Great North Road Point Chevalier	<b>F7:</b> Service stations, including retail or commercial refuelling facilities	Heavy metals, PAH, TPH and BTEX
Adjacent	1125-1143 Great North Road	<b>F7:</b> Service stations, including retail or commercial refuelling facilities	Heavy metals, PAH, TPH and BTEX
Within	46A Linwood Avenue Mount Albert	<b>A1:</b> Agrichemicals, including commercial premises used by spray contractors for filling, storing or washing out tanks for agrichemical application	Heavy metals, OCP, ONOP pesticides
<b>Area F</b>			
Within	778-802 Great North Road Grey Lynn	<b>F7:</b> Service stations, including retail or commercial refuelling facilities	Heavy metals, PAH, Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)
Within	83 Ivanhoe Road Grey Lynn	<b>A17:</b> Storage tanks or drums for fuel, chemicals or liquid waste	Heavy metals, OCP, ONOP pesticides, PAH, TPH and BTEX
Adjacent	22A Randolph Street Newton	<b>G3:</b> Landfill sites	Heavy metals, PAH, and asbestos