



*Auckland Transport*

**Newmarket Level  
Crossing  
Construction  
Environmental  
Management Plan**

DRAFT





*Auckland Transport*

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# Newmarket Level Crossing Construction Environmental Management Plan

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Status: Draft 1

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# Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Project Overview .....	1
1.2	Purpose of a CEMP .....	1
1.3	Statutory Basis for this Document .....	5
1.4	Mechanisms for Revision of this Document .....	5
<b>2</b>	<b>MANAGEMENT FRAMEWORK AND CONSULTATION .....</b>	<b>7</b>
2.1	Management Plans .....	7
<b>3</b>	<b>POTENTIAL EFFECTS AND MITIGATION MEASURES .....</b>	<b>9</b>
3.1	Light Nuisance .....	9
3.2	Stormwater .....	9
3.3	Demolition .....	9
3.4	Construction Noise .....	9
3.5	Spill Incidents and Emergency Management Procedures .....	10
3.6	Site Facilities & Waste Management .....	11
3.7	Complaints Management .....	11
<b>4</b>	<b>SITE MANAGEMENT .....</b>	<b>13</b>
4.1	Health and Safety .....	13
4.2	Environmental Training .....	14
4.3	Construction Site Management .....	15
4.4	Construction Schedule .....	15
4.5	Construction Work Areas .....	15
4.6	Signage and Fencing .....	18
4.7	Construction Traffic and Public Safety .....	18

# 1 INTRODUCTION

## 1.1 Project Overview

The Newmarket Level Crossing project ('the Project') consists of removal of the crossing at Sarawia Street and construction of a new road between Cowie Street and Newmarket Park, Laxon Terrace and Youngs Lane which will run parallel to the existing Newmarket Branch Line and enables access to Newmarket and Parnell and beyond. The new road will include a road bridge (spanning approximately 22 m) over the electrified rail line. KiwiRail access for maintenance purposes to the eastern end of the rail line and Parnell Tunnel will be via an access road (approximately 50 m in length) that is controlled by a security gate.

It is proposed to close and remove the crossing and turn Sarawia Street into a cul-de-sac. Access to the Newmarket Branch Line upmain line for rail maintenance purposes will be provided from Sarawia Street via a security gate, and to the downmain line from Laxon Terrace via the bridge from Cowie Street.

The proposed road (including the 22 m bridge span) will be approximately 260 m in length and a total of 7.4 m in width, consisting of two 2.7 m wide traffic lanes, two 0.3 m wide drainage channels, and a 1.8 m wide footpath on the eastern (Newmarket Park) side.

The bridge abutments will be concrete piles down to competent rock with wing walls at the abutments aligned with the direction of the road, where possible. Wing walls and abutment facing panels will consist of precast concrete panels cast off-site. The bridge superstructure will consist of eight 900 mm deep single-hollowcore precast concrete beams, with concrete edge barriers on each side of the roadway. Concrete pile retaining walls will be constructed where required along the eastern edge of the new roadway adjacent to Newmarket Park, with retained heights ranging from 1 m to 4 m.

The proposed road will be designed as a low speed environment, with traffic calming measures implemented at several locations including single-direction chicanes near 9 Cowie Street and near Laxon Terrace.

The existing pedestrian and cycling access from Newmarket Park to Laxon Terrace and Youngs Lane will be relocated further west along Laxon Terrace to connect to existing park paths as part of the Project, maintaining access into the Park. This will include relocation of the existing Pou and seating area currently found at the start of Laxon Terrace to the new pedestrian entrance into Newmarket Park.

Stormwater treatment measures include a vegetated swale adjacent to the KiwiRail access road located on the eastern side of the proposed road and tree pits located within the traffic calming chicane in the road corridor.

The proposal includes changes to an existing car parking layout at 9 Cowie Street and a viewing platform adjacent to the new KiwiRail access road to enhance integration with Newmarket Park.

## 1.2 Purpose of a CEMP

The purpose of this CEMP is to describe the environmental management and monitoring procedures to be implemented during the Project's construction phase to manage compliance with all of the

conditions of consent and designation. The CEMP provides a methodology and framework of management plans and protocols for implementing the environmental controls specified in relevant consent and designation conditions. The final CEMP submitted by the Contractor will outline all details required to enable Auckland Transport (AT) and the Contractor to construct the Project with the least adverse environmental effects.

The CEMP requires the adoption of good environmental management practices for the proposed activities and identifies the mechanisms to be utilised to avoid, remedy or mitigate potential adverse environmental effects.

Overall, the implementation of the CEMP will manage:

- Compliance with the conditions of resource consents and designations;
- Compliance with environmental legislation; and
- Environmental risks associated with the Project are properly managed.

The relevant conditions of the designation and the section where each of the conditions are addressed is set out in Table 1.

**Table 1: Relevant Designation Conditions**

Condition Number	Condition	Section where Condition is addressed
Condition 16	<b>Contractors' Environmental Management Plan ("CEMP")</b>	
	<i>Preparation compliance and monitoring</i>	
16.1	The objective of the CEMP and other management plans is, so far as is reasonably practicable, to avoid, remedy or mitigate any adverse effects associated with the project construction. All works are to be carried out in accordance with the CEMP and management plans required by these conditions and in accordance with any changes to any of these plans.	The objective of the CEMP is detailed in <b>Section 1.2.</b>
16.2	The CEMP and other management plans are to be prepared, complied with and monitored by the Requiring Authority throughout the duration of construction of the project.	The CEMP and Management Plans will be complied with during construction.
16.3	The management plans are to give effect to any specific requirements and objectives set out in these designation conditions.	The management plans that form part of the management framework give effect to the conditions of the designation
16.4	The CEMP is to include measures to give effect to any specific requirements and objectives set out in these	This CEMP details measures that give effect to the designation conditions that are not

Condition Number	Condition	Section where Condition is addressed
	designation conditions that are not addressed by the management plans.	addressed by the management plans.
16.5	Where mitigation measures are required to be implemented by the Requiring Authority in relation to construction of the project, it is to meet the actual and reasonable costs of implementing such mitigation measures.	The requiring authority will meet the actual and reasonable costs required to implement the mitigation measures detailed in this CEMP.
16.6	The CEMP shall be prepared in consultation with Cowie Street Residents Association Incorporated (or a representative), and must clearly document the comments and inputs received by the Requiring Authority from Cowie Street Residents Association Incorporated (or a representative) and articulate how those comments and inputs have informed the development of the CEMP and where it has not, reasons why it has not.	Refer to the Communication and Construction Plan.
Condition 17	<b>Contractors' Environmental Management Plan ("CEMP")</b>	
	<i>Information Requirements</i>	
17.1	To give effect to condition 16, the CEMP must include details of:	<b>Section 4.5</b>
	a) Information boards clearly identifying the Requiring Authority and the project name, together with the name, telephone number and email address of the site or project manager and the communication and consultation manager;	
	b) Training requirements for employees, sub-contractors and visitors on construction procedures, environmental management and monitoring;	<b>Section 3.1.3</b>
	c) The procedure for a cultural heritage induction for all parties involved in excavation works on the project site;	<b>Section 3.1.4</b>
	d) Training requirements for employees sub-contractors and visitors on the cultural history and significance of the area, construction procedures, environmental management and monitoring;	<b>Section 3.1.4</b>
	e) The site or project manager and the communication and consultation manager (who will implement and monitor the Communication and Consultation Plan), including their contact details (phone, email and physical address);	<b>Section 3.5</b>
	f) The document management system for administering the CEMP, including review and Requiring Authority /contractor / Auckland Council requirements;	<b>Section 1.4</b>

Condition Number	Condition	Section where Condition is addressed
Condition 17	g) Environmental incident and emergency management procedures (including spills);	<b>Section 2.5.1</b>
	h) Environmental complaint management procedures;	<b>Section 3.5</b>
	i) An outline of the construction programme of the works, including construction hours of operation, indicating linkages to the other management plans which address the management of adverse effects during construction;	<b>Section 3.4 &amp; Section 4.4</b>
	j) An outline of the location of the construction yard and how the construction yard is to be managed and maintained during the project including, but not limited to, how site offices and lower level noise construction activities will be located on the edge of the construction yards where practicable;	<b>Section 4.4</b>
	k) Specific details on demolition to be undertaken during the construction period;	<b>Section 3.3</b>
	l) How construction methods and processes will achieve waste minimisation and energy efficiency;	<b>Section 2.5.2</b>
	m) Methods to ensure the safety of the general public;	<b>Section 4.5 &amp; Section 4.6</b>
	n) Specific details on the environmental monitoring to be undertaken throughout construction, as required by these designation conditions;	Throughout this document.
	o) Methods to control the intensity, location and direction of artificial construction lighting to avoid light spill and glare onto sites adjacent to the construction areas;	<b>Section 2.2</b>
	p) Where access points are to be located and procedures for managing construction vehicle ingress and egress to construction support and storage areas;	<b>Section 4.4</b>
	q) Measures to ensure that all storage of materials and equipment associated with the construction works takes place within the boundaries of the designation;	<b>Section 4.4</b>
	r) Methods to ensure the prevention and mitigation of adverse effects associated with the storage, use, disposal, or transportation of hazardous substances;	<b>Section 2.5.1</b>
	s) Measures to ensure all temporary boundary / security fences associated with the construction of the project are maintained in good order with any graffiti to be removed as soon as possible;	<b>Section 4.5</b>

Condition Number	Condition	Section where Condition is addressed
Condition 17	t) How the construction areas are to be fenced and kept secure from the public and the location and specifications of any temporary acoustic fences and visual barriers;	<b>Section 4.5</b>
	u) The location of any temporary buildings (including workers' offices and portaloos) and vehicle parking (which should be located within the construction area and not on adjacent streets);	<b>Section 4.4</b>
	v) Measures adopted to ensure that any vehicles associated with construction of the project do not park on any adjacent streets.	<b>Section 4.6</b>
Condition 23	23.1 Any lighting used to illuminate carriageways is to be designed and located so that lighting levels comply with the Australia New Zealand Roadway Lighting Standard 1158, (series) - Lighting for Roads and Public Spaces.	<b>Section 2.2</b>
	23.2 Any lighting employed to illuminate carriageways is to be sited and designed to ensure that no more than 10 lux (vertical) of light is spilled during night time hours onto any residential building. This is to be measured at the windows of any habitable room in any such building.	<b>Section 2.2</b>

### 1.3 Statutory Basis for this Document

This document has been produced to outline the framework for how the Project will manage environmental effects during construction and give effect to the proposed conditions of resource consent and designations.

### 1.4 Mechanisms for Revision of this Document

This CEMP will be revised and finalised and upon commissioning of the construction contractor when greater detail of the construction methodology is known.

The CEMP and management plans will also be reviewed as a result of a material change to the project or to address unforeseen adverse effects arising from construction or unresolved complaints. Such a review may be initiated by either Auckland Council or Auckland Transport. The review is to take into consideration the following:

- a) Compliance with the designation conditions, the CEMP, management plans and material changes to these plans.
- b) Any changes to construction method.
- c) Key changes to roles and responsibilities for the project.

- 
- d) Changes in industry best practice standards.
  - e) Changes to legal or other requirements.
  - f) Results of monitoring and reporting procedures associated with the management of adverse effects during construction.
  - g) Any comments or recommendations received from Auckland Council regarding the CEMP and/or subsidiary management plans.
  - h) Any unresolved complaints and any response to the complaints and remedial action taken to address the complaint.

Any subsequent material change to the CEMP and/or individual management plans must be consistent with the purpose and objective of the relevant condition of designation, and any affected parties must be notified of any material change proposed to this CEMP or management plans. Any material change to this CEMP or management plans relating to an adverse effect are to be submitted for approval to Auckland Council's Compliance and Monitoring Office at least 10 working days prior to the proposed change taking effect.

Comments and feedback received from affected parties to proposed material changes to the CEMP or management plans will be documented in the Communication and Consultation Plan, including clear explanations of where any comments have not been addressed in the CEMP or management plan.

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## 2 MANAGEMENT FRAMEWORK AND CONSULTATION

### 2.1 Management Plans

Construction and operation of the Project will create changes to the existing environment. The associated effects to the existing environment have been assessed in the Assessment of Environmental Effects (AEE), particularly as they pertain to the following:

- Traffic,
- Landscape and visual amenity,
- Trees and arboriculture,
- Noise and vibration,
- Ecology,
- Archaeology,
- Stormwater, and
- Contamination.

It is considered that the measures for avoiding or mitigating adverse environmental effects can be implemented as set-out in this CEMP or in the relevant management plans as required by the conditions of designation and consent. In particular, reference shall be made to the following management plans:

- Communication and Consultation Plan,
- Construction Noise and Vibration Management Plan (CNVMP) for mitigation of noise and vibration effects to the receiving environment during construction of the Project,
- Construction Traffic Management Plan (CTMP) for mitigation of adverse traffic effects to the local road network during construction of the Project,
- Urban Design and Landscape Plan (UDLP) for mitigation of adverse visual amenity and landscape architecture effects during construction and operation of the Project,
- Historic Heritage Management Plan (HHMP) for the mitigation and management of effects on archaeological and heritage values (i.e. the scoria wall) during construction of the Project,
- Archaeological Management Plan (Arch MP) and Archaeological Authority prepared under the Heritage New Zealand Pouhere Taonga Act 2014 to manage effects to the pre-1900 railway tracks located within the construction area,
- Vegetation Management Plan (VMP) for mitigation of adverse effects to vegetation and trees during construction of the Project,

- Ecological Management Plan (EMP) for mitigation of effects to the surrounding flora and fauna, including herpetofauna, during construction of the Project, and
- Site Management Plan (SMP) for mitigation and management of contaminated materials during construction of the Project.

In addition to the above, this CEMP sets out performance objectives and mitigation measures pertaining to other potential environmental and social effects arising during construction and operation of the Project.

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## 3 POTENTIAL EFFECTS AND MITIGATION MEASURES

### 3.1 Light Nuisance

During construction, temporary lighting will be required in the main construction areas if any work is carried out during the hours of darkness. Spill lighting may cause a low to moderate nuisance to surrounding residents and glare from temporary light has the potential to cause a disabling effect to vehicles and/or passing trains. The contractor shall limit unnecessary light spill beyond the construction site boundary.

To manage the potential impacts of temporary lighting during construction, the contractor will use luminaires that do not produce environmental spill light in excess of Auckland Council regulations and the conditions of the designation. Monitoring of lighting during construction will take place every 2 months by the contractor or following a complaint from an adjacent resident.

Monitoring will include visual tests to check that luminaires have not been re-aimed inappropriately and to ensure that no more than 10 lux (vertical) of light can be measured at the window of any habitable room of a nearby dwelling (in accordance with Condition 23 of the designation).

### 3.2 Stormwater

The Project includes treatment measures for all stormwater captured on new impermeable surfaces, being the new carriageway and footpath, as well some of the stormwater captured on existing Cowie Street impermeable surfaces which is currently untreated. These devices, consisting of a vegetated swale and tree pits in the single-direction chicanes, mitigate the adverse operational effect of the Project pertaining to stormwater.

### 3.3 Demolition

Demolition activities are to take place at two locations, these are:

- Demolition of the northern portion of carpark at 9 Cowie Street to enable construction of the new road carriageway at this location. The existing carpark is a combination of at-grade pavement and a suspended slab which will require partial demolition.
- Removal of existing level crossing infrastructure and removal of adjacent existing pavement to enable closure of the level crossing, tie-in works at Laxon Terrace, and closure of Sarawia Street to be a cul-de-sac.”

### 3.4 Construction Noise

Methods to manage construction noise is detailed in the CNVMP which forms part of the environmental management framework.

As a minimum the Project will comply with the *New Zealand Standard 680:1999 Acoustic - Construction Noise*. This project will fall within the ‘long term duration’ (over 20 weeks) and as such the residential long term noise criteria applies. This criteria is detailed in Table 2 below, as measured at 1 metre from the façade of a building on any other site.

The Construction Contractor shall use best endeavours to conduct all construction activities in accordance with the criteria listed in Table 2. No night time works exceeding the below noise limits have been identified.

**Table 2: Maximum Construction Noise Criteria**

Day of the Week	Time Period	Noise Criteria (dB)	
		L <sub>Aeq</sub>	L <sub>Amax</sub>
Weekdays	0630-0730	55	75
	0730-1800	70	85
	1800-2000	65	80
	2000-0630	45	75
Saturdays	0630-0730	45	75
	0730-1800	70	85
	1800-2000	45	75
	2000-0630	45	75
Sundays and public holidays	0630-0730	45	75
	0730-1800	55	85
	1800-2000	45	75
	2000-0630	45	75

### 3.5 Spill Incidents and Emergency Management Procedures

The construction process will involve the use of fuels and other contaminating materials. For example the sealing of the road surface has the potential to release emulsions, other bituminous compounds, and particularly semi-volatile organic compounds such as diesel and kerosene.

All fuels and hazardous substances to be stored and used onsite, will be appropriately contained and/or stored on non-pervious bunded areas (where appropriate) in accordance with Safety Data Sheet relevant to that substance.

The contractor shall comply with the following:

- Any road surfacing materials stores on site shall comply with the other site restrictions,
- The mixing and testing of batches and tank cleaning is not to occur on site. Any wastes shall be appropriately contained and disposed of off-site,
- Any contaminated materials shall be cleaned up immediately. Removed from site and appropriately disposed,

- A spill contaminant kit shall be carried at all times. The kit is to contain as a minimum sawdust, gloves, a spare absorbent broom, and a container for the disposal of contaminated equipment and soils (large spills will require appropriate arrangements to be made for removal and disposal), and
- Detergents shall not be used to disperse spills of hydrocarbons.

### 3.6 Site Facilities & Waste Management

Site facilities such as 'smoko sheds', ablution blocks (toilets etc.) and on site offices act as the control centre for each area of the Project. These areas have the potential to generate heavy levels of non-construction related traffic movements, dust and litter which may result in adverse environmental effects. The control site facilities are required only for the construction phase and will be the responsibility of the contractor.

Site facilities shall be used and managed in line with the CEMP which shall include the following:

- Covered rubbish bins are to be provided and the refuse regularly (and as required) and appropriately disposed of off-site to ensure that wastes do not overtop the bins;
- Waste bins for the collection on non-construction related wastes shall be covered to minimize wind-blown debris;
- Bins for the collection of cans, glass and plastic are to be provided for recycling and shall be located next to any site amenities;
- Sanitary waste will be collected and disposed of off-site in an appropriate manner. If retention tanks are to be used, these shall be cleaned out regularly to prevent overflows. Portable units shall be protected from traffic movements and will not be located over cesspits; and
- Site facilities shall not be located within the drip line of significant or scheduled trees.

### 3.7 Complaints Management

Auckland Transport is committed to managing all complaints in an accountable, transparent, timely and meaningful way.

All residents located in vicinity of the construction works, including those that reside on Cowie Street, will be provided a contact number of personnel where they can voice concerns or complaints. In addition, this contact number will also be included on information boards that will be permanently located on the boundary of the construction site.

The details of such complaints will be recorded on a complaints register and will be addressed in a timely manner by site personnel and Auckland Transport representatives. All complaints will be investigated and where appropriate will trigger monitoring to establish the root cause of the complaint. The Construction Contractor and Auckland Transport will use best endeavours to rectify the issues that led to the complaint.

The results of the complaints investigation will be communicated to the person that issued the complaint and a follow up communication with that person will be made by the appropriate Auckland Transport representative.

[Hold Point– details of contact number where complaints are to be directed]

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## 4 SITE MANAGEMENT

### 4.1 Health and Safety

#### 4.1.1 General

The Contractor will be required to conduct their work in a safe manner conforming with the requirements of the following:

- their company's occupational health and safety management system,
- the New Zealand Health and Safety at Work Act 2015, and
- KiwiRail's health and safety practices for working around the rail corridor.

#### 4.1.2 Planning

The Contractor will develop a site-specific Health and Safety plan (H&S Plan) prior to commencement of construction activities on site. The H&S Plan shall include the following:

- Job safety analysis for all tasks.
- Minimum health and safety training requirements for all parties.
- Emergency contact details including a map of the route to the nearest hospital.
- Muster points and emergency evacuation procedures.
- Safety Data Sheets for all contaminants of concern identified for the Site.
- Other requirements necessary to complete the project safely and to achieve compliance with relevant safety rules and regulations.

#### 4.1.3 Inductions

All personnel required to work on the site must complete a project safety induction and site specific inductions prior to commencing work on the site.

The provisions of the CEMP shall be outlined to all parties, including sub-contractors, during the site health and safety induction and acknowledged formally as part of this project (i.e., signed project induction register).

All personnel on site shall be inducted in the following subject matters:

- Site health and safety plan including safe work method statements.
- Daily toolbox meeting requirements.
- Identification of all hazards on-site, including roles and procedures relating to the Site Hazard Board.

- Emergency response procedures.

#### **4.1.4 Personal Protective Equipment**

The Contractor will ensure that the following personal protective equipment (PPE) is available for use as appropriate:

- Nitrile gloves / leather gloves.
- Safety boots (steel capped with non-slip durable soles).
- Safety glasses.
- Hard hat.
- Long sleeved shirts and long pants or coverall clothing.

The Contractor will also ensure that KiwiRail requirements for PPE are adhered to for those working within the vicinity of the rail corridor.

## **4.2 Environmental Training**

A programme for the education and management (with respect to the environment) of employees and subcontractors shall be implemented to ensure that all personnel are briefed on environmental issues and methods of mitigation prior to commencing work. Suitable induction training and ongoing programmes of environmental training shall, as a minimum, include:

- The significant environmental impact, actual or potential, of construction work and the importance of mitigation.
- Importance and relevance of management plans.
- Roles and responsibilities in relation to compliance with consents, permits and project procedures.
- Spill response and emergency procedures.
- Accident, incident, spill reporting and methods for environmental prevention.
- Personnel involved in excavation activities are made aware of the requirements and construction restrictions (including no-go areas) as detailed in the HHMP and the Archaeological Management Plan.
- All personnel to be trained in the Accidental Discovery Protocol as detailed in the HHMP.

### 4.3 Construction Site Management

Construction site management shall be in accordance with the CEMP and shall be the overall responsibility of the Construction Team. Further to the CEMP and in order to ensure the safe operation of the construction site additional measures such as those below shall be implemented:

- The site shall be maintained in a tidy condition at all times.
- Workers conveniences (e.g. portaloos) shall be appropriately located.
- Maintenance of surrounding public roads / places from construction activities.
- Adequate and safe pedestrian access provided past works site.
- Appropriate operating hours that avoid nuisance effect to public in accordance with the CNVMP.
- Control of vehicle speed and size around site.
- Contact details of Site Manager are adequately displayed.

### 4.4 Construction Schedule

It is currently proposed that construction will commence in October 2017 and will continue for approximately 6 months. The start date and duration of construction will be confirmed after the construction contractor has become involved in the Project. Once confirmed, the construction programme will be communicated to interested parties, including nearby residents (e.g. Cowie Street residents).

It is proposed that construction hours will be restricted to ensure that works meet the noise criteria detailed in Table 2.

[Hold Point – Confirmation of construction schedule and construction hours]

### 4.5 Construction Work Areas

Construction works will be restricted to the temporary designation area.

The construction yard will be designed to ensure that low level noise construction activities, such as site offices, are located on the perimeter of the site where practicable to minimise noise effects to the local activity.

The indicative layout of the construction yard, and a diagram showing construction traffic access points, are illustrated in Figure 1 and Figure 2 respectively.

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**Figure 1 – Indicative Construction Yard**

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**Figure 2 – Construction Traffic Access and Exit Points**

## 4.6 Signage and Fencing

Security fencing will be located around the perimeter of the work site and signage restricting access to the site. An information board containing details of the Project, the Requiring Authority and the contact details of personnel where complaints can be directed will be fixed to the fencing at publicly-accessible locations.

[Hold Point – Fencing specifications to be confirmed post tender award]

Any graffiti or other damage which occurs to the perimeter fencing will be removed as soon as practicable.

## 4.7 Construction Traffic and Public Safety

Traffic signage and signallers will be utilised during construction to manage construction traffic and ensure public safety.

Adequate parking is provided on onsite and buses/carpooling will be arranged to avoid construction employees parking their vehicles on nearby streets. Construction staff are not to park their cars on adjoining streets.

Further detail related to construction traffic and public safety is set out in the Construction Traffic Management Plan that forms part of the construction environmental management framework.

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300 mm  
200  
100  
50  
10 mm  
0

Yard area for southern link road works, Laxon Terrace tie-in works, and Newmarket Park tie-in works.

Yard area for construction of Cowie Street tie-in works.

Yard area for construction of western bridge abutment and approach.

Primary yard and storage area for bridge and link road construction.

PRELIMINARY

1:500 @ A1  
1:1000 @ A3  
0 5 10 15 20 25 30 35 40 45 50 m

Original Sheet Size A1 [841x594]

Revision	Amendment	Approved	Revision Date
A	ISSUED FOR INFORMATION		

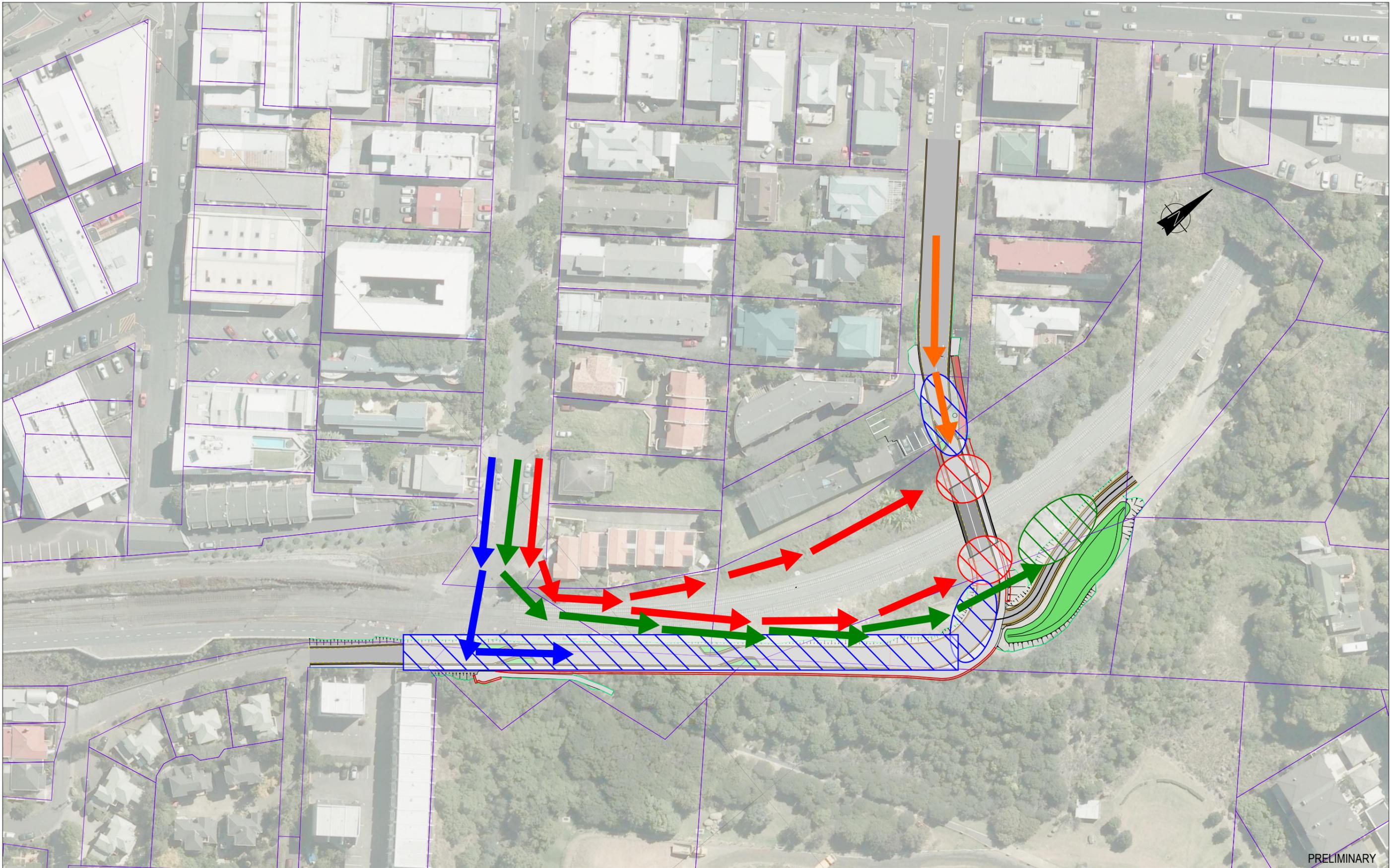


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Designed	Approved	Approved Date
	M.A.	
Drawn	Scales	
	1:500 (A1); 1:1000 (A3)	

Project	
AUCKLAND TRANSPORT NEWMARKET LEVEL CROSSING COWIE STREET TO LAXON TERRACE	
Sheet	
CONSTRUCTION YARD AREAS (SUGGESTED)	
Project No.	Sheet No. / Revision
1-C1135.00	SK- C01 / B



PRELIMINARY

-  Bored piling and earthworks/consolidation - hydraulic rotary drill rigs and rollers
-  Crane placement
-  Road paving works
-  Access for western bridge abutment earthworks & Cowie St tie-works

Revision	Amendment	Approved	Revision Date
A	ISSUED FOR INFORMATION		



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Project		AUCKLAND TRANSPORT NEWMARKET LEVEL CROSSING COWIE STREET TO LAXON TERRACE	
Designed		Approved	
M.A.		M.A.	
Drawn		Approved Date	
Scales		Project No.	
1:500 (A1) ; 1:1000 (A3)		1-C1135.00	
Sheet No.	Revision		
SK- C02	B		

1:500 @ A1  
1:1000 @ A3  
0 5 10 15 20 25 30 35 40 45 50 m