

Ōhaupō Road / SH3 East-West Arterial Intersection
Stage 1
18532: “Construction Management Plans”
or
“Omnibus Management Plan”
(OMP)
for Certification

Hamilton City Council (HCC)

APRIL 2020



Table of Contents

Executive Summary	3
1.0 Construction Management Plan (CMP)	5
2.0 Construction Noise and Vibration Management Plan (CNVP)	20
3.0 Construction Traffic Management Plan (CTMP)	33
4.0 Construction Communication and Consultation Plan (CCCP)	36
5.0 Dust Management Plan (DMP)	56
6.0 Contaminated Soils Management Plan (CSMP)	60
7.0 Hazardous Substances Management Plan (HSMP)	65

Note: The CSMP designation condition has been deleted. A separate NES consent has been secured. CSMP has been deleted from this document

Attachment A to Part 1.0 – Peacocke East-West Minor Arterial Intersection: Project Area Map

Attachment B to Part 1.0 – Erosion and Sediment Control (ESCMP)

Attachment C to Part 1.0 – DoC Wildlife Act Permit

Attachment A to Part 2.0 – Construction Noise and Vibration Management Plan (CNVMP) and Monitoring Report (31 March 2020)

Attachment A to Part 3.0 – Construction Traffic Management Plan (CTMP)

Attachment A to Part 6.0 – NES Contaminated Soils (NESCS)

Attachment B to Part 6.0 – Remediation Action Plan (RAP)

Schedule A to Part 1.0 – Contractor’s Site Induction / Training Plan (SITP)

Schedule B to Part 1.0 – Contractor’s Flocculation Management Plan (FMP)

Schedule A to Part 7.0 – Contractor’s Emergency Response Protocol (ERP)

Executive Summary

This OMP was prepared with reference to the 2 May 2019 designation decision and Contract 18532 ‘Peacocke SH2 / Ōhaupō Road Roundabout’, State Highway 3 / Ōhaupō Road, Hamilton. The contract for the Peacocke SH3 / Ōhaupō Rd Roundabout involves the construction of a dual circulating lane roundabout to form a new intersection on Ōhaupō Road (SH3) with the Peacocke East-West Minor Arterial, approximately 100m south of the existing Dixon Road intersection. The new intersection will enable and accommodate growth in the Peacocke area and realises the HCC designation through the Northview property. The Peacocke East-West Minor Arterial is split into two stages; western portion (intersection and connection to the Northview property) and eastern portion (road). The stage one project area (western portion) is shown in Attachment A to Part 1.

Utility upgrades or “enabling works” were programmed prior to the construction of the Peacocke East-West Minor Arterial Intersection. This OMP does not relate to the enabling works, associated structures or resource consents required for activities that are outside of the Peacocke East-West Minor Arterial Intersection project area.

The projected start and finish dates for construction are January 2020 and August 2020 (approximately 30 weeks to complete)¹. The short period between contract award (early December) and site establishment (early January) presented resource and availability considerations, particularly with respect of specialist sub-contractor engagements. Key dependencies to the contract (plant and resource availability) could not be established prior to the contract award to fully inform an operational OMP. In anticipation of these factors and in order to meet designation conditions, a “Provisional OMP” was prepared and submitted to the HCC. It was approved on the 14th October 2019. The works programme and operational detail was subsequently confirmed by the appointed contractor (Schick Civil Construction Ltd). The current document is an updated version of the Provisional OMP and is now submitted to the HCC for final certification.

Conditions apply to the designation decision outlined in the “Notice of Requirement in Hamilton City HCC168A (amended as of 2 May 2019)”. This conditions document is referred to as “the decision” for the purpose of the OMP. The following Management Plans were required by the decision condition 2.2:

- a) Pre-Construction Communication and Consultation Plan;
- b) Construction Management Plan;**
- c) Construction Noise and Vibration Management Plan;**
- d) Construction Traffic Management Plan;**
- e) Construction Communication and Consultation Plan;**
- f) Concept Landscape Management Plan;
- g) Landscape Management Plan;
- h) Heritage and Archaeological Site Management Plan;
- i) Dust Management Plan;**

¹ This time frame is now indicative only and does not account for COVID-19 delays.

- j) **Contaminated Soil Management Plan;**
- k) **Hazardous Substances Management Plan;**
- l) Transport Network Management Plan;
- m) Environmental Monitoring and Management Plan; and
- n) Conservation Plan*.

Shadowed text indicates that Management Plans have either been certified by HCC and are publicly available or are not required* for this contract.

Current information on Southern Links, the decision and key documents including certified plans can be accessed via <https://www.hamilton.govt.nz/our-city/regional-alliances/southernlinks/Pages/default.aspx>

The remaining seven Management Plans identified in bold text above comprise a separate “Part” of this OMP. Approaching the Management Plans in this way is efficient, assists with contract administration, regulatory certification and satisfies conditions of the designation. It further reduces the risk of contradiction, omission or duplication over separate plans submitted at different times. This is particularly pertinent with designation conditions that overlap each other, and that cover operational matters typically addressed by contract document templates.

Conditions relevant to each Part are referenced (summarised) at the front end of the Part in the “assessment table”. The “assessment table” provides HCC’s regulatory compliance team an efficient orientation point to assess compliance with designation conditions. Individual plans can be extracted from the OMP to meet individual requirements or for monitoring agency purposes. If extracted, the Executive Summary and OMP Contents pages should be combined with any referenced Attachment or Schedule to that Part, to fully inform the reader. “Attachments” provide a priority tier of information. “Schedules” provide information to assist Territorial Authorities with overlapping consent processes.

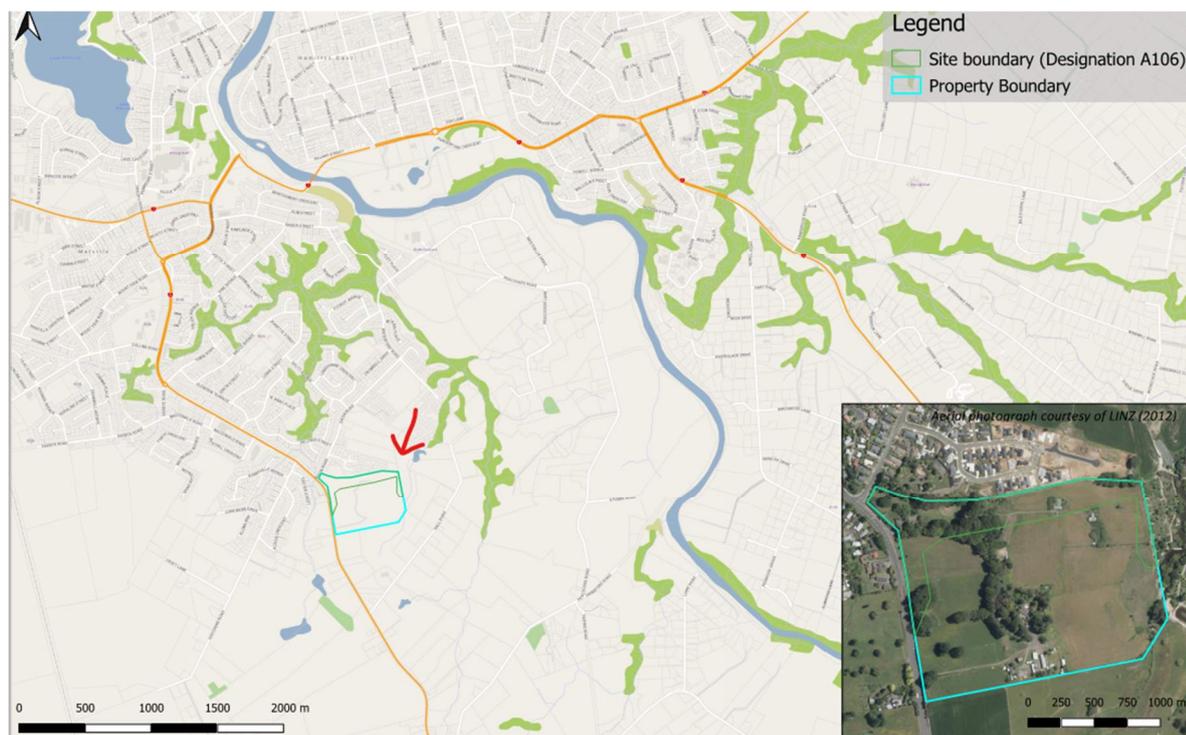


Figure A – Construction Site Location Map and Designation area within the legal property boundary

1.0 Construction Management Plan (CMP)

Date Prepared	Prepared by	Reviewed by	Approved by	Status
23/09/2019	Demelza Murphy	Grant Eccles	Sam Le Heron and Peter Kirk (HCC)	Provisional
13/01/2020	Jolene Innes	Matt Nugent		Final

Assessment

An assessment of how the project meets the requirements of Southern Links designation Condition 9.0 is summarised in Table 1.0 below. Where “sections” are referenced in the assessment column below, this refers to sections in the CMP.

Condition	Description	Assessment
9.1	No later than 40 working days prior to the commencement of construction works, the RA shall submit for certification a CMP prepared by a suitably qualified and experienced person. The objective of the CMP is to avoid, remedy or mitigate any adverse effects of construction through methods identified in the CMP.	The Draft CMP was prepared with reference to industry standard contract management and best practice documents, accepted by the HCC for similar, recently awarded construction projects. The Contractor is deemed a SQEP for the purpose of the condition and will update these sections operationally specific information may vary according to the contract award.
9.2	The CMP shall have regard to and where appropriate implement any relevant actions identified in the minutes arising from the CLG meetings (conditions 3.3 and 3.14).	Part 1.1.2 of the CMP speaks to the CLG and provides a regular holding place for any issues to be addressed as they arise and the CMP to be reviewed. Issues flagged at CLG meetings will be compiled by Nathanael Savage (HCC’s Communication, Consultation and Property Liaison Manager) who is responsible for coordinating the group. The contractor is then responsible for implementing any relevant actions identified by the CLG. These ‘actions’ are best housed in the same Management Plan – for this reason, they are held in Part 1.1.2 of the overarching CMP. Note: Conditions 8.7 and 12.4 also have requirements relating to the CLG.
9.3	The CMP shall include specific details relating to the construction and management of all works associated with the project, including the following:	
a)	Details of the site or project manager, including their contact details, phone, fax, post, email.	This is addressed in Part 1.1 of the CMP.
b)	Details of the person required by Condition 8.1 (24hr contact), including name, phone, email, post.	This is addressed in Part 1.1 of the CMP.

Condition	Description	Assessment
c)	The location of large notice boards that clearly identify the name, phone, address for service of the site or project manager and the contact person required by conditions 3.1 and 8.1 (Communication, Consultation and Property Liaison Manager).	This is addressed in Part 1.2.1 of the CMP.
d)	Training requirements for employees, subcontractors and visitors on construction procedures, environmental management and monitoring;	This is addressed in Part 1.4 of the CMP.
e)	An outline construction programme of the works indicating construction hours, likely time periods for partial or complete road closures, and anticipated traffic diversion effects;	This is addressed in Part 1.3 of the CMP.
f)	Environmental incident and emergency management procedures;	This is addressed in Part 1.5 of the CMP and 7.5 of the HSMP.
g)	Measures to be adopted to maintain the land affected by the works in a tidy condition in terms of disposal/ storage of rubbish, storage and unloading of building materials and similar construction activities;	This is addressed in Part 1.2.2, 1.3.1 and 1.5.10 of the CMP.
h)	Location of workers' offices, conveniences (e.g. portaloos) and vehicle parking;	This is addressed in Part 1.3 and spatially displayed in the Contractor's Construction Site Map Figure 1.4.
i)	Procedures for controlling sediment runoff, dust and the removal of soil, debris and demolition and construction materials from public roads or places, including wheel wash for construction vehicles. Dust mitigation measures should include use of water sprays to control dust nuisance on dry or windy days;	This is addressed in Part 1.3 of the CMP, Part 5.0 of the DMP, Part 6.0 of the CSMP, Waikato Regional Council resource consent (earthworks) AUTH140965.01.01 and Hamilton City Council resource consent (NESCS) 010.2019.00010647.001.
j)	Methods for earthworks management for earthworks adjacent to buildings and structures, including temporary and permanent stabilisation measures and monitoring of ground movement;	The Contractor is to outline methods in accordance with AUTH140965.01.01 condition requirements, building survey of properties highlighted in the CNVMP and industry best practice.
k)	Procedures for ensuring that residents in the immediate vicinity of construction areas are given prior notice of the commencement of construction works and are informed about the expected duration of the works;	This is addressed in Part 4.0 of the CCCP.
l)	Procedures to be followed to ensure that iwi representatives are notified of the proposed commencement of construction works and the discovery of any koiwi or other artefacts;	This is addressed in Part 1.1, 1.4.2 and 1.5.1 of the CMP and has been detailed in the HASMP prepared by Sian Keith, previously certified by the HCC.
m)	Procedures to be followed in the event that any historic artefacts are disturbed, being in accordance with any Authority obtained under the Heritage New Zealand Pouhere Taonga Act 2014;	The process is detailed in the HASMP prepared by Sian Keith, previously certified by the HCC as available via https://www.hamilton.govt.nz/our-city/regional-alliances/southernlinks/Pages/default.aspx .
n)	Means of ensuring the safety of the general public; and	This is addressed via Part 1.2.2 of the CMP.

Condition	Description	Assessment
o)	Procedures for receiving and responding to complaints.	The process for receiving and responding to complaints is outlined in Condition 10.

Table 1.0: Assessment of Condition 9.0

The objective of this CMP is to avoid, remedy or mitigate any adverse effects of construction through methods identified in the CMP.

1.1 Primary Contacts

Contractor	Phone	Postal Address	Email
Schick Civil Construction Ltd	07 849 3111	PO Box 20463 Te Rapa Hamilton	accounts@schick.co.nz
Contractor's Site Manager	Phone	Postal Address	Email
Matt Nugent (MN)	021 075 5920	As above	matt.nugent@schick.co.nz
HCC Project Manager	Phone	Postal Address	Email
Nathanael Savage (NS)	07 838 6527	Private Bag 3010 Hamilton 3240	nathanael.savage@hcc.govt.nz
Engineer	Phone	Postal Address	Email
Alasdair Gray (AG)	027 249 7648	As above	Alasdair.gray@graymatter.co.nz
HCC Regulatory Compliance	Phone	Postal Address	Email
Peter Kirk (PK)	021 823 112	As above	Peter.kirk@hcc.govt.nz
HCC 24hr Contact	Phone	Postal Address	Email
Hamilton City Council 24hr Call Centre	07 838 6699	As above	info@hcc.govt.nz

Table 1.1.1: Primary Contact List

The contractor's site manager is responsible for implementation of the CMP and CCCP, and is to report back to the HCC Project Manager on a monthly basis.

A 24-hour contact point will be conveyed using large signage boards, noted in Section 1.3 below.

Any electronic or during business hours complaints will be directed to the Site Office and Site Contractor, after hours complaints will be directed to the Council's 24hr customer service line. The 24hr point of contact is the Hamilton City Council customer service line 07 838 6699, which is manned 24hrs each day. The customer services representative will direct a customer's call in the following ways:

Alert Level	Primary Contact	Secondary Contact	Contact Method
Emergency	Site Contractor (or nominee) Matt Nugent	HCC Project Manager Nathanael Savage (or nominee)	Cell phone 07 838 6527
Non-Urgent	Site Contractor Matt Nugent	N/A	021 075 5920

Table 1.1.2: Emergency and Non-Urgent Call Management

Emergency Response

In case of an emergency (fire, flood, accident, or serious harm event), where an immediate personnel response is required, the Site Contractor (or nominee) 24hr on call phone number will be contacted. If the primary contact cannot be established, the secondary point of contact is Council's Project Manager, Nathanael Savage (or nominee).

Non-Urgent Response

For all non-urgent matters (nuisance dust, noise, vibration, traffic management or personnel complaint) where the site contractor can attend to the query / complaint within a 24hr period, HCC customer services representatives will pass the query / complaint to the Site Contractor via an agreed electronic method (CRM, email or phone). A secondary point of contact should not be required for these matters, as it is expected that the Site Contractor attends to and manages these directly.

The Site Contractor is required to record and maintain a customer query and complaint register, for inspection by the HCC's Project Manager at scheduled meetings, or outside of these times if required. The information required is contained in Section 1.2.4 of this plan and in accordance with Condition 10 of the decision. It is at scheduled meetings with HCC's Project Manager that queries, complaints, actions, escalations, and support will be routinely discussed.

1.2 Communications

1.2.1 Iwi

Tangata Whenua Working Group (TWWG) comprising Ngāti Wairere, Ngāti Mahanga, Ngāti Koroki Kahukura, Ngāti Hauā and Waikato-Tainui are to be notified of the proposed commencement of Construction Works.

TWWG primary contact: Ikimoke Tamaki-Takarei ☎ 027 267 9019 ✉ ikimoke.tamaki-takarei@waikatodhb.health.nz

The Contractor shall liaise with TWWG to ensure kaitiaki involvement during the works. This should include the following:

- Contractor, staff and sub-contractor attendance at a cultural induction;
- Kaitiaki attendance at weekly toolbox meetings to ensure awareness of programmed works; and
- Kaitiaki monitoring of specific activities such as earthworks and outlet works.

The procedure for discovery of any koiwi or other artefacts is as per the certified *Heritage and Archaeological Site Management Plan (HASMP)* by Sian Keith. Miss Keith is the project archaeologist and is responsible for contractor site training.

Note: A Construction Communication and Consultation Plan (CCCP) was also required and is included in this OMP.

1.2.2 Community Liaison Group (CLG) Actions

The decision required the CMP to have regard to, and where appropriate implement any relevant actions identified in the minutes of the group, which are compiled by the HCC Communication, Consultation and Property Liaison Manager, Mr. Nathanael Savage.

Contact details for Mr. Savage: ☎ 07 838 6527 ✉ nathanael.savage@hcc.govt.nz

The CLG was created to ensure that any operationally significant matters impacting residents (e.g. persons requiring 24hr access for care support, or 24hr supply of power to their property for medical reasons) would not be overlooked and that any actions required for those persons would apply over all sub-construction management plans. At the date of this Management Plan, there were no issues identified by the CLG that required action. At such time that any issues present, HCC’s Communication Consultation and Property Liaison Manager will raise these with the Project Manager and Contractor. Actions will be identified by the parties and incorporated into this section of the CMP below, to be cross referenced with any other relevant section of the OMP.

Date	Client and Property reference	CLG Issue	CLG Action

Table 1.2.2: CLG Issue and Action Register

The Contractor will ensure that all actions are implemented and will report back to the Project Manager and Communication, Consultation and Property Liaison Manager.

1.2.3 Prior Notice to Residents

Residents in the immediate vicinity of construction areas will be given prior notice of the commencement of Construction Works and will be informed about the duration of works. The map in Figure 1.1 below shows properties in the immediate vicinity of the construction area as the “PCCP: Affected in Proximity Party” area.

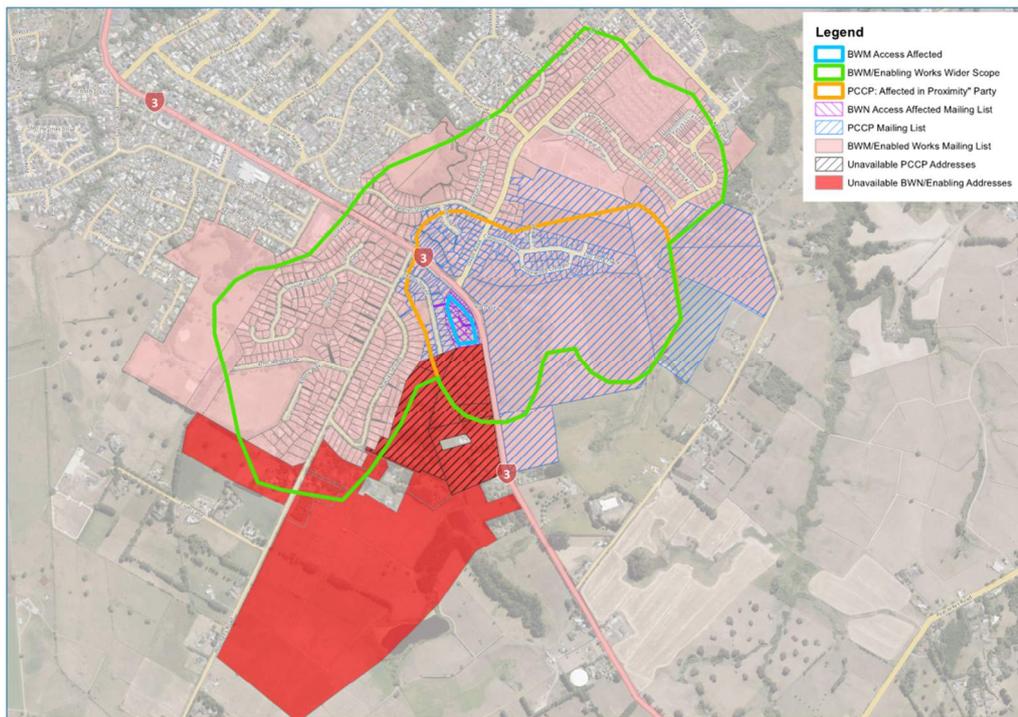


Figure 1.1 – Construction Consultation and Communication Management Plan map

This area covers properties 200m beyond the designation boundary which is approximately 178 individual properties. The Construction Communication and Consultation Management Plan (CCCP) identifies three discrete areas for communications. The CCCP also outlines the methods or tactics that will be used to convey messaging.

1.2.4 Complaints

All complaints are required to be received and dealt with by the Requiring Authority, as outlined in Condition 10.1 of the decision. The site manager / contractor must compile and maintain a complaint register that also outlines how and when complaints will be reported back to the Project Manager (PM).

All complaints will be acknowledged and investigated within 24 hours of receipt. They will be compiled in a complaint register, as outlined in Condition 10.2 of the decision, using the template provided in Table 1.2.4 below. A draft response to complaints will be compiled within three (3) working days. The relevant staff or contractors will provide context and a formal response by HCC staff to the complainant will be made within a further two (2) working days.

Date / time	Complainant (name, contact details)	Details of complaint (location, source of issue)	Weather conditions (wind direction, cloud cover if related to water / air quality)	Known construction activities (at time of complaint)	Unrelated activities (that may have contributed to the complaint: non-project construction, fires, traffic accidents)	Remedial actions undertaken and outcome (including persons notified, whether issue was escalated, report back to PM, monitoring)

Table 1.2.4: Complaints Register Template

1.3 Signage, Health and Safety

1.3.1 Notice Board Signage

The graphic and content for the sign pictured in Figure 1.2 below was provided by HCC Communications. This has subsequently been installed in several locations along the road corridor, in proximity to the site.

**Peacocke
SH3 Roundabout
Construction**

**For any queries contact
Hamilton City Council
07 838 6699**



Figure 1.2 – Project Signage Proof (front and rear view)

According to the designation condition, signage is required to clearly identify the name, phone number and address for service of the site or project manager, the 24hr contact person and HCC contact point for complaints. Large site signage boards conveying this information have been erected in the following location(s):



Figure 1.3 – Hazard Signage and Location Map

1.3.2 Public Health and Safety

A procedure to ensure the health and safety of the general public has been established. This includes:

- Exclusion zones between work areas and public area through concrete barriers, fencing and positive traffic management;
- Clear visual corridors for heavy machinery entering and exiting the site;
- Traffic controllers on entry and exit points to ensure safe passage;
- Security fencing to be established around the perimeter of the site;
- After hours security established for the site; and
- Rubbish storage and collection areas.

In the event of an incident, a full investigation is carried out in accordance with standard operating procedures and to meet Work Safe requirements.

Sensitive environments in the project site's vicinity have been assessed. These are:

- Local Iwi;
- Local neighbours;
- Local road users;
- State highway users;
- Mangakotukutuku Stream along the northern boundary; and
- Shaw's Bird Park.

1.3.3 Contractor Health and Safety

Standard operating procedures have been developed to ensure the health and safety of all employees and sub-contractors on the site. While site supervisors and management take an active role, all employees share responsibility for monitoring the environmental awareness practices of sub-contractors. Regular internal auditing of health and safety processes is undertaken by project management staff.

In the event of an incident, a full investigation is carried out in accordance with standard operating procedures and to meet Work Safe requirements.

1.4 Construction Outline

The roundabout project will involve the following construction tasks:

- Construction base establishment
- Site clearing, including tree, vegetation and contaminated material removal
- Earthworks and drainage
- Pavement and surfacing
- Structures (retaining walls, underpasses)
- Traffic services (lighting, permanent signage)

Specific details are required in relation to the establishment and maintenance of proposed construction plant parking and fuel storage areas, in Part 7.0 HSMP. A stabilized construction entrance of 20m is designed to minimise dirt tracking beyond the site boundary and provide an alternative to wheel washing on-site. A truck broom is on standby to address any day to day tracking issues. Site access, key work and parking areas are identified in the Construction Site Map, below.

Specific clearance protocols are referenced in the EMMP, Lizard Management Plan (LizMP) and Department of Conservation permit 80061-FAU. Specific contamination clearance procedures are referenced in Part 6.0 CSMP and NESCS consent 010.2019.00010647.001. Any material or soils disposed off-site are required to be sent to an approved and consented dump site.

Note: An earthworks consent AUTH140965.01.01 was obtained from the Waikato Regional Council (WRC). Consent conditions required that the contractor update the preliminary Erosion and Sediment Control Management Plan (ESCMP) and submit it for approval 10 working days prior to commencement of the works. The updated ESCMP was reviewed and approved by consultant monitoring officer, Peter Stevens on the 15th of January 2020. This approval was restated on the 14th of February 2020. Approved ESCMP methods have been used to inform this OMP. The consented earthworks period is 1 May to 30 September, with all areas stabilized by 30 April².

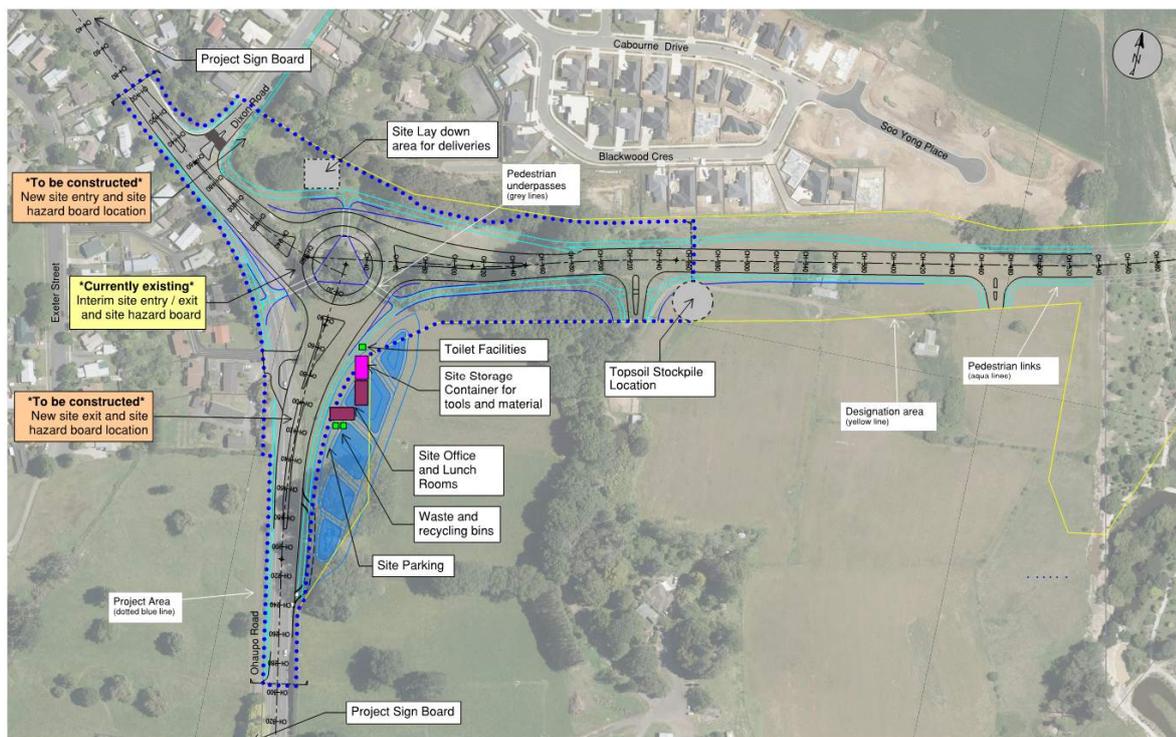


Figure 1.4 – Construction Site Map

² Note: This time frame does not account for COVID-19 delays. A winter works permit has been submitted to the WRC.

1.4.1 Construction Hours and Methodology

Although the decision provides greater flexibility, the project team has agreed to site works between 7.00 a.m. and sunset, Monday to Friday inclusive, and 8.00 a.m. and 6.00 p.m. Saturday.

Note: Condition 13 of the decision states that no off-site project related Bulk HCV traffic is permitted on Sundays or public holidays, or after 4pm on working days prior to long weekends. The maximum hours of work for off-site project related Bulk HCVs shall be 7am to 7pm. Site works are always subject to noise and vibration criteria requirements of Condition 11.3, captured in Part 2.0 (CNVMP) of this OMP.

Night work may be required for activities that will have a significant impact on traffic. Night work will require approval from HCC and NZTA and will be well advertised to residents in the area.

Construction materials will be transported to the site, loaded, unloaded and stored on the site using the following methodology:

- All heavy trucks access via the site entry;
- Construction deliveries, waste collection and domestic vehicles access via the site entry;
- Domestic rubbish for collection will held adjacent to site offices;
- Soil will be held in the topsoil stockpile location, and will be used for bunding / recontouring or removed from the site;
- Metal will be delivered to site for immediate use;
- Heavy construction machinery will be parked overnight in proximity to the site office; and
- Fuel for construction machinery is delivered daily by independent fuel tanker.

Note: This information is included in the Figure 1.4 map above.

1.4.2 Site Conduct, Nuisance and Noise Mitigation

There are several residential and commercial neighbours near the works, where noise and vibration criteria can cause nuisance and lead to complaint. To ensure Part 2.0 criteria are achieved, all staff are responsible for maintaining sound conduct, good noise and vibration management.

The following site conduct controls must be followed:

1. When arriving at work, please drive slowly on site and keep revs to a minimum. Keep stereos off and do not slam doors.
2. No shouting or swearing on site. Either walk over and talk to somebody or use a radio/phone.
3. Be careful with tools and equipment. Place them down - do not drop them.
4. Do not drag materials across the ground. Place them down when you arrive at the work area.
5. Equipment and vehicles should not be left running when not in use.
6. When loading trucks try not to drop material from a height. Load softer material at the bottom.
7. Noise enclosures should always have all doors/hatches closed when the equipment is in use.
8. Stationary equipment such as pumps and generators should be located away from neighbours.
9. All equipment is to be well maintained.

10. No work that could cause noise and/or vibration disturbance shall be conducted outside the hours agreed in 1.4.1 above (and no work at all shall be conducted outside the hours of 0630h to 2000h unless night works are agreed with HCC).
11. If you see anything/anyone making unnecessary noise, then stop it/them. If the source cannot be stopped then report it in person to the site manager, Matt Nugent or by phone 021 075 5920.
12. It is essential that good relationships are maintained with the local community. Any queries from members of the public should be responded to politely and referred in person to the site manager, Matt Nugent or by phone 021 075 5920. Staff shall assist the public to make contact with this person. Staff shall not enter into debate or argue with members of the public.
13. No work that could cause noise and/or vibration disturbance is to be conducted until all staff involved in the task have read and signed the Construction Noise/Vibration Management Induction Schedule for that task.

1.4.3 Closures and Effects

The following partial or complete road closures are proposed:

- Closure of Dixon Road to install 1050Ø stormwater line
- Closure of Dixon Road for intersection upgrade
- Lane closure of SH3 for construction and traffic switch over

Anticipated traffic diversion /closure effects will be:

- Slower egress from Night Road on to Day Road, between peak hours of 8am to 3pm – up to 10-minute wait anticipated.
- Bus timetable disruption.

1.4.4 Plant

Prior to bringing machinery to the site, machinery will be cleaned to prevent the spread of dirt, pest seeds and weeds. Regular sweeping of dirt from plant will be required alongside dirt tracking management.

Daily pre-start inspections will be carried out by all machinery operators. Defects are to be reported immediately to site supervisors who make an informed decision whether the plant is suitable for use or whether repairs are required. If repairs are required, the machinery will be tagged “not for use” and made safe until reinstated.

1.5 Training

A site-specific training programme / induction plan / job start briefing is in place to outline all construction procedures, environmental management, and monitoring tasks. All employees, sub-contractors and visitors are required to receive appropriate training / induction before engaging in activities on site. A register of induction and training will be held in the site office by the site manager.

Site and area managers will undertake competency reviews of all personnel and sub-contractors where required. If it is apparent that a person(s) requires additional training to perform a task, direct supervision will occur until it is verified that the person(s) is fully competent to return to unsupervised work. Alternatively, their role will be modified to a position of suitable competence, or the sub-contractor notified / withheld from site.

1.5.1 General Site Induction / Training

The contractor has a process for site induction and training of all staff and contractors. The site induction template for this project is attached as Schedule A to Part 1.0 of the OMP. Completed forms are available to the principal on request. Site induction documents were supported by a presentation and cover the following topics:

- Emergency procedures, site hazards and site-specific safety rules
- Safety equipment and Personal Protective Equipment (PPE)
- Site amenities
- Health, safety and toolbox
- Employee responsibilities, Drug and Alcohol Policy and general Code of Conduct
- Environmental and cultural considerations
- Quality control and company values
- Traffic management

1.5.2 Archaeology

The project archaeologist is required to undertake contractor briefings prior to the start of works. Sian Keith is the project archaeologist and is responsible for contractor site training. Miss Keith will brief the contractor on how to identify an archaeological site, outline the Accidental Discovery Protocols (ADPs) and explain the contents of the *Heritage and Archaeological Site Management Plan (HASMP)*³.

Contact details for Miss Keith: ☎ 021 1411 802 ✉ sian@siankeitharchaeology.com

1.5.3 Contamination

A pre works meeting must be held to discuss contamination issues and the CSMP. NESCS 010.2019.00010647.001 identifies matters that must be discussed and the following (mandatory) attendee list:

- The Contaminated Land Advisor (CLA);
- HCCs Contaminated Land Officer and Monitoring Officer; and
- All contractors, sub-contractors and supervisory staff.

1.6 Environmental, Incident and Emergency Management Procedures

Emergency procedures are tested by way of regular drills. Refer to the Hazardous Substances Management Plan (HSMP) in Part 7.0 for further information.

The site manager is also responsible for identifying hazards other than those listed below, making recommendations on hazard minimization, isolation or elimination and finalizing an Emergency Plan for the site prior to the commencement of works.

An emergency may require isolation of some or all services to the site to minimise potential environmental effects. Service isolation points for electricity, water, gas, and compressed air are to

³ The suite of archaeological documents, including the HASMP can be accessed via:

<https://www.hamilton.govt.nz/our-city/regional-alliances/southernlinks/Documents/Heritage%20and%20Archaeological%20Site%20Management%20Plan%20-%20Ohaupo%20Rd%20Roundabout%20and%20East-West%20Arterial%20Stage%201%20-%20August%202019.pdf>

be clearly identified on the Emergency Response Protocol (ERP) and marked in the field. The ERP is referenced in Part 7.5 HSMP and forms Schedule A to Part 7.0 of the OMP.

1.6.1 Archaeology

The procedure for discovery of any koiwi or other artefacts is as per the certified HASMP by Sian Keith. In brief, the Accidental Discovery Protocol (ADP) requires that:

- The Project Archaeologist is contacted and examines the material encountered;
- The Project Archaeologist makes the site safe and notifies affected parties (HNZ, TWWG, HCC); and
- No works occur until the necessary action has been taken, including making application to HNZPT for a Heritage Authority.

Miss Keith will provide all training on identifying a discovery and implementing the ADP as part of the site-specific training / induction programme.

1.6.2 Ecology: General

The project ecologist, Dr Hannah Mueller will undertake contractor briefings prior to the start of works and work with contractors on site to ensure compliance with Wildlife Act permit 80061-FAU.

Contact details for Dr Mueller: ☎ 022 062 6396 ✉ hannahm@4sight.co.nz

An Environmental Monitoring and Management Plan (EMMP) was required to inform the Southern Links project and demonstrate how HCC intends to achieve no net loss of biodiversity values. The focus is on terrestrial and aquatic habitats, bats, lizards, and birds. A comprehensive ecological survey was not undertaken with respect to the Peacocke East-West Arterial Intersection (Stage 1), although some baseline data is presented in the EMMP.

The roles and responsibilities for each party is outlined on page six of the EMMP. The contractor is responsible for ensuring that they and their staff fully understand the requirements for delivering the EMMP and supporting documentation. The contractor will establish and maintain a close working relationship with the project ecologist, ensuring involvement in all aspects of the project, as required by the EMMP.

Procedures for vegetation clearance and site restoration are outlined in:

- EMMP;
- EMMP Implementation Plan (EMMPIP);
- Individual Site Restoration Plans (SRPs);
- Bat and Lizard specific Management Plans; and
- Wildlife Act 1953 permit 80061-FAU.

The contractor is responsible for tracking, quantifying, and reporting to the Project Manager the extent of vegetation loss to ensure restoration equity across the wider project. Individual SRPs will form an addendum to the EMMPIP. The contractor is responsible for delivering all ecological mitigation works associated with the SRPs. The contractor is responsible for ensuring compliance with permit 80061-FAU.

The Implementation Plan (EMMPIP) is a live document under continuous review, tailored to each project package. If issues arise in a prior or concurrent project, the EMMPIP will be updated to provide an appropriate mitigation response.

1.6.3 Ecology: Birds

Tree clearance is recommended during the months of March to August when nests are less likely to be present. However, an ecologist can undertake a visual pre-clearance at any time, to check if the tree contains nesting birds (EMMP, 6.7.3, pg. 97). If the contractor undertakes tree clearance, this is to be carried out in consultation with the project ecologist's advice.

1.6.4 Ecology: Bats

If the contractor undertakes tree clearance, this is to be carried out in consultation with the project ecologist's advice. The procedure for pre-felling bat survey of high and low risk trees is as follows:

High Risk Trees:

Trees offering High Risk potential as bat roosts are defined as being **>15cm diameter at breast height (DBH), and will have one or more of the following features:**

- Cracks, crevices, cavities and/or fractured limbs large enough to support roosting bat(s);
- Sections of loose flaking bark large enough to support roosting bat(s);
- A hollow trunk, stem or branches;
- Deadwood in canopy or stem of sufficient size to support roost cavities or hollows; and,
- Bat droppings, grease marks and/or urine staining around cavities.

Low Risk Trees:

Trees offering Low Risk or Negligible potential as bat roosts are defined as being **<15cm DBH that lack obvious signs of bat roosting**. These trees may be felled immediately, without the need for further assessment or monitoring, and without the need for an Approved Bat Ecologist to be present.

Note: Trees with evidence of bat droppings, grease marks and/or urine staining around cavities should be noted and investigated as probable roost trees regardless of size.

Although not directly relevant to the East-West Arterial Intersection, it is noteworthy that the EMMP (6.5.6, pg. 79) recommends that the CMP contains the following measures to ensure that there are no negative effects on adjacent fauna through unnecessary disturbance:

- Establishment of buffer zones around known roost sites;
- Avoid night lighting where sites are near bat roosts;
- Reliance on tree felling protocols; and
- Maintenance of safeguard zone fencing (applies to designation restoration sites only).

1.6.5 Ecology: Lizards

The procedure for site clearance, discovery, capture and translocation of any lizard is outlined in the Lizard Management Plan (LizMP) by herpetologist, Fiona Davies of Tonkin & Taylor. Contractors will work with the project ecologist, Dr Hannah Mueller, to execute:

- Site / vegetation clearance procedure;
- Lizard capture and release procedure; and
- Incidental discovery procedure.

The contractor must have equipment available within the active works area to manage the incidental discovery of lizards, as outlined in the Lizard Management Plan (LizMP).

In the Provisional OMP, this was the position:

“The Department of Conservation (DoC) has indicated that they do not have authority to issue a permit for works that would be considered an offence under the Wildlife Act 1953. Therefore, works will proceed in accordance with the Vegetation Removal Protocol with a view that works are undertaken in a manner that will ensure that they would not be considered an offence under the Wildlife Act 1953. If a bat roost is identified, consultation should be undertaken with DoC in relation to a way forward [for] Wildlife Authorisation Permits” (AECOM, 6 September 2019: EMMP, pg. 76).

This position has since changed, and the DoC has now issued a permit under the Wildlife Act. Reference to the permit and the LizMP is made as Attachment C to Part 1.0.

1.6.6 Fire

At all times, the procedure outlined in the contractors Emergency Response Protocol (Part 7.0 and Schedule A to Part 7.0) should be followed. The first mitigation method is containment – only if it is safe to do so. Alternatively, contact emergency services via 111.

1.6.7 Weather Event

In storm or drought event, stabilize exposed areas rapidly, using a mixture of gravel / mulch / hydroseed as or other appropriate response outlined in the Dust Management Plan (DMP) or Erosion and Sediment Control Management Plan (ESCMP).

1.6.8 Erosion and Sediment Control

Procedures for controlling sediment runoff, dust and the removal of soil, debris and demolition and construction materials from public roads and places are outlined in the approved ESCMP prepared for WRC consent AUTH140965.01.01 by Wainui Environmental, later revised by Schick.

The ESCMP outlines perimeter controls, watercourse protection (preliminary treatment options for sediment retention), steep slope protection (use of drain cuts, bun armouring, flumes), management of stockpiled material and monitoring. Noise, vibration and dust controls are discussed in Parts 2.0 and 5.0. The contractor will ensure that specific details relating to the sequencing and programming of the earthworks are such that run-off is minimised. The contractor will implement the approved ESCMP and ensure compliance requirements with AUTH140965.01.01 are met. Documents associated with AUTH140965.01.01 are contained as Attachment B to Part 1.0 of this OMP.

1.6.9 Earthworks and Storm Water Pond Construction

Any material disposed off-site is required to be sent to an approved and consented dump site.

Methods for earthworks management where earthworks are adjacent to buildings or structures (retaining walls) include temporary and permanent stabilization measures and monitoring of ground movement. This includes weekly integrity inspections and further inspections as required (e.g. within 24hrs of a significant rainfall event). Weekly integrity inspections will be captured via site monitoring logs and identify any remedial maintenance required, scheduled and undertaken.

Three Waikato Regional Council (WRC) consents have been obtained as listed below; one was required^o for the Peacocke East-West Minor Arterial Intersection construction project:

- AUTH140411.01.01 (construct, operate and maintain a stormwater outlet structure in Mangakotukutuku Stream as part of the enabling works for the roundabout planned at the corner of Dixon and Ōhaupō Roads);

- AUTH140965.01.01 (earthworks in association with road construction activities to construct a new roundabout at Ōhaupō Road / SH3 and East-West Arterial Roads association with the Southern Links transport project at Glenview / Peacockes, Hamilton); and
- AUTH141136.01.01 (divert and discharge stormwater from a residential development and roading project into a tributary of the Mangakotukutuku Stream).

Note: AUTH140411.01.01 does not cover discharge consents for roundabout stormwater or earthworks to connect the stormwater system to the outlet structure. Technical information supporting AUTH140411.01.01 was prepared by AECOM.

Note: AUTH141136.01.01 has been obtained by Hamilton City Council and Northview Capital Limited for construction of the stormwater wetland and stormwater discharge to the Mangakotukutuku Stream. Northview Capital Limited is responsible for the implementation of AUTH141136.01.01 prior to transfer to HCC.

Accordingly, there are no actions required under this OMP for AUTH140411.01.01 and AUTH141136.01.01.

A Flocculation Management Plan (FMP) was required by AUTH140965.01.01. Consultant monitoring officer, Peter Stevens approved the FMP on the 14th February 2020. The FMP requirements are stated in the condition and included the following:

- Specific design details for the flocculation system;
- Monitoring, maintenance (including posts-storm) and including a record system;
- Details of optimum dosage (including assumptions);
- Results of any initial flocculation trial;
- A spill contingency plan; and
- Contact details of the persons responsible for the operation and maintenance of the flocculation treatment system and the organizational structure to which this person shall report.

1.6.10 Waste Management

Waste will be stored on site at the locations identified in the Figure 1.4 map above and collected by contractors on an as-required basis. Waste will not be left to cause pest or odour nuisance or other environmental concern. The contractor is responsible for removing all waste from the site.

1.6.11 Dust

A Dust Management Plan (DMP) was required as a condition of the designation. The DMP outlines mitigation methods and is outlined in Part 5.0 of this OMP.

2.0 Construction Noise and Vibration Management Plan (CNVMP)

Date Prepared	Prepared by	Reviewed by	Approved by	Status
23/09/2019	Demelza Murphy	Grant Eccles	Sam Le Heron and Peter Kirk (HCC)	Provisional
13/01/2020	Jolene Innes	Matt Nugent		Final

Assessment

An assessment of how the project meets the requirements of Southern Links designation Condition 11.0 is summarised in Table 2.0 below. Where “sections” are referenced in the assessment column below, this refers to sections in the CNVMP. The original Styles CNVMP dated 23rd March 2020 and vibration monitoring report dated 31st March 2020 are referred to as the “Styles CNVMP”, which is Attachment A to Part 2 of the OMP.

Condition	Description	Assessment
11.1	<p>The RA shall submit a CNVMP for certification no later than 40 working days prior to the commencement of any stage of construction works.</p> <p>The objective of the CNVMP is to provide a framework for the development and implementation of identified best practicable options to avoid, remedy or mitigate the adverse effects of noise and vibration during construction and minimise frequency, duration and degree of exceedance of the noise and vibration standards set out in Conditions 11.3 and 11.4.</p>	<p>The Draft CNVMP was submitted within the 40 working day time frame requirement.</p> <p>The contractor has subsequently engaged Styles Group (Acoustic and Vibration Consultants) to prepare a CNVMP (‘the Styles CNVMP’) and preliminary vibration monitoring has now been completed. Styles content has been used to update the OMP below, according to operational specifics of the contract (availability and use of certain plant and machinery). The Styles CNVMP adds the necessary specialist detail to meet conditions of the designation.</p>
11.2	<p>The CNVMP shall be prepared in accordance with the <i>State Highway Construction and Maintenance Noise and Vibration Guide</i> (NZTA, 2013).</p>	<p>The NZTA’s SHCMNVG template has been used to create the CNVMP.</p> <p>https://www.nzta.govt.nz/assets/Highways-Information-Portal/Technical-disciplines/Noise-and-vibration/Standards/Templates/Construction-noise-and-vibration/NZTA-Construction-noise-and-vibration-management-plan-v1.2.doc</p>
11.3	<p>Construction noise must be measured and assessed in accordance with NZS 6803: 1999 ‘Acoustics Construction Noise’. Construction noise limits are identified in Table A.</p>	<p>Construction noise limits from the condition Table A have been inserted into the template CNVMP (Table 2.2) and will be monitored in accordance with the condition requirement.</p>
11.4	<p>The CNVMP must describe the measures adopted to meet Category A vibration criteria outlined in Table B. If Category A criteria cannot be achieved, Category B criteria apply.</p> <p>If measured or predicted vibration levels exceed Category B criteria, construction shall only proceed if vibration effects on at risk buildings are assessed, monitored and mitigated by SQEPs.</p>	<p>Construction vibration limits from the condition have been inserted into the template CNVMP (Table 2.3). Vibration monitoring shows that Category A criteria can be achieved with all plant excepting the 20t excavator, when used within 10-20m of an occupied dwelling. However, Category B criteria can always be achieved. No building assessments are required.</p>

Condition	Description	Assessment
11.5	In addition to those matters detailed in the SHCMNVG, the CNVMP shall address the following with regard to managing the adverse effects of CNV:	
a)	Identification of affected dwellings and other sensitive locations where vibration criteria apply, which shall include all houses located within 50m of general road construction activities;	Part 2.2 of the CNVMP provides a table of sensitive locations, with distance to construction activity. The closest dwellings are mapped in Figure 2.1.
b)	Predicted noise levels set out as minimum compliance distances for key activities and items of plant and identification of any dwellings or other sensitive locations where works will be required within those minimum compliance distances;	Details are listed in Table 2.6.3 below (extract from Styles CNVMP).
c)	Mitigation options, including alternative strategies where full compliance with the noise criteria in Table A and/or the vibration criteria in Table B cannot practicably be achieved;	Mitigation options for noise are held in 2.6 and for vibration 2.7 of the CNVMP.
d)	Requirements for building condition surveys of critical dwellings, prior to and after completion of construction works and during the works if required (including all buildings measured or predicted to exceed the Category B criteria in Table B), and processes for repair of any damage caused by the works;	Part 2.10 of the CNVMP provides a procedure for building condition surveys. Styles Group has been engaged by the contractor to undertake building condition surveys if required. It is noted that vibration monitoring was completed on the 24 th March 2020 and this concludes that no surveys are required. Condition to be monitored.
11.6	Where noise or vibration predictions made in accordance with the CNVMP show that levels from a particular activity or location exceed the limits set out in Condition 11.3 and/or 11.4, or where measurements show that compliance is not being achieved, the RA shall prepare schedules to the CNVMP. These schedules shall:	Condition 11.6 is to be managed and completed by the contractor with support from Styles Group, if required. Condition to be monitored.
a)	Be prepared in accordance with the SHCNVG and include relevant details including activity specific and/or location specific noise and vibration predictions and mitigation;	As for 11.6 above
b)	Include noise limits for the activity and an overview of mitigation options that have been considered, identifying practicable options;	As for 11.6 above
c)	Provide schedules to the RA CE for certification at least 5 working days in advance of the relevant works being carried out and implemented.	As for 11.6 above
11.7	In the event that either: a) The TA certifies the schedule; or b) Fails to advise the RA of any concerns it has with the Schedule, Within the 5 working days following receipt, the activities covered by the Schedule may be carried out.	As required, condition to be monitored

Condition	Description	Assessment
11.8	If the TA advises the RA of a concern it has with the Schedule, then no activity related to that concern shall be carried out until the matter has been addressed by the RA to the satisfaction of the TA.	As required, condition to be monitored

Table 2.0: Assessment of Condition 11.0

The objective of this CNVMP is to manage noise and vibration levels at neighbouring buildings to remain within reasonable limits throughout the construction works programme. This CNVMP is to be read in conjunction with the Construction Management Plan (CMP) which outlines the bulk of the construction works programme, key contact persons, site management methods and process for managing complaints. Reading these plans in conjunction avoids unnecessary duplication of conditions responses, particularly with respect to contact persons and complaints management.

2.1 Construction Methodology

The site location plan is contained in Figure 1 of the Executive Summary. The roundabout construction methodology that outlines noise and vibration generating activities is outlined in the CMP, Part 1.0 above. The CMP also includes a site plan and information about operating hours.

Night work may be required for activities such as final surfacing, drainage works within road corridor or activities that will require traffic to be reduced to one lane. Night work is considered necessary for these activities because:

- The activity will have a significant impact on traffic; and
- Excessive traffic delay on SH3 is not acceptable.

Before night works is undertaken the following will be required:

- Approval from HCC and NZTA; and
- Communication to all adjacent residents of the intended night works (condition 9.3e and k).

2.2 Noise

Condition requirements relating to noise are outlined in Table 2.2. In summary, the following NZS 6803:1999 criteria apply at one metre from the façades of the nearest neighbours:

Day	Time	L _{Aeq(1h)}	L _{AFmax}
Weekdays	0630h - 0730h	60 dB	75 dB
	0730h - 1800h	75 dB	90 dB
	1800h - 2000h	70 dB	85 dB
	2000h - 0630h	45 dB	75 dB
Saturday	0630h - 0730h	60 dB	75 dB
	0730h - 1800h	75 dB	90 dB
	1800h - 2000h	45 dB	75 dB
	2000h - 0630h	45 dB	75 dB
	0630h - 0730h	45 dB	75 dB

Sundays and public holidays	0730h - 1800h	55 dB	85 dB
	1800h - 2000h	45 dB	75 dB
	2000h - 0630h	45 dB	75 dB

Table 2.2 – Noise Criteria

2.3 Vibration

Condition requirements relating to vibration are outlined in Table 2.3. In summary:

Type	Location	Details	Category A	Category B
Occupied dwellings	Inside the building	Monday to Friday 6.30am to 8.00pm	1.0 mm/s ppv	5 mm/s ppv
		All hours Sunday and Monday to Saturday 8.00pm to 6.30am	0.3 mm/s ppv	1.0 mm/s ppv
Other occupied buildings	Inside the building	At all times	2 mm/s ppv	10 mm/s ppv
All other buildings	Building foundation	Transient vibration	5 mm/s ppv	BS 5228-2 Table B.2
		Continuous vibration		50% of BS 5228-2 Table B.2
Underground services	On Pipework	Transient vibration	20.0 mm/s ppv	30.0 mm/s ppv
		Continuous vibration	10.0 mm/s ppv	15.0 mm/s ppv

*Protected Premises and Facilities as defined in NZS 6806:2010

Table 2.3 – Vibration Criteria

2.4 Sensitive Receivers

The area surrounding the site is residential, with farmland to the east of the site. Residential properties will be most affected by noise and vibration. Sensitive receiver locations have been identified to consider when calculating construction noise and vibration levels and are shown in Figure 2.1 below. Monitoring will be conducted at representative or sample locations.

Address	Building type/comments	Distance to works
7 Exeter Street	Residential dwelling	51
9 Exeter Street	Residential dwelling	38
11 Exeter Street	Residential dwelling	14
13 Exeter Street	Residential dwelling	17
17 Exeter Street	Residential dwelling	7
19 Exeter Street	Residential dwelling	8
25 Exeter Street	Residential dwelling	10
27 Exeter Street	Residential dwelling	9
29 Exeter Street	Residential dwelling	11
31 Exeter Street	Residential dwelling	12
350 Ōhaupō Road	Residential dwelling - block of flats	16

354 Ōhaupō Road	Residential dwelling	21
364 Ōhaupō Road	Residential dwelling	14
3/366 Ōhaupō Road	Residential dwelling	24
4/366 Ōhaupō Road	Residential dwelling	13
366A Ōhaupō Road	Residential dwelling	11
366B Ōhaupō Road	Residential dwelling	19
297A Ōhaupō Road	Residential dwelling	35
299 Ōhaupō Road	Residential dwelling	19
301 Ōhaupō Road	Residential dwelling	13
100 Dixon Road	Residential dwelling	39
102 Dixon Road	Residential dwelling	17
104 Dixon Road	Residential dwelling	7
107 Dixon Road	Residential dwelling	35
109 Dixon Road	Residential dwelling	92
18 Blackwood Crescent	Residential dwelling	13
20 Blackwood Crescent	Residential dwelling	9
22 Blackwood Crescent	Residential dwelling	12
24 Blackwood Crescent	Residential dwelling	27
26 Blackwood Crescent	Residential dwelling	35

Table 2.4 – Sensitive Receivers

This table may require updating if other buildings are measured or predicted to exceed Category B vibration criteria; or further development occurs along Blackwood Crescent.



Figure 2.1 – Sensitive Receiver Location Map

2.5 Stakeholder Engagement

A key aspect of this CNVMP is stakeholder engagement. The site contact for the duration of the works is identified in the CMP (Part 1.0).

Community communication regarding construction noise issues will occur as follows:

- A contact person will be available on site; their contact details prominently displayed at the entrance to the site so that they are clearly visible to the public, as detailed in Part the CMP.
- Prior to the works a newsletter or similar will be distributed to all “Affected in Proximity” parties which are those within 200 metres of the works. The newsletter will provide contact details and will detail the overall nature of the works. The same information will also be published in an advertisement in a local newspaper, or as otherwise detailed the CMP (Part 1.1.3) and relevant parts of the CCCP.
- Individual notification will be provided, and meetings offered to all neighbours within 50 metres of the works. For any neighbours within approximately 20 metres of the works individual consultation will be continued throughout the works, as required by condition 11.5a of the designation.
- Further information will be regularly provided to all neighbours with an update on the progress of the works, and the specific activities (including locations) due to be undertaken next. This may be provided by newsletters or possibly by email. Updates will be provided every two or three months, or as otherwise detailed in the CCCP.
- Prior to any particularly noisy processes identified in a construction noise management schedule, the nearest affected neighbours will be contacted individually. Neighbours will be informed of the proposed timing of the specific works and where practicable any times which are particularly sensitive for neighbours will be avoided, or as otherwise detailed in the CCCP.

Complaints will be recorded and dealt with in accordance with the CMP (Part 1.0) and CCCP (Part 4.0). Where a complaint remains unresolved or a dispute arises, the matter shall be referred to the TA CE to determine a process for resolution, as outlined in condition 10.4.

2.6 Noise Sources and Mitigation

Table 2.6.1 lists all significant equipment proposed to be used on the site. The sound level for each item of equipment has been estimated from NZS 6803:1999 Appendix C Guide to Sound Level Data on Site Equipment and Site Activities, the DEFRA Noise Database for Prediction of Noise on Construction Sites and Open Sites and measurements undertaken on similar projects by the project acoustics consultants, as stated in the Styles CNVMP.

Other machinery that will be used by the contractor does not have any noise data. During initial site noise monitoring the collection and validity of data will be confirmed and adjusted where necessary for the major items of equipment.

Equipment	Model	Type	Estimated L _{Aeq} at 10 m	Data reference
Excavator	Kobelco SK200	20 Tonne	70 dB	
Excavator	Hitachi ZX290LC-5B	30 Tonne	77 dB	
Vibratory roller		9 Tonne	75 dB	

Milling machine		17 Tonne	82 dB	
Asphalt paver		18 Tonne	77 dB	
Water tanker		Up to 10 Tonne	70 dB	
Road sweeper		Up to 10 Tonne	70 dB	

Table 2.6.1: Equipment schedule

The following table shows the key activities likely to generate significant noise and shows the approximate duration of the activity and the equipment that is likely to be used.

Task	Activities	Overall duration of task	Equipment and % use during that activity
Earthworks	Topsoil scraping, bunding, excavating soil from site, loading into trucks for off-site disposal	2 months	Excavator (100%), Tractor & trailer (50%), Bulldozer (20%), Truck & trailers (50%), Roller (30%), Watercart (100%)
Drainage and utilities	Excavation to install stormwater and wastewater pipes, backfill and compact	2 months	Excavator (80%), Tractor & trailer (10%), Truck & trailers (20%), Roller (10%), Loader (25%)
Pavement	Forming of concrete kerbing and footpaths	2 months	Grader (100%), Watercart (100%), Roller (100%), Truck & Trailers (60%)
Landscaping	Deposit of soil, mulch, plants and artwork to site	6 weeks	Excavator (100%), Small Truck (50%), Roller (20%), Loader (20%)
Surfacing	Deposit of basecourse to road and compaction for seal / asphalt	5 days	Paver (50%) sprayer truck(20%), trucks(80%), Roller (50%)

Table 2.6.2: Key activities

Indicative calculations have been conducted for the main items of equipment based on the outline construction methodology and minimum distances to the nearest neighbours. On this basis the following general noise control measures have been identified as likely to be required to maintain compliance with the construction noise criteria and conform to good practice.

Equipment/process	General noise control measures
Control at source	<ul style="list-style-type: none"> i. Where possible, the quietest machinery and methods available and practicable will be used. ii. All machinery will be either new or in good condition upon its arrival at the site, and will thereafter be maintained in good condition throughout the entire duration of the project. For example, all tracked plant will be greased to reduce squeaking. iii. Upon arrival at the site, the machinery and plant will be checked to ensure that it is not generating unnecessary noise, and will be rectified if necessary.

	<ul style="list-style-type: none"> iv. When selecting any plant such as compressors, generators or pumps for use on the project, the degree of noise generation between models will be considered as a major factor. v. When machinery or plant is not required to be running, it should be switched off and not left idling. vi. Noisy plant and machinery should be strategically positioned on the site to reduce the effects on neighbours where practicable. vii. Where practicable, all plant and equipment shall utilise broadband reverse alarms in place of traditional pure tone 'beepers'. viii. The tail gates of trucks must be closed with care and not slammed or allowed to fall closed causing unnecessary noise. ix. Horns shall not be used under any circumstances unless in the case of an emergency. x. Any radios or music played on site must be inaudible at the nearest dwellings. xi. All workers shall be familiar with the provisions of this CNVMP and made aware of the impacts of noise and the above methods that can be used to minimise noise emissions. xii. Where possible and appropriate, the plant and machinery on the site should be located in such a way that quiet machinery and structures can provide as much screening as possible to other noisy equipment working on the site.
Acoustic screening	<ul style="list-style-type: none"> xiii. All screening used should be located as close as practicable to the noise sources to improve their effectiveness. xiv. Screening should generally be 2.0 m high or 1.5 times the height of the noisiest part of the plant/machinery, whichever is the greater. xv. Where localised screens are used, they should block line-of-sight from the noisiest part of the plant/machinery to the receiver by as much as possible, including the upper facades of any multiple level buildings. The screens should be constructed to extend past the noise source by a distance of 1.5 times the height of the plant/machinery. If possible, the screening should partially surround the noise source. xvi. To be acoustically effective, all screening must be no less than 2 m in height and have a surface density of no less than 10 kg/m² with no gaps along the length of the barrier or between the barrier and the ground. This may be achieved, for example, using sheets of 20 mm plywood or proprietary mobile acoustic barriers. Consult the project acoustics consultant for further options on acoustic barrier design.
Minimum setback distances	<p>Table 5 displays the minimum setback distances for noisy activities on site to comply with the project limits. These are provided for both unmitigated works and when using an acoustically effective barrier. A reduction of 8 – 12 dB is assumed for an acoustically effective barrier, depending on the minimum height of the barrier stated and the noise source.</p> <p>All activities are expected to comply with the project limits using acoustically effective screening. If milling is required within 15 m of an occupied dwelling, a schedule to this CNVMP will be prepared in accordance with Section 12 and this CNVMP will be updated (it cannot be confirmed at this stage if milling is required within the setback distance).</p>

Table 5: Setback distances for noise mitigation

Activity/Equipment	Setback distance and mitigation required
Milling machine	Works within 38 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits. Works within 15 m of an occupied receiver will require 2.5 m high acoustically effective screening to reduce noise levels by as far as practicable
Asphalt paver or 30 t excavator	Works within 22 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits Works within 8 m of an occupied receiver will require 2.5 m high acoustically effective screening to comply with the noise limits
Vibratory roller	Works within 17 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits
20 t excavator, road sweeper and water tanker	Works within 10 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits

Table 2.6.3: Noise mitigation (extract from Styles CNVMP, pgs. 11-13)

2.7 Vibration Sources and Mitigation

The following table shows key activities likely to generate vibration and details of equipment. Where available, measurements/estimates of vibration from that equipment have been included. The validity of this data will be confirmed and adjusted where necessary once site works have commenced.

Activities	Equipment	Vibration data
Excavating soil	20t excavator	2.5mm/s at 3m
Shaking soil from bucket	30t excavator	1.3mm/s at 25m
Laden truck/trailer manoeuvring on site	Truck and trailer	1.7mm/s at 22m
Vibratory compaction	7 t vibrating smooth drum roller	3.2 mm/s at 5 m
Vibratory compaction	10 t steel drum roller	9.9 mm/s at 2 m
Vibratory compaction	10 t steel drum roller	2.4 mm/s at 12 m
Compaction	HAMM HD 75 smooth drum roller	1.6 mm/s at 8 m

Table 2.7.1: Key vibration sources

Indicative calculations have been conducted for the main items of equipment based on the outline construction methodology and minimum distances to the nearest neighbours. On this basis the following general vibration control measures have been identified as likely to be required to maintain compliance with the construction vibration criteria and conform to good practice.

If any specific vibration mitigation measures become necessary, they will be added to Table 2.7.2 of the CNVMP.

Equipment/process	General vibration control measures
General	<p>The following general vibration mitigation measures shall be observed at all times:</p> <ul style="list-style-type: none"> xvii. Where plant items over 20 t are to be used near to the neighbouring dwellings the lightest model practicable shall be selected for the work to minimise induced vibration xviii. Wheeled plant shall be selected in preference to tracked plant where practicable xix. Compaction shall be completed using the lightest practicable compaction equipment (and static compaction only if possible) without sacrificing compaction specifications xx. Excavator operators shall avoid banging buckets on the ground xxi. Workers shall be informed prior to the works commencing to ensure awareness of the impacts of vibration and the methods that can be used to minimise its generation. <p>If any specific vibration mitigation measures become necessary they will be added to this section of the CNVMP.</p>

Table 2.7.2: Vibration mitigation (extract from Styles CNVMP, pg. 13)

2.8 Noise Monitoring

- Noise monitoring shall be conducted by Styles Group (Acoustic and Vibration Consultants) in accordance with NZS 6801:2008 and NZS 6803:1999, using the NZTA construction monitoring survey sheet and procedures (www.acoustics.nzta.govt.nz). Styles Group has been engaged by the contractor to provide this service. Styles Group has prepared a separate operational CNVMP. Styles group has not provided any detail about equipment or methodology used in undertaking noise or vibration monitoring. Styles Group has stated that all monitoring will be undertaken in accordance with the NZS and NZTA guidelines. For this reason, the NZTA CNVMP template table (Noise Monitoring) has been removed from the OMP.

Noise monitoring will be conducted as stated in the operational CNVMP by Styles Group (Styles CNVMP section 12.1) follows:

- To verify the sound levels assumed for each of the major items of equipment when the works start and to assess the effectiveness of noise control measures and implementation of this plan;
- At regular intervals during the works, at least every two weeks, to check ongoing compliance with the construction noise criteria;
- During critical phases of construction, such as during the use of heavy earth moving machinery, rock breaking, and other noisy activities within 50 metres of neighbours;
- As required by a construction noise management schedule; and
- If required, in response to construction noise related complaints.

Following each noise survey, the results will be reported on the NZTA survey report template and any issues discovered will be investigated. Results will be recorded on the project web page on www.acoustics.nzta.govt.nz.

If noise monitoring indicates that project noise criteria are being exceeded, and that was not anticipated in the management schedule for the activity/location, then the management schedule will be immediately reviewed. A schedule will be prepared if one doesn't already exist.

2.9 Vibration Monitoring

Vibration monitoring shall also be conducted by Styles Group (Acoustic and Vibration Consultants) in accordance with ISO 4866:2010 and AS 2187-2:2006. Styles Group completed vibration testing on the 24th March 2020 and has outlined the equipment and methodology used in the report dated 31st March 2020, as follows:

Equipment Used: Measurements were undertaken using an InstanTel Micromate seismic instrument and a DIN 315 Hz tri-axial geophone. Serial numbers and laboratory calibration data is available on request.

Methodology: Vibration measurements were performed by burial method in accordance with the normative references of the DIN 4150–3:1999 standard. The instrument was initially positioned at 5 m from the vibration source. Further vibration measurements were undertaken at 10 m, and 15 m for some sources, depending on the level of vibration measured. Measurements were not undertaken at 10 m and 15 m where the measured vibration levels at 5 m were low enough to demonstrate that compliance with the Category A and / or Category B limits would not be an issue.

Styles Group has stated that all monitoring will be undertaken in accordance with the ISO and AS standards. For this reason, the NZTA CNVMP template table (Vibration Monitoring) has been removed from the OMP.

Monitoring will be conducted as follows:

- Preliminary vibration monitoring (completed 24 March 2020);
- When the works start to verify the vibration levels assumed for each of the major items of equipment, and to assess the effectiveness of the implementation of this plan;
- To monitor ongoing compliance with the construction noise and vibration criteria at regular intervals;
- During critical phases of construction, such as during the first use of heavy earth moving machinery and compaction works within 20 metres of neighbours;
- As required by a construction noise management schedule; and
- If required, in response to construction vibration related complaints.

2.10 Building Condition Surveys

Sensitive locations (identified in Section 2.4) that are within 50 metres of a significant vibration source and where vibration criteria are expected to be exceeded are considered “critical dwellings” by designation condition 11.5d. For any identified critical dwellings, a building condition survey will be conducted prior to the works. Construction will only proceed in those areas where critical dwellings are assessed, monitored and mitigated by suitably qualified persons.

Styles Group were engaged by the contractor to conduct preliminary vibration monitoring and ascertain whether any building surveys were required. There were no critical dwellings identified. Category B criteria could be met. Building surveys were not required.

However, for OMP completeness, if surveys were required, the report prepared for each building surveyed would include:

- A description of the building condition including all existing cosmetic and structural damage;
- A sketch plan of the building and references to points of interest (e.g. photographic record);
- A photographic record showing extent of all existing damage such as cracks; and
- Verification of the report by the surveyor and building owner.

Following the construction works all building condition surveys will be repeated. Reports will be prepared including:

- Sketches and photographs of any new damage; and
- Verification of the report by the surveyor and building owner.

2.11 Documentation

2.11.1 File

All electronic files relating to construction noise and vibration will be kept by the contractor and provided to HCCs monitoring team on request. This will include:

Section 1 – Construction noise and vibration management plans

- This CNVMP and any revisions;
- The Styles Group CNVMP and any revisions;
- Construction Noise and/or Vibration Management Schedules; and
- Construction noise induction sheets.

Section 2 – Consultation and complaints register

- As per CMP Part 1.1.4.

Section 3 – Noise and vibration monitoring

- The Styles Group vibration monitoring report dated 31 March 2020;
- Site survey sheets and associated aerial photographs;
- Site survey summary sheet;
- Survey reports;
- Survey and equipment operating procedures;
- Current and past equipment kit details and calibration summary; and
- Copies of calibration certificates.

2.11.2 Reporting

As required by designation or consent condition 11.1, the following information will be provided to Peter Kirk, Hamilton City Council peter.kirk@hcc.govt.nz in PDF format, within the timeframes stated.

Information reporting requirements

Information	Timeframe
Provisional CNVMP	At least 10 days before works commence
Final CNVMP	Now due
Construction Noise/Vibration Management Schedules	As required; where compliance is <u>not</u> being achieved. Schedules are to be prepared in accordance with the Styles Group operational CNVMP (Section 11.0), as follows: <ul style="list-style-type: none"> • Be prepared in accordance with the State Highway CNV Guide and include relevant details specified in the Guide, including activity specific

	<p>and/or location specific noise and vibration predictions and mitigation;</p> <ul style="list-style-type: none"> • Include noise limits for the activity and an overview of mitigation options that have been considered, identifying which of those options are practicable; • Be provided to the Territorial Authority Chief Executive or nominee at least five (5) working days in advance of the relevant works being carried out and implemented, for certification; • The schedule will identify the potentially affected neighbours and confirm the proposed methodology and equipment to be used, along with specific mitigation; • Noise predictions using BS 5228-2 will be used to identify where specific mitigation is required and to determine compliance with the project noise criteria (refer Section 4) for the time of operation; • The schedule will detail any specific monitoring or communication requirements; and • The schedule will be read and signed by all site personnel involved in the work, prior to the activity commencing.
Noise/vibration survey reports	Within one week of monitoring
Noise/vibration complaint initial report	Within twenty-four hours
Noise/vibration complaint closed	Within one week of closing complaint

Table 2.11.2: Noise and Vibration Reporting Requirements

3.0 Construction Traffic Management Plan (CTMP)

Date Prepared	Prepared by	Reviewed by	Approved by	Status
27/08/2019	Demelza Murphy	Grant Eccles	Sam Le Heron and Peter Kirk (HCC)	Provisional
13/01/2020	Jolene Innes	Matt Nugent		Final

Assessment

An assessment of how the project meets the requirements of Southern Links designation Condition 12.0 is summarised in Table 3.0 below. Where “sections” are referenced in the assessment column below, this refers to sections in the CTMP.

Condition	Description	Assessment
12.1	A CTMP shall be prepared by a suitably qualified and experienced person in accordance with the Code of Practice and after consultation with the TA CE or nominee. The CTMP shall be submitted for certification no later than 40 working days prior to the commencement of any stage during the Construction Works. Construction shall not commence until written certification of the CTMP for that stage has been issued.	The Draft CTMP was prepared by Evolution using NZTA’s standard CAR template. The CTMP has been submitted to the NZTA for consideration.
12.2	The objective of the CTMP is to provide a framework to be adopted by the RA to ensure that the adverse traffic and access related effects of construction are avoided, remedied, or mitigated.	As the NZTA template has been used, the CTMP is considered to satisfy the requirement.
12.3	When requesting certification, the RA shall provide the TA with a letter from each other TA whose roads are affected by the construction traffic confirming that the requiring authority has adequately consulted with that TA in relation to condition 12.5(i) and any effects on that TA’s road network and included adequate measures to manage such effects.	The NZTA provided a letter of approval to the project works on the 12 July 2019. This letter accompanied HCC Outline Plan reference 012.2019.00002492.001 (13 August 2019). A safety audit has been completed. No other TA’s roads are impacted by this project stage. This combination of evidence satisfies the condition.

Condition	Description	Assessment
12.4	The CTMP shall have regard to and where appropriate implement any relevant actions identified in the minutes arising from the Community Liaison Group (CLG) meetings (conditions 3.3 and 3.14).	This condition overlaps 8.7 and 9.2, which are captured in Part 1.2.2 of the Draft CMP. Roading issues flagged at CLG meetings will be compiled by Nathanael Savage (HCC's Communication, Consultation and Property Liaison Manager) who is responsible for coordinating the group. The contractor is then responsible for implementing any relevant actions identified by the CLG. These 'actions' are best housed in the same Management Plan – for this reason, they are held in Part 1.2.2 of the overarching CMP.
12.5	The CTMP shall describe the measures that will be undertaken to avoid, remedy or mitigate the local and network wide construction traffic effects of construction of the project. In particular but not limited to, the CTMP shall describe:	The CTMP satisfies the condition.
a)	Measures to maintain vehicle access to roads and property to defined and approved levels of service. The CTMP shall identify notification thresholds and processes for communicating with affected parties and shall consider whether there are specific user needs that require specific responses.	Access to all properties will be maintained throughout the construction works. There are no specific user needs identified at this stage. The CTMP satisfies the condition.
b)	Measures to maintain access for emergency vehicles, and methods to ensure that emergency service providers are regularly informed of the timing and sequencing of works, road closures and alternative routes.	The CTMP states that STMS will ensure emergency vehicles have priority at all times and will be assisted if required through the closure. Condition 8.6f of the designation requires that communication methods are clearly explained. This is covered in the CCCP under the section "Who's Involved (Target Audiences)". The methods outlined are consistent with NZTA comms management.
c)	The manner in which service providers are regularly informed of the timing and sequencing of works, road closures and alternative routes.	The Contractor will manage service provider comms in accordance with the CCCP. The methods and contact points are outlined in the CCCP. The condition is satisfied.
d)	The timing and sequencing of any road closures that will be required and the nature and duration of any traffic management measures that will result, including any temporary restrictions, detours or diversions;	Traffic management period is from 1 Oct 2019 to 30 September 2020. Speed restrictions will apply within the works zone during this time, as stated in the CTMP. Note: This time frame is now indicative only and does not account for COVID-19 delays.
e)	Measures to ensure safe interaction between project related construction traffic and local road traffic where any temporary or existing local roads cross the Southern Links corridor.	Site and construction vehicles entry and exit from the Northview Capital Ltd site is shown in Figure 1.4 of the CMP (Part 1.0). The site will have two access solutions: temporary and enduring. A temporary dual ingress / egress that uses the existing Northview site access point will apply from site establishment until the enduring access is approved. Enduring access provides separate site entry from Dixon Road and exit via State Highway 3. No right turn across SH3 will be permitted.

Condition	Description	Assessment
f)	Measures to ensure safe access to the project site.	As above.
g)	Measures to monitor the performance against agreed levels of service of all access points to the project site, and all key state highway and arterial local road intersections used by project related construction traffic and the procedures to be followed where intervention is deemed necessary in order to maintain acceptable and reasonable operating conditions on local roads and on the State Highway network.	Monitoring measures will be in the form of agency, project management and public feedback to the contractor and 24hr HCC customer services line.
h)	Measures to ensure that any <u>staging</u> of construction works will adequately avoid, remedy or mitigate traffic related adverse effects.	The East-West Arterial intersection (stage 1) is a small part of the Peacocke project. With a road length of only 400m, the project will not be staged. Mitigation measures to address staging are not required. The condition is satisfied.
i)	Measures to be adopted to identify routes to be used (and roads to be specifically avoided) for project related Heavy Commercial Vehicles (bulk or HVCs) for shifting bulk materials (such as earth fill, pavement materials or water) and implement temporary traffic management controls in accordance with the CoP for Temporary Traffic Management (CoPTTM).	Where possible, earthworks (cut) has been used for bunding within the site to reduce impact on the road network. A stockpile area is shown in Figure 1.4. Contamination and surplus cut have been removed from the site. The CTMP conforms with CoPTTM.
j)	Measures to ensure the use and reinstatement (to a mutually agreed standard) of local roads to be used as haul roads. The CTMP shall also describe the assessment and monitoring of road conditions and implementation of mitigation works.	No local roads will be used as haul roads. Access to the site will occur directly via SH3.

Table 3.0: Assessment of Condition 12.0

The objective of this CTMP is to ensure adverse traffic and access related effects will be avoided, remedied or mitigated. This CTMP is to be read in conjunction with the CMP and CCCP which outline the construction works programme, key contact persons, site management methods and process for managing information flow and complaints. Reading these plans in conjunction avoids unnecessary duplication of conditions responses, particularly with respect to contact persons, information sharing and complaints management.

4.0 Construction Communication and Consultation Plan (CCCP)

Date Prepared	Prepared by	Reviewed by	Approved by	Status
23/09/2019	Demelza Murphy	Grant Eccles	Sam Le Heron and Peter Kirk (HCC)	Provisional
13/01/2020	Jolene Innes	Matt Nugent		Final

Assessment

An assessment of how the project meets the requirements of Southern Links designation Condition 8.0 is summarised in Table 4.0 below. Where “sections” are referenced in the assessment column below, this refers to sections in the CCCP.

Condition	Description	Assessment
8.1	The RA shall make a contact person available 24hrs, seven days a week for the duration of construction for public enquiries about the Construction Works.	As discussed in the CMP and reiterated in the CCCP, the 24hr contact is Hamilton City Council customer service line 07 838 6699. The HCC customer service line personnel ‘triage’ the call accordingly.
8.2	The RA shall submit A CCCP prepared by a suitably qualified and experienced person, which shall be implemented and complied with for the duration of the construction project.	The CCCP was prepared by HCC Communications Team Leader Hamish Utteridge with support from consultants. The CCCP will be included in the tender information package. The Contractor will work with HU to update the CCCP once appointed.
8.3	The CCCP shall be submitted for certification no later than 40 working days prior to the commencement of any stage of Construction Works.	The Draft CCCP was submitted to HCC for provisional approval within the 40 working day period.
8.4	The objective of the CCCP is to set out a framework to ensure appropriate communication and consultation is undertaken with the relevant community, stakeholders, directly affected parties, and affected parties in proximity during construction.	The CCCP is a comprehensive framework that meets the condition requirements. All stakeholders are identified (refer to CCCP tables) and communication methods are outlined.
8.5	The CCCP shall set out how the RA will:	
a)	Inform the community of construction progress and future construction activities and constraints that could affect them;	The CCCP section “How We’re Going to Say It (Communication Methods)” contains the how.
b)	Receive and respond to feedback on construction related matters; and	Part 1.1 of the CMP outlines process for contacting the key persons associated with site works. Part 1.1.4 also outlines process and timeframes for complaints management.
c)	Provide information on key project milestones.	The CCCP sections “What’s Happening Now” and “What We’re Going to Say (Key Messages) contains the key project milestone information.
8.6	The CCCP shall, as a minimum include:	

Condition	Description	Assessment
a)	A communications framework that details the strategies, accountabilities and timeframes for responding to inquiries and complaints, frequency of communications and consultation, the range of communication and consultation methods to be used (including any modern and relevant communication methods, newsletters or similar advertising), and any other relevant communication matters;	These points are covered in a mix of the CCCP and the CMP (Part 1) as stated in Condition 8.5b above.
b)	The Communication, Consultation and Property Liaison Manager for the project (required by Condition 3.2) including their contact details (phone, email and postal address);	This is covered in the CCCP “Who’s Involved (Project Team)” section.
c)	How the community, stakeholders, directly affected and affected in proximity parties will be notified of the commencement of construction activities and works, the expected duration of the activities and works, and who to contact for any queries, concerns and complaints;	The CCCP section “How We’re Going to Say It (Communication Methods)” contains the how. Mailbox drops and individual contact will be made with these parties explaining the condition requirements of 8.6c. Additional communications will be extended to those properties within 20m, 50m and 100m of the construction zone, for noise and vibration activities (Part 2.5 of the CNVMP). The Contractor is responsible for these communications and will have support from HCC comms member, HU.
d)	Methods for communicating in advance any temporary traffic management measures, and permanent changes to road networks and layouts to the community, stakeholders, directly affected, and affected in proximity parties;	Temporary TMP measures will be communicated via VMS boards, social media and HCC’s community reach portals as explained in the CCCP.
e)	Methods for communicating in advance proposed hours of construction activities outside of normal working hours and on weekends and public holidays to surrounding communities and methods to record and deal with any concerns raised about such hours; and	A combination of methods will be used as outlined in the CCCP and CNVMP. Concerns and complaints are managed in accordance with Part 1.1.4 of the CMP.
f)	Methods for communicating and consulting in advance of construction works with emergency services (Police, Fire, Ambulance) on the location, timing and duration of Construction Works.	Communications will be sent via email, to the addresses identified in the CCCP Section “Who’s Involved (Target Audiences)”. This is consistent with how the NZTA manage their comms.
8.7	The CCCP shall have regard to, and where appropriate, implement any relevant actions identified in the minutes arising from the Community Liaison Group (CLG) meetings (Conditions 3.3 and 3.14).	This condition overlaps 12.4 and 9.2, which are captured in Part 1.1.2 of the CMP. Issues flagged at CLG meetings will be compiled by Nathanael Savage (HCC’s Communication, Consultation and Property Liaison Manager) who is responsible for coordinating the group. The contractor is then responsible for implementing any relevant actions identified by the CLG. These ‘actions’ are best housed in the same Management Plan – for this reason, they are held in Part 1.1.2 of the overarching CMP.

Table 4.0: Assessment of Condition 8.0

NAME OF PROJECT: PEACOCKE EAST-WEST ARTERIAL INTERSECTION, (STAGE 1)

SITE CONTRACTOR	Schick Civil Construction Matt Nugent 0210755920 matt.nugent@schick.co.nz PO Box 20463 Te Rapa Hamilton 3200
24hr CONTACT PERSON	Hamilton City Council 07 838 6699 info@hcc.govt.nz Private Bag 3010 Hamilton 3240
PROJECT OWNER (HCC)	Nathanael Savage (NS)
COMMUNICATION, CONSULTATION AND PROPERTY LIAISON MANAGER (HCC)	Nathanael Savage (NS) 07 838 6527 nathanael.savage@hcc.govt.nz Hamilton City Council Private Bag 3010 Hamilton 3240 www.hamilton.govt.nz
COMMUNICATION AND ENGAGEMENT ADVISOR (HCC)	Hamish Utteridge (HU) Simone Van Asbeck (SV)
DATE OF PLAN	12 February 2020

WHAT'S HAPPENED SO FAR (CONTEXT)

*To enable the development of an attractive and sustainable community in Peacocke.
Ko te aaheinga o te hanga he waahi ataahua, he waahi toiora ki Peacocke.*

PREPARATIONS TO START FOR NEW SOUTHERN ROUNDABOUT

Preparing for a new roundabout with dedicated access for pedestrians and people on bikes is the next stage to enable the creation of a new neighbourhood in Peacocke, south of Hamilton. The roundabout, south of Dixon Rd, will link Ōhaupō Rd/State Highway 3 (SH3) with a yet-to-be-built new road through Peacocke referred to as the East-West Arterial. The intersection will be a large flowing, three-leg roundabout which will make accessing the area safer and easier for people exiting Dixon Road and heading north (see plan overleaf).

To prepare for construction of the roundabout, scheduled for completion in 2021, enabling works have commenced to move a range of underground services including power, gas and telecommunications lines. The most significant part of this work requires shifting a large strategic bulk watermain - large pipes which feed water from the Hamilton South reservoir to the southern part of the city.

WHAT'S HAPPENING NOW (INTRODUCTION)

MINIMISING DISRUPTION FOR RESIDENTS AND ROAD USERS

The enabling works are expected to take two to three months. Completing this work safely will mean some disruptions to traffic and detours for some residents and road users. Two-way traffic flows on

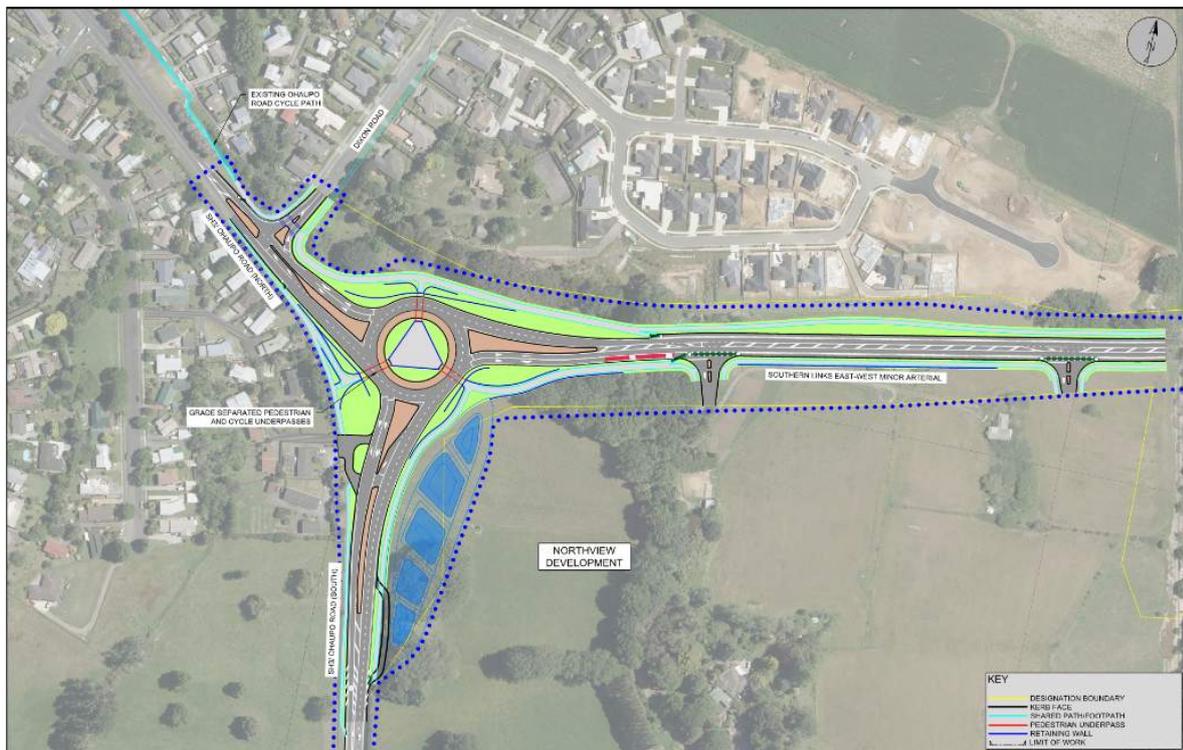
Ōhaupō Rd/SH3 will be maintained, with lane deviations in place. The southern end of Dixon Rd (intersection with Ōhaupō Rd SH3) has been temporarily closed to through traffic and a detour is in place via Garden Heights Avenue and Pelorus Street for up to 14 weeks.

West Construction Ltd, in conjunction with other major utility providers are relocating the services. The bulk watermain and other services will move from the eastern berm to the western berm of Ōhaupō Road south of Dixon Road. XYZ Contractors will be constructing the roundabout.

Hamilton City Council’s Peacocke programme will deliver a new bridge, main roads, parks, and strategic water, wastewater and stormwater networks. Other work includes protecting and enhancing the environment, including the extensive gully system, and investigating community facilities which are important to creating a new community in Peacocke.

The work is supported by Government funding of \$290.4M made up of \$180.3M from a Government 10-Year interest-free loan and \$110.1M of NZ Transport Agency subsidies. When completed, Peacocke will be home for more than 20,000 Hamiltonians.

[Hamilton.govt.nz/peacocke](https://www.hamilton.govt.nz/peacocke).



PEACOCKE EAST-WEST ARTERIAL (STAGE 1) CONSTRUCTION

Work on the new intersection is about to commence and will be finished by June 2021. This relatively small project is integral to open access to the Northview property and Peacocke growth cell area.

Earthworks are a large part of this project and construction works will largely be completed off-line, meaning SH3 will remain open and reduce impact on traffic flows. The roundabout features underground pedestrian and cycle tunnels with stylised pavements and planting that acknowledges our cultural links.

WHO'S INVOLVED (PROJECT TEAM)

PROJECT MEMBER	INVOLVEMENT
SITE CONTRACTOR	Schick Civil Construction Matt Nugent 0210755920 matt.nugent@schick.co.nz PO Box 20463 Te Rapa Hamilton 3200
24hr CONTACT PERSON	Hamilton City Council 07 838 6699 info@hcc.govt.nz Private Bag 3010 Hamilton 3240
Business Owner / Project Manager	Nathanael Savage (NS)
COMMUNICATION, CONSULTATION AND PROPERTY LIAISON MANAGER	Nathanael Savage (NS) 07 838 6527 nathanael.savage@hcc.govt.nz Hamilton City Council Private Bag 3010 Hamilton 3240 www.hamilton.govt.nz
Communication and Engagement Advisor	Hamish Utteridge (HU) / Simone van Asbeck (SV)

WHAT WE WANT TO ACHIEVE (PURPOSE, GOALS, OBJECTIVES)

Purpose of this communication plan

To establish a framework that successfully delivers timely and accurate information regarding construction of the Peacocke East-West Arterial intersection (Stage 1) project to key stakeholders, residents (direct neighbours and in the vicinity) and road users. This involves minimising and mitigating issues and complaints to give our stakeholders the best possible experience during the construction phase of the project.

This CCCP sets out how the Council will:

- Inform the community of construction progress, and future construction activities that may affect them;
- Share temporary traffic management measures;
- Share permanent road layout or network changes;
- Advise about works occurring outside of normal operating hours;
- Receive and respond to feedback on construction matters; and,
- Provide information on key project milestones.

This CCCP ensures we meet Condition 8.0 requirements of the designation that require a framework that:

- Responds to enquiries and complaints;
- Identifies key accountabilities and timeframes for managing enquiries and complaints;
- Identifies the methods to be used; and
- Outlines the frequency of communications.

This CCCP outlines the methods that we will use to communicate and consult with emergency services in advance of construction works on the **location, timing and duration** of construction works.

Goal

To use world class communication to demonstrate that Hamilton is a city that embraces growth and cares about its residents. We have infrastructure that meets current demands, supports growth and helps build a strong economy.

Objectives

- Ensure internal audiences including Elected Members are fully informed as the project develops
- Increase awareness of the Peacocke East-West Arterial intersection (Stage 1) project and the Peacocke Programme using clear and transparent communication. This can be measured by gathering feedback at Your Neighbourhood events, face to face meetings and through customer service interactions and social media interest e.g. likes, shares, comments, messages
- Ensure residents are informed of any effects on access to their property and traffic delays. This can be measured by feedback received through social media and customer service interactions
- Minimise stakeholder complaints. This can be measured by the number of complaints received through social media and customer service interactions
- Respond to questions or concerns within five working days
- Create opportunities for weekly good news stories and internal pieces to promote the Peacocke Programme.

WHEN ARE WE GOING TO DO IT (TIMELINES)

STAGE	RESPONSIBILITIES	DATES
1. Planning	SE	Sept 2019
2. Research (background info)	HU/SV	Sept 2019
3. Campaign		
Your Neighbourhood public open day events	TW / HU / SV	Every 6 months
Southern Links mailing lists	NS	
Social media	HU/NJ	
Website updates	HU/LB	
Elected Member summary	HU/SV	
Letterbox updates	Contractor	Monthly
4. Evaluation	SE/HU	

The contractor will keep a communication register for all communications that it manages. The communication register will be provided to the Project Manager on a monthly basis.

WHO'S INVOLVED (TARGET AUDIENCES)

TARGET AUDIENCE	CONTACT	HCC TOUCHSTONE	PLACE ON THE IAP2 SPECTRUM
<i>Individuals, sectors or known groups</i>	<i>Primary contact person, email or contact details</i>	<i>Who to contact if direct contact unknown or ineffective</i>	<i>Inform, Consult, Involve, Collaborate, Empower</i>
Key Stakeholders			
Elected Members			Inform
<i>Role / Level of Interest:</i>	Elected members will receive the Elected members (EM) summary at the beginning of the project. They will then receive regular updates via the Hamilton City Council website, Daily Mail, Facebook posts, Our Hamilton and other additional sub-pages.		
Iwi	<p>Tangata Whenua Working Group (TWWG) Ikimoke Tamaki-Takarei (Lead) ikimoke.tamaki-takarei@waikatodhb.health.nz</p> <p>Te Haa o te whenua o Kirikiriroa (THaWK) Rawiri Bidois (Chairman) rawiribidois@gmail.com</p> <p>Tainui Group Holdings Richard.Jefferies@tgh.co.nz</p>	Contact - Andrew Parsons	Collaborate
<i>Role / Level of Interest:</i>	The project team will provide regular updates to iwi partners		
Hamilton City Council	<p>Customer Support Team Dave.Heatley@hcc.govt.nz</p> <p>Transportation department Andrew.Parsons@hcc.govt.nz Karen.Saunders@hcc.govt.nz Julia.Jackson@infrastructurealliance.co.nz</p> <p>Glenview Library</p>		Collaborate
<i>Role / Level of Interest:</i>	<p>Customer support will receive a summary of the works prior to commencement and regular updates as works progress. They will receive any emergency or critical information from Nathanael Savage.</p> <p>The project team will provide regular updates and collaborate with the Council's Transport team to ensure that they are aware of any up and coming works, changes to the Traffic Management Plan (TMP) or significant works that required further communication to stakeholders</p> <p>The Council staff receive regular updates via the Council's website, Daily Mail, Facebook posts, Our Hamilton and other additional sub-pages.</p>		
The New Zealand Transport Agency (NZTA)	<p>Adrian.Bathgate@nzta.govt.nz 07 958 9601 Sarah-lee.crellin@nzta.govt.nz</p> <p>Journey Manager liam.ryan@nzta.govt.nz</p>	NZTA Alternative Sarah-Lee Crellin or HCC Andrew Parsons	Collaborate
<i>Role / Level of Interest:</i>	Will need to approve media releases and any communications that relate to them. The project team will provide regular updates to NZTA. The Council and its contractors will		

	<p>deliver the project safely and on time (June 2021), mitigating disruption to road users using SH3.</p> <p>NZTA comms rep Adrian Bathgate has signalled interest in being involved in development of all outgoing comms.</p>		
Neighbouring TAs	mike.uerata@waipadc.govt.nz		
Role / Level of Interest:	<p>Transportation networks and linkages across district / region.</p> <p>Shared or another agency road network directly affected.</p> <p>Contractor to provide construction updates, road closures, alternative routes, .</p>		
Transportation Networks	<p>GO BUS</p> <p>hamilton@gobus.co.nz</p> <p>teawamutu@gobus.co.nz</p> <p>hamilton.charters@gobus.co.nz</p> <p>BUSIT</p> <p>busit@waikatoregion.govt.nz</p> <p>Contact Barbara Bielby</p> <p>Intercity</p> <p>info@intercitygroup.co.nz</p> <p>samp@intercitygroup.co.nz</p> <p>Hamilton Airport</p> <p>Rebecca.corbett@hamiltonairport.co.nz</p>		Inform
Role / Level of Interest:	<p>Public Transport hub and service to Glenview / Peacocke. Information to drivers and schedulers. Information available to customers at Transport Centre / linked to transport timetables / information.</p> <p>Contractor to provide construction updates, road closures and alternative routes to Transportation partners.</p>		
Emergency responders	<p>Karl Thornton, Police Operations Manager, Waikato Area was identified as relevant contact, no contact information available.</p> <p>NZ Police</p> <p>For all areas, email Joan who will disseminate to relevant stations/divisions:</p> <p>Joan.chamberlain@police.govt.nz</p> <p>St John</p> <p>Noel.gleeson@stjohn.org.nz</p> <p>Central Regional Communications Advisor</p> <p>Stuart.cockburn@stjohn.org.nz</p> <p>District Operations Manager Central</p> <p>melissa.peters@stjohn.org.nz</p> <p>FENZ Comms centre: 09 486 7949</p> <p>For all areas, email Kimberley who will disseminate to relevant stations/divisions:</p> <p>07 839 4996</p> <p>Kimberley.McCarthy@fireandemergency.nz</p> <p>FENZ Planning and Intelligence</p> <p>07 839 4996</p> <p>Mark.lim@fireandemergency.nz</p> <p>Waikato Hospital</p> <p>news@waikatodhb.health.nz</p> <p>Braemar Hospital</p> <p>Reception1@braemarhospital.co.nz</p>		Involve

<i>Role / Level of Interest:</i>	Condition 8.6(f) requirement for advanced comms for location / timing / duration of works to ensure emergency responders have relevant access information to Peacocke. Ensure that contractor information and key site contacts are included. Ensure that same level of comms is also circulated to hospitals in vicinity. Contractor to provide construction updates, road closures and alternative routes to emergency services partners.		
Community Liaison Group (CLG)			Collaborate
<i>Role / Level of Interest:</i>	NS attends CLG meetings and holds a spreadsheet / database of contacts. Conditions 8.7, 9.2 and 12.4 require that regard is had to, and where appropriate, actions arising from CLG meetings are implemented. These actions are compiled by Nathanael Savage (HCC's Communication, Consultation and Property Liaison Manager) who is responsible for coordinating the group. The contractor is advised; actions and implementations are captured in an update to Part 1.1.2 of the CMP.		
City Waters	Evan Vaughters Evan.Vaughters@hcc.govt.nz		Collaborate
<i>Role / Level of Interest:</i>	The project team will provide regular updates and collaborate with the City Waters team so that they are aware of any up and coming works effecting the water services to notify their stakeholders.		
Associated service providers	Chorus - Ruthie Coltrane WEL - Miranda McLean LINZ Ultra Fast Fibre First Gas		Collaborate
<i>Role / Level of Interest:</i>	The contractor will liaise with associated service providers who will communicate to their customers regarding potential planned power outages and planned service switches that may affect residents. The contractor will advise of any road closures and alternative routes. They will update the project team and provide copies of communications.		
Automobile Association (Roadwatch highway reports)	Andrew McKillop (Waikato AA Chair) broberts@aa.co.nz ; adick@aa.co.nz ; cmcdonald@aa.co.nz ;		
<i>Role / Level of Interest:</i>	They provide updates to the membership who are road users. Contractor to provide construction updates, road closures and alternative routes to Transportation partners.		
Road Transport Agencies	Road Transport Association kmcguire@rtanz.co.nz Northland, North Waikato, Thames and Auckland dcox@rtanz.co.nz Bay of Plenty, SW, Taupo ckerr@rtanz.co.nz Road Transport Forum NZ Kerry@rtf.nz ken.shirley@rtf.nz		
<i>Role / Level of Interest:</i>	Represent road freight operators of all types and sizes, from courier companies and owner/drivers to large fleet operators and the companies that work alongside the freight transport industry. Contractor to provide construction updates, road closures and alternative routes to Transportation partners.		
Heavy Haulage Operators	Allied Petroleum Lisa.creagh@alliedpetroleum.co.nz Bulk Lines (Otorohanga) 07 873 4114 ctelfer@bulklines.co.nz		

	<p>Heavy Haulage Association info@hha.org.nz Jonathan Bhana-Thomson, CE HHA jonathan@hha.org.nz 04 4720366 or 027 417 5554</p> <p>House Relocators Ltd bryan@houserelocators.co.nz</p> <p>Haines Haulage terrencehannam@gmail.com</p> <p>Otorohanga Transport 07-873 7937 despatch@otlgroup.co.nz</p> <p>Pilot Vehicle (Peter Dunn) jkpilotserve@xtra.co.nz</p> <p>Porter Heavy Haulage (Mike) transport@portergroup.co.nz</p> <p>Regal Haulage reception@regalgroup.co.nz</p> <p>Toll Group bonty.ranapiri@tollgroup.com</p>		
<i>Role / Level of Interest:</i>	Truck movements through the works area. Works may prompt drivers to use alternative routes. Contractor to provide construction updates, road closures and alternative routes to Transportation partners.		
National Road Carriers	<p>General administration email enquiries@natroad.co.nz</p> <p>Membership Coordinator/Administrator suzi.keene@natroad.co.nz damon.cooper@natroad.co.nz grant.turner@natroad.co.nz tom.cloke@natroad.co.nz</p>		
<i>Role / Level of Interest:</i>	Truck movements through the works area. Works may prompt drivers to use alternative routes. Contractor to provide construction updates, road closures and alternative routes to Transportation partners.		
Fonterra	<p>Te Rapa Transport Manager dean.parkes@fonterra.com</p> <p>Barry.mccoll@fonterra.com John.Herbert@fonterra.com PandDManagers@fonterra.com DLTeamPlanning_Dispatch_Management_Team@fonterra.com</p>		
<i>Role / Level of Interest:</i>	Truck movements through the works area. Works may prompt drivers to use alternative routes. Contractor to provide construction updates, road closures and alternative routes to Transportation partners.		
Affected Groups			

Northview Capital Limited “Directly Affected” (DA)	Tristan Jones tristan@jonesgroup.co.nz	Contact – Andrew Parsons/Karen Saunders	Collaborate
<i>Role / Level of Interest:</i>	Northview Capital Ltd is also a key stakeholder. The project team will provide regular updates and collaborate with Northview Capital Ltd. to ensure that they have space and access to enable the developer to complete their required works. The contractor will advise of any road closures and alternative routes.		
“BWM affected” Ōhaupō Rd SH3 right of way residents (350 to 366B Ōhaupō Rd).	William.thompson@hcc.govt.nz Stacy.mahon@hcc.govt.nz NZTA VMS board contact tmcooperator@nzta.govt.nz operators on duty Claire.howard@nzta.govt.nz copy information only	William Thompson HCC will provide up to date mail merge lists on request. Secondary Stacy Mahon.	Inform
<i>Role / Level of Interest:</i>	VMS, TM signage and detour signage will be set up to assist road users. Residents will receive letter box drop by contractor prior to construction and updates when required during construction, particularly if any works preclude access to property. Mail merge list to be obtained by Project Team and forwarded to Contractor to implement. The contractor will advise of any road closures and alternative routes. Note: There are specific condition requirements relating to communications for noise and vibration which are captured in the CNVMP Part 2.0. This impacts neighbours within 20m, 50m and 100m of the works zone. They will then receive regular updates via the Hamilton City Council website, Facebook page, Our Hamilton and other additional sub-pages.		
“Affected in Proximity” (AIP) Ōhaupō Rd, Exeter St, part Dixon and Pelorus St, Homestead Pl, Cabourne Dr, Blackwood Cres, Pear Tree Ln, Soo Yong Pl, Mila Page Cl, Oregon Cres,	William.thompson@hcc.govt.nz Stacy.mahon@hcc.govt.nz NZTA VMS board contact tmcooperator@nzta.govt.nz operators on duty Claire.howard@nzta.govt.nz copy information only	William Thompson HCC will provide up to date mail merge lists on request. Secondary Stacy Mahon.	Inform
<i>Role / Level of Interest:</i>	These are residences within 200m of the designation boundary, as identified in the designation definitions. VMS, TM signage and detour signage will be set up to assist road users. Residents will receive letter box drop by contractor prior to construction and updates when required during construction. Mail merge list to be obtained by Project Team and forwarded to Contractor to implement. The contractor will advise of any road closures and alternative routes. Note: There are specific condition requirements relating to communications for noise and vibration which are captured in the CNVMP Part 2.0. This impacts neighbours within 20m, 50m and 100m of the works zone. They will then receive regular updates via the Hamilton City Council website, Facebook page, Our Hamilton and other additional sub-pages.		
“BWM wider scope” Ōhaupō Rd, Dixon Rd, Sapling Dr,	William.thompson@hcc.govt.nz Stacy.mahon@hcc.govt.nz NZTA VMS board contact tmcooperator@nzta.govt.nz operators on duty	William Thompson HCC will provide up to date mail merge lists on	Inform

Pelorus St, Homestead Pl, Garden Heights Ave, Cabourne Dr, Blackwood Cres, Pear Tree Ln, Soo Yong Pl, Mila Page Cl, Oregon Cres, Briannarose Dr, Ladeira Pl, Inuwai St, Te Tiireke Dr, Heke Ln, Hahawaru Ln, Hourua Ln, Branca Cl, Bostonkip Cr, Yanicks Cres, Moira's Ln, part Lansdowne Cr and Splitt Ave, Essendon Ct, Surrey Ln, Lorraine Pl, Sunnyhills Ave, Houchens Rd, Aloma Way, John Webb Dr, Acacia Cres.	Claire.howard@nzta.govt.nz copy information only	request. Secondary Stacy Mahon.	
<i>Role / Level of Interest:</i>	VMS, TM signage and detour signage will be set up to assist road users. Residents will receive letter box drop by contractor prior to construction and updates when required during construction. Mail merge list to be obtained by Project Team and forwarded to Contractor to implement. The contractor will advise of any road closures and alternative routes. They will then receive regular updates via the Hamilton City Council website, Facebook page, Our Hamilton and other additional sub-pages.		
West Construction	Heath Rickit		Inform
<i>Role / Level of Interest:</i>	Currently contact for West Construction, responsible for the enabling works programme.		
Summerset Retirement Village	Village Manager, Joanna Smith 206 Dixon Road hamilton.vm@summerset.co.nz 07 834 6590		Inform
<i>Role / Level of Interest:</i>	On Dixon Road, new community village, and provide daily information outlet opportunity to residents. Contractor to provide construction updates, road closures and alternative routes as courtesy.		
Glenview Club Inc	211 Peacockes Road glenviewclub@xtra.co.nz 07 843 7129		Inform
<i>Role / Level of Interest:</i>	Run a courtesy member van and provide daily information outlet opportunity to the membership and travellers accommodated on site. Contractor to provide construction updates, road closures and alternative routes as courtesy.		
Road users commuting to and from Te Awamutu/Hamilton Airport			Inform

<i>Role / Level of Interest:</i>	VMS, TM signage and detour signage will be set up to assist road users. They will then self-direct to obtain regular updates via the Hamilton City Council website, Facebook page, Our Hamilton and other additional sub-pages.		
Schools / Early Education / Daycare / Tertiary Providers	<p>Rukuhia Primary School 58 Rukuhia Road, RD2, Ōhaupō 3882 07 843 6967 office@rukuhia.school.nz</p> <p>Glenview Primary School Bruce Ave, Glenview 07 843 5598 office@glenview.school.nz</p> <p>Shirley Muir Kindergarten 15 Te Anau Pl, Glenview 07 843 7945 wka@kindergarten.org.nz</p> <p>Glenview Park Kindy 4 Bruce Ave, Glenview 07 843 3659 glenviewparkkindy@xtra.co.nz</p> <p>Te Wānanga o Aotearoa 254 Ōhaupō Road, Glenview 07 843 2763 TeWaengaMR@twoa.ac.nz</p>		Inform
<i>Role / Level of Interest:</i>	Provide an information outlet opportunity to staff and the nearby community via regular school newsletters and staff room. Contractor to provide construction updates, road closures and alternative routes as courtesy.		
BP Glenview, New World Glenview, Glenview Centre NZ Post and Kiwibank, Zibido, Tastebuds Coffee Shop, Golden Bell Takeaways, employees and customers	<p>BP Glenview 07 843 4491 Ben.Phibbs@bp.com</p> <p>Glenview New World 07 843 4452 Shelley.wynne@nw.co.nz; David.wynne@nw.co.nz</p> <p>Glenview NZ Post and Kiwibank 07 843 4018</p> <p>Golden Bell 07 843 3268 Tastebuds 07 843 6000</p> <p>Zibido 07 843 6621 zibidohair@windowsslive.com</p>		Inform
<i>Role / Level of Interest:</i>	Community notice boards and customer flows are to share information. They will receive regular updates via the Hamilton City Council website, Facebook page, Our Hamilton and other additional sub-pages. Contractor to provide construction updates, road closures and alternative routes as courtesy.		
Southern Links Project Update mailing list			Inform
<i>Role / Level of Interest:</i>	They will receive regular communications via email to comply with Southern Links designation conditions.		
City wide			Inform
Community Interest Organisations	<p>Maurice.Flynn@ccsdisabilityaction.org.nz; fgreen@rnzfb.org.nz; Brent@ageconcern.gen.nz; info@bikewaikato.org.nz; cawaikato@can.org.nz</p>		Inform

Role / Level of Interest:	They will receive invitations to Your Neighbourhood open day events and regular updates via the Hamilton City Council website, Facebook page, Our Hamilton and other additional sub-pages.
---------------------------	--

WHAT WE'RE GOING TO SAY (KEY MESSAGES)

RELEVANT COMMUNITY OUTCOME KEY MESSAGES (Embracing growth, Great River City, Best in Business)

- Peacocke is the city's biggest growth project, creating a whole new neighbourhood in the city's south which will be home for more than 20,000 Hamiltonians.
- Peacocke is being built with the support of \$290.4M of government funding, with a 10-Year interest-free loan saving \$65M in interest costs.
- The roading network for Peacocke has been developed through Southern Links, a Hamilton City Council - NZ Transport Agency joint project. The statutory process to designate the Hamilton City Council part of Southern Links was completed on 9 March 2016.
- Hamilton is the hub of a central Waikato region which will grow to half a million people in the coming decades.
- This is not just about plans, this is about people.
- We must look ahead 20, 50 or even 100 years to ensure Hamilton's liveability is maintained.
- Hamilton City Council's Peacocke programme will deliver a new bridge, main roads, parks, and strategic water, wastewater and stormwater networks. Other work includes protecting and enhancing the environment, including the extensive gully system, and investigating community facilities which are also important parts of creating a new community in Peacocke.

PROJECT KEY MESSAGES

Note – these may differ amongst stakeholders.

- The new roundabout with dedicated access for pedestrians and people on bikes is the next stage to enable the creation of a new neighbourhood in Peacocke, south of Hamilton.
- The roundabout, south of Dixon Rd, will link Ōhaupō Rd/SH3 with a yet-to-be-built new road through Peacocke.
- The intersection will be large flowing, three-way roundabout which will make accessing the area safer and easier for people exiting Dixon Road.
- Scheduled for completion in 2021, the new roundabout will improve safety for road users turning in and out of Dixon Road. There will be no right turn out of Dixon Rd onto Ōhaupō Road/SH3. Instead, vehicles will turn left at a Give Way and use the new roundabout to travel north, south or into Peacocke. Vehicles will still be able to turn into Dixon Rd from both directions as they usually would (see plan overleaf).
- Removing the right turn out of Dixon Road will remove the risk of right-turning vehicles being T-boned and reduce queues on Dixon Road. At peak traffic times, it may even be quicker than turning right!
- To prepare for construction of the roundabout, enabling works to move a range of underground services including power, gas and telecommunications lines are underway. The most significant part of this work requires shifting a large strategic bulk watermain - large pipes which feed water from the Hamilton South reservoir to the southern part of the city. The SH3 end of Dixon Road is closed for the duration of these enabling works (14 weeks).
- Two-way traffic flows on Ōhaupō Rd/SH3 will be maintained, with lane deviations in place.

- We'll try not to disrupt our neighbours by keeping our construction within the hours of 7am and sunset, Monday to Friday and 8am to 4pm on Saturday. If for any reason the project is delayed and we need to work on weekends or public holidays, we'll make sure we give you as much notice as we can.

WHAT WE NEED TO BE AWARE OF (RISKS / OPPORTUNITIES)

RISKS

List all of the things that could negatively impact your engagement process and think about what you will do to mitigate these.

RISK	HOW WE WILL MITIGATE THIS
Communications risks	
Stakeholders lack of understanding of the project – failure to understand.	We will use plain language and identify the correct audiences.
Stakeholders lack of understanding of the project – failure to deliver key messages.	We will develop a method for advance communication and will develop a method to record customer feedback and complaints, reporting regularly to the project team. We will note public holidays and weekend working hours at the site and make sure this information is available to the community in advance.
Failure to reach the right audiences.	Check that previous emergency response team touchstones are still appropriate / up to date. Review stakeholders with the team and work with key people who we know about already. Create mail merge list for affected adjacent residents. Create electronic mail merge list for affected adjacent residents.
Project risks	
Failing to complete the construction of the roundabout prior to the end date (June 2021). This is the expiry date for the interest-free loan funding the project. The Council does not own the land and has a Licence to Occupy (LTO) with the land owner until June 2021. It is also a large reputational risk amongst stakeholders.	Ensure that all Council staff and contractors are aware of the time-frames and background/significance of the project using effective internal communications.
Discovery of bats. Discovery of bats can affect construction time-frames.	Follow the Environmental Management and Monitoring Plan (EMMP) processes to ensure all the correct steps are followed in reasonable timeframes.
Damage or failure of the bulk water main while relocating the pipes. This is the main water main for the area. Major damages could cause significant delays including the potential road closure of Ōhaupō Road/SH3 to repair the damages.	Communicate the issue to affected stakeholders and detail what will be done and when to resolve this issue. Consultation with City Waters around shutdown timing, work procedures and approval of relevant contract plans (e.g. commissioning and disinfection plans).
Failure of street lights.	Communicate the issue to affected stakeholders and detail what will be done and when to resolve this

The street lights on Ōhaupō Road/SH3 must remain operational throughout the entire project. It is a major health and safety concern expressed by NZTA.	issue. Look to alternative mitigation solutions such as temporary lighting. Consultation with WEL Networks to ensure street lights remain operational.
Potential archaeological finds.	Stop works immediately in the area and follow the correct procedures if an archaeological discovery is made. This includes notifying local Iwi, Kaitiaki and an archaeologist. Communicate the discovery appropriately under guidance from Iwi.
Reputational risk due to a stakeholder complaint on social media or other media channels. This could be due to a number of causes including but not limited to health and safety, quality, environmental, stakeholder, environmental or other protester / group, and traffic management.	Respond to the complainant directly to understand the issue and offer the appropriate solution if required. Explore other mitigations as required.

OPPORTUNITIES

List all of the things that could positively impact your engagement process and think about what you will do to maximise these.

OPPORTUNITY	HOW WE WILL MAXIMISE THIS
Internal staff - human interest stories	Reach out to staff for stories.
Discovery of bats	Photo/video/story opportunity for social media and other external communications.
Potential archaeological finds	Story opportunity for social media and other external communications.
The roundabout will make it safer and easier for people entering and exiting Dixon Rd	Key messaging story to promote the project.
There will be dedicated access for pedestrians and people on bikes	Key messaging story to promote the project.

HOW WE'RE GOING TO SAY IT (COMMUNICATION METHODS)

METHOD	TARGET AUDIENCE(S)	RESPONSIBILITY	KEY DATES	HOW WILL WE MEASURE SUCCESS?
Project sign board	Road users	Contractor	Install prior to the start of construction in accordance with Construction Management Plan (CMP)	Customer service, Facebook/social media feedback Regulatory monitoring
Your Neighbourhood open day events - Hamilton West - Rototuna - Peacocke - City wide	All	TW/All	TBC July 2019 August 2019 June 2019 11 September 2019	Attendance Feedback
Community Liaison Group meetings	Mailing list	NS	TBC	Feedback
Elected Member summary	Elected Members	HU/SV	31/09/2019 28/10/2019 Xx /11/2019 Xx/12/2019 Xx/1/2020 Xx/2/2020	Feedback
Mailing list – Construction works programme - Email - Post	Partner Agencies Emergency Services Go-Bus DA and AiPs List and contacts as noted above	Contractor	06/01/2020 06/02/2020 06/03/2020 06/04/2020 06/05/2020 06/06/2020	Feedback
Mailing lists* – Southern Links/Peacocke projects update - Post - E-mail	Project update list	NS	TBC	Feedback
Mailing lists* – Southern Links/Peacocke projects update - Post - E-mail	Mailing list (Includes CLG, Directly Affected (DA) and affected in proximity (AiP) residents)	NS	TBC	Feedback

<p>Letterbox drops</p> <ul style="list-style-type: none"> - Commencement of construction - Activities and works programme - Expected duration of works programme - Who to contact for queries, concerns, complaints - Temporary traffic management measures - Permanent changes to road layouts 	<p>Affected residents</p> <p>DA and AiP</p>	<p>NS to draft letter, HU/SV to review (require 10 working days), Contractor to print and post</p>		<p>Customer service, Facebook/social media feedback</p>
<p>Direct face to face or phone contact</p>	<p>Affected residents</p> <p>In 50m zone CNVMP</p>	<p>Contractor</p>	<p>As required</p>	
<p>Electronic register (complaints)</p> <ul style="list-style-type: none"> - Register requirements are contained in the Construction Management Plan (CMP) 		<p>Contractor</p>	<p>As required</p>	<p>Resolution of complaints and feedback</p>
<p>Hamilton City Council website - Major Projects/Peacocke</p> <ul style="list-style-type: none"> - Commencement of construction - Activities and works programme - Expected duration of works programme - Who to contact for queries, concerns, complaints 	<p>All</p>	<p>HU/SV</p>	<p>Update content and links to Our Hamilton:</p>	<p>Page views</p>
<p>Our Hamilton stories/Media release (sign off required by NZTA and project staff)</p> <ul style="list-style-type: none"> - Works complete/roundabout construction commences - Wetland/bats environmental update – link to environmental map - Night time lane closures - 	<p>All</p>	<p>HU/SV</p>		<p>Page views/feedback</p>
<p>Facebook/social media</p> <ul style="list-style-type: none"> - Works complete/roundabout construction commences 	<p>All</p>	<p>HU/SV</p>		<p>Page views/feedback</p>

Week on the streets - Ōhaupō Road/SH3 roundabout project begins - Works complete/roundabout construction commences	All	HU/SV		Page views/feedback
Daily Mail - Works complete/roundabout construction commences	Staff	HU/SV		Feedback
Tablets and tv monitors in foyers of Council owned buildings and libraries?				Feedback
i-Site?				Feedback
Newspaper / Public messages	All	Contractor	As required	Feedback
Other electronic messaging boards?				Feedback
MediaWorks / radio advertising?				Feedback

* Mailing Lists will be generated no more than 10 days prior to communications being sent out. Material sent to DA and AIPLA properties shall also include the opt-in project update list and CLG mail lists (D-2366386).

WAS IT SUCCESSFUL? (EVALUATION)

Please set up a debrief with the project team to discuss the following questions (feel free to add more). Make sure to record the answers and share with the wider Group.

- Did we achieve the goal and objectives that we set out in the beginning?
- What were the most successful, and least successful communication tactics we used?
- Was there any informal feedback received on the process itself (rather than the project).
- What were the key take-aways from the process.

APPENDIX 1: FREQUENTLY ASKED QUESTIONS

Taking time to list the FAQs and answers for each project will mean you will have covered everything you need from a communication and process perspective. It also means we have the key information available in one place that we can use throughout our channels – digital comms etc

5.0 Dust Management Plan (DMP)

Date Prepared	Prepared by	Reviewed by	Approved by	Status
23/09/2019	Demelza Murphy	Grant Eccles	Sam Le Heron and Peter Kirk (HCC)	Provisional
13/01/2020	Jolene Innes	Matt Nugent		Final

Assessment

An assessment of how the project meets the requirements of Southern Links designation Condition 19.0 is summarised in Table 5.0 below. Where “sections” are referenced in the assessment column below, this refers to sections in the DMP.

Condition	Description	Assessment
19.1	Prior to the commencement of the construction works, a DMP shall be prepared by a suitably qualified and experienced person. The RA shall implement the DMP at all times during the project. The objective of the DMP is to ensure no discharge of dust causes an adverse effect on the amenity value of any person beyond the designation boundary.	The DMP was prepared with reference to industry standard and best practice documents, accepted by the HCC for similar, recently awarded construction projects. The Contractor is deemed a suitably qualified and experienced person. The Contractor will, in consultation with Connie Daws (WRC) and Peter Stevens (WRC monitoring consultant) update and refine the DMP. The WRC representative will provide a written statement to the effect that the DMP has been approved. This arrangement provides WRC confidence that conditions that would otherwise have been imposed on AUTH140965.01.01 are appropriately addressed.
19.2	The DMP shall be provided for certification 40 working days prior to the commencement of construction works.	The Draft DMP was provided for provisional certification.
19.3	As a minimum, the DMP shall include the following details:	
a)	Mitigation measures to be implemented during construction to minimise dust emissions;	Part 5.2 of the DMP outlines a range of mitigation methods available to the Contractor and satisfies the condition.
b)	Methods for the daily visual monitoring of dust emissions and assessing the effectiveness of the mitigation measures implemented;	Part 5.3 of the DMP requires daily visual monitoring and satisfies the condition.
c)	Procedures for responding to process malfunctions and accidental dust discharges;	Part 5.4 of the DMP outlines procedures for malfunction or discharge response and will be answered by the Contractor.
d)	Criteria including consideration of weather conditions and procedures for the use of water sprays on stockpiles and operational areas of the project;	Part 5.3 of the DMP relies on weather reporting to inform practice and satisfies the condition.
e)	Continuous monitoring of meteorology;	Part 5.3 of the DMP relies on weather reporting to inform practice and satisfies the condition.

Condition	Description	Assessment
f)	Monitoring of construction vehicle maintenance;	Part 5.2.1 of the DMP satisfies the condition.
g)	Complaints investigation, monitoring and reporting;	The CMP Part 1.1.4 satisfies the condition.
h)	Identification of staff and contractor's responsibilities; and	Staff and contractor obligations, health and safety are woven throughout the OMP and DMP below.
i)	Appropriate DMP review procedures.	Part 5.3 and 5.5 of the DMP satisfy the condition.

Table 5.0: Assessment of Condition 19.0

The objective of this DMP is to minimise the effect of dust nuisance on adjacent properties during the construction works programme. This DMP is to be read in conjunction with the Construction Management Plan (CMP) and Construction Communication and Consultation Plan (CCCP) which outline the bulk of the construction works programme, key contact persons, site management methods and process for managing queries and complaints. Reading these plans in conjunction avoids unnecessary duplication of conditions responses, particularly with respect to contact persons and complaints management.

A land use / land disturbance consent (AUTH140965.01.01) was assessed by the Waikato Regional Council (WRC) for earthworks in association with the contract. A DMP would ordinarily be required by the WRC and has been omitted, on the basis that condition 19.0 requires a DMP to be produced. Accordingly, the contract required that the Draft DMP be refined in consultation with the WRC representative, Brian Richmond, to satisfy the Principal's expectations relating to condition 19.1.

5.1 Dust Source Identification

The proposed works programme includes:

- Site clearing
- Earthworks
- Drainage
- Pavement and surfacing
- Structures – retaining walls and underpasses
- Lighting
- Traffic services

The following potential sources of dust have been identified:

- Site clearance
- Earthworks and overburden stockpiling
- Construction vehicle movements
- Pavement construction
- Landscaping

5.2 Dust Mitigation Methods

A Contract Plan has been prepared by Schick Civil Construction. The Contract Plan includes the following chapters:

- Site specific Health and Safety Plan;
- Environmental and Social Management Plan; and

- Customer and Stakeholder Communication Management Plan.

The Contract Plan meets Schick Civil Construction's operational policy needs and is completed in their template for business continuity. Operational methods for dust and erosion control are contained in the Environmental and Social Management Plan section of the Contract Plan. The Contract Plan has not been appended to this OMP to avoid needless duplication; the same mitigations are cross referenced in each Part of the OMP.

The relevant sections of the Contract Plan that relate to dust and erosion control have been reviewed and approved by Peter Stevens acting in a monitoring capacity for the Waikato Regional Council.

The works period is during the summer months where drought may strike, resulting in arid soils. Individually, or collectively, the following mitigation methods will be used:

5.2.1 Site Controls

Heavy vehicle access through the site is limited to a key access gate and site road as shown in the Construction Management Plan (CMP). A 20m stabilized construction entrance exists on the site, which will be maintained to blue metal standard. Regular use of a truck broom further reduces soil tracking beyond the site boundary. Controlling the flow of vehicles through the site serves both a dust mitigation purpose and health and safety function. Use of access roads reduces dust sources on the site and minimises dust nuisance.

Construction vehicles and use will be monitored to ensure an adverse dust effect is not generated.

5.2.2 Personnel Responsibility

Site Contractor educates staff about the importance of regulatory compliance, sound management practices for achieving compliance and the need to take dust management seriously. All personnel are responsible for identification of dust nuisance and are expected to bring these to the attention of their supervisors. Environmental concerns are to be dealt with as a matter of priority proportionate to the severity of the issue and persons affected.

5.2.3 Watering

A watercart is available on-site as a dust preventative and/or suppression method during drought or on dry or windy days. Site excavation works and stockpiles will be watered on an as-required basis and may occur three times daily. Polymers may also be mixed with water and applied on site to control dust.

The proposed water source and expected quantities required for the project are outlined below:

- 3.5 Million litres
- Local Hamilton City Council filling stations
- Onsite storage ponds

5.2.4 Mulch, Vegetation and Geotextiles

Straw, mulch, hydro seed or geotextiles may be applied to stockpiles and bund areas to protect exposed soil from wind and water erosion. This may be particularly useful during summer months when water restrictions are in place as a result of drought or low rain fall periods.

5.3 Site Observations and Monitoring

Site monitoring will be undertaken daily and recorded by the Site Contractor. The contractor will monitor and be responsive to:

- The location of dust sources within the site;

- The orientation of dust sources within the site in relation to prevailing winds; and
- The sensitivity of down-wind receptors.

Responsive dust management requires that the Site Contractor observes weather reports and patterns and adjusts timing and/or sequencing of works or as a contingency, plans for potential dust mitigations required on a weekly basis. Responsive dust management includes adaptation of mitigation measures if it is established that one method is ineffective or the frequency of mitigation (e.g. watering) requires adjustment.

5.4 Contingencies for Accidental Discharge

The following outlines the procedure that will be used in the event of accidental discharge or malfunction:

- Immediate installation of temporary controls to mitigate discharge
- Repair of all malfunctioning environmental controls; and
- Review of DMP mitigation methods.

5.5 Construction Monitoring and Reporting

Construction monitoring and reporting is to be confirmed by the contractor and WRC monitoring officer, in consultation with Brian Richmond, WRC.

6.0 Contaminated Soils Management Plan (CSMP)

Note: The CSMP designation condition has been deleted. A separate NES consent has been secured. CSMP has been deleted from this document

Note: The CSMP designation condition has been deleted. A separate NES consent has been secured. CSMP has been deleted from this document

Note: The CSMP designation condition has been deleted. A separate NES consent has been secured. CSMP has been deleted from this document

Note: The CSMP designation condition has been deleted. A separate NES consent has been secured. CSMP has been deleted from this document

Note: The CSMP designation condition has been deleted. A separate NES consent has been secured. CSMP has been deleted from this document

7.0 Hazardous Substances Management Plan (HSMP)

Date Prepared	Prepared by	Reviewed by	Approved by	Status
23/09/2019	Demelza Murphy	Grant Eccles	Sam Le Heron and Peter Kirk (HCC)	Provisional
13/01/2020	Jolene Innes	Matt Nugent		Final

Assessment

An assessment of how the project meets the requirements of Southern Links designation Condition 21.0 is summarised in Table 7.0 below. Where “sections” are referenced in the assessment column below, this refers to sections in the HSMP.

Condition	Description	Assessment
21.1	A HSMP shall be prepared by a suitably qualified and experience person. The HASMP shall be implemented at all times during the project. The objective of the HSMP is to avoid, remedy or mitigate the adverse effects of Construction Works on human health and the environment which may result from the use of hazardous substances.	The Draft HSMP was prepared with reference to industry standard and best practice documents, accepted by the HCC for similar, recently awarded construction projects. The contractor is deemed a suitably qualified and experienced person. The contractor has updated these sections to reflect operationally specific information.
21.2	The HSMP shall be provide to the TA for certification 40wd prior to the commencement of construction works.	The Draft HSMP was submitted to satisfy the condition.
21.3	The HSMP shall contain at a minimum the following details:	
a)	Details of the type and volumes of hazardous substances to be used and stored during the construction phase of the project;	Table 7.4 and details in the CMP Part 1.0 provide details to satisfy the condition.
b)	Procedures for the proper storage, handling, transport and disposal of hazardous substances in accordance with best practice and national standards and regulations;	Supply and sub-contractor controls and storage practices as detailed in the HSMP below satisfy the condition.
c)	The equipment, systems and procedures to be used to minimise the risk of spills or leaks of hazardous substances;	Supply and sub-contractor controls and risk identification practices as detailed in the HSMP below satisfy the condition.
d)	Procedures to notify and report to the TA within 24hrs of a spill or leak involving 10L or more of a hazardous substance occurring; and	Part 7.7 of the HSMP below satisfies the condition.
e)	Procedures to be followed to identify causes of spills or leaks of a hazardous substance and to avoid their recurrence.	Part 7.8 of the HSMP below satisfies the condition.

Table 7.0: Assessment of Condition 21.0

The objective of this HSMP is to manage Hazardous Substances (HS) used on site during the construction works programme. This HSMP is to be read in conjunction with the Construction Management Plan (CMP) and Construction Communication and Consultation Plan (CCCP) which outline the bulk of the construction works programme, key contact persons, site management methods and process for managing complaints. Reading these plans in conjunction avoids unnecessary duplication of conditions responses, particularly with respect to contact persons and complaints management.

7.1 Supply Controls

Material Safety Data Sheets (MSDS) shall be sought from all suppliers at the time of purchase of HS. MSDS inform precautions for the use of those items, including any exposure monitoring requirements. All HS purchases shall be approved internally prior to purchase. Handling equipment and spillage management materials must be available prior to receiving delivery of HS. If required on site, appropriate storage shall ensure compliance with legislation and manufacturer's recommendations. Toxic material disposal shall be to an approved Regional Council site.

7.2 Sub-contractor Controls

All employees share responsibility for monitoring the environmental awareness practices of subcontractors.

Sub-contractors must supply evidence of their environmental systems and records to establish personnel competency prior to engaging in activities on site. Sub-contractors are contractually bound to comply with all contractor site environmental requirements including the induction / job start briefing process. Sub-contractors will be inducted onto site, notified of the known environmental aspects on site, emergency procedures and site environmental plans. Sub-contractors are responsible for training their staff and sub-contractors.

7.3 Plant and Machinery Controls

Fuel tankers deliver daily to the site and directly fill construction machinery. Tanker drivers are equipped with spill kits and additional spill kits are retained on site by the contractor for the duration of the works. The contractor ensures that the refueling and servicing or repair of all machinery, pumps or generators used on site is carried out where accidental spills can be contained, clear of any overland flow path (OFP) or surface waterway.

Daily plant and machinery visual checks are made to identify any potential emergent maintenance issues. Plant and machinery is maintained in good working order to minimise any failure risk. Scheduled maintenance is programmed and undertaken with minimal disturbance to construction operations.

7.4 Hazard Identification

The process for establishment and maintenance of proposed construction plant parking and fuel storage areas is as follows:

- No fuel is stored on the site
- A small quantity of grease is stored on site for minor operational maintenance
- Construction machinery either returns to the contractor depot overnight or is parked along the SH3 boundary opposite the site office
- A water cart is retained on site for dust management
- Scheduled maintenance of all machinery occurs off-site.

All personnel are responsible for the ongoing identification of hazards or system faults and are expected to bring these to the attention of their supervisors. Verbal concerns are recorded by the supervisor in an event report. All environmental concerns are logged in the company register for timely management follow up and action. The concern raiser is to be given a written response to address the concern detailing the actions taken or intended; including any reasons for not carrying out their requested action. Environmental concerns are to be dealt with as a matter of priority proportionate to the severity and risk of the potential hazard.

7.5 Hazardous Substances on Site

An inventory of all workplace hazardous substances on the site will be held and maintained on site, as listed below and in locations identified in the CMP map above in Part 1.0. Storage, transportation and use methods align with industry standard and best practice.

Substance	Qty (L)	Storage Method	Transport Method	Disposal Method
Petrol	Unlimited 20L	In operational plant. Polyethylene drum suspended in deep pan in site storage shed.	Fuel Tanker. Contractor site vehicle.	Combustion. Surplus returned to base.
Diesel	Unlimited 20L	In operational plant. Polyethylene drum suspended in deep pan in site storage shed.	Fuel Tanker. Contractor site vehicle.	Combustion. Surplus returned to base.
Grease	10kg	Container suspended in deep pan.	Contractor site vehicle.	Applied. Surplus returned to base.
Chemiclear 101	200L	Polyethylene drum suspended in deep pan in site storage shed.	Commercial carrier.	Refer to MSDS, FMP.

A MSDS for Chemiclear 101 (a coagulant for water treatment) has been appended to the contractor's Flocculation Management Plan, Schedule B to Part 1.0. The following material safety data sheet or MSDS Register lists all substances that may be used in civil construction. Note: substances listed below may be required on site.



MSDS REGISTER							
Name of Substance	Located in?	Hazardous YES / NO	Dangerous Goods YES / NO	Flammable YES / NO	Class and Packaging Group	Maximum Quantity	Use
Acetylene	Ham / ChCh / Auck	Yes	Yes	Yes	2SE UN #1001	2x Bottles	Construction Material
Ados Epoxy Mortar Resin	Ham / ChCh / Auck	Yes	Yes	Yes	3Z UN #3082	5ltrs	Construction Material
Anaconda Grease	Ham / ChCh / Auck	No	No	Yes	-	Unlimited	Construction Material
Antifreeze	Ham / ChCh / Auck	No	No	No	-	Unlimited	Machinery and Plant Maintenance
Aqualine DWV PVC Cement		No	No	Yes	-	??	Construction Material
Bar Lube		No	No	No	-	Unlimited	Plant Maintenance
Bostik Alkaline PVC Cleaner	Ham	Yes	Yes	Yes	3,III,2YE UN #2056	5ltrs	Construction Material
BP 91 (Regular) Octane Petrol	Ham / ChCh / Auck	Yes	Yes	Yes	3,II,Y,E UN #1203	20ltrs	Refuelling Machinery and Plant
BP 95 (Premium) Octane Petrol	Ham / ChCh / Auck	Yes	Yes	Yes	3,II,Y,E UN #1203	20ltrs	Refuelling Machinery and Plant
BP 98 (Ultimate) Octane Petrol	Ham / ChCh / Auck	Yes	Yes	Yes	3,II,Y,E,243,363 UN #1203	20ltrs	Refuelling Machinery and Plant
BP Diesel	Ham / ChCh / Auck	Yes	Yes	Yes	9,III,CI UN #3082	20ltrs	Refuelling Machinery and Plant
BP Liquid Petroleum Gas (LPG)	Ham / ChCh / Auck	Yes	Yes	Yes	2,0,2YE UN #1075	??	??
Chemz No.8 Handy Lube	Ham	Yes	Yes	Yes	2,1,2YE UN #1950	??	Construction Material

MSDS REGISTER

Name of Substance	Located in?	Hazardous YES / NO	Dangerous Goods YES / NO	Flammable YES / NO	Class and Packaging Group	Maximum Quantity	Use
CRC 5.56 Aerosol	Ham / ChCh / Auck	Yes	Yes	Yes	2Y,2.1 UN #1950	5ltrs	Construction Material
Drain Tracing Dye	Ham	No	No	No	-	Unlimited	Construction Material
Dy-Mark Spray and Mark Aerosol	Ham / ChCh / Auck	Yes	Yes	Yes	2[Y]E UN #1950	5ltrs	Construction Material

Name of Substance	Located in?	Hazardous YES / NO	Dangerous Goods YES / NO	Flammable YES / NO	Class and Packaging Group	Maximum Quantity	Use
Elf Efficona DS 46 Hydraulic Oil	Ham / ChCh / Auck	No	No	No	-	Unlimited	Machinery and Plant Maintenance
Elf Performance Harmony 15W40	Ham / ChCh / Auck	No	No	No	-	Unlimited	Machinery and Plant Maintenance
Epoxy Mortar Hardener	Ham / ChCh / Auck	No	No	No	-	Unlimited	Construction Material
Equivis ZS 46 Hydraulic Oil	Ham / ChCh / Auck	No	No	No	-	Unlimited	Machinery and Plant Maintenance
EZ Street	Ham / ChCh / Auck	Yes	No	Yes	-	Unlimited	Construction Material
EZ Street Cold Asphalt	Ham / ChCh / Auck	No	No	No	-	Unlimited	Construction Material
EZ Street Cold Mix Asphalt	Ham / ChCh / Auck	No	No	No	-	Unlimited	Construction Material
EZ Street Gold Asphalt Binder	Ham / ChCh / Auck	Yes	No	Yes	-	Unlimited	Construction Material
Firth Dricon Mortar	Ham / ChCh / Auck	Yes	No	No	6.7A HSR2545	Unlimited	Construction Material
FWET 1595 Dust Suppression Agent	Ham / ChCh / Auck	No	No	No	-	Unlimited	Construction Material
Glitz Pine Disinfectant	Ham	Yes	No	No	HSR2530	Unlimited	Cleaner
Golden Bay Cement	ChCh	Yes	No	No	8.2C HSR25452	Unlimited	Construction Material
Gorilla Silicon	Ham	No	No	No	HSR2515	Unlimited	Construction Material
Holcim Cement	Ham	Yes	Yes	No	-	Unlimited	Construction Material
IPA Cleaning Fluid	Ham	No	No	Yes	2.1 UN #1950	5ltrs	Cleaning
ISO Alcohol Electrofusion Cleaning Wipes	Ham	Yes	No	Yes	-	Unlimited	Construction Material
Marley Gold Cement	ChCh	Yes	Yes	Yes	3[Y]E UN #1133	5ltrs	Construction Material
McCulloch 2 stroke Engine Oil Med Lube	ChCh	No	No	Yes	9.2X,III HSR2530	Unlimited	Plant Maintenance Construction Material
Mineral Turpentine	Ham / ChCh / Auck	No	Yes	Yes	3,III,3Y UN #1300	5ltrs	Cleaning Material
MSA Gas for Gas Detector Calibration	Ham / ChCh / Auck	Yes	Yes	Yes	2.2 UN #1956	Unlimited	Calibration
Novakay Cleaner Primer	ChCh	Yes	Yes	Yes	2[Y]E UN #1193	5ltrs	Construction Material
Novakay Non Pressure Adhesive	ChCh	Yes	Yes	Yes	3[Y]E UN #1133	5ltrs	Construction Material

Name of Substance	Located in?	Hazardous YES / NO	Dangerous Goods YES / NO	Flammable YES / NO	Class and Packaging Group	Maximum Quantity	Use
Omega Chlorine	Ham	Yes	Yes	No	8.2X,II UN #1908	5ltrs	Construction Material
P-70 Primer	Ham	No	No	Yes	PG II UN #1993	5ltrs	Construction Material
Parafix All Purpose Silicon	ChCh	No	No	Yes	-	Unlimited	Construction Material
Penetron Topical Crystalline	Ham	No	No	No	-	Unlimited	Construction Material
Ramset Ultrafix Plus	Ham	Yes	No	Yes	-	Unlimited	Construction Material
Rockbond Accelerator	Ham	No	No	No	8.2R UN #1764	Unlimited	Construction Material
Shell Brake and Clutch Fluid	Ham / ChCh / Auck	No	No	No	-	Unlimited	Machinery and Plant Maintenance
Signal Aerosol Spray Paint	Ham / ChCh / Auck	Yes	Yes	Yes	2[Y]E UN #1950	5ltrs	Construction Material
Signet Aerosol Spray Paint	ChCh	Yes	Yes	Yes	2[Y]E UN #1950	5ltrs	Construction Material
Sika Formol	Ham	No	No	Yes	-	Unlimited	Construction Material
Sikasil Roof and Plumbing Paste	Ham	No	No	No	-	Unlimited	Construction Material
Spraywell Linemarker	Ham / Auck	Yes	Yes	Yes	2[Y]E UN #1950	5ltrs	Construction Material
Super Moly-5 EP2 Grease	Ham	No	No	No	-	Unlimited	Construction Material
Super S Calcium Sulfonate Grease	Ham	No	No	No	-	Unlimited	Construction Material
Superwash	Ham	No	No	No	-	Unlimited	Cleaning
Trans Syn LSD 75W90 Hydraulic Oil	ChCh	No	No	Yes	-	Unlimited	Machinery and Plant Maintenance
Transself KTR4 30W Transmission Oil	ChCh	No	No	Yes	-	Unlimited	Machinery and Plant Maintenance
True Gnt Handwash	Ham / ChCh / Auck	No	No	No	-	Unlimited	Cleaning

Table 7.4: Hazardous Substances on Site

7.6 Emergency Response Protocol (ERP)

A companywide Emergency Response Protocol (ERP) outlines the most updated procedures in accordance with industry knowledge, best practice and regulations. This type of tool is endorsed by WorkSafe New Zealand as a necessary health and safety reference. ERPs are useful in risk identification, minimization and administrative controls. WorkSafe New Zealand have a range of approved, comprehensive templates to assist with creating ERPs.

http://www.hazardoussubstances.govt.nz/media/1058/wsnz_2510-emergency-response-a4-digital-v3-0-fa-lr.pdf

The ERP format includes 24hr contact details, response personnel, their responsibilities, available equipment and emergency service contact details. It also covers what to do in a first aid, natural disaster, weather event, fire and civil defense situation. To some extent, the contractor has incorporated these principles in their "Contract Plan".

The contractor's ERP equivalent is a live document and available on request.

Procedures for a range of incidents are explained in the contractor's Spill Response Plan, held as Schedule A to Part 7.0. Due to the location of storage sheds and residential dwellings, no adjacent landowners or occupants are identified as notifiable if an emergency response is triggered.

7.7 Hazard Reporting

Schick Civil Construction's Spill Response Plan separates the level of response required into minor, major and notifiable. If more than 10L of a HS is spilled, this is quantified as a major event; the following procedure will be used to notify and report to the TA:

- The Contractor will report to the Project Manager (Nathanael Savage or nominee) as soon as practicable, but within a target of 24hrs.
- The report will outline:
 - The HS spilled;
 - The estimated quantities spilled;
 - Containment actions taken by the contractor;
 - Whether the substance was able to be contained; and
 - Whether any other agencies were notified of the spill.

7.8 Hazardous Substances and Spill Contingency Management

All spills or leaks will be categorized by the site manager. A positive identification of the material is required followed by an assessment as to whether the material can be safely dealt with. Where spills are contained within the site, have not leached into waterways and are remediated, they are deemed safe and minor. Where spillages have flowed off-site, have the potential to flow off-site, put waterways at risk or staff are not able to effectively remediate, the site manager will notify:

- Waikato Regional Council's Pollution Response Unit 0800 800 401
- Hamilton City Council's 24hr contact line, to advise:
 - City Waters, Hamilton City Council (Gavin Pooley, Nick Young, Trent Fowles or Mario Gatt) 07 838 6699
 - Engineer's representativeNote: City Waters notify external agencies and Waikato-Tainui (without delay)
- Fire and Emergency New Zealand (if required)

- Police (if required)

If safe to deal with, the spill response procedure outlined in the ERP will be followed. Typically, “safe spills” include emulsion, kerosene, diesel, turpentine and oils and require containment, cordon, clean up and surface remediation. Spill kits will be made available to all employees. Sub-contractors are to provide their own spill kits. Personnel are required to keep their equipment at hand and in a serviceable condition. A specific procedure also addresses bituminous spills and hydrocarbons.

Where large quantities of fuel, hazardous or unknown chemical substances are spilled, Fire and Emergency New Zealand will be contacted and the ERP (containment, ignition prevention, site evacuation) followed.

7.9 Auditing

Regular internal auditing of all processes is undertaken by project management staff. Evaluating staff access to and awareness of health and safety reference material and the ERP (or equivalent process) are also audited. Audits contain the corrective, preventative actions undertaken in response to an incident and clearly document the outcomes, communications and implementations.

Attachment Directory

Attachment A to Part 1.0 – Peacocke East-West Minor Arterial Intersection:
Project Area Map

Attachment B to Part 1.0 – Erosion and Sediment Control (ESCMP)

- WRC decision AUTH140965.01.01 (Earthworks)
- Wainui Environmental AEE
- Wainui Environmental ESCMP
- Amended Schick ESCMP

Attachment C to Part 1.0 – DoC Wildlife Act Permit

- DoC permit (80061-FAU)
- Application
- Lizard Management Plan (LizMP)

Attachment A to Part 2.0 – Construction Noise and Vibration Management Plan
(CNVMP), and Monitoring Report (31 March 2020)

Attachment A to Part 3.0 – Construction Traffic Management Plan (CTMP)

Attachment A to Part 6.0 – NES Contaminated Soil Resource Consent

- HCC decision 010.2019.00010647.001

Attachment B to Part 6.0 – Remediation Action Plan (RAP)

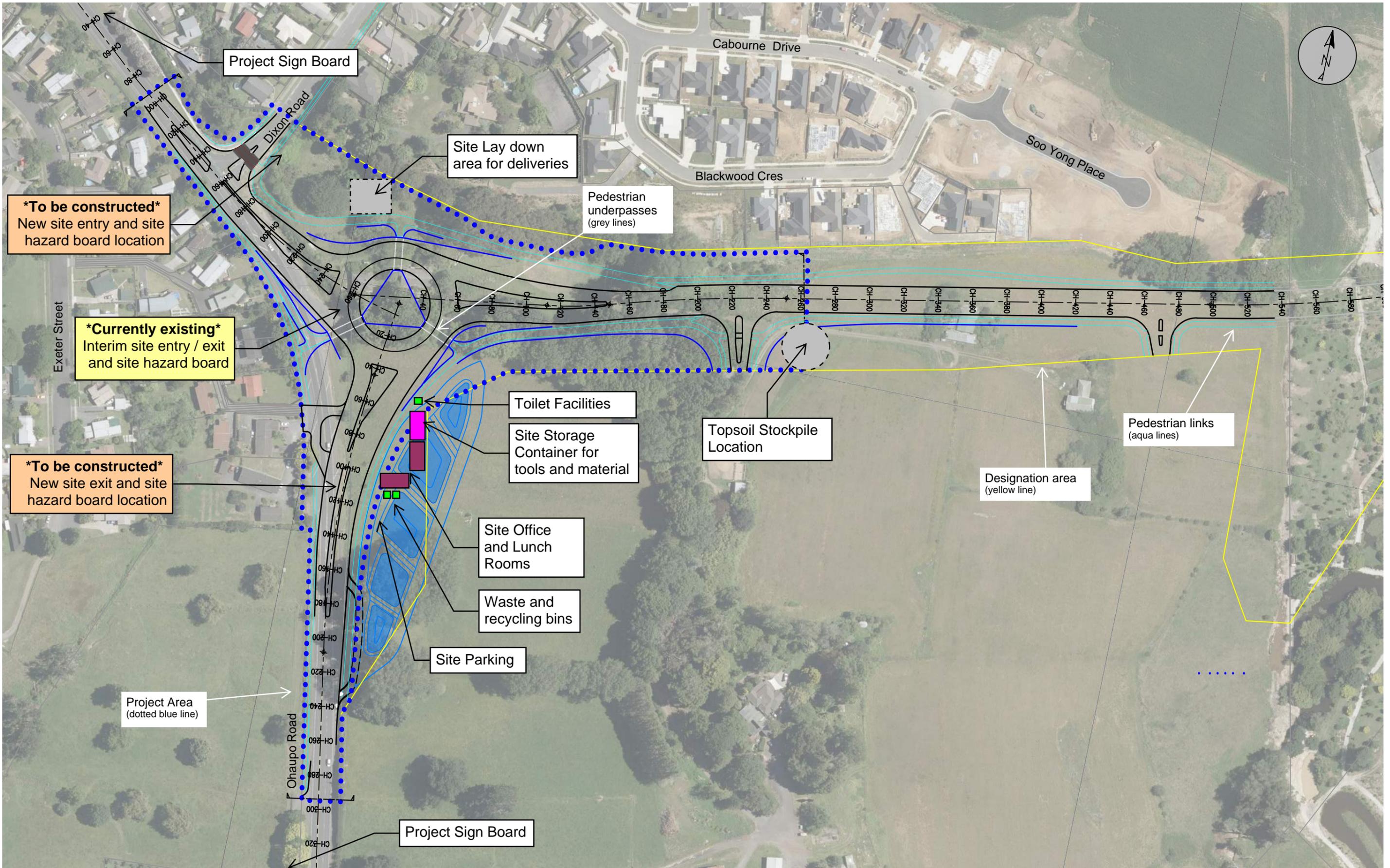
Schedule A to Part 1.0 – Contractor’s Site Induction / Training Plan (SITP)

Schedule B to Part 1.0 – Contractor’s Flocculation Management Plan (FMP)

Schedule A to Part 7.0 – Contractor’s Emergency Response Protocol (ERP)

Attachment A to Part 1.0

Peacocke East-West Minor Arterial
Intersection: project area



Peacocke East-West Minor Arterial Intersection: Project area

Attachment B to Part 1.0 and cross reference to Part 5.0 WRC Earthworks Consent (AUTH140965.01.01)

- Earthworks Consent Decision AUTH140965.01.01
- Wainui Environmental Draft Erosion and Sediment Control Plan (ESCMP)
- Consent Application and AEE
Refer to Richard Duirs, Wainui Environmental
- Revised Erosion and Sediment Control Plan (ESCMP)
Refer to Matt Nugent, Schick Civil Construction

Consent Evaluation Report

Applicant: Hamilton City Council **File No.:** 61 74 33A
Address of Site: 3019 Ohaupo Road, Hamilton **Project Code:** RC12574
Application Number: APP140965

1 Introduction

Wainui Environmental Ltd has made application for resource consent on behalf of Hamilton City Council (the applicant) to authorise earthworks activities associated with the construction of a proposed roundabout and section of arterial road associated with the Southern Links transport project at Ohaupo Road/SH3 within Hamilton City. The specific resource consent sought from the Waikato Regional Council for the proposed activity is described as follows:

Reference Id	Activity Subtype	Activity Description
AUTH140965.01.01	Land - disturbance	To undertake Earthworks in association with road construction activities to construct a new roundabout at Ohaupo Road/SH3 & East-West Arterial Roads associated with the Southern Links transport project at Glenview/Peacockes, Hamilton

This activity is located at Ohaupo Road/SH3, Hamilton at or about map reference NZTM 1802153 E 5810977 N.

This report assesses the application for the consent outlined above and the associated effects and recommends whether consent should be granted for the proposed activity. The application is for a new consent.

The application doc ref# is **14923030**.

2 Background and Description of Proposal

For the most part, the following background information and description of the proposed activities discussed below are taken directly from the application at the request of the applicant.

The subject activities form part of the broader Southern Links transport project planned for the south western part of Hamilton City and the adjacent districts. In this respect, there is significant background relating to the subject activities as part of this broader project in terms of design, engineering and resource management approval processes. Furthermore, the subject site is located directly adjacent to the greenfields property to the south referred to as the Northview Development site which is planned for future significant residential development activities and has also been subject to recent design, engineering and consenting processes.

The background details of these projects in relation to the subject earthworks activities are outlined as follows.

2.1 Southern Links Project

Southern Links is a \$600 million transport network of state highway and urban arterial routes linking SH1 from Kahikatea Drive in Hamilton to the Waikato Expressway at Tamahere and SH3 from Hamilton Airport to central and east Hamilton. The main aim of the project is to plan for the long-term needs of the city, particularly the projected growth and development in the Peacocke, Tamahere and Hamilton Airport area. Identifying and protecting the future transport network will enable good long-term planning to be carried out for the city.

The NZ Transport Agency (NZTA) and Hamilton City Council (HCC) are working together to ensure that the future state highway routes will be well integrated with local roads, and the planned residential and industrial developments. In this respect, the Southern Links project incorporates both sections of state highway extending through the rural land in Waipa and Waikato Districts around the outskirts of Hamilton City along with a proposed network of arterial roads extending through the south western part of Hamilton City which has been designed to provide an integrated connection between the surrounding state highway lengths and the existing city roading network and also factoring planned development outcomes within this part of the city. The subject roundabout and section of roading forms part of this Hamilton City arterial roading network as outlined in Figure 1 below.

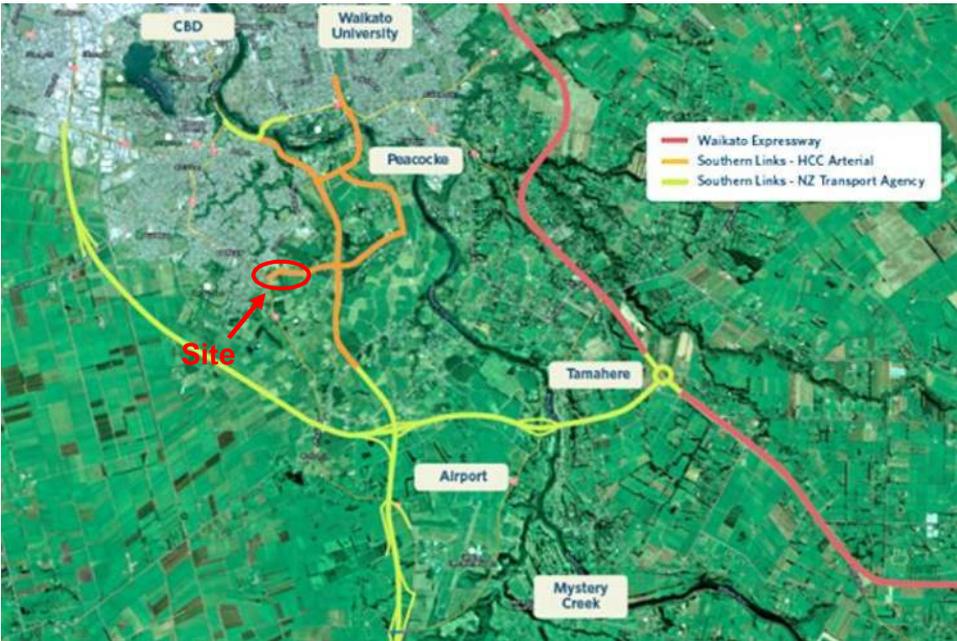


Figure 1 – Overall Southern Links layout showing subject site location

In 2013 Notice(s) of Requirement were issued by the NZ Transport Agency and Hamilton City Council to secure the designation for the alignment of the Southern Links roading layout for future development. The designation alignment for the proposed arterial roading network within Hamilton City was subsequently confirmed and has been incorporated into the Hamilton City District Plan as Designation A106. At the same time, resource consent applications were also lodged and were subsequently approved by the Waikato Regional Council which were limited to consenting of the key new bridges within the Southern Links roading network over the Waikato River and Mangakotukutuku Stream.

The designation applications included extensive assessment of the designation alignment including detailed assessment of the existing environment and the potential effects of the proposed roading activities through these areas including the subject site area. These effects were assessed by the relevant authorities with the designation approvals subsequently being granted with an extensive schedule of conditions which are required to be adhered to as the various stages of the Southern Links development projects proceed within Hamilton City. For Designation A106 which relates to the subject

site, the designation conditions include an extensive list of management plan requirements which are required to address the finalised details of the proposed management measures that will be implemented for the project to avoid, remedy or mitigate any potential adverse effects of these activities. Specifically, these conditions outline the following management plan requirements which will be subject to review, approval and implementation for the project activities:

- a) *Pre-Construction Communication and Consultation Plan;*
- b) *Construction Management Plan;*
- c) *Construction Noise and Vibration Management Plan;*
- d) *Construction Traffic Management Plan;*
- e) *Construction Communication and Consultation Plan;*
- f) *Concept Landscape Management Plan;*
- g) *Landscape Management Plan;*
- h) *Heritage and Archaeological Site Management Plan;*
- i) *Dust Management Plan;*
- j) *Contaminated Soil Management Plan;*
- k) *Hazardous Substances Management Plan;*
- l) *Transport Network Management Plan;*
- m) *Environmental Monitoring and Management Plan; and*
- n) *Conservation Plan.*

As the proposed Roundabout and East-West Minor Arterial designation project works all fall within the area covered by Designation A106, this project is already required to satisfy all of these specific management requirements prior to and during the road construction activities with a number of these management plan documents currently underway and well progressed.

2.2 Northview Development

The Northview Development site comprises an approximate 36ha block of land located directly southward of the proposed East-West Minor Arterial alignment. The Northview site is located within the Peacocke Structure Plan area within which urban development is anticipated to occur over the coming years. The majority of the Northview site has a General Residential zoning under the Hamilton City District Plan with residential development activities planned for commencement in the near future. In this respect, Northview Developments Ltd has recently obtained earthworks consent AUTH140660.01.01 from the WRC which authorises earthworks across a 9.4ha area located within the north eastern corner of the site. This is referred to as the Stage 1 development area with these earthworks activities intended to commence over the summer 2019/20 season.

A key aspect of these proposed development activities is that they are reliant upon the formation of the initial lengths of the East-West Minor Arterial as this road will provide the main roading connection to the proposed Stage 1 development area. Similarly, the Stage 1 earthworks consent obtained by Northview, also includes allowance for construction of a large stormwater management wetland which will also be formed as part of the Stage 1 development works. This wetland will provide stormwater management functions for both the Northview Stage 1 development area, plus the majority of the proposed Roundabout and East-West Minor Arterial carriageway runoff. In this respect, these two projects are inextricably linked with at least the initial lengths of the roading project likely to occur in conjunction with the Northview Stage 1 development activities.

2.3 Site Description

As noted above, the subject site is located within the broader property owned by Northview Capital Ltd and is subject to Designation A106 which extends along the northern boundary of this site and provides for the planned roading activities under the Hamilton City District Plan.

The site comprises an elongated roading corridor extending for around 620m in a west to east direction from the existing Ohaupo/Dixon Road intersection where the proposed roundabout is planned, across to the existing western boundary of the Northview Site. Existing landuse surrounding the site comprises the established area of residential development along Ohaupo Road and Dixon Road to the west, areas of more recent residential development to the north within the Cabourne Drive development area and areas of rural land to the east and south.

Site topography comprises low to moderate gradient slopes typically with a pasture cover but with a number of mature exotic trees located within the site at the western site boundary. These mature exotic trees also extend along the northern boundary throughout the gully watercourse and at the eastern most end of the site. There are two existing dwellings located at the western end of the works site and a shed at the eastern end of the works site which will be removed as part of the project.

Drainage from the majority of the site currently occurs within a localised catchment area extending along the north western boundary of the site. Runoff drains in a northern direction to enter a small tributary gully watercourse running along the northern boundary in a westerly direction. This watercourse currently receives runoff from both the very northern portion of the Northview site plus the recent Cabourne Drive development area. These recent development activities have involved the modification of this gully system to establish an on-line stormwater management pond device to cater for stormwater runoff from the development site. Discharges from this pond occur via a culvert under Dixon Road discharging to the central tributary arm of the Mangakotukutuku Stream.

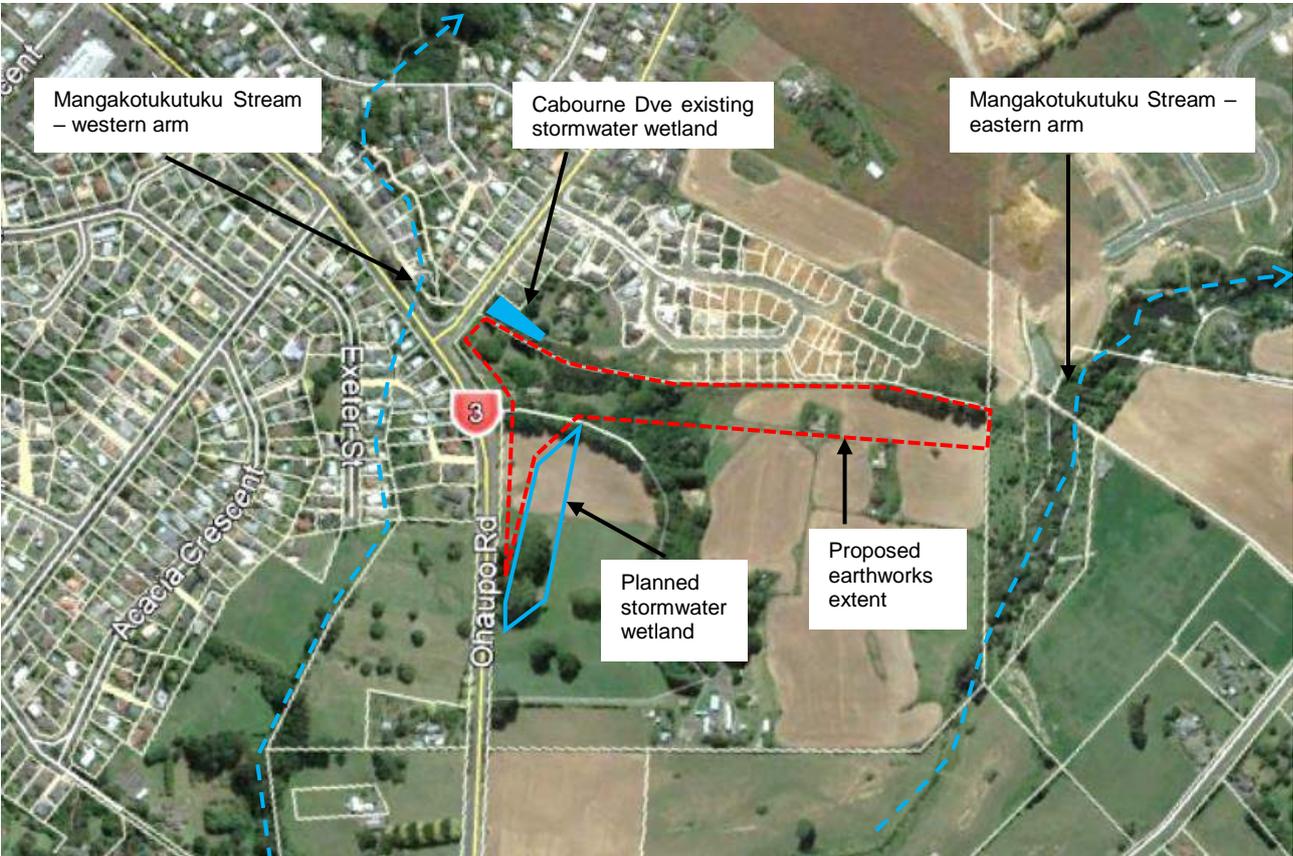


Figure 2 – Site location and features

The existing ecological values of the site are limited due to historic land clearance and current residential and agricultural activities. The main ecological feature in proximity to the works comprises the small gully watercourse located immediately northward of the road alignment which has been confirmed as being located outside of the footprint of the proposed earthworks activities. This

watercourse has a length of around 250m, commencing approximately halfway along the road alignment and flowing westward towards Dixon Road. Observations of the watercourse during winter 2019 identified the flows initially occurring as minor seepages and surface flows with areas of ponding across the gully floor area which lacks a defined stream channel. These flows then enter an area of standing water which has been formed via the placement of a row of gabion baskets and an eventual manhole outlet to the Dixon Road culvert. This ponding area comprises the Cabourne Drive stormwater pond device which has been formed to manage stormwater flows from the adjacent residential development area to the north. The gully watercourse throughout its length is surrounded by stands of mature, predominantly exotic trees including eucalyptus, poplar, blackwood and cyprus. Some isolated pockets of common native species included ponga and carex are located around the gully floor watercourse.

Based upon winter observations of stream flow, the flows are expected to be ephemeral in nature although areas of standing water are expected to be maintained in the stormwater pond due to the on-line nature and holding capacity of this device along with urban catchment stormwater inputs.

Runoff from site earthworks will eventuate within two separate tributary arms of the Mangakotukutuku Stream system. The Mangakotukutuku Stream is subject to multiple impacts associated with both agricultural landuse within the upper catchment areas and urban landuse within the lower catchment area. These activities have given rise to multiple adverse effects including reduced water quality, stream channel modification, stream channel erosion and structural impediments within the channel.

The Shaws Ponds, constructed within the stream channel within the southern tributary below the site, have formed a number of on-line standing water bodies which are likely contributing to adverse effects upon water quality, habitat values and fish passage. Despite these identified effects, part of this stream system are known to support populations of native fish including some less common/At-risk species and parts of the catchment are known to be subject to existing enhancement works undertaken by the local community groups. The ultimate receiving environment for all site runoff is the Waikato River.

Ecology

An ecological assessment has been prepared by Kessels Ecology as part of the project scoping for the subject site – refer Appendix E in the application. The key findings of this report are outlined as follows:

Habitat quality within the stream adjacent to the site was found to be of generally marginal quality, with low dissolved oxygen concentrations. The macroinvertebrate species present were tolerant of a wide range of habitat and water quality conditions. One banded kokopu was observed during a spotlighting survey;

A range of common indigenous and introduced bird species were observed on site. No lizards were observed on site, however, indigenous copper skinks and introduced plague (rainbow) skinks are likely to be present;

Long-tailed bats are known to be abundant in the areas surrounding the proposed road and roundabout. High frequencies of calls have been detected at sites within a few hundred metres of the site, indicating nearby roosting activity and/or a high degree of habitat usage. The size, age and type of trees at the site indicates that suitable bat roosting habitat is present. A survey conducted in October 2017 confirmed the presence of bats within the project site with the large exotic trees along the northern site boundary considered likely to provide bat commuting, foraging and potential roosting habitat.

Archaeology

An archaeological assessment has been prepared by Sian Keith Archaeology as part of the project scoping for the subject site – refer Appendix F. The key finding of this report is outlined as follows:

No evidence for archaeological sites, features or deposits has been identified during the research for the assessment. As a result, it has been determined that the current proposal will have no known impacts on archaeological values.

3 Description of Proposal

The Applicant is proposing to undertake bulk cut to fill earthworks followed by civil construction activities to establish a proposed roundabout intersection on SH3/Ohaupo Road along with a new 620m long section of the Southern Links East-West Minor Arterial extending eastward from the roundabout.

Both the roundabout and the road construction activities are able to be undertaken off-line from the existing SH3/Ohaupo Road traffic flows with only minor tie-in works required at the end of the project to connect the existing road alignment to the new roundabout intersection. In this respect, the bulk earthworks activities will occur along a greenfields road alignment with initial clearance works limited to removal of the two existing farm dwellings, a small shed and a few trees and hedges.

Following site clearance, earthworks activities will commence comprising installation of erosion and sediment control measures followed by stripping of topsoil. Topsoil will either be stripped to perimeter bunding or to temporary stockpile locations. Bulk earthmoving can then commence with the activities being undertaken by a combination of excavators, bulldozers, trucks and compactors.

The proposed earthworks will occur across a total area of approximately 4.2ha with the total earthworks volumes comprising a cut of 71,952m³ and fill of 15,875m³ with a surplus of 56,077m³. The proposed areas of cut are focussed within two areas within the site. These comprise the elevated ridgeline at the existing site entrance point off Ohaupo Road where cut depths of up to 6m are proposed in association with formation of the proposed roundabout which includes an inset underpass to convey pedestrian through/under the intersection. The second cut area comprises an elevated slope towards the eastern end of the alignment where cutting to depths of 7m is proposed to achieve the design road contours. Proposed areas of filling comprise two localised areas including a low lying area adjacent to the existing gully watercourse through the central part of the site with filling up to 3m depth, along with a smaller area at the very eastern end of the alignment with filling up to 4m depth.

The proposed road construction earthworks are planned to be undertaken within two separate stages/construction seasons. Stage 1 will comprise the length of works extending from Ohaupo Road eastward to just past the main Northview Developments road entrance point comprising a works alignment of approximately 300m. Establishment of this initial length of the road will thus facilitate the recently consented Stage 1 development activities within the Northview site. Stage 2 of the road construction works will extend from this point up to the eastern site boundary with the intention of facilitating the next/future stages of the East- West Link Road development beyond the subject site. The specific details of the earthworks associated with each stage of the road development activities is outlined in Table 1 below.

	Stage 1	Stage 2	Total
Area	2.8ha	1.4ha	4.2ha
Cut	43,077m ³	28,875m ³	71,952m ³
Fill	9,314m ³	6,561m ³	15,875m ³
Balance	33,763m ³	22,314m ³	56,077m ³

Table 1: Proposed earthworks scope

The above information outlines reasonably significant volumes of surplus cut material generated from the earthworks activities. During the Stage 1 works, it is anticipated that the surplus material will be stockpiled within the Stage 2 area within the designation boundaries. During the Stage 2 roading works, this material will be utilised as required for construction with the surplus volumes remaining, intended to be utilised within the next stages of works associated with the East-West Minor Arterial to the east which have been identified as having a shortage of available material (subject to future consent approvals).

The Stage 1 works are planned to be undertaken during the summer 2019/20 construction season with the Stage 2 works proposed to occur in the following summer season or as the demand for access to future areas dictates.

Design plans for the proposed earthworks activities are attached as Appendix B in the application.

Best practice erosion and sediment control measures are proposed to be implemented throughout the duration of the earthworks activities in accordance with the WRC Erosion and Sediment Control Guideline document with the proposed measures outlined on the preliminary Erosion and Sediment Control Plan (ESCP) contained within Appendix C of the application.

4 Status of Activities under the Plans

The consent activities applied for are regulated through the Waikato Regional Plan (WRP). The WRP became operative on 28 September 2007 therefore no other plans apply. The status of the activities under the WRP are described below:

4.1 Earthworks

The proposed road construction earthworks activities at the site will occur outside of any high risk erosion areas as defined within the WRP and hence have the potential to occur as a permitted activity under the relevant rule provisions. However, there is a potential that discharges from the site sediment ponds may at times be unable to comply with the permitted activity standards relating to discharge quality (total suspended solids). Hence a conservative approach is being taken with consent sought to authorise these activities as a Discretionary Activity in accordance with Rule 5.1.4.13 of the WRP.

4.2 Other Activities

Stormwater

Construction of the East-West Minor Arterial will result in the creation of impervious urban road surfaces in excess of 1ha and hence these discharges will be subject to consent authorisation under Rule 3.5.11.8 of the WRP. As noted, runoff from the majority (western end) of the carriageway will be routed to the proposed large stormwater wetland device to be constructed immediately to the south of the roundabout for treatment and attenuation. The treated and attenuated runoff will then discharge via an outlet pipe conveying flows below the proposed roundabout to discharge to the central tributary arm of the Mangkotukutuku Stream. The stormwater wetland has been designed in accordance with the Waikato Regional Council's Stormwater Guideline document and will also include capture of runoff from existing sections of the SH3/Ohaupo roading corridor which currently discharge in an uncontrolled manner to the Mangkotukutuku Stream. Hence a portion of 'retro fit' stormwater management will be achieved for a portion of this high use road corridor as part of this project.

The earthworks associated with construction of this wetland have recently been consented as part of the Stage 1 Northview Development project (WRC consent AUTH140660.01.01).

A consent application for the eventual stormwater discharges from the stormwater wetland along with any separate subcatchment areas within the road footprint (to be managed via separate localised/proprietary devices) is in the process of being developed and will be lodged with the WRC in due course. Furthermore, the Applicant has recently also obtained WRC consent AUTH140411.01.01 which authorises the construction, operation and maintenance of the stormwater outlet from this wetland to the stream.

Stormwater from the smaller eastern road catchment area, located within the proposed Stage 2 works area, will be captured within a piped stormwater reticulation network and conveyed to a further stormwater wetland device located on the eastern boundary of the Northview development which will again be subject to future detailed design and consenting processes with these consents to be obtained prior to any discharges from this future stage roading catchment occurring.

Hamilton City District Plan

As noted the proposed road construction activities are located within the boundaries of Designation A106 of the Hamilton City District Plan which refers to the HCC Southern Links roading project. The proposed activities are entirely consistent with this designation purpose and hence in accordance with s176 of the RMA1991, these activities are exempt from the requirements of the district plan.

NES – Soil Contamination

A Detailed Site Investigation/soil contamination assessment undertaken for the adjacent Northview residential development has been reviewed which confirms areas of soil contamination within the Northview site including elevated levels of soil contaminants likely associated with historic market gardening activities across the site paddocks along with a number of localised contaminant hot spots associated with existing buildings, yards and a sheep dip. Based upon these findings, it is anticipated that areas of contamination may extend into the subject road alignment area and hence a consent will be obtained under the NES – Soil Contamination to ensure that any areas of contamination are adequately identified and remediated as part of the site works. This consent application will be lodged with HCC in due course.

5 Consultation/Affected Party Approvals

5.1 Iwi

Conditions 3.15 to 3.17 of the HCC Southern Links designation (refer Appendix D in the application) have established specific conditions requiring establishment of a Tangata Whenua Working Group (TWWG) to facilitate regular consultation between the Southern Links project team and local tangata whenua representatives. The TWWG was established in 2011 during the route identification phase of the wider Southern Links project and HCC (as Requiring Authority) has been in regular ongoing engagement with the group since then. The TWWG is made up of representatives from Waikato-Tainui and each of the following tribal/hapu groups:

Ngāti Mahanga
Ngāti Hauaa
Ngāti Wairere
Ngāti Koroki Kahukura

Routine meetings with the TWWG have included specific discussions regarding the proposed Roundabout and East – West Minor Arterial including any potential environmental effects of the activities. Outcomes of these meetings have included obtaining specific letters of approval from the TWWG regarding both the stormwater design and landscape design for the project which are included

within Appendix J of the application. While specific correspondence has not been obtained regarding the earthworks activities, these current letters confirm that the TWWG are well aware of the project and have provided their support to the establishment of the permanent stormwater system and landscape which will be established on completion of the earthworks, with no specific cultural issues raised.

Furthermore, consultation with the TWWG will be ongoing throughout this project with the next update meeting scheduled for 28 August 2019 at which this group will be advised of these consent applications and anticipated project schedule.

5.2 Other Parties

New Zealand Transport Agency

The proposed earthworks activities at the western end of the site will interface with the existing SH3 roading network which is administered by the New Zealand Transport Agency. The works through this area including tie-in of the existing state highway alignment to the new roundabout. Development of the proposed design has occurred in close consultation with the NZTA to ensure that their interests are protected and accommodated within the proposed roading layout at this point. Furthermore, any works within the State Highway will be subject to specific traffic management requirements which will be developed in consultation with the NZTA network engineer to minimise any disruptions and traffic impacts during these activities. The written approval of the NZTA's representative is attached within Appendix J of the application which confirms their agreement to the proposed activities where they interface with their land and with the existing state highway alignment.

6 Process Matters

Resource consent application 140965 was received as complete on 19 August 2019. The application had a timeframe extension applied to it of 8 days. There were no further processing matters of note.

Date	Process Detail
20/08/2019	Active
20/08/2019	Lodged
23/09/2019	S37A(4) timeframe extension

7 Statutory Considerations

The application was lodged on 19 August 2019 and therefore all amendments to the RMA apply. For the purposes of decision making the application is further assessed as a discretionary activity. It is also considered in accordance with section 104B of the Act which has regard to the determination of applications for discretionary and non-complying activities.

Section 104 Consideration of Applications

In summary, subject to Part 2 the following matters in Section 104(1) of the RMA are relevant to the consideration of the proposal.

“(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to –

- a) any actual and potential effects on the environment of allowing the activity; and*
- b) any relevant provisions of—*

- i. a national environmental standard:
 - ii. other regulations:
 - iii. a national policy statement:
 - iv. a New Zealand coastal policy statement:
 - v. a regional policy statement or proposed regional policy statement:
 - vi. a plan or proposed plan; and
- c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.”

The following statutory instruments and policy documents have been considered in the evaluation of this application:

- Resource Management Act (1991) (RMA);
- Waikato Regional Policy Statement (2016) (RPS);
- Waikato Regional Plan (2007) (WRP); and
- Waikato-Tainui Raupatu (Waikato River) Settlement Claims Act 2010.

Due consideration has been given to Section 104 of the RMA. The actual and potential effects have been discussed in the sections below along with measures being taken to avoid, remedy or mitigate these effects.

Section 105

Furthermore, in relation to any discharge permits, Section 105(1) requires that the consent authority must have regard to a number of additional matters as follows:

- “(1) If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—
- (a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
 - (b) the applicant's reasons for the proposed choice; and
 - (c) any possible alternative methods of discharge, including discharge into any other receiving environment.

Existing environment

Section 104(1)(a) provides that when considering a consent application, the consent authority must, subject to Part 2, have regard to the actual and potential effects on the environment of allowing the activity.

The environment in this case has been extensively modified by land development, farming and drainage.

Permitted baseline

Section 104(2) provides that when forming an opinion about the actual or potential effects of the activity, the consent authority may disregard an adverse effect of the activity on the environment if the regional plan permits an activity with that effect.

There are no permitted activity baseline effects relevant to the applications and as such none have been discounted.

7.1 Assessment of Environmental Effect (s104(1)(a))

Permitted baseline

Section 104(2) provides that when forming an opinion about the actual or potential effects of the activity, the consent authority may disregard an adverse effect of the activity on the environment if the regional plan permits an activity with that effect.

There are no permitted activity baseline effects relevant to the applications and as such none have been discounted.

Actual and potential effects:

The key environmental effects which should be considered are:

- Water quality effects from sediment discharges during earthworks;
- Local air quality degradation from dust discharges;
- Exotic weed invasion;
- Ecological effects; and
- Cultural and Archaeological effects

7.1.1 Water Quality Effects from Sediment Discharges during the Earthworks

Soil disturbance activities increase the potential for erosion and destabilisation effects and have the potential to discharge sediment into waterways both during and after the works until the ground surface is stabilised. Sediment discharges to water can cause a range of adverse effects on fresh water ecosystems, including smothering aquatic life, damaging fish and invertebrates' gills, destruction of spawning grounds, and the deposition of nutrients to waterways. Increased turbidity can interfere with aquatic animal's abilities to feed due to poor visibility and reduced light penetration can reduce photosynthetic activity.

As previously discussed, the Applicant is proposing to undertake the earthworks in two stages over two earthworks seasons which will occur across a total area of approximately 4.2ha with the total earthworks volumes comprising a cut of 71,952m³ and fill of 15,875m³ with a surplus of 56,077m³.

It is considered that the proposed earthworks associated with the cut and fill activities are considered moderate, however they have the potential to discharge sediment into the downstream tributaries of the Mangakotukutuku Stream if proper sediment and erosion controls are not in place.

The Applicant has provided a '*Preliminary Erosion and Sediment Control Plan*' as prepared by Wainui Environmental Ltd, which outlines the high level concepts that will be undertaken to control and mitigate any potential adverse effects from earthworks activities. The '*Preliminary Erosion and Sediment Control Plan*' has been assessed by Waikato Regional Council (WRC) staff, who consider that the plan has been prepared in general accordance with WRC's publication, '*Erosion and Sediment Control – Guidelines for Soil Disturbing Activities, January 2009*'. However, it has been recommended that prior to any proposed earthworks commencing, the Applicant will submit an updated '*Erosion and Sediment Control Plan*' for approval by WRC to ensure the approved contractor has input into the ESCP and to review any possible changes. This is included as a condition of consent in the attached resource consent certificate.

The Applicant has identified that erosion control measures are significant in preventing sediment issues occurring and has therefore proposed installing cleanwater and dirty water diversion bunds around the perimeter of the earthworks area. The bunds will divert cleanwater from entering the works area and divert sediment laden flows within the site to the proposed sediment control devices. It is proposed the diversion bunds will be constructed of stripped topsoil and compacted to form 1 m high bunds. It is considered that they will be sufficient to convey the 20% AEP catchment flows without overtopping.

The primary treatment device for the site will be two sediment retention ponds (SRP's) which will treat the two largest catchments within the site.

SRP 1 has been designed to treat the largest central/northwestern catchment area of 2.2 ha with a design volume of 660 m³ based on 3% of the contributing catchment. Discharges from this SRP will occur to the adjacent tributary through the Carbourne Dr site to the north directly above the Dixon Road culvert inlet. The exact location of the point of discharge to the tributary is uncertain at the time of writing this report and will be determined after selection of the earthworks contractor and review and approval of the final ESCP.

SRP 2 has been designed to treat the smaller eastern catchment area of 0.9 ha with a design volume of 180 m³ based on 2% of the contributing catchment. Discharges from SRP 2 will occur to a small drainage channel eventuating in the on-line Shaw ponds within the southern branch of the Mangakotukutuku Stream.

In addition, the Applicant is proposing that one decanting earth bund (DEB) will be used for the smaller 0.6 ha southwestern catchment which includes the southern SH3 tie-in works. Although the catchment is larger than the prescribed use of a DEB under the WRC guidelines, the Applicant considers that with the use of a floating T-bar decant, a DEB will adequately treat sediment laden flows.

It is anticipated that that some small soil disturbance could occur outside of the larger design catchments. Therefore, the Applicant is proposing that other treatment devices such as silt fences may be used as part of the ESCP as required.

The applicant has identified that if sediment treated discharges are not meeting the required TSS criteria, then a flocculant treatment system may need to be implemented. Therefore, I have included a condition of consent in the attached certificate requiring the applicant to undertake bench testing of the soils to determine the effectiveness of flocculant treatment prior to bulk works commencing. If the bench testing results determine the soils suitable, the applicant will be required to prepare a Flocculation Management Plan (FMP) after confirmation of the soil bench testing results. The FMP shall be prepared by a specialist consultant and submitted for approval prior to the commencement of bulk earthworks.

The applicant is proposing to progressively stabilise the site as areas are completed through roading aggregates, re-spreading of topsoil and mulch and will minimise areas of land exposed at any one time.

The Applicant has identified that a key component of any ESCP is a monitoring and maintenance programme. The Preliminary ESCP has identified monitoring and maintenance measures along with proposed contingency measures to ensure that all treatment devices are properly maintained for maximum efficiency.

Provided the proposed soil disturbance activities are undertaken in accordance with the Waikato Regional Council publication '*Erosion and Sediment Control Guidelines for Soil Disturbing Activities, January 2009*', and as per the final approved '*Erosion and Sediment Control Plan*', I consider that the actual and potential adverse soil disturbance effects will be temporary and no more than minor. I have also recommended a series of conditions to minimise and/or avoid adverse effects on water quality including the implementation of additional erosion and sediment control measures. It should be noted that ultimately the success of any erosion and sediment controls will require comprehensive planning and regular inspections and maintenance of sediment/erosion control devices.

To avoid fuel discharges entering any downstream tributaries of the Mangakotukutuku Stream during the proposed works, conditions have been included requiring that all machinery is operated in a manner

which ensures spillages of fuel, oil and similar contaminants do not eventually enter the downstream watercourses.

7.1.2 Local Air Quality Degradation from Dust Discharges during Earthworks

Sites where ground cover is removed and soil disturbed have the potential to discharge dust. The severity of dust discharges are determined by factors such as wind strength, soil type, size of area exposed and moisture content of soil.

Some of the adverse effects, which can result from dust discharges include:

- Potential health effects from breathing dust particles.
- Nuisance effects, which can result from dust settling on surfaces such as cars, houses and household washing.
- Visibility effects, which can result from dust clouds moving offsite.
- Effects on plants, which can result from dust deposits. These effects can include reduced palatability of pasture and reduced photosynthesis due to reduced light penetration.

The applicant has acknowledged dust emissions as a potential issue and has identified the nearest sensitive receivers being the dwellings located directly across the northern site boundary approximately 15 m from the earthworks margins.

The earthworks area is noted as comprising a relatively narrow, (approximate 50m width) elongated alignment typically occurring within a gully area with potential wind effects generally buffered by the surrounding slopes. In this respect, the potential for wind action across any significant fetch of exposed surfaces which could give rise to adverse dust mobilisation and off site effects is considered to be low. Furthermore, the proposed staging approach to these earthworks will ensure that the exposed areas within the site at any one time are maintained at manageable levels to prevent any offsite dust discharges.

As noted, the existing Designation conditions for the project already include a specific requirement for preparation/certification/implementation of a detailed Dust Management Plan. These conditions specifically outline the following items which are to be addressed within this plan:

- a) Mitigation measures to be implemented during construction to minimise dust emissions;*
- b) Methods for the daily visual monitoring of dust emissions and assessing the effectiveness of the mitigation measures implemented;*
- c) Procedures for responding to process malfunctions and accidental dust discharges;*
- d) Criteria, including consideration of weather conditions and procedures, for the use of water sprays on stockpiles and operational areas of the Project;*
- e) Continuous monitoring of meteorology;*
- f) Monitoring of construction vehicle maintenance;*
- g) Complaints investigation, monitoring and reporting;*
- h) The identification of staff and contractors' responsibilities; and*
- i) Appropriate DMP review procedures.*

The initial dust management measures to be outlined within this plan to address potential dust effects will comprise the proactive monitoring of weather forecasts and site conditions along with management of the works programme to ensure that any works in proximity to sensitive receivers are only programmed for low risk dust periods.

For any periods where a heightened dust risk is identified, the typical control method will be via the use of water carts to maintain damp surface conditions across the site area. Water supply for this purpose will be readily available at the site via the existing HCC municipal system.

Should adverse dust risk conditions be identified, contingency response methods will include ceasing of works within any problematic areas and stabilisation of surfaces via either water application, placement of pinned geotextile, aggregate placement or use of polymer soil stabilisers.

The specific details of these measures will again be confirmed within the detailed Dust Management Plan to be developed for the site which will be implemented throughout the works to avoid the potential for adverse dust mobilisation effects.

Considering the nature of the project area, the staged works approach and the proposed dust management approach already required through the designation conditions, it is considered that these potential effects will be able to be adequately managed to avoid any nuisance dust effects beyond the site boundary and to ensure that any effects that do arise are no more than minor.

Notwithstanding the proposed mitigation measure above, I have included a condition in the attached consent requiring the applicant to prepare and submit for approval a **Dust Management Plan** to control potential dust emissions from the site prior to works commencing.

7.1.3 Exotic Weed Invasion

The proposed earthworks and vegetation clearance will provide conditions for invasive weeds to become established on exposed surfaces during and after construction. Machinery brought onto the site to undertake earthworks and vegetation clearance could potentially carry plant matter and/or seeds, which could result in the introduction of new weed species in the area. This is a potential detrimental impact as weeds may threaten the ecological integrity of the surrounding indigenous vegetation. I recommend that all machinery brought onsite is first cleaned to remove any plant matter and/or seeds. I have proposed a condition of consent in the attached certificate regarding washing of machinery. On this basis, I consider that the risk of exotic weed invasion will be adequately avoided.

7.1.4 Ecological Effects

Based upon the proposed earthworks design confirming all earthworks to be kept outside of the gully ephemeral watercourse area, the potential effects of the proposed activities upon aquatic habitats is considered to be limited to potential sediment discharge effects upon water quality and aquatic habitats which have been discussed above and determined to be no more than minor.

Outside of the gully area, the earthworks will typically be limited to cut to fill activities occurring across existing pasture slopes providing limited ecological habitat values. However, a number of mature, exotic specimen trees are identified within the works footprint which will require removal as part of the works. These include a number of trees located near the western site boundary comprising mature oaks and liquid ambers along with a row of poplar located along the northern boundary at the eastern end of the alignment. The key potential effect associated with these activities is identified as the potential effects upon the long tailed bat populations which are known to be utilising this area for commuting, foraging and potential roosting habitat. However, for the trees within the construction footprint of the Southern Links designation, the existing designation conditions ensure that suitable provisions are already in place to address the potential construction/tree filling effects and the broader habitat effects of the subject activities upon local bat populations.

While no lizards have been observed on site by the ecologist, indigenous copper skinks and introduced plague (rainbow) skinks are considered likely to be present. However, the ecological assessment goes on to outline that:

‘whether there are a small range of reptile species present or not, the areas and quantum of habitat loss is relatively small (of the potential habitat present in the locality) and thus effects on indigenous lizard habitat are considered to be minor, and will be offset by restoration planting.’

The assessment also refers to the specific Wildlife Permit requirements under the Wildlife Act 1953 for disturbance of these habitats which will require the development and implementation of a Lizard Management Plan to manage any direct effects upon site lizard populations. Wildlife Permit application with Lizard Management Plan for Southern Links as a whole has now been lodged with the Department of Conservation.

Overall, the site specific ecological assessment recommends that the detailed ecological management requirements for the site including detailed bat and lizard management protocols along with habitat enhancement plantings should be detailed and confirmed within a detailed Ecological Management Plan document. In this respect, this recommendation has effectively already been provided for by the Southern Links designation conditions 15.1 to 15.7 (contained within Appendix D of the application) outlining an extensive list of measures that are to be addressed within a certified Ecological Management and Monitoring Plan (EMMP) for the HCC Southern Links project including:

- Detailed monitoring, management and mitigation methods to address the adverse effects of both the construction and operational phases of the Southern Links project upon native ecology including bats, avifauna, lizards, vegetation and aquatic and wetland values – including the detailed bat management/tree felling protocols;
- Detailed habitat restoration/offset mitigation measures based upon restoration of a minimum 11.46ha of gully, bat and river margin habitats;
- Animal pest control measures at known significant bat roost sites (outside of the site area); and
- Aquatic habitat surveys to identify stream values and locations where enhancement measures can be implemented.

An EMMP for the whole Southern Links project has recently been completed and lodged with HCC (as the territorial authority) for certification. This EMMP has been prepared by suitably qualified and experienced ecologists as a direct response to the overall impacts of the Southern Links project upon ecological habitats within Hamilton City including the specific potential ecological effects of the works within the subject site area. Furthermore, the EMMP is currently being considered by independent ecologists engaged by HCC Planning Guidance / Compliance for as part of the certification process as set out in the EMMP and will be completed in the near future. Appendix H in the application includes copies of plans taken from the EMMP outlining the overall habitat restoration areas to be implemented as part of the Southern Links project and a copy of the overall EMMP document including details of all ecological management protocols and restoration details can be provided to the WRC upon request to confirm that any other relevant items are adequately addressed within that document.

On the basis of this overall existing EMMP document outlining the direct management methods to address any direct impacts of the proposed road construction activities upon terrestrial native fauna including bats, lizards and avifauna, further assessment or control (through consent conditions) of these items is not considered necessary through this WRC consent process.

Within the site, it is proposed to implement areas of native plantings extending across the finished road batter surfaces with the intention of providing both enhanced landscape values while also contributing to improved ecological habitat outcomes from the existing pasture site areas. The proposed plantings to be undertaken within the site are presented within the Concept Landscape Management Plan document prepared by Adrian Morton Landscape Architects Ltd included within Appendix I of the application.

Beyond the site area, the Applicant will implement the various areas of habitat restoration as outlined within the EMMP document. These areas are noted as including numerous areas of habitat enhancement including areas of gully restoration, stream restoration, bat and lizard habitat enhancement as outlined on the plans in Appendix H of the application for the broader Mangakotukutuku Stream catchment with a minimum overall area of 11.46 ha of habitat enhancement required through the designation conditions.

For the current WRC consent earthworks application, considering the location of the proposed earthworks areas outside of any areas of aquatic habitat and with the direct terrestrial ecological impacts of the project to be addressed through implementation of the best practice methods and protocols already established through the EMMP (to be certified by HCC Planning Guidance/Compliance), specific reference to implementation of the EMMP document through the conditions of this consent is again considered unnecessary.

Overall, based upon the current low ecological values of this site, the location/layout of the works outside of any aquatic habitat and factoring the specific management methods to be implemented/administered through the HCC EMMP document to manage any potential terrestrial ecological impacts along with the proposed native restoration plantings extending along the margins of the road alignment, it is considered that any ecological effects of these activities will be no more than minor. At a broader project level, implementation of the ecological habitat restoration measures as proposed through the Southern Links EMMP will ensure that the ecological outcomes of the overall project will be positive and will contribute to the net enhancement of ecological habitat values both within the site and the broader Mangakotukutuku Stream catchment area.

7.1.5 Cultural and Archaeological Effects

The proposed earthworks have the potential to disturb/uncover archaeological sites. As previously discussed, the Archaeological Assessment undertaken for the project has concluded that no evidence for archaeological sites, features or deposits has been identified during the research for the assessment. As a result, it has been determined that the current proposal will have no known impacts on archaeological values.

Ongoing consultation is occurring with the TWWG established for the project as required through the existing designation conditions with this party aware of the intended works and having already provided their support to the final stormwater and landscape designs for this area and with no specific cultural issues raised regarding this site.

Despite the above assessment, the possibility of uncovering any potential unidentified sites cannot be eliminated altogether. Waikato Regional Council has standard consent conditions relating to circumstances where unidentified archaeological sites are discovered. I consider that these conditions will ensure that appropriate procedures/protocols are followed. In the event unidentified archaeological sites are discovered, there may be further requirements imposed by Heritage New Zealand. The inclusion of these conditions does not preclude the use of other protocols if agreed between the applicant and iwi, however, they do provide a minimum standard to be followed.

7.2 Assessment against Policy Statements, Plans and Regulations (s104(1)(b))

7.2.1 Vision and Strategy

Under s11 of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 and other river “settlement” legislation, the Vision and Strategy is deemed to be part of the Waikato Regional Policy Statement. Under s104(1)(b), the Council must “have regard to” the RPS when considering any application for resource consent. However, additionally, the river settlement legislation also requires

that the Council must have “particular regard” to the Vision and Strategy for the Waikato River when carrying out any of its functions under RMA 1991. Through case law, the Vision and Strategy is acknowledged as the primary, direction-setting policy for the River. Case law indicates that activities which are subject to the V&S are required to provide for the protection and restoration of the River, and that this will require “betterment” to an extent proportionate with the scale of the activity and its effects. The specific objectives outlined within the Vision and Strategy document include:

- a) the restoration and protection of the health and wellbeing of the Waikato River;
- b) the restoration and protection of the relationship of Waikato – Tainui with the Waikato River, including their economic, social, cultural and spiritual relationships;
- c) the restoration and protection of the relationships of Waikato Iwi according to their tikanga and kawa with the Waikato River, including their economic, social, cultural and spiritual relationships;
- d) the restoration and protection of the Waikato Region’s communities, with the Waikato River, including their economic, social, cultural and spiritual relationships;
- e) the integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River;
- f) the adoption of a precautionary approach towards decision that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the River;
- g) The recognition and avoidance of adverse cumulative effects, of activities undertaken both within the Waikato River and within its catchments on the health and wellbeing of the Waikato River;
- h) The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities;
- i) The protection and enhancement of significant sites, fisheries, flora and fauna;
- j) The recognition that the strategic importance of the Waikato River to New Zealand’s social, cultural, environmental and economic wellbeing, requires the restoration and protection of the health and wellbeing of the Waikato River;
- k) The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length;
- l) The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities;
- m) The application of the above of both matauranga Maaori and the latest available scientific methods.

The subject site is located within the Waikato River catchment in proximity to the main river channel and with all site runoff draining to the river by way of the Mangakotukutuku Stream. In this respect, the proposed activities incorporate design features which are considered appropriate to maintain the quality of water and to avoid remedy or mitigate any potential adverse effects on the river with consent conditions recommended to address these items.

The completed site earthworks will also be subject to landscape treatments in accordance with the Concept Landscape Plan including the planting of the completed earthworks batters with native vegetation both to provide enhanced landscape values within the roading corridor while also contributing to improved biodiversity effects within the site.

Additionally, the project works will retire the existing site area from traditional agricultural landuse practices with the new landuse resulting in runoff from the new road surfaces which will be treated within a best practice stormwater management wetland facility. This facility will also incorporate retrofit treatment of stormwater runoff from the existing SH3 high use runoff surfaces which currently discharge untreated/unattenuated into the downstream Mangakotukutuku Stream receiving environment and hence is considered to present a positive outcome/betterment for this receiving environment.

In addition to the above measures occurring at the subject site, implementation of the overall EMMP requirements throughout the broader catchment area as part of the overall Southern Links project will ensure enhanced ecological outcomes as part of this project.

The Applicant is again undertaking consultation with the TWWG including Tainui on an ongoing basis with these parties being well informed of the project activities and with no specific concerns having been raised regarding the potential effects upon the health and wellbeing of the Waikato River and its catchment.

Having given regard to the Waikato-Tainui Raupatu (Waikato River) Settlement Claims Act 2010, it is considered that the proposal is consistent with the Vision and Strategy document. The various measures set out above will ensure that the Vision and Strategy requirement to “restore and enhance” is given effect to.

7.2.2 National environmental standards

As of 4 September 2018, there are six NESs that have come into effect - the National Environmental Standards for Air Quality (where various standards have been in effect since October 2004); Sources of Human Drinking Water; Electricity Transmission Activities; Telecommunication Facilities; Assessing and managing contaminants in soil to protect human health; and Plantation Forestry.

NES – Soil Contamination

The adjacent Northview development site has previously been subject to a detailed site investigation into soil contamination which identified elevated levels of soil contamination due to historic horticultural activities occurring on site. While this investigation didn't cover the subject site area for the roading works, the land is contiguous and hence it is assumed that these contamination effects likely extend into the subject designation footprint. A soil contamination specialist has been engaged to investigate these effects within the subject area and a consent application will be lodged with the HCC in due course to ensure that these issues are effectively identified and remediated as part of the site works.

There are no other National Environmental Standards relevant to the proposed activities.

7.2.3 Other regulations

In 2013 Notice(s) of Requirement were issued by the NZ Transport Agency and Hamilton City Council to secure the designation for the alignment of the Southern Links roading layout for future development. As noted the proposed road construction activities are located within the boundaries of Designation A106 of the Hamilton City District Plan which refers to the HCC Southern Links roading project. The proposed activities are entirely consistent with this designation purpose and hence in accordance with s176 of the RMA1991, these activities are exempt from the requirements of the district plan.

7.2.4 National policy statements (including NZ Coastal Policy Statement)

National Policy Statement for Freshwater Management 2014

The Freshwater Management NPS has policies and objectives that direct local government to manage water in an integrated and sustainable way while providing for economic growth within specified water quality and quantity limits. The NPS requires regional councils to develop standards to safeguard the life supporting capacity of water bodies, with the objective that water quality will be maintained or improved. This will involve protection of high quality water bodies and implementation of methods to improve degraded water bodies. In the interim, when considering consent applications regional councils must have regard for any effects (actual or cumulative) that contaminants contained in the discharge

may have on freshwater and fresh water ecology. The principle of adopting best practicable options in order to minimise effects is included in the decision making process under this policy.

As the earthworks consent sought is considered to adopt best practice methodologies, is relatively minor in nature, and with enhancement of planting of the completed earthworks batters with native vegetation, it is my opinion that should the application be granted, it will not be contrary to the Freshwater NPS.

The NZ Coastal Policy Statement is not relevant to this application.

7.2.5 Regional Policy Statement

The RPS identifies the significant resource management issues of the region and sets out the objectives, policies and methods to address these issues and to achieve integrated management of the natural and physical resources of the Region. The RPS aims to ensure the way we use our resources does not tip the balance and compromise the ability of future generations to provide for their own needs.

The Waikato Regional Council's RPS was made operative on 20 May 2016.

Key issues in the RPS relating to this proposal are the state of resources (Issue 1.1), effects of climate change (Issue 1.2), managing the built environment (Issue 1.4), and the relationship of tangata whenua with the environment (Issue 1.5). There are a number of overlapping objectives under each of these relevant to this proposal. These are listed as follows:

- Integrated management of natural and physical resources (Objective 3.1);
- Resource use and development (objective 3.2);
- Decision making (Objective 3.3);
- Health and well being of the Waikato River (Objective 3.4)
- Ecosystem services (Objective 3.8);
- Relationship of tangata whenua with the environment (Objective 3.9);
- Air quality (Objective 3.11);
- Built environment (Objective 3.12)
- Mauri and values of fresh water bodies (Objective 3.14);
- Riparian areas and wetlands (Objective 3.16)
- Ecological integrity and indigenous biodiversity (Objective 3.19)
- Amenity (Objective 3.21)
- Natural character (Objective 3.22)
- Values of soil (Objective 3.25)

Relevant policies include integrated management (Policy 4), air (Policy 5), built environment (Policy 6), fresh water bodies (Policy 8), Indigenous biodiversity (Policy 11), Landscape (including seascapes), natural character and amenity (Policy 12), and soils (Policy 14).

I consider that the application is consistent with the objectives and policies of the operative Regional Policy Statement.

7.2.6 Regional Plan

The Waikato Regional Plan ("WRP") is operative. The purpose of regional plans is to help the Council carry out its functions under s30 of the RMA.

Plan	Rule/Objective
Waikato Regional Plan	5.1.4.13 - Discretionary Activity Rule - Soil Disturbance, Roading and Tracking and Vegetation Clearance

The objectives and policies contained in the WRP that are relevant to this proposal are those relating to water resources, land and soil and air. The following provides a discussion of these objectives and policies.

3.1 Water Resources

3.1.2 Objective

The management of water bodies in a way which ensures:

- a. that people are able to take and use water for their social, economic and cultural wellbeing*
- b. net improvement¹ of water quality across the Region*
- c. the avoidance of significant adverse effects on aquatic ecosystems*
- d. the characteristics of flow regimes are enhanced where practicable and justified by the ecological benefits*
- e. the range of uses of water reliant on the characteristics of flow regimes are maintained or enhanced*
- f. the range of reasonably foreseeable uses of ground water and surface water are protected*
- g. that significant adverse effects on the relationship tangata whenua as Kaitiaki have with water and their identified taonga such as waahi tapu, and native flora and fauna that have customary and traditional uses in or on the margins of water bodies, are remedied or mitigated*
- h. the cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with water their identified taonga such as waahi tapu, and native flora and fauna that have customary and traditional uses that are in or on the margins of water bodies are remedied or mitigated*
- i. the management of non-point source discharges of nutrients, faecal coliforms and sediment to levels that are consistent with the identified purpose and values for which the water body is being managed*
- j. the natural character of the coastal environment, wetlands and lakes and rivers and their margins (including caves), is preserved and protected from inappropriate use and development*
- k. concentrations of contaminants leaching from land use activities and non-point source discharges to shallow ground water and surface waters do not reach levels that present significant risks to human health or aquatic ecosystems*
- l. that the positive effects of water resource use activities and associated existing lawfully established infrastructure are recognised, whilst avoiding, remedying or mitigating adverse effects on the environment.*

3.2.3 Policies

Policy 1: Management of Water Bodies

Manage all water bodies to enable a range of water use activities, whilst ensuring that a net improvement in water quality across the Region is achieved over time through:

- a. Classifying and mapping water bodies based on the characteristics for which they are valued and implementing the classification through a mixture of regulatory and non-regulatory methods.*
- b. Maintaining overall water quality in areas where it is high, and in other water bodies, avoiding, remedying or mitigating cumulative degradation of water quality from the effects of resource use activities.*
- c. Enhancing the quality of degraded waterbodies.*
- d. Providing for the mitigation and remediation of adverse effects in accordance with Section 1.3.3 of the Waikato Regional Policy Statement.*

- e. *Recognising the positive benefits to people and communities arising from use or development of water resources and by taking account of existing uses of water and the associated lawfully established infrastructure.*

Policy 3: Tangata Whenua Uses and Values

Ensure that the relationship of tangata whenua as Kaitiaki with water is recognised and provided for, to avoid significant adverse effects and remedy or mitigate cumulative adverse effects on:

- a. *The mauri of water,*
- b. *Waahi tapu sites,*
- c. *Other identified taonga.*

5.1 Accelerated Erosion

5.1.2 Objective

A net reduction of accelerated erosion across the Region so that:

- a. *soil productivity, versatility and capability is maintained*
- b. *there are no adverse effects on water quality, aquatic ecosystems and wetlands that are inconsistent with Water Management Objective 3.1.2*
- c. *there is no increase in the adverse effects of flooding or land instability hazards*
- d. *accelerated infilling of lakes, estuaries, rivers, wetlands and cave systems is avoided and the rate of infilling of artificial watercourses, excluding structures designed to trap sediment, is minimised*
- e. *significant adverse effects on the relationship tangata whenua as Kaitiaki have with their identified ancestral taonga such as ancestral lands, water and waahi tapu are avoided*
- f. *cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water, waahi tapu are remedied or mitigated.*
- g. *significant adverse effects on natural character and ecological values associated with land and the coastal environment including dune systems is avoided*
- h. *there are no adverse effects on air quality that are inconsistent with Air Quality Objective 6.1.2, Objectives 2 and 3*
- i. *damage to property and infrastructure is avoided*

Section 5.1.3 - Policy 1: *Managing Activities that Cause or Have the Potential to Cause Accelerated Erosion and Encouraging Appropriate Land Management Practices*

Section 5.1.3 - Policy 2: *Use of Regulatory and Non-Regulatory Approaches of Management for Soil Disturbance/Vegetation Clearance Activities in High Risk Erosion Areas.*

Section 5.1.3 – Policy 3: *Promote Good Practise.*

6.1 Regional and Local Air Management

Objective2:

No significant adverse effects from individual site sources on the characteristics of air quality beyond property boundary.

The objectives and policies of the relevant sections of the WRP outlined above have been considered and assessed within the assessment of environmental effects carried out within section 7.1 of this report. This assessment has determined that based on the implementation of best practice erosion and sediment controls and dust management, the proposed activities will not result in any adverse environmental effects which are more than minor. In this respect it is considered that the proposed activities will not compromise values associated with water resources and air quality or result in accelerated erosion as outlined within the above objectives and policies and thus the proposed activities are considered to be consistent with the provisions of the Waikato Regional Plan.

The **Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments (Healthy Rivers)**, has been developed by the WRC with the express purpose of improving the management of nutrient and sediment contaminants from landuse activities within the Waikato and Waipa River catchment. The Healthy Rivers Plan Change was notified on 22 October 2016 and must be given regard to. Over 1,000 submissions were received and with these submissions yet to be heard through an extensive hearing process which initiated at the start of 2019.

Based upon the preliminary status of the Healthy Rivers and the significant number of submissions to be resolved, the plan change is considered to be afforded little weight when considering the subject activities. Nonetheless, the earthworks activities have been considered against the relevant objectives and policies of Healthy Rivers and based upon the implementation of the proposed best practice avoidance and mitigation methodologies are considered to be consistent with these preliminary provisions.

In assessing this application I have given regard to the above objectives and policies of the WRP. I consider that this proposal is consistent with the WRP, provided that the recommended consent conditions and requirements of the relevant rule are complied with.

7.3 Other Matters

Waikato-Tainui Environmental Plan

The Waikato-Tainui Environmental Plan provides a background to, and identifies key, resource based issues for Waikato-Tainui. The plan sets out Waikato-Tainui's vision statement for environmental and heritage issues and key strategic objectives such as tribal identity and integrity, including "to grow our tribal estate and manage our natural resources." The plan is designed to enhance Waikato-Tainui participation in resource and environmental management.

I have assessed this proposal against the objectives and outcomes within this plan and overall I consider that the proposal is consistent with this Iwi Environmental Plan.

7.4 Customary activities

There are no customary activities relevant to this consent process.

8 Relevant Part 2 Considerations

All considerations are subject to Part 2 of the RMA, which sets out the purpose and principles that guide this legislation. This means the matters in Part 2 prevail over other provisions of the RMA or provisions in planning instruments (e.g. regional plans) in the event of a conflict. Section 5 states the purpose of the RMA and sections 6, 7 and 8 are principles intended to provide additional guidance as to the way in which the purpose is to be achieved.

The application of Section 5 involves an overall broad judgement of whether a proposal will promote the sustainable management of natural and physical resources. The RMA's use of the terms "*use, development and protection*" are a general indication that all resources are to be managed in a sustainable way, or at a rate which enables people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety. The enabling and management functions found in section 5(2) should be considered of equal importance and taken as a whole.

Sections 6, 7 and 8 of the RMA provide further context and guidance meaning to the constraints found in section 5(2)(a),(b) and (c). The commencing words to these sections differ, thereby laying down the relative weight to be given to each section.

Section 6 of the RMA sets out the matters of national importance which need to be recognised and provided for and includes among other things and in no order of priority, the protection of outstanding natural features and landscapes, the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the protection of historic heritage.

Section 7 of the RMA requires the consent authority to give particular regard to those matters listed in the section. Section 7 matters are not expressly ranked in order of priority. Therefore, all aspects of this section are to be considered equally.

Section 8 of the RMA requires the consent authority to take into account the principles of the Treaty of Waitangi. This section of the RMA recognises the relationship of Tangata Whenua with natural and physical resources and encourages active participation and consultation with Tangata Whenua.

These purposes and principles outlined within part 2 of the RMA have been considered within the assessment section of this report and it is considered that based on proposed environmental management procedures proposed by the Applicant and required through consent conditions, the proposed activities are consistent with Part 2 of the RMA.

9 Discussion/Conclusions

Wainui Environmental Ltd has made application for resource consent on behalf of Hamilton City Council (the applicant) to authorise earthworks activities associated with the construction of a proposed roundabout and section of arterial road associated with the Southern Links transport project at Ohaupo Road/SH3 within Hamilton City.

The main potential adverse environmental effects associated with the proposed works are considered to be:

- Water quality effects from sediment discharges during earthworks;
- Local air quality degradation from dust discharges;
- Exotic weed invasion;
- Ecological effects; and
- Cultural and Archaeological effects

However, for the reasons outlined in section 6.1 of this report, I am satisfied that these adverse effects can be avoided, remedied or mitigated such that the adverse environmental effects associated with the works are likely to be minor.

The overall proposal has been assessed in respect to its consistency with the objectives and policies of the Regional Council's policies and plans, and the statutory provisions of the RMA. It has further been considered in accordance with section 104B of the RMA which has regard to the determination of applications for discretionary or non-complying activities. Provided the activities are undertaken in accordance with the application for consent and subsequent supporting documentation, and the recommended consent conditions in the attached Resource Consent Certificate, I consider that they will not be inconsistent with Council's policy and plans, or the statutory provisions of the RMA.

For these reasons I recommend that consent be granted subject to the consent conditions in the attached Resource Consent Certificate.

- Resource Consent AUTH140965.01.01 – 5 years (land disturbance)

The following considerations have been taken into account in recommending this term:

- The temporary nature of the soil disturbance activities;
- The various proposed mitigation measures and ongoing monitoring requirements;
- The actual and potential adverse effects of the proposed activities on the environment;
- Consistency with Regional Council policies, objectives and plans;
- Consistency with the purpose and principals of the RMA; and
- Waikato Regional Council's internal guidelines for consent duration.

10 Monitoring

The Waikato Regional Council has a statutory obligation under section 35 of the RMA (1991) to monitor the effects of resource consents being exercised in its region. Waikato Regional Council staff and/or its authorised agents will therefore monitor the proposed activities throughout the term of consent.

It is recommended that the applicant ensures that all erosion and sediment controls at the site are regularly inspected and in good working order prior to, and immediately after rain events, and that these controls are maintained to achieve optimal sediment capture efficiency at all times.

All costs associated with monitoring are recovered from the consent holder on a reasonable and actual basis.

11 Recommended Decision

I recommend that in accordance with s104B resource consent application 140965 be granted in accordance with the duration and conditions prescribed in the attached Resource Consent Certificate for the following reasons:

- The activity will have no more than minor actual or potential adverse effects on the environment
- The activity is not contrary to any relevant plans or policies
- The activity is consistent with the purpose and principles of the Resource Management Act 1991



Brian Richmond
Resource Officer - Infrastructure
Resource Use Directorate

Date: 25 September 2019

12 Decision

That the resource consent application is granted in accordance with the above recommendations.

A handwritten signature in black ink, appearing to read 'Hugh Keane', is centered within a light gray rectangular box.

Hugh Keane
Team Leader - Infrastructure
Resource Use Directorate

Date: 25 September 2019

RESOURCE CONSENT CERTIFICATE

Resource Consent: AUTH140965.01.01

File Number: 61 74 33A

Pursuant to the Resource Management Act 1991, the Regional Council hereby grants consent to:

Hamilton City Council
Private Bag 3010
Waikato Mail Centre
Hamilton 3240

(hereinafter referred to as the Consent Holder)

Consent Type: Land Use Consent

Consent Subtype: Land - disturbance

Activity authorised: To undertake earthworks in association with road construction activities to construct a new roundabout at Ohaupo Road/SH3 & East-West Arterial Roads associated with the Southern Links transport project at Glenview/Peacockes, Hamilton

Location: 3019 Ohaupo Road, Hamilton

Map reference: NZTM 1802153 E 5810977 N

Consent duration: This consent will commence on the date of decision notification and expire on 15 September 2024.

Subject to the conditions overleaf:

CONDITIONS

General

1. The soil disturbance activities authorised by this resource consent shall be undertaken in general accordance with the application for this resource consent (WRC doc ref# **14923030**), titled **'Hamilton City Council – Ohaupo Road Roundabout & East West Minor Arterial Road – Resource Consent Application to Waikato Regional Council to Undertake Earthworks – Assessment of Environmental Effects'**, dated August 2019, prepared by Wainui Environmental Ltd and in particular the **'Preliminary Erosion and Sediment Control Plan'** dated July 2019 attached in Appendix C of the application, and all other subsequent supporting documentation submitted, except where otherwise required in the resource consent conditions below. Where there is any discrepancy between the application documents and the resource consent conditions then the conditions below shall prevail.
2. The consent holder shall appoint a representative(s) prior to commencement of any works authorised by this resource consent, who shall be the Waikato Regional Council's principal contact person in regard to matters relating to this consent. The consent holder shall inform the Waikato Regional Council of the representative's name and how they can be contacted prior to this consent being exercised. Should that person(s) change during the term of this resource consent, the consent holder shall immediately inform the Waikato Regional Council and shall also give written notice to the Waikato Regional Council of the new representatives name and how they can be contacted.
3. The consent holder shall be responsible for all contracted operations relating to the exercise of this resource consent, and shall ensure contractors are made aware of the conditions of this consent and ensure compliance with those conditions.
4. A copy of this resource consent shall be kept onsite at all times that the works authorised by this consent are being undertaken, and shall be produced without unreasonable delay upon request from a servant or agent of the Waikato Regional Council.

Winter Works

5. The works authorised by this resource consent shall not be carried out during the winter period 1st May to 30th September inclusive in any year that this consent is current unless authorised by the Waikato Regional Council as per condition 7.
6. The consent holder shall ensure that the site is appropriately stabilised by 30 April of each year unless otherwise approved in writing by the Waikato Regional Council. Stabilisation shall be undertaken by providing adequate measures (vegetative and/or structural and including, pavement, metalling, hydroseeding, revegetating and mulching) that will minimise erosion of exposed soil to the extent practicable.
7. Requests to undertake works during the period 1st May to 30th September inclusive shall be submitted in writing to the Waikato Regional Council by 1st April, and shall be in the form of amendments to the approved Earthworks and Sediment Control Plan.

Advice Note: *In considering a request for the continuation of winter works, the Waikato Regional Council will consider a number of factors; including:*

- *the nature of the site and the winter soil disturbance works proposed;*
- *the quality of the existing/proposed erosion and sediment controls;*
- *the compliance history of the site/operator;*

- *seasonal/local soil and weather conditions;*
- *sensitivity of the receiving environment; and*
- *any other relevant factor.*

Pre-works Requirements

8. The consent holder shall inform the Waikato Regional Council in writing, at least 10 working days prior to commencement of any works, of the start date of the works authorised by this resource consent.
9. The consent holder shall arrange and conduct a pre-construction site meeting and invite, with a minimum of 10 working days notice, the Waikato Regional Council, the site representative nominated under condition 2 of this consent, the contractor, and any other party representing the consent holder prior to any works authorised by this consent commencing on the site.

Advice Note: *In the case that any of the invited parties, other than the site representative does not attend this meeting, the consent holder will have complied with this condition, provided the invitation requirements are met.*

Erosion and Sediment Control

10. The consent holder shall provide the Waikato Regional Council with an updated '**Erosion and Sediment Control Plan**' (ESCP), at least 10 working days prior to the commencement of each stage of earthworks for the activities authorised by this consent. The objective of the ESCP shall be to minimise sediment discharge from the site to the extent practicable over the earthworks period.
11. The ESCP shall as a minimum be based upon and incorporate those specific principles and practices which are appropriate for the activity authorised by this consent and contained within the Waikato Regional Council document titled "Erosion and Sediment Control – Guidelines for Soil Disturbing Activities" (Technical Report No. 2009/02 – dated January 2009), and shall include at least the following;
 - a. Details of all principles, procedures and practices that will be implemented to undertake erosion and sediment control to minimise the potential for sediment discharge from the site;
 - b. The design criteria and dimensions of all key erosion and sediment control structures;
 - c. A site plan of a suitable scale to identify;
 - i. The locations of waterways;
 - ii. The extent of soil disturbance and vegetation removal;
 - iii. Any "no go" and/or buffer areas to be maintained undisturbed adjacent to watercourses;
 - iv. Areas of cut and fill;
 - v. Locations of topsoil stockpiles;
 - vi. All key erosion and sediment control structures;
 - vii. The boundaries and area of catchments contributing to all stormwater impoundment structures;
 - viii. The locations of all specific points of discharge to the environment; and
 - ix. Any other relevant site information.
 - d. Construction timetable for the erosion and sediment control works and the bulk earthworks proposed;
 - e. Timetable and nature of progressive site rehabilitation and re-vegetation proposed;

- f. Maintenance, monitoring and reporting procedures;
- g. Rainfall response and contingency measures including procedures to minimise adverse effects in the event of extreme rainfall events and/or the failure of any key erosion and sediment control structures;
- h. Procedures and timing for review and/or amendment to the ESCP; and
- i. Identification and contact details of personnel responsible for the operation and maintenance of all key erosion and sediment control structures.

The ESCP shall be approved in writing by the Waikato Regional Council acting in a technical certification capacity prior to any works authorised by this consent commencing and the consent holder shall undertake all earthworks authorised by this consent in accordance with the approved ESCP.

- 12. The consent holder shall ensure that a copy of the approved ESCP, including any approved amendments, is kept onsite and this copy is updated within 5 working days of any amendments being approved.
- 13. Any changes proposed to the approved ESCP shall be confirmed in writing by the consent holder following consultation with the Waikato Regional Council, and approved in writing by the Waikato Regional Council acting in a technical certification capacity, prior to the implementation of the changes proposed.
- 14. Prior to bulk earthworks commencing on any area, the consent holder shall submit to the Waikato Regional Council a certificate signed by an appropriately qualified and experienced engineer to certify that the erosion and sediment controls have been constructed in accordance with the approved erosion and sediment control plans and in accordance with the document titled "*Erosion and Sediment Control Guidelines for Soil Disturbing Activities January 2009*". Certified controls shall include the sediment retention ponds, decanting earth bunds, silt fences and diversion channels/bunds. The certification for these measures shall be supplied within 5 working days of completion of construction of those measures.

Information supplied if applicable shall include:

- a. Contributing catchment area; and
- b. Retention volume of structure (dead storage and live storage measured to the top of the primary spillway); and
- c. Shape and dimensions of structure; and
- d. Position of inlets/outlets; and
- e. Stabilisation of the structure; and
- f. Compliance with the Waikato Regional Council document titled "*Erosion and Sediment Control Guidelines for Soil Disturbing Activities January 2009*" (Technical Report No. 2009/02); and
- g. Compliance with any relevant conditions of this consent.

Advice Note: *An example template and the information required for the As Built Certification Statements can be found on the Waikato Regional Council website www.waikatoregion.govt.nz/earthworks.*

- 15. The consent holder shall ensure that all sediment laden run-off from the site is treated by sediment retention structures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their full operational capacity.
- 16. The consent holder shall ensure that all clean water run-off from stabilised surfaces including

catchment areas above and around the site shall be diverted away from the earthworks area via a stabilised diversion system.

17. The consent holder shall ensure that all runoff diversion systems are designed and installed to convey flows from contributing catchment areas up to the 20% AEP rainfall event without overtopping and shall also ensure that these systems incorporate adequate protection against erosion.
18. The consent holder shall ensure that all erosion and sediment controls are inspected and in good working order prior to, and immediately after rain events. The consent holder shall further ensure that all erosion and sediment controls are maintained such that optimal sediment capture efficiency is achieved at all times.
19. The erosion and sediment controls specified in the ESCP shall not be disestablished without the prior written approval of the Waikato Regional Council, acting in a technical certification capacity.

Importation of Cleanfill

20. The consent holder shall ensure that any importation of cleanfill from off-site must meet the definition of cleanfill as defined by the Waikato Regional Plan. Cleanfill, deposition authorised by this consent shall exclude:
 - a. material that has combustible, putrescible or degradable components;
 - b. materials likely to create leachate by means of biological or chemical breakdown;
 - c. any products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices;
 - e. materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health; and
 - f. soils or other materials contaminated with hazardous substances or pathogens

Flocculation

21. Prior to bulk earthworks commencing, the consent holder shall undertake flocculant bench testing to determine the reactivity of soils to chemical treatment within those areas of the site where runoff is proposed to be treated by sediment retention ponds or decanting earth bunds.
22. If the bench testing required in condition 21 above determines that the soils are conducive for the use of flocculant, the consent holder shall incorporate a suitable rain activated dosing system unless otherwise agreed to by the Waikato Regional Council.
23. Prior to the commissioning of any flocculation treatment system, the consent holder shall provide the Waikato Regional Council with a Flocculation Management Plan (FMP), for the written approval of the Waikato Regional Council. The FMP shall include as a minimum:
 - a. Specific design details for the flocculation system;
 - b. Monitoring, maintenance (including posts-storm) and including a record system;
 - c. Details of optimum dosage (including assumptions);
 - d. Results of any initial flocculation trial;
 - e. A spill contingency plan; and
 - f. Contact details of the persons responsible for the operation and maintenance of the flocculation treatment system and the organisational structure to which this person shall report.

24. The FMP required by condition 23 shall be approved in writing by the Waikato Regional Council acting in a technical certification capacity prior to any works authorised by this consent commencing.
25. Any changes proposed to the FMP required by condition 23 shall be confirmed in writing by the consent holder and approved in writing by the Waikato Regional Council acting in a technical certification capacity, prior to the implementation of any changes proposed.

Machinery

26. All earthmoving machinery, pumps and generators shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any surface water such that any spillage can be contained and does not enter any surface water.
27. The consent holder shall ensure that all machinery used in the exercising of this consent is cleaned prior to being transported to the site to ensure that all seed and/or plant matter has been removed and documented in accordance with the WRC document titled 'KEEP IT CLEAN' – Machinery hygiene guidelines and logbook to prevent the spread of pests and weeds (June 2013)'.

Monitoring and Maintenance

28. The consent holder shall ensure that the erosion and sediment controls at the site are inspected a minimum of once per week and within 24 hours of each rainstorm event that is likely to impair the function or performance of the controls.
29. The consent holder shall carry out monitoring and maintenance of erosion and sediment controls in accordance with the conditions of this consent and shall maintain records detailing;
 - a. The date, time and results of the monitoring undertaken; and
 - b. The erosion and sediment controls that required maintenance; and
 - c. The time when the maintenance was undertaken; and
 - d. The type of maintenance carried out.

These records shall be provided to the Waikato Regional Council on request.

Sampling

30. If requested in writing by the Waikato Regional Council the consent holder shall take samples of the discharges from all sediment retention ponds on the site a minimum of once per month and after all rainfall events greater than 20 millimetres in the preceding 24 hours, excepting times when there are no discharges. The consent holder shall take the samples within four hours of becoming aware of a rainfall event greater than 20 millimetres in the preceding 24 hours.

Advice Note: *The purpose of this condition is to provide an opportunity for pond discharge sampling to be required if either flocculants are being used due to potential overdosing pH/Al issues, or where the discharge from a pond is not acceptable and actions are required (potentially including the use of flocculants) to resolve that situation.*

31. Within one working day of taking any samples required, the consent holder shall have those samples analysed for suspended solids and turbidity and (if flocculants are being used to treat any sediment retention pond) pH, and soluble aluminium. The results of the analysis shall be

forwarded to the Waikato Regional Council within 7 days of analysis.

32. The consent holder shall ensure that the soluble aluminium concentration of any discharge from a sediment retention pond flocculated in accordance with a Flocculation Management Plan approved in accordance with condition 23, shall not exceed 0.2 grams per cubic metre.
33. The consent holder shall ensure that the pH of any discharge from a sediment retention pond flocculated in accordance with a Flocculation Management Plan approved in accordance with condition 23, shall not be less than 5.5 or greater than 8.5 pH units.
34. Any sampling required by this resource consent, the frequency of sampling, analyses and reporting may be altered or reduced with the written agreement of the Waikato Regional Council.

Discharges

35. The concentration of suspended solids in the tributaries of the Mangakotukutuku Stream or any other downstream water body shall not exceed 150 grams per cubic metre suspended solids concentration as a result of the exercise of this consent. This standard shall apply, except where the suspended solids concentration in the named water body, unaffected by the activity, is greater than the standard specified. When the concentration of suspended solids in the named water body, unaffected by the activity, exceeds 150 grams per cubic metre then there shall not be any increase in the suspended solids concentration in the named water body as a result of activities authorised by this consent.

Advice Note: *When assessing compliance with this condition a minimum of three water samples should be collected: (a) upstream and unaffected by the activities authorised by this consent; (b) the point source discharge from the activities authorised by this consent; and (c) downstream after reasonable mixing.*

Archaeological

36. The consent holder shall ensure that the exercise of this resource consent does not disturb any sites of archaeological value or of cultural significance to Tangata Whenua. In the event of any archaeological artefacts being discovered the works shall, in the vicinity of the discovery, cease immediately and the Waikato Regional Council, Heritage New Zealand and representatives of local iwi (where artefacts are of maori origin) shall be notified within 24 hours. Works may recommence on the written approval of the Waikato Regional Council after considering:
 - a. Tangata Whenua interests and values;
 - b. Protocols agreed upon by Tangata Whenua and the consent holder;
 - c. The consent holders interests;
 - d. Any Heritage New Zealand authorisations; and
 - e. Any archaeological or scientific evidence.

Stabilisation/Rehabilitation

37. All construction entranceways to the site shall be stabilised with aggregate or similar non-erosive cover to the satisfaction of the Waikato Regional Council.
38. The site shall be stabilised against erosion as soon as practicable and in a progressive manner as earthworks are finished over various areas of the site. The consent holder shall monitor and maintain the site until vegetation is established to such an extent that it prevents erosion and

prevents sediment from entering any watercourse.

39. The discharge of untreated surface runoff from any area where soil has been disturbed as a result of the exercise of this resource consent shall only occur after consultation and the prior written approval of the Waikato Regional Council acting in a technical certification capacity. In this regard, the main issues that will be considered by the Waikato Regional Council include:
- a. The quality of the stabilisation and/or covering vegetation;
 - b. The quality of the water discharged from the rehabilitated land; and
 - c. The quality of the receiving water.
40. If so required by the Waikato Regional Council, the consent holder shall carry out immediate stabilisation of any required area of exposed earthworks surfaces on site using straw mulching, pinned geotextile or similar instant stabilisation techniques to the satisfaction of the Waikato Regional Council.

Administrative

41. The consent holder shall pay the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act (1991), or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act (1991).

In terms of s116 of the Resource Management Act 1991, this consent commences on 25 September 2019

Advice Notes - General

- This resource consent does not give any right of access over private or public property. Arrangements for access must be made between the consent holder and the property owner.
- This resource consent is transferable to another owner or occupier of the land concerned, upon application, on the same conditions and for the same use as originally granted (s.134-137 RMA). The transfer of water, including changes of location, may occur as provided for in Chapter 3.4 of the Waikato Regional Plan, subject to the requirements of those rules.
- The consent holder may apply to change the conditions of the resource consent under s.127 RMA.
- The reasonable costs incurred by Waikato Regional Council arising from supervision and monitoring of this/these consents will be charged to the consent holder. This may include but not be limited to routine inspection of the site by Waikato Regional Council officers or agents, liaison with the consent holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of consents.
- Note that pursuant to s332 of the RMA 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
- If you intend to replace this consent upon its expiry, please note that an application for a new consent made at least 6 months prior to this consent's expiry gives you the right to continue

exercising this consent after it expires in the event that your application is not processed prior to this consent's expiry.

HAMILTON CITY COUNCIL

OHAUPO ROAD ROUNDABOUT & EAST WEST LINK ROAD

PRELIMINARY EROSION & SEDIMENT CONTROL PLAN

wainui...
environmental

Prepared by:	Wainui Environmental Limited
Version:	01
Date:	July 2019



Document history and status

Revision	Date issued	Prepared by	Reviewed/ Approved by	Date approved	Revision type
01	5/3/19	RD	HV		Draft – for discussion

Printed: 30 July 2019

Last saved: 30/07/2019 12:14

Authors: Richard Duirs – Senior Environmental Planner

Name of organisation: Wainui Environmental Ltd

Name of project: East West Link ESCP

Client: HCC

Name of document: East West Link Preliminary Erosion and Sediment Control Plan

Document version: REV 01

Project number: WE1645-07

Contents

1	INTRODUCTION	1
2	PERSONNEL AND MANAGEMENT RESPONSIBILITIES	1
3	SITE ACTIVITIES.....	1
4	EROSION & SEDIMENT CONTROL	2
4.1	Diversion Drains	2
4.2	Sediment Retention Ponds	2
4.3	Decanting Earth Bunds	2
4.4	Flocculation.....	3
4.5	Other Areas/Controls	3
4.6	Stabilised Construction Entrance	3
4.7	As-built Certification	3
5	MONITORING AND MAINTENANCE.....	3
6	STABILISATION.....	4
7	REVIEWS AND UPDATING OF MANAGEMENT PLAN.....	4

APPENDICES

Appendix A: Site Layout and Erosion and Sediment Control Plan

Appendix B: Sediment Retention Pond Design Plans



1 INTRODUCTION

This plan has been prepared on behalf of Hamilton City Council (HCC) to outline recommended erosion and sediment control requirements for proposed earthworks activities occurring in association with construction of the East West Link Road section of the HCC Southern Links roading project.

The proposed earthworks relate to formation of an approximate 620m length of arterial road and an associated roundabout intersection with SH3/Ohaupo Road occurring within the established Southern Link road designation.

The overall purpose of this plan is to outline best practice erosion and sediment control measures which can be implemented on site over the duration of the works to minimise site sediment discharge effects to the Mangakotukutuku Stream to the greatest extent possible.

This plan is subject to approval by the Waikato Regional Council prior to implementation on site.

Drawings and design sheets are attached as appendices to this report and form part of this plan.

2 PERSONNEL AND MANAGEMENT RESPONSIBILITIES

The personnel responsible for the implementation of this plan and relevant contact details are outlined within **Table 1**. Should these contact details be subject to change the WRC will be notified in writing.

Consent Holder/Project Manager	Engineer	Contractor
Hamilton City Council	Gray Matter	TBC
Contact: Tahl Lawrence	Contact: Alasdair Gray	Contact:
Phone: 027 2482144	Phone: 0272 497 648	Phone:

Table 1: Key Contacts

3 SITE ACTIVITIES

Construction of the proposed road will require large scale earthworks occurring throughout the 620m long designation alignment. There are no watercourses or wetland areas located within the works footprint and hence the activities will be limited to typical cut/fill activities occurring across the existing pasture slopes.

Following site clearance, earthworks activities will commence comprising installation of erosion and sediment control measures followed by stripping of topsoil. Topsoil will either be stripped to perimeter bunding or to temporary stockpile locations. Bulk earth moving can then commence with the activities being undertaken by a combination of excavators, bulldozers, trucks and compactors.

The proposed earthworks will occur across a total area of approximately 4.2ha with the total earthworks volumes comprising a cut of 78,905m³ and fill of 12,997m³ with a surplus of 65,908m³. The proposed areas of cut are focussed within two areas within the site. These comprise the elevated ridgeline at the existing site entrance point off Ohaupo Road where cut depths of up to 6m are proposed in association with formation of the proposed roundabout which includes an inset underpass to convey pedestrian through/under the intersection. The second cut area comprises an elevated slope towards the eastern end of the alignment where cutting to depths of 7m is proposed to achieve the design road contours. Proposed areas of filling comprise two localised areas including a low lying area adjacent to the existing gully watercourse through the central part of the site with filling up to 3m depth, along with a smaller area the very eastern end of the alignment with filling up to 4m depth.

The proposed road construction earthworks are planned to be undertaken within two separate stages/construction seasons. Stage 1 will comprise the length of works extending from Ohaupo Road eastward to just past the main Northview Developments road entrance point comprising a works alignment of approximately 300m. Establishment of this initial length of the road will thus facilitate the recently consented Stage 1 development activities within the Northview site. Stage 2 of the road construction works will extend from this point up to the eastern site boundary with the intention of facilitating the next/future stages of the East- West Link Road development beyond the subject site.

	Stage 1	Stage 2	Total



Area	2.8ha	1.4ha	4.2ha
Cut	46,988m ³	31,917m ³	78,905m ³
Fill	7,698m ³	5,299m ³	12,997m ³
Balance	39,290m ³	26,618m ³	65,908m ³

Table 1: Proposed earthworks scope

The above information outlines reasonably significant volumes of surplus cut material generated from the earthworks activities. During the Stage 1 works, it is anticipated that the surplus material will be stockpiled within the Stage 2 area within the designation boundaries. During the Stage 2 works, this material will be utilised as required in the construction works with the surplus volumes remaining, intended to be utilised (or temporarily stockpiled) within the next stages of works associated with the East-West Link Road to the east which have been identified as having a shortage of available material (subject to future consent approvals).

The overall works site can be split into three separate subcatchment areas. The largest subcatchment (2.2ha) comprises the central/northwest road section which drains the existing tributary stream to the north of the site discharging via the Dixon Road culvert to the central branch of the Mangakotukutuku Stream. The eastern subcatchment (0.9ha) comprises the eastern length of the road alignment draining eastward to the existing Shaws Ponds on the southern branch of the Mangakotukutuku Stream. The southwest catchment comprises the smallest subcatchment at 0.6ha encompassing the southwestern tie in works to SH3 and discharging via a culvert under SH3 to a small tributary drain of the central branch of the Mangakotukutuku Stream.

The general layout of the various site activities and catchment areas is outlined on the plan contained within Appendix A.

4 EROSION & SEDIMENT CONTROL

The sediment control methods relevant to the various site works areas are described within the following sections. All erosion and sediment controls, methodologies and management will be in general accordance with the Waikato Regional Council Technical Report No.2009/02 "Erosion and Sediment Control Guidelines for Soil Disturbing Activities" (TR2009/02).

4.1 Diversion Drains

The first activity to occur on site will comprise establishment of perimeter controls in the form of cleanwater and dirty water diversion drains both to prevent the ingress of cleanwater runoff from upcatchment areas to the works, and to contain and divert dirty earthworks runoff to the proposed sediment control devices.

The diversion drains shall be formed from topsoil stripped around the perimeter of the site which shall be placed and compacted to form a bund a minimum of 1m high running down the contour to convey flows to the design discharge point. Based upon the absence of any significant catchment areas either within or above the site, this sized bund is considered adequate to convey the 20%AEP catchment flows without overtopping in accordance with the TR2009/02 requirements. All diversion bunds shall have their outer faces stabilised through application of hay mulch.

4.2 Sediment Retention Ponds

Two sediment retention ponds (SRPs) are proposed for control of the two largest earthworks catchment areas within the site.

SRP1 has been designed to treat the largest central/northwestern catchment area of 2.2ha. SRP1 has a design volume based upon 3% of the contributing catchment area based upon slope lengths in excess of 200m with a specified design volume of 660m³. Discharges from the SRP1 decanting outlet system will occur to the adjacent tributary stream to the north directly above the Dixon Road culvert inlet eventuating in the central branch of the Mangakotukutuku Stream

SRP2 has been designed to treat the smaller eastern catchment area of 0.9ha. SRP2 has a design volume based upon 2% of the contributing catchment area based upon slope lengths of less than 200m and gradients less than 10% with a specified design volume of 180m³. Discharges from the SRP2 decanting outlet system will occur to a small drainage channel eventuating in the on-line Shaws Ponds within the southern branch of the Mangakotukutuku Stream.

Refer Appendix B for SRP design details.

4.3 Decanting Earth Bunds

One decanting earth bund (DEB) is proposed for treatment of the smallest earthworks catchment comprising the 0.6ha southwestern works catchment encompassing the southern SH3 tie-in works. It is acknowledged that this catchment area is in excess of the maximum 0.3ha DEB catchment area specified in TR2009/02. However, in this instance use of a DEB device is considered appropriate based upon the nature of the works in this area and site receiving environments.



Furthermore, DEB devices have been used successfully on catchments of this scale on numerous sites within the Waikato Region particularly where performance is maximised through the use of T-bar decants and flocculation.

4.4 Flocculation

Prior to the commencement of works, bench testing of site soils shall be undertaken to test their reactivity to flocculant chemicals for maximising sediment treatment efficiencies. If bench testing confirms positive outcomes with the use of flocculants, a detailed Flocculation Management Plan should be developed to inform the design and management of rain activated flocculant dosing systems for all site SRPs and DEBs.

4.5 Other Areas/Controls

It is anticipated that during the project, some minor areas of soil disturbance maybe required outside of the design sediment control catchments such as during tie-in works on SH3. The recommended approach for any such minor works is through employment of a cut and cover technique with all works being undertaken and stabilised progressively either at the end of each day or within a short fine weather window.

Alternatively, temporary, localised controls including silt fences, silt socks or containment bunding can be implemented to manage these localised, short duration works areas.

4.6 Stabilised Construction Entrance

A stabilised construction entrance shall be established at the site entrance point to minimise soil disturbance in this high use area and the subsequent tracking of sediment onto public road surfaces. As a minimum, the stabilised entrance should comprise a minimum 20m length of large grade, clean aggregate placed upon a layer of geotextile fabric to form a clean, stable site access point for all vehicles entering/exiting the site.

In the event that any adverse sediment tracking effects are noted, these should be cleaned up immediately using a broom/vacuum sweeper.

4.7 As-built Certification

As outlined, installation of erosion and sediment control measures will comprise the first item of works occurring on site and immediately following establishment shall be as-built certified to confirm adherence to the approved design plans. As-built certification should be undertaken using the WRC as-built forms available at the following link.

<https://www.waikatoregion.govt.nz/services/regional-services/consents/resource-consents/more-information-and-tools/earthworks/guidelines-factsheets-and-as-built-certification-sheets/>

5 MONITORING AND MAINTENANCE

The monitoring and maintenance of all erosion and sediment controls will comprise a key management component to the success of the devices to minimise sediment discharge effects.

The site manager will be responsible for completing the monitoring of erosion and sediment controls. This will include daily monitoring of weather forecasts and inspection of all controls in accordance with the following frequencies:

- Weekly - during dry weather.
- Daily - during wet weather.
- Immediately prior to and following any forecast significant storm event.

Should monitoring of erosion and sediment control devices identify the need for maintenance of devices (e.g. de-sludging of sediment controls, repair of devices etc) this will be implemented as soon as site conditions allow. Material removed from sediment control devices (sediment sludges) will be placed within a contained (bundled) area, outside any concentrated flow paths but within the sediment control device catchment. During dry conditions the material will be removed to a fill site and spread to dry, prior to blending into the fill surface.



Should any up-coming significant storm events be identified through routine forecast monitoring, maintenance of all sediment control devices shall be undertaken to ensure that all devices are in a robust condition and all loose, accumulated materials have been removed from low lying areas to prevent re-suspension. Additionally, installation of additional erosion control measures such as cut-off/contour drains and check dams shall be implemented to reduce flow velocities and minimise erosion effects.

Should any sediment control devices be subject to a major failure or identified as having poor performance during a significant storm event, contingency measures shall be implemented to address any potential ongoing effects. Possible contingency options may include:

- Immediate stabilisation of areas with hay mulch or pinned geotextile;
- Installation of additional erosion control measures within the catchment including sediment pits, contour drains or diversion lining;
- Increase device storage volume;
- Batch dosing with chemical flocculants to improve impounded water quality prior to discharge.

Implementation of any contingency measures will be determined by the site manager on a specific case by case basis and in discussion with the WRC monitoring officer.

6 STABILISATION

Stabilisation of site earthworks surfaces shall occur as follows:

- Road carriageway surfaces – basecourse aggregates/pavement;
- Road batters – tree mulch/landscape plantings;
- All other areas – grassing.

Where more urgent stabilisation of site surfaces may be required, such as isolated disturbances outside of the immediate catchment, this will be implemented through hay mulching or hydro-seeding (for steeper faces). When mulching is to be implemented this should be programmed for low wind conditions and preferably just prior to rain showers to maximise matting of the mulch.

All erosion and sediment control measures shall be maintained in place until full stabilisation of the catchment is achieved as agreed with the WRC monitoring officer.

7 REVIEWS AND UPDATING OF MANAGEMENT PLAN

This management plan comprises a live/working document and may be subject to change and update as site conditions or layouts change over the life of the operation. Any proposed changes to the plan will be communicated to the WRC for approval prior to implementation. Thereafter, the plan will be updated within 5 working days of any amendments being approved.



APPENDIX A: SITE LAYOUT AND EROSION AND SEDIMENT CONTROL PLAN



APPENDIX B: SEDIMENT RETENTION POND DESIGN PLANS

Sediment Retention Pond Sizing

client: HCC
 project: East-West Link SRP1
 job No. WE1645-07

computed: RD
 date: 22/7/19
 revision: 1

CATCHMENT - Based on WRC guidelines

Catchment slope	5.0%
Catchment length, m	340 m
% catchment (minimum)	3.0%
Catchment Area	22,000 m ²
Minimum volume to be stored	660 m ³

MAIN POND

Length to width ratio 1:x	3
Depth (to 150mm riser)	1.5 m
Top of primary outlet to spillway	0.3 m
Spillway to top of batter (Emergency spillway freeboard)	0.3 m
Entry slope (1:x)	3
Other slopes (1:x)	2
Spillway to level Spreader	0.3 m

FOREBAY

Water depth (m)	1
Volume (10% of main pond)	66.0

EMERGENCY SPILLWAY

Emergency spillway designed to convey the 100 year event with no freeboard to top of bund

Rainfall Intensity, 100 year, 10min event	145 mm/hr
Runoff Coefficient, C	0.85
100 year ARI Peak Flow	0.753 m ³ /s

(Rainfall data from HIRDS V3, present day rainfall)
 Adopt C=0.85 as a conservative value if soil types unknown

Spillway depth, h _i	0.3 m
--------------------------------	-------

Minimum Spillway Width	2.70 m
------------------------	--------

Broad Crested Weir Formula

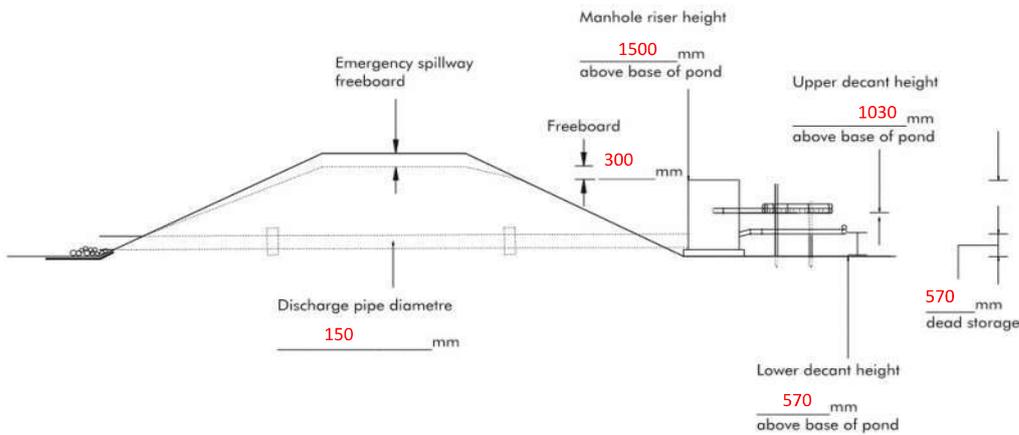
$$Q_{ii} = 1.7 L h_{ii}^{3/2}$$

FORMATON LEVELS

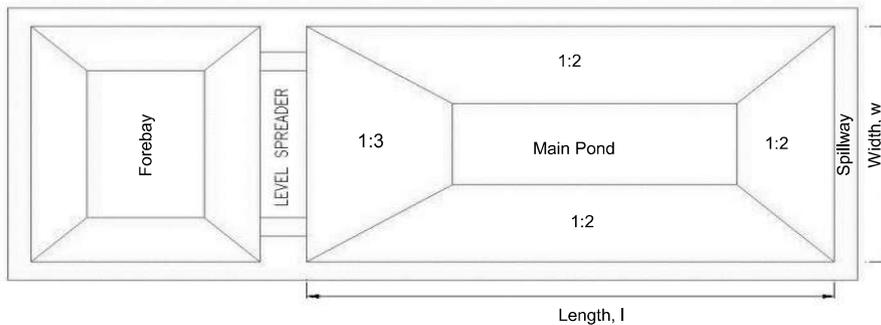
Main Pond	
Formation level of main pond	0.00
Dead water level	0.57 m
Top of 150mm riser	1.50 m
Spillway level	1.80 m
Top of batter	2.10 m
Forebay	
Invert of forebay	1.10 m
Level Spreader	2.10 m

OUTLET DESIGN

Number of Decants Reqd	2
Decant 1 - Operational range	0.57m - 1.5m
Decant 2 - Operational range	1.03m - 1.5m
Decant 3 - Operational range	-
Primary outlet	150mm Riser
Outlet pipe diameter	150mm



CROSS SECTION



FOREBAY

Volume, V (m ³) =	66.0
-------------------------------	------

MAIN POND

Volume, V (m ³) =	672.8
Length, l (m) =	48.0
Width, w (m) =	16.0

Sediment Retention Pond Sizing

client: HCC
 project: East-West Link SRP2
 job No. WE1645-07

computed: RD
 date: 22/7/19
 revision: 1

CATCHMENT - Based on WRC guidelines

Catchment slope	5.0%
Catchment length, m	180 m
% catchment (minimum)	2.0%
Catchment Area	9,000 m ²
Minimum volume to be stored	180 m ³

MAIN POND

Length to width ratio 1:x	5
Depth (to spillway)	1.5 m
-	- m
Spillway to top of batter (Emergency spillway freeboard)	0.3 m
Entry slope (1:x)	3
Other slopes (1:x)	2
Spillway to level Spreader	0.3 m

FOREBAY

Water depth (m)	1
Volume (10% of main pond)	18.0

EMERGENCY SPILLWAY

Emergency spillway designed to convey the 100 year event with no freeboard to top of bund

Rainfall Intensity, 100 year, 10min event	145 mm/hr
Runoff Coefficient, C	0.85
100 year ARI Peak Flow	0.308 m ³ /s

(Rainfall data from HIRDS V3, present day rainfall)
 Adopt C=0.85 as a conservative value if soil types unknown

Spillway depth, h _i	0.3 m
--------------------------------	-------

Minimum Spillway Width	1.10 m
------------------------	--------

Broad Crested Weir Formula

$$Q_{oi} = 1.7 L h_i^{3/2}$$

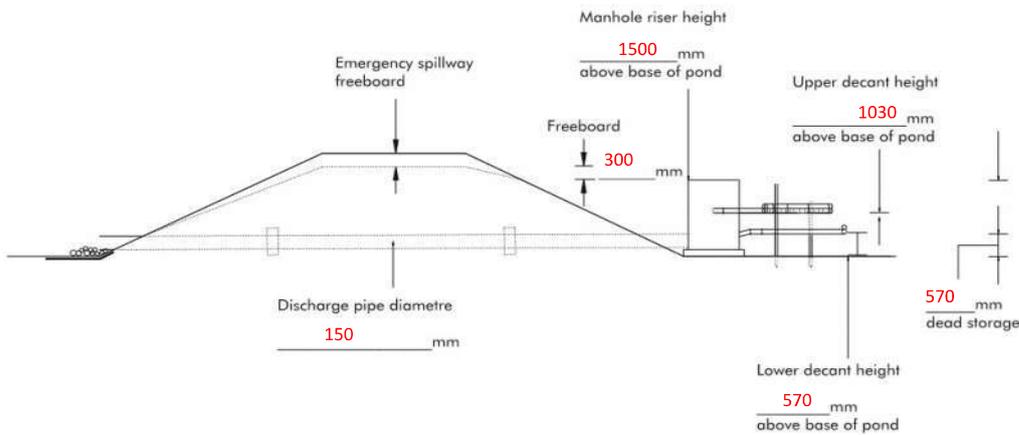
FORMATON LEVELS

Main Pond	
Formation level of main pond	0.00
Dead water level	0.87 m
Spillway level	1.50 m
-	- m
Top of batter	1.80 m
Forebay	
Invert of forebay	0.80 m
Level Spreader	1.80 m

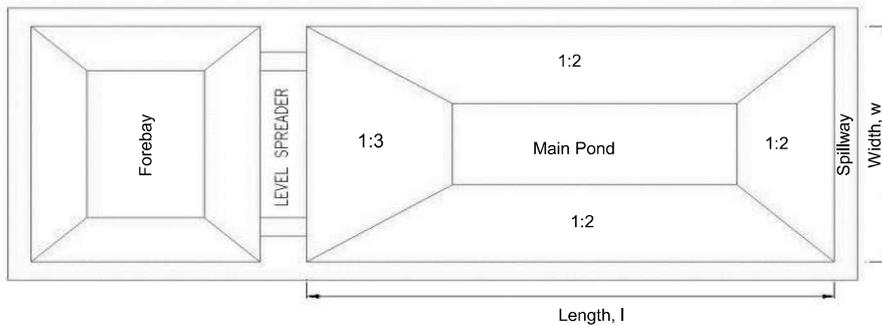
OUTLET DESIGN

Number of Decants Reqd	1
Decant 1 - Operational range	0.87m - 1.5m
Decant 2 - Operational range	-
Decant 3 - Operational range	-
Primary outlet	Not required
Outlet pipe diameter	100mm

1.5



CROSS SECTION



FOREBAY

Volume, V (m ³) =	18.0
-------------------------------	------

MAIN POND

Volume, V (m ³) =	183.9
Length, l (m) =	38.0
Width, w (m) =	7.6

HAMILTON CITY COUNCIL

OHAUPO ROAD ROUNDABOUT & EAST WEST MINOR ARTERIAL ROAD

RESOURCE CONSENT APPLICATION TO WAIKATO REGIONAL COUNCIL TO UNDERTAKE EARTHWORKS

ASSESSMENT OF ENVIRONMENTAL EFFECTS

wainui...
environmental

Prepared by: Wainui Environmental Limited
Version: 01
Date: August 2019



Document history and status

Revision	Date issued	Prepared by	Reviewed/ Approved by	Date approved	Revision type
01	19/8/18	RD	HV	19/8/19	Resource consent issue

Printed: 19 August 2019

Last saved: 19/08/2019 11:13

Authors: Richard Duirs – Senior Environmental Planner

Name of organisation: Wainui Environmental Ltd

Name of project: East West Link Road Consents

Client: HCC

Name of document: East West Link Road WRC Earthworks AEE

Document version: REV 01

Project number: WE1645-07

CONTENTS

1	INTRODUCTION.....	1
2	BACKGROUND.....	1
3	THE SITE.....	3
4	THE ACTIVITIES.....	7
5	STATUS OF ACTIVITIES.....	8
6	CONSULTATION.....	9
7	NOTIFICATION.....	9
8	ASSESSMENT OF ENVIRONMENTAL EFFECTS.....	10
9	CLASSIFICATION OF PROPOSAL UNDER THE PROPOSED WAIKATO REGIONAL POLICY STATEMENT AND THE WAIKATO REGIONAL PLAN.....	14
10	OTHER MATTERS.....	17
11	RELEVANT PART 2 CONSIDERATIONS.....	18

APPENDICES

Appendix A: Certificate of Title

Appendix B: Site Plans

Appendix C: Erosion and Sediment Control Plan

Appendix D: Designation A106 Conditions

Appendix E: Ecological Assessment

Appendix F: Archaeological Assessment

Appendix G: Geotechnical Assessment

Appendix H: Ecological Management and Monitoring Plan

Appendix I: Concept Landscape Plan

Appendix J: Consultation Documents



1 INTRODUCTION

This report forms parts an application by Hamilton City Council (HCC - the Applicant) to obtain consents from the Waikato Regional Council (WRC) to authorise earthworks activities associated with construction of a proposed roundabout and section of arterial road associated with the Southern Links transport project within Hamilton City. The specific activities for which consent authorisation is being sought from the WRC are described as follows:

- To undertake earthworks in association with construction of the proposed Ohaupo Road/SH3 Roundabout and East-West Minor Arterial Road.

This report has been prepared in accordance with the requirements of Section 88 and the Fourth Schedule of the Resource Management Act 1991 (RMA). It describes the proposal in detail, measures the proposal against the relevant provisions of the Waikato Regional Plan and assesses the actual and potential environmental effects of the proposal.

Various plans and other supporting technical documents are attached as appendices to this report and form part of this application.

2 BACKGROUND

The subject activities form part of the broader Southern Links transport project planned for the south western part of Hamilton City and the adjacent districts. In this respect, there is significant background relating to the subject activities as part of this broader project in terms of design, engineering and resource management approval processes. Furthermore, the subject site is located directly adjacent to the greenfields property to the south referred to as the Northview Development site which is planned for future significant residential development activities and has also been subject to recent design, engineering and consenting processes.

The background details of these projects in relation to the subject earthworks activities are outlined as follows.

2.1 Southern Links

Southern Links is a \$600 million transport network of state highway and urban arterial routes linking SH1 from Kahikatea Drive in Hamilton to the Waikato Expressway at Tamahere and SH3 from Hamilton Airport to central and east Hamilton. The main aim of the project is to plan for the long-term needs of the city, particularly the projected growth and development in the Peacocke, Tamahere and Hamilton Airport area. Identifying and protecting the future transport network will enable good long-term planning to be carried out for the city.

The NZ Transport Agency and Hamilton City Council (HCC) are working together to ensure that the future state highway routes will be well integrated with local roads, and the planned residential and industrial developments. In this respect, the Southern Links project incorporates both sections of state highway extending through the rural land in Waipa and Waikato Districts around the outskirts of Hamilton City along with a proposed network of arterial roads extending through the south western part of Hamilton City which has been designed to provide an integrated connection between the surrounding state highway lengths and the existing city roading network and also factoring planned development outcomes within this part of the city. The subject roundabout and section of roading forms part of this Hamilton City arterial roading network as outlined in Figure 1.1 below.

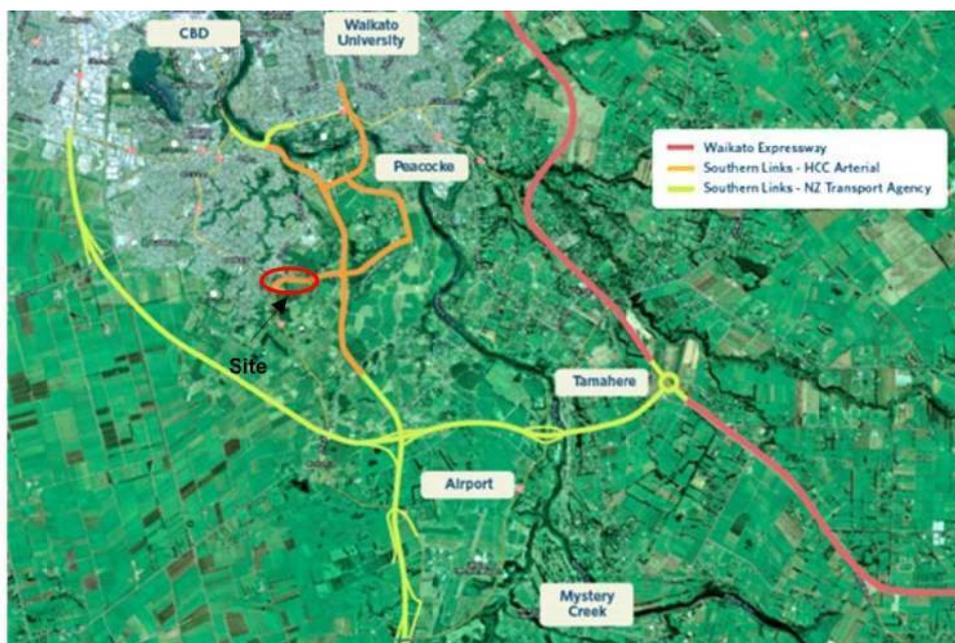


Figure 1 – Overall Southern Links layout showing subject site location

In 2013 Notice(s) of Requirement were issued by the NZ Transport Agency and Hamilton City Council to secure the designation for the alignment of the Southern Links roading layout for future development. The designation alignment for the proposed arterial roading network within Hamilton City was subsequently confirmed and has been incorporated into the Hamilton City District Plan as Designation A106. At the same time, resource consent applications were also lodged and were subsequently approved by the Waikato Regional Council which were limited to consenting of the key new bridges within the Southern Links roading network over the Waikato River and Mangakotukutuku Stream.

The designation applications included extensive assessment of the designation alignment including detailed assessment of the existing environment and the potential effects of the proposed roading activities through these areas including the subject site area. These effects were assessed by the relevant authorities with the designation approvals subsequently being granted with an extensive schedule of conditions which are required to be adhered to as the various stages of the Southern Links development projects proceed within Hamilton City. For Designation A106 which relates to the subject site, the designation conditions include an extensive list of management plan requirements which are required to address the finalised details of the proposed management measures that will be implemented for the project to avoid, remedy or mitigate any potential adverse effects of these activities. Specifically, these conditions outline the following management plan requirements which will be subject to review, approval and implementation for the project activities:

- a) *Pre-Construction Communication and Consultation Plan;*
- b) *Construction Management Plan;*
- c) *Construction Noise and Vibration Management Plan;*
- d) *Construction Traffic Management Plan;*
- e) *Construction Communication and Consultation Plan;*
- f) *Concept Landscape Management Plan;*
- g) *Landscape Management Plan;*
- h) *Heritage and Archaeological Site Management Plan;*
- i) *Dust Management Plan;*
- j) *Contaminated Soil Management Plan;*
- k) *Hazardous Substances Management Plan;*
- l) *Transport Network Management Plan;*
- m) *Environmental Monitoring and Management Plan; and*
- n) *Conservation Plan.*

As the proposed Roundabout and East-West Minor Arterial designation project works all fall within the area covered by Designation A106, this project is already required to satisfy all of these specific management requirements prior to and during the road construction activities with a number of these management plan documents currently underway and well progresses. These requirements are referred to further throughout this consent application report where relevant to the matters subject to consideration through this consent process.

A copy of the relevant Designation A106 conditions is also included within Appendix D.



2.2 Northview Development

The Northview Development site comprises an approximate 36ha block of land located directly southward of the proposed East-West Minor Arterial alignment. The Northview site is located within the Peacocke Structure Plan area within which urban development is anticipated to occur over the coming years. The majority of the Northview site has a General Residential zoning under the Hamilton City District Plan with residential development activities planned for commencement in the near future. In this respect, Northview Developments Ltd has recently obtained earthworks consent AUTH140660.01.01 from the WRC which authorises earthworks across a 9.4ha area located within the north eastern corner of the site. This is referred to as the Stage 1 development area with these earthworks activities intended to commence over the summer 2019/20 season.

A key aspect of these proposed development activities is that they are reliant upon the formation of the initial lengths of the East-West Minor Arterial as this road will provide the main roading connection to the proposed Stage 1 development area. Similarly, the Stage 1 earthworks consent obtained by Northview, also includes allowance for construction of a large stormwater management wetland which will also be formed as part of the Stage 1 development works. This wetland will provide stormwater management functions for both the Northview Stage 1 development area, plus the majority of the proposed Roundabout and East-West Minor Arterial carriageway runoff. In this respect, these two projects are inextricably linked with at least the initial lengths of the roading project likely to occur in conjunction with the Northview Stage 1 development activities.

3 THE SITE

The key site details are outlined as follows:

Address: 3019 Ohaupo Road, Hamilton

Legal Description: Section 1 SO57582 – refer **Appendix A** for **Certificate of Titles**

Area: 23.14ha

Owner/Operator: Northview Capital Ltd

Catchment: Mangakotutuku Stream

As noted above, the subject site is located within the broader property owned by Northview Capital Ltd and is subject to Designation A106 which extends along the northern boundary of this site and provides for the planned roading activities under the Hamilton City District Plan.

The site comprises an elongated roading corridor extending for around 620m in a west to east direction from the existing Ohaupo/Dixon Road intersection where the proposed roundabout is planned, across to the existing western boundary of the Northview Site. Existing landuse surrounding the site comprises the established area of residential development along Ohaupo Road and Dixon Road to the west, areas of more recent residential development to the north within the Cabourne Drive development area and areas of rural land to the east and south.

Site topography comprises low to moderate gradient slopes typically with a pasture cover but with a number of mature exotic trees located within the site at the western site boundary. These mature exotic trees also extend along the northern boundary throughout the gully watercourse and at the eastern most end of the site. There are two existing dwellings located at the western end of the works site and a shed at the eastern end of the works site which will be removed as part of the project.

Drainage from the majority of the site currently occurs within a localised catchment area extending along the north western boundary of the site. Runoff drains in a northern direction to enter a small tributary gully watercourse running along the northern boundary in a westerly direction. This watercourse currently receives runoff from both the very northern portion of the Northview site plus the recent Cabourne Drive development area. These recent development activities have involved the modification of this gully system to establish an on-line stormwater management pond device to cater for stormwater runoff from the development site. Discharges from this pond occur via a culvert under Dixon Road discharging to the central tributary arm of the Mangakotutuku Stream.



The eastern most part of the site comprises a smaller, localised catchment area of pasture which drains to a small drainage channel which discharges into a series of constructed on-line ponds referred to as Shaws Ponds, located within the upper reaches of the southern tributary arm of the Mangakotukutuku Stream.

The general location and key features of the proposed site are shown in Figures 2 and 3 below.

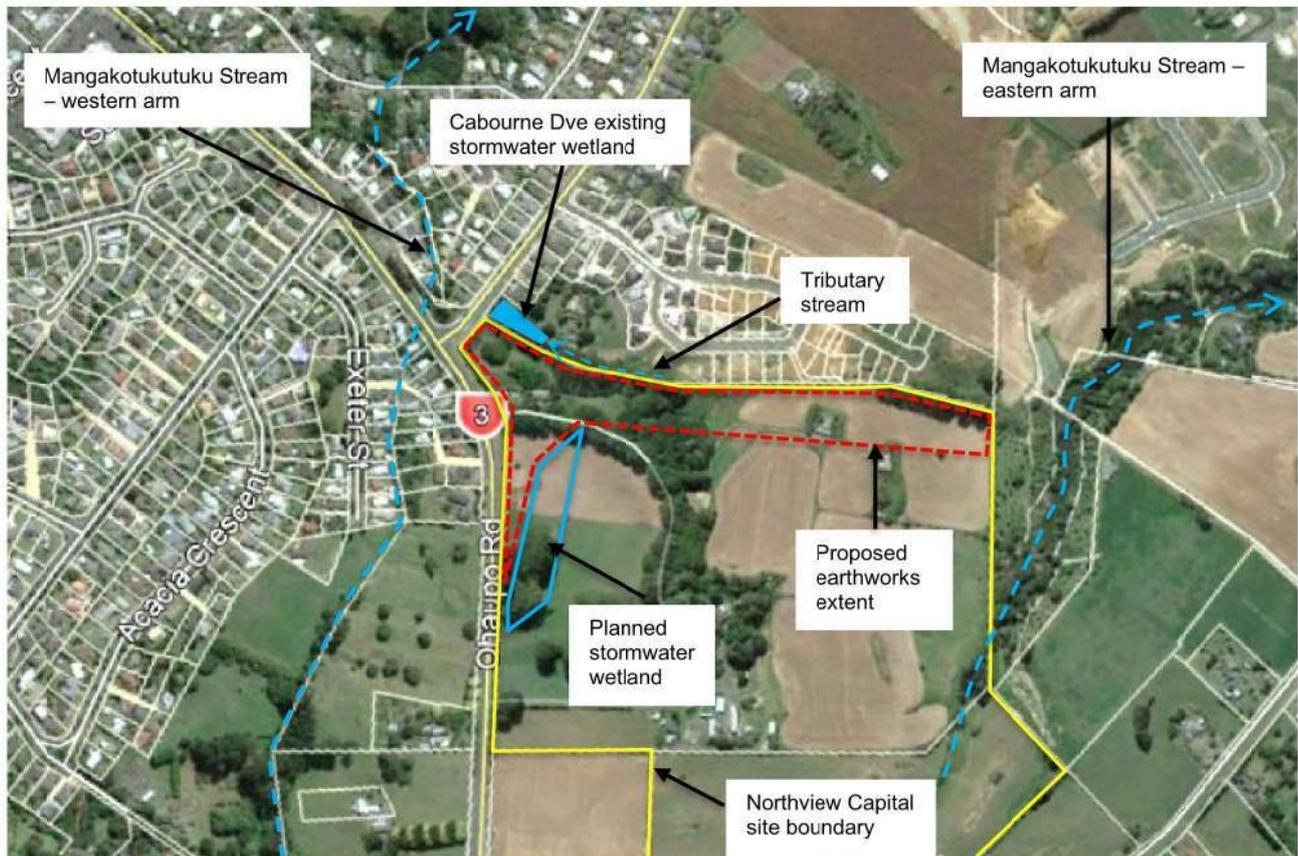


Figure 2 – Site location and features



Figure 3 – Existing site landform through central roading section showing extent of works.

The existing ecological values of the site are limited due to historic land clearance and current residential and agricultural activities. The main ecological feature in proximity to the works comprises the small gully watercourse located immediately northward of the road alignment which has been confirmed as being located outside of the footprint of the proposed earthworks activities. This watercourse has a length of around 250m, commencing approximately halfway along the road alignment and flowing westward towards Dixon Road. Observations of the watercourse during winter 2019 identified the flows initially occurring as minor seepages and surface flows with areas of ponding across the gully floor area which lacks a defined stream channel. These flows then enter an area of standing water which has been formed via the placement of a row of gabion baskets and an eventual manhole outlet to the Dixon Road culvert. This ponding area comprises the Cabourne Drive stormwater pond device which has been formed to manage stormwater flows from the adjacent residential development area to the north. The gully watercourse throughout its length is surrounded by stands of mature,



predominantly exotic trees including eucalyptus, poplar, blackwood and cyprus. Some isolated pockets of common native species including ponga and carex are located around the gully floor watercourse.

Based upon winter observations of stream flow, the flows are expected to be ephemeral in nature although areas of standing water are expected to be maintained in the stormwater pond due to the on-line nature and holding capacity of this device along with urban catchment stormwater inputs.

The general characteristics of this watercourse are outlined in Figures 4 to 7 below.



Figures 4 – 7 – Gully watercourse north of site – winter conditions

Runoff from site earthworks will eventuate within two separate tributary arms of the Mangakotukutuku Stream system. The Mangakotukutuku Stream is subject to multiple impacts associated with both agricultural landuse within the upper catchment areas and urban landuse within the lower catchment area. These activities have given rise to multiple adverse effects including reduced water quality, stream channel modification, stream channel erosion and structural impediments within the channel.

The Shaws Ponds, constructed within the stream channel within the southern tributary below the site, have formed a number of on-line standing water bodies which are likely contributing to adverse effects upon water quality, habitat values and fish passage. Despite these identified effects, part of this stream system are known to support populations of native fish including some less common/At-risk species and parts of the catchment are known to be subject to existing enhancement works undertaken by the local community groups. The ultimate receiving environment for all site runoff is the Waikato River.

Ecology

An ecological assessment has been prepared by Kessels Ecology as part of the project scoping for the subject site – refer Appendix E. The key findings of this report are outlined as follows:



- Habitat quality within the stream adjacent to the site was found to be of generally marginal quality, with low dissolved oxygen concentrations. The macroinvertebrate species present were tolerant of a wide range of habitat and water quality conditions. One banded kokopu was observed during a spotlighting survey;
- A range of common indigenous and introduced bird species were observed on site. No lizards were observed on site, however, indigenous copper skinks and introduced plague (rainbow) skinks are likely to be present;
- Long-tailed bats are known to be abundant in the areas surrounding the proposed road and roundabout. High frequencies of calls have been detected at sites within a few hundred metres of the site, indicating nearby roosting activity and/or a high degree of habitat usage. The size, age and type of trees at the site indicates that suitable bat roosting habitat is present. A survey conducted in October 2017 confirmed the presence of bats within the project site with the large exotic trees along the northern site boundary considered likely to provide bat commuting, foraging and potential roosting habitat.

Archaeology

An archaeological assessment has been prepared by Sian Keith Archaeology as part of the project scoping for the subject site – refer Appendix F. The key finding of this report is outlined as follows:

- No evidence for archaeological sites, features or deposits has been identified during the research for the assessment. As a result, it has been determined that the current proposal will have no known impacts on archaeological values.

This conclusion is supported by the NZ Archaeological Association database maps which indicate no registered archaeological sites within the footprint of the works or the broader site area with the nearest registered sites located some distance away within a separate arm of the Mangakotukutuku Stream gully – refer Figure 8.

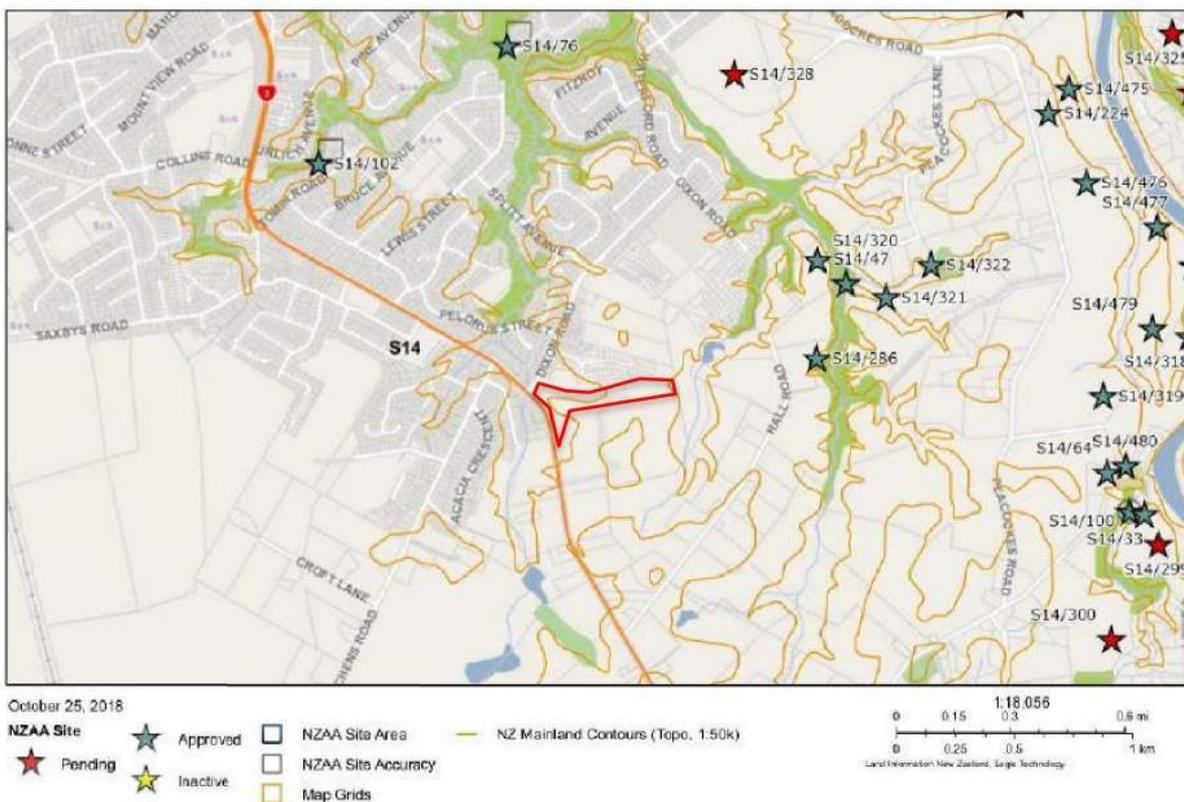


Figure 8 – NZAA Maps

Geotechnical

A geotechnical assessment has been prepared by AECOM as part of the project scoping for the subject site – refer Appendix G. The key findings of this assessment are outlined as follows:

- Published geological information indicates that the site is underlain by Walton Subgroup comprising the Puketoka, Karapiro, and Kauroa Beds Formations;



- The Walton Subgroup within Hamilton City generally comprises of the Kauroa Ash, Puketoka, and Karapiro Formations and dates from about 1 to 0.4 million years ago. The formations typically comprise silt, sand, and clay of rhyolitic origin. Peat, breccia, and non-welded ignimbrites may also be present. The Walton Subgroup is typically not a surface deposit in the Hamilton Area, but is found underlying the Hamilton Ash associated with the rolling hill topography.
- The Hamilton Ash is a series of highly weathered, clay-rich rhyolitic tephra's. The ashes were deposited between 80 and 380 thousand years ago. The ashes mantled the pre-existing landscape (eroded Walton Subgroup) and locally can be up to 6 m thick.

4 THE ACTIVITIES

The proposal is to undertake bulk cut to fill earthworks followed by civil construction activities to establish a proposed roundabout intersection on SH3/Ohaupo Road along with a new 620m long section of the Southern Links East-West Minor Arterial extending eastward from the roundabout.

Both the roundabout and the road construction activities are able to be undertaken off-line from the existing SH3/Ohaupo Road traffic flows with only minor tie-in works required at the end of the project to connect the existing road alignment to the new roundabout intersection. In this respect, the bulk earthworks activities will occur along a greenfields road alignment with initial clearance works limited to removal of the two existing farm dwellings, a small shed and a few trees and hedges.

Following site clearance, earthworks activities will commence comprising installation of erosion and sediment control measures followed by stripping of topsoil. Topsoil will either be stripped to perimeter bunding or to temporary stockpile locations. Bulk earthmoving can then commence with the activities being undertaken by a combination of excavators, bulldozers, trucks and compactors.

The proposed earthworks will occur across a total area of approximately 4.2ha with the total earthworks volumes comprising a cut of 71,952m³ and fill of 15,875m³ with a surplus of 56,077m³. The proposed areas of cut are focussed within two areas within the site. These comprise the elevated ridgeline at the existing site entrance point off Ohaupo Road where cut depths of up to 6m are proposed in association with formation of the proposed roundabout which includes an inset underpass to convey pedestrian through/under the intersection. The second cut area comprises an elevated slope towards the eastern end of the alignment where cutting to depths of 7m is proposed to achieve the design road contours. Proposed areas of filling comprise two localised areas including a low lying area adjacent to the existing gully watercourse through the central part of the site with filling up to 3m depth, along with a smaller area at the very eastern end of the alignment with filling up to 4m depth.

The proposed road construction earthworks are planned to be undertaken within two separate stages/construction seasons. Stage 1 will comprise the length of works extending from Ohaupo Road eastward to just past the main Northview Developments road entrance point comprising a works alignment of approximately 300m. Establishment of this initial length of the road will thus facilitate the recently consented Stage 1 development activities within the Northview site. Stage 2 of the road construction works will extend from this point up to the eastern site boundary with the intention of facilitating the next/future stages of the East- West Link Road development beyond the subject site. The specific details of the earthworks associated with each stage of the road development activities is outlined in Table 1,

	Stage 1	Stage 2	Total
Area	2.8ha	1.4ha	4.2ha
Cut	43,077m ³	28,875m ³	71,952m ³
Fill	9,314m ³	6,561m ³	15,875m ³
Balance	33,763m ³	22,314m ³	56,077m ³

Table 1: Proposed earthworks scope

The above information outlines reasonably significant volumes of surplus cut material generated from the earthworks activities. During the Stage 1 works, it is anticipated that the surplus material will be stockpiled within the Stage 2 area within the designation boundaries. During the Stage 2 roading works, this material will be utilised as required for construction with the surplus volumes remaining, intended to be utilised within the next stages of works associated with the East-West Minor Arterial to the east which have been identified as having a shortage of available material (subject to future consent approvals).

The Stage 1 works are planned to be undertaken during the summer 2019/20 construction season with the Stage 2 works proposed to occur in the following summer season or as the demand for access to future areas dictates.

Design plans for the proposed earthworks activities are attached as Appendix B.



Best practice erosion and sediment control measures are proposed to be implemented throughout the duration of the earthworks activities in accordance with the WRC Erosion and Sediment Control Guideline document with the proposed measures outlined on the preliminary Erosion and Sediment Control Plan (ESCP) contained within Appendix C.

5 STATUS OF ACTIVITIES

The Waikato Regional Plan (WRP) contains objectives, policies and rules to address issues of use, development and protection of land and water. An assessment of the proposal against those rules has identified that the proposal requires consent under the following provisions.

5.1 Earthworks

The proposed road construction earthworks activities at the site will occur outside of any high risk erosion areas as defined within the WRP and hence have the potential to occur as a permitted activity under the relevant rule provisions. However, there is a potential that discharges from the site sediment ponds may at times be unable to comply with the permitted activity standards relating to discharge quality (total suspended solids). Hence a conservative approach is being taken with consent sought to authorise these activities as a Discretionary Activity in Accordance with Rule 5.1.4.13 of the WRP.

5.2 Other Activities

Stormwater

Construction of the East-West Minor Arterial will result in the creation of impervious urban road surfaces in excess of 1ha and hence these discharges will be subject to consent authorisation under Rule 3.5.11.8 of the WRP. As noted, runoff from the majority (western end) of the carriageway will be routed to the proposed large stormwater wetland device to be constructed immediately to the south of the roundabout for treatment and attenuation. The treated and attenuated runoff will then discharge via an outlet pipe conveying flows below the proposed roundabout to discharge to the central tributary arm of the Mangkotukutuku Stream. The stormwater wetland has been designed in accordance with the Waikato Regional Councils Stormwater Guideline document and will also include capture of runoff from existing sections of the SH3/Ohaupo roading corridor which currently discharge in an uncontrolled manner to the Mangkotukutuku Stream. Hence a portion of 'retro fit' stormwater management will be achieved for a portion of this high use road corridor as part of this project.

The earthworks associated with construction of this wetland have recently been consented as part of the Stage 1 Northview Development project (WRC consent AUTH140660.01.01).

A consent application for the eventual stormwater discharges from the stormwater wetland along with any separate subcatchment areas within the road footprint (to be managed via separate localised/proprietary devices) is in the process of being developed and will be lodged with the WRC in due course. Furthermore, the Applicant has recently also obtained WRC consent AUTH140411.01.01 which authorises the construction, operation and maintenance of the stormwater outlet from this wetland to the stream.

Stormwater from the smaller eastern road catchment area, located within the proposed Stage 2 works area, will be captured within a piped stormwater reticulation network and conveyed to a further stormwater wetland device located on the eastern boundary of the Northview development which will again be subject to future detailed design and consenting processes with these consents to be obtained prior to any discharges from this future stage roading catchment occurring.

Hamilton City District Plan

As noted the proposed road construction activities are located within the boundaries of Designation A106 of the Hamilton City District Plan which refers to the HCC Southern Links roading project. The proposed activities are entirely consistent with this designation purpose and hence in accordance with s176 of the RMA1991, these activities are exempt from the requirements of the district plan.

NES – Soil Contamination

A Detailed Site Investigation/soil contamination assessment undertaken for the adjacent Northview residential development has been reviewed which confirms areas of soil contamination within the Northview site including elevated levels of soil contaminants likely associated with historic market gardening activities across the site paddocks along with a number of localised contaminant hot spots associated with existing buildings, yards and a sheep dip. Based upon these findings, it is anticipated that areas of contamination may extend into the subject road alignment area and hence a consent will be obtained under the NES – Soil Contamination to ensure that any areas of contamination are adequately identified and remediated as part of the site works. This consent application will be lodged with HCC in due course.



6 CONSULTATION

6.1 Tangata Whenua

Conditions 3.15 to 3.17 of the HCC Southern Links designation (refer Appendix D) have established specific conditions requiring establishment of a Tangata Whenua Working Group (TWWG) to facilitate regular consultation between the Southern Links project team and local tangata whenua representatives. The TWWG was established in 2011 during the route identification phase of the wider Southern Links project and HCC (as Requiring Authority) has been in regular ongoing engagement with the group since then.. The TWWG is made up of representatives from Waikato-Tainui and each of the following tribal/hapu groups:

- Ngāti Mahanga
- Ngāti Hauaa
- Ngāti Wairere
- Ngāti Koroki Kahukura

Routine meetings with the TWWG have included specific discussions regarding the proposed Roundabout and East – West Minor Arterial including any potential environmental effects of the activities. Outcomes of these meetings have included obtaining specific letters of approval from the TWWG regarding both the stormwater design and landscape design for the project which are included within Appendix J. While specific correspondence has not been obtained regarding the earthworks activities, these current letters confirm that the TWWG are well aware of the project and have provided their support to the establishment of the permanent stormwater system and landscape which will be established on completion of the earthworks, with no specific cultural issues raised.

Furthermore, consultation with the TWWG will be ongoing throughout this project with the next update meeting scheduled for 28 August 2019 at which this group will be advised of these consent applications and anticipated project schedule.

6.2 New Zealand Transport Agency

The proposed earthworks activities at the western end of the site will interface with the existing SH3 roading network which is administered by the New Zealand Transport Agency. The works through this area including tie-in of the existing state highway alignment to the new roundabout. Development of the proposed design has occurred in close consultation with the NZTA to ensure that their interests are protected and accommodated within the proposed roading layout at this point. Furthermore, any works within the State Highway will be subject to specific traffic management requirements which will be developed in consultation with the NZTA network engineer to minimise any disruptions and traffic impacts during these activities. The written approval of the NZTA's representative is attached within Appendix J which confirms their agreement to the proposed activities where they interface with their land and with the existing state highway alignment.

7 NOTIFICATION

Sections 95A to 95F of the RMA set out the following process for determining whether or not notification of a resource consent application is required:

- The consent authority must decide whether or not an activity will have or is likely to have more than minor adverse effects on the environment;
- When making that decision, the consent authority must disregard any effects on persons who own or occupy the land in, on, or over which the activity will occur, or any land adjacent to that land;
- If the consent authority decides that the activity will have or is likely to have more than minor adverse effects on the environment, it must publicly notify the application;
- If the consent authority decides that the activity will not have more than minor adverse effects on the environment and therefore will not be notified, it must decide whether there are any affected persons in relation to the activity;
- A person will be an affected person in relation to the activity if the activity's adverse effects on the person are minor or more than minor;
- If the consent authority decides that there are affected persons in relation to the activity, the consent authority must give limited notification of the application to those persons.

The assessment contained in section 8 of this report concludes that the proposed activities will have no more than minor effects on the environment and that there are no parties that will be adversely affected who have not provided their written approval. In particular, where the proposed works are identified as interfacing with the adjacent NZTA SH3 road alignment,



this party has been consulted and has provided their approval to this project. On this basis it is considered appropriate that this application be considered on a non-notified basis, without recourse to either limited or full notification.

8 ASSESSMENT OF ENVIRONMENTAL EFFECTS

In accordance with the Fourth Schedule of the RMA, this section provides an assessment of the actual and potential effects on the environment associated with the proposal. These effects are assessed below under the relevant sub-headings.

The assessment contained under the following sub-headings should also be read in conjunction with the various plans and reports contained in the Appendices to this report.

8.1 Erosion and Sediment Effects

The exposure of large scale earthworks surfaces creates the potential for erosion of these surfaces during rainfall events resulting in sediment runoff across the site surfaces, discharging to downstream receiving environments. Within the receiving environment these discharges have the potential to result in adverse effects on water quality and aquatic ecology including the abrasive and smothering effects of fine sediments on aquatic organisms and habitats and the discolouration of water affecting visual feeder species as well as aesthetic and recreational values.

In this instance, the proposed earthworks are considered to comprise a moderate scale earthworks operation occurring in a relatively low risk environment in terms of erosion and sediment risks (i.e site contours, soil types and receiving environment characteristics).

It is a key aspect of the project that the works are intended to be undertaken in two separate stages comprising the initial road length up to the Northview site entrance point (2.8ha) to occur within the first construction season, and the remaining road length (1.4ha) to occur within a subsequent construction season. This staged approach to these earthworks will ensure that the exposed soil areas within the site at any one time are minimised from the total application area allowing for a more manageable extent of works and reduced sediment discharge potential during any rainfall events.

Best practice erosion and sediment control measures are proposed to be implemented throughout the duration of the earthworks activities with Appendix C including a preliminary ESCP document to outline methods of how these measures can be implemented for the subject works. The proposed measures have been designed in accordance with the WRC ESC Guideline documents and will adhere to typical works requirements. These include implementation of these measures as the first items on site, as-built certification and maintenance of these measures until the site has been fully stabilised to the satisfaction of the WRC.

The key measures outlined within the Preliminary ESCP document include:

- Provision of a stabilised construction entranceway at the site entrance point;
- Construction of temporary cleanwater diversion systems to convey any catchment flows from above the site around the works area;
- Installation of dirty water diversion drains along the lateral and lower boundaries of each earthworks catchment area to convey runoff to specified treatment devices;
- Treatment devices for control of runoff from the works catchment as follows:

Device	Catchment	Volume
SRP1	2.2ha	660m ³
SRP2	0.9ha	180m ³
DEB1	0.6ha	120m ³

In addition to the above measures, the ESCP recommends the use of chemical flocculants if proven effective to maximise settlement within the SRP and DEB devices. Monitoring of flocculated sediment ponds has shown to achieve treatment efficiencies in excess of 90% removal of suspended sediment being achievable in flocculated sediment ponds and hence is considered to comprise best practice methods to minimise sediment discharges from the site.

The use of silt fences and decanting earth bund devices are considered appropriate for treatment of any sediment runoff from any smaller, peripheral earthworks catchments which are unable to drain to the SRP devices.

On completion of the earthworks in each stage, the finished surfaces will be progressively stabilised with roading aggregates being placed across the completed road subgrade surfaces and with the road batters being stabilised through



topsoiling and either grassing or landscape plantings. Where more rapid stabilisation is required, this will be achieved with application of hay mulch.

Overall, the erosion and sediment control measures presented within the preliminary ESCP documents are considered to represent best practice measures designed in accordance with the WRC guideline documents and if implemented effectively, will ensure that any potential sediment discharge effects from the earthworks will be minimised to levels to ensure that any residual effects are no more than minor within downstream watercourses.

Considering these watercourses, the immediate receiving environment for the main road earthworks catchment discharges from SRP1 will comprise the existing, on-line gully stormwater pond device established for the adjacent Cabourne Drive development. Any residual sediment levels within the treated site discharges will therefore be subject to further settlement within this device. Similarly, treated discharges from the eastern site catchment SRP3 device will occur into the arm of the Mangakotukutuku Stream which has been subject to establishment of numerous on-line dams (Shaws Ponds) and hence will again be subject to further settlement within these systems prior to reaching the open, flowing Mangakotukutuku Stream channel sections.

Below these on-line pond devices, the Mangakotukutuku Stream proceeds with catchment landuse activities dominated by residential development within the central arm and a mix of rural and residential activities within the southern arm. As noted, these landuse activities are considered to have given rise to multiple adverse effects within these stream reaches including reduced water quality, stream channel modification, stream channel erosion and structural impediments within the channel. In this respect, while it is considered likely that elevated levels of sediment will discharge from the site during significant storm events, it is considered that aquatic ecology within these watercourses will be tolerant to these intermittent, short term sediment discharges and based on the implementation of proposed/required erosion and sediment control measures, these discharges within aquatic receiving environments will be no more than minor.

Overall, while some intermittent/short duration adverse water quality effects should be anticipated from these activities, the overall outcome for the site including conversion from agricultural to roading uses with the implementation of stormwater controls, plus the proposed enhancement plantings will present an overall improvement in sediment losses and water quality in downstream receiving environments.

8.2 Dust Effects

The exposure of large scale earth surfaces associated with earthworks activities creates the potential for adverse dust effects on neighbouring properties when machinery is working during dry, windy conditions.

In this instance, the nearest sensitive receivers to the site will comprise those dwellings located directly across the northern site boundary through the central and eastern part of the road alignment with the nearest dwellings in these areas being approximately 15m northward of the earthworks margins.

The earthworks area is noted as comprising a relatively narrow, (approximate 50m width) elongated alignment typically occurring within a gully area with potential wind effects generally buffered by the surrounding slopes. In this respect, the potential for wind action across any significant fetch of exposed surfaces which could give rise to adverse dust mobilisation and off site effects is considered to be low. Furthermore, the proposed staging approach to these earthworks will ensure that the exposed areas within the site at any one time are maintained at manageable levels to prevent any offsite dust discharges.

As noted, the existing Designation conditions for the project already include a specific requirement for preparation/certification/implementation of a detailed Dust Management Plan. These conditions specifically outline the following items which are to be addressed within this plan:

- a) *Mitigation measures to be implemented during construction to minimise dust emissions;*
- b) *Methods for the daily visual monitoring of dust emissions and assessing the effectiveness of the mitigation measures implemented;*
- c) *Procedures for responding to process malfunctions and accidental dust discharges;*
- d) *Criteria, including consideration of weather conditions and procedures, for the use of water sprays on stockpiles and operational areas of the Project;*
- e) *Continuous monitoring of meteorology;*
- f) *Monitoring of construction vehicle maintenance;*
- g) *Complaints investigation, monitoring and reporting;*
- h) *The identification of staff and contractors' responsibilities; and*
- i) *Appropriate DMP review procedures.*



The initial dust management measures to be outlined within this plan to address potential dust effects will comprise the proactive monitoring of weather forecasts and site conditions along with management of the works programme to ensure that any works in proximity to sensitive receivers are only programmed for low risk dust periods.

For any periods where a heightened dust risk is identified, the typical control method will be via the use of water carts to maintain damp surface conditions across the site area. Water supply for this purpose will be readily available at the site via the existing HCC municipal system.

Should adverse dust risk conditions be identified, contingency response methods will include ceasing of works within any problematic areas and stabilisation of surfaces via either water application, placement of pinned geotextile, aggregate placement or use of polymer soil stabilisers.

The specific details of these measures will again be confirmed within the detailed Dust Management Plan to be developed for the site which will be implemented throughout the works to avoid the potential for adverse dust mobilisation effects.

Considering the nature of the project area, the staged works approach and the proposed dust management approach already required through the designation conditions, it is considered that these potential effects will be able to be adequately managed to avoid any nuisance dust effects beyond the site boundary and to ensure that any effects that do arise are no more than minor.

8.3 Ecological Effects

Based upon the proposed earthworks design confirming all earthworks to be kept outside of the gully ephemeral watercourse area, the potential effects of the proposed activities upon aquatic habitats is considered to be limited to potential sediment discharge effects upon water quality and aquatic habitats which have been discussed above and determined to be no more than minor.

Outside of the gully area, the earthworks will typically be limited to cut to fill activities occurring across existing pasture slopes providing limited ecological habitat values. However, a number of mature, exotic specimen trees are identified within the works footprint which will require removal as part of the works. These include a number of trees located near the western site boundary comprising mature oaks and liquid ambers along with a row of poplar located along the northern boundary at the eastern end of the alignment. The key potential effect associated with these activities is identified as the potential effects upon the long tailed bat populations which are known to be utilising this area for commuting, foraging and potential roosting habitat. However, for the trees within the construction footprint of the Southern Links designation, the existing designation conditions ensure that suitable provisions are already in place to address the potential construction/tree felling effects and the broader habitat effects of the subject activities upon local bat populations.

While no lizards have been observed on site by the ecologist, indigenous copper skinks and introduced plague (rainbow) skinks are considered likely to be present. However, the ecological assessment goes on to outline that:

'whether there are a small range of reptile species present or not, the areas and quantum of habitat loss is relatively small (of the potential habitat present in the locality) and thus effects on indigenous lizard habitat are considered to be minor, and will be offset by restoration planting.'

The assessment also refers to the specific Wildlife Permit requirements under the Wildlife Act 1953 for disturbance of these habitats which will require the development and implementation of a Lizard Management Plan to manage any direct effects upon site lizard populations. Wildlife Permit application with Lizard Management Plan for Southern Links as a whole has now been lodged with the Department of Conservation.

Overall, the site specific ecological assessment recommends that the detailed ecological management requirements for the site including detailed bat and lizard management protocols along with habitat enhancement plantings should be detailed and confirmed within a detailed Ecological Management Plan document. In this respect, this recommendation has effectively already been provided for by the Southern Links designation conditions 15.1 to 15.7 (contained within Appendix D) outlining an extensive list of measures that are to be addressed within a certified Ecological Management and Monitoring Plan (EMMP) for the HCC Southern Links project including:

- Detailed monitoring, management and mitigation methods to address the adverse effects of both the construction and operational phases of the Southern Links project upon native ecology including bats, avifauna, lizards, vegetation and aquatic and wetland values – including the detailed bat management/tree felling protocols;



- Detailed habitat restoration/offset mitigation measures based upon restoration of a minimum 11.46ha of gully, bat and river margin habitats;
- Animal pest control measures at known significant bat roost sites (outside of the site area); and
- Aquatic habitat surveys to identify stream values and locations where enhancement measures can be implemented.

An EMMP for the whole Southern Links project has recently been completed and lodged with HCC (as the territorial authority) for certification. This EMMP has been prepared by suitably qualified and experienced ecologists as a direct response to the overall impacts of the Southern Links project upon ecological habitats within Hamilton City including the specific potential ecological effects of the works within the subject site area. Furthermore, the EMMP is currently being considered by independent ecologists engaged by HCC Planning Guidance / Compliance for as part of the certification process as set out in the EMMP and will be completed in the near future. Appendix H to this report includes copies of plans taken from the EMMP outlining the overall habitat restoration areas to be implemented as part of the Southern Links project and a copy of the overall EMMP document including details of all ecological management protocols and restoration details can be provided to the WRC upon request to confirm that any other relevant items are adequately addressed within that document.

On the basis of this overall existing EMMP document outlining the direct management methods to address any direct impacts of the proposed road construction activities upon terrestrial native fauna including bats, lizards and avifauna, further assessment or control (through consent conditions) of these items is not considered necessary through the WRC consent process.

Within the site, it is proposed to implement areas of native plantings extending across the finished road batter surfaces with the intention of providing both enhanced landscape values while also contributing to improved ecological habitat outcomes from the existing pasture site areas. The proposed plantings to be undertaken within the site are presented within the Concept Landscape Management Plan document prepared by Adrian Morton Landscape Architects Ltd included within Appendix I.

Beyond the site area, the Applicant will implement the various areas of habitat restoration as outlined within the EMMP document. These areas are noted as including numerous areas of habitat enhancement including areas of gully restoration, stream restoration, bat and lizard habitat enhancement as outlined on the plans in Appendix H for the broader Mangakotukutuku Stream catchment with a minimum overall area of 11.46ha of habitat enhancement required through the designation conditions.

For the current WRC consent earthworks application, considering the location of the proposed earthworks areas outside of any areas of aquatic habitat and with the direct terrestrial ecological impacts of the project to be addressed through implementation of the best practice methods and protocols already established through the EMMP (to be certified by HCC Planning Guidance/Compliance), specific reference to implementation of the EMMP document through the conditions of this consent is again considered unnecessary. Nonetheless, conditions are suggested requiring implementation of the areas of native re-vegetation within the site as outlined on the Concept Landscape Management Plan document to ensure that the finished road batters within the designation are subject to rehabilitation/restoration with native species contributing to improved ecological outcomes for this area.

Overall, based upon the current low ecological values of this site, the location/layout of the works outside of any aquatic habitat and factoring the specific management methods to be implemented/administered through the HCC EMMP document to manage any potential terrestrial ecological impacts along with the proposed native restoration plantings extending along the margins of the road alignment, it is considered that any ecological effects of these activities will be no more than minor. At a broader project level, implementation of the ecological habitat restoration measures as proposed through the Southern Links EMMP will ensure that the ecological outcomes of the overall project will be positive and will contribute to the net enhancement of ecological habitat values both within the site and the broader Mangakotukutuku Stream catchment area.

8.4 Archaeological/Cultural Effects

As noted, the Archaeological Assessment undertaken for the project has concluded that no evidence for archaeological sites, features or deposits has been identified during the research for the assessment. As a result, it has been determined that the current proposal will have no known impacts on archaeological values.

Ongoing consultation is occurring with the TWWG established for the project as required through the existing designation conditions with this party well aware of the intended works and having already provided their support to the final stormwater



and landscape designs for this area and with no specific cultural issues raised regarding this site. Subsequently, it is determined that subject to the implementation for the best practice environmental management methods proposed through this application, these works present no potential for adverse effects upon cultural values.

8.5 Overall Effects Assessment Conclusion

Overall, the application proposes road construction earthworks activities upon an existing rural site which has been designated for road construction activities in conjunction with adjacent future residential development works.

The application proposes implementation of best practice construction environmental management methods to manage any potential adverse sediment and dust effects from the construction. Subject to implementation of these measures, these potential effects will be no more than minor.

The direct and residual ecological effects of the project will be addressed through implementation of the EMMP document which has already been established by the Applicant for the project including both direct management of any resident populations of terrestrial fauna and broader ecological habitat enhancement initiatives along with the proposed landscape plantings to occur within the site area. Based upon the implementation of these measures, it is considered that the project will contribute to a net improvement in ecological values within this area and any effects will be no more than minor.

The site has not been identified as having any specific archaeological or cultural values which could be compromised by the proposed works. Hence, any potential effects will be no more than minor.

Overall, it is determined that the actual and potential effects of the earthworks activities will be no more than minor.

9 CLASSIFICATION OF PROPOSAL UNDER THE PROPOSED WAIKATO REGIONAL POLICY STATEMENT AND THE WAIKATO REGIONAL PLAN

9.1 Waikato Regional Policy Statement

The new Waikato Regional Policy Statement (RPS) was made operative in May, 2016 and is a mandatory document that provides an overview of the resource management issues in the Waikato region, and the ways in which integrated management of the region's natural and physical resources will be achieved.

Key issues in the PRPS relating to the application include the state of resources (Issue 1.1) and managing the built environment (1.4). There are a number of overlapping objectives under each of these relevant to this proposal. These are listed as follows:

- Integrated management of natural and physical resources (Objective 3.1);
- Resource use and development (objective 3.2);
- Decision making (Objective 3.3);
- Ecosystem services (Objective 3.8);
- Air quality (Objective 3.11);
- Built environment (Objective 3.12)
- Mauri and values of fresh water bodies (Objective 3.14);
- Riparian areas and wetlands (Objective 3.16)
- Ecological integrity and indigenous biodiversity (Objective 3.19)
- Natural character (Objective 3.22)
- Values of soil (Objective 3.25)

Relevant policies include integrated management (Policy 4), air (Policy 5), built environment (Policy 6), fresh water bodies (Policy 8), and soils (Policy 14). These policies outline the following items as key considerations in the management of freshwater bodies and soils within the Waikato Region:

- Aligning infrastructure and land use planning;
- Planning for land use and transport
- Transport planning;
- Managing discharges to water and air;
- Managing riparian activities;
- Maintenance/enhancement of natural functions and ecological health;
- Manage activities to reduce the risks from natural hazards;



- Managing activities to maintain soil quality and reduce risk of erosion;

These objectives and policies have been considered and the outcomes of the assessment of effects and the initiatives proposed by the Applicant to manage the potential effects of the proposed activities are consistent with them. On balance, I consider that the proposal is consistent with the RPS.

9.2 Waikato Regional Plan

The Waikato Regional Plan (“WRP”) is operative. The purpose of regional plans is to help the Council carry out its functions under s30 of the RMA. The objectives and policies contained in the WRP that are relevant to this proposal are those relating to water resources, land/soil and air. The most relevant objectives and policies are as follows.

3.1 Water Resources

3.1.2 Objective

The management of water bodies in a way which ensures:

- that people are able to take and use water for their social, economic and cultural wellbeing*
- net improvement¹ of water quality across the Region*
- the avoidance of significant adverse effects on aquatic ecosystems*
- the characteristics of flow regimes are enhanced where practicable and justified by the ecological benefits*
- the range of uses of water reliant on the characteristics of flow regimes are maintained or enhanced*
-*
- that significant adverse effects on the relationship tangata whenua as Kaitiaki have with water and their identified taonga such as waahi tapu, and native flora and fauna that have customary and traditional uses in or on the margins of water bodies, are remedied or mitigated*
- the cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with water their identified taonga such as waahi tapu, and native flora and fauna that have customary and traditional uses that are in or on the margins of water bodies are remedied or mitigated*
-*
-*
-*
-*

Associated Policies:

3.2.3 Policy 1: Management of Water Bodies

3.2 Water Takes

3.3.2 Objective

- Giving effect to the overarching purpose of the Vision and Strategy to restore and protect the health and wellbeing of the Waikato River for present and future generations.*
- The availability of water to meet the existing and the reasonably justified and foreseeable future domestic or municipal supply requirements of individuals and communities and the reasonable needs for an individual's animal drinking water requirements.*
- The recognition of the significant community benefits that derive from domestic or municipal supply takes.*
- The efficient allocation and the efficient use of water.*
- No further allocation of water that exceeds the primary allocation in Table 3-5 that reduces the generation of electricity from renewable energy sources.*
- The recognition that existing water takes contribute to social and economic wellbeing and in some cases significant investment relies on the continuation of those takes, including rural-based activities such as agriculture, perishable food processing and industry.*
- The continued availability of water for cooling of the Huntly Power Station.*
- Sufficient water is retained instream to safeguard the life supporting capacity of freshwater, including its ecosystem processes and indigenous species and their associated ecosystems.*
- That decisions regarding the allocation and use of water take account of the need to avoid the further degradation of water quality, having regard to the contaminant assimilative capacity of water bodies.*
- Subject to Objectives a) to h) above, the availability of water to meet other future social, economic and cultural needs of individuals and communities (including rural-based activities such as agriculture, perishable food processing and industry).*

Associated policies:

3.3.3 Policy 4 – Establish sustainable yields for groundwater

3.3.3 Policy 5 – Determining sustainable yields



- 3.3.3 Policy 10 – How groundwater takes will be classified
- 3.3.3 Policy 12 – Consent application assessment criteria - Groundwater

3.5 Discharges

3.5.2 Objective

Discharges of contaminants to water undertaken in a manner that:

- a. *does not have adverse effects that are inconsistent with the water management objectives in Section 3.1.2*
- b. *does not have adverse effects that are inconsistent with the discharges onto or into land objectives in Section 5.2.2*
- c. *Ensures that decisions regarding the discharge of contaminants to water do not reduce the contaminant assimilative capacity of the water body to the extent that allocable flows as provided for in Chapter 3.3 are unable to be utilised for out of stream uses.*

Associated policies:

- 3.5.3 Policy 1 – Enabling discharges to water that only have minor adverse effect
- 3.5.3 Policy 5 – Ground water
- 3.5.3 Policy 6 – Tangata whenua uses and values
- 3.5.3 Policy 7 – Stormwater discharges

5.1 Accelerated Erosion

5.1.2 Objective

A net reduction of accelerated erosion across the Region so that:

- a. *soil productivity, versatility and capability is maintained*
- b. *there are no adverse effects on water quality, aquatic ecosystems and wetlands that are inconsistent with Water Management Objective 3.1.2*
- c. *there is no increase in the adverse effects of flooding or land instability hazards*
- d. *accelerated infilling of lakes, estuaries, rivers, wetlands and cave systems is avoided and the rate of infilling of artificial watercourses, excluding structures designed to trap sediment, is minimised*
- e. *significant adverse effects on the relationship tangata whenua as Kaitiaki have with their identified ancestral taonga such as ancestral lands, water and waahi tapu are avoided*
- f. *cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water, waahi tapu are remedied or mitigated.*
- g. *significant adverse effects on natural character and ecological values associated with land and the coastal environment including dune systems is avoided*
- h. *there are no adverse effects on air quality that are inconsistent with Air Quality Objective 6.1.2, Objectives 2 and 3*
- i. *damage to property and infrastructure is avoided*

Associated policies:

- 5.1.3 Policy 3 Promote good practice

6.1 Regional and Local Air Management

6.1.2 Objective 2

No significant adverse effects from individual site sources on the characteristics of air quality beyond property boundary.

Associated policies:

- 6.1.3 Policy 2 – Managing effects of other discharges
- 6.1.3 Policy 5 – Positive benefits of resource use

The objectives and policies of the relevant sections of the WRP outlined above have been considered and assessed within the assessment of environmental effects carried out within section 8.1 of this report. This assessment has determined that based on the implementation of best practice erosion and sediment controls, dust management, ecological management along with the proposed site restoration measures, the proposed activities will not result in any adverse environmental effects which are more than minor. In this respect it is considered that the proposed activities will not compromise values associated with water resources and air quality or result in accelerated erosion or ecosystem impacts as outlined within the above objectives and policies and thus the proposed activities are considered to be consistent with the provisions of the Waikato Regional Plan.



10 OTHER MATTERS

10.1 National Environmental Standards

There are six NESs that have come into effect - the National Environmental Standards for Air Quality; Sources of Human Drinking Water; Electricity Transmission Activities; Telecommunication Facilities; Soil Contamination; and Plantation Forestry. The only standard relevant for consideration through the current proposal is the standard relating to soil contamination.

The adjacent Northview development site has previously been subject to a detailed site investigation into soil contamination which identified elevated levels of soil contamination due to historic horticultural activities occurring on site. While this investigation didn't cover the subject site area for the roading works, the land is contiguous and hence it is assumed that these contamination effects likely extend into the subject designation footprint. A soil contamination specialist has been engaged to investigate these effects within the subject area and a consent application will be lodged with the HCC in due course to ensure that these issues are effectively identified and remediated as part of the site works.

10.2 Healthy Rivers/Wai Ora: Proposed Waikato Regional Plan Change 1

Healthy Rivers/Wai Ora: Proposed Waikato Regional Plan Change 1 - Waikato and Waipa River Catchments (Healthy Rivers) has been developed by the WRC with the express purpose of improving the management of nutrient and sediment contaminants from landuse activities within the Waikato and Waipa River catchment. The Healthy Rivers Plan Change was notified on 22 October 2016 and must be given regard to. Over 1,000 submissions were received and with these submissions yet to be heard through an extensive hearing process anticipated to be undertaken through 2019.

Based upon the preliminary status of the Healthy Rivers and the significant number of submissions to be resolved, the plan change is considered to be afforded little weight when considering the subject activities. Nonetheless, the activities have been considered against the relevant objectives and policies of Healthy Rivers and Are not considered to compromise any of the provisions of this plan change document.

10.3 Waikato-Tainui Environmental Plan

The Waikato-Tainui Environmental Plan provides a background to, and identifies key, resource based issues for Waikato-Tainui. The plan sets out Waikato-Tainui's vision statement for environmental and heritage issues and key strategic objectives such as tribal identity and integrity, including "to grow our tribal estate and manage our natural resources." The plan is designed to enhance Waikato-Tainui participation in resource and environmental management.

The proposal has been assessed against the objectives and outcomes within this plan and overall it is considered that the proposal is consistent with this Iwi Environmental Plan.

Furthermore, the Applicant has undertaken direct consultation with tangata whenua (including Waikato-Tainui) with these parties confirming their support to the project and with no specific cultural issues having been raised to date.

10.4 Waikato-Tainui Raupatu (Waikato River) Settlement Claims Act 2010 – Waikato River Vision & Strategy

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 was enacted in May 2010 with the purpose of implementing co-management of the Waikato River between Waikato Tainui and the Crown and to restore and protect the health and wellbeing of the Waikato River for future generations.

The Act includes provisions to ensure that Tainui iwi are involved in resource consent decision making within the relevant catchment areas. Additionally, through this legislation it is intended to implement the "Vision and Strategy" for the Waikato River and its catchment (to meet the objectives of Waikato-Tainui). The specific objectives outlined within the Vision and Strategy document include:

- a) *the restoration and protection of the health and wellbeing of the Waikato River;*
- b) *the restoration and protection of the relationship of Waikato – Tainui with the Waikato River, including their economic, social, cultural and spiritual relationships;*
- c) *the restoration and protection of the relationships of Waikato Iwi according to their tikanga and kawa with the Waikato River, including their economic, social, cultural and spiritual relationships;*
- d) *the restoration and protection of the Waikato Region's communities, with the Waikato River, including their economic, social, cultural and spiritual relationships;*
- e) *the integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River;*



- f) *the adoption of a precautionary approach towards decision that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the River;*
- g) *The recognition and avoidance of adverse cumulative effects, of activities undertaken both within the Waikato River and within its catchments on the health and wellbeing of the Waikato River;*
- h) *The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities;*
- i) *The protection and enhancement of significant sites, fisheries, flora and fauna;*
- j) *The recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental and economic wellbeing, requires the restoration and protection of the health and wellbeing of the Waikato River;*
- k) *The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length;*
- l) *The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities;*
- m) *The application of the above of both matauranga Maaori and the latest available scientific methods.*

The Vision and Strategy forms part of the Proposed Waikato Regional Policy Statement and is given effect through the plans administered by Regional and territorial authorities along the rivers.

The subject site is located within the Waikato River catchment in proximity to the main river channel and with all site runoff draining to the river by way of the Mangakotukutuku Stream. In this respect, the proposed activities incorporate design features which are considered appropriate to maintain the quality of water and to avoid remedy or mitigate any potential adverse effects on the river with consent conditions recommended to address these items.

The completed site earthworks will also be subject to landscape treatments in accordance with the Concept Landscape Plan including the planting of the completed earthworks batters with native vegetation both to provide enhanced landscape values within the roading corridor while also contributing to improved biodiversity effects within the site.

Additionally, the project works will retire the existing site area from traditional agricultural landuse practices with the new landuse resulting in runoff from the new road surfaces which will be treated within a best practice stormwater management wetland facility. This facility will also incorporate retro-fit treatment of stormwater runoff from the existing SH3 high use runoff surfaces which currently discharge untreated/unattenuated into the downstream Mangakotukutuku Stream receiving environment and hence is considered to present a positive outcome for this receiving environment.

In addition to the above measures occurring at the subject site, implementation of the overall EMMP requirements throughout the broader catchment area as part of the overall Southern Links project will ensure enhanced ecological outcomes as part of this project.

The Applicant is again undertaking consultation with the TWWG including Tainui on an ongoing basis with these parties being well informed of the project activities and with no specific concerns having been raised regarding the potential effects upon the health and wellbeing of the Waikato River and its catchment.

Having given regard to the Waikato-Tainui Raupatu (Waikato River) Settlement Claims Act 2010, it is considered that the proposal is consistent with the Vision and Strategy document. The various measures set out above will ensure that the Vision and Strategy requirement to "restore and enhance" is given effect to.

11 RELEVANT PART 2 CONSIDERATIONS

All considerations are subject to Part 2 of the RMA, which sets out the purpose and principles that guide this legislation. This means the matters in Part 2 prevail over other provisions of the RMA or provisions in planning instruments (e.g. regional plans) in the event of a conflict. Section 5 states the purpose of the RMA and sections 6, 7 and 8 are principles intended to provide additional guidance as to the way in which the purpose is to be achieved.

The application of Section 5 involves an overall broad judgement of whether a proposal will promote the sustainable management of natural and physical resources. The RMA's use of the terms "use, development and protection" are a general indication that all resources are to be managed in a sustainable way, or at a rate which enables people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety. The enabling and management functions found in section 5(2) should be considered of equal importance and taken as a whole.



Sections 6, 7 and 8 of the RMA provide further context and guidance meaning to the constraints found in section 5(2)(a),(b) and (c). The commencing words to these sections differ, thereby laying down the relative weight to be given to each section.

Section 6 of the RMA sets out the matters of national importance which need to be recognised and provided for and includes among other things and in no order of priority, the protection of outstanding natural features and landscapes, the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the protection of historic heritage.

Section 7 of the RMA requires the consent authority to give particular regard to those matters listed in the section. Section 7 matters are not expressly ranked in order of priority. Therefore, all aspects of this section are to be considered equally. (state the relevant section 7 matters)

Section 8 of the RMA requires the consent authority to take into account the principles of the Treaty of Waitangi. This section of the RMA recognises the relationship of Tangata Whenua with natural and physical resources and encourages active participation and consultation with Tangata Whenua.

These purposes and principles outlined within part 2 of the RMA have been considered within the assessment section of this report and it is considered that based on the proposed environmental management procedures and the historic and ongoing consultation undertaken with tangata whenua, the proposed earthworks activities are consistent with Part 2 of the RMA.

12 CONCLUSION

This application seeks to obtain resource consent approval from the WRC to authorise the earthworks activities associated with the construction of a portion of the East-West Minor Arterial road that forms part of the broader Southern Links project occurring within Hamilton City. The project is subject to Designation A106 in the HCC District Plan which was subject to a notified designation process resulting in an extensive list of conditions outlining numerous existing environmental management requirements which are relevant to this application assessment.

An assessment of the environmental effects of the proposal is considered in this report and based upon the following key conclusions of this assessment it is determined that any potential effects of the proposed activities will be no more than minor for the following reasons:

- The existing site environmental values (including downstream receiving environments) are generally low due to past human induced modifications including agricultural and urban development;
- The earthworks will be undertaken in two separate stages thus minimising the extent of exposed surfaces;
- Potential sediment runoff and dust effects will be managed in accordance with best practice methods;
- Direct and residual ecological effects will be managed through native plantings within part of the finished site works along with implementation of the various measures set out in the overall Southern Links EMMP document;
- The site has no known archaeological or cultural values that will be impacted by the works.

There are no parties that are considered to be adversely affected by the proposed activities. Key stakeholders including local tangata whenua and the NZTA have been consulted and confirmed their acceptance of the proposed activities.

An assessment of the proposed earthworks activity against the relevant provisions of the Proposed Waikato Regional Policy Statement and Waikato Regional Plan is considered in this report. The activity is consistent with the relevant provisions of these documents.

The applications were also assessed against the relevant provisions of the RMA and found to be consistent with Part II of the RMA.

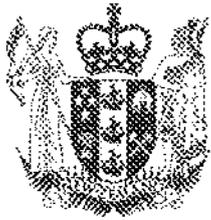
On the basis of this assessment it is considered appropriate that resource consents be granted for the proposed activity as outlined in this report subject to any necessary conditions to avoid, remedy and/or mitigate the identified potential adverse effects.

Consent Duration

The earthworks are intended to be undertaken over the next two summer earthworks seasons. Nonetheless, a 5 year consent term is sought to allow for any unforeseen circumstances.



Appendix A: Certificate of Title



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**



R.W. Muir
Registrar-General
of Land

Identifier SA43C/529
Land Registration District South Auckland
Date Issued 09 May 1989

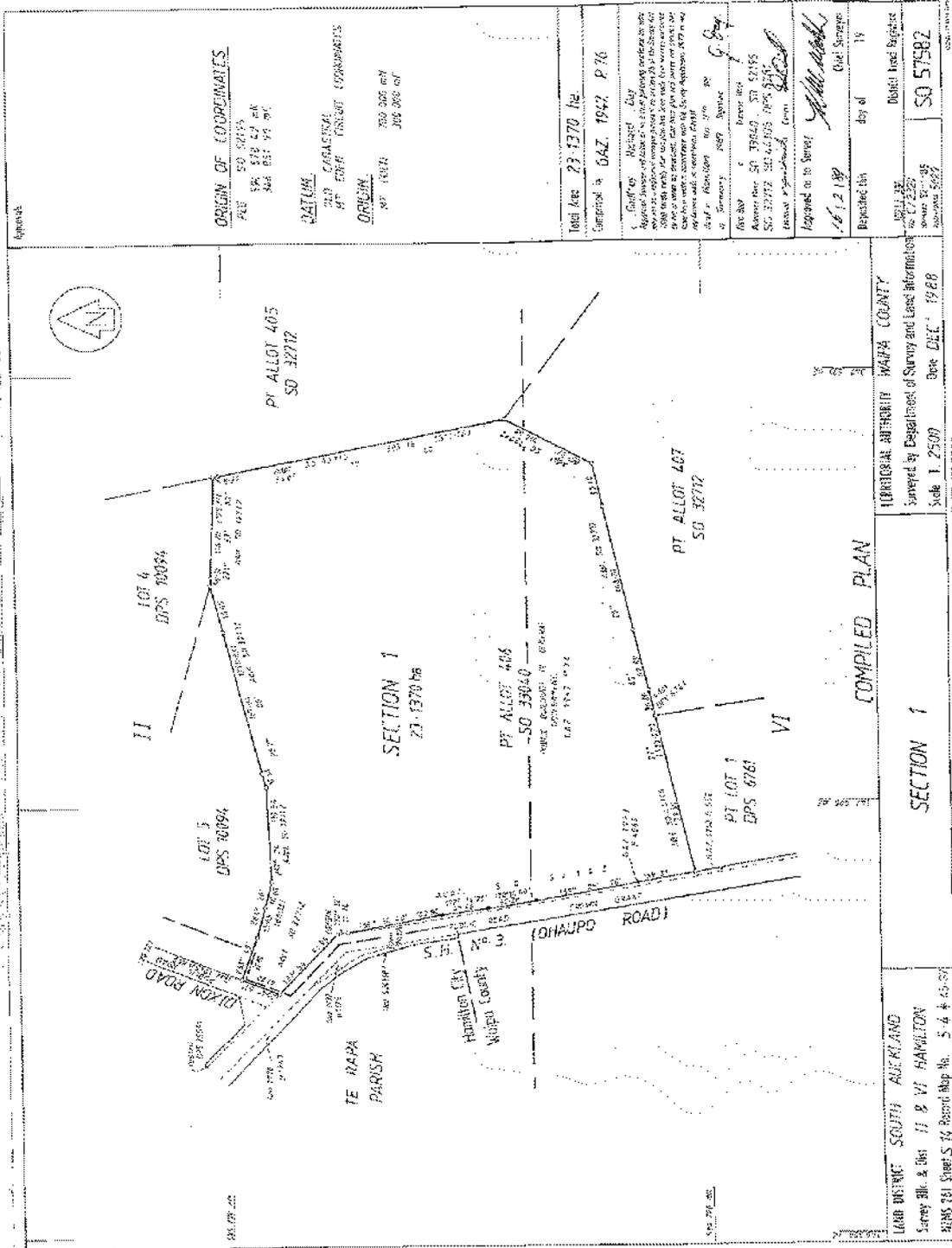
Prior References
SA43B/475

Estate Fee Simple - 1/4 share
Area 23.1370 hectares more or less
Legal Description Section 1 Survey Office Plan 57582

Registered Owners
Northview Capital Limited

Interests

Subject to Section 8 Mining Act 1971
10546558.8 Mortgage to Advantage Capital Limited - 14.10.2016 at 5:03 pm
11150098.5 Mortgage to ANZ Bank New Zealand Limited - 29.6.2018 at 2:39 pm
11150098.6 Mortgage Priority Instrument making Mortgage 11150098.5 first priority and Mortgage 10546558.8 second priority - 29.6.2018 at 2:39 pm



24

MICROFILM RECORDS/WAIKATO LTD HAMILTON

23

22



Appendix B: Site Plans

HAMILTON CITY COUNCIL

OHAUPO ROAD ROUNDABOUT & EAST WEST LINK ROAD

PRELIMINARY EROSION & SEDIMENT CONTROL PLAN

wainui...
environmental

Prepared by: Wainui Environmental Limited
Version: 02
Date: January 2020



Document history and status

Revision	Date issued	Prepared by	Reviewed/ Approved by	Date approved	Revision type
01	5/3/19	Richard Duirs	Hayden Vink		Draft – for discussion
02	10/01/20	Matt Nugent	Peter Stevens	14 Feb 2020	Final approved by WRC

Printed: 10 January 2020

Last saved: 10/01/2020 15:16

Authors: Richard Duirs (Wainui Environmental) and Matt Nugent (Schick Civil Construction Ltd)

Name of organisation: Wainui Environmental Ltd

Name of project: East West Link ESCP

Client: HCC

Name of document: East West Link FINAL Erosion and Sediment Control Plan

Document version: REV 02

Project number: WE1645-07

Contents

1	INTRODUCTION.....	1
2	PERSONNEL AND MANAGEMENT RESPONSIBILITIES	1
3	SITE ACTIVITIES.....	1
4	EROSION & SEDIMENT CONTROL	2
4.1	Diversion Drains	2
4.2	Sediment Retention Ponds	2
4.3	Decanting Earth Bunds	2
4.4	Flocculation.....	3
4.5	Other Areas/Controls	3
4.6	Stabilised Construction Entrance	3
4.7	As-built Certification	3
5	MONITORING AND MAINTENANCE.....	3
6	STABILISATION.....	4
7	REVIEWS AND UPDATING OF MANAGEMENT PLAN.....	4

APPENDICES

Appendix A: Site Layout and Erosion and Sediment Control Plan

Appendix B: Sediment Retention Pond Design Plans



1 INTRODUCTION

This plan has been prepared on behalf of Hamilton City Council (HCC) to outline recommended erosion and sediment control requirements for proposed earthworks activities occurring in association with construction of the East West Link Road section of the HCC Southern Links roading project.

The proposed earthworks relate to formation of an approximate 620m length of arterial road and an associated roundabout intersection with SH3/Ohaupo Road occurring within the established Southern Link road designation.

The overall purpose of this plan is to outline best practice erosion and sediment control measures which can be implemented on site over the duration of the works to minimise site sediment discharge effects to the Mangakotukutuku Stream to the greatest extent possible.

This plan is subject to approval by the Waikato Regional Council prior to implementation on site.

Drawings and design sheets are attached as appendices to this report and form part of this plan.

2 PERSONNEL AND MANAGEMENT RESPONSIBILITIES

The personnel responsible for the implementation of this plan and relevant contact details are outlined within **Table 1**. Should these contact details be subject to change the WRC will be notified in writing.

Consent Holder/Project Manager	Engineer	Contractor
Hamilton City Council	Gray Matter	Schick Civil Construction
Contact: Tahl Lawrence	Contact: Alasdair Gray	Contact: Matt Nugent
Phone: 027 2482144	Phone: 0272 497 648	Phone: 021 075 5920

Table 1: Key Contacts

3 SITE ACTIVITIES

Construction of the proposed road will require large scale earthworks occurring throughout the 620m long designation alignment. There are no watercourses or wetland areas located within the works footprint and hence the activities will be limited to typical cut/fill activities occurring across the existing pasture slopes.

Following site clearance, earthworks activities will commence comprising installation of erosion and sediment control measures followed by stripping of topsoil. Topsoil will either be stripped to perimeter bunding or to temporary stockpile locations. Bulk earth moving can then commence with the activities being undertaken by a combination of excavators, bulldozers, trucks and compactors.

The proposed earthworks will occur across a total area of approximately 4.2ha with the total earthworks volumes comprising a cut of 78,905m³ and fill of 12,997m³ with a surplus of 65,908m³. The proposed areas of cut are focussed within two areas within the site. These comprise the elevated ridgeline at the existing site entrance point off Ohaupo Road where cut depths of up to 6m are proposed in association with formation of the proposed roundabout which includes an inset underpass to convey pedestrian through/under the intersection. The second cut area comprises an elevated slope towards the eastern end of the alignment where cutting to depths of 7m is proposed to achieve the design road contours. Proposed areas of filling comprise two localised areas including a low lying area adjacent to the existing gully watercourse through the central part of the site with filling up to 3m depth, along with a smaller area the very eastern end of the alignment with filling up to 4m depth.

The proposed road construction earthworks are planned to be undertaken within two separate stages/construction seasons. Stage 1 will comprise the length of works extending from Ohaupo Road eastward to just past the main Northview Developments road entrance point comprising a works alignment of approximately 300m. Establishment of this initial length of the road will thus facilitate the recently consented Stage 1 development activities within the Northview site. Stage 2 of the road construction works will extend from this point up to the eastern site boundary with the intention of facilitating the next/future stages of the East- West Link Road development beyond the subject site.

	Stage 1	Stage 2	Total



Area	2.8ha	1.4ha	4.2ha
Cut	46,988m ³	31,917m ³	78,905m ³
Fill	7,698m ³	5,299m ³	12,997m ³
Balance	39,290m ³	26,618m ³	65,908m ³

Table 1: Proposed earthworks scope

The above information outlines reasonably significant volumes of surplus cut material generated from the earthworks activities. During the Stage 1 works, it is anticipated that the surplus material will be stockpiled within the Stage 2 area within the designation boundaries. During the Stage 2 works, this material will be utilised as required in the construction works with the surplus volumes remaining, intended to be utilised (or temporarily stockpiled) within the next stages of works associated with the East-West Link Road to the east which have been identified as having a shortage of available material (subject to future consent approvals).

The overall works site can be split into three separate subcatchment areas. The largest subcatchment (2.2ha) comprises the central/northwest road section which drains the existing tributary stream to the north of the site discharging via the Dixon Road culvert to the central branch of the Mangakotukutuku Stream. The eastern subcatchment (0.9ha) comprises the eastern length of the road alignment draining eastward to the existing Shaws Ponds on the southern branch of the Mangakotukutuku Stream. The southwest catchment comprises the smallest subcatchment at 0.6ha encompassing the southwestern tie in works to SH3 and discharging via a culvert under SH3 to a small tributary drain of the central branch of the Mangakotukutuku Stream.

The general layout of the various site activities and catchment areas is outlined on the plan contained within Appendix A.

4 EROSION & SEDIMENT CONTROL

The sediment control methods relevant to the various site works areas are described within the following sections. All erosion and sediment controls, methodologies and management will be in general accordance with the Waikato Regional Council Technical Report No.2009/02 "Erosion and Sediment Control Guidelines for Soil Disturbing Activities" (TR2009/02).

4.1 Diversion Drains

The first activity to occur on site will comprise establishment of perimeter controls in the form of cleanwater and dirty water diversion drains both to prevent the ingress of cleanwater runoff from upcatchment areas to the works, and to contain and divert dirty earthworks runoff to the proposed sediment control devices.

The diversion drains shall be formed from topsoil stripped around the perimeter of the site which shall be placed and compacted to form a bund a minimum of 1m high running down the contour to convey flows to the design discharge point. Based upon the absence of any significant catchment areas either within or above the site, this sized bund is considered adequate to convey the 20%AEP catchment flows without overtopping in accordance with the TR2009/02 requirements. All diversion bunds shall have their outer faces stabilised through application of hay mulch.

4.2 Sediment Retention Ponds

Two sediment retention ponds (SRPs) are proposed for control of the two largest earthworks catchment areas within the site.

SRP1 has been designed to treat the largest central/northwestern catchment area of 2.2ha. SRP1 has a design volume based upon 3% of the contributing catchment area based upon slope lengths in excess of 200m with a specified design volume of 660m³. Discharges from the SRP1 decanting outlet system will occur to the adjacent tributary stream to the north directly above the Dixon Road culvert inlet eventuating in the central branch of the Mangakotukutuku Stream

SRP2 has been designed to treat the smaller eastern catchment area of 0.9ha. SRP2 has a design volume based upon 2% of the contributing catchment area based upon slope lengths of less than 200m and gradients less than 10% with a specified design volume of 180m³. Discharges from the SRP2 decanting outlet system will occur to a small drainage channel eventuating in the on-line Shaws Ponds within the southern branch of the Mangakotukutuku Stream.

Refer Appendix B for SRP design details.

4.3 Decanting Earth Bunds

One decanting earth bund (DEB) is proposed for treatment of the smallest earthworks catchment comprising the 0.6ha southwestern works catchment encompassing the southern SH3 tie-in works. It is acknowledged that this catchment area is in excess of the maximum 0.3ha DEB catchment area specified in TR2009/02. However, in this instance use of a DEB device is considered appropriate based upon the nature of the works in this area and site receiving environments.



Furthermore, DEB devices have been used successfully on catchments of this scale on numerous sites within the Waikato Region particularly where performance is maximised through the use of T-bar decants and flocculation.

This DEB will be constructed at approximate 3:1 l/w Ratio with a forebay and antiseep collars

4.4 Flocculation

Prior to the commencement of works, bench testing of site soils shall be undertaken to test their reactivity to flocculant chemicals for maximising sediment treatment efficiencies. If bench testing confirms positive outcomes with the use of flocculants, a detailed Flocculation Management Plan should be developed to inform the design and management of rain activated flocculant dosing systems for all site SRPs and DEBs.

4.5 Other Areas/Controls

It is anticipated that during the project, some minor areas of soil disturbance maybe required outside of the design sediment control catchments such as during tie-in works on SH3. The recommended approach for any such minor works is through employment of a cut and cover technique with all works being undertaken and stabilised progressively either at the end of each day or within a short fine weather window.

Alternatively, temporary, localised controls including silt fences, silt socks or containment bunding can be implemented to manage these localised, short duration works areas.

This will not happen unless prior approval from WRC is received.

4.6 Stabilised Construction Entrance

A stabilised construction entrance shall be established at the site entrance point to minimise soil disturbance in this high use area and the subsequent tracking of sediment onto public road surfaces. As a minimum, the stabilised entrance should comprise a minimum 20m length of large grade, clean aggregate placed upon a layer of geotextile fabric to form a clean, stable site access point for all vehicles entering/exiting the site.

In the event that any adverse sediment tracking effects are noted, these should be cleaned up immediately using a broom/vacuum sweeper.

4.7 As-built Certification

As outlined, installation of erosion and sediment control measures will comprise the first item of works occurring on site and immediately following establishment shall be as-built certified to confirm adherence to the approved design plans. As-built certification should be undertaken using the WRC as-built forms available at the following link.

<https://www.waikatoregion.govt.nz/services/regional-services/consents/resource-consents/more-information-and-tools/earthworks/guidelines-factsheets-and-as-built-certification-sheets/>

5 MONITORING AND MAINTENANCE

The monitoring and maintenance of all erosion and sediment controls will comprise a key management component to the success of the devices to minimise sediment discharge effects.

The site manager will be responsible for completing the monitoring of erosion and sediment controls. This will include daily monitoring of weather forecasts and inspection of all controls in accordance with the following frequencies:

- Weekly - during dry weather.
- Daily - during wet weather.
- Immediately prior to and following any forecast significant storm event.

Should monitoring of erosion and sediment control devices identify the need for maintenance of devices (e.g. de-sludging of sediment controls, repair of devices etc) this will be implemented as soon as site conditions allow. Material removed from sediment control devices (sediment sludges) will be placed within a contained (bund) area, outside any



concentrated flow paths but within the sediment control device catchment. During dry conditions the material will be removed to a fill site and spread to dry, prior to blending into the fill surface.

Should any up-coming significant storm events be identified through routine forecast monitoring, maintenance of all sediment control devices shall be undertaken to ensure that all devices are in a robust condition and all loose, accumulated materials have been removed from low lying areas to prevent re-suspension. Additionally, installation of additional erosion control measures such as cut-off/contour drains and check dams shall be implemented to reduce flow velocities and minimise erosion effects.

Should any sediment control devices be subject to a major failure or identified as having poor performance during a significant storm event, contingency measures shall be implemented to address any potential ongoing effects. Possible contingency options may include:

- Immediate stabilisation of areas with hay mulch or pinned geotextile;
- Installation of additional erosion control measures within the catchment including sediment pits, contour drains or diversion lining;
- Increase device storage volume;
- Batch dosing with chemical flocculants to improve impounded water quality prior to discharge.

Implementation of any contingency measures will be determined by the site manager on a specific case by case basis and in discussion with the WRC monitoring officer.

6 STABILISATION

Stabilisation of site earthworks surfaces shall occur as follows:

- Road carriageway surfaces – basecourse aggregates/pavement;
- Road batters – tree mulch/landscape plantings;
- All other areas – grassing.

Where more urgent stabilisation of site surfaces may be required, such as isolated disturbances outside of the immediate catchment, this will be implemented through hay mulching or hydro-seeding (for steeper faces). When mulching is to be implemented this should be programmed for low wind conditions and preferably just prior to rain showers to maximise matting of the mulch.

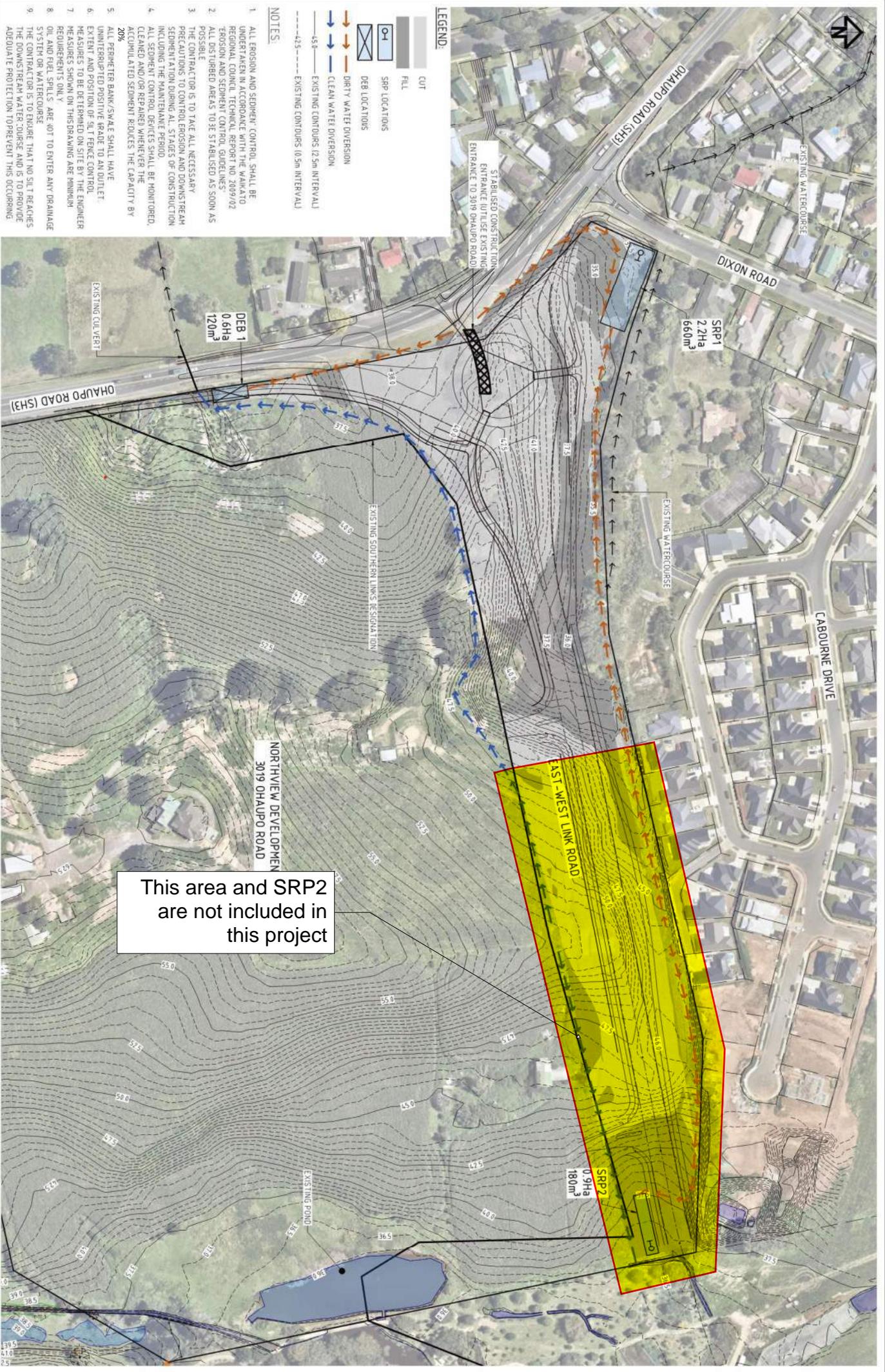
All erosion and sediment control measures shall be maintained in place until full stabilisation of the catchment is achieved as agreed with the WRC monitoring officer.

7 REVIEWS AND UPDATING OF MANAGEMENT PLAN

This management plan comprises a live/working document and may be subject to change and update as site conditions or layouts change over the life of the operation. Any proposed changes to the plan will be communicated to the WRC for approval prior to implementation. Thereafter, the plan will be updated within 5 working days of any amendments being approved.



APPENDIX A: SITE LAYOUT AND EROSION AND SEDIMENT CONTROL PLAN



LEGEND:

- CUT
- FILL
- SRP LOCATIONS
- DEB LOCATIONS
- DIRTY WATER DIVERSION
- CLEAN WATER DIVERSION
- 12.5m — EXISTING CONTOURS (12.5m INTERVAL)
- 10.0m — EXISTING CONTOURS (10.0m INTERVAL)

NOTES:

1. ALL EROSION AND SEDIMENT CONTROL SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE PLANTO REGIONAL COUNCIL TECHNICAL REPORT NO 2009/102 EROSION AND SEDIMENT CONTROL GUIDELINES
2. ALL DISTURBED AREAS TO BE STABILISED AS SOON AS POSSIBLE
3. THE CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM INCIDING THE MAINTENANCE PERIOD
4. ALL SEDIMENT CONTROL DEVICES SHALL BE MONITORED, CLEANED AND/OR REPAIRED WHEREVER THE ACCUMULATED SEDIMENT REDUCES THE CAPACITY BY 20%
5. ALL PERMEER BANK/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET
6. EXTENT AND POSITION OF SILT FENCE CONTROL MEASURES TO BE DETERMINED ON SITE BY THE ENGINEER
7. REQUIREMENTS SHOWN ON THIS DRAWING ARE MINIMUM
8. OIL AND FUEL SPILLS ARE NOT TO ENTER ANY DRAINAGE SYSTEM OR WATERCOURSE
9. THE CONTRACTOR IS TO ENSURE THAT NO SILT REACHES THE DOWNSTREAM WATERCOURSE AND IS TO PROVIDE ADEQUATE PROTECTION TO PREVENT THIS OCCURRING

No	REV	DATE	DESCRIPTION	APP'D
1	REV	12/01/2016	ORIGINAL ISSUE	

SCALE: LAT ORIGINAL SHEET SIZE: A1
 SCALE: 1:1000
 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

DESIGNED BY	CHECKED BY

wainui environmental
 P.O. Box 32248, Havelock 3224, NZ
 P: 07 825 8338 or 0800wainuienvironmental.co.nz
 WWW.WAINUIENVIRONMENTAL.CO.NZ

Hamilton City Council
 The Environment & Infrastructure
 SOUTHERN LINKS
 EASTWEST LINK & OHAUPO ROAD
 ROUNDABOUT

EROSION AND SEDIMENT CONTROL PLAN
 PROJECT: EASTWEST LINK & OHAUPO ROAD ROUNDABOUT
 SHEET: WE1645-07-210
 DATE: 16/07/2016



Invert of Forebay Spreader Bar
33.873

Invert of Emergency Spill Way Spreader Bar
33.55

Invert of Decant 1
32.337

Invert of Decant 2
32.806

Invert of 150mm Riser
33.248

LEGEND

NOTES:

CO-ORDINATES ARE IN TERMS OF:
MT EDEN 2000

ALL LEVELS ARE INTERMS OF:
MOTURIKI 1953

PREPARED BY



PH 07 849 3111
FAX 07 849 4545

18 MANCHESTER PLACE
TE RAPA
HAMILTON

PREPARED FOR

HAMILTON CITY COUNCIL

PROJECT

PEACOCKES RAB

DATE	DRAWN	CHECKED	COMMENTS	REV
03/02/2020	WB			

SHEET SIZE : A3

SCALE : 1:1200 OR AS SHOWN

DRAWING TITLE

ENVIROMENTAL CONTROLS

DRAWING NUMBER

001 - 170

REV

A



APPENDIX B: SEDIMENT RETENTION POND DESIGN PLANS

Sediment retention pond (SRP) As-built Certification Sheet

SRP name/number:

SRP #1

Contributing catchment area: (m ²)	2.2ha		
Dead storage volume and depth	Volume (m ³)	130	Height 570mm
Live storage volume and depth	Volume (m ³)	597	Height 1.5m
SRP dimensions set at SRP base	Length	45	Width 7
SRP dimensions at primary spillway height	Length	52	Width 13
Primary spillway diameter	1500 mm		
Length to width ratio:	52:13		
Inlet batter 3:1	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Embankments adequately compacted/method of compaction	Clay engineered fill Compacted to 98% MDD		
Emergency spillway width and depth	Width	4m	Depth 300m
Emergency spillway able to pass 100 year event	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Emergency spillway stabilisation type	Concrete capped Clay		
Discharge point stabilised?	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Outlet pipe diameter	225dia		
Anti-seep collars installed	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Freeboard between primary & emergency spillway?	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Number of floating decants	2		
Weighted manhole riser	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Level spreader level?	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Level spreader full width of srp?	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Level spreader stabilisation type	wood and concrete		
Level spreader haunched with concrete	Y <input checked="" type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>
Waikato Regional Council approved variations to device (please list)			
Decant discharge rate	15		litres per second

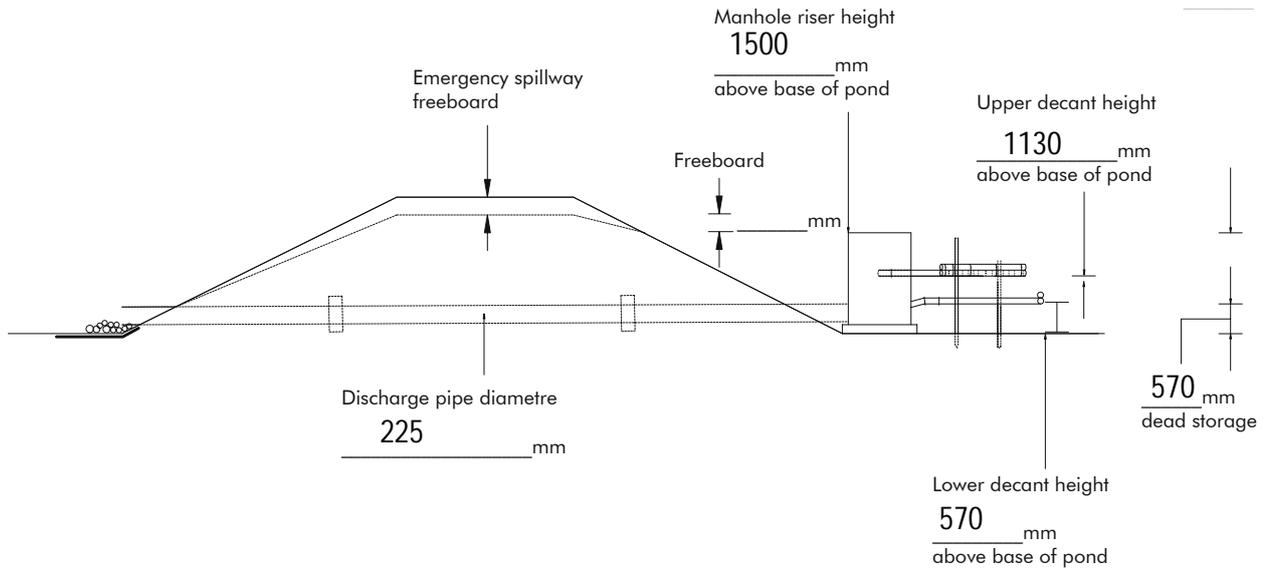
Please sign below to confirm that the as-built information in this sheet is accurate and the device identified on this sheet has been constructed in accordance with the Waikato Regional Council approved Erosion & Sediment Control Plan for the site and the "Erosion and Sediment Control Guidelines for Soil Disturbing Activities", January 2009 document or Waikato Regional Council approved variations.

Suitably qualified person (name and company): Matt Nugent - Schick Civil Construction

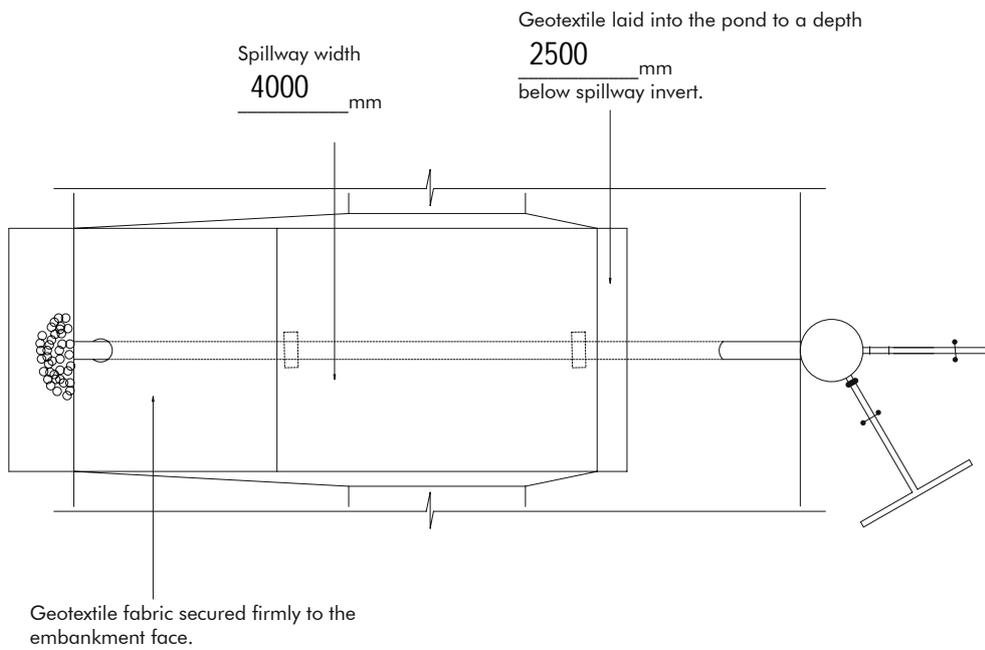
Signed and dated: M Nugent

Please provide surveyed drawings of as-builts, which include all of the above details along with this certification sheet. An example of a suitable SRP as-built is attached.

Note: As-builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the as-builts rests with the certifying agent. This list is not exhaustive and should be used to highlight some key "Erosion and Sediment Control Guidelines for Soil Disturbing Activities" requirements.



CROSS SECTION



PLAN

Example: Scaled drawing as built - Sediment retention pond

SRP No/Name #1
 Catchment area 2200m²
 As built volume 597m³
 Decant rate 15l/min
 forebay volume 66m³

Note: where the as built information differs from the approved ESCP or Waikato Regional Council guidelines, data supporting its compliance is to be provided.

As-Built are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the As-Built rests with the certifying agent. This list is not exhaustive and should only be used to highlight some of the key requirements.

Decanting Earth Bund (DEB) As-built Certification Sheet

Bund name/number:

DEB #1

Contributing catchment area (m ²)	600m ²	
Dead storage volume and height	Volume (m ³) 60m ³	Height 0.5m
Live storage volume and height	Volume (m ³) 200m ³	Height 1.5m
Bunds adequately compacted	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Emergency spillway width and depth	Width 4m	Depth 0.3m
Emergency spillway stabilisation type	Type Topsoil, polythine and Cloth	
Discharge point stabilised?	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Freeboard between primary and emergency spillway?	500	mm
Decant discharge rate	0.57	litre per second
Flexi join attached securely sealed	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Anti-seep collars installed (Pumice or sand soils only)	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Waikato Regional Council approved variations to device (please list)	NA	

Please sign below to confirm that the information in this sheet is accurate and the device identified on this sheet has been constructed in accordance with the Waikato Regional Council approved erosion and sediment control plan for the site and the "Erosion and Sediment Control Guidelines for Soil Disturbing Activities", January 2009 document or Waikato Regional Council approved variations.

Suitably qualified person (name and company): Matt Nugent - Schick Civil Constructiton

Signed and dated: M Nugent

Please provide surveyed drawings of as-builts, which include all of the above details along with this certification sheet. An example of a suitable DEB as-built is attached.

Note: As-builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the as-builts rests with the certifying agent. This list is not exhaustive and should be used to highlight some key "Erosion and Sediment Control Guidelines for Soil Disturbing Activities" requirements.

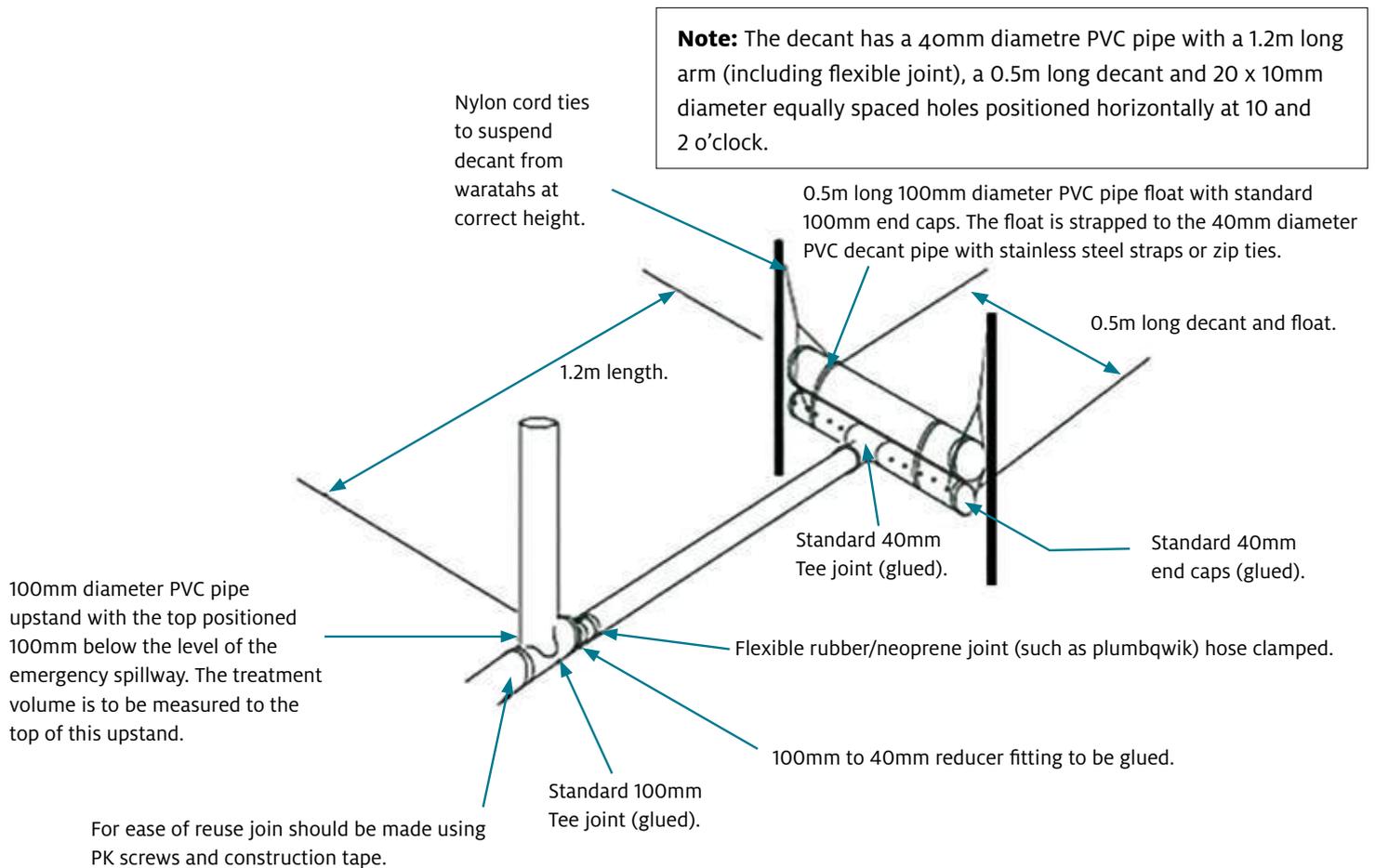
Example: Scaled drawing as built - Decanting Earth Bund

Catchment area	600m ²
Total storage volume	200m ³
Dead storage volume	60m ³
Live storage volume	140m ³
Minimum bund height	1.5m
Emergency spillway width	5m

Note: where the as built information differs from the approved ESCP or Waikato Regional Council guidelines, data supporting its compliance is to be provided.

As-Builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the As-Builts rests with the certifying agent. This list is not exhaustive and should only be used to highlight some of the key requirements.

40mm decant with upstand for decanting earth bund.



Diversion bund/channel As-built Certification Sheet

Diversion Name/number: Permieter Bund

Contributing catchment area (m ²)	2.8ha	
Maximum gradient in diversion contributing catchment (%)	3%	
Maximum gradient of bund/channel (%)	3%	
Bunds adequately compacted and stabilised/ Method of compaction	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Armouring required?	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Type:
Diversion able to convey the 20% AEP event with 300mm freeboard?	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Discharge point stabilised?	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Flows directed to treatment device for dirty water diversion and offsite for cleanwater diversion?	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Bund a minimum of 550mm high & 2m wide	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Diversion inlet 3:1 or flatter?	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Diversion embankment 2:1 or flatter	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Diversion channel width 1m minimum	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Waikato Regional Council approved variations to device (please list)		

Please sign below to confirm that the information in this sheet is accurate and the device identified on this sheet has been constructed in accordance with the Waikato Regional Council approved Erosion & Sediment Control Plan for the site and the "Erosion and Sediment Control Guidelines for Soil Disturbing Activities", January 2009 document or Waikato Regional Council approved variations.

Suitably Qualified Person (Name and company): Matt Nugent - Schick Civil Constructicon

Signed and Dated: M Nugent

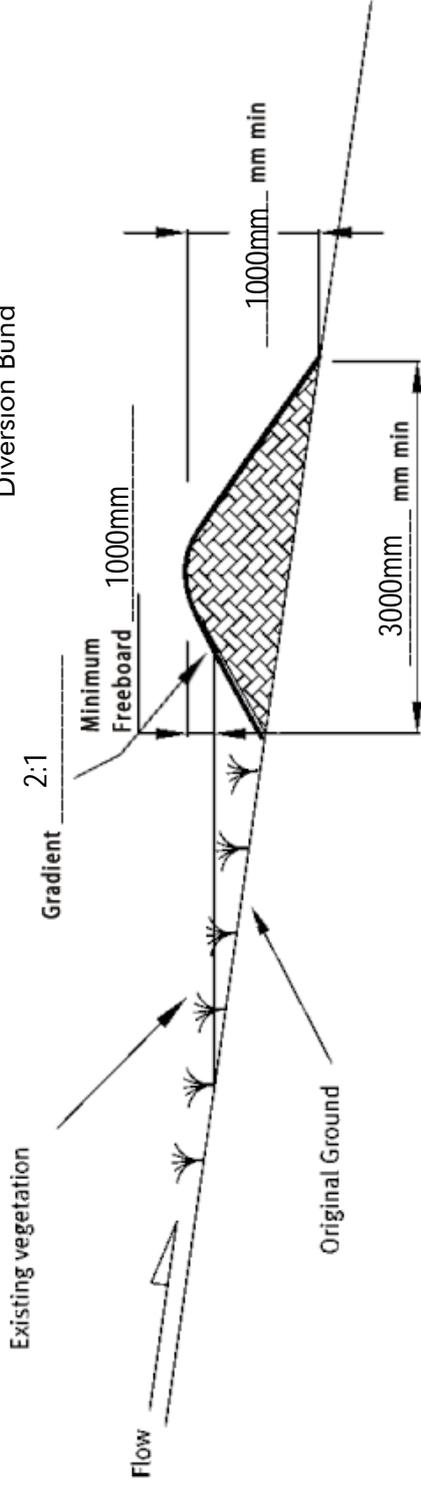
Please provide surveyed drawings of as-builts, which include all of the above details along with this certification sheet. An example of a suitable diversion bund/channel as-built is attached.

Note: As-builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the as-builts rests with the certifying agent. This list is not exhaustive and should be used to highlight some key "Erosion and Sediment Control Guidelines for Soil Disturbing Activities" requirements.

2.2ha

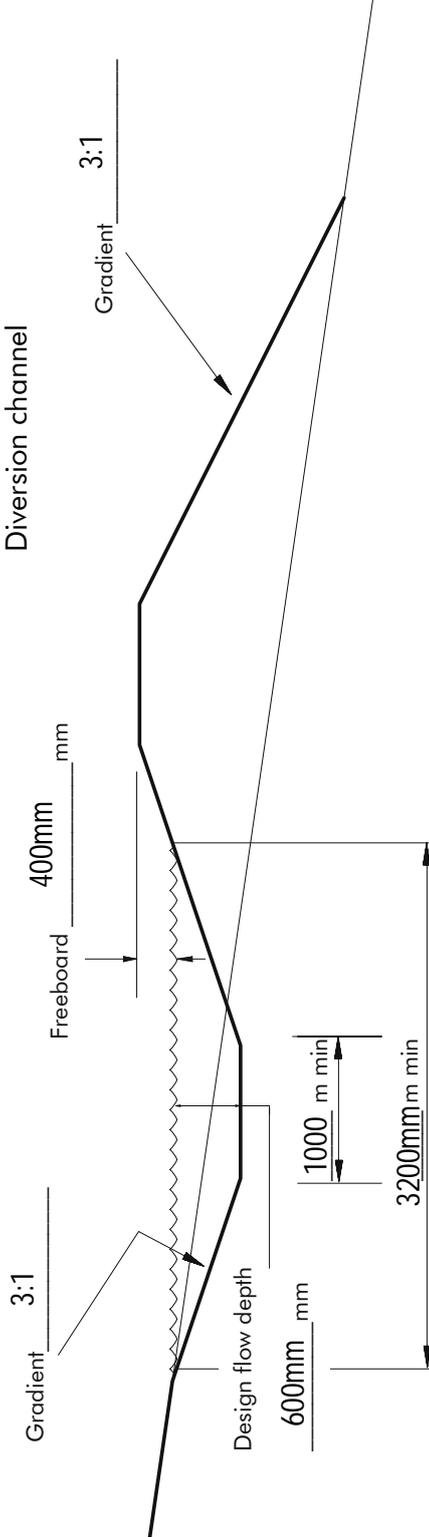
Catchment area _____
20% AEP event peak flow 0.45m³/s
Diversion capacity 378m³

Example: Scaled drawing as built -
Diversion Bund



Cross Section

Example: Scaled drawing as built -
Diversion channel



Cross Section

Note: where the as built information differs from the approved ESCP or Waikato Regional Council guidelines, data supporting its compliance is to be provided.

As-Builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the As-Builts rests with the certifying agent. This list is not exhaustive and should only be used to highlight some of the key requirements.

Silt/Super silt fence (SF) As-built Certification Sheet

Silt/super silt fence name/number:

Silt fence #1

Contributing catchment area (m ²)	2.2ha	
Spacing between support posts (m)	1.5m	
Support wire installed	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Trenched into ground minimum of 200mm	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Joins sealed	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Spacing between returns (m)	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Length of returns (m)		
Silt fence intercepting only sheet flows	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Chain mesh/netting backing (super sf)	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
Double layer of fabric (super sf)	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
Waikato Regional Council approved variations to device (please list)		

Please sign below to confirm that the information in this sheet is accurate and the device identified on this sheet has been constructed in accordance with the Waikato Regional Council approved Erosion & Sediment Control Plan for the site and the "Erosion and Sediment Control Guidelines for Soil Disturbing Activities", January 2009 document or Waikato Regional Council approved variations.

Suitably qualified person (name and company) Matt Nugent - Schick Civil Construcion

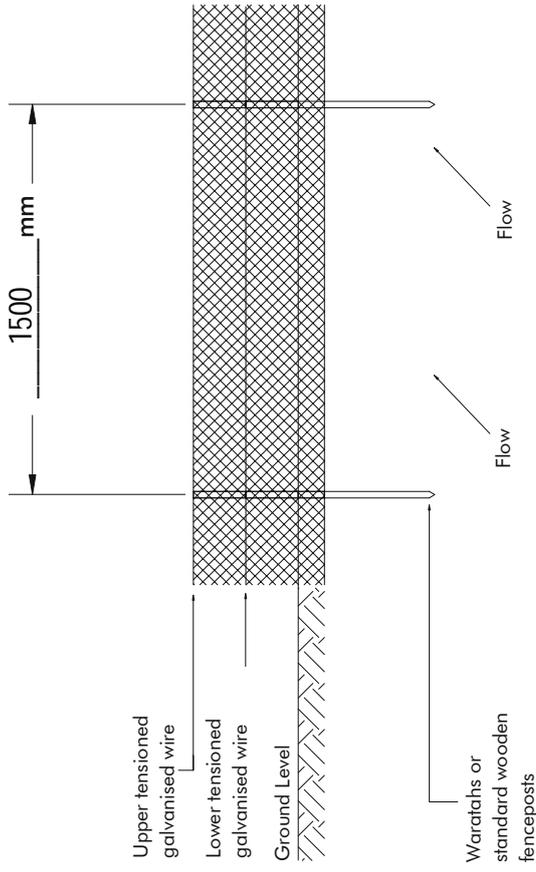
Signed and dated: M Nugent

Please provide drawings of as-builts, which include all of the above details along with this certification sheet. An example of a suitable silt fence/super silt fence as-built is overleaf.

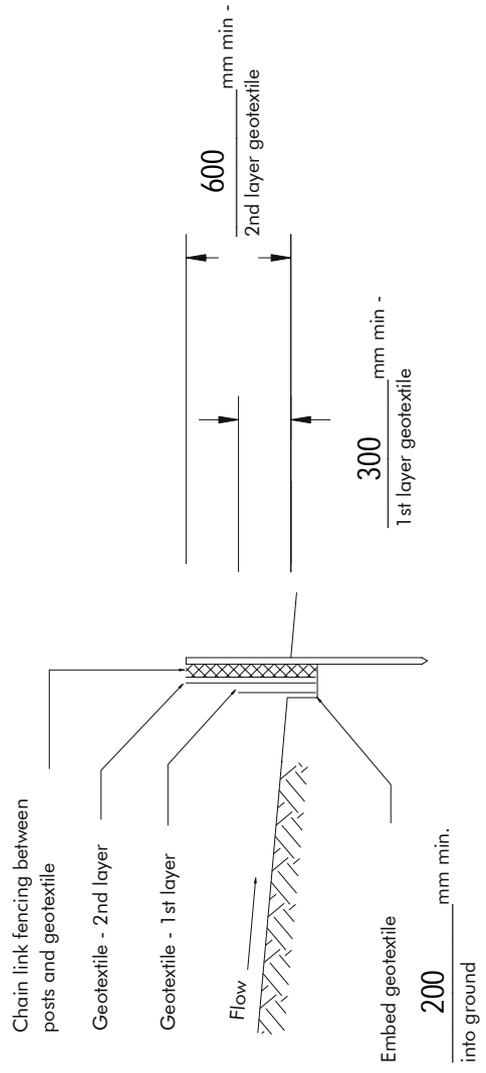
Note: As-builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the as-builts rests with the certifying agent. This list is not exhaustive and should be used to highlight some key "Erosion and Sediment Control Guidelines for Soil Disturbing Activities" requirements.

Example: Scaled drawing as built -
Super silt fence

Standard detail
for Super Silt Fence



ELEVATION



Note: where the as built information differs from the approved ESCP or Waikato Regional Council guidelines, data supporting its compliance is to be provided.

As-Builts are not approved by Waikato Regional Council. Responsibility for construction of the structures and accuracy of the As-Builts rests with the certifying agent. This list is not exhaustive and should only be used to highlight some of the key requirements.

Attachment C to Part 1.0

DoC Wildlife Act Permit (80061-FAU)

- Wildlife Act Decision 80061-FAU
- AECOM Lizard Management Plan (LizMP)
- Permit Application

Refer to Dr. Hannah Mueller, Project Ecologist, 4Sight Consulting



Wildlife Act Authority for wildlife located on non- public conservation land

Authorisation Number: 80061-FAU

THIS AUTHORITY is made this 31st day of October 2019

PARTIES:

The Director-General of Conservation and where required the Minister of Conservation (the Grantor)

AND

Hamilton City Council (the Authority Holder)

BACKGROUND:

- A. The Director-General of Conservation is empowered to issue authorisations under the Wildlife Act 1953.
- B. Where the authorisation applies to wildlife located on public conservation land a further authorisation is required, depending upon the legislation applying to the public conservation land, from either the Director-General of Conservation or the Minister of Conservation.
- C. The Authority Holder wishes to exercise the authorisation issued under the Wildlife Act 1953 and where applicable the authorisation issued under the relevant legislation applying to the public conservation land subject to the terms and conditions of this Authority.

OPERATIVE PARTS:

In exercise of the Grantor's powers the Grantor:

AUTHORISES the Authority Holder under Section(s) 53 (Taking or Killing of Wildlife for Certain Purposes) of the Wildlife Act 1953,

PERMITS the Authority Holder pursuant to section 38 of the Conservation Act 1987

subject to the terms and conditions contained in this Authority and its Schedules.

SIGNED on behalf of the Grantor by Amy Robinson, RMA Manager, Hamilton acting under delegated authority

in the presence of:



Witness Signature:

Witness Name: Anna Ginnaw

Witness Occupation: Statutory Process Manager

Witness Address: Department of Conservation, Level 4, 73 Rostrevor Street, Hamilton, 3204

A copy of the Instrument of Delegation may be inspected at the Director-General's office at 18-32 Manners Street, Wellington.

SCHEDULE 1

1.	Authorised activity (including the species, any approved quantities and collection methods) (Schedule 2, clause 2)	Activity – <ol style="list-style-type: none"> i. To catch alive ii. To handle iii. To kill absolutely protected wildlife while undertaking vegetation clearance works as part of the Southern Links Project. Species <ol style="list-style-type: none"> i. Copper skink – (<i>Oligosoma aeneum</i>) Quantity – as required
2.	The Land (Schedule 2, clause 2)	Private Lands within the Southern Links Project Area
3.	Personnel authorised to undertake the Authorised Activity (Schedule 2, clause 3)	<ol style="list-style-type: none"> a. Marc Choromanski b. Simon Chapman c. Mark Yungnickel d. Hannah Mueller e. Tonkin and Taylor staff members f. Any other herpetologists approved by the Grantor
4.	Term (Schedule 2, clause 4)	Commencing on and including 01 November 2019 and ending on and including 31 October 2026
5.	Authority Holder's address for notices (Schedule 2, clause 8)	The Authority Holder's address in New Zealand is: Council Building Garden Place Hamilton 3240 Nathanael.savage@hcc.govt.nz
6.	Grantor's address for notices	The Grantor's address for all correspondence is: Permissions Team 73 Rostrevor Street Hamilton Email: permissionshamilton@doc.govt.nz

SCHEDULE 2

STANDARD TERMS AND CONDITIONS OF THE AUTHORITY

1. Interpretation

- 1.1 The Authority Holder is responsible for the acts and omissions of its employees, contractors or, agents. The Authority Holder is liable under this Authority for any breach of the terms of the Authority by its employees, contractors or agents as if the breach had been committed by the Authority Holder.
- 1.2 Where obligations bind more than one person, those obligations bind those persons jointly and separately.

2. What is being authorised?

- 2.1 The Authority Holder is only allowed to carry out the Authorised Activity on the Land described in Schedule 1, Item 2.
- 2.2 Any arrangements necessary for access over private land or leased land are the responsibility of the Authority Holder. In granting this authorisation the Grantor does not warrant that such access can be obtained.
- 2.3 The Authority Holder must advise the Department of Conservation's local Operations Manager(s) prior to carrying out the Authorised Activity in the District (where possible, one week prior), when the Authority Holder intends to carry out the Authorised Activity.
- 2.4 The Authority Holder and Authorised Personnel must carry a copy of this Authority with them at all times while carrying out the Authorised Activity.
- 2.5 The Authority Holder must comply with any reasonable request from the Grantor for access to any wildlife.
- 2.6 The Authority Holder may publish authorised research results.
- 2.7 The Authority Holder must immediately notify the Grantor of any taxa found which are new to science. In addition, the Authority Holder must lodge holotype specimens and a voucher specimen of any new taxa with a recognised national collection.

3. Who is authorised?

- 3.1 Only the Authority Holder and the Authorised Personnel described in Schedule 1, Item 3 are authorised to carry out the Authorised Activity, unless otherwise agreed in writing by the Grantor.

4. How long is the Authority for - the Term?

- 4.1 This Authority commences and ends on the dates set out in Schedule 1, Item 4.

5. What are the obligations to protect the environment?

- 5.1 The Authority Holder must not cut down or damage any vegetation; or damage any natural feature or historic resource on any public conservation land being part of the Land; or light any fire on such public conservation land; or erect any structure such public conservation land without the prior consent of the Grantor.
- 5.2 The Authority Holder must ensure that it adheres to the international “Leave No Trace” Principles at all times (www.leavenotrace.org.nz).
- 5.3 The Authority Holder must not bury:
- (a) any toilet waste within 50 metres of a water source on any public conservation land being part of the Land; or
 - (b) any animal or fish or any part thereof within 50 metres of any water body, water source or public road or track.

6. What are the liabilities?

- 6.1 The Authority Holder agrees to exercise the Authority at the Authority Holder’s own risk and releases to the full extent permitted by law the Grantor and the Grantor’s employees and agents from all claims and demands of any kind and from all liability which may arise in respect of any accident, damage or injury occurring to any person or property arising from the Authority Holder’s exercise of the Authorised Activity.
- 6.2 The Authority Holder must indemnify the Grantor against all claims, actions, losses and expenses of any nature which the Grantor may suffer or incur or for which the Grantor may become liable arising from the Authority Holder’s exercise of the Authorised Activity.
- 6.3 This indemnity is to continue after the expiry or termination of this Authority in respect of any acts or omissions occurring or arising before its expiry or termination.

7. What about compliance with legislation and Grantor’s notices and directions?

- 7.1 The Authority Holder must comply with all statutes, bylaws and regulations, and all notices, directions and requisitions of the Grantor and any competent authority relating to the conduct of the Authorised Activity. Without limitation, this includes the Conservation Act 1987 and the Acts listed in the First Schedule of that Act and all applicable health and safety legislation and regulation.

8. Are there limitations on public access and closure?

- 8.1 The Authority Holder acknowledges that the public conservation land being part of the Land is open to the public for access and that the Grantor may close public access to that public conservation land during periods of high fire hazard or for reasons of public safety or emergency.

9. When can the Authority be terminated?

- 9.1 The Grantor may terminate this Authority at any time in respect of the whole or any part of the Land, and/or the whole or any part of the Authorised Activity if:
- (a) the Authority Holder breaches any of the conditions of this Authority; or
 - (b) in the Grantor's opinion, the carrying out of the Authorised Activity causes or is likely to cause any unforeseen or unacceptable effects.
- 9.2 If the Grantor intends to terminate this Authority in whole or in part, the Grantor must give the Authority Holder such prior notice as, in the sole opinion of the Grantor, appears reasonable and necessary in the circumstances.

10. How are notices sent and when are they received?

- 10.1 Any notice to be given under this Authority by the Grantor is to be in writing and made by personal delivery, by pre-paid post or email to the Authority Holder at the address, fax number or email address specified in Schedule 1, Item 5. Any such notice is to be deemed to have been received:
- (a) in the case of personal delivery, on the date of delivery;
 - (b) in the case of post, on the 3rd working day after posting;
 - (c) in the case of email, on the date receipt of the email is acknowledged by the addressee by return email or otherwise in writing.
- 10.2 If the Authority Holder's details specified in Schedule 1, Item 5 change then the Authority Holder must notify the Grantor within 5 working days of such change.

11. What about the payment of costs?

- 11.1 The Authority Holder must pay the standard Department of Conservation charge-out rates for any staff time and mileage required to monitor compliance with this Authority and to investigate any alleged breaches of the terms and conditions of it.

12. Biosecurity

- 12.1 The Authority Holder must take all precautions to ensure weeds and non-target species are not introduced to the Land; this includes ensuring that all tyres, footwear, gaiters, packs and equipment used by the Authority Holder, its staff and clients are cleaned and checked for pests before entering the Land.

13. Are there any Special Conditions?

- 13.1 Special conditions are specified in Schedule 3. If there is a conflict between this Schedule 2 and the Special Conditions in Schedule 3, the Special Conditions will prevail.

14. Can the Authority be varied?

- 14.1 The Authority Holder may apply to the Grantor for variations to this Authority.

SCHEDULE 3

SPECIAL CONDITIONS

Lizard Capture and Handling

1. Lizards must only be handled by people who are appropriately trained and experienced in lizard capture and handling, or under direct supervision of someone who is. All wildlife handled during the Authorised Activity must be handled using accepted best practice and as carefully as possible. Capture and handling lizards must involve only techniques that minimise the risk of infection or injury to the animal.
2. The Authority Holder and other authorised personnel must be supervised by an experienced herpetologist, approved by the Grantor, until the Grantor is satisfied the Authority Holder is sufficiently experienced to continue unsupervised.
3. The Authority Holder must comply with the application as submitted to the Grantor to obtain this authorisation when undertaking any activity under this authority.
4. If traps are used, they must be covered to protect lizards from exposure and minimise stress. A small amount of damp leaf litter, or similar material, should be placed in the bottom to provide hiding places and reduce the risk of desiccation. Traps should be secured onto a secure surface to avoid disturbance from predators. Traps may be baited. All traps must be checked at least every 24 hours.
5. The Authority Holder must sterilise any instruments that come in contact with the lizards and/or used to collect or measure lizards between each location. A separate holding bag must be used for each animal. All gear should be thoroughly cleaned and dried between sites.
6. The Authority Holder must ensure lizards are held temporarily in a suitable container (e.g. breathable cloth bag) and held out of direct sunlight to minimise the risk of overheating, stress and death.
7. Capture and handling methods shall follow those described in the Herpetofauna inventory and monitoring toolbox <http://www.doc.govt.nz/our-work/biodiversity-inventory-and-monitoring/herpetofauna/>.
8. Lizard capture, handling and relocation should be undertaken at a suitable time of year as advised by a suitably experienced herpetologist and the Grantor.
9. DOC Operations Manager(s) are to be contacted immediately for further advice if wildlife species classified as Threatened are located within the footprint of the proposed development or within the proposed release site. Separate application to translocate threatened species will be required.

Reporting

10. A report is to be submitted in writing to the DOC Operations Manager, Private Bag 3072, Hamilton, by 30 June each year for the life of this Authorisation, summarising outcomes in accordance with the Species-Specific Management Plan. Each report must include:
- The species and number of any animals collected and released, and the GPS location (or a detailed map) of the collection points(s) and release point(s);
 - Include completed Amphibian and Reptile Distribution System (ARDS) cards for all herpetofauna sightings and captures (<http://www.doc.govt.nz/conservation/native-animals/reptiles-and-frogs/species-information/herpetofauna-data-collection/ards-card>) must be sent to Herpetofauna, Department of Conservation, National Office, PO Box 10420 Wellington 6143 or herpetofauna@doc.govt.nz

Property of the Crown

11. All material collected remains the property of the Crown. This includes any dead wildlife, live wildlife, any parts thereof and any eggs or progeny of the wildlife. This includes any genetic material and any replicated genetic material.
12. The Authority Holder must comply with any reasonable request from the grantor for access to any collected material.
13. The Authority Holder cannot sell the wildlife.

Mitigation Conditions:

14. The Authority Holder is only permitted to release wildlife:
- a. that are classified as Not Threatened or At-Risk species under the current threat classification system;
 - b. into release site(s) that are assessed by a qualified herpetologist as being of similar or better habitat than the source location, and capable of supporting that lizard species;
 - c. into release site(s) that are within five hundred (500) metres of the development footprint (or with consultation and agreement with the Grantor
 - d. into release site(s) where habitat for that species of wildlife has been enhanced and approved by a qualified herpetologist prior to relocation, using accepted techniques such as provision of extra refuges suitable for the species providing protection from predators (e.g. complex rock stack), or long-term predator control; and
 - e. into release site(s) where the site has long-term security from development or modification (e.g. Council or DOC- managed Reserves, covenants or District Plan provisions).
15. Any salvage operation for wildlife shall be accompanied by a translocation proposal or Species-Specific Management Plan that outlines, as a minimum, capture and handling techniques to be applied, the proposed relocation release site, management of the release site including provision for protection of relocated wildlife, provision of post-release monitoring, actions that will be followed in the event that Threatened lizard species are found within the development footprint and contingencies should establishment of salvaged wildlife fails. The translocation proposal or Species-Specific Management Plan shall be approved by the Grantor.

Killing of wildlife

16. The Authority Holder is permitted to kill wildlife provided all reasonable efforts have been made to meet all of the terms and conditions expressed and implied in this Authority.
17. If any lizards are injured as part of the Authorised Activity, the Authority Holder shall contact a suitably qualified herpetologist to get advice on management of the lizard. The Authority Holder is authorised to euthanise injured animal(s) on recommendation of the qualified herpetologist

Salvage relocation and habitat enhancement

18. Where monitoring indicates that population establishment has failed, the Authority Holder must perform actions as set out in the contingencies/adaptive management sections of the approved Lizard Management Plan and its parent document, the Environmental Management and Monitoring Plan to ensure adequate mitigation of effects has been achieved.
19. The local DOC Operations Manager are to be contacted immediately for further advice if wildlife species classified as Threatened are located within the footprint of the proposed development or within the proposed release site. separate application to translocate Threatened species will be required.
20. During wildlife salvage operations or construction, if Threatened wildlife are found within the footprint of the site, the Authority Holder must contact the local DOC Operations Manager. The Authority Holder must transfer the wildlife to an approved captive holding facility until a suitable release site is identified by the Grantor. A separate application to translocate Threatened species may be required. The costs of care and subsequent release are the responsibility of the Authority Holder.
21. If over twenty (20) individuals of any species are required to be moved a distance greater than 500m from the development footprint, a separate application to translocate over twenty (20) individuals is required.

Miscellaneous

22. The Authority Holder must adhere to the DOC-approved Lizard Management Plan and alternative restoration site within the Mangakotukutuku Gulley, adjoining Edgeview Crescent, Fitzroy, Hamilton, as submitted to the Department of Conservation. Any amendments to the Lizard Management Plan must be approved by the Grantor.
23. A new clause is added to Schedule 2, 9.1 (c), to read as follows:
"or for any other reason that the Grantor may decide."

Lizard Management Plan

Southern Links Project - Hamilton City Council Section



Lizard Management Plan

Southern Links Project - Hamilton City Council Section

Client: Hamilton City Council and NZ Transport Agency

Co No.: N/A

Prepared by

AECOM New Zealand Limited

8 Mahuhu Crescent, Auckland 1010, PO Box 4241, Auckland 1140, New Zealand
T +64 9 967 9200 F +64 9 967 9201 www.aecom.com

06-Aug-2019

Job No.: 60526419

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

© AECOM New Zealand Limited (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Quality Information

Document Lizard Management Plan

Ref 60526419

Date 06-Aug-2019

Prepared by Kate Feickert

Reviewed by Lyndsey Smith

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
01	26/07/2019	Internal Draft	Fiona Davies Associate Director - Environment	
02	05-Aug-2019	Issued	Fiona Davies Associate Director - Environment	

Table of Contents

2.0	Introduction	2
2.1	Project description	2
2.2	Project delivery	3
2.3	Peacocke Growth Cell	3
2.4	Relevant legislation	4
2.5	Report scope	4
3.0	Ecological Baseline	6
4.0	Assessment of Ecological Effects	8
4.1	Construction	8
4.2	Operation	9
5.0	Lizard Salvage and Relocation	10
5.1	Timing	10
5.2	Demarcation of the vegetation to be cleared	10
5.3	Vegetation clearance procedure	10
	5.3.1 Vegetation clearance	11
	5.3.2 Refugia Construction	12
5.5	Incidental discovery	12
6.0	Habitat offset / compensation	13
6.1	Avoid and Minimise	13
6.2	Mitigate	13
6.3	Rehabilitate	13
6.4	No-net-loss offset – residual impacts only	13
7.0	Lizard Restoration Site Plan	15
7.1	Site description	15
	7.1.1 Northern Lizard Restoration Site	15
	7.1.2 Southern Lizard Restoration Site	15
7.2	Pre-planting weed management	15
7.3	Existing plants to be retained	16
7.4	Restoration planting	16
	7.4.1 Planting	16
	7.4.2 Plant species selection	16
7.5	Fencing	17
7.6	Refugia	17
7.7	Pest Control	18
7.8	Monitoring of lizard population – permanent pitfall traps	20
7.9	Monitoring of habitat establishment and maintenance	20
8.0	References	23
Appendix A		
	Areas of reptile habitat to be lost	A

2.0 Introduction

Hamilton City Council (HCC) and the NZ Transport Agency (Transport Agency) have commissioned AECOM New Zealand Limited (AECOM) to produce a Lizard Management Plan (LMP) for the Southern Links Project ('the Project').

The Projects designation conditions¹ required the production of an Ecological Monitoring and Management Plan (EMMP), which detailed the monitoring, management and mitigation of significant adverse effects of construction activities and operation on:

- Lizards, with the aim of enhancing the extent and quality of habitat for native species.

It was identified during survey works that informed the EMMP that habitats within the designation corridor support native copper skink (*Oligosoma aeneum*) and that there is the potential for this species to be impacted by the Project. Therefore, the EMMP indicated that there was the need for a Wildlife Authority Permit to be obtained from the Department of Conservation (DOC). This LMP has been prepared to reflect the lizard mitigation measures that were developed in consultation with DOC during the consultation phase of the EMMP. It will be used to accompany the application for the Project wide Wildlife Authority Permit.

2.1 Project description

The Project is a joint initiative between HCC and the Transport Agency. It comprises approximately 21km of state highway, two new river crossings, one bridge upgrade and 11km of urban arterial roads as shown in Figure 1.

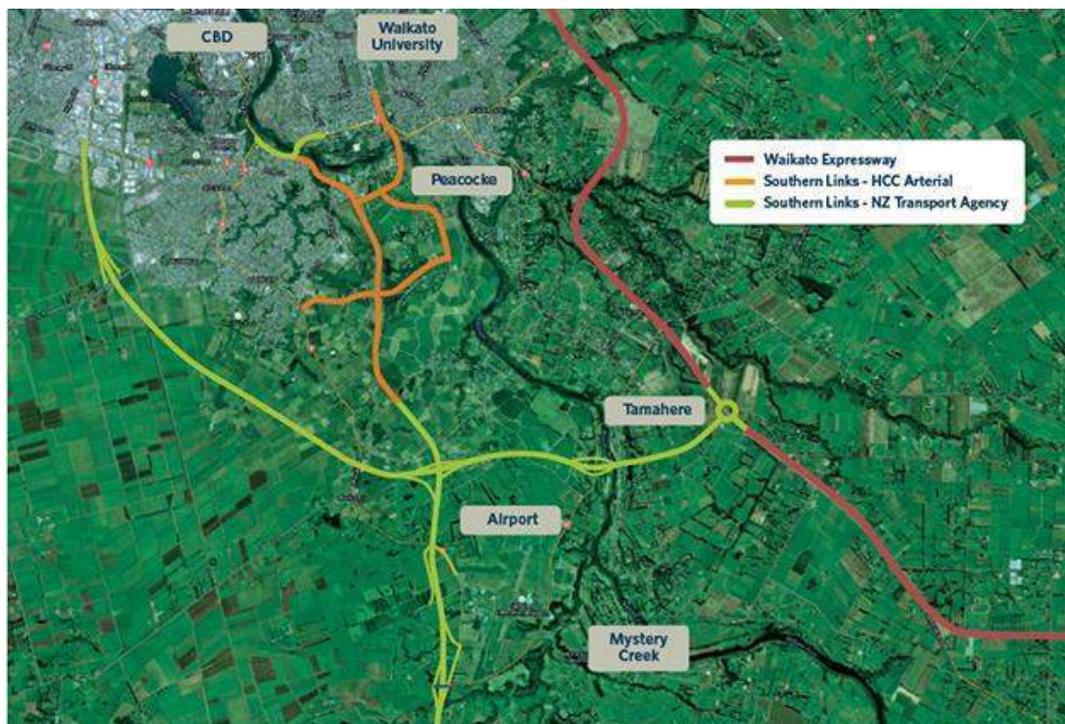


Figure 1 Proposed layout for Southern Links

When constructed Southern Links will:

- Link State Highway 1 (SH1) from Kahikatea Drive in Hamilton City to Tamahere and the Waikato Expressway in the south;

¹ • HCC - designation conditions 15.1 – 15.7;
• Waikato DC – designation condition 17.1 – 17.7; and
• Waipa DC – designation condition 21.1 – 21.7.

- Link State Highway 3 (SH3) from Hamilton Airport to central and east Hamilton;
- Establish a key transport network within the Peacocke growth cell; and
- Provide the building blocks for further urban development in the region.

The majority of the designation passes through agricultural land, although the Project will require the construction of new bridge crossings over the Waikato River and the Mangakotukutuku Stream gully.

2.2 Project delivery

HCC (Requiring Authority) has secured funding for delivery of part of the Project within their jurisdiction (refer to Figure 1 and 2) during the next 10 years. The section of the Project to be delivered by the Transport Agency is currently entirely unfunded for construction.

This LMP has been prepared to enable HCC to deliver their component of the Project but includes mitigation measures that will be delivered to compensate for the impacts that the Transport Agency would have on construction of their section of the Project. This approach is taken to ensure that the delivery of mitigation is meaningful e.g. offset habitat is of significant scale to have benefits.



Figure 2 Illustration of the areas of the Project which are currently funded and unfunded.

2.3 Peacocke Growth Cell

The Peacocke Structure Plan provides a framework for future development and infrastructure provision for the City's southern growth cell Peacocke. The new urban growth area will provide for a new community of approximately 20,000 people (refer to Figure 3).

The Project aims to provide the arterial transport infrastructure network incorporating three waters infrastructure that will facilitate the urbanisation of the construction of the growth cell. For context, the EMMP prepared for this Project and subsequently this LMP considers the development of land surrounding the road network and how this might integrate with the mitigation proposed. However, the EMMP and this LMP will not mitigate for the effects of urbanisation. Ecological mitigation for the urbanisation effects of the growth cell are expected to be delivered by developers as they move forward with each of their projects.

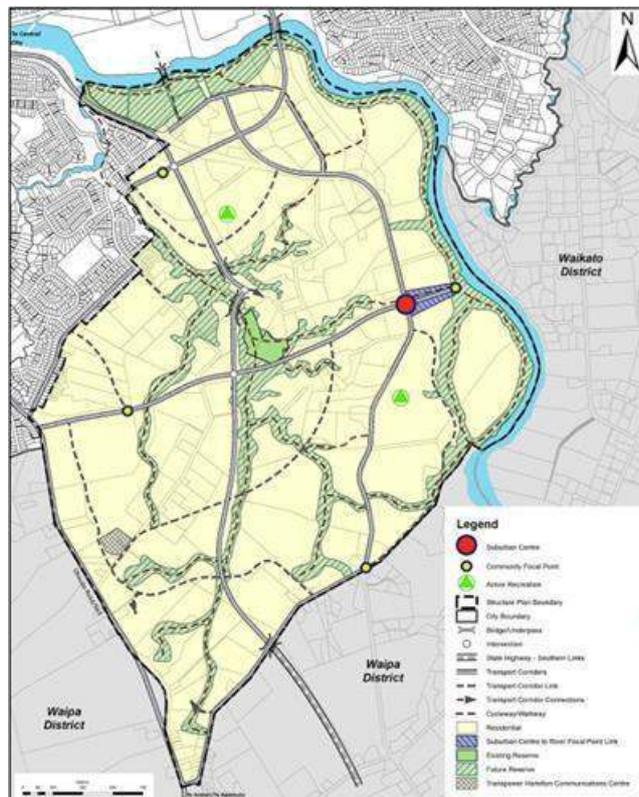


Figure 3 Peacocke Structure Plan (Hamilton District Figure 2-2, Appendix 2, Volume 2).

2.4 Relevant legislation

All native lizards are 'absolutely' protected under the Wildlife Act 1953. Under Section 63 of the Act it states that no person may, without lawful authority, —

- a. hunt or kill any absolutely protected or partially protected wildlife or any game:
- b. buy, sell, or otherwise dispose of, or have in his or her possession any absolutely protected or partially protected wildlife or any game or any skin, feathers, or other portion, or any egg of any absolutely protected or partially protected wildlife or of any game:
- c. rob, disturb, or destroy, or have in his or her possession the nest of any absolutely protected or partially protected wildlife or of any game.

Section 53 of the Act states that the Director-General of the Department of Conservation may authorise taking or killing of wildlife for certain purposes. This written authorisation is typically given for commercial projects through the receipt of a Wildlife Act Authority Permit. This LMP has been prepared to support an application for this Permit.

In addition to the Wildlife Act 1953, lizard habitat is protected under the Resource Management Act 1991.

2.5 Report scope

The scope of this LMP is to present all of the activities that will be implemented by the Project to;

- Reduce impacts on lizards by managing how works are undertaken;
- Minimise the risk of lizards being injured or killed;
- Rehabilitate habitats that are impacted by works, where practicable; and

- Offset any residual effects², if required.

A detailed discussion on the implementation of the Project in regard to lizards and the Mitigation Hierarchy is provided in Section 6.0.

² Due to the location of the works (steep gully sides that are currently vegetated and managed) on site mitigation is limited. To achieve the best ecological outcome for lizards if there are residual effects, it is considered that these resources would be best spent within areas where there is currently active management of lizards.

3.0 Ecological Baseline

In 2018, AECOM and EcoGecko undertook a lizard survey within suitable habitat located in the Project corridor (AECOM & EcoGecko, 2018). The lizard survey included the use of Onduline artificial cover objects, day searching, spotlighting, and Gee's minnow traps. This allowed the presence or absence of lizards at each of the survey areas to be determined.

Fifteen sites with suitable habitat for lizards were identified and surveyed, which led to the identification of native copper skink and the invasive plague skink during the survey. Copper skink are listed as 'Not Threatened' by Hitchmough *et al.* (2015), whilst plague skinks are 'Introduced and Naturalised', and are classified as an 'Unwanted Organism' by the Ministry of Agriculture and Fisheries (MAF). As such, the plague skink will not be considered further in this LMP.

Copper skinks were found to be present at 80% of the sites (12 of 15) surveyed (refer to Figure 4). They were found at all of the sites surveyed along the Mangakotukutuku Gully and along the Waikato River, excluding Site RN7 and 8, which was located adjacent to the Narrows Golf Course. The preferred habitat of copper skink within the local area was observed to be areas of long grassland along forest margins or *Tradescantia* located beneath exotic or native forest. The management at the golf course means that the closely mown fairways and greens abuts the forest; therefore, removing the grassy margin favoured by copper skinks.

Copper skinks were recorded within the gully head of Mystery Creek, albeit at only 1 of the 2 sites surveyed (RN1 present and RN2 not detected). An individual skink was recorded within marginal vegetation surrounding an isolated stand of sweet chestnut *Castanea sativa* (RN3), but it was considered that a population was not likely to be present.

The survey confirmed that the populations within the Mangakotukutuku Gully, Mystery Creek Gully and the Waikato River appear to be functional populations, since juveniles and sub-adults were recorded, as well as adult skinks.

No geckos or other skinks were recorded during the survey and on conclusion of the survey works it was considered that they are not likely to be present.

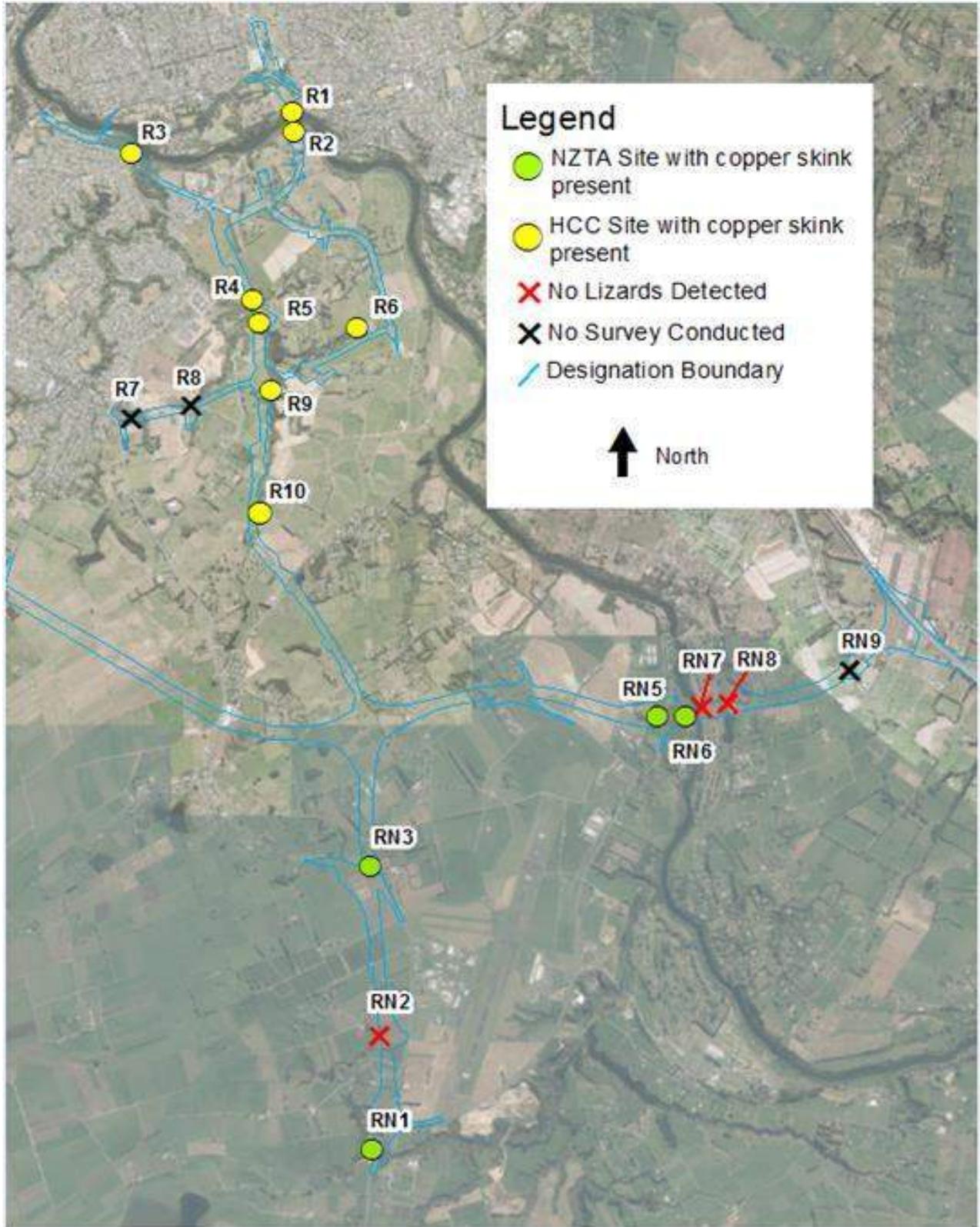


Figure 4 Distribution of copper skink across the Project area. No survey was completed at R7 and R8 as these were surveyed by Kessels Ecology, 2017.

4.0 Assessment of Ecological Effects

The Project will require the clearance of native and exotic vegetation located within and adjacent to the Mangakotukutuku Stream Gully, Waikato River and Mystery Creek, where copper skink has been recorded during the 2018 surveys (AECOM & EcoGecko, 2018), to enable the construction of the Project.

Section 4.1 presents how native lizards could be impacted during the construction phase of the development, without mitigation and Section 4.2 presents how native lizards could be impacted during the operational phase of the development, without mitigation.

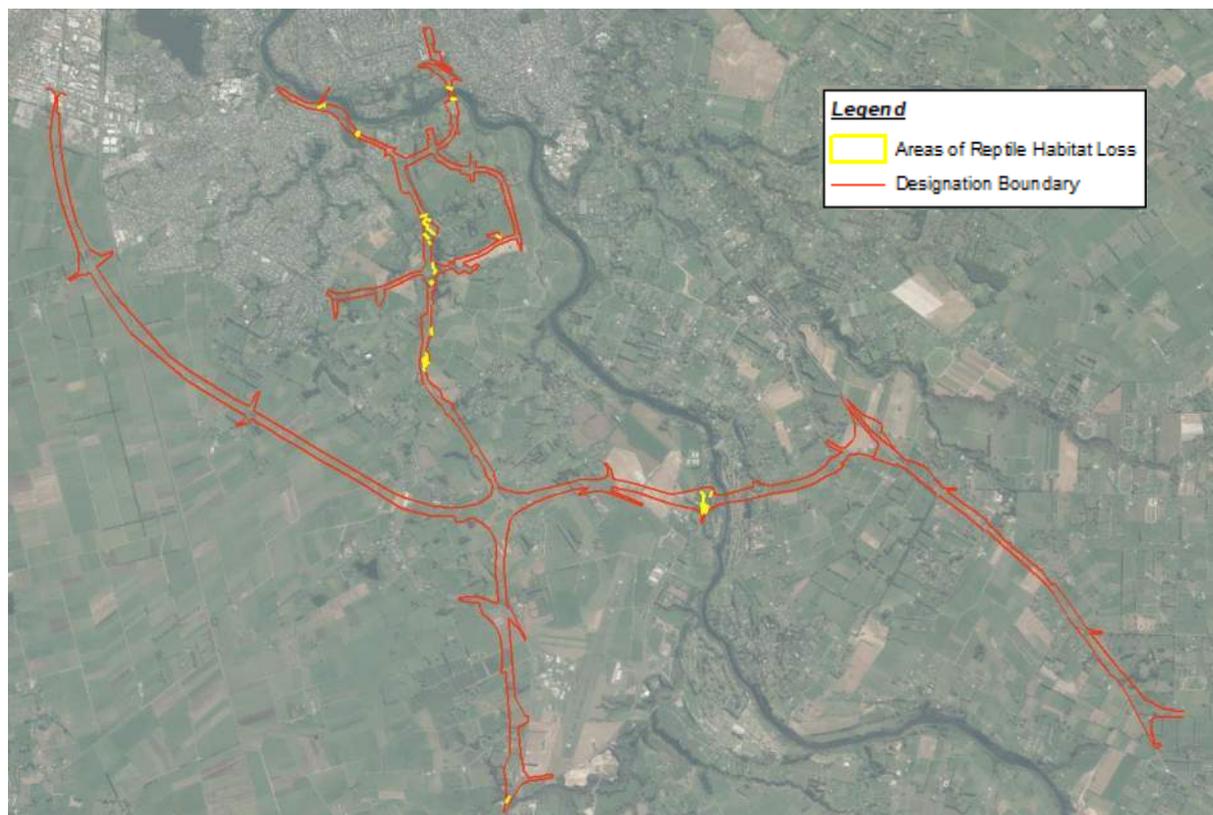


Figure 5 Location of habitats known to support copper skink that will be impacted by the Project.

4.1 Construction

Potential routes of impacts during construction, without mitigation, are detailed below. It should be noted that the effects of habitat loss, including loss of connectivity are considered to occur during the construction phase of the development and therefore are not discussed in relation to the operational phase of the Project.

- **Habitat loss** - During construction of the Project (HCC and Transport Agency Sections), approximately 1 ha of native lizard habitat loss will occur (Figure 5 and Appendix A, Map 1 to Map 8).

The types of vegetation to be lost include areas of rank grassland adjacent to roads; or between areas of pasture / amenity grassland and exotic or native regenerating forest, such as the edges of gullies, parkland or the Waikato River. Copper skink were not found beneath any of the Artificial Cover Objects (ACOs) placed within the gullies. In some areas this will be due to the absence of ground cover and a good layer of leaf litter and in others due to high predator numbers within the gully system.

- **Injuring and killing of lizards** - Without mitigation, lizards could be killed or injured during the construction phase, when vegetation removal occurs within areas of suitable habitat.

- Loss of habitat connectivity - During construction vegetation removal and the subsequent construction of culverts and bridges could lead to a loss of habitat connectivity between areas of existing habitat.

4.2 Operation

Potential routes of impacts during operation, without mitigation, are detailed below.

- Increased risk of predation - During operation, there is a low potential that the road could function as a corridor along which predators may travel, increasing the risk of predation for lizards. However, it is considered that the gully and river corridor are like to be more significant as a conduit for pests than the road.

5.0 Lizard Salvage and Relocation

5.1 Timing

Funding is not currently available for delivery of the full Project. Figure 2 illustrates the packages of the Project that are currently provided for within the Hamilton City Council 10-Year Plan 2018-28.

The construction of Transport Agency components of Southern Links is not provided for in the current Regional or National Land Transport Plans.

The four distinct Project Packages related to road construction over the next 10 years are summarised in Table 1.

Table 1 Delivery of Project over the next 10 years broken down by Project Package.

Southern Links Transportation Project Package	Project Ecologist appointed to each Package	Expected Commencement FY	Expected Completion FY
SH3 Intersection, East-West Arterial Road Stage 1	To be confirmed	end of 2019	mid 2021
Wairere Drive Extension and Waikato River Bridge	Ecology New Zealand	end of 2020	mid 2023
Peacocke Road urban upgrade	To be confirmed	end of 2021	mid 2023
East-West Arterial Road Stage 2	Ecology New Zealand	end of 2022	mid 2024
Wastewater infrastructure along the North South major arterial	WPS-Opus	end of 2019	mid 2024

Construction of the North-South major arterial component of Project is not provided for within the current 10-Year Plan period.

This LMP will be implemented by the Project Ecologists working on each Package to be delivered, within the jurisdiction of HCC (not all sections are listed in Table 1).

Vegetation clearance works will be timed to occur between September to April (weather dependent) (Marieke Lettink, 2007) when lizards are active to ensure lizards are able to relocate themselves during habitat manipulation. The one exception to this is the maintenance of mown or grazed grass areas which are able to be mown / grazed year-round. This is further discussed in Section 5.3.1.

5.2 Demarcation of the vegetation to be cleared

The construction works area will be clearly marked out by the contractor (e.g. tape in tree to mark the perimeter; paint on ground in grassy areas), prior to the commencement of vegetation clearance. This will prevent the accidental loss of vegetation outside of the demarcation zone.

5.3 Vegetation clearance procedure

The following approach to lizard salvage and displacement has been proposed due to the small area of habitat that is to be cleared at each of the impact areas and the nature of the habitat within which copper skink have been identified during the surveys in 2018 e.g. grassland, scrub and *Trandescantia* (AECOM & EcoGecko, 2018). The emphasis is on implementing a technique that is focused on avoiding the killing and injuring of lizards while maximising the investment in the provision of alternative habitat within the Lizard Restoration Areas that will be enhanced to provide optimal for copper skink in the long term, including pest control (Section 7.0).

Communication and coordination between the herpetologist and vegetation clearance contractors (both managers and labourers) is critical to ensure compliance with the legal protection of wildlife.

5.3.1 Vegetation clearance

5.3.1.1 Grassland

To reduce the potential for individuals to be killed or injured during vegetation clearance works, vegetation removal in areas of long grass will be phased; and undertaken using tools that can guarantee the gradual reduction in sward height while avoiding impacts caused by vehicle movements (e.g. strimmer, brush cutter or side mounted flail) (Natural England, 2011). These phased cuts will expose the ground surface to greater variation in weather conditions and encourage lizards to vacate the area (Natural England, 2011). This work should only be undertaken between September - April as per Section 5.1.

Areas of long pasture grass or rank grassland should be cleared following steps one to eight listed below. In **areas of grassland which have been regularly disturbed prior to vegetation clearance works**; and are therefore unlikely to support native lizard populations (e.g. lawns or grazed pasture), steps 1 to 7 listed above may be skipped, following consultation with a herpetologist. In this instance work can be undertaken any time of the year. **Step 8 shall be followed in all areas of grassland.**

- Step 1. - Immediately prior to the first cut the herpetologist will walk through the area to be cleared of vegetation to look for lizards and as a means of disturbance.
- Step 2 – The vegetation will then be cut to 200 mm above the ground surface. If the contractors are using hand tools a guideline will be put in place so that they remain aware of the height that they are cutting to. Vegetation clearance will be undertaken from the centre of the parcel of land to the exterior with the intention of displacing reptiles to adjacent suitable habitat.
- Step 3 – Grass cuttings will be raked off the treatment area.
- Step 5 – The treated area will then be left for 24 hours.
- Step 6 – The herpetologist will undertake a fingertip search of the habitat to determine if any lizards are present. If found these lizards will be released in adjacent habitat as specified in Section 5.4.
- Step 7 – A second cut to 100 mm above the ground surface is undertaken.
- Step 8 – Ongoing maintenance or complete vegetation removal options:
 - If vegetation is not to be completely removed, grass shall be maintained at 200 to 100 mm above the ground surface to discourage lizards from moving back into the mown areas. This includes areas which may have previously been excluded by the herpetologist such as lawns or grazed pasture.
 - If grassy vegetation is to be completely removed or is to be cut to less than 100 mm above the ground surface, the herpetologist shall be consulted at this point to decide if steps 5 and 6 are required to be repeated, before any further works are to occur.

5.3.1.2 Scrub

In areas where gorse (*Ulex europeaus*), blackberry (*Rubus fruticosus* agg.) or other woody vegetation is present (e.g. R2, R4 and R5 – Figure 4) the clearance of this vegetation will be undertaken using hand tools (e.g. a chainsaw). Clumps of very dense blackberry or pampas may be carefully pulled apart, using either hand held tools or larger machines. The cut vegetation will then be set to one side for 48 hours to allow for lizards to vacate the material.

5.3.1.3 Dense leaf litter

At R1 adjacent to the Waikato River (Figure 4), copper skink were recorded beneath thick leaf litter located within 20 m of the edge of forest habitat. The leaf litter will be hand raked and placed within adjacent habitat providing additional habitat. This will occur 24 hours prior to any works taking place to allow any lizards present enough time to vacate the area. If any larger vegetation (scrub) is required to be removed during this process, it shall also be set aside for 48 hours (refer Section 5.3.1.2).

5.3.2 Refugia Construction

Prior to vegetation clearance taking place, the adjacent habitat will be enhanced through the provision of additional refugia, in the form of piles of logs and stacks of wooden disks.

The refugia will be constructed in areas that will not be disturbed by future works (construction) or long-term maintenance. Where possible, cleared vegetation from the site will be used to create these features. Details on the construction of the refugia are provided in Section 7.6.

5.4 Lizard capture and release

Native lizards will be captured and handled by a herpetologist(s) or their assistant. The assistant would be supervised by the herpetologist(s) at all times. All native lizards captured onsite will be identified, sexed, measured, weighed and photographed, and be placed in containment boxes and held temporarily for release. The project ecologist may relocate the lizard to outside the project area into adjacent habitat if the lizard is unlikely to relocate itself. Lizards will be released in an area adjacent to the Project which is unaffected by the works, preferably within the vicinity of the newly created refugia.

The following principals will be followed (DOC, 2019);

- Animals will be released at times suitable for the species, and during appropriate weather conditions.
- All lizards will be released into the predetermined release area.
- The herpetologist(s) will take their time and select the very best release site for each animal.
- Animals will be released individually under separate rocks or into different shrubs within the release area.

It is not proposed that post release monitoring is undertaken within the areas that copper skink will be released. Monitoring will be undertaken with the Lizard Restoration Areas (Section 7.8).

5.5 Incidental discovery

Prior to works, all contractors will be briefed on incidental discovery protocols to be followed. If a lizard is observed by a contractor(s) during the site works, the works will cease, and the contractor will be asked to see if they can capture the individual to ensure that it can be translocated outside of the Project Area. The contractors will be informed as to how to handle lizards and temporarily hold lizards, prior to the herpetologist(s) returning to site. The contractors will also be asked to take a photo if there is an opportunity. The Project herpetologist(s) should be informed immediately (whether or not they are currently present on site) for advice.

In the event that an expected species is found by the herpetologist(s) which is considered 'threatened' or 'at risk', works will stop and further consultation will be undertaken with DOC prior to works commencing again within the Project Area.

6.0 Habitat offset / compensation

6.1 Avoid and Minimise

The Project will **avoid** and **minimise** impacts to lizards, by managing contractors for the duration of the Project to ensure that they do not encroach in habitats that are suitable for lizards e.g. clear too much vegetation, or create storage piles in areas of high-quality vegetation etc. Care will also be taken to stage the vegetation clearance works to allow time for them to relocate from areas of vegetation which are being removed. Incidental salvage of lizards will be undertaken during the vegetation clearance process.

To **avoid** and **minimise** losses in habitat connectivity, bridges will be used in favour of culverts along the main branch of the Mangakotukutuku Gully and the Waikato River where copper skink are known to be present. The form of crossings will be confirmed at detailed design.

6.2 Mitigate

The Project will implement **mitigation** by carrying out 20 years of pest control at two Lizard Restoration Sites (further described below in Section 6.4).

6.3 Rehabilitate

The project will implement **rehabilitation** by constructing refugia for lizards at sites adjacent to the sections of the Project area where vegetation clearance is to be carried out (further described below in Section 7.6)

6.4 No-net-loss offset – residual impacts only

As explained in the EMMP (AECOM, 2019), in consultation with DOC, it was concluded that the full salvage of copper skink would not be undertaken as part of this Project. The effort that would have been put into the salvage process will instead be put into habitat restoration at specific Lizard Restoration Sites to ensure that on conclusion of the Project the quality and extent of lizard habitat will be enhanced.

Therefore, to **offset** the loss of 1 ha of existing lizard habitat due to the Project, 2 ha of habitat will be enhanced to provide copper skink with additional habitat (Lizard Restoration Sites). The locations of these Lizard Restoration Sites were determined during the development of the EMMP (see sections 6.6.1 and 6.6.2 of AECOM, (2018)). Two Lizard Restoration Sites were selected (Figure 6) which are able to provide the following:

- An extension of the current habitat available for lizards in terms of extent and quality;
- They are connected to the existing habitat;
- They are of a sufficient area to compensate for habitat loss resulting from the project;
- They are able to be delivered prior to the commencement of vegetation clearance works;
- They have long-term security and will not be affected by future development;
- There is effective pest control in place;
- Habitat is suitable, with food, sufficient habitat complexity and ease of management; and
- There are no conflicting requirements for the site.

A lizard restoration site plan, detailing preparation and ongoing maintenance requirements of the sites is detailed below in Section 7.0

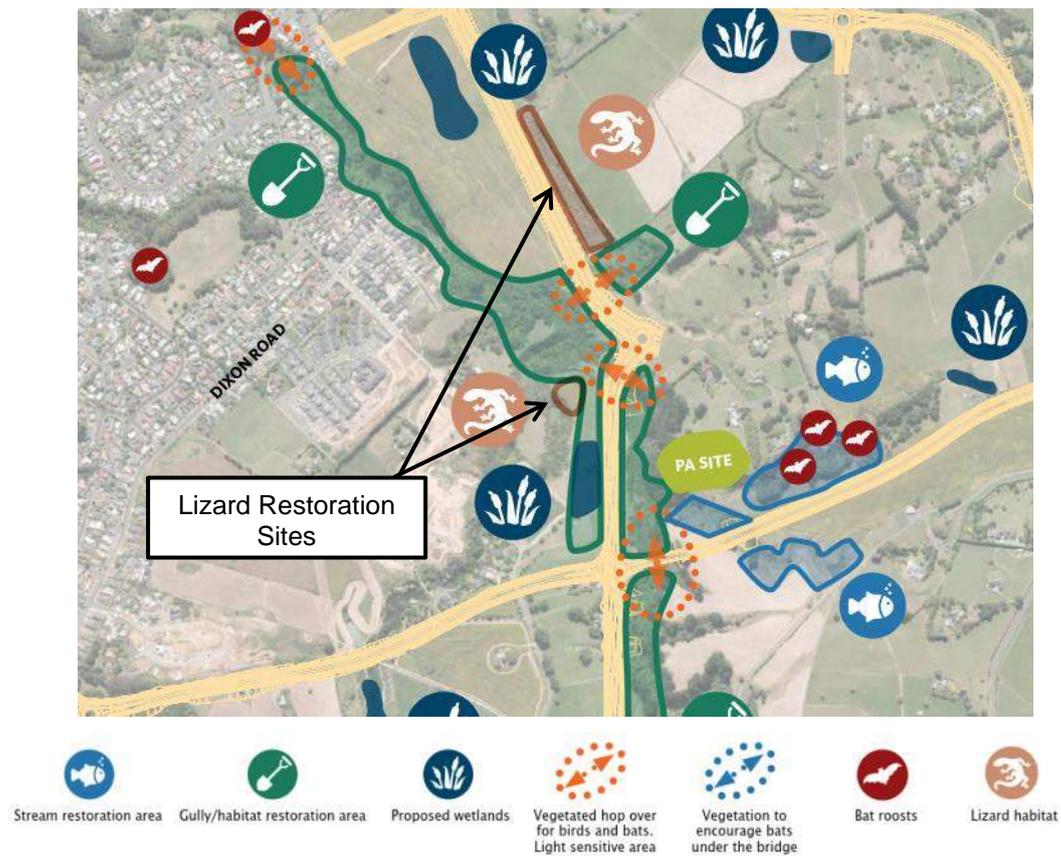


Figure 6 Location of proposed Lizard Restoration Sites

7.0 Lizard Restoration Site Plan

7.1 Site description

7.1.1 Northern Lizard Restoration Site

The northern restoration site consists of an east-ward facing bank which is currently vegetated in rank pasture and gorse, with pines planted along the top of the bank (Figure 7). This area is approximately 1.66 ha in size. It is possible that copper skink are already present in this habitat, as they were found in very similar habitat immediately adjacent to this area during the 2018 lizard survey.



Figure 7 Overview of the northern Lizard Restoration Site.

7.1.2 Southern Lizard Restoration Site

The southern restoration site is currently vegetated predominantly with pasture grass and has been un-grazed for ~2 years. It is surrounded on three sides with barberry (*Berberis glaucocarpa*) hedges; beyond these weedy gully vegetation is present including Chinese and common privet (*Ligustrum lucidum*, *L. sinense* and *L. vulgare*), gorse (*Ulex europaeus*) and willow (*Salix spp.*). This area is approximately 0.8 ha in size. It is possible that lizards are already present in this area.



Figure 8 Overview of the southern Lizard Restoration Site.

7.2 Pre-planting weed management

A range of weedy non-native plant species will be required to be removed from the Lizard Restoration Site(s) prior to planting. This includes gorse, privet and blackberry. As it is known that herbicide sprays can have some effect on New Zealand skink species (Carpenter & Monks, 2016), use of herbicide

must be kept to a minimum whilst this is carried out to protect any lizards which may already be present in the restoration sites.

When larger woody vegetation is removed, the process described in Section 5.3 will be followed. Additionally, if required to control the regrowth from the cut stumps, an application of a gel form of glyphosate (or other suitable herbicide) may be applied directly to the cut stump. Care must be taken to not allow the herbicide to come into contact with other vegetation. Spray applicators should not be used.

7.3 Existing plants to be retained

As long, rank grass is a habitat known to be used by copper skink, this habitat will be retained onsite where it exists, and will not be mown to aid in the removal of weed species.

7.4 Restoration planting

7.4.1 Planting

In preference to using herbicide to manage competitive grasses (which can be harmful to lizards) the sod of the planting hole will be turned over at the time of planting and matting used to suppress weeds within the immediate area of the planting. This process will ensure that the existing long grass at the sites currently providing habitat for copper skink is retained until the new plantings provide greater habitat variability.

Planting should be completed during late autumn to early winter in May and June. A thick layer of mulch, old straw or using pre-cut squares of weed-mat should be placed around each plant; ensuring mulch is clear of the plant stem. This will help conserve moisture and suppress weed growth during the establishment period.

7.4.2 Plant species selection

The planting in the Lizard Restoration Sites will be designed to provide suitable habitat for copper skink, as this is the only species thought to be present within the local area, based on recent survey work. The plantings within the Lizard Restoration Sites will include native botanical species that will provide food (e.g. berries and invertebrates) and habitat complexity. Dense ground cover will maintain moisture and help lizards avoid predation. A tree canopy will not be created, as once canopy closure with tree species occurs, this will shade out understory species which will provide suitable lizard habitat; and the regeneration of understory species which provide suitable lizard habitat will be a very slow process.

Therefore, the traditional forest planting mix used elsewhere for birds and bats will not to be used in the Lizard Restoration Sites, and while copper skink is currently found in long grassland margins, dry habitat will be avoided to try and discourage plague skink, which are a basking species. Species have therefore been selected to provide a thick, low groundcover which will aim to eventually displace the majority of the pasture grasses already present. Occasional larger shrub or small tree species may be planted throughout the sites. Table 2 provides a list of suitable plant species.

Table 2 Recommended plant species within the Lizard Restoration Sites.

Common name	Latin name
Low growing / groundcover species	
Carex	<i>Carex comans</i>
Harakeke / New Zealand flax	<i>Phormium tenax</i>
Koromiko	<i>Veronica stricta var. stricta</i>
Mingimingi	<i>Coprosma propinqua</i>
Pōhuehue	<i>Muehlenbeckia complexa</i>
Rasp fern	<i>Doodia australis</i>
Rengarenga	<i>Arthropodium bifurcatum</i>

Common name	Latin name
Shrubby tororaro	<i>Muehlenbeckia astonii</i>
Thick leaved coprosma	<i>Coprosma crassifolia</i>
Toetoe	<i>Austroderia fulvida</i> & <i>A. richardii</i>
Tūrutu / New Zealand blueberry	<i>Dianella nigra</i>
Wharariki	<i>Phormium cookianum</i> spp. <i>hookeri</i>
Occasional tree species to be planted	
Coprosma	<i>Coprosma rotundifolia</i>
Kānuka	<i>Kunzea robusta</i>
Karaka	<i>Corynocarpus laevigatus</i>
Karamū	<i>Coprosma lucida</i> & <i>C. robusta</i>
Kohekohe	<i>Dysoxylum spectabile</i>
Māhoe	<i>Meliccytus ramiflorus</i>
Mānuka	<i>Leptospermum scoparium</i> var. <i>scoparium</i>
Māpou	<i>Myrsine australis</i>
Mingimingi	<i>Coprosma propinqua</i>
Thin-leaved coprosma	<i>Coprosma areolata</i>

7.5 Fencing

Boundaries of the site, which are at the edge of HCC-owned land or are bordered by pasture will be fenced to prevent stock entry. Exact specifications for the fence will be decided upon based upon recommendations from a fencing contractor, but any fences shall be designed and constructed to prevent access from the types of stock which may be grazed in bordering properties. At a minimum, an eight-wire post and batten fence should be used which is suitable for excluding cattle and sheep, but alterations may be made to this if animals such as deer or goats are likely to be kept in neighbouring properties. Additionally, during the lizard survey (AECOM, 2018), wild pigs were detected in the nearby gully system. If this was not an isolated incident and pigs are detected, pig control shall be undertaken throughout the gully system.

The condition of this fence will be monitored four times a year (to be timed with pest control monitoring, see below in Section 7.7), with maintenance completed when needed to ensure stock access is prevented.

7.6 Refugia

Timber and rock will be placed in piles to create additional habitat complexity to the plantings within the Lizard Restoration Sites and also in habitat within the designation that is adjacent to areas directly affected by vegetation clearance and is inaccessible by maintenance machinery. The timber in the piles will be stacked in two ways. Some of the piles will comprise logs (Figure 9), while others will be constructed out of wooden discs (Figure 10). The wooden discs are favoured as it is believed that when these are piled/stacked that the interstitial spaces will be small enough to prevent mice³ from accessing the refugia and preying on the lizards. The Project Ecologist will guide the contractors in the installation of these features.

The timber used in the log piles will be salvaged from the vegetation removal works that will be undertaken for the Project (if material is available). For each log pile a small shallow hole/pit (10cm)

³ It is suggested that mice are able to fit through gaps of 6 to 7 mm in diameter (Reading Borough Council, n.d.).
P:\605X\60526419\4. Tech work Area\4.4 Environment\7.0 Reports_final\Lizard Management Plan\LMP\60526419_Lizard Management Plan_Final issued to DOC 050819.docx
Revision 02 – 06-Aug-2019
Prepared for – Hamilton City Council and NZ Transport Agency – Co No.: N/A

will be created within the soil into which the logs/discs are placed. Excavated soil can then be backfilled gently against the log pile at its base. Dense plantings will be put in place surrounding the log piles. These features should blend in when the planted vegetation is semi-mature. These steps will help maintain moisture within the wood piles, which is favoured by copper skink.



Figure 9 Traditional log pile for lizards.

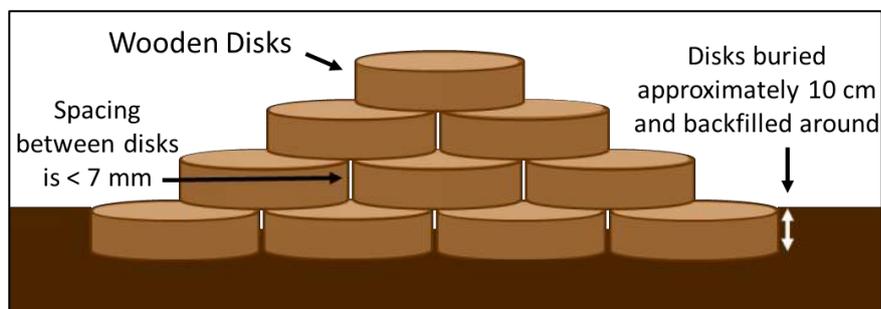


Figure 10 Detail of disk stack for lizards.

7.7 Pest Control

Pest control will be implemented at the Lizard Restoration Sites. Pest control plans will be developed with input from a pest contractor. These will follow best practice guidelines. Control will comprise the use of poison bait stations and DOC 200 traps.

Bait stations will be spaced at 25 m x 25 m grid within the Lizard Restoration Sites, subject to site constraints such as topography. Mice are considered a significant predator of lizards (Newman, 1994 and Lettink & Cree, 2007), and the density of bait stations is designed to reflect this. Bait will be delivered in four pulses throughout the year (January, April, August and November).

A non-toxic pre-feed will be used at the beginning of each pulse for a period for two weeks to encourage animals into the traps before toxic baits are swapped into place. Once the use of toxic bait begins they will be filled in accordance with the following regime; fill on day one, three, five and 14. If less than half the bait from the previous fill is present on day 14 fill, then fill again on day 17. Remove bait at the end of week four. Diphacinone, and cholecalciferol products are all available in pellet form for controlling mice, rats and possums in bait stations. Pindone is also available in pellet form and is suitable for rats and possums but less so for mice (Key Industries, n.d.). Bait type should be varied to avoid bait shyness, and label instructions must be followed to achieve optimum efficacy. Sustained use of brodifacoum should be avoided.

DOC 200 traps will be used to kill stoats, ferrets, weasels, rats and hedgehogs within Lizard Restoration Sites. The traps will be set approximately 50 m apart on trap lines that are 100 m apart. During the first week after the traps have been placed on site they will be baited but not set to encourage animals to enter the trap. The traps will then be set and checked every 1-2 days, once catch rates drops (between 5-10 checks); traps will be checked once a month. If catch rate numbers increase, the frequency of trap checking should also increase.

If fencing is not used to exclude pigs from the Lizard Restoration Areas, then pig control will need to be implemented to prevent them accessing the restoration sites. Methodologies for control of the local pig population will be detailed following consultation a pest control contractor.

Table 3 Monitoring of pest control delivered by Southern Links (AECOM, 2018).

Habitat or species / species group	Effect being monitoring	Monitoring	Frequency of monitoring	Reporting / Documentation
Pest control monitoring – rats, mice, possums, hedgehogs and mustelids.	Pest control will aim to achieve the target of 2% Rat Tracking Indices, with levels to be maintained under 5%. The effectiveness of pest control will be monitored by using tracking tunnels and wax tags (refer to National Pest Control Agencies, 2015)	<p>Tracking tunnels and wax tags will be used to monitor the presence of pest species.</p> <p>Tracking tunnels shall be used to monitor relative rat and mustelid abundance and shall therefore be set up for one night with peanut butter bait for rodent monitoring and then three nights with meat baits for mustelid monitoring following Gillies and Williams (2013). Spacing shall follow Gillies and Williams (2013) wherever possible, i.e. each tunnel line consists of 10 tunnels set 50 metres spacing for rodent monitoring.</p> <p>WaxTag monitoring shall take place over three nights following National Pest Control Agencies (2015) protocol. Waxtags will be placed 20 metres apart for 200 metres.</p>	Monitoring shall take place prior to and following pulsed Pest control operations that take place during winter and spring - summer. Monitoring shall take place during the same months each year.	Report to be produced by the Pest Control Contractor. Results to be reviewed by the Project Ecologist or Landscape Architect and the Contractor. The report will be provided to the TA.

7.8 Monitoring of lizard population – permanent pitfall traps

Monitoring of the lizard population at the two Lizard Restoration Sites will be undertaken prior to restoration and then in Year 3, 6 and 9 post restoration to gain an understanding of the effect that habitat restoration has on copper skink.

Pitfall traps will be placed in transects at each site. Three transects will be used at the main site; and four at the southern site. These transects will be spaced equally apart. Pitfall traps will be placed along each transect. Artificial cover objects may also be used in combination with the pitfall traps.

To aid in the completion of ongoing monitoring of the lizard populations, pitfall traps will be permanently installed in the two Lizard Restoration Sites. These traps will be installed, maintained and monitored following the guidelines provided in Hare (2012).

Pitfall traps will be closed outside of monitoring periods and removed following the completion of the last round of monitoring.

Table 4 Monitoring of the lizard population delivered by Southern Links (AECOM, 2018).

Habitat or species / species group	Effect being monitoring	Monitoring	Frequency of monitoring	Reporting / Documentation
Lizard.	Monitoring of lizards to demonstrate recruitment and use of restoration sites.	Monitoring to capture as many lizards as possible as part of an ongoing mark and recapture programme to; <ul style="list-style-type: none"> Determine population trends; and Determine whether habitat restoration and pest control has benefited copper skinks 	Monitoring to be completed prior to restoration and in Year 3, 6 and 9 post restoration during Nov – March. Monitoring will take place using the pitfall traps described in Section 7.8, in accordance with the methodology described in Hare (2012).	Report to be produced by the Project Ecologist after each survey, looking at changes in the population. Report to be provided to the TA.

7.9 Monitoring of habitat establishment and maintenance

The two Lizard Restoration Sites will be established in advance of the Project construction. During construction and subsequently in the operational phase, these areas will need to be maintained. This will involve maintaining boundary fences where needed, management of weed species, monitoring pest damage, replacement of lost plants and undertaking watering if there are extended dry periods following planting. The maintenance of these habitats will be undertaken by an experienced contractor for at least the first 10 years of establishment and it is considered that the habitat will self-regulate itself after this time period. This is detailed in Table 5.

Following the completion of restoration planting, the Lizard Restoration Sites will be inspected annually in order to identify if the maintenance regime needs to be amended (i.e. control of re-infestations, re-mulching, erosion controls).

To reduce maintenance, it is recommended that each plant is surrounded by a small area of weed mat. However, it may still be necessary to manually or chemically release the new plants from competition of competitive grass species and will be determined within the Site Restoration Plans. It is recommended that this occurs three times a year for a minimum of two years following restoration planting. The effort required will be dependent upon on site conditions and plant growth.

Plants should also be monitored for a minimum of three years following planting to identify and replace any plant losses. If possible, the cause of the losses should be recorded and remedied as required. For example, if rabbit herbivory is the cause for numerous losses, pest control strategies should be modified to manage the problem. In the event that losses do occur, blanking (like-for-like species replacement of failed seedlings) is required at the end of the first planting season. Further replacement planting may also be required during the second year of implementation.

Table 5 Monitoring and maintenance of habitat.

Habitat or species / species group	Effect being monitoring	Monitoring	Frequency of monitoring	Reporting / Documentation
Terrestrial, gully, aquatic and wetland habitat loss and fragmentation.	Success of habitat creation.	Monitor plant losses in accordance with trigger levels (minimum of first three years) (refer to Section 7.4).	Annual inspection by the Project Ecologist or Landscape Architect of success of plantings for a minimum period of three years. If trigger levels are exceeded replacement planting to occur in the next planting season following inspection.	A summary report will be prepared annually by the Project Ecologist or Landscape Architect and shared with the maintenance team within an annual meeting to review if changes to the current regime are recommended by the Project Ecologist or Landscape Architect. This documentation will not be provided to the TA (unless requested) as it is solely to guide maintenance rather than to meet compliance requirements.
		Monitor rainfall (i.e. drought) in first year of planting.	Monitor during the first year of planting during the summer period (October – April). If there are prolonged periods without rainfall (>2 weeks) implement supplementary watering.	
		Monitor grazing by possums and rabbits or use tree guards.	HCC to annually monitor damage during the inspection of success until plantings are self-sustaining (after 10 years). If damage is seen then modify pest control to address	

Habitat or species / species group	Effect being monitoring	Monitoring	Frequency of monitoring	Reporting / Documentation
			this negative effect.	
		Monitor weed infestation annually to guide maintenance.	HCC to annually monitor weed levels during the inspection of success (period of 10 years). If it is identified that a species is present that could compromise the success of the planting then immediate action should be implemented through the general maintenance regime (e.g. hand removal or careful application of herbicide).	
		Undertake audit 10 years post planting to confirm that Designation Restoration Sites and planting design have been achieved and there is canopy closure and therefore self-sustaining (e.g. maintenance can be reduced).	10 years post planting inspection by HCC to determine if the approach to maintenance can be reduced and monitoring of success can end. It is likely that on-going monitoring for weeds will be required.	Project Ecologist or Landscape Architect will produce a report presenting the results of the audit. A meeting will be held with the maintenance team to discuss the long-term maintenance regime. This audit report will also confirm if the habitats are self-sustaining. The audit report will be provided to the TA.

8.0 References

- AECOM (2018). Southern Links Lizard Survey Report. AECOM New Zealand Limited.
- Carpenter, J. & Monks, J. M. (2016). The effect of two glyphosate formulations on a small, diurnal lizard (*Oligosoma polychroma*). *Ecotoxicology*, 25(1), DOI 10.1007/s10646-016-1613-2
- Gillies CA, Williams D (2013). DOC tracking tunnel guide v2.5.2: Using tracking tunnels to monitor rodents and mustelids. Hamilton, Department of Conservation. 14p
- Hare, K.M. (2012). Herpetofauna: pitfall trapping. Department of Conservation report no DOCDM-760240. Retrieved 09 July 2019 from <https://www.doc.govt.nz/globalassets/documents/science-and-technical/inventory-monitoring/im-toolbox-herpetofauna-pitfall-trapping.pdf>
- Hitchmough, R., Barr, B., Lettink, M., Monks, J., Reardon, J., Tocker, M, van Winkel, D. & Rolfe, J. (2015). Conservation status of New Zealand reptiles, 2015. Department of Conservation.
- Key Industries (n.d.). Pindone Rat Pellets Brochure. Available from https://keyindustries.co.nz/Portals/0/PDFs/Brochure%20Pindone_RAT%202016.pdf
- Lettink, M (2007). Relative use of three types of artificial retreats by terrestrial lizards in grazed coastal shrubland, New Zealand. *Applied Herpetology*.
- National Pest Control Agencies (2015). A1 Possum population monitoring using the trap-catch, waxtag and chewcard methods. Wellington, New Zealand.
- Natural England (2011). Reptile Mitigation Guidelines. Natural England Technical Information Note TIN102.
- Reading Borough Council (n.d.) Mice Fact Sheet. Available from <http://www.reading.gov.uk/media/3084/Mice-Factsheet/pdf/Mice-Factsheet1.pdf>

Appendix A

Areas of reptile habitat
to be lost



Legend

- Areas of Lizard Habitat Loss
- Designation Boundary

PROJECT
 Southern Links Lizard
 Management Plan

CLIENT
 Hamilton City Council and New
 Zealand Transport Agency

CONSULTANT
 AECOM New Zealand Limited
 AECOM HOUSE
 8 MAHUHU CRESCENT
 AUCKLAND
 +64 9 967 9200 tel +64 9 967 9201 fax
 www.aecom.com

SPATIAL REFERENCE

Scale: 1:1,250 (A3 size)
 10 5 0 10 20 30
 Meters

Map features depicted in terms of NZTM 2000 projection.

Data Sources:
 Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

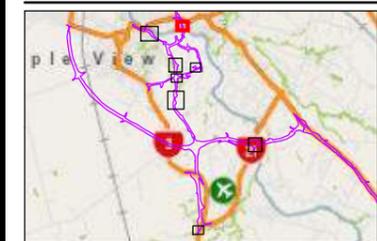
PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		

KEY PLAN



PROJECT NUMBER

60526219

SHEET TITLE

AREAS OF REPTILE HABITAT LOSS

MAP NUMBER

PAGE 1 of 8

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Legend

- Areas of Lizard Habitat Loss
- Designation Boundary

PROJECT
 Southern Links Lizard
 Management Plan

CLIENT
 Hamilton City Council and New
 Zealand Transport Agency

CONSULTANT
 AECOM New Zealand Limited
 AECOM HOUSE
 8 MAHUHU CRESCENT
 AUCKLAND
 +64 9 967 9200 tel +64 9 967 9201 fax
 www.aecom.com

SPATIAL REFERENCE
 Scale: 1:2,000 (A3 size)
 20 10 0 20 40 60
 Meters
 Map features depicted in terms of NZTM 2000 projection.

Data Sources:
 Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		



PROJECT NUMBER
 60526219

SHEET TITLE
 AREAS OF REPTILE HABITAT LOSS

MAP NUMBER
 PAGE 2 of 8

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Legend

- Areas of Lizard Habitat Loss
- Designation Boundary



PROJECT
Southern Links Lizard Management Plan

CLIENT
Hamilton City Council and New Zealand Transport Agency

CONSULTANT
AECOM New Zealand Limited
AECOM HOUSE
8 MAHUHU CRESCENT
AUCKLAND
+64 9 967 9200 tel +64 9 967 9201 fax
www.aecom.com

SPATIAL REFERENCE
Scale: 1:1,500 (A3 size)
10 5 0 10 20 30
 Meters
Map features depicted in terms of NZTM 2000 projection.

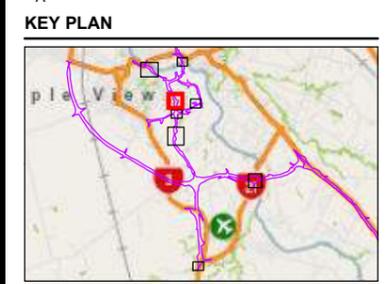
Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		



PROJECT NUMBER
60526219

SHEET TITLE
AREAS OF REPTILE HABITAT LOSS

MAP NUMBER
PAGE 3 of 8

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Legend

-  Areas of Lizard Habitat Loss
-  Designation Boundary

PROJECT

Southern Links Lizard Management Plan

CLIENT

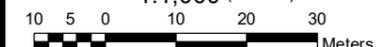
Hamilton City Council and New Zealand Transport Agency

CONSULTANT

AECOM New Zealand Limited
AECOM HOUSE
8 MAHUHU CRESCENT
AUCKLAND
+64 9 967 9200 tel +64 9 967 9201 fax
www.aecom.com

SPATIAL REFERENCE

Scale: 1:1,000 (A3 size)



Map features depicted in terms of NZTM 2000 projection.

Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

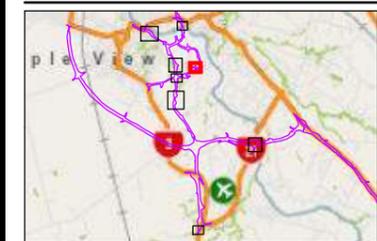
PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		

KEY PLAN



PROJECT NUMBER

60526219

SHEET TITLE

AREAS OF REPTILE HABITAT LOSS

MAP NUMBER

PAGE 4 of 8

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Legend

- Areas of Lizard Habitat Loss
- Designation Boundary

PROJECT
Southern Links Lizard
Management Plan

CLIENT
Hamilton City Council and New
Zealand Transport Agency

CONSULTANT
AECOM New Zealand Limited
AECOM HOUSE
8 MAHUHU CRESCENT
AUCKLAND
+64 9 967 9200 tel +64 9 967 9201 fax
www.aecom.com

SPATIAL REFERENCE

Scale: 1:1,000 (A3 size)
10 5 0 10 20 30
Meters
Map features depicted in terms of NZTM 2000 projection.

Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

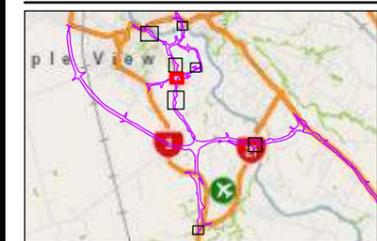
PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		

KEY PLAN

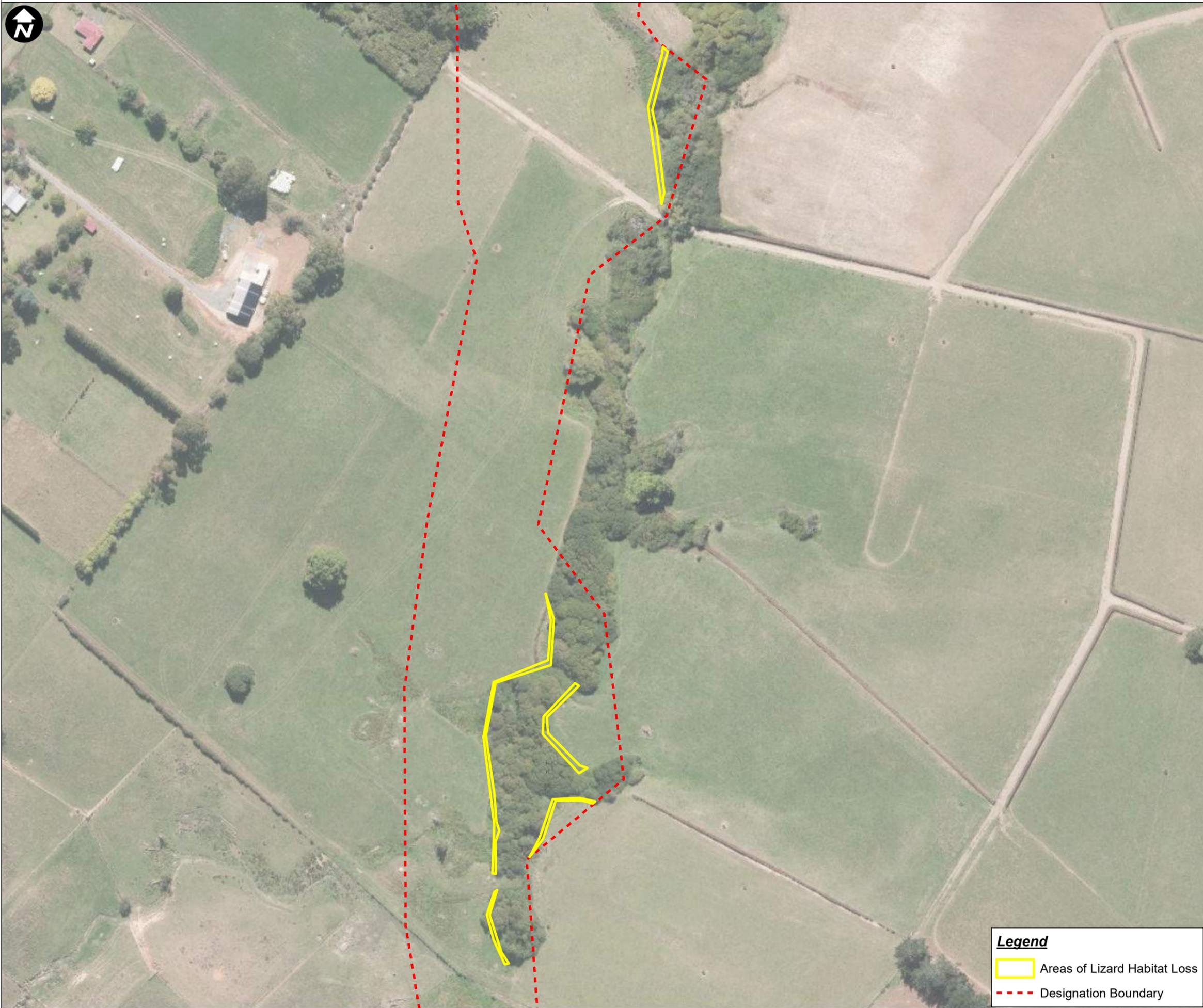


PROJECT NUMBER
60526219

SHEET TITLE
AREAS OF REPTILE HABITAT LOSS

MAP NUMBER
PAGE 5 of 8

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Legend

- Areas of Lizard Habitat Loss
- Designation Boundary



PROJECT
 Southern Links Lizard
 Management Plan

CLIENT
 Hamilton City Council and New
 Zealand Transport Agency

CONSULTANT
 AECOM New Zealand Limited
 AECOM HOUSE
 8 MAHUHU CRESCENT
 AUCKLAND
 +64 9 967 9200 tel +64 9 967 9201 fax
 www.aecom.com

SPATIAL REFERENCE
 Scale: 1:2,000 (A3 size)
 20 10 0 20 40 60 Meters
 Map features depicted in terms of NZTM 2000 projection.

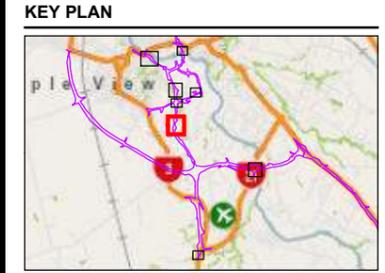
Data Sources:
 Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		



PROJECT NUMBER
 60526219

SHEET TITLE
 AREAS OF REPTILE HABITAT LOSS

MAP NUMBER
 PAGE 6 of 8



© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



PROJECT
Southern Links Lizard
Management Plan

CLIENT
Hamilton City Council and New
Zealand Transport Agency

CONSULTANT
AECOM New Zealand Limited
AECOM HOUSE
8 MAHUHU CRESCENT
AUCKLAND
+64 9 967 9200 tel +64 9 967 9201 fax
www.aecom.com

SPATIAL REFERENCE
Scale: 1:1,250 (A3 size)
10 5 0 10 20 30

Map features depicted in terms of NZTM 2000 projection.
Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
A	180412	For Review



PROJECT NUMBER
60526219

SHEET TITLE
AREAS OF REPTILE HABITAT LOSS

MAP NUMBER
PAGE 7 of 8

Legend

- Areas of Lizard Habitat Loss
- Designation Boundary



© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Legend

-  Areas of Lizard Habitat Loss
-  Designation Boundary

PROJECT

Southern Links Lizard Management Plan

CLIENT

Hamilton City Council and New Zealand Transport Agency

CONSULTANT

AECOM New Zealand Limited
AECOM HOUSE
8 MAHUHU CRESCENT
AUCKLAND
+64 9 967 9200 tel +64 9 967 9201 fax
www.aecom.com

SPATIAL REFERENCE

Scale: 1:1,000 (A3 size)

10 5 0 10 20 30

Meters

Map features depicted in terms of NZTM 2000 projection.

Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

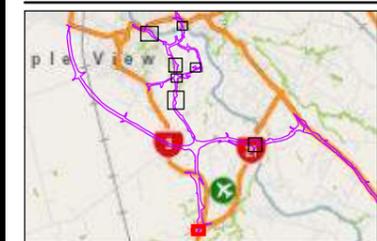
PROJECT MANAGEMENT

Approved		Date	
Checked		Date	
Designed		Date	
Drawn	DHK	Date	2018-04-12

ISSUE/REVISION

Rev	Date	Description
180412		For Review
A		

KEY PLAN



PROJECT NUMBER

60526219

SHEET TITLE

AREAS OF REPTILE HABITAT LOSS

MAP NUMBER

PAGE 8 of 8

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.

7 August 2019

Department of Conservation
Hamilton Permissions Team
Private Bag 3072
Hamilton 3240

Dear Sir/Madam

Southern Links: Request for written endorsement to proceed with vegetation clearance

AECOM New Zealand Limited (AECOM) has prepared a Wildlife Act Authority Application ('Permit Application') on behalf of Hamilton City Council (HCC).

The Permit Application is supported by a Lizard Management Plan¹ ('LMP') for the Southern Links Project ('the Project'); which relates to the salvage of native lizards during vegetation removal.

The approach presented within the LMP has been developed in consultation with the Department of Conservation (DOC) (Lynn Adams and Andrew Styche) and has drawn on local experience and the surveys completed by the Southern Links Project. The objective of the proposed approach is to achieve no-net-loss of lizard habitat on completion of works and where possible an enhancement in the extent and quality of habitat available for native lizards.

The vegetation removal will be completed, under the observation and guidance of a DOC approved herpetologist(s). It will occur in a manner which will encourage any lizards present in the vegetation to relocate themselves prior to total vegetation clearance. Any native lizards incidentally discovered will be caught and relocated into suitable adjacent habitat.

To address any potential effects on native lizards and to achieve no-net-loss, the following provisions have been proposed:

- Habitat adjacent to the areas of vegetation clearance will be enhanced through the creation of refugia for lizards; and
- Two Lizard Restoration Areas will be created, which total an area of approximately 2 ha. These areas will be fenced, planted with suitable native species to provide habitat and food for native lizards, and pest control will be undertaken for 20 years following the project's implementation. Monitoring (pitfall traps) of this success of this site will be undertaken.

It is understood that DOC is currently reviewing when and how they provide written authorisation for works that could be considered an offence under the Wildlife Act 1953. It is understood that DOC is currently issuing permits or an endorsement letter depending on the nature of the works being undertaken. It would be appreciated if we could be advised as to the form of written authorisation that the works proposed by for Southern Links would receive from DOC.

It is understood that iwi consultation is required as part of the Wildlife Authority Application Process. The Project Team have been working closely with the Tangata Whenua Working Group (TWWG) as the Project has developed and the Working Group provided written support for the Ecological Management and Monitoring Plan (EMMP) produced for Southern Links (refer to Appendix B for Attachment E1). It is from the information presented within the EMMP that the Lizard Management Plan (LMP) was drafted. The Project team meet with the TWWG once a month, therefore if the documentation provided is not sufficient to demonstrate that the five local iwi are in support of the LMP further written confirmation will be sought from the Working Group to facilitate this application. Please can you let us know if further confirmation is required.

To facilitate investigation works it is proposed that some vegetation clearance within areas that are known to support copper skink commence in September 2019 in accordance with the protocols presented in the proposed LMP, following receipt of a Wildlife Authorisation Permit or written endorsement by DOC. It is understood that DOC is currently experiencing a high volume of Wildlife

¹ AECOM (2019). Lizard Management Plan. Southern Links Project – Hamilton City Council Section. AECOM New Zealand Limited. Please note that this plan is provided as Attachment B1 to the Wildlife Act Authority Application.

Authority applications and that this may delay the processing of this application. AECOM and HCC would appreciate that DOC will advise AECOM and/or HCC if a response to the requests detailed in this letter and/or the processing of the associated permit application are not possible prior to September 2019.

If you have any question regarding this application please do not hesitate to contact me.

Yours faithfully



Lyndsey Smith
Principal Environmental Scientist - Ecologist
lyndsey.smith@aecom.com

Direct Dial: +6499679146
Direct Fax: +6499679201

encl: A - Limitations of this Letter
B - TWWG letter of support for certification of the Southern Links EMMP

cc: Nathanael Savage, Hamilton City Council

Enclosure A - Standard Limitations

AECOM New Zealand Limited (AECOM) has prepared this letter in accordance with the usual care and thoroughness of the consulting profession for the use of Hamilton City Council and only those third parties who have been authorised in writing by AECOM to rely on this Letter.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Letter.

Where this Letter indicates that information has been provided to AECOM by third parties, AECOM has made no independent verification of this information except as expressly stated in the Letter. AECOM assumes no liability for any inaccuracies in or omissions to that information.

This Letter was prepared on the 7 August 2019 and is based on the conditions encountered and information reviewed at the time of preparation. AECOM disclaims responsibility for any changes that may have occurred after this time.

This Letter should be read in full. No responsibility is accepted for use of any part of this Letter in any other context or for any other purpose or by third parties. This Letter does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Except as required by law, no third party may use or rely on this Letter unless otherwise agreed by AECOM in writing. Where such agreement is provided, AECOM will provide a letter of reliance to the agreed third party in the form required by AECOM.

To the extent permitted by law, AECOM expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Letter. AECOM does not admit that any action, liability or claim may exist or be available to any third party.

Except as specifically stated in this section, AECOM does not authorise the use of this Letter by any third party.

It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Letter. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

**Enclosure B – Attachment E1 TWWG letter of support for certification of the Southern Links
EMMP**

6 March 2019

Hamilton City Council
Private Bag 3010
Hamilton 3240
Attn: Nathanael Savage

Dear Nathanael

SOUTHERN LINKS – ECOLOGICAL MONITORING AND MANAGEMENT PLAN

The Southern Links Taangata Whenua Working Group (TWWG) continues to be consulted by Hamilton City Council (HCC as Requiring Authority) on long-tail bat, bird, and lizard survey works and the key mitigation and off-set proposals to be included in the draft Ecological Monitoring and Management Plan (EMMP) being delivered to comply with the Southern Links designation conditions.

The EMMP sets out the approach to avoiding, mitigating and/or off-setting ecological effects of the Southern Links project.

This letter is to confirm to Hamilton City Council (HCC as the Territorial Authority who will certify the EMMP) that TWWG consultation is in accordance with the designation conditions.

AECOM (Lyndsey Smith and Fiona Davies), along with sub-consultants, engaged by HCC (as RA) to prepare the EMMP as required by condition 15 of the Southern Links designation. Individual components of the EMMP have been presented at various TWWG hui over the past two years.

The TWWG consider this consultation has been a positive experience, including the involvement of TWWG in establishing the key outcomes of the EMMP (Attachment 1).

The TWWG also support HCC's proposal for further involvement of the TWWG in the implementation of the EMMP, including:

1. Consultation in preparing Site Restoration Plans for the restoration of terrestrial (gully) habitat
2. Consultation in preparing Lizard Restoration Plans for two identified lizard restoration sites
3. TWWG to be invited to carry out karakia onsite preceding restoration works

TWWG acknowledge that Council is progressing various consenting processes, and that this support does not negate the need for ongoing TWWG involvement and consultation, as well as the need to incorporate of relevant recommendations from the Taangata Whenua Effects Assessment Report (TWEAR)

HCC will provide a full copy to the TWWG of the final draft EMMP being lodged for certification, and a copy of the final EMMP once certified.

The scale of ecological mitigation, off-setting, and monitoring proposed in the EMMP is at a level in line with previous presentations to TWWG. On this basis the TWWG supports the approach being taken by HCC (in partnership with NZ Transport Agency) in preparing the EMMP and specifically endorses the key components as attached to this letter.

TWWG looks forward to ongoing engagement with Hamilton City Council (as Requiring Authority) on the Southern Links project.

Yours sincerely

For and on behalf of the Southern Links Taangata Whenua Working Group which comprise members from:

- Ngaati Wairere
- Ngaati Mahanga
- Ngaati Koroki Kahukura
- Ngaati hauaa RH
- Waikato Tainui

P.m

M.H.

HW

JK

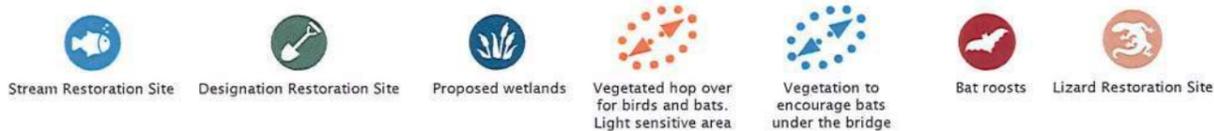
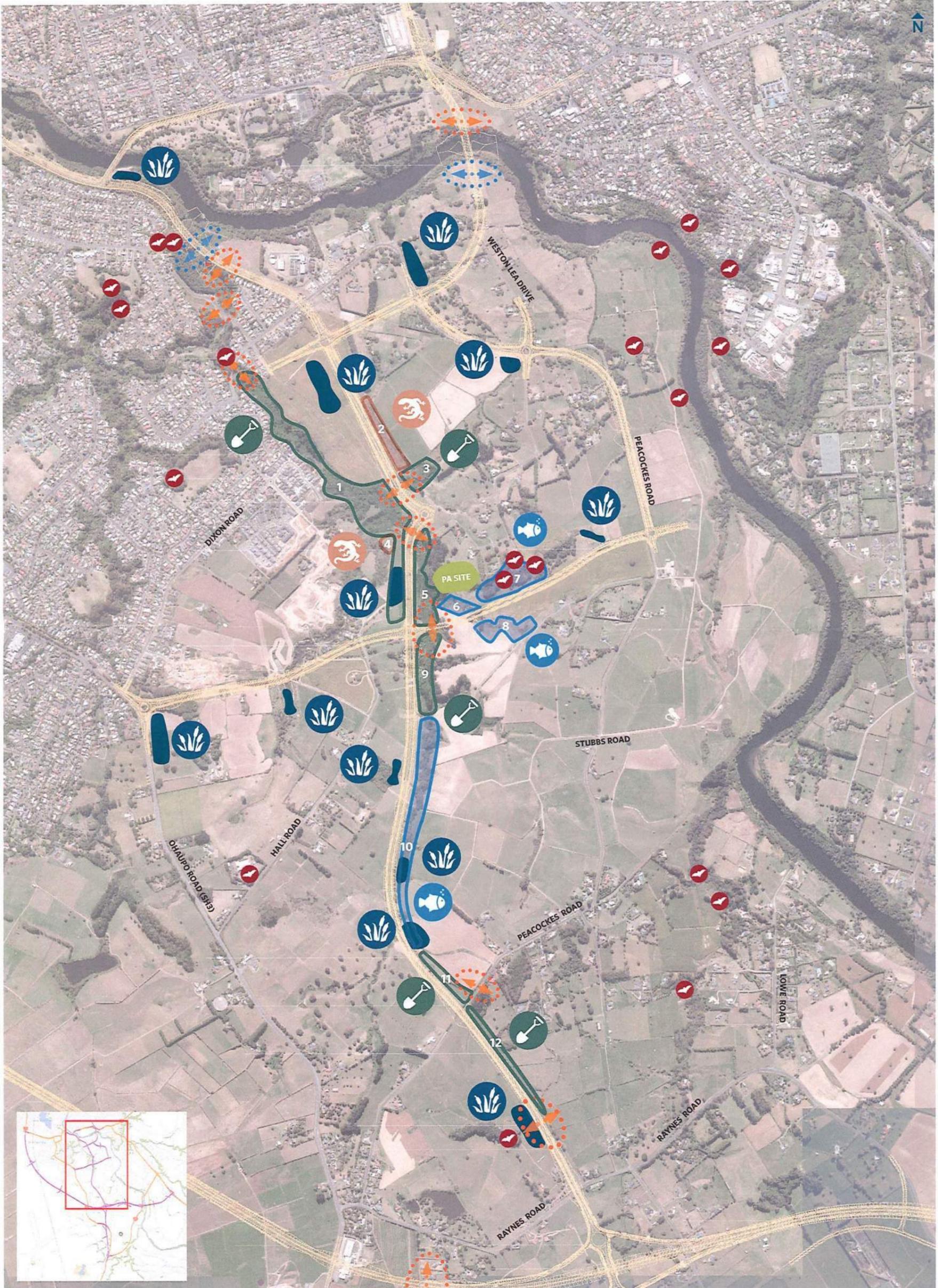
W.K.

Attachment 1 – Key EMMP components

At completion of the EMMP implementation:

- A minimum of 11.46ha of terrestrial habitat restoration (currently approximately 15.25ha of infill restoration planned and 3ha as part of stream restoration work)
- A minimum of 1.57km of stream restoration works (potentially reduceable if decisions are made to use bridges in some locations as opposed to culverts)
- Creation of two Lizard restoration sites
- Installation of up to 100 new artificial bat roosts (bat boxes) and consideration of opportunities to use natural bat boxes
- Fish passage provision for stream crossings as appropriate to habitat
- Establishment of safeguard zones to protect existing trees to be retained during construction
- Establishing bat hop-overs/underpass works to support connectivity
- Sensitive lighting design on bridges (including warm LEDs) and a general avoidance of aesthetic lighting
- Predator control (banding) at known and accessible bat roosts within HCC's jurisdictional boundary
- Pest control at all habitat restoration sites and stream restoration sites for a 20-year period
- Established vegetation removal protocols

The general location of restoration sites, lizard restoration sites, hop-overs/underpasses and roost sites are identified on the following plan.





9

Wildlife Act Authority (General)

Application form 9

This application form is only for the following activities involving any animal protected under the Wildlife Act 1953 (which does not include marine mammals)

Catch, handle, release wildlife at one site

- Disturb or kill wildlife or their eggs
- Catch and/or hold wildlife for rehabilitation – up to 3 months
- Hold wildlife in permanent captivity, if already held in captivity

Using this application form

Completing the application



Save – You can save this application form to your digital device and edit or fill it in your own time.



Fill – You can fill this application digitally using Microsoft word.



Print – You can print this application form and fill it manually, or you can fill it digitally, then print it.



Submit – This application form can be submitted by email or by post.



Email – Email your application and all the required labelled attachments to:
permissionshamilton@doc.govt.nz



Post – Post your application and all the required labelled attachments to:
Permissions Team
Private Bag 3072
Hamilton 3240

! Application checklist

- Have you included labelled attachments as required for your activities (including maps, testimonials, and consultations)?
- Have you read the section regarding liability of the applicant for payment of fees?
- Have you checked if your application requires a CITES permit or EPA application and included these as applicable?
- Have you signed your application (digitally or manually)?

Navigation



Hints – Use the links through the hints column on the right hand side of the application form

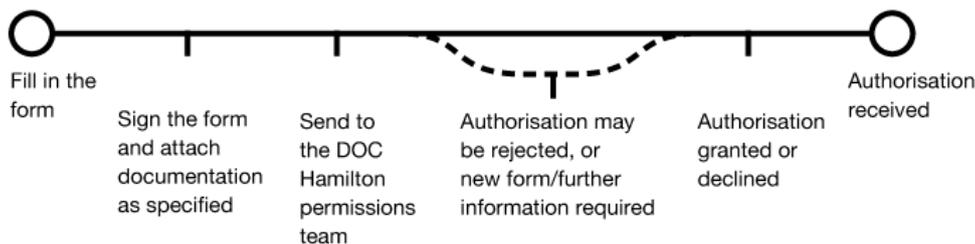


Scroll – Simply use your mouse or keyboard arrows to scroll through the document page-by-page.

Before you start

All efforts in putting together a detailed application are greatly appreciated and will allow the Department to effectively and efficiently process your application.

Process



Applications for proposals of activities are categorised as either standard or complex proposals:

- Standard proposals are those activities that are likely to have little or no significant effect on conservation values. These will normally be processed within fifteen working days of receiving the application, please also see the fee section below.
- Complex proposals are those activities likely to have more significant effects, and therefore require careful consideration and may take up to six weeks to process, please also see the fee section below.

Consultation:

- Consultation is required on most applications. In general iwi have 20 working days to respond to DOC once we make a formal request. If there are considerable iwi values to consider they may request a further 20 working days to respond. If no response is received from iwi within the specified period DOC will continue to process your application, as we may be able to locate relevant information about their interests from other sources.
-

Contact

Permissions Team
Private Bag 3072
Hamilton 3240

+64 27 308 8958
permissionshamilton@doc.govt.nz

! Please take the timeframes below into consideration when submitting your application.

! An application is deemed complete when all information requested has been received.

! Any amendments requested after lodgement may require a Form 9a variation application to be completed resulting in a delay of processing of your application.

! Please see also the [fees](#) section.

! For more information please see the [iwi consultation section](#).

Section A | Applicant details

Full name (registered company, institute, organisation, or individual)

Hamilton City Council (HCC)

! Enter your details in the grey fields.

Legal status of applicant:

Individual Trust Registered company

Research institute

Other (specify)

Local Government

! Please attach a copy of Trust Deed

Registration number (if company, trust or incorporated society)

N/A

Trading name (if different from applicant name)

N/A

Any previous Authorisations held? Yes No

If yes, please provide Authority number

Postal address

Hamilton City Council, Private Bag
3010, Hamilton, 3240, New
Zealand

Street address (if different from postal)

Council Building Garden Place,
Hamilton 3240

! You must provide a New Zealand address for service.

Registered office of company or incorporated society (if applicable)

N/A

Phone

07-838 6699

Website

www.hamilton.govt.nz

Contact person and role

Nathanael Savage, Principal Planner -
Infrastructure

Phone

07-838 6527

Mobile

! Please fill these three fields for your company contact person or if you are applying as an individual.

Email

Nathanael.Savage@hcc.govt.nz

Section B | Activities

1. Research/species management project description.

If the activity is research or species management, then please specify the purpose of the research or management activity.

Please provide a brief summary paragraph (100 words or less) here:

The Southern Links Project is a joint initiative between HCC and the New Zealand Transport Agency and secured by designations. It comprises approximately 21km of state highway, two new river crossings, one bridge upgrade and 11km of urban arterial roads. The purpose of this Wildlife Act Authority Application is to enable Hamilton City Council's contractors to salvage and displace native lizards potentially impacted by vegetation clearance works.

 Attach a copy of your research / management project proposal to this form and label it Attachment B1.

Please provide a more detailed summary of your proposal here:

Vegetation clearance is required at a range of sites within the project area (see Figure 5 of Attachment B1). At these locations, various methodologies are proposed for the clearance of each vegetation type (as detailed in full in Section 5.1 to 5.3 of Attachment B1).

The intent of these methodologies is to remove vegetation in stages to encourage lizards to relocate themselves before the vegetation is completely removed. Refuges for lizards will be created adjacent to the areas of vegetation removal to provide habitat for relocated lizards.

As detailed in Section 5.4 of Attachment B1, during all vegetation clearance works, a herpetologist will be present. If a native lizard is encountered during the vegetation clearance works, it will be captured and identified, sexed, measured, weighed and photographed, and be placed in containment boxes and held temporarily for release. Lizards will be released in an area adjacent to the Project Area which is unaffected by the works, preferably within the vicinity of the newly created refugia.

Additionally, two Lizard Restoration Areas will be created to offset the loss of habitat in the project area. These locations are detailed in Section 6.0 and 7.0 of Attachment B1. These sites will be planted with native species to provide habitat for native lizards, and a pest control regime will be implemented. Additionally, monitoring of the planting, pest control and lizard populations in these areas will be completed.

Section B (continued) | Activities

2. Species name and threat classification

Please list the common and scientific name/s and threat classification of all protected species for which the authorisation is sought.

Common name	Scientific name	NZ threat classification
1. copper skink	1. <i>Oligosoma aeneum</i>	1. not threatened
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.

! A New Zealand classification system guide can be found [here](#) on the DOC website.

3. Activities

3.1. Actions

Please select all the actions that are applicable to the activity you wish to carry out involving wildlife on and/or off public conservation land.

- | | |
|--|--|
| <input checked="" type="checkbox"/> Catch and handle wildlife on site | <input type="checkbox"/> Transfer captive wildlife from one holding facility to another holding facility |
| <input type="checkbox"/> Take samples from wildlife | <input checked="" type="checkbox"/> Kill wildlife |
| <input type="checkbox"/> Take or destroy the eggs of wildlife | <input type="checkbox"/> Hunt, disturb, kill or catch alive protected wildlife that are causing damage |
| <input type="checkbox"/> Attach identification bands to wildlife | |
| <input checked="" type="checkbox"/> Mark – tag or attach other scientific apparatus (except bands) to wildlife | |
| <input checked="" type="checkbox"/> Catch and temporarily hold wildlife in captivity (less than 3 months) | |

Other:

Section B (continued) | Activities

3.2. Purpose

Please select or specify the purpose of the activity.

Traditional/cultural use

Education

Species management

Museum display/collection

Rehabilitation of sick/injured animals

Other: protection of native lizards during vegetation clearance works.

Research

3.3. Is Animal Ethics approval required?

Yes

No

Don't know

! If yes, please attach evidence of Animal Ethics Approval

! If you apply for more than 10 years, processing may take longer as longer term impacts will need to be assessed and there may be additional legal requirements.

! See Authorisations and Special Conditions [for your information.](#)

4. Authorisation term and activity timeframes

4.1. Authorisation term

Authorisations will be granted for a limited term. Please specify the start and end dates you would like your proposed authorisation to cover and explain why this term is sought. e.g. '10 years' or 'July 2015 – March 2015.'

Term: September 2019 - September 2024

Reason: Construction activities are expected to be completed by mid 2024, however vegetation clearance works within this time frame will only be carried out in the warmer months of each year (September to April, weather dependent), to ensure that lizards are able to relocate themselves during habitat manipulation, as detailed in Section 5.1 of Attachment B1.

Yes No

see [Application forms: Apply for permits](#)

Section B (continued) | Activities

7.3. Samples for genetic modification

If you will be taking samples for genetic modification, please attach your Environmental Risk Management Authority (ERMA) application and label it attachment B6.2.3.

8. Marking, banding, tagging

8.1. Banding

Are you requesting to **band** wildlife?

Yes

No

8.2. Other marking

If you are proposing to mark wildlife with any other mark than a band, please describe the type of marking and details of the method to be used to attach it to ensure the animals' health and safety.

Mark/tag to be fitted

N/A

Method

9. Access to Restricted Lands

Special permission is required to enter some public conservation lands that have particularly high levels of protection. If you wish to enter land of any status listed below to carry out the proposed activity, please select the status and state the full name of the land to which permission for access is sought.

Nature Reserve (s20 Reserves Act 1977)

Name of land to be accessed

N/A

Scientific Reserve (s21 Reserves Act 1977)

Name of land to be accessed

N/A

Government Purpose (s22 Reserves Act 1977)

Name of land to be accessed

N/A

! Wildlife Act
Authorisations apply to private land and public conservation land. If the location is private land, you will also need the consent of the land owner.

! Use [DOCgis](#) to view Conservation Land.

Section B (continued) | Activities

Specially Protected Area in a National Park (s13 National Parks Act 1980)

Name of land to be accessed

N/A

State why?

Wildlife Sanctuary (s9 Wildlife Act 1953)

Name of land to be accessed

N/A

Wildlife Refuge (s14 Wildlife Act 1953)

Name of land to be accessed

N/A

10. Proposed activity site

10.1. Wild

State the location/s in which the activity will be carried out and why this site is the best option. For specific sites, please include a map (and GPS co-ordinates if available). Attach map and label it attachment B10.1.

Please see Appendix A of attachment B1 and/or Attachment B10.1

10.2. Captive

Please answer if the live animal/s; specimen/s; or sample/s is to be obtained from another authorised wildlife holder, who has an authorisation to hold the species in captivity or the specimen/sample. Fill in the following information of the person **from** whom the animal/specimen/sample will be obtained.

Name

N/A

Address

N/A

DOC authorisation number

Expiry Date (dd/mm/yyyy)

! If proposing to undertake your activity in a National Park, your activity must be essential for management, research, interpretation or educational purposes. Please state why?

! Use [DOCgis](#) to view Conservation Land.

! If you are intending to receive animals from another authorised holder, ensure they have an authorisation to transfer.

Section B (continued) | Activities

10.3. Holding live animals

Please fill in this question if you currently hold animals in captivity and wish to continue doing so; or you wish to receive animals held in captivity at another facility; or you wish to hold animals for less than 3 months for rehabilitation.

10.4. Captive management programme

Are you part of a co-ordinated captive management programme for the species? Yes No

If yes, please state the name of the DOC captive co-ordinator and whether they support this application.

Co-ordinator's name

N/A

Supports application? Yes No

10.5. Holding site

Provide a detailed description of the holding facility/cage including dimensions.

Holding site address:

N/A

Description of facility/cage

N/A

! Please attach written proof of their support and label it attachment B10.4

! The applicant must meet the requirements of the DOC Captive Management SOP (available [here](#)) and the facility must meet the requirements of the husbandry manual for the species, where one exists.

Section B (continued) | Activities

11. Management of effects

Please list all actual and potential adverse (or positive) effects of the proposed activity at the site, including effects on the target species, other indigenous species and the ecosystems at the site. Where adverse effects are identified please state what methods will be used to manage those effects.

Effect	Management method
Injury / mortality of native lizards	<p>All vegetation clearance works will be supervised by an experienced herpetologist(s) to ensure the LMP is implemented.</p> <p>All captured lizards will be handled by a DOC approved herpetologist to avoid any undue stress or injury to the animal.</p>
Habitat loss	Habitat adjacent to the vegetation clearance areas will be supplemented by the creation of lizard refugia (Section 5.3.4 of Attachment B1). Additionally, two Lizard Restoration Sites will be created to provide additional lizard habitat (Section 7.0 of Attachment B1).
Disturbance	Pitfall traps will be used during long term management. Best practice guidelines for lizard trapping will be followed.

! If you are applying to hold specimens or parts of them, or you are applying to hold wildlife already in captivity, you do not need to answer this question.

Section D | Applicant skills and experience

Please provide relevant information relating to your ability to carry out the proposed activity (e.g. details of previous authorisations, membership of professional organisations and relevant qualifications and experience). List full names of all individuals who will be involved in the activity.



Please attach details and label as Attachment D.

All individuals involved in activity

Full Names

To be appointed by Hamilton City Council. They will be a DOC approved herpetologist and this information will be provided to DOC on their appointment.

Has the applicant or any company directors, trustees, partners, or anyone involved with the application been convicted of any offence?

Yes

No

If yes please provide details:

Does the Applicant or any of the company directors, trustees, partners, or anyone involved with the Application have any current criminal charges pending before the court?

Yes

No

If yes please provide details:

Section E | Consultation

Many applications require consultation with Tāngata whenua (local Māori), and other interested parties. Please attach proof and details of all consultation, including with hapū or iwi, to this application and label as attachment E1

Please attach any additional written expert views, advice or opinions you have obtained concerning your proposal to support the application and label them attachment E2.

! If you are unsure of any consultation requirements for your proposal, please see the [iwi consultation section](#) or contact your [local DOC Partnerships office](#) to discuss what is required.

Section F | Fees

Please note

This section only applies to applications with a commercial focus – which will include applications from registered companies. The Department does not charge fees for non-commercial Wildlife Act authorisations.

! If you are making an application for non-commercial activity, [proceed to declaration](#).

Processing fees

Section 60B of the Conservation Act contains the statutory provisions regarding processing fees.

The Department recovers all direct and indirect costs to process an application from applicants regardless of whether the application is approved or declined. If at any stage an application is withdrawn, the Department will invoice the applicant for the costs incurred by the Department up to that point.

! Applicants are required to pay the processing fees within 28 days of receiving an invoice. The Director-General is entitled to recover any unpaid fees as a debt.

Standard application fee

The estimated standard application fee is **\$400 +GST**.

This covers most applications. However if your application is likely to have significant effects, is novel, or spans multiple DOC regions, it will require more careful consideration and may take up to 6 weeks to process and cost approximately **\$800 +GST**.

Particularly complex applications may incur further costs – you will be sent an estimate of costs in this situation. We will contact you to advise if the fee is more than the estimated standard cost. Applicants are also entitled to request an estimate of costs at any point, but the Department may impose a charge for preparing such an estimate. Estimates are not binding.

Paying fees

The Department will ordinarily invoice the applicant for processing fees after a decision has been made on the application, but in some cases interim invoices will be issued.

Please select your method of payment below.

- I have attached a cheque
- I have direct credited the DOC account

Please use the Applicant name and permission number (which the permissions team will give to you) as the references.

Department of Conservation
Westpac Bank
Account number: 03 0049 0002808 00

- I do not intend to pay the fees at the time of applying and/or I require an invoice for payment
- I have a purchase order/number from an organisation registered with DOC

! If you are applying from outside New Zealand we can process a credit card payment – please [contact us](#) to request this procedure.

PO-080673

Section F (continued) | Fees

Fee waivers and reductions

The Director-General has discretion to reduce or waive processing fees. You may apply for a fee waiver or reduction if you can provide information to the permissions team about how your application meets at least one of the following criteria.

- The activity will make a direct contribution to management
- The activity will support or contribute to the Department's priority outcomes – stated in the Department's 2013 – 2017 Statement of Intent
- There will be other non-commercial public benefits from the activities covered by the authorisation (if approved)
- Activity covered by the authorisation (other than research, collection or educational activities) will make a contribution to the management of, or the public interest in, the lands that are covered by the authorisation

The Department may obtain further information either from the applicant or from any other relevant source in order to process the application. The applicant will be advised of any information obtained from other sources. The cost of obtaining such information will be charged to and recovered from the applicant. The applicant will be informed as soon as practicable from receipt of the application if further information is required before this application form can be fully processed by the Department.

 View the Department's 2013 – 2017 Statement of Intent [here](#) for the priority outcomes.

Terms and conditions: Account with the Department of Conservation

Have you held an account with the Department before?

Yes

No

If **yes**, under what name?

Terms and conditions: Account with the Department of Conservation

1. I/We agree that the Department of Conservation can provide my details to the Department's Credit Checking Agency to enable it to conduct a full credit check.
2. I/We agree that any change which affects the trading address, legal entity, structure of management or control of the applicant's company (as detailed in this application) will be notified in writing to the Department of Conservation within 7 days of that change becoming effective.
3. I/We agree to notify the Department of Conservation of any disputed charges within 14 days of the date of the invoice.
4. I/We agree to fully pay the Department of Conservation for any invoice received on or before the due date.
5. I/We agree to pay all costs incurred (including interest, legal costs and debt recovery fees) to recover any money owing on this account.
6. I/We agree that the credit account provided by the Department of Conservation may be withdrawn by the Department of Conservation, if any terms and conditions of the credit account are not met.
7. I/We agree that the Department of Conservation can provide my details to the Department's Debt Collection Agency in the event of non-payment of payable fees.

Section F (continued) | Fees

Reduction in fees for exceeding processing timeframe

If the Department fails to meet its own processing timeframes the estimate of fees will be reduced at a rate of 1% per day late, up to a maximum of 50% of the total processing fee. The reduction will not apply if the Applicant's actions have delayed the process.

Additional Fees

You may also be required to pay additional fees. These may include:

- Annual management fee to cover administration time; and/or
- Monitoring fee to cover the cost of monitoring the effects of your activity.

! Please [contact the Permissions team](#) to discuss whether these fees apply.

Section G | Declaration

I certify that the information provided on this application form and all attached additional forms and information is to the best of my knowledge true and correct.

! An Authorisation may be varied or revoked if the information given in this application contains inaccuracies.

Signature (applicant)

Nathanael Savage
Nathanael Savage
Principal Planner - Infrastructure
D - 3022957

Date (dd/mm/yyyy)

1/8/2019

Full name (witness)

Fiona Davies

Address (witness)

8 Mahuhu Crescent, Auckland
1010

Signature (witness)

Fiona Davies

Date (dd/mm/yyyy)

02/08/2019

This application is made pursuant to Section/s 41(1)(g), 53; 54; 55; and/or 56 of the Wildlife Act 1953 [and (where applicable) Section/s 22; 49; 50; 51; 57; and/or 59 of the Reserves Act 1977; and/or Section/s 5; 13; 14(3) of the National Parks Act 1980; and/or 38 of the Conservation Act].

Applicants should familiarise themselves with the relevant provisions of the Wildlife Act 1953, the Conservation Act 1987, the Reserves Act 1977 and the National Parks Act 1980 relating to authorisations.

The purpose of collecting this information is to enable the Department to process your application. The Department will not use this information for any reason not related to that purpose.

Applicants should be aware that provisions of the Official Information Act may require that some or all information in this application be publicly released.

For Departmental use

Credit check undertaken?

Yes

No

Comments

Signed

Name

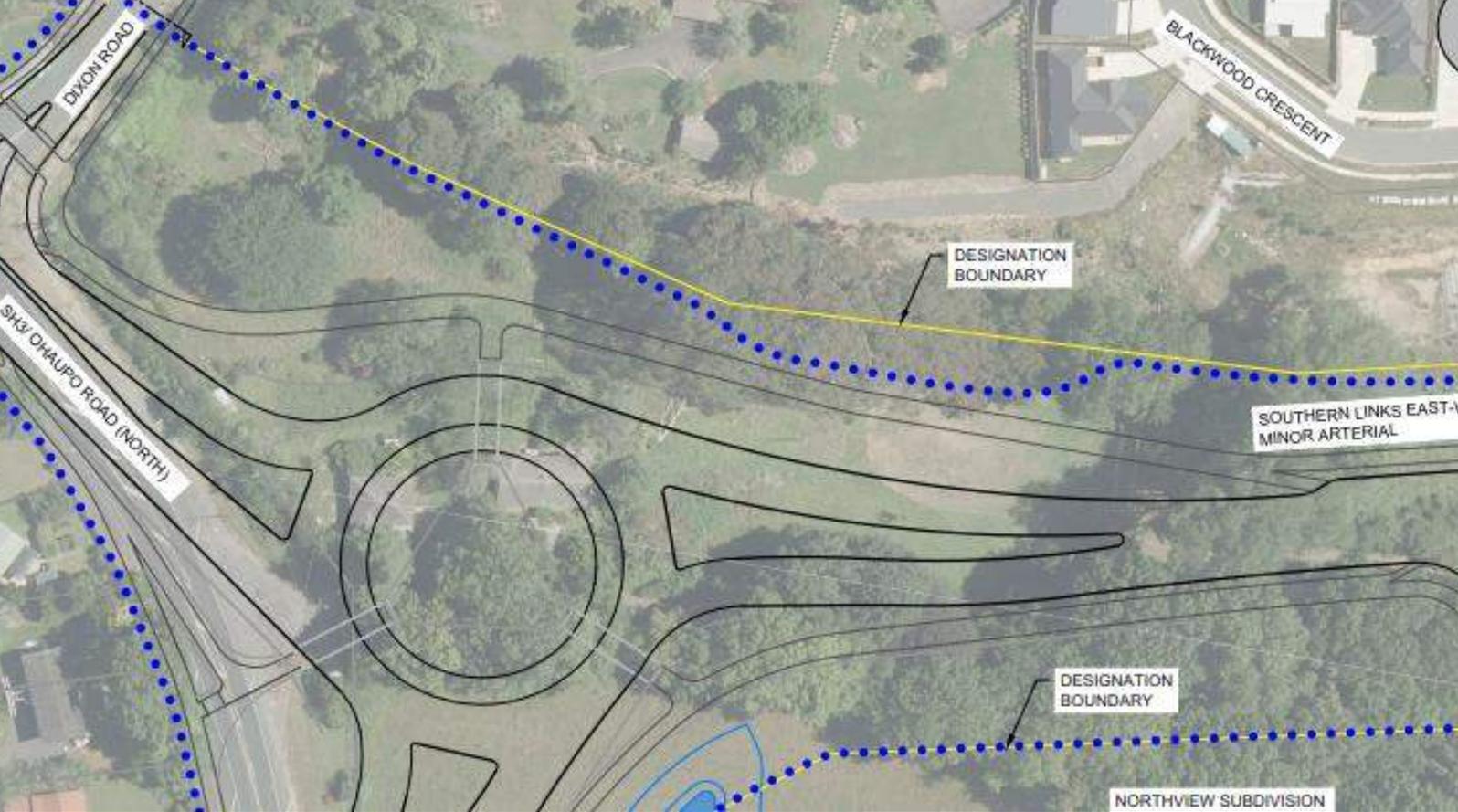
Approved

Name

! Approval is to be by a Tier 4 Manager or above.

Attachment A to Part 2.0

Styles Group Construction Noise and
Vibration Management Plan (CNVMP)
and Monitoring Report (31 March 2020)



StylesGroup
Acoustics & Vibration Consultants

CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN

SOUTHERN LINKS PEACOCKE AREA
OHAUPO ROUNDABOUT

PREPARED FOR
Schick Civil Construction Ltd

DATE
23 March 2020



Construction noise and vibration management plan prepared by Styles Group for Schick Civil Construction Ltd.

REVISION HISTORY

Rev:	Date:	Comment:	Version:	Prepared by:	Reviewed by:
1	23/03/20		Final	Kelly Leemeyer, MASNZ Consultant Styles Group	Jamie Exeter, MASNZ, Assoc. NZPI Senior Consultant Styles Group

COPYRIGHT

All material in this document including, without limitation, text, images, graphics, layout, intellectual property and any other information (collectively 'content') is subject to copyright and other proprietary rights, including but not limited to, the Copyright Act 1994 (New Zealand) and international copyrights, trademarks or other intellectual property rights and laws. Unless otherwise stated, the content in this document is owned by Styles Group. The content of this document may not be copied in whole or in part without the permission of Styles Group.

Table of contents

1.0	Introduction	1
2.0	Contacts.....	1
3.0	Project overview.....	1
3.1	Construction methodology	2
3.2	Timeframes	2
3.3	Hours of operation	2
3.4	Location plan	3
4.0	Noise and vibration criteria.....	4
5.0	Noise and vibration receivers.....	6
6.0	Stakeholder engagement.....	8
7.0	Noise sources	9
8.0	Vibration sources	10
9.0	Noise mitigation	11
9.1	General noise mitigation measures	11
9.1.1	Control at Source	11
9.1.2	Acoustic Screening	12
9.2	Minimum setback distances and activity specific noise mitigation	12
10.0	Vibration mitigation	13
11.0	Alternative noise and vibration mitigation strategies	14
12.0	Schedules to this CNVMP.....	14
13.0	Noise and vibration monitoring.....	15
13.1	Noise monitoring	15
13.2	Vibration monitoring	15
13.3	Building condition surveys	16
13.3.1	Process for repair of any damage caused by works	16
14.0	Corrective action measures	17
15.0	Complaints.....	19
16.0	Construction noise and vibration induction.....	20

Appendices

Appendix A Glossary of terms

1.0 Introduction

This construction noise and vibration management plan (CNVMP) details noise and vibration criteria, predicted levels, mitigation measures, monitoring requirements, and communication and complaint procedures, for:

- State Highway: State Highway 3
- Project: Southern Links Peacocke Area
- Construction location: Ohaupo Roundabout
- Construction start date: February 2020
- Construction finish date: August 2020

In accordance with the project conditions, the objective of this CNVMP is to provide a framework for the development and implementation of identified Best Practicable Options to avoid, remedy or mitigate the adverse effects of noise and vibration during construction and to minimise the frequency, duration and degree of exceedance of the noise and vibration standards (set out Section 3).

This CNVMP has been prepared in accordance with the project conditions, Appendix E of NZS 6803:1999 *Acoustics – Construction noise* and the NZTA State Highway Construction and Maintenance Noise and Vibration Guide. It is designed to ensure appropriate management of noise and vibration effects during the construction period of the project.

This CNVMP is a 'living document' that will be updated as the works progress and if changes become necessary. It will be certified by **Hamilton City** Council once the resource consent has been granted and the construction methodology for the development is confirmed.

A glossary of the acoustical terms used in this document is provided as Appendix A.

2.0 Contacts

Table 1: Contacts for the project

Role	Name	Organisation	Phone	Email
Client	Nathanael Savage	Hamilton City Council	07 838 6527	Nathanael.Savage@hcc.govt.nz
Engineer	Alasdair Gray	Gray Matter	0272497648	Alasdair.gray@graymatter.co.nz
Contractor	Matt Nugent	Schick Civil Construction Ltd	0210755920	Matt.nugent@schick.co.nz
Contractor's acoustics advisor	Jamie Exeter	Styles Group	0276958958	Jamie@stylesgroup.co.nz
Council – Noise/ Environmental Health	Peter Kirk	Hamilton City Council	021 823 112	Peter.kirk@hcc.govt.nz
Public complaint contact number	Hamilton City Council	Hamilton City Council	07 838 6699	info@hcc.govt.nz

The Contractor will be responsible for ensuring that this CNVMP is correctly implemented. The Contractors' representative will review all documentation relating to construction noise and vibration before it is issued.

All site personnel will be required to read and sign the construction noise and vibration induction form appended to this plan and any relevant schedules. If required, specific training will be provided for site personnel.

3.0 Project overview

The Peacocke SH3 / Ohaupo Rd Roundabout Project involves the construction of a dual circulating lane roundabout in Hamilton. This will form a new intersection on Ohaupo Road (SH3) with the Peacocke East-West Minor Arterial, approximately 100m south of the existing Dixon Road intersection.

3.1 Construction methodology

The Ohaupo Roundabout Project will involve the following construction tasks:

- Construction of base establishment
- Site clearing
- Over 50,000m³ of earthworks
- Drainage (including wetland pond development)
- 17,500 m³ of pavement and surfacing, including structural asphalt
- Structures – retaining walls and underpasses
- Lighting
- Traffic services.

Construction plant required to undertake this work includes:

- Excavators
- Vibratory and/or static compaction rollers
- Milling machine
- Asphalt paver
- Road sweeper
- Water trucks
- Truck and trailers
- Generators.

Night works, driven piling, rock breaking and blasting are not required for the works.

3.2 Timeframes

Construction works are estimated to take 30 weeks, beginning in February 2020, and being completed in August 2020 (approximately).

3.3 Hours of operation

To comply with the noise and vibration criteria detailed in Section 4, noisy works at the site will only be conducted on weekdays and Saturdays between 7:30 am and 6:00 pm.

Some quieter works may be undertaken between 7:00 am and 7:30 am and between 6:00 pm and 7:00 pm in areas where they can comply with the lower noise criteria

3.4 Location plan

The below location plan illustrates the extent of the works.



Figure 1: Site location plan

4.0 Noise and vibration criteria

The requirements for construction noise and vibration for the project are set out in Designation Conditions 11.1 to 11.8, reproduced below:

- 11.1 No later than forty (40) working days prior to the commencement of any stage of Construction Works, the Requiring Authority shall submit a Construction Noise and Vibration Management Plan (CNVMP) to the Territorial Authority's Chief Executive Officer or nominee for certification. The CNVMP shall be prepared by a suitably qualified and experienced expert.

The objective of the CNVMP is to provide a framework for the development and implementation of identified Best Practicable Options to avoid, remedy or mitigate the adverse effects of noise and vibration during construction and to minimise the frequency, duration and degree of exceedance of the noise and vibration standards set out in Conditions 11.3 and 11.4.

- 11.2 The CNVMP shall be prepared in accordance with the State Highway Construction and Maintenance Noise and Vibration Guide (NZTA, 2013), and include the procedures, methods and measures for the control of noise and vibration associated with all relevant Project Construction Works.

- 11.3 Construction noise must be measured and assessed in accordance with NZS 6803:1999 'Acoustics Construction Noise' (NZS 6803:1999). The construction noise limits for the purposes of the CNVMP that are to be complied with, as far as practicable, are as given in Table A below:

Day	Time	L _{Aeq} (15 min)	L _{AFmax}
Occupied PPFs (as defined in NZS 6806.2010)			
Weekdays	0630h – 0730h	60 dB	75 dB
	0730h - 1800h	75 dB	90 dB
	1800h - 2000h	70 dB	85 dB
	2000h - 0630h	45 dB	75 dB
Saturday	0630h - 0730h	60 dB	75 dB
	0730h - 1800h	75 dB	90 dB
	1800h - 2000h	45 dB	75 dB
	2000h - 0630h	45 dB	75 dB
Sundays and public holidays	0630h - 0730h	45 dB	75 dB
	0730h - 1800h	55 dB	85 dB
	1800h - 2000h	45 dB	75 dB
	2000h - 0630h	45 dB	75 dB
Commercial and industrial receivers			
All	0730h – 1800h	75 dB	
	1800h – 0730h	80 dB	

11.4 The CNVMP must describe the measures adopted to seek to meet the Category A vibration criteria set out in Table B below, where practicable. If measured or predicted vibration levels exceed the Category A criteria, then a suitably qualified and experienced person shall be engaged to assess and managed construction vibration to comply with the Category A criteria. If the Category A criteria cannot be practicably achieved, the Category B criteria in Table B below shall be applied. If measured or predicted construction vibration levels exceed the Category B criteria, then construction activity shall only proceed if vibration effects on those buildings at risk of exceeding the Category B criteria are assessed, monitored and mitigated by suitably qualified persons. The criteria are to be applied to either predicted ground vibrations or measured in accordance with ISO 4866:2020 and AS 2187-2:2006.

Type	Details	Category A	Category B	Location
Occupied dwellings	Monday to Friday 6:30 am to 8:00 pm	1.0 mm/s ppv	5 mm/s ppv	Inside the building
	All hours Sunday and Monday to Saturday 8:00 pm to 6:30 am	0.3 mm/s ppv	1.0 mm/s ppv	
Other occupied buildings	At all times	2.0 mm/s ppv	10.0 mm/s ppv	
All buildings	Transient vibration		BS 5228-2 Table B.2	Building foundation
	Continuous vibration	5.0 mm/s ppv	50% of BS 5228-2 Table B.2	
Underground services	Transient vibration	20.0 mm/s ppv	30.0 mm/s ppv	On pipework
	Continuous vibration	10.0 mm/s ppv	15.0 mm/s ppv	

11.5 In addition to those matters detailed in the State Highway Construction and Maintenance Noise and Vibration Guide, the CNVMP shall address the following aspects with regard to managing the adverse effects of construction noise and vibration:

- a) Identification of affected dwellings and other sensitive locations where vibration criteria apply, which shall include all houses located within 50 metres of general road construction activities, and 100 metres of piling, where those activities are undertaken on peat;
- b) Predicted noise levels set out as minimum compliance distances for key activities and items of plant and identification of any dwellings or other sensitive locations where works will be required within those minimum compliance distances;
- c) Mitigation options, including alternative strategies where full compliance with the noise criteria in Table A above and/or the vibration criteria in Table B above cannot practicably be achieved;

- d) Requirements for building condition surveys of critical dwellings, prior to and after completion of construction works and during the works if required (including all buildings measured or predicted to exceed the Category B vibration criteria contained in Table B above) and processes for repair of any damage caused by the works.
- 11.6 Where noise or vibration predictions made in accordance with the CNVMP show that levels from a particular activity or at a specific location might exceed the limits set out in Condition 11.3 and/or 11.4, or where measurements show that compliance is not being achieved, the Requiring Authority shall prepare Schedules to the CNVMP. These Schedules shall:
- a) be prepared in accordance with the State Highway Construction Noise and Vibration Guide and include the relevant details specified in the Guide, including activity specific and/or location specific noise and vibration predictions and mitigation;
 - b) include noise limits for the activity and an overview of mitigation options that have been considered, identifying which of those options are practicable; and
 - c) be provided to the Territorial Authority Chief Executive or nominee at least five (5) working days in advance of the relevant works being carried out and implemented, for certification.
- 11.7 In the event that either:
- a) the Territorial Authority certifies the Schedule, or
 - b) fails to advise the Requiring Authority of any concerns it has with the Schedule, within the five (5) working days period following receipt, then the activities covered by the Schedule may be carried out.
- 11.8 If the Territorial Authority advises the Requiring Authority of a concern it has with the Schedule, then no activity related to that concern shall be carried out until the matter has been addressed by the Requiring Authority to the satisfaction of the Territorial Authority.

5.0 Noise and vibration receivers

The area surrounding the site is residential, with farmland to the east of the site. The receivers displayed in Table 2 below have been identified as the nearest to the works and therefore the most affected by noise and vibration from the construction works. Where measurements are required (Section 12) they will be undertaken at representative locations and not necessarily at all receivers listed here.

Table 2: Nearest receivers

Address	Building type/comments	Approximate distance to boundary of construction site
7 Exeter Street	Residential dwelling	51 m

Address	Building type/comments	Approximate distance to boundary of construction site
9 Exeter Street	Residential dwelling	38 m
11 Exeter Street	Residential dwelling	14 m
13 Exeter Street	Residential dwelling	17 m
17 Exeter Street	Residential dwelling	7 m
19 Exeter Street	Residential dwelling	8 m
25 Exeter Street	Residential dwelling	10 m
27 Exeter Street	Residential dwelling	9 m
29 Exeter Street	Residential dwelling	11 m
31 Exeter Street	Residential dwelling	12 m
350 Ohaupo Road	Residential dwelling – block of flats	16 m
354 Ohaupo Road	Residential dwelling	21 m
364 Ohaupo Road	Residential dwelling	14 m
3/366 Ohaupo Road	Residential dwelling	24 m
4/366 Ohaupo Road	Residential dwelling	13 m
366A Ohaupo Road	Residential dwelling	11 m
366B Ohaupo Road	Residential dwelling	19 m
297A Ohaupo Road	Residential dwelling	35 m
299 Ohaupo Road	Residential dwelling	19 m
301 Ohaupo Road	Residential dwelling	13 m
100 Dixon Road	Residential dwelling	39 m
102 Dixon Road	Residential dwelling	17 m
104 Dixon Road	Residential dwelling	7 m
107 Dixon Road	Residential dwelling	35 m
109 Dixon Road	Residential dwelling	92 m

Address	Building type/comments	Approximate distance to boundary of construction site
18 Blackwood Crescent	Residential dwelling	13 m
20 Blackwood Crescent	Residential dwelling	9 m
22 Blackwood Crescent	Residential dwelling	12 m
24 Blackwood Crescent	Residential dwelling	27 m
26 Blackwood Crescent	Residential dwelling	35 m

The nearest receivers are shown in **Figure 2** below.



Figure 2: Map showing nearest receivers

6.0 Stakeholder engagement

A key aspect of this CNVMP is stakeholder engagement. There will be the following communication with the community regarding construction noise issues:

- A contact person will be available on site; their contact details will be prominently displayed at the entrance to the site so that they are clearly visible to the public.

- Prior to the works a newsletter or similar will be distributed to all “Affected in Proximity” parties which are those within 200 metres of the works. The newsletter will provide contact details and will detail the overall nature of the works. The same information will also be published in an advertisement in a local newspaper, on the Hamilton City Council website and on social media.
- Individual notification will be provided and meetings offered to all neighbours within 50 metres of the works. For any neighbours within approximately 20 metres of the works individual consultation will be continued throughout the works.
- Further information will be regularly provided to all neighbours with an update on the progress of the works, and the specific activities (including locations) due to be undertaken next. This may be provided by newsletters in a letter drop or by email. Updates will be provided at least every two or three months.
- Prior to any particularly noisy processes identified in a construction noise management schedule, the nearest affected neighbours will be contacted individually. Neighbours will be informed of the proposed timing of the specific works and where practicable any times which are particularly sensitive for neighbours will be avoided.

Complaints will be received and dealt with by the Requiring Authority in accordance with Section 13 of this CNVMP.

7.0 Noise sources

Table 3 lists all equipment proposed to be used on the site that may generate high noise levels and provides reference sound levels. Setback distances and mitigation measures for these noise sources are set out in Section 9. The reference sound level for each item of equipment has been estimated from NZS 6803:1999 Appendix C Guide to Sound Level Data on Site Equipment and Site Activities, the DEFRA Noise Database for Prediction of Noise on Construction Sites and Open Sites and measurements undertaken on similar projects by the project acoustics consultants. During initial site noise monitoring the reference data will be confirmed or adjusted where necessary.

Table 3: Noise sources and calculated separation distances

Construction activity	Type	Reference noise level 10 m from plant
Excavator	20 tonne	70 dB
Excavator	30 tonne	77 dB
Vibratory roller	9 tonne	75 dB

Construction activity	Type	Reference noise level 10 m from plant
Idling dump truck	9 tonne	64 dB
Milling machine	17 tonne	82 dB
Asphalt paver	18 tonne	77 dB
Road sweeper	Up to 10 tonne	70 dB
Water tanker	Up to 10 tonne	70 dB

8.0 Vibration sources

Table 4 shows key activities and equipment likely to generate vibration. Measurements/estimates of vibration from that equipment have been included, sourced from similar roading projects. The data will be confirmed or adjusted where necessary once site works have commenced (it should be noted that the initial reference vibration levels are measured from the ground whereas the appropriate assessment location for the project will be at the foundations of the receiving building. The reference levels may be considered conservative until site and plant specific data is available and the response of the receiving buildings is better understood).

Table 4: Key vibration sources

Construction activity	Equipment	Vibration data
Excavating soil	20 t excavator	2.5 mm/s at 3 m
Shaking soil from bucket	30 t excavator	1.3 mm/s at 25 m
Laden truck and trailer manoeuvring on site	Truck and trailer	1.7 mm/s at 22 m
Vibratory compaction	7 t vibrating smooth drum roller	3.2 mm/s at 5 m
Vibratory compaction	10 t steel drum roller	9.9 mm/s at 2 m
Vibratory compaction	10 t steel drum roller	2.4 mm/s at 12 m
Compaction	HAMM HD 75 smooth drum roller	1.6 mm/s at 8 m

9.0 Noise mitigation

Indicative calculations have been undertaken for the main items of equipment based on the outline construction methodology and minimum distances to the nearest neighbours. On this basis the following general noise control measures are required to maintain compliance with the construction noise criteria, adopt the best practicable option to reduce noise emissions from the site, and conform to good practice.

9.1 General noise mitigation measures

The contractor will take all practicable steps to reduce the noise associated with the works by implementing the general noise mitigation measures listed below:

9.1.1 Control at Source

- i. Where possible, the quietest machinery and methods available and practicable will be used.
- ii. All machinery will be either new or in good condition upon its arrival at the site, and will thereafter be maintained in good condition throughout the entire duration of the project. For example, all tracked plant will be greased to reduce squeaking.
- iii. Upon arrival at the site, the machinery and plant will be checked to ensure that it is not generating unnecessary noise, and will be rectified if necessary.
- iv. When selecting any plant such as compressors, generators or pumps for use on the project, the degree of noise generation between models will be considered as a major factor.
- v. When machinery or plant is not required to be running, it should be switched off and not left idling.
- vi. Noisy plant and machinery should be strategically positioned on the site to reduce the effects on neighbours where practicable.
- vii. Where practicable, all plant and equipment shall utilise broadband reverse alarms in place of traditional pure tone 'beepers'.
- viii. The tail gates of trucks must be closed with care and not slammed or allowed to fall closed causing unnecessary noise.
- ix. Horns shall not be used under any circumstances unless in the case of an emergency.
- x. Any radios or music played on site must be inaudible at the nearest dwellings.
- xi. All workers shall be familiar with the provisions of this CNVMP and made aware of the impacts of noise and the above methods that can be used to minimise noise emissions.

- xii. Where possible and appropriate, the plant and machinery on the site should be located in such a way that quiet machinery and structures can provide as much screening as possible to other noisy equipment working on the site.

9.1.2 Acoustic Screening

- xiii. All screening used should be located as close as practicable to the noise sources to improve their effectiveness.
- xiv. Screening should generally be 2.0 m high or 1.5 times the height of the noisiest part of the plant/machinery, whichever is the greater.
- xv. Where localised screens are used, they should block line-of-sight from the noisiest part of the plant/machinery to the receiver by as much as possible, including the upper facades of any multiple level buildings. The screens should be constructed to extend past the noise source by a distance of 1.5 times the height of the plant/machinery. If possible, the screening should partially surround the noise source.
- xvi. To be acoustically effective, all screening must be no less than 2 m in height and have a surface density of no less than 10 kg/m^2 with no gaps along the length of the barrier or between the barrier and the ground. This may be achieved, for example, using sheets of 20 mm plywood or proprietary mobile acoustic barriers. Consult the project acoustics consultant for further options on acoustic barrier design.

9.2 Minimum setback distances and activity specific noise mitigation

Table 5 displays the minimum setback distances for noisy activities on site to comply with the project limits. These are provided for both unmitigated works and when using an acoustically effective barrier. A reduction of 8 – 12 dB is assumed for an acoustically effective barrier, depending on the minimum height of the barrier stated and the noise source.

All activities are expected to comply with the project limits using acoustically effective screening. If milling is required within 15 m of an occupied dwelling, a schedule to this CNVMP will be prepared in accordance with Section 12 and this CNVMP will be updated (it cannot be confirmed at this stage if milling is required within the setback distance).

Table 5: Setback distances for noise mitigation

Activity/Equipment	Setback distance and mitigation required
Milling machine	Works within 38 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits. Works within 15 m of an occupied receiver will require 2.5 m high acoustically effective screening to reduce noise levels by as far as practicable
Asphalt paver or 30 t excavator	Works within 22 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits Works within 8 m of an occupied receiver will require 2.5 m high acoustically effective screening to comply with the noise limits
Vibratory roller	Works within 17 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits
20 t excavator, road sweeper and water tanker	Works within 10 m of an occupied receiver will require 2 m high acoustically effective screening to comply with the noise limits

10.0 Vibration mitigation

The following general vibration mitigation measures shall be observed at all times:

- xvii. Where plant items over 20 t are to be used near to the neighbouring dwellings the lightest model practicable shall be selected for the work to minimise induced vibration
- xviii. Wheeled plant shall be selected in preference to tracked plant where practicable
- xix. Compaction shall be completed using the lightest practicable compaction equipment (and static compaction only if possible) without sacrificing compaction specifications
- xx. Excavator operators shall avoid banging buckets on the ground
- xxi. Workers shall be informed prior to the works commencing to ensure awareness of the impacts of vibration and the methods that can be used to minimise its generation.

If any specific vibration mitigation measures become necessary they will be added to this section of the CNVMP.

11.0 Alternative noise and vibration mitigation strategies

It is not anticipated that the project noise or Category B vibration criteria will be exceeded. The noise and vibration measures set out in this document will be practicable to implement and will enable compliance. Where any non-compliant noise or vibration levels are measured, the corrective action measures outlined in Section 1714.0 of this CNVMP must be followed.

In the event that full compliance cannot be achieved by using practicable mitigation measures, alternative mitigation measures will be implemented in consultation with the affected residents. Such measures may include using alternative methodologies to complete the non-compliant works or undertaking noisy works when residents are not home.

12.0 Schedules to this CNVMP

Where noise or vibration predictions made in accordance with the CNVMP show that levels from a particular activity or at a specific location might exceed the limits set out in Section 4, or where measurements show that compliance is not being achieved, the Requiring Authority shall prepare Schedules to the CNVMP. These Schedules shall:

- Be prepared in accordance with the State Highway Construction Noise and Vibration Guide and include relevant details specified in the Guide, including activity specific and/or location specific noise and vibration predictions and mitigation
- Include noise limits for the activity and an overview of mitigation options that have been considered, identifying which of those options are practicable
- Be provided to the Territorial Authority Chief Executive or nominee at least five (5) working days in advance of the relevant works being carried out and implemented, for certification.

The schedule will identify the potentially affected neighbours and confirm the proposed methodology and equipment to be used, along with specific mitigation.

Noise predictions will be used to identify where specific mitigation is required and to determine compliance with the project noise criteria (refer Section 4) for the time of operation.

Predictions of vibration can be made using the guidance in BS 5228-2.

The schedule will detail any specific monitoring or communication requirements.

The schedule will be read and signed by all site personnel involved in the work, prior to the activity commencing.

13.0 Noise and vibration monitoring

This section sets out the requirements for construction noise and vibration monitoring during the project.

13.1 Noise monitoring

Noise monitoring shall be conducted by a suitable qualified person in accordance with NZS 6801:2008 and NZS 6803:1999, using the NZTA construction monitoring survey sheet and procedures (www.acoustics.nzta.govt.nz).

Monitoring will be conducted as follows:

- When the works start to verify the sound levels assumed for each of the major items of equipment, and to assess the effectiveness of noise control measures and implementation of this plan
- To monitor ongoing compliance with the construction noise and vibration criteria at regular intervals
- During critical phases of construction, such as the first use of heavy earth moving machinery and other noisy activities within 50 metres of neighbours
- As required by a construction noise management schedule
- If required, in response to construction noise related complaints.

If noise monitoring indicates that project noise criteria are being exceeded (and the exceedance has not been anticipated in a schedule in accordance with Section 11), the works shall cease as soon as it is safe to do. The relevant schedule will be immediately reviewed or a new schedule prepared as required and this CNVMP will be updated accordingly.

13.2 Vibration monitoring

Vibration monitoring shall be conducted by a suitable qualified person in accordance with ISO 4866:2010 and AS 2187-2:2006.

Monitoring will be conducted as follows:

- When the works start to verify the vibration levels assumed for each of the major items of equipment, and to assess the effectiveness of the implementation of this plan
- To monitor ongoing compliance with the construction noise and vibration criteria at regular intervals

- During critical phases of construction, such as during the first use of heavy earth moving machinery and compaction works within 20 metres of neighbours
- As required by a construction noise management schedule
- If required, in response to construction vibration related complaints.

If vibration monitoring indicates that project vibration criteria are being exceeded (and the exceedance has not been anticipated in a schedule in accordance with Section 11), the works shall cease as soon as it is safe to do. The relevant schedule will be immediately reviewed or a new schedule prepared as required and this CNVMP will be updated accordingly.

13.3 Building condition surveys

For all locations where it is predicted or measured that the Category B vibration limits for unoccupied buildings will be exceeded, a building condition survey will be conducted prior to the vibration generating works. Building condition surveys will also be undertaken for any structure that is identified as being particularly sensitive to vibration.

A report will be prepared for each building surveyed including:

- A description of the building condition and any existing cosmetic and structural damage
- Sketches and photographs showing the location and extent of any existing damage such as cracks
- Verification of the report by the surveyor and building owner.

Following the works all building condition surveys will be repeated. Reports will be prepared including:

- Sketches and photographs of any new damage
- Verification of the report by the surveyor and building owner.

13.3.1 Process for repair of any damage caused by works

It is not anticipated that the Category B vibration limits will be exceeded at any time, based on the work required and the separation distances to the nearest receivers.

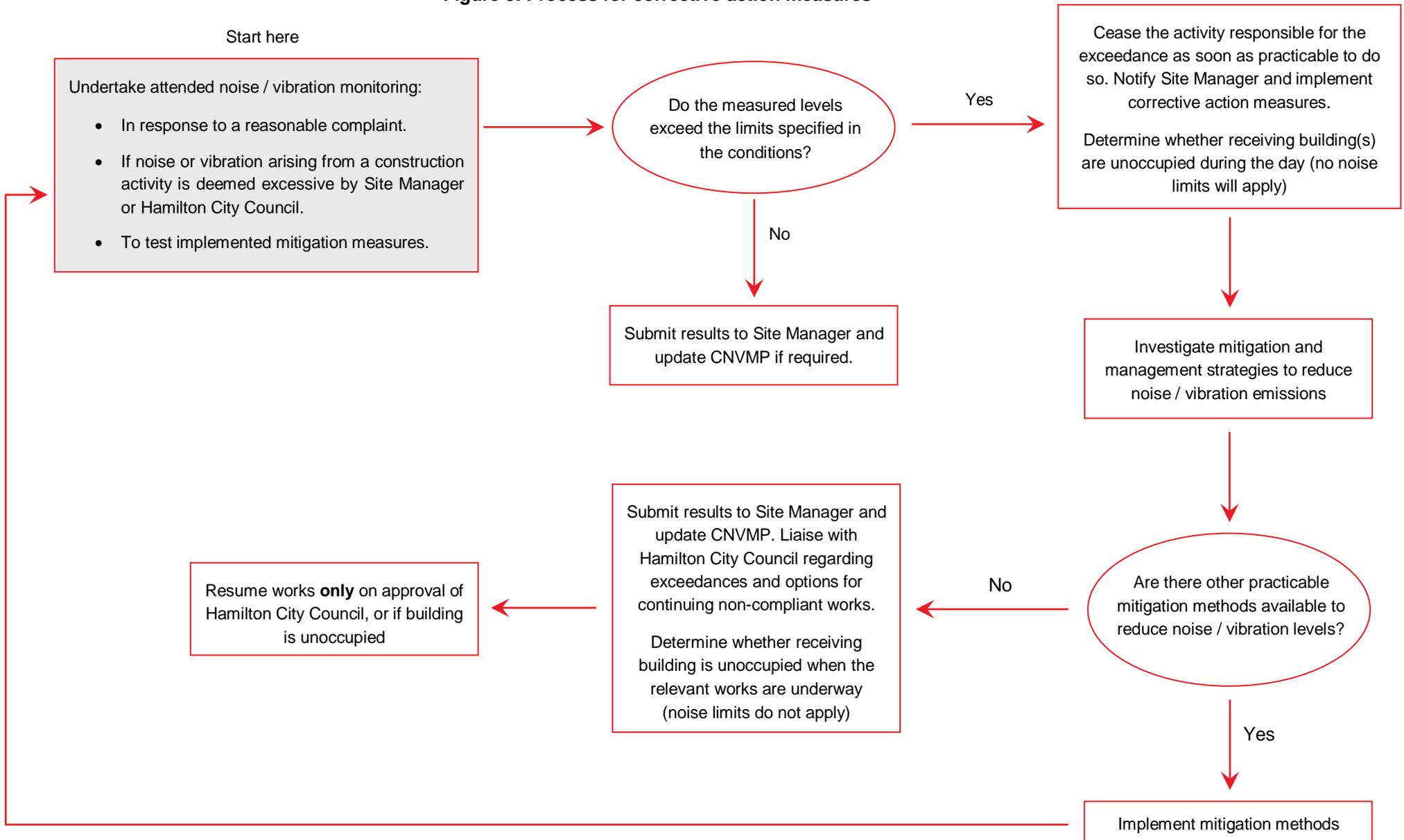
In the event that building damage occurs as a result of the construction works, the stakeholder liaison manager will consult the affected parties to organise the repair of damage as appropriate.

14.0 Corrective action measures

Should noise or vibration measurements undertaken by either Hamilton City Council or the consent holder (or their representatives) identify non-compliance with the limits set out in this CNVMP, the following corrective action measures shall be carried out. The process is illustrated by Figure 3.

- i. The activity responsible for the noise or vibration shall cease as soon as practicable and only if safe to do so
- ii. Further mitigation options shall be investigated. Where practicable mitigation measures are available, these shall be implemented and step (iii) followed
- iii. Monitoring shall be undertaken to confirm the performance of the mitigation measures
- iv. If non-compliance is identified, including the further mitigation measures implemented, the process shall be repeated from step (i)
- v. A report detailing steps (i) – (iv) shall be submitted to Hamilton City Council within 5 working days of the non-compliance being identified.

Figure 3: Process for corrective action measures



15.0 Complaints

In accordance with Designation Conditions 10.1 – 10.4, the following processes will be followed upon the receipt of noise or vibration complaints to address the concerns or complaints received:

- i. Identify the nature of the complaint, and the location, date and time of the alleged incident / event(s)
- ii. Acknowledge receipt of the complaint within 24 hours of receipt
- iii. Respond to the complaint with monitoring of the activity by a suitably qualified and experienced person and implementation of mitigation measures.

A record of all complaints received must be kept. The record must include:

- i. The name and address of the person(s) who raised the complaint (unless they elect not to provide this) and details of the complaint
- ii. Where practicable, weather conditions at the time of the concern or complaint, including wind direction and cloud cover
- iii. Known construction activities at the time and in the vicinity of the concern or complaint
- iv. Any other activities in the area unrelated to the Project construction that may have contributed to the complaint such as non-Project construction, fires, traffic accidents or unusually dusty conditions generally
- v. Remedial actions undertaken (if any) and the outcome of these, including monitoring of the activity
- vi. This record shall be maintained on site, be available for inspection upon request, and shall be provided every three (3) months (or as otherwise agreed) to the Territorial Authority Chief Executive or nominee.

Where a complaint remains unresolved or a dispute arises, that matter shall be dealt with in accordance with Designation Condition 10.4.

16.0 Construction noise and vibration induction

The following information will be included in all staff and contractor noise and vibration inductions:

- i. There are several residential neighbours in close proximity to the works, where noise and vibration criteria apply. To ensure criteria are achieved, all staff are responsible for good noise and vibration management
- ii. When arriving at work, please drive slowly on site and keep revs to a minimum. Keep stereos off and do not slam doors
- iii. No shouting or swearing on site. Either walk over and talk to somebody or use a radio/phone
- iv. Be careful with tools and equipment. Place them down and do not drop them
- v. Do not drag materials on the ground. Place them down when you arrive at the work area
- vi. Equipment and vehicles should not be left running when not in use
- vii. When loading trucks try not to drop material from a height. Load softer material at the bottom
- viii. Noise enclosures should always have all doors/hatches closed when the equipment is in use
- ix. Stationary equipment such as pumps and generators should be located away from neighbours
- x. All equipment is to be well maintained
- xi. No work that could cause noise and/or vibration disturbance shall be conducted outside the hours of 0730h to 1800h Monday to Saturday (and no work at all shall be conducted outside the hours of 0630h to 2000h)
- xii. If you see anything/anyone making unnecessary noise then stop it/them. If the source cannot be stopped then report it to the appropriate person listed in Table 1 of the CNVMP
- xiii. It is essential that good relationships are maintained with the local community. Any queries from members of the public should be responded to politely and referred to the appropriate person listed in Table 1 of the CNVMP. Staff shall assist the public to make contact with this person. Staff shall not enter into debate or argue with members of the public
- xiv. No work that could cause noise and/or vibration disturbance is to be conducted until all staff involved in the task have read and signed the Construction Noise/Vibration Management Schedule for that task.
- xv. An entry will be made in the following table for all staff and contractors inducted for noise and vibration on the site:

Name	Company	Signed	Date

Appendix A Glossary of terms

Noise	A sound which serves little or no purpose for the exposed persons and is commonly described as ‘unwanted sound’. The definition of noise includes vibration under the Resource Management Act 1991.
Best practicable option	Defined in section 2 of the Resource Management Act 1991 as: in relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to— <ul style="list-style-type: none"> a. the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and b. the financial implications, and the effects on the environment, of that option when compared with other options; and c. the current state of technical knowledge and the likelihood that the option can be successfully applied.
dB (decibel)	The basic measurement unit of sound. The logarithmic unit used to describe the ratio between the measured sound pressure level and a reference level of 20 micropascals (0 dB).
A-weighting	A frequency filter applied to the full audio range (20 Hz to 20 kHz) to approximate the response of the human ear at lower sound pressure levels.
$L_{Aeq(t)}$ (dB)	The A-weighted equivalent sound pressure level with the same energy content as the measured varying acoustic signal over a sample period (t). The preferred metric for sound levels that vary over time because it takes into account the total sound energy over the time period of interest.
L_{AFmax} (dB)	The maximum A-weighted sound pressure level recorded during the measurement period using a fast time-weighting response.
NZS 6801:2008	N.Z. Standard NZS 6801:2008 Acoustics – Measurement of environmental sound.
NZS 6802:2008	N.Z. Standard NZS 6802:2008 Acoustics – Environmental noise.
NZS 6803:1999	N.Z. Standard NZS 6803:1999 Acoustics – Construction noise.
DIN 4150–3:1999	German Standard DIN 4150-3:1999 Structural Vibration – Part 3: Effects of vibration on structures. Typically adopted for the assessment of structure borne vibration in New Zealand.
PPV	Peak particle velocity, measured in mm/s. The standard metric for the measurement of ground borne vibration in New Zealand. The instantaneous maximum velocity reached by a vibrating element as it oscillates about its rest position.
CNVMP	Construction noise and vibration management plan. A document to help the contractor manage noise and vibration emissions during construction works.

31 March 2020

Matt Nugent
Schick Civil Construction Limited

P. 09 308 9015
E. info@stylesgroup.co.nz
W. www.stylesgroup.co.nz
Saatchi & Saatchi Building,
L2, 125 The Strand, Parnell
PO Box 37857, Parnell,
Auckland 1151

By email: matt.nugent@schick.co.nz

Dear Matt,

Vibration monitoring – Ohaupo Roundabout works

Introduction

Styles Group has been engaged by Schick Civil Construction Ltd to undertake vibration measurements for the Ohaupo roundabout construction project. Vibration monitoring was undertaken on 24 March 2020 to obtain site specific data during the use of moxy trucks, truck and trailer units, excavators, a bulldozer, a grader, and static and vibratory rollers.

The purpose of the vibration measurements was to quantify the vibration levels from plant operating on site to determine whether additional mitigation measures are likely to be required for works to comply with the vibration criteria when they progress closer to neighbouring receivers.

Project vibration limits

The designation condition relevant to the control of vibration is 11.4, as follows:

- 11.4 The CNVMP must describe the measures adopted to seek to meet the Category A vibration criteria set out in Table B below, where practicable. If measured or predicted vibration levels exceed the Category A criteria, then a suitably qualified and experienced person shall be engaged to assess and managed construction vibration to comply with the Category A criteria. If the Category A criteria cannot be practicably achieved, the Category B criteria in Table B below shall be applied. If measured or predicted construction vibration levels exceed the Category B criteria, then construction activity shall only proceed if vibration effects on those buildings at risk of exceeding the Category B criteria are assessed, monitored and mitigated by suitably qualified persons. The criteria are to be applied to either predicted ground vibrations or measured in accordance with ISO 4866:2020 and AS 2187-2:2006.

Type	Details	Category A	Category B	Location
Occupied dwellings	Monday to Friday 6:30 am to 8:00 pm	1.0 mm/s ppv	5 mm/s ppv	Inside the building
	All hours Sunday and Monday to Saturday 8:00 pm to 6:30 am	0.3 mm/s ppv	1.0 mm/s ppv	
Other occupied buildings	At all times	2.0 mm/s ppv	10.0 mm/s ppv	
All buildings	Transient vibration	5.0 mm/s ppv	BS 5228-2 Table B.2	Building foundation
	Continuous vibration		50% of BS 5228-2 Table B.2	
Underground services	Transient vibration	20.0 mm/s ppv	30.0 mm/s ppv	On pipework
	Continuous vibration	10.0 mm/s ppv	15.0 mm/s ppv	

The British Standard (BS 5228-2) Table B.2 limits are set out below in Table 1:

Table 1: Table B.2 Transient vibration guide values for cosmetic damage from BS 5228-2:2009

Line	Type of building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
		1	Reinforced or framed structures Industrial and heavy commercial buildings
2	Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

NOTE 1 Values referred to are at the base of the building

NOTE 2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero peak) is not to be exceeded

The vibration sources on site are classified as transient vibration. All adjacent receiving buildings are residential buildings. The category B limits for unoccupied buildings are therefore the Line 2 limits set out in Table 1 above.

In accordance with Designation Condition 11.4, there are two assessment positions for vibration, as follows:

- i. Inside the building, for occupied buildings (amenity limits)
- ii. At the building foundation, for all buildings (building damage limits).

Vibration measurements

This section sets out the activities on site, the vibration monitoring equipment and the methodology.

Activities on site

Vibration measurements were undertaken on 24 March 2020 from the site during a number of different construction activities, including:

- Static and vibratory compaction (Caterpillar CS563C smooth drum roller)
- Static and vibratory compaction (padfoot roller)
- Truck and trailer unit driving past (fully laden and empty)
- 20 tonne excavator tracking (Zaxis 200LC)
- Grading (Volvo G946b motor grader)
- Bulldozer tracking
- Moxy truck driving past (fully laden and empty).

Equipment used

Measurements were undertaken using an InstanTel Micromate seismic instrument and a DIN 315 Hz tri-axial geophone. Serial numbers and laboratory calibration data is available on request.

Methodology

Vibration measurements were performed by burial method in accordance with the normative references of the DIN 4150–3:1999 standard.

The instrument was initially positioned at 5 m from the vibration source. Further vibration measurements were undertaken at 10 m, and 15 m for some sources, depending on the level of vibration measured. Measurements were not undertaken at 10 m and 15 m where the measured vibration levels at 5 m were low enough to demonstrate that compliance with the Category A and / or Category B limits would not be an issue.

Results

The results of the measurements are set out in Table 2 – Table 7 below and in Appendix A.

Table 2: Vibration measurements of smooth drum roller, 5 m

Activity / setting	Maximum PPV measured	Frequency
Static	1.2 mm/s	15 Hz
Vibratory	1.3 mm/s	14 Hz
Start / stop in front of sensor	0.8 mm/s*	11 Hz

*typically start/stop vibration would be higher than steady state operation, but this is correct and is a function of this specific roller

Table 3: Vibration measurements of padfoot roller

Activity / setting	Distance	Maximum PPV measured	Frequency
Static	5 m	0.9 mm/s	16 Hz
	10 m	0.5 mm/s	17 Hz
	15 m	0.4 mm/s	17 Hz
Vibratory	5 m	5.3 mm/s	23 Hz
	10 m	3.6 mm/s	20 Hz
	15 m	2.6 mm/s	26 Hz
Start / stop in front of sensor	5 m	11.1 mm/s	20 Hz
	10 m	7.8 mm/s	26 Hz
	15 m	4.1 mm/s	15 Hz

Table 4: Vibration measurements of 21 t excavator

Activity / setting	Distance	Maximum PPV measured	Frequency
Tracking	5 m	3.1 mm/s	15 Hz
Tracking	10 m	2.7 mm/s	13 Hz
Tracking	15 m	1.3 mm/s	12 Hz

Table 5: Vibration measurements of bulldozer

Activity / setting	Distance	Maximum PPV measured	Frequency
Tracking	5 m	3.4 mm/s	37 Hz
Tracking	10 m	2.3 mm/s	32 Hz

Table 6: Vibration measurements of 20 t excavator

Activity / setting	Distance	Maximum PPV measured	Frequency
Tracking	5 m	2.1 mm/s	12 Hz
Tracking	10 m	1.5 mm/s	10 Hz

Table 7: Vibration measurements of grader, truck and trailer and moxy truck

Plant	Distance	Maximum PPV measured	Frequency
Grader	5 m	0.2 mm/s	8 Hz
Truck and trailer – empty	5 m	0.3 mm/s	12 Hz
Truck and trailer – fully laden	5 m	0.1 mm/s	7 Hz
Moxy truck – empty	5 m	0.4 mm/s	9 Hz
Moxy truck – fully laden	5 m	0.2 mm/s	9 Hz

Analysis of results

The assessment position for the Category A (human amenity) limits is inside the building. The assessment position for the Category B (building damage) limits is at the building foundation. Compliance at these assessment positions is discussed in the following sections. Vibration measurements undertaken in the ground are typically higher than what would be measured in a building in the same location due to the loss of vibration as it travels from the ground into a structure (transmission loss).

Compliance with Category A criteria

The following activities will be able to comply with the most stringent Category A vibration limits during the day (1.0 mm/s for occupied buildings). This is based on our measurements and takes into account the additional distance to the closest receivers and the transmission loss for vibration being measured inside or on the building:

- Smooth drum roller (static and vibratory function)
- Grader
- Truck and trailer units (empty and fully laden)
- Moxy trucks (empty and fully laden)
- Padfoot roller (static operation only).

Compliance with Category B criteria

It will not be practicable for the following activities to comply with the Category A criteria at all times where they are required within 10 – 20 m of neighbouring occupied buildings:

- Padfoot roller (vibratory function)

- 20 t excavator
- Bulldozer.

Vibration from the excavators and bulldozer can be minimised by tracking the plant slowly when within 30 m of neighbouring buildings but, at times, the vibration levels may still exceed the 1.0 mm/s (occupied dwellings) and the 2.0 mm/s (other occupied buildings) vibration limits. However, at all times these works can comply with the Category A criteria for “all buildings” (5.0 mm/s when measured at the foundations) and the Category B criteria.

We understand that the vibratory function on the padfoot roller will not need to be used in proximity to any occupied dwellings for the project.

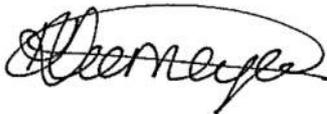
Conclusion

Styles Group has undertaken vibration measurements of earth moving equipment operating on site for the Ohaupo roundabout construction project. Measurements were undertaken on 24 March 2020 during the operation of moxy trucks, truck and trailer units, excavators, a bulldozer, a grader, and static and vibratory rollers.

The results of the vibration monitoring demonstrate that the permitted Category A vibration limits can be complied with during use of all plant and trucks measured, except the 20 t excavator (or larger model) and bulldozer. Vibration from these two activities can comply with the Category A criteria for the majority of the time, but may exceed these criteria if used within 10 – 20 m of occupied dwellings. All activities can comply with the Category B criteria at all times.

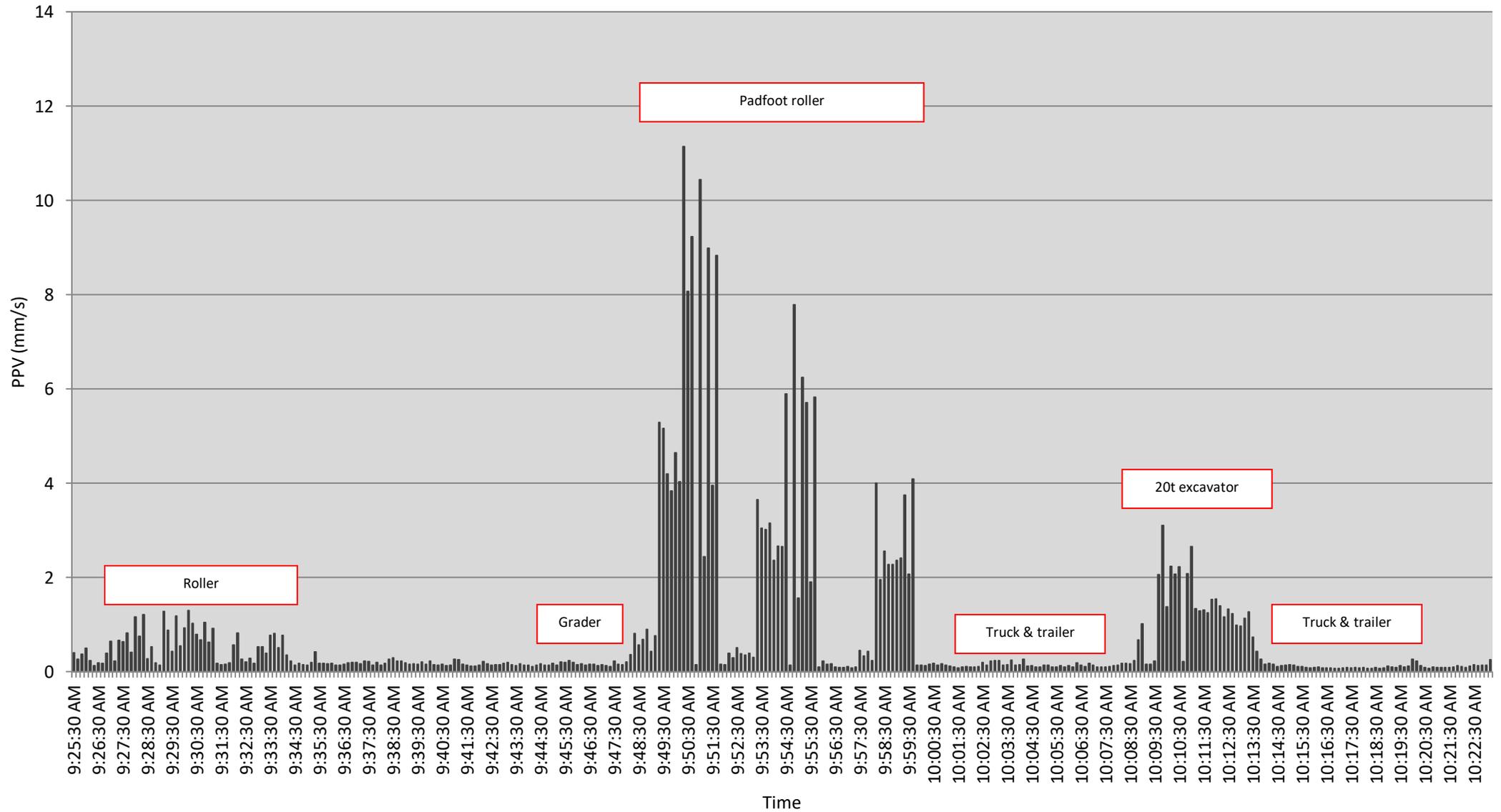
Please contact me if you require any further information.

Yours sincerely,

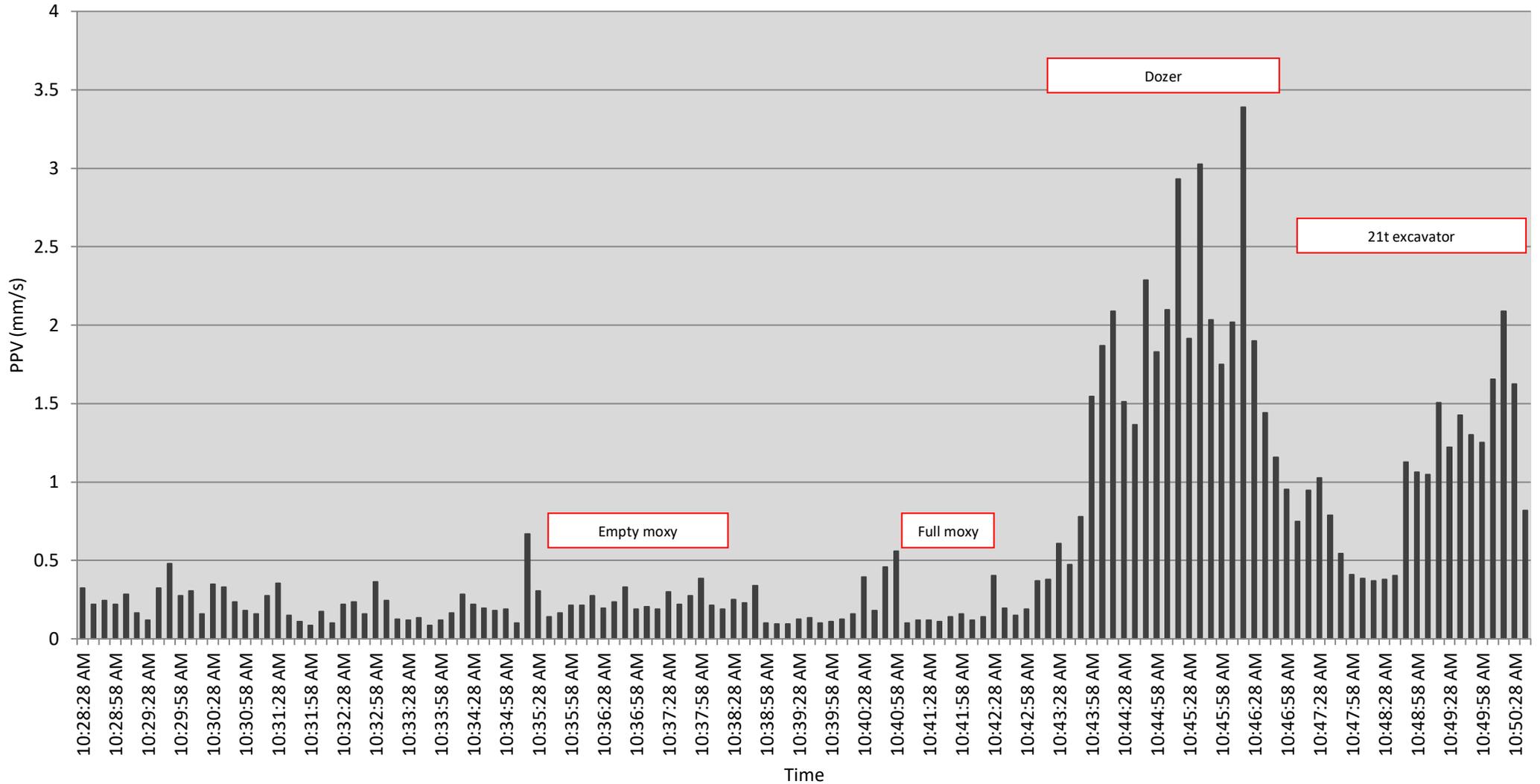


Kelly Leemeyer, MASNZ
Consultant

Vibration monitoring 24 March 2020
Ohaupo roundabout works



Vibration monitoring 24 March 2020
Ohaupo roundabout works



Attachment A to Part 3.0

Construction Traffic Management Plan (CTMP)

TRAFFIC MANAGEMENT PLAN (TMP) – FULL FORM

Use this form for complex activities. Refer to the NZ Transport Agency's Traffic control devices manual, part 8 Code of practice for temporary traffic management (CoPTTM), section E, appendix A for a guide on how to complete each field.

Organisations /TMP reference	TMP reference: 5170 SH3 Roundabout	Contractor (Working space): Schick Civil Construction Ltd	Principal (Client): Hamilton City Council		
		Contractor (TTM): Broadspectrum	RCA: New Zealand Transport Agency Hamilton City Council		
Location details and road characteristics	Road names and suburb		House no./RPs (from and to)	Road level	Permanent speed
	VMS locations State Highway 3				
	VMS 1		003-0000-B/1.490	L2	60km/hr.
	VMS 2		003-0000-B/3.040		100km/hr.
	State Highway 3		003-0000-B/1.860 to 003-0000-B/3.350	L2	60km/hr. 70km/hr. 100km/hr.
	Dixon Rd		0.000 to 0.390	L1	50km/hr.
	Cabourne Rd		0.000 to 0.100	LV	50km/hr.
	Pelorus St		0.000 to 0.690	LV	50km/hr.
	Sunnyhills Ave		0.000 to 0.050	LV	50km/hr.
	Garden Heights Ave		0.000 to 0.190	L1	50km/hr.
	Resthill Cres		0.540 to 0.500	L1	50km/hr.
	Lambert Court		0.110 to 0.090	L1	50km/hr.
Houchens Rd		0.000 to 0.060	LV	70km/hr. 50km/hr.	
Glenview Tce		0.000 to 0.035	LV	50km/hr.	
Traffic details (main route)	AADT State Highway 3: 15,451 vpd (7% heavy)		Peak flows Level 2: 0600-0800 & 1700-1900		
Description of work activity					

The work activities are as follows

- The implementation of VMS boards to warn the public of the upcoming closures on Dixon road. They will be placed at 003-0000-B1.490 south bound and 003-0000-B/3.040 north bound

Prior to work:

DIXON RD
ROAD CLOSURE
XXth to XXth

During Work:

DIXON RD
ROAD CLOSURE
USE DETOUR

- Installation of a road closure across the intersection of Dixon road and state highway 3, with the implementation of a detour using Hamilton City Council roads.
- Installation of 6ft fencing around work area to separate workspace from public access.
- The safe construction of storm water and sewer pipes, across Dixon road / state highway 3.
- the reinstatement of affected areas e.g. footpaths, Berm or Carriageway.

Planned work programme

Start date	24/04/2020	Time	00:00	End date	30/06/2020	Time	00:00
------------	------------	------	-------	----------	------------	------	-------

No works will begin/set up until the appropriate COVID-19 level has been reached to allow this.

<p>Consider significant stages, for example:</p> <ul style="list-style-type: none"> road closures detours no activity periods buses. 	<p>Before installation is to take place, a VMS board will be put in place to inform residents of the closure, this will be installed 1 week prior to road closure works, the VMS will stay in place until the road closure work is complete.</p> <p>The closure will be installed with a detour installed utilizing the Hamilton City Council roads.</p> <p>The work area will be barriered off to prevent public access to site.</p> <p>All work will be done during the proposed times.</p> <p>Access to site closure will be from Dixon road.</p> <p>During the work periods where both the footpath and cyclists paths/lane are affected, a temporary path/lane must be installed and a temporary pedestrian fence to also be implemented to separate the temporary path/lane from the work zone.(B00.3/A or B.003/B</p> <p>No routine buses will be directly affected by the installment of the closure.</p>
---	--

Alternative dates if activity delayed

No alternative date set. All the work will be completed within the applied for 'Work Programmed dates'

RCA consent (eg CAR/WAP) and/or
RCA contract reference



Road aspects affected *(delete either Yes or No to show which aspects are affected)*

Pedestrians affected?	Yes	Property access affected?	Yes	Traffic lanes affected?	Yes
Cyclists affected?	Yes	Restricted parking affected?	No	Delays or queuing likely?	Yes

Proposed traffic management methods

Installation
(includes parking of
plant and materials
storage)

Before leaving for site:

- All required equipment will be loaded onto the installation vehicle in the correct order for offloading.
- The STMS is to check and record that all equipment is in acceptable condition.
- Vehicle on-road compliance and equipment compliance is to be confirmed at this time and documented.

Prior to installation the STMS is to carry out the following at a pre-arranged meeting point:

- Identify site specific issues and all potential hazards etc. that need to be addressed and documented and amendments to the TMP will be adjusted if required.
- Other environmental factors that could distract road users
- Weather conditions that can affect sign visibility
- Work crews will be instructed how to enter/exit site.
- Confirm understanding of TTM crew roles.

Installation procedure:

Installation equipment/personnel L2 roads.

Please Note that if personnel are on the carriageway or on the back of the work vehicle, they must have a shadow vehicle in tow to protect them.

An installation vehicle fitted with amber flashing beacons and a TV4 sign and RD6R on the rear with a driver and 2 crew members. A shadow vehicle will be following the installation vehicle with an R3-13.3 and TMA. If the primary work vehicle cannot fully park off the road than the shadow vehicle fitted with a TMA must be shadowing the work vehicle in the live lane. An AWWMS board will also be present and situated at least 1km from the start of works.

Crews will start the installation of the signage on the State Highway 3 south bound lane this will be a one loop setup for the level 2 gear. This will be done under the plan G2.5, installing signs on the left-hand side then completing all the level 2 setup in a clockwise direction around site. The order of the signs will be:

1. Level 2 "Road Works" sign with *works end* on the reverse.
2. Level 2 * Road closed ahead* sign.
3. Level 2 *Detour ahead follow* sign.
4. Level 2 *Detour arrow left*sign.
5. Threshold cones with a level 2 * Rd6R*.
6. Level 2 * RD1L*.
7. Level 2 *road closed* sign facing away from traffic and a stack of cone on corner of Dixon and state highway 3. This is to allow set up on foot later after the detour has been put in place and must be placed at least 5m away from edge line.
8. Level 2*works end* sign with "Road Works" sign on the reverse.
Once this sign has been placed vehicles will do a loop with all personal inside vehicles. They can complete this turn around at Raynes Road to avoid a turn around on the state highway network.
9. Level 2 "Road Works" sign with *works end* on the reverse.
10. Level 2 * Road closed ahead* sign with a supplementary *On side road*.
11. Level 2 *Detour ahead follow* sign.
12. They will then cone off the right turning pocket starting coning from the right and switching to left side one there is enough room for the work vehical to fit within the meddium, then put up a * RD1R*sign in the turning pocket getting it off the left hand side of the truck and setting it up infront of the truck. **For the sign all works need to be done within the turning pocket meddium.**
13. Level 2 *Detour arrow straight*sign.
14. Level 2 *Detour arrow straight*sign.
15. Level 2 *Detour arrow right*sign.
16. Level 2 *Works End* sign with "Road Works" sign on the reverse.

Once this is completed the rest of the works can be done under a level 1 mobile setup for local roads (F4.4).

After B00.2 has been setup plan B00.3/A or B.003/B can be installed on foot from within the closure.

<p>Attended (day)</p>	<p>Work will be completed under the approved TMP's.</p> <p>Entrance to the closure will be through Dixon road.</p> <p>There is to be a dedicated communication channel for where the STMS has absolute control off. This channel is to remain chatter free as it is imperative that the STMS can communicate with all site staff and also so that all staff can contact the STMS if they need.</p> <p><u>PLANT AND EQUIPMENT</u></p> <p>Flashing beacons to be used on all vehicles when entering and exiting the work area.</p>
<p>Attended (night)</p>	<p>There are no planned night works for this section of the project.</p>
<p>Unattended (day)</p>	<p>All redundant TTM equipment must be removed from the site or placed in a safe secure location. Redundant equipment is defined as that TTM equipment not in current use for TTM. This includes TTM equipment not required when the site is left unattended.</p> <p>The site can be left under the TMD B.002</p> <p>Redundant TTM signs, sign supports, sign bases and delineators, may be stored on site provided that:</p> <ul style="list-style-type: none"> • the equipment does not remain on-site and unused for a period greater than 48 hours • the equipment is stored in a safe location where it will not pose a hazard to any person or property • STMS's identify and appropriately manage the site-specific hazards as they apply to this matter • the equipment must not be stored or placed on an open footpath or cycle way • the equipment must be stored at least 5m from edge line where no footpath exists <p>Redundant TTM equipment must not be left standing nor deployed.</p> <p>All plant must be parked at least 5m outside the edge line and on the same side of the road as the working space.</p> <p>This section will only be applicable during the early and late stages of work when the barriers have yet to be installed or when they have been removed.</p>
<p>Unattended (night)</p>	<p>All redundant TTM equipment must be removed from the site or placed in a safe secure location. Redundant equipment is defined as that TTM equipment not in current use for TTM. This includes TTM equipment not required when the site is left unattended.</p> <p>The site can be left under the TMD B.002</p> <p>Redundant TTM signs, sign supports, sign bases and delineators, may be stored on site provided that:</p> <ul style="list-style-type: none"> • the equipment does not remain on-site and unused for a period greater than 48 hours • the equipment is stored in a safe location where it will not pose a hazard to any person or property • STMS's identify and appropriately manage the site-specific hazards as they apply to this matter • the equipment must not be stored or placed on an open footpath or cycle way • the equipment must be stored at least 5m from edge line where no footpath exists <p>Redundant TTM equipment must not be left standing nor deployed.</p> <p>All plant must be parked in the working space.</p> <p>This section will only be applicable during the early and late stages of work when the barriers have yet to be installed or when they have been removed.</p>
<p>Detour route</p>	<p>A detour using Hamilton city council roads is required for works to be completed.</p> <p>See Diagram B.002 – Detour</p>

	<p>Does detour route go into another RCA's roading network? yes <i>If Yes, has confirmation of acceptance been requested from that RCA? Yes</i> Note: Confirmation of acceptance from affected RCA must be submitted prior to occupying the site.</p>
<p>Removal</p>	<ul style="list-style-type: none"> - The removal of the TTM equipment will be carried out in the reverse order of the installation procedure. This process will be as follows: Inspection Stage – The STMS is to first check to determine whether or not it is safe to fully re-open the road to the public for use. If the site is safe to do so the tapers will be opened with the cones being shifted into the shoulder curb. This must be completed with a shadow vehicle protecting the person completing this. Traffic will now be allowed to travel through the site. <p>Stage C – Centerline delineation will be removed first. This will be completed with two traffic controllers on the back of the work vehicle. One will pick up the delineations devices and pass them to the other traffic controller who will then stack these accordingly. The delineation from the left of the work vehicle will be retrieved and packed away in the same manner. During the time where the traffic controllers are on the back of the work vehicle, they must always have a shadow vehicle.</p> <p>Stage B – The sign network will be removed in the same clockwise direction as the installation starting from the advanced warning and ending with the advanced warning. During this phase the TC's will be inside the cab and not on the back of the work vehicle and the shadow vehicle will now transition to the tail pilot for the work vehicle.</p> <p>Stage A – The STMS will do a final drive over and inspection to determine whether or not the site has been restored to its original operating standard</p> <p>Please note: The closure will be removed under the same approved diagrams that they were installed under.</p>

Proposed TSLs (see TSL decision matrix for guidance)

	<p>TSL details as required Approval of Temporary Speed Limits (TSL) are in terms of Section 6 of Land Transport Rule: Setting of Speed Limits 2017, Rule 54001/2017 <i>(List speed, length and location)</i></p>	<p>Times <i>(From and to)</i></p>	<p>Dates <i>(Start and finish)</i></p>	<p>Diagram ref. no.s <i>(Layout drawings or traffic management diagrams)</i></p>
<p>Attended day/night</p>	<p>Not required</p>		<p>Not required</p>	
<p>Unattended day/night</p>	<p>Not required</p>		<p>Not required</p>	
<p>TSL duration</p>	<p>Will the TSL be required for longer than 12 months? If yes, attach the completed checklist from section I-18: Guidance on TMP Monitoring Processes for TSLs to this TMP.</p>			<p>No</p>

Positive traffic management measures

Contingency plans

Generic contingencies for:

- major incidents
- incidents
- pre planned detours.

Remove any options which do not apply to your job

Major Incident
A major incident is described as:

- Fatality or notifiable injury - real or potential
- Significant property damage, or
- Emergency services (police, fire, etc) require access or control of the site.

Actions
The STMS must immediately conduct the following:

- stop all activity and traffic movement
- secure the site to prevent (further) injury or damage
- contact the appropriate emergency authorities
- render first aid if competent and able to do so
- notify the RCA representative and / or the engineer
- under the guidance of the officer in charge of the site, reduce effects of TTM on the road or remove the activity if safe to do so
- re-establish TTM and traffic movements when advised by emergency authorities that it is safe to do so
- Comply with any obligation to notify WorkSafe.

Incident
An incident is described as:

- excessive delays - real or potential
- minor or non-inquiry accident that has the potential to affect traffic flow
- structural failure of the road.

Actions
The STMS must immediately conduct the following:

- stop all activity and traffic movement if required
- secure the site to prevent the prospect of injury or further damage
- notify the RCA representative and / or the engineer
- STMS to implement a plan to safely remove TTM and to establish normal traffic flow if safe to do so
- re-establish TTM and traffic movements when it is safe to do so and when traffic volumes have reduced.

	<p>Detour</p> <p>If because of the on-site activity it will not be possible to remove or reduce the effects of TTM once it is established a detour route must be designed. This is likely for:</p> <ul style="list-style-type: none"> • Emergency detour • excessive delays when using an alternating flow design for TTM • redirecting one direction of flow and / or • total road closure and redirection of traffic until such time that traffic volumes reduce, and tailbacks have been cleared. <p>The risks in the type of work being undertaken, the risks inherent in the detour, the probable duration of closure and availability and suitability of detour routes need to be considered.</p> <p>The detour and route must be designed including:</p> <ul style="list-style-type: none"> • pre- approval form the RCA's whose roads will be used or affected by the detour route • ensure that TTM equipment for the detour - signs etc are on site and pre-installed. 	<p>Actions</p> <p>When it is necessary to implement the pre-planned detour the STMS must immediately undertake the following:</p> <ul style="list-style-type: none"> • Their will be plating left on site in case of an emergency where the road will have to be opened to get vehicles through. • Notify the RCA and / or the engineer when the detour is to be established • Drive through the detour in both directions to check that it is stable and safe • Remove the detour as soon as it practicable and safe to do so and the traffic volumes have reduced, and tailbacks have cleared • Notify the RCA and / or the engineer when the detour has been disestablished and normal traffic flows have resumed.
--	---	---

Note also the requirements for no interference at an accident scene:

In the event of an accident involving serious harm the STMS must ensure that nothing, including TTM equipment, is removed or disturbed and any wreckage article or thing must not be disturbed or interfered with, except to:

- save a life of, prevent harm to or relieve the suffering of any person, or
- make the site safe or to minimise the risk of a further accident; or
- maintain the access of the general public to an essential service or utility, or
- prevent serious damage to or serious loss of property, or
- follow the direction of a constable acting in his or her duties or act with the permission of an inspector.

Other contingencies to be identified by the applicant <i>(i.e. steel plates to quickly cover excavations)</i>	<p>Emergency Services:</p> <p>Emergency Services will always be given priority and assisted where possible through the closure. The STMS on site will ensure emergency services priority</p> <p>Spills:</p> <p>The STMS will evaluate if works can continue, Spill to be contained with onboard Spill Kits; Emergency TTM will be installed as required, also STMS to call 0800 USPILL.</p>
---	---

Authorisations

Parking restriction(s) alteration authority	Will controlled street parking be affected?	No	Has approval been granted?	No
Authorisation to work at permanent traffic signal sites	Will portable traffic signals be used, or permanent traffic signals be changed?	No	Has approval been granted?	No
Road closure authorisation(s)	Will full carriageway closure continue for more than 5 minutes (or other RCA stipulated time)?	Yes	Has approval been granted?	Yes
	Approval for road closure is pending the CAR approval.			
Bus stop	Will bus stop(s) be obstructed by the activity?	No	Has approval been granted?	No

RCA consent (eg CAR/WAP) and/or
RCA contract reference



relocation(s) –
closure(s)

Authorisation to use portable traffic signals	Make, model and description/number	
	NZTA compliant?	No

EED

Is an EED applicable?	Not required <i>(delete either Yes or No)</i>	EED attached?	No
-----------------------	--	---------------	----

Delay calculations/trial plan to determine potential extent of delays

The Detour will be the only delay to the road users and should not exceed 5min.

Public notification plan

VMS boards will be installed one week prior to the closure of Dixon Road, and remain in place during the closure.
Please refer to the approved diagram showing the locations of the VMS boards for more information.

Public notification plan attached?	Yes
------------------------------------	-----

On-site monitoring plan

<p>Attended <i>(day and/or night)</i></p>	<p>STMS to check the site prior to start of inspection and document times that the inspection was started and completed. They are to continuously monitor the site during the work and to complete 2 hourly site checks. This must be performed by a minimum level 2/3P STMS qualified person</p> <p><u>Duties include:</u></p> <p><i>Ensure site meets the approved TMP site setup and that all changes are documented and recorded.</i></p> <p><i>2 hourly for signs, portable channeling and delineation devices and arrow boards</i></p> <p><i>Daily for cleanliness of safety garments, non-portable equipment and flashing beacons on vehicles</i></p> <p><i>Continuously for wearing of safety jackets.</i></p> <p>The STMS is to check the site after completion and document this and to record the time.</p>
--	---

<p>Unattended <i>(day and/or night)</i></p>	<p>STMS to check the site prior to start of inspection and document times that the inspection was started and completed. The site will be inspected at least once within a 12hr period and must be completed by a level 2/3P minimum qualified STMS.</p> <p><u>Duties include:</u></p> <p><i>Ensuring the site is compliant with the approved TMP.</i></p> <p><i>Site maintenance of delineation devices and signs.</i></p> <p><i>Barrier condition and compliancy. (The barriers will be inspected from behind the barrier with the use of a spotter by a qualified barrier inspector where needed)</i></p> <p>The STMS is to check the site after completion and document this and to record the time.</p>
--	---

Method for recording daily site TTM activity (eg CoPTTM on-site record)

- The CoPTTM on site record to be used
- Generic TMP check sheet to be completed prior to installing TTM closure.

THIS MUST INCLUDE THE FOLLOWING

- Details of the STMS who is in charge of the worksite (name, qualification, ID and expiry date of qualification)
- If worksite is handed over to another STMS, STMS who is in charge of the worksite (name, qualification, ID and expiry date of qualification)
- The worksite monitoring including:
 - Site set-up
 - 2-hourly monitoring
 - Site removal
- Details of any TSLs installed:
 - Date installed
 - Time installed
 - Placement (RPs or street numbers)
 - Length of TSL (in metres)
 - Date removed

Time removed

Site safety measures

- All Traffic Management staff will be in communication at all times via radios. Should distance or lack of signal be an issue, either mobile phones will be used, or additional staff to relay messages via radios.
- All permanent signage that no longer applies or conflicts with the implemented temporary traffic management measures during the work phase **must be covered and/or removed to avoid confusion**. This includes permanent speed signs and corner advisory speeds
- Advance Warning and Protection leading into the site/event will be implemented.
- Mobile vehicles will be fitted with Amber Flashing Beacons.
- Sites will always be implemented in accordance with the 'Code of Practice'.
- All TTM signage and equipment on used site will be compliant with CoPTTM 4th Edition, Section B.
- All TTM signage must be removed upon completion of site.

Other information

Site access:

- The site access points will be on Dixon road this will mean that we will never need to open up the closure on the state highway 3 side once the closure is in place.

Pedestrians/cyclists:

Pedestrians/cyclists will need to use the temporary footpath provided to keep themselves safe from the work area. Cyclists will not be forced onto the carriageway.

Site specific layout diagrams

Number	Title
B.002	Road Closed Detour
B.003/A	Footpath Barriered
B.003/B	Footpath Detour
B2.8	TWO-WAY TWO-LANE ROAD Personnel on live lane or on the back of the work vehicle Permanent greater than 65km/h
F4.4	TWO-WAY TWO-LANE ROAD Work vehicle is in a lane Permanent speed under 65km/h
B.19	Inspection

Contact details

Name	24/7 contact number	CoPTTM ID	Qualification	Expiry date

RCA consent (eg CAR/WAP) and/or
RCA contract reference



Principal	Hamilton City Council Tahl Lawrence	078386527				
TMC	New Zealand Transport Agency Trish Anderson	027 645 4855	53064	L 2/3NP	06/09/2022	
	Hamilton City Council Julia Jackson	027 839 7236				
Engineers' representative	Gray Matter Karen Hill	021923905				
Contractor	Schick Civil Construction Matt Nugent	0210755920	45064	L 2/3NP		
STMS	Broadspectrum Richard Moons	0224587714	54584	L 2/3P	28/03/2021	
TTM Contact	Broadspectrum Emily Jacobs TM Department Manager	0278630034	47571	L 2/3NP	21/02/2021	
TMP preparation						
	Bryce Parkes	03.02.20		32567	2/3NP	08.10.22
	<i>Name (STMS qualified)</i>	<i>Date</i>	<i>Signature</i>	<i>ID no.</i>	<i>Qualification</i>	<i>Expiry date</i>
This TMP meets CoPTTM requirements				Number of diagrams attached	6	
TMP returned for correction (if required)						
	<i>Name</i>	<i>Date</i>	<i>Signature</i>	<i>ID no.</i>	<i>Qualification</i>	<i>Expiry date</i>
Engineer/TMC to complete following section when approval or acceptance required						
Approved by TMC/engineer (delete one)						
	<i>Name</i>	<i>Date</i>	<i>Signature</i>	<i>ID no.</i>	<i>Qualification</i>	<i>Expiry date</i>
Acceptance by TMC (only required if TMP approved by engineer)						
	<i>Name</i>	<i>Date</i>	<i>Signature</i>	<i>ID no.</i>	<i>Qualification</i>	<i>Expiry date</i>
Qualifier for engineer or TMC approval						
<p>Approval of this TMP authorises the use of any regulatory signs included in the TMP or attached traffic management diagrams.</p> <p>This TMP is approved on the following basis:</p> <ol style="list-style-type: none"> To the best of the approving engineer's/TMC's judgment this TMP conforms to the requirements of CoPTTM. This plan is approved on the basis that the activity, the location and the road environment have been correctly represented by the applicant. Any inaccuracy in the portrayal of this information is the responsibility of the applicant. The TMP provides so far as is reasonably practicable, a safe and fit for purpose TTM system. The STMS for the activity is reminded that it is the STMS's duty to postpone, cancel or modify operations due to the adverse traffic, weather or other conditions that affect the safety of this site. 						
Notification to TMC prior to occupying worksite/Notification completed						
Type of notification to TMC required	Notification will be provided to the Hamilton City Council and New Zealand Transport Agency TMC one day prior, as well as on the Friday via the Notification Spreadsheet to New Zealand Transport Agency.	Notification completed	Date	<input type="text"/>	Time	<input type="text"/>

RCA consent (eg CAR/WAP) and/or
RCA contract reference



ON-SITE RECORD On-site record must be retained with TMP for 12 months.			Today's date	
Location details	Road names(s):	House number/RPs:	Suburb:	

Working space	
Person responsible for working space	
	<i>Name</i> <i>Signature</i>
<i>Where the STMS/TC is responsible for both the working space and TTM they sign above and in the appropriate TTM box below</i>	

TTM					
STMS in charge of TTM					
	<i>Name</i>	<i>TTM ID Number</i>	<i>Warrant expiry date</i>	<i>Signature</i>	<i>Time</i>

RCA consent (eg CAR/WAP) and/or
RCA contract reference



ON-SITE RECORD On-site record must be retained with TMP for 12 months.			Today's date	
--	--	--	--------------	--

Location details	Road names(s):	House number/RPs:	Suburb:
-------------------------	-----------------------	--------------------------	----------------

Working space

Person responsible for working space		
	<i>Name</i>	<i>Signature</i>

Where the STMS/TC is responsible for both the working space and TTM they sign above and in the appropriate TTM box below

TTM

STMS in charge of TTM					
	<i>Name</i>	<i>TTM ID Number</i>	<i>Warrant expiry date</i>	<i>Signature</i>	<i>Time</i>

Worksite handover accepted by					
	<i>Name</i>	<i>ID Number</i>	<i>Warrant expiry date</i>	<i>Signature</i>	<i>Time</i>

RCA consent (eg CAR/WAP) and/or
RCA contract reference



replacement STMS Tick to confirm handover briefing completed

Delegation

Worksite control accepted by TC/STMS-NP					
	Name	ID Number	Warrant expiry date	Signature	Time
	Tick to confirm briefing completed <input type="checkbox"/>				

Temporary speed limit

Street/road name (RPs or street numbers):	TSL action	Date:	Time:	TSL speed:	Length of TSL (m):
From: _____ To: _____	TSL installed				
	TSL remains in place				
	TSL removed				

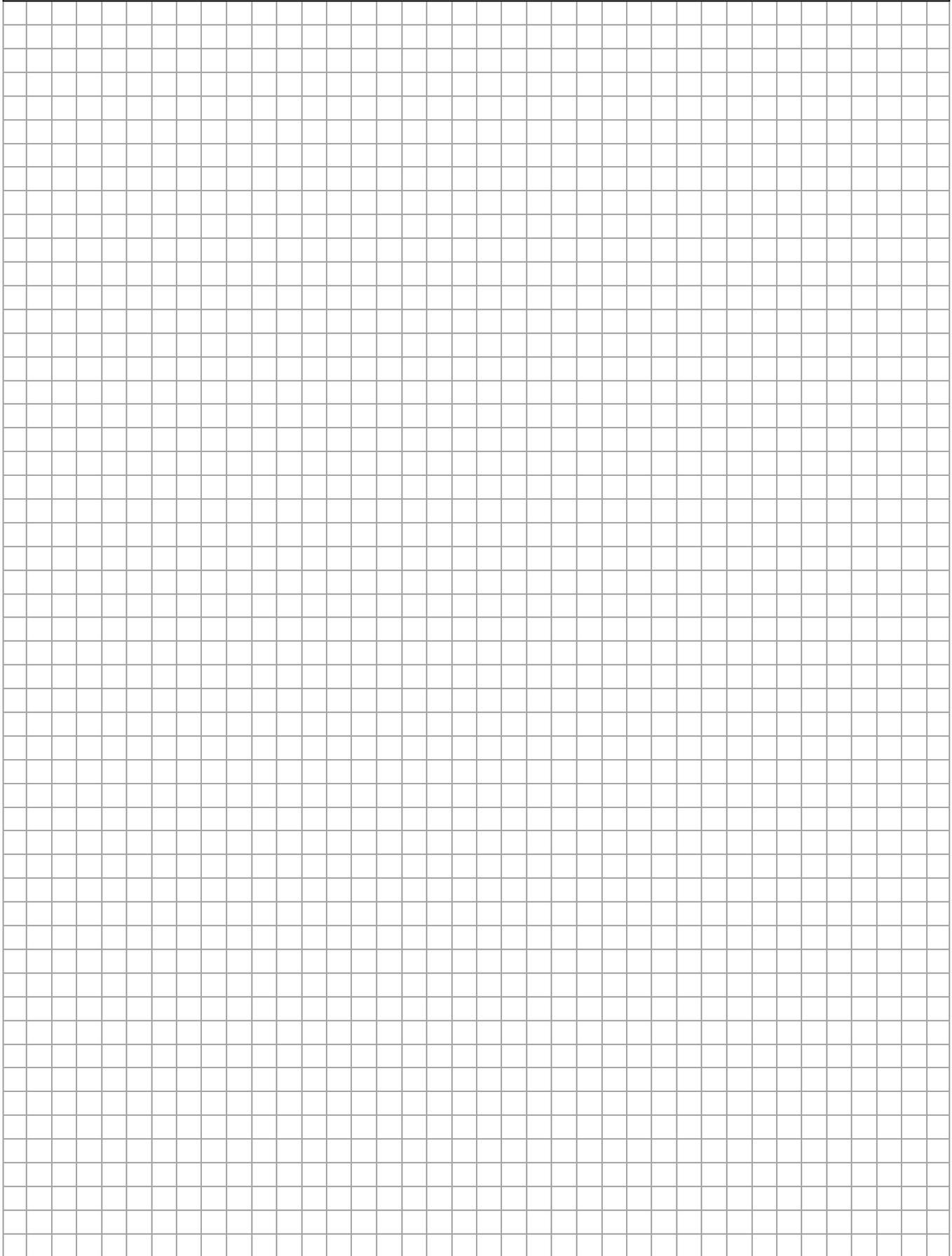
Street/road name (RPs or street numbers):	TSL action	Date:	Time:	TSL speed:	Length of TSL (m):
From: _____ To: _____	TSL installed				
	TSL remains in place				
	TSL removed				

Street/road name (RPs or street numbers):	TSL action	Date:	Time:	TSL speed:	Length of TSL (m):
From: _____ To: _____	TSL installed				
	TSL remains in place				
	TSL removed				

Street/road name (RPs or street numbers):	TSL action	Date:	Time:	TSL speed:	Length of TSL (m):
From: _____ To: _____	TSL installed				
	TSL remains in place				
	TSL removed				

Reporting company reference:		CoPTTM.Incident reference:			
Reference added by reporting company		Reference added by the CoPTTM.Incident database administrator			
REPORT ON INCIDENT AT ROADWORKS SITE					
Send to: CoPTTM.Incident@nzta.govt.nz and the RCA in charge of the network (including NZTA for state highways)					
Date of incident		Time of incident			
Reported by		Company			
STMS name		STMS No.			
Contractor /TTM Company		Contact number			
Road location (include direction and lane)					
Description of work being undertaken					
Incident type	Near miss	Vehicle entered TTM	Vehicle entered working space	TMA hit	Other
Operation type	Static	Mobile	Semi-static	Shoulder	Unattended
Phase of operation	Install		Static, mobile, semi-static		Removal
Damage to	Vehicles		Plant		TTM equipment
Injuries	Number of people in each injury category	Enter the number of people in each injury category		Minor	Notifiable
		Road workers			
		Road users			
Crash code	From Appendix 1 attached		Road user	Vehicle/road user type	Reg. number
If TMA hit, which TMA			Which lane		
Police attended	(Officer name/number)		Further information	For a more detailed internal report (contact)	
Description of events					

Crash diagram (or scan and attach) - photos can also be attached

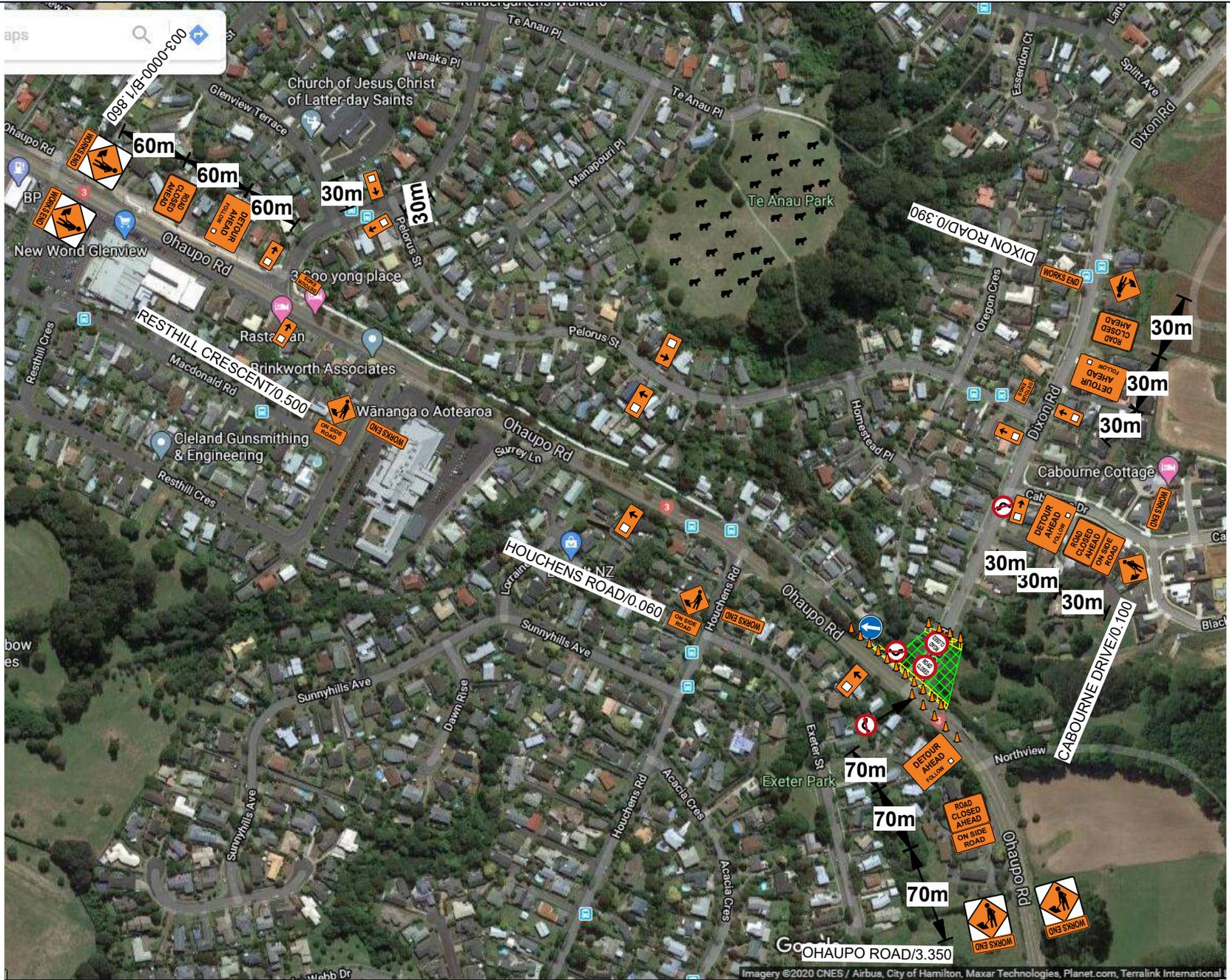


Appendix 1: Vehicle movement coding sheet

	TYPE	A	B	C	D	E	F	G	O
A	OVERTAKING AND LANE CHANGE	PULLING OUT OR CHANGING LANE TO RIGHT	HEAD ON	CUTTING IN OR CHANGING LANE TO LEFT	LOST CONTROL (OVERTAKING VEHICLE)	SIDE ROAD	LOST CONTROL (OVERTAKEN VEHICLE)	WEAVING IN HEAVY TRAFFIC	OTHER
B	HEAD ON	ON STRAIGHT	CUTTING CORNER	SWINGING WIDE	BOTH OR UNKNOWN	LOST CONTROL ON STRAIGHT	LOST CONTROL ON CURVE		OTHER
C	LOST CONTROL OR OFF ROAD (STRAIGHT ROADS)	OUT OF CONTROL ON ROADWAY	OFF ROADWAY TO LEFT	OFF ROADWAY TO RIGHT					OTHER
D	CORNERING	LOST CONTROL TURNING RIGHT	LOST CONTROL TURNING LEFT	MISSED INTERSECTION OR END OF ROAD					OTHER
E	COLLISION WITH OBSTRUCTION	PARKED VEHICLE	CRASH OR BROKEN DOWN	NON VEHICULAR OBSTRUCTIONS (INCLUDING ANIMALS)	WORKMANS VEHICLE	OPENING DOOR			OTHER
F	REAR END	SLOWER VEHICLE	CROSS TRAFFIC	PEDESTRIAN	QUEUE	SIGNALS	OTHER		OTHER
G	TURNING VERSUS SAME DIRECTION	REAR OF LEFT TURNING VEHICLE	LEFT TURN SIDE SWIPE	STOPPED OR TURNING FROM LEFT SIDE	NEAR CENTRE LINE	OVERTAKING VEHICLE	TWO TURNING		OTHER
H	CROSSING (NO TURNS)	RIGHT ANGLE (70° TO 110°)							OTHER
J	CROSSING (VEHICLE TURNING)	RIGHT TURN RIGHT SIDE	OPPOSING RIGHT TURNS	TWO TURNING					OTHER
K	MERGING	LEFT TURN IN	RIGHT TURN IN	TWO TURNING					OTHER
L	RIGHT TURN AGAINST	STOPPED WAITING TO TURN	MAKING TURN						OTHER
M	MANOEUVRING	PARKING OR LEAVING	U TURN	U TURN	DRIVEWAY MANOEUVRE	ENTERING OR LEAVING FROM OPPOSITE SIDE	ENTERING OR LEAVING FROM SAME SIDE	REVERSING ALONG ROAD	OTHER
N	PEDESTRIANS CROSSING ROAD	LEFT SIDE	RIGHT SIDE	LEFT TURN LEFT SIDE	RIGHT TURN RIGHT SIDE	LEFT TURN RIGHT SIDE	RIGHT TURN LEFT SIDE	MANOEUVRING VEHICLE	OTHER
P	PEDESTRIANS OTHER	WALKING WITH TRAFFIC	WALKING FACING TRAFFIC	WALKING ON FOOTPATH	CHILD PLAYING (INCLUDING TRICYCLE)	ATTENDING TO VEHICLE	ENTERING OR LEAVING VEHICLE		OTHER
Q	MISCELLANEOUS	FELL WHILE BOARDING OR ALIGHTING	FELL FROM MOVING VEHICLE	TRAIN	PARKED VEHICLE RAN AWAY	EQUESTRIAN	FELL INSIDE VEHICLE	TRAILER OR LOAD	OTHER

* = Movement applies for left and right hand bends, curves or turns

New Zealand Government



Imagery ©2020 CNES / Airbus, City of Hamilton, Maxar Technologies, Planet.com, Terralink International



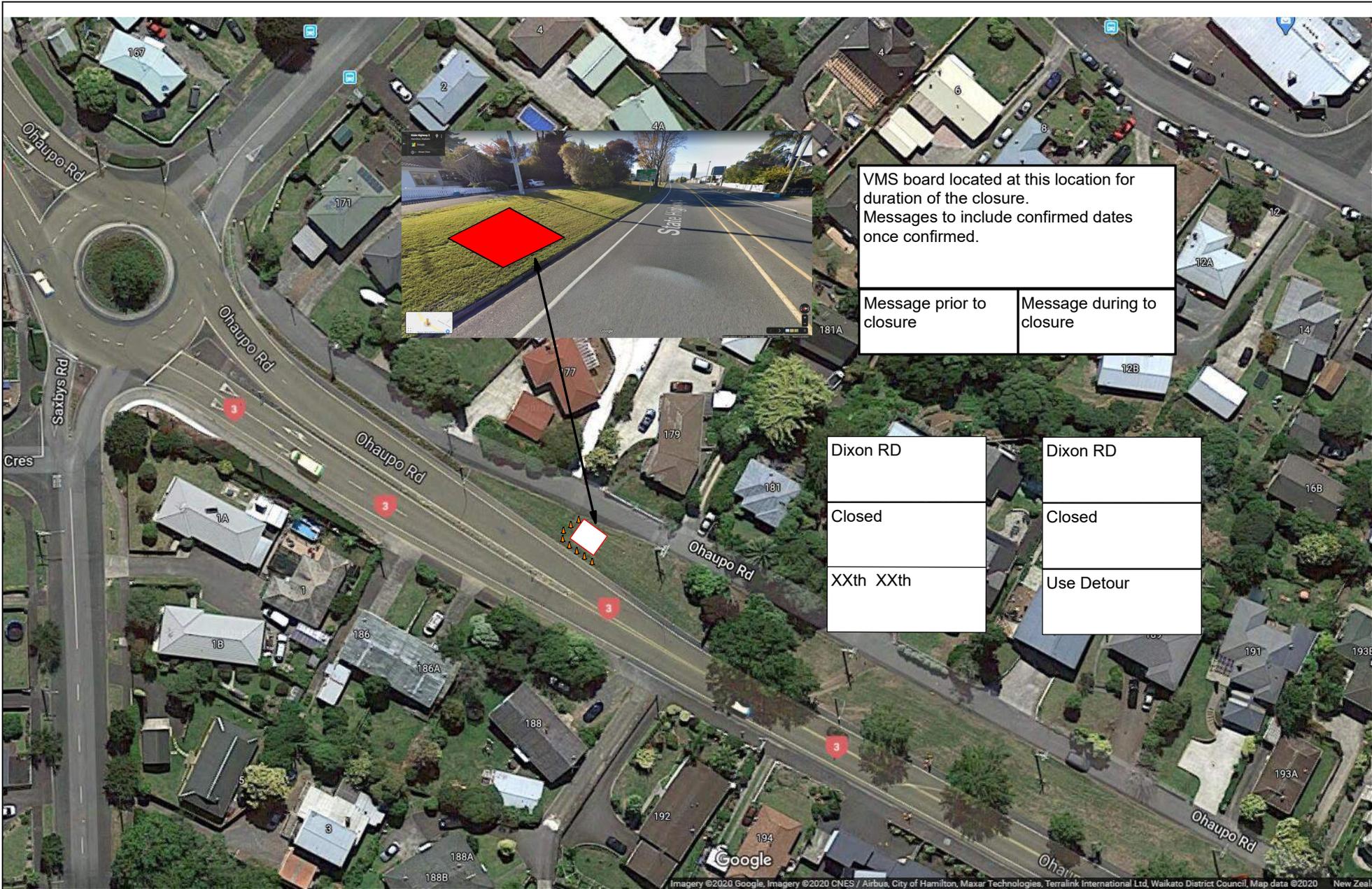
www.invarion.com

TMP: B.002 PROJECT: 5170 SH3 Roundabout DATE: 18.03.20

Road closed detour



Bryce Parkes
2/3NP
32567



VMS board located at this location for duration of the closure.
 Messages to include confirmed dates once confirmed.

Message prior to closure

Message during to closure

Dixon RD

Dixon RD

Closed

Closed

XXth XXth

Use Detour



TMP: B.002/A

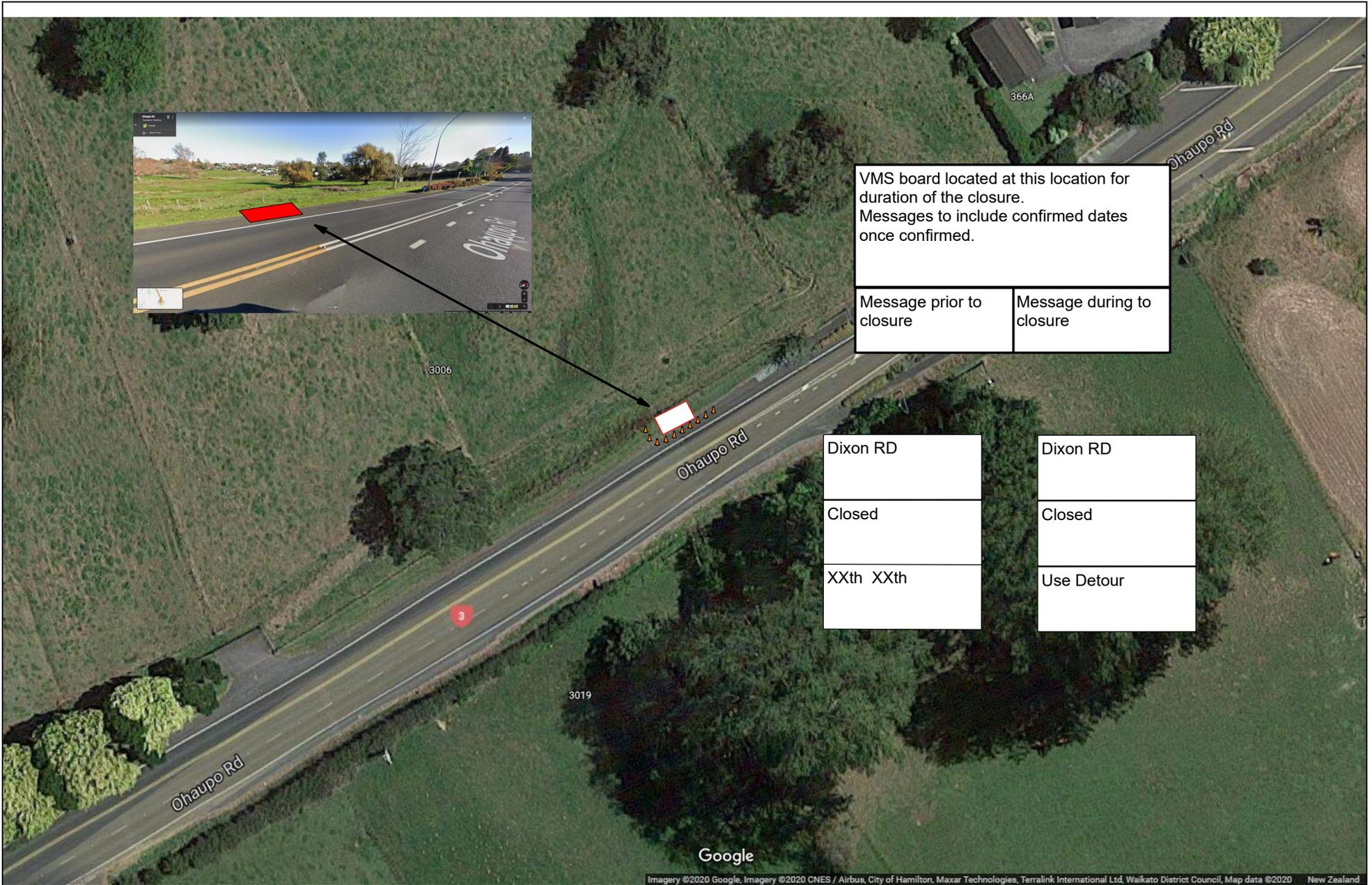
PROJECT: 5170 SH3 Roundabout

DATE: 18.03.20

VMS Board placement



Bryce Parkes
 2/3NP
 32567



VMS board located at this location for duration of the closure.
 Messages to include confirmed dates once confirmed.

Message prior to closure

Message during to closure

Dixon RD

Dixon RD

Closed

Closed

XXth XXth

Use Detour



TMP: B.002/B

PROJECT: 5170 SH3 Roundabout

DATE: 18.03.20

VMS Board placement



Bryce Parkes
 2/3NP
 32567

LEGENDS

- Footpath Ramps 
- Work Zone 
- Safety Zone 
- Cone Bars 
- Cones 
- Fencing 



TMP: B.003VA

PROJECT: 5170 SH3 Roundabout

DATE: 18.03.20

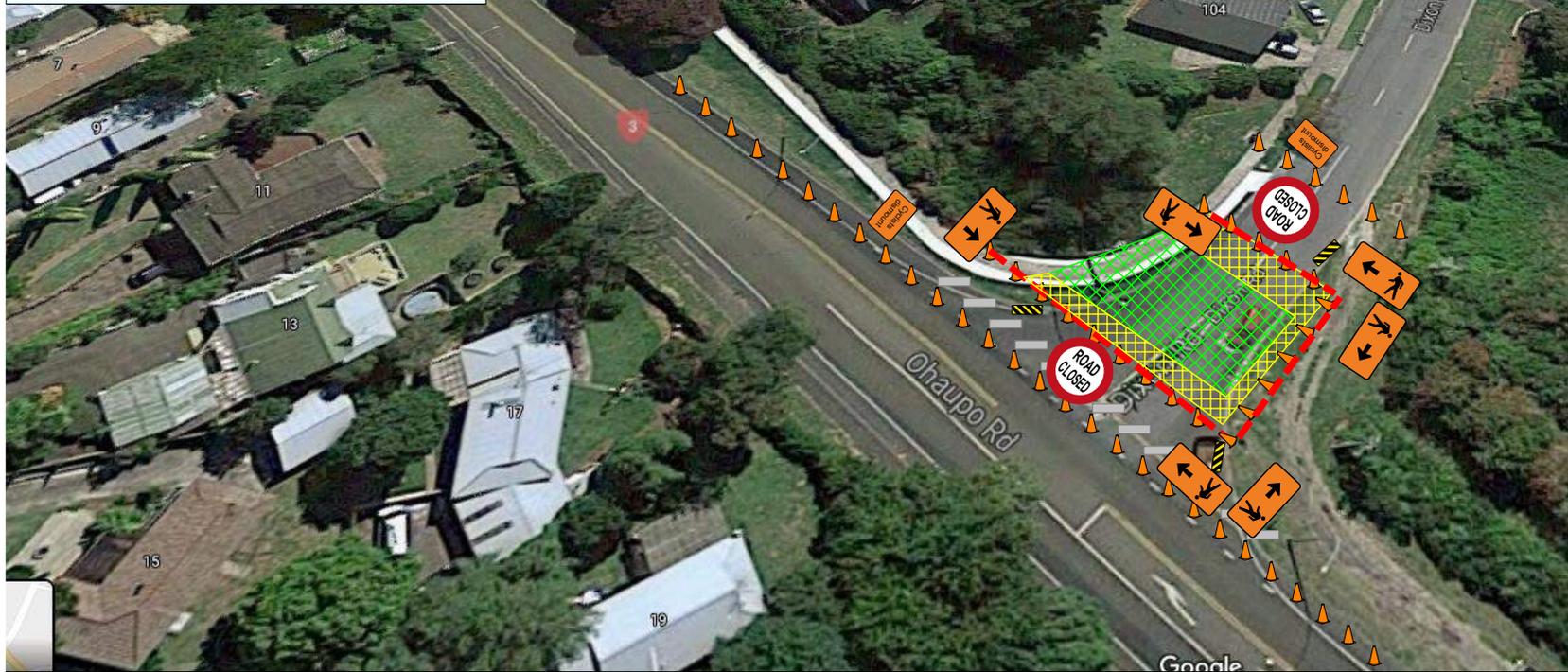
Footpath Barrired



Bryce Parkes
2/3NP
32567

LEGENDS

- Footpath Ramps 
- Work Zone 
- Safety Zone 
- Cone Bars 
- Cones 
- Fencing 



TMP: B.003\B

PROJECT: 5170 SH3 Roundabout

DATE: 18.03.20

Footpath Detour



Bryce Parkes
2/3NP
32567

TWO-WAY TWO-LANE ROAD

Personnel on live lane or on the back of the work vehicle

Permanent greater than 65km/h



B2.8

- Notes -

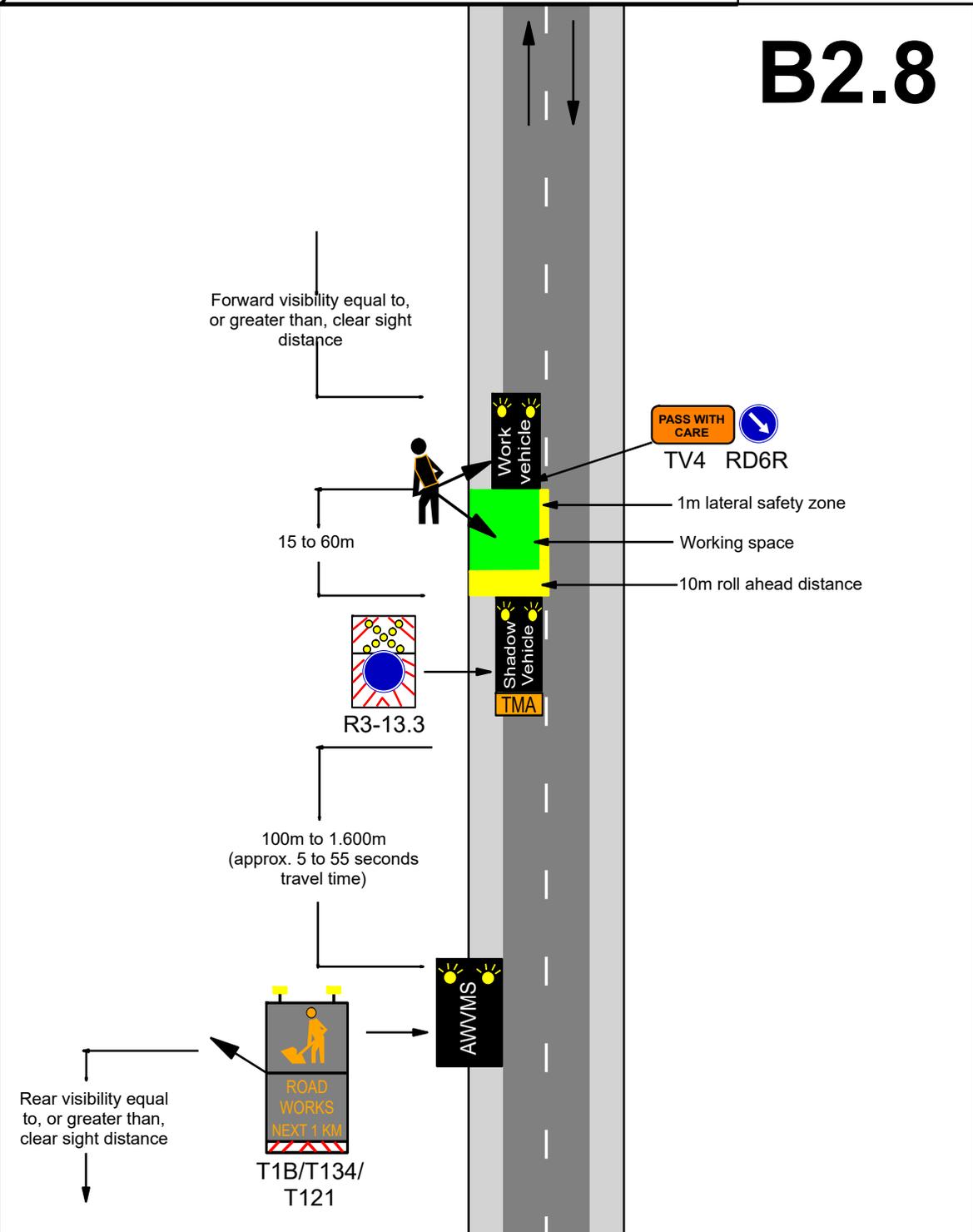
1. A lead pilot vehicle must be used on undivided two-way roads with permanent speed limits greater than 65km/h when:

- Visibility to the work vehicle is less than CSD continuously for more than 1km, or

- The operation crosses the centerline.

2. The shadow vehicle must be fitted with a TMA and R3-13.3 sign consisting of the red and white delineation, the RD6T (light arrow) and the blue disk and white arrow RD6L/R

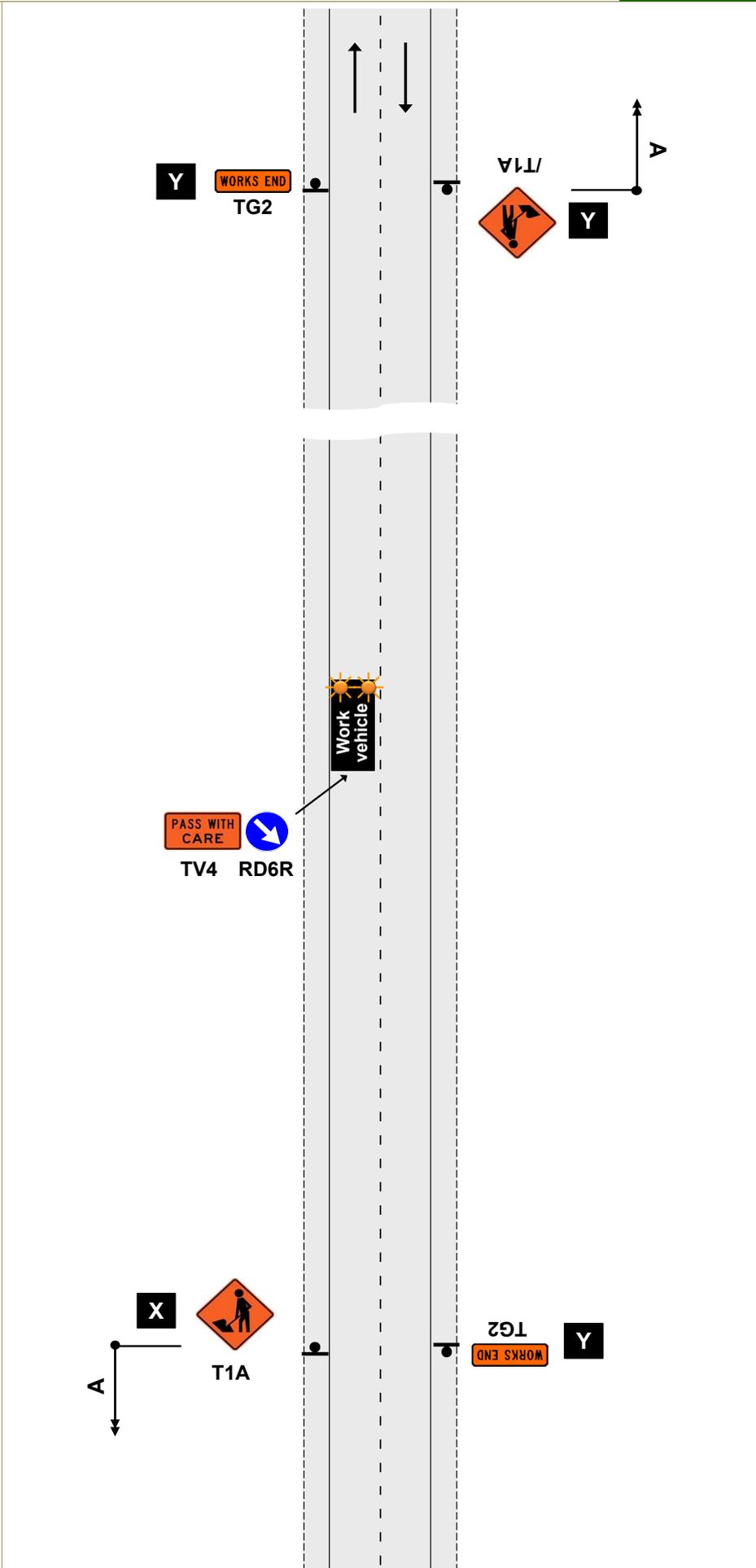
- The white arrow must be pointing in the direction that traffic is being directed to.



TWO-WAY TWO-LANE ROAD
Work vehicle is in a lane
Permanent speed under 65km/h

F4.4
Level 1

- Notes**
1. Advance warning sign **X** may be replaced by tail pilot equipped with T1A advance warning sign and appropriate supplementary plate
 2. In this case, signs marked with **Y** do not need to be erected
 3. If using static advance warning signs and the operation is on the lane, then static advance warning signs must also be placed on any intersecting roads

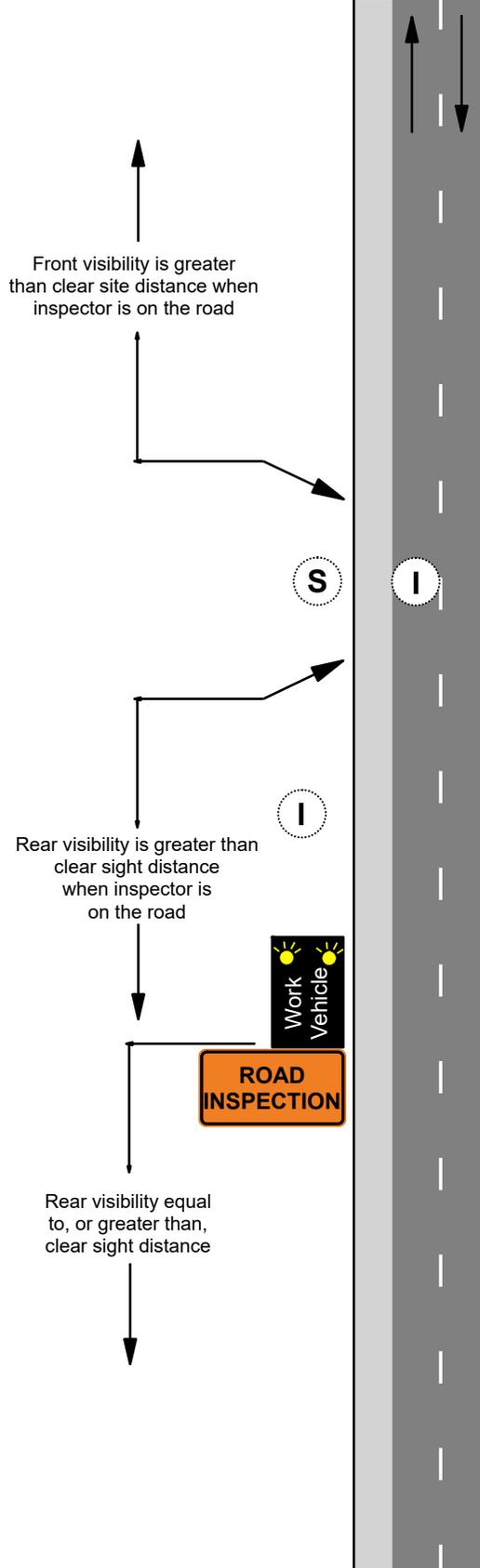




MOBILE CLOSURE INSPECTION ACTIVITIES AND NON INVASIVE WORKS On shoulder and on the live lane

Notes

1. Inspectors must move from the live lanes to avoid traffic. They must not expect traffic to drive slowly or drive around them.
2. The inspector cannot be on the live lane for more than 5mins.
3. There must be CSD to the inspector when on the live lane. If this cannot be achieved, a spotter must be placed in a position where CSD can be attained and verbal instructions be given to the inspector. If this is not possible, a static or mobile operation is required.
4. A spotter is not required for inspection activities out of the live lane.
5. Site control must be by a L2/3 STMS, or an STMS-NP.
7. For inspection activities that are carried out by a TC inspector or an STMS NP the L2/3 STMS must be immediately contactable but does not have to be within 30 minutes travel time of the worksite.
8. An unaccompanied inspector may walk across a level 2 road



B.19

Spotter is optional when inspector is off the live lane of a level 2 road, Spotter required when inspector on the live lane of a level 2 road.

Attachment A to Part 6.0

HCC NESCS Consent

(010.2019.00010647.001)

- Decision 010.2019.00010647.001

14 October 2019

HCC - City Development Unit

C/- Wainui Environmental
PO Box 101
Raglan 3265

Attn: Richard Duirs

Decision on application for resource consent under the Resource Management Act 1991

Application number(s): 010.2019.00010647.001
Applicant: HCC - City Development Unit
Address: 3019 Ohaupo Road Melville Hamilton 3206
Legal Description: SEC 1 SO 57582
Proposed activity(s): Excavation, Modification and Disturbance

Dear Sir/Madam

I wish to advise you of Council's decision to **grant** your application for resource consent under the Resource Management Act 1991 (RMA). Please see below for the details of the decision and conditions of consent.

The following information provides you with some guidance on your rights and what to do next. It is recommended that you seek independent advice if you are in any doubt as to the processes to be followed.

Objections

If you disagree with any part of this decision or any conditions of this consent, you may lodge an objection in writing to Council within **15 working days** of the receipt of this letter. Your objection must be in accordance with section 357 of the RMA and must include the reasons for your objection.

Compliance with conditions

Your resource consent permits the land use to be established at the site long as the activity complies with the stated conditions on an ongoing basis. It is important that you fully understand and comply with all the conditions of your consent.

Please notify Council's monitoring team prior to the commencement of activities associated with this consent. The role of Council's monitoring team is to monitor compliance with the conditions of consent and may involve site visits.

Council's monitoring team can be contacted on planning.guidance@hcc.govt.nz. Please reference the consent number and address of the property when emailing or calling.

Lapsing of Consent/s

This resource consent lapses 5 years after the commencement of the consent, unless the consent is given effect to by the end of that period.

The commencement date of a resource consent is determined by section 116 of the Resource Management Act 1991.

DECISION ON APPLICATION

*That pursuant to the provisions of Sections 104 and 104A of the Resource Management Act 1991 and the relevant provisions of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, Council **grants** consent to the application by Hamilton City Council being Resource Consent (10.2019.10647.001) for the exceedance of the maximum volume and presence of contaminants above background concentrations at 3019 Ohaupo Road, Hamilton Section 1 SO57582 subject to the following condition:*

General

1. That prior to any soil disturbance works commencing on or **within the Ohaupo Rd Roundabout Development Site**, the consent holder must arrange a pre-commencement meeting to discuss soil contamination requirements. The objective of the meeting will be to ensure all relevant parties are clear on the implementation of the human health-related controls. The matters for discussion will include (but not be limited to) and confirm:
 - i. The approach to site management including identifying unknown hazards and implementing mitigation methods specific to human health-related requirements.
 - ii. The approach to meeting compliance monitoring requirements with regard to timing, staging, notification and communication.
 - iii. The approach to ensuring best practice management measures and risk management controls are enforced and monitored.

In attendance must be:

 - i. The Suitably Qualified and Experienced Practitioner (SQEP) nominated to oversee the works/address soil contamination matters
 - ii. HCC's Contaminated Land Officer and Compliance Monitoring Officer
 - iii. All contractors and sub-contractors supervisory staff who are carrying out any works associated with human health-related requirements.
2. Prior to the commencement of any soil disturbance works occurring in the road corridor works area, a Contaminated Site Management Plan (CSMP) is to be provided to Council's Environmental Health Manager for acceptance. The Plan is to be prepared by a SQEP, and the management methods are to be based on the conclusions and recommendations from the Detailed Site Investigation (DSI) Report prepared by Geosciences Ltd (dated August 2019).
3. The content of the CSMP is to serve as a framework for managing soil disturbance on a piece(s) of land/HAIL site by identifying hazards and recommending mitigation methods relevant to actual site conditions. The content must include (but not be limited to):
 - a. the necessary designs, actions, procedures and controls that restrict and prevent exposure, and that avoid human health implications from on-site and off-site discharges

- b. the appropriate contingency measures for any previously unidentified contamination being discovered.
- c. the appropriate transport and disposal options to avoid human health and environmental exposure from off-site removal of soil, and an acceptable method for works completion reporting.

A copy of the CSMP is to be provided to Council's Environmental Health Manager for acceptance prior to any soil disturbance occurring on land that requires human health-related controls.

- 4. The management methods must be based on industry accepted best practice management controls that provide proven and practical means of protection from soil exposure. Any alternative management methods or measures are to be notified to Council's Environmental Health Manager prior to their implementation. The alterations must be consistent with the human health risk-based approach of the CSMP to ensure the same level of protection is afforded to site workers.
- 5. The relevant human health-related controls outlined in the CSMP are to be implemented under supervision of the SQEP or suitable persons nominated by the SQEP, for the duration of the soil disturbance works.
- 6. Works Completion reporting must be provided within two months of soil disturbance works being completed to confirm that the methods outlined in the CMMP were enforced for the period of the soil disturbance works, and that the measures were successful in ensuring the potential risks were adequately managed.
- 7. In the event that any previously unidentified contamination (including but not limited to asbestos) is discovered in any exposed or excavated soil, works are to cease immediately, and Council's Environmental Health Manager must be notified of the discovery. The SQEP must assess the risk and determine what actions are appropriate given the extent of the discovery. The action to be taken must be approved by Council's Environmental Health Manager prior to them being implemented. The details of the discovery, the actions and any necessary validation sampling must be reported either in a SVR or the works completion reporting. The validation sampling must demonstrate no unacceptable risk to human health or the environment remains and that the site is suitable for its intended use.
- 8. Any further investigation, remediation or validation of land where a HAIL has been/is being undertaken must be done and reported on by a Suitably Qualified and Experienced Practitioner (SQEP) in accordance with the RMA (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) (NESCO) Regulations 2011 – Regulation 3.
- 9. Any soil exceeding the applicable NESCO standard must be removed under controlled conditions to a licensed waste facility or landfill for disposal in accordance with the requirements of the disposal site and the relevant authority. Receipts of transport and disposal must be included in either a Site Validation Report or Works Completion Report.

Reasons for the Decision

- a. Having regard to section 104(1)(a) of the Act, the actual and potential adverse effects on the environment of granting consent are acceptable as the proposal is consistent with the relevant provision and guidelines under the NESCS and promotes the sustainable management of natural and physical resources.
- b. Adequate information has been provided that includes technically sound and expert recommendations.
- c. The proposal is not contrary to the relevant provisions and guidelines of the NESCS. The nature of this proposal does not trigger any further considerations under National Policy Statements and National Environmental Standards.

Advisory Notes

- That compliance in all other respects with Council Bylaws, all relevant Acts, Regulations, and rules of law be met.
- If this property is on-sold to a new owner(s) please ensure that a copy of this resource consent is forwarded to the new owner(s).
- **This is not a Building Consent.** A Building Consent may be required before giving effect to this Resource Consent. Please contact Council's Building Unit on 838 6677 for information on Building Consent matters.
- That pursuant to section 36 Resource Management Act 1991, the following fees and charges be paid:
 - a. Payment of additional Environmental Health fees for assessing consented reporting will be charged on a time-cost recovery basis in accordance with Hamilton City Council's Schedule of Fees and Charges, with adjustments coming into effect at the beginning of each financial year. The fees will be levied at the completion of the consent review process and will be payable to the Environmental Health Unit upon notification that compliance has been achieved.
- The adequacy of a CSMP will be determined by the inclusion of industry accepted best practice management controls in accordance with (but not limited to) Soil and Erosion Control: guidelines for Soil Disturbing Activities, Waikato Regional Council (2009), Good Practice Guide for Assessing and Managing Dust, Ministry for the Environment (2016), Guidelines for Assessment and Managing Asbestos in Soil, BRANZ (2017).
- In terms of SQEP credibility - the certifier must be a Contaminated Land Specialist, who has relevant capabilities that are supported by a professional profile, or who ultimately is a certified practitioner registered with EIANZ CEnvP or CEnvP-SC scheme. This information must be submitted with any reporting done under the NESCS.

- In terms of in accordance with NESC regulation 3 **DSI** (a to d) - any further investigation must be done and reported on in accordance with current editions of the Ministry for the Environment Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis of Soils, No.1 - Reporting on Contaminated Sites in New Zealand, and The Methodology for Deriving Standards for Contaminants in Soil to protect Human Health (2011).
- In terms of “in accordance” with NESC regulation 3 “**HAIL**” - will be determined by the SQEP demonstrating the approach adopted meets the requirements of the relevant regulations and guidance that governs the assessment, management and remediation of land affected by hazardous substances typically associated with the specific activities and industries listed in the current edition of the Hazardous Activities and Industries List (HAIL), Wellington, Ministry for the Environment (MfE).
- In terms of NESCS regulations - “suitability” of any land will be determined by the SQEP adopting the appropriate approach to investigation, remediation and validation as outlined in the relevant MfE’s Guidelines incorporated by reference in the NESCS. A best practice approach will also include meeting any specific requirements of other relevant regulations and guidance that governs the assessment, management and remediation of other contaminants of concern, and guidance documents that provide statements of good practice (be that they have or not have the status of law but that sit within/align with the contaminated land framework).
- The off-site disposal of any potentially contaminated soil may qualify as a discharge of contaminants under the Waikato Regional Plan in which case Waikato Regional Council would need to be contacted.

Yours sincerely



SAM LE HERON
ACTING PLANNING GUIDANCE MANAGER

For more information please contact:

Gillian Cockerell

Council Building

Garden Place, Hamilton

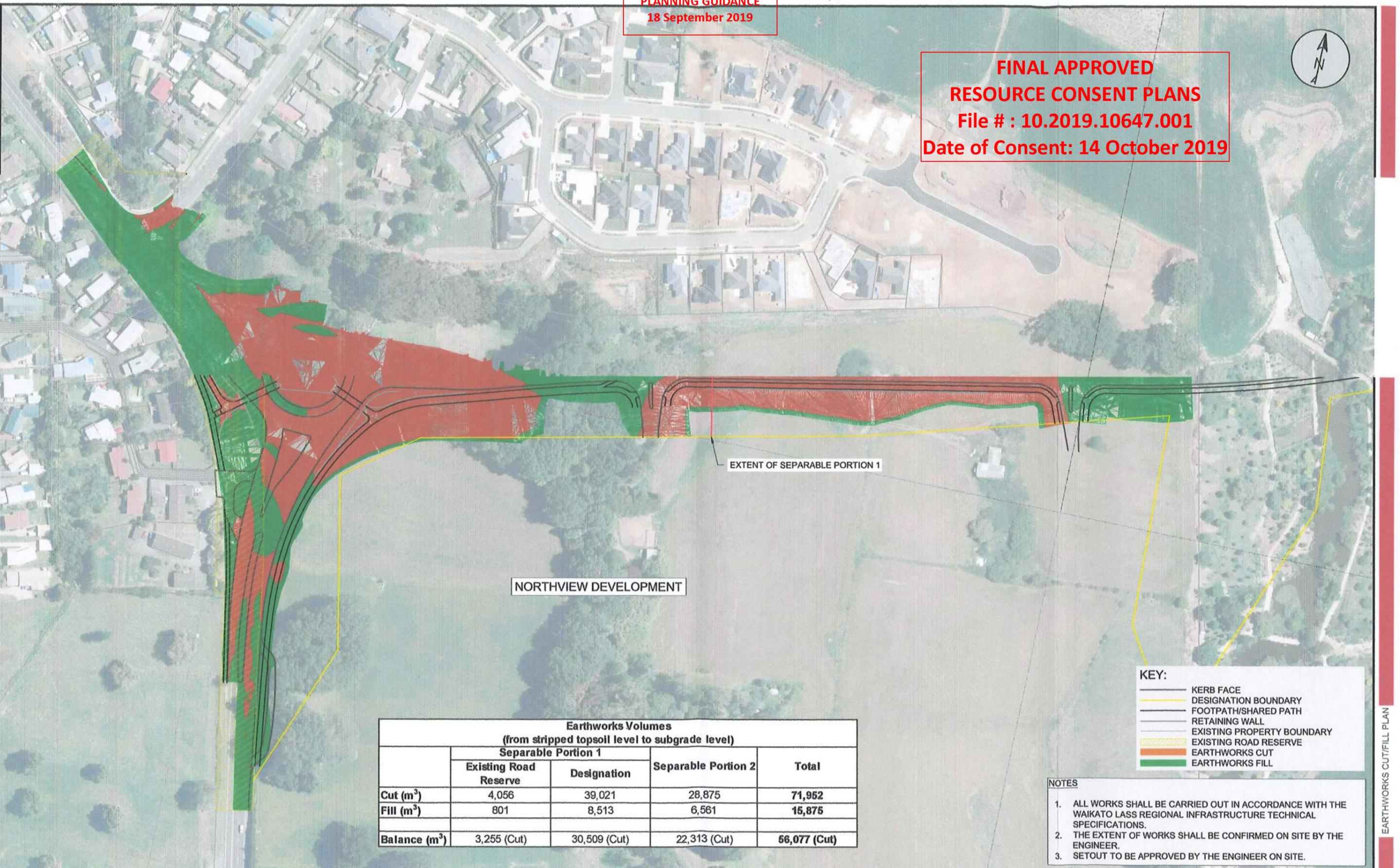
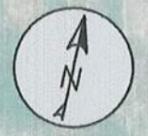
Phone: 07 838 6699

Email: gillian.cockerell@hcc.govt.nz

Website: www.hamilton.co.nz

Received
 PLANNING GUIDANCE
 18 September 2019

FINAL APPROVED
RESOURCE CONSENT PLANS
 File # : 10.2019.10647.001
 Date of Consent: 14 October 2019



Earthworks Volumes (from stripped topsoil level to subgrade level)				
	Separable Portion 1		Separable Portion 2	Total
	Existing Road Reserve	Designation		
Cut (m ³)	4,056	39,021	28,875	71,952
Fill (m ³)	801	8,513	6,561	15,875
Balance (m³)	3,255 (Cut)	30,509 (Cut)	22,313 (Cut)	56,077 (Cut)

KEY:

- KERB FACE
- DESIGNATION BOUNDARY
- FOOTPATH/SHARED PATH
- RETAINING WALL
- EXISTING PROPERTY BOUNDARY
- EXISTING ROAD RESERVE
- EARTHWORKS CUT
- EARTHWORKS FILL

- NOTES**
- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE WAIKATO LASS REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
 - THE EXTENT OF WORKS SHALL BE CONFIRMED ON SITE BY THE ENGINEER.
 - SETOUT TO BE APPROVED BY THE ENGINEER ON SITE.

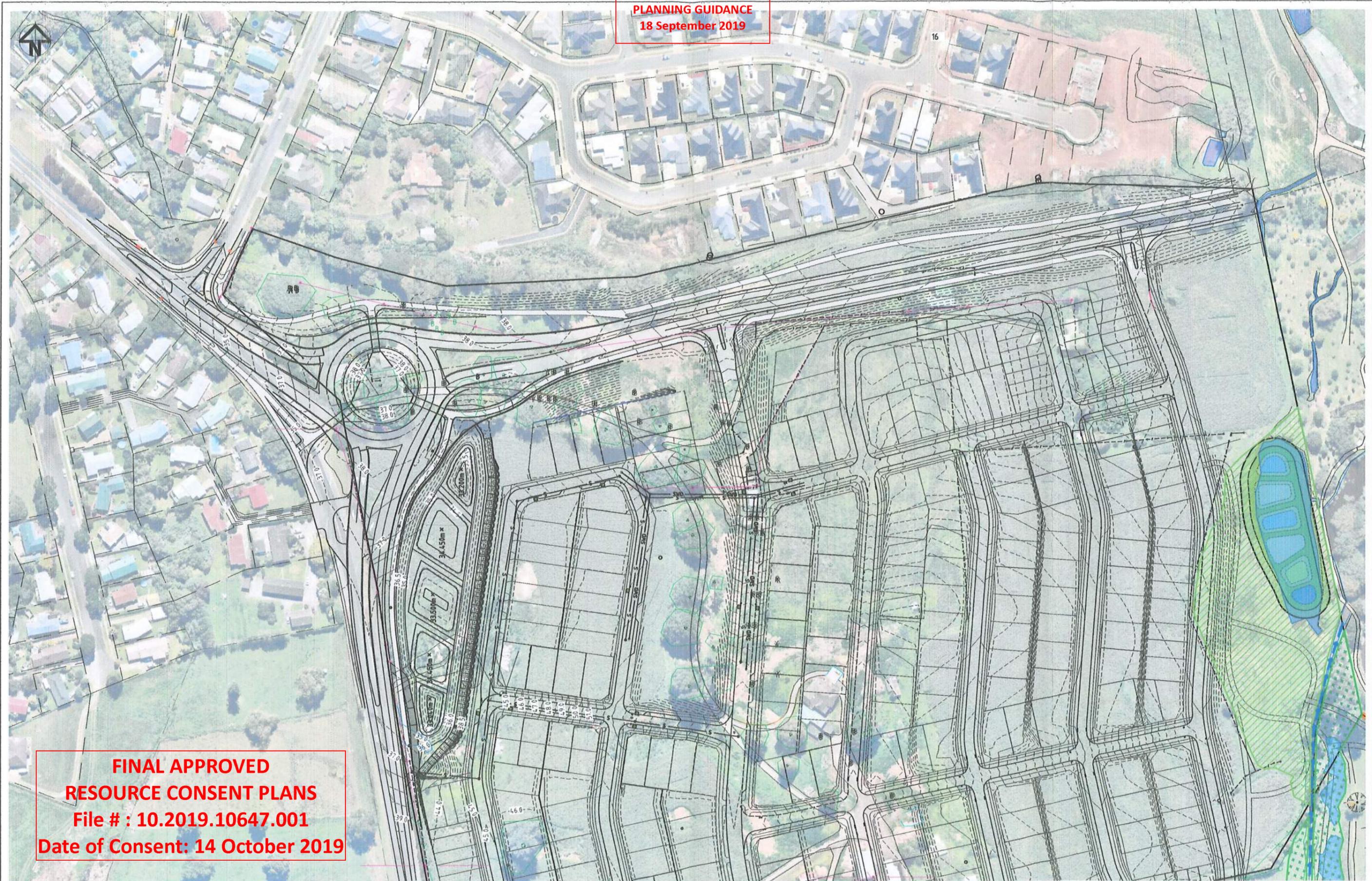
REF	AMENDMENT	APPD	DATE	BY	CHECKED	DATE	RECOMMENDED	OFFICE:	CUBT:	PROJECT	STATUS
	DESIGN		Aug 2017	D.Woodhouse				gray matter	Hamilton City Council	OHAUPO ROAD (SH3)/SOUTHERN LINKS EAST-WEST ARTERIAL ROUNDABOUT	PRELIMINARY
	DRAWN		July 2019	D.Woodhouse						EARTHWORKS CUT/FILL PLAN	GEODETIC & VERTICAL DATUM NZGD2000(Mount Eden) / Moturiki 1953
											PLAN NUMBER 14_295_100_P
											SHEET SKETCH 1
											SCALE 1:2000 (@ A3)
											REVISION R0

COMPLETE QA REVIEW & CHECK
 STAMP TO REMAIN UNTIL APPROVED FOR RELEASE

DRAFT

EARTHWORKS CUT/FILL PLAN

Received
 PLANNING GUIDANCE
 18 September 2019



**FINAL APPROVED
 RESOURCE CONSENT PLANS**
 File # : 10.2019.10647.001
 Date of Consent: 14 October 2019

This drawing is confidential and shall only be used for the purposes of this project.

No.	BY	DATE	DESCRIPTION	APPRO
B	HV	12/06/2019	DRAFT LAYOUT FOR COORDINATION	
A	DM	15/05/2019	ORIGINAL ISSUE	

SCALE (AT ORIGINAL SHEET SIZE)	SHEET SIZE	A1
SCALE 4 2 0 4 8 12 16 20 1:400		

NOTES			
DESIGNED	HV	CHECKED	
DRAWN	ZW	CHECKED	
APPROVED	HV	DATE	19/02/2019

we wainui environmental
 PO Box 32245, Raglan 3225, NZ
 p: 07 825 8336 e: office@wainuienvironmental.co.nz
 www.wainuienvironmental.co.nz

CLIENT: NORTHVIEW CAPITAL LTD.
 PROJECT: 3019 OHAUPO ROAD, HAMILTON

OVERALL LAYOUT PLAN

STATUS: ENGINEERING DESIGN	DRAWING NUMBER: WE1645-01-400	REV: B
----------------------------	-------------------------------	--------

Attachment B to Part 6.0

Remediation Action Plan (RAP)

REMEDIATION ACTION PLAN (RAP)

3019 OHAUPO ROAD, PEACOCKE

HAMILTON



Reference Number: REP-1378A/RAP/SEP19 (REV 1)

PREPARED FOR: HAMILTON CITY COUNCIL C/- GRAY MATTER LIMITED

13 SEPTEMBER 2019

(REVISED 16 SEPTEMBER 2019)



Geosciences Limited
47 Clyde Road, Browns Bay, Auckland
PO Box 35-366, Browns Bay, Auckland
(09) 475 0222

info@geosciences.co.nz www.geosciences.co.nz

DISCLAIMER

This remediation action plan is provided on the condition that Geosciences Ltd disclaims all liability to any person or entity other than the client and Waikato Regional Council in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of this report. Furthermore, Geosciences Ltd disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by the client, or any such person in reliance, whether in whole or any part of the contents of this report of all matters not stated in the brief outlined in our proposal and according to our general terms and conditions and special terms and conditions for contaminated sites.

STATEMENT

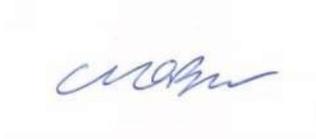
This plan has been prepared in acknowledgement of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been authorised by a suitably qualified and experienced practitioner (SQEP); and has been prepared with the intention of providing practices and procedures for the management of potentially contaminated land that meets the criteria of the NES, the MfE guidelines and the requirements of Hamilton City Council's development plans.

Report prepared on behalf of GSL by:



David Wilkinson
Environmental Scientist
Geosciences Ltd

Report reviewed & authorised on
behalf of GSL by:



Carl O'Brien
General Manager
Geosciences Ltd

Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 09 475 0222.

TABLE OF CONTENTS

1	INTRODUCTION	1
2	GEOSCIENCES LTD DETAILED SITE INVESTIGATIONS 2019	1
3	EXTENT OF IMPACTED AREAS	2
4	STATUTORY REQUIREMENTS	2
5	REMEDIATION ACTION PLAN	4
5.1	REMEDIATION GOALS	4
5.2	RESPONSIBILITIES AND SITE MANAGEMENT	4
5.3	ENGAGEMENT OF CONTAMINATED LAND ADVISOR	5
5.4	BRIEFING SESSIONS	5
5.5	HEALTH AND SAFETY PROCEDURES	6
5.6	PERSONAL PROTECTIVE EQUIPMENT	6
5.7	PERSONNEL HYGIENE	6
5.8	DUST CONTROL	6
5.9	EROSION AND SEDIMENT CONTROL	7
6	REMEDIAL EARTHWORKS PROCEDURES	7
6.1	REMEDIAL EARTHWORKS PROCEDURES – OFFSITE DISPOSAL OF HOTSPOTS	8
6.1.1	<i>Validation Soil Sampling</i>	9
6.2	VERTICAL MIXING	9
6.3	SITE WIDE DEVELOPMENT EARTHWORKS	10
7	CONTINGENCIES	11
7.1	FIBROUS MATERIAL (ASBESTOS)	12
8	SITE VALIDATION	12
9	REFERENCES	13

LIST OF FIGURES

FIGURE 1	SITE LOCALITY
FIGURE 2	AREAS TO BE REMEDIATED
FIGURE 3	PROPOSED VALIDATION SOIL SAMPLES

APPENDICES

APPENDIX A:	PREVIOUS INVESTIGATION EXTRACT
APPENDIX B:	CONTAMINATED SOIL DISCOVERY GUIDELINES

1 INTRODUCTION

As part of the ongoing development in the immediate area, the northern portion of the property identified as 3019 Ohaupo Road has been designated by Hamilton City Council as a future arterial road. The portion of the property designated as future road is indicated on Figure 1 and is hereafter referred to as 'the site' in this report.

Geosciences Ltd (GSL) conducted a detailed site investigation (DSI) on the site, which identified that surficial soils on site had been impacted by previous landuses to a level that exceeds the applicable standards for environmental discharge. As a result, localised remediation and accompanying remediation action plan (RAP) is required to address the requirements of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES) and the Waikato Regional Plan.

GSL's investigation identified concentrations of lead and zinc in excess of the soil ceiling limits defined by the Ministry for the Environment guideline document "*Guidelines for the Safe Application of Biosolids to Land IN New Zealand*" in discrete areas of the site. Desktop investigation has confirmed that those elevated concentrations are primarily as a result of historical lead based paint, while the zinc is likely to be sourced from building materials noted within the stockpile.

In accordance with the NES and the Waikato Regional Plan, this RAP has been prepared to document the practises and procedures to remediate the identified impacted soil to a level fit for the intended end landuse while ensuring that any risks associated with the potential mobilisation of contaminants during road development activities within the piece of land are managed to an acceptably low level.

The objectives of this RAP-SMP is to provide a level of flexibility for the required remediation works as the final tender process for development has not yet been completed and no fixed remedial strategy agreed to by all parties. For these reasons, this RAP-SMP must be updated prior to works commencing once these outstanding details are addressed. Section 6 of this report therefore provides two alternative remedial methodologies as an indicative approach that could be utilised as an example. Should an alternative method be identified at the time of development works commencing, it will be incorporated into this report for approval by the territorial authorities prior to works commencing.,

2 GEOSCIENCES LTD DETAILED SITE INVESTIGATIONS 2019

Geosciences Ltd (GSL) undertook a detailed site investigation (DSI) of the site in August 2019, report reference: *Rep 1378/DSI/Aug19*. The investigation included a desktop review of the site history which revealed that the site was part of the Rukuhia Soil Research Station from 1946 to 1988 which encompassed several items on the MfE HAIL, including but not limited to bulk storage and use of persistent pesticides (Item A.10), use of asbestos containing materials which are now in broken / degraded condition (Item E.1), and use of lead-based paints which are now in degraded condition (Item I).

GSL undertook a soil sampling regime which included the collection of 26 discrete soil samples targeting high risk areas for hotspots around buildings and using a composite sampling

methodology which included over the pastoral and cropped areas and one stockpile of soil and building waste of the site where hotspots were not expected.

Soil samples from around the structures on site all returned concentrations of lead in excess of the expected background range, while no soil sample returned concentration of lead in excess of the NES soil contaminant standard for commercial / industrial outdoor workers, a number of samples returned concentrations of lead in excess of the Biosolids Guidelines soil ceiling limit. Additionally, the composite soil sample collected from a stockpile in the north-western corner returned a concentration of zinc in excess of the Biosolids Guidelines, heavy metals above the expected background ranges, and trace detections of PAH.

Composite soil samples from formerly cropped areas of the site returned concentrations of arsenic, copper, and lead marginally above the expected naturally occurring background concentration ranges and trace detections of Σ DDT.

The DSI concluded that there is a potentially complete source-pathway-receptor relationship in place regarding the disturbance of soil containing elevated lead and zinc concentrations, and that localised remedial works will be required. The DSI recommended that a remediation action plan would be required in order to address the requirements of the NES, the WRP, and the HCC Operative District Plan.

An excerpt of GSL' DSI is included in Appendix A and a copy can be provided upon request.

3 EXTENT OF IMPACTED AREAS

Based on the findings of GSL's DSI, six discrete impacted areas on site have been identified that will require remediation in order to ensure that residual soil on site meets the applicable land use criteria as follows:

- **Area 1 – Residential Dwellings Lead Based Paint impacted Halos:** Impacts of lead based paint around the residential dwellings, garage and glasshouse/office building.
- **Area 2 – Small Stockpile in north-western corner of site:** Stockpiled soil impacted with concentrations of zinc in excess of the Biosolids Guidelines.

GSL estimates that based on a 3 m halo around each of the lead impacted halos that approximately 915 m² of soil will require remediation around current and historic building footprints. In the first instance remedial works will involve the excavation of 300 mm of soil in each of the impacted halos, accounting for a total volume of approximately 275 m³ of lead impacted soil.

The stockpile is estimated to have a footprint of some 65 m² and is up to 1 m in height accounting for a maximum volume of 65 m³ of zinc impacted soil.

The location and extent of impacted soils are set out on Figure 2.

4 STATUTORY REQUIREMENTS

As a result of the findings of the DSI, a remediation action plan is required that will provide procedures to be followed during the earthworks to ensure the protection of human health and the environment and to ensure that impacted soil from the site is disposed of at a facility that is licensed

to accept material of this nature. The site is part of a designation for an arterial road and is subject to the following conditions:

“20 Contaminated Soil Management Plan

- 20.1 *Prior to the commencement of Construction Works, the Requiring Authority shall engage a Suitably Qualified and Experienced Practitioner to prepare a Contaminated Soil Management Plan (CSMP). the requiring Authority shall implement the CSMP at all times during the Project. The objective of the CSMP shall be to avoid, remedy or mitigate the adverse effects of Construction Works on human health and the environment which may result from the disturbance of contaminated soil/material.*
- 20.2 *The CSMP shall be provided to the Territorial Authority Chief Executive or nominee for certification at least forty (40) working days prior to the commencement of Construction Works.*
- 20.3 *As a minimum the CSMP shall include:*
- a) Details of any investigation, assessment, reporting and management of contaminated land or potentially contaminated land that has been carried out;*
 - b) The measures to be undertaken in the handling, storage, and disposal of all contaminated material excavated during construction works;*
 - c) The soil validation testing that will be undertaken;*
 - d) the soil verification testing that will be undertaken to determine the nature of any contamination in excavated spoil and the potential reuse or disposal options for that spoil;*
 - e) How the placement of any re-used contaminated soil / material will be recorded and tracked;*
 - f) Measures to be undertaken in the event of unexpected material; and*
 - g) The measures to be undertaken to:
 - i. Protect the health and safety of workers and the public;*
 - ii. Control stormwater runoff and runoff;*
 - iii. Remove and manage any contaminated soil; and*
 - iv. Remediate any required sites;**
 - h) The measures to be undertaken to:
 - i. Identify any suspected asbestos;*
 - ii. Identify the type of asbestos and confirm the appropriate means by which it shall be removed; and*
 - iii. Handle any asbestos containing material.**
- 20.4 *A suitably Qualified and Experienced Practitioner shall supervise the implementation of the measures required in Condition 20.3 above.*
- 20.5 *At the completion of the construction Project, a validation report shall be prepared by a Suitably Qualified and Experienced Practitioner in accordance with any Ministry for the Environment Guideline and the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health, and be submitted to the Territorial Authority Chief Executive or nominee documenting the management of contaminated soil and evidence of appropriate disposal. The validation report shall include records of all analytical results, volumes, tip receipts, and any incidents or complaints and how these were addressed. The validation report shall also identify any areas which need on-going monitoring and management by the Requiring Authority.*

This RAP has been prepared to address the requirements of the NES and Waikato Regional Plan, the above conditions outlined in the Notice of Requirement from Hamilton City Council, and to document the remedial process to be implemented. It has been prepared in accordance with MfE Contaminated Land Management Guideline No. 1 - *“Reporting on Contaminated Sites in New Zealand”*.

Following the grant of any necessary resource consents, this RAP will be updated to ensure all applicable conditions are addressed as well as finalising the appropriate remedial methodology, responsible parties and any other pertinent details required.

5 REMEDIATION ACTION PLAN

This site-specific management plan (RAP) provides procedures for the handling of potentially contaminated excavated soil material because of the proposed development of an arterial road corridor at 3019 Ohaupo Road, Tamahere, Hamilton (Figure 1). It is to be submitted to Hamilton City and Waikato Regional Council’s for approval before works commence on site.

The practices and procedures in this plan are intended to ensure that health, safety and environmental risks associated with the proposed earthworks activities for the development of a road within the designation area are managed to an acceptably low level. It is not intended that this RAP should replace the contractor’s site-specific health and safety plan or earthworks and sediment control plan, but should be enacted in conjunction with these documents.

5.1 REMEDIATION GOALS

The remediation goal for lead been set at compliance with the Soil Ceiling concentrations set by the MfE Guidelines for the Safe Application of Biosolids to Land as a suitably conservative goal to manage any potential discharges to the environment.

The remediation goals are shown in Table 1 below.

Table 1: Remediation Goals¹

	Lead	Zinc
Remediation Goal	300 ²	300 ²

Notes:

1. All concentrations measured in mg/kg
2. Guidelines for the Safe Application of Biosolids to Land in New Zealand - Table 4.2 Soil ceiling limits

5.2 RESPONSIBILITIES AND SITE MANAGEMENT

The appointed earthworks contractor will assign a ‘site manager’ to the project that will be responsible for the implementation of this RAP for the proposed works at the site. Once the final contract has been awarded, Table 2 below will be updated to reflect the responsible parties.

Table 2: Responsible Parties

Position	Name	Company	Contact Phone Number
Client			
Project Manager			
Site Manager			
Contaminated Land Advisor			

5.3 ENGAGEMENT OF CONTAMINATED LAND ADVISOR

A suitably qualified Contaminated Land Advisor (CLA) will be appointed to provide on-call direction in relation to contamination / disposal issues for the project. The CLA will be a professional advisor, suitably qualified and experienced in the investigation, reporting, remediation, and validation of contaminated land.

The main functions of the CLA are to:

- Assist in inspecting / screening potentially contaminated material;
- Assess the effectiveness of environmental control measures;
- Manage the collection and analysis of any soil samples (if required) in accordance with the Ministry for the Environment’s (MfE) Contaminated Land Management Guideline No 1, (Reference 3);
- Provide assessments of the investigation;
- Make recommendations based on findings; and
- Maintain regular liaison with the authorities if necessary.

5.4 BRIEFING SESSIONS

The site manager is to commission a briefing session for relevant staff and subcontractors prior to the commencement of works. The briefing session will include as a minimum:

- Known areas of impacted soil material;
- Appropriate PPE and safety measures;
- Familiarisation with the requirements of the RAP;
- Guidance for identifying contaminated material as works progress (Appendix B); and
- Procedures to be followed should contaminated material be encountered (Appendix B).

5.5 HEALTH AND SAFETY PROCEDURES

While this RAP provides steps that are required because of the concentrations of lead and zinc identified during the DSI, the earthworks contractor is ultimately responsible for the H&S procedures related to the earthworks.

The concentration of lead and zinc in soil within the areas of remediation, do not exceed the human health standards for site workers, as outlined in the soil contaminant health standards ($SCS_{(HEALTH)}$) of the NES. As such, soil onsite is not considered to pose a risk to the health of site workers. Additionally, the majority of soil disturbance is likely to be conducted using mechanical excavators, and direct vehicle loadout, thereby limiting the potential for any direct contact with soil by site workers. That said, prudent controls should still be in effect during remedial and soil disturbance activities to ensure that any risks are managed to an acceptably low level.

Inhalation is therefore the most important exposure risk related to airborne contaminants in dust while direct contact with skin or eyes is the secondary route of entry in this case. Controls for managing dust are set out in Section 6.8 below, while conservative staff hygiene processes are set out in Section 6.7.

In addition, GSL notes that the Health and Safety Guidelines on the Clean-up of Contaminated Sites developed by Occupational Safety and Health Services (OSH) provides reference to appropriate H&S measures that can be adopted for contaminated sites. A copy of this guideline can be provided upon request.

5.6 PERSONAL PROTECTIVE EQUIPMENT

The minimum Personal Protective Equipment (PPE) which should be available on-site will be in accordance with the contractor's specific health and safety plan. No specific additional PPE is considered necessary in light of the concentrations identified within the analytical results. Should unexpected contamination be encountered on site, the following additional PPE may be required:

- Protective leather or rubber gloves
- Safety glasses
- Dust masks

The site manager will use his discretion with regard to the use of the additional PPE and might call on the CLA for advice on this matter.

5.7 PERSONNEL HYGIENE

In order to manage any risks associated with exposure of personnel on site during remedial and site development earthworks, appropriate washdown facilities will be provided on site alongside a designated meal area. All personnel will be briefed prior to works commencing notifying them of the onsite facilities and practices and procedures included in this Remediation Action Plan.

5.8 DUST CONTROL

Dust controls are required to minimise pollutants becoming airborne and reduce stormwater sediment loads during remediation and site wide development earthworks. If the proposed

earthworks are undertaken in dry conditions, dust can be controlled by light frequent water spraying. Water spraying should be frequent enough to suppress the generation of dust but not as heavy as to generate sediment laden water run-off.

The site manager will use his discretion with regard to dust suppression and will be ultimately responsible for ensuring the control of dust during earthworks on site.

5.9 EROSION AND SEDIMENT CONTROL

To prevent generation of contaminated sediment run-off, stormwater protection measures shall be incorporated around the perimeter of proposed areas of work in accordance with Waikato Regional Council Guidance Document “*Erosion and Sediment Control: Guidelines for Soil Disturbing Activities*” shall be sufficient to ensure compliance with these requirements. These control measures shall include appropriate measures such as:

- Protection of the perimeters of the proposed work areas with silt-socks / super-silt fences to trap sediment on stormwater; and
- the use of clean water diversion trenches to direct surface water to a designated stormwater collection pond.

6 REMEDIAL EARTHWORKS PROCEDURES

As part of the proposed development earthworks, remediation and / or management of soils exceeding the environmental discharge thresholds will be required. The following section provides a draft of the potential remediation strategies representing a combination of offsite removal and mixing of soils. These methods represent a draft only to provide maximum flexibility to the appointed contractor and are required to be confirmed prior to development works commencing. Ultimately, the decision about remedial methodologies will be an economic one on the part of Hamilton City Council;

The following sections of this RAP will be updated and finalised following the appointment of contractors and an agreement on the remediation strategy with all parties.

In order to provide a framework for the potential remediation of the site GSL has proposed the following:

- All soil with concentrations of lead or zinc in excess of twice the biosolids criteria will be excavated and disposed of offsite; and
- all remaining impacted soil will undergo vertical mixing and blending with ‘clean’ soil in order to dilute heavy metal concentrations to levels which comply with the Biosolids Guidelines ceiling concentrations.

To achieve the above, site development earthworks are expected to be undertaken in three distinct phases as follows (final staging of works will be established following the appointment of the earthworks contractor and finalization of the remedial process):

1. Remediation of the identified discrete hotspots with lead / zinc concentrations more than double the Biosolids Guidelines through excavation and offsite disposal;

2. Vertical Mixing of remaining impacted soil and emplacement of compliant mixed soil in bunds or planting within the road corridor;
3. Bulk site wide earthworks involved in the development of the site into the proposed arterial road corridor.

Specific procedures for each phase of development are set out in turn below.

6.1 REMEDIAL EARTHWORKS PROCEDURES – OFFSITE DISPOSAL OF HOTSPOTS

The uppermost 300 mm of topsoil within the demarcated areas will be scraped using mechanical excavation techniques, and soil will be loaded directly into covered trucks or trailer units where practicable. Temporary stockpiling of the material will be avoided unless required to facilitate loadout. These excavations can be undertaken concurrently with any demolition activities, and soil can be included alongside demolition waste for disposal to landfill.

The estimated total volume of impacted soil where lead / zinc concentrations exceed twice the Biosolids Guidelines criteria is approximately 183 m³ based on the details set out in Section 3 above for seven distinct remedial areas (Figure 2).

This material will consist mostly of topsoil and natural clay material with small amounts of turf and gravel hardstand / demolition waste.

The procedures below will be followed to ensure that potentially contaminated soil is adequately handled and disposed of off-site.

- Prior to earthworks commencing, the contractor will arrange for the disposal of soil and excavated material at a licensed facility that is licenced to accept soil of this nature;
- The affected areas, as shown in Figure 2 will be marked with fluorescent paint, pegs, or other suitable markers in the field based on a measured 3 m distance from the edge of each structure identified or from measured distances from sample points where applicable;
- Excavated soil will be loaded directly into a truck or trailer and taken directly to a facility authorise to receive soil of this kind as far as practicable. Any temporary stockpiling of material for provision of load out will be minimised as far as possible;
- An area on site will be prepared for the temporarily stockpiling of material of suspicious nature that might be encountered during the earthworks;
- Any temporary stockpiles will be managed (kept damp) to ensure that there is no excess dust generated from the stockpiles;
- Silt fencing will be placed around any temporary stockpiles to ensure that there is no excess sediment run-off from the stockpiles;
- Following the completion of the initial remedial cuts as identified in Section 3, the Site Manager will notify the CLA who will arrange for the collection of validation soil samples as set out in Section 6.1.1 below;
- In the event that any validation soil samples fail to meet the applicable remedial goals set for the site, the CLA will notify the site manager and organise further remedial earthworks as necessary;

- The CLA will be notified and inspect any suspicious or noxious material that might be encountered during the earthworks. If necessary, the CLA will take soil samples for analysis of any foreign material that is discovered. The CLA will advise on the disposal of any such material;
- Upon completion of the excavations and verification from the CLA that all impacted soil has been removed, the site manager shall ensure that plant and equipment are cleaned and decontaminated appropriately; and
- A landfill manifest or weigh bridge dockets of all material disposed of at a managed fill or landfill facility will be kept.

6.1.1 VALIDATION SOIL SAMPLING

Following the completion of the Stage 1 remedial earthworks above, the removal of impacted soil will be validated as follows:

- validation of the lead-based paint hotspots will require the collection of approximately 20 soil samples, collected from the side walls / base of remedial excavations, as shown in Figure 3;
- validation of the zinc impacted stockpile will be a visual inspection in the first instance in order to confirm the removal of the stockpile and where possible, establish the nature of the surface the stockpile was emplaced on. If deemed necessary, validation may also include the collection of up to five validation soil samples collected from the base and sidewalls of any required excavation.

As detailed above, remedial earthworks will continue until analytical results are returned that comply with the stipulated remedial goals.

6.2 VERTICAL MIXING

GSL proposes that the remaining lead impacted soil from the halos identified in Figure 2 (some 562 m² of impacted area) can be managed onsite through a process of vertical mixing with the underlying soil, then mixed with 'clean' topsoil from the remaining site area, and emplaced in bunds, landscaping or the proposed road corridor in the northern portion of the site. GSL estimates that the following procedure will require the disturbance of some 225 m³ of lead impacted soil in order to excavate, turn over, and homogenise the in-situ lead impacted soil.

The impacted topsoil will be mixed with 'clean' topsoil from other areas of the site and small amounts of underlying soil in order to dilute the identified concentrations of lead, through the use of a mechanical excavator.

Prior to the emplacement of the blended soil within bunds in the road corridor, a suitably licensed surveyor will be engaged to survey the designated deposition areas, which will be pegged in the field by the surveyor. Once the designated bund areas are surveyed and appropriately marked out in the field, a draft survey map will be prepared indicating the locations of the bunds and will be held onsite by the site manager to annotate as placement is undertaken. The site manager will note the dates, extent and estimated volumes of soil emplaced and include any variation from the pre-marked areas.

The following procedures will be followed to ensure that the impacted soil is appropriately handled during the mixing and emplacement process:

- Prior to the commencement of mixing, the final designated bund areas for the emplaced, mixed fill will be surveyed and marked out in the field. A survey map will be prepared which indicates the designated emplacement areas which will be kept on site;
- Excavating and turning over the uppermost 400 mm of topsoil to homogenise the soil horizons. Mixing should be undertaken in accordance with the procedures for in-situ vertical mixing as set out in the Pattle Delamore Partners Ltd report *Guideline for Contaminated Land Remediation by Soil Mixing* (October 215) prepared for Hawke's Bay Regional Council;
- once the topsoil horizons are mixed, the full extent of topsoil will then be scraped into temporary stockpiles (windrowing) for excavation and moving across the site to be emplaced in the proposed road corridor (or other suitable locations on site) and compacted to the engineering design specifications for those structures;
- as part of moving the soil, it will be excavated into mollocks or similar all terrain haul vehicles and tipped into a stockpile for easy emplacement into the designated bund. Handling the material in this manner will ensure that the soil is turned and mixed at least twice as well as being homogenized into bunds / final engineered structures; and
- once emplaced, the soil will be stabilised using grass seed, mulch, or other appropriate mechanisms to minimize the potential for erosion or sediment generation; and
- once the final engineered structure is completed and stabilised, the bunds will be subject to a final survey, and the final volume and location of all blended soil emplaced will be recorded in the site validation report. Any variation from the initial demarcation will be encompassed within this final survey.

Once topsoil has been emplaced in final engineered structures, up to validation soil samples will be collected at a rate of 1 composite sample per 500 m³ of soil in order to ensure that sufficient dilution has occurred. GSL notes that should the required dilution not be achieved, there is scope for the ongoing management of that soil in the structures through the preparation of an ongoing management plan and consent from Council for that soil to remain on site.

6.3 SITE WIDE DEVELOPMENT EARTHWORKS

Following the completion of the remedial work phases as detailed above, general site wide development earthworks will be undertaken across the full extent of the site. While concentrations of contaminants in the wider site, comply with the relevant NES and Biosolids criteria, due to the detectable traces of OCPs, PAH and concentrations of arsenic, copper, and lead in excess of the naturally occurring background concentration range, the following site management procedures will be required.

While GSL envisages that all soil disturbed as a result of site wide development earthworks can be retained on site, it is noted that should any topsoil be disposed of off-site, then it must be disposed of to a suitably licensed managed fill or land fill facility as it cannot be considered cleanfill.

The procedures below will be followed to ensure that any risks associated with the potential mobilization of contaminants are managed to an acceptably low level:

- Erosion and sediment controls will be implemented prior to bulk earthworks commencing in accordance with the Waikato Regional Council Guidance Document *“Erosion and Sediment Control - Guidelines for Soil Disturbing Activities”*
- Any excavated soil requiring off-site disposal will be loaded directly into a truck or trailer and taken to a facility authorized to receive soil of this kind. Should excess subgrade clay require disposal, it may be tested in advance to confirm whether or not it meets the MfE definition of Cleanfill;
- All personnel undertaking soil disturbance works will be briefed on the Contaminated Soil Discovery Guidelines (Appendix B);
- An area on site will be prepared for the temporary stockpiling of materials of suspicious nature that might be encountered during the earthworks;
- Silt fencing will be placed around any temporary stockpiles to ensure that there is no excess sediment laden run-off from the stockpiles;
- The CLA will be notified and inspect any suspicious or noxious material that might be encountered during the earthworks. If necessary, the CLA will collect representative soil samples for analysis of any foreign material that is discovered. The CLA will advise on the disposal of any such material;
- Upon completion of the earthworks, the site manager shall ensure that all plant, machinery and equipment are cleaned and decontaminated appropriately; and
- a landfill manifest or weigh bridge dockets of all material disposed of at a managed fill or landfill facility will be kept.

7 CONTINGENCIES

In the event that other contamination is encountered on the site during the works, the site manager, in consultation with the CLA, will either:

- Identify the material in situ if possible (staining, odour, visible fibres or refuse etc.); or
- Excavate the material to a suitable leak proof and covered skip-bin or truck and take representative samples for analysis, placing the material on hold for appropriate disposal; or
- Halt excavations in the immediate vicinity of the discovery while the material is sampled in-situ, and removal / disposal options explored once the analytical results are returned.

An appropriate log will be kept by the site manager of any unidentified contamination encountered during the excavations.

GSL has produced a contaminated soil discovery guideline (CSDG) document that outlines the signs, risks, and remedial actions required for contamination scenarios that may be encountered during remedial earthworks (Appendix B).

Suspicious material will be investigated by the CLA and laboratory analysed if deemed necessary. The CLA will advise on the disposal options of any uncertain materials. Disposal options can include:

- remove to an appropriate temporary stockpile area for further testing and analysis; or
- disposal at a cleanfill, managed fill or landfill facility.

The appointed contractor might have their own discovery procedures based upon their specific experiences in working with contaminated land of various natures (urban to rural). Contractor specific documents may be used alongside or in conjunction with this RAP.

If any staff, contractors, or consultants discover contamination, they should notify the site manager immediately, who should enact the provisions of the plan.

7.1 FIBROUS MATERIAL (ASBESTOS)

While asbestos containing material was identified in broken / degraded condition on site, soil sampling in the area of the discovery revealed that fibres had not infiltrated the soil. As all the structures will be subject to fully intrusive Type-3 hazardous building materials surveys and appropriate asbestos removal works prior to demolition works commencing it is not anticipated that any asbestos materials will be encountered on the site. That being said, given the age of buildings on the site, and the overgrown nature of large parts of the site, further ACM discoveries cannot be ruled out entirely.

Where friable asbestos containing materials (ACM) are identified in the soil matrix, all works shall cease (including the excavation and disposal of affected materials) until the provisions of the Health and Safety in Employment (Asbestos) Regulations 1998, and the Department of Labour Guidelines for the Management and Removal of Asbestos (Reference 7) are exercised.

Any ACM that are excavated is to be placed in plastic bags, sealed and immediately disposed of at a registered landfill. If dry conditions prevail during the excavations or handling of ACM, water spray is to be used as a dust suppressant

8 SITE VALIDATION

Upon completion of the remedial works, a site validation report (SVR) will be completed and provided to Hamilton City and Waikato Regional Councils. The SVR will include:

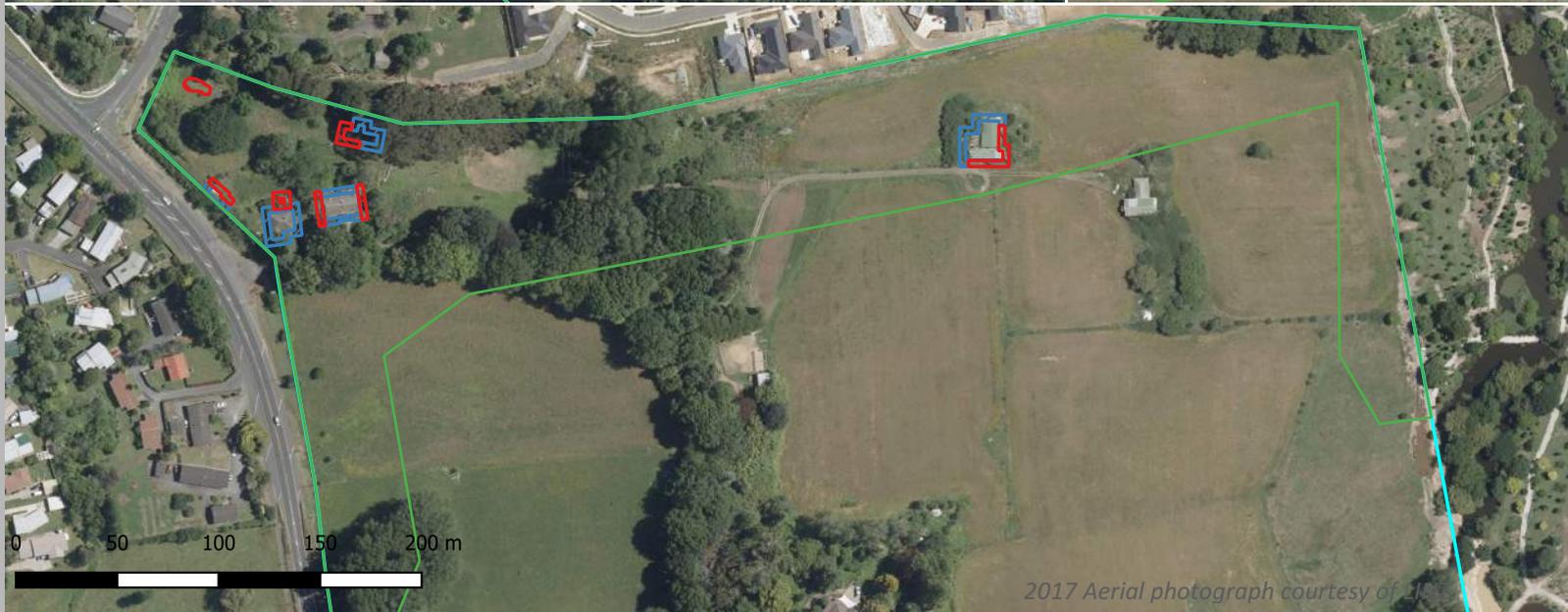
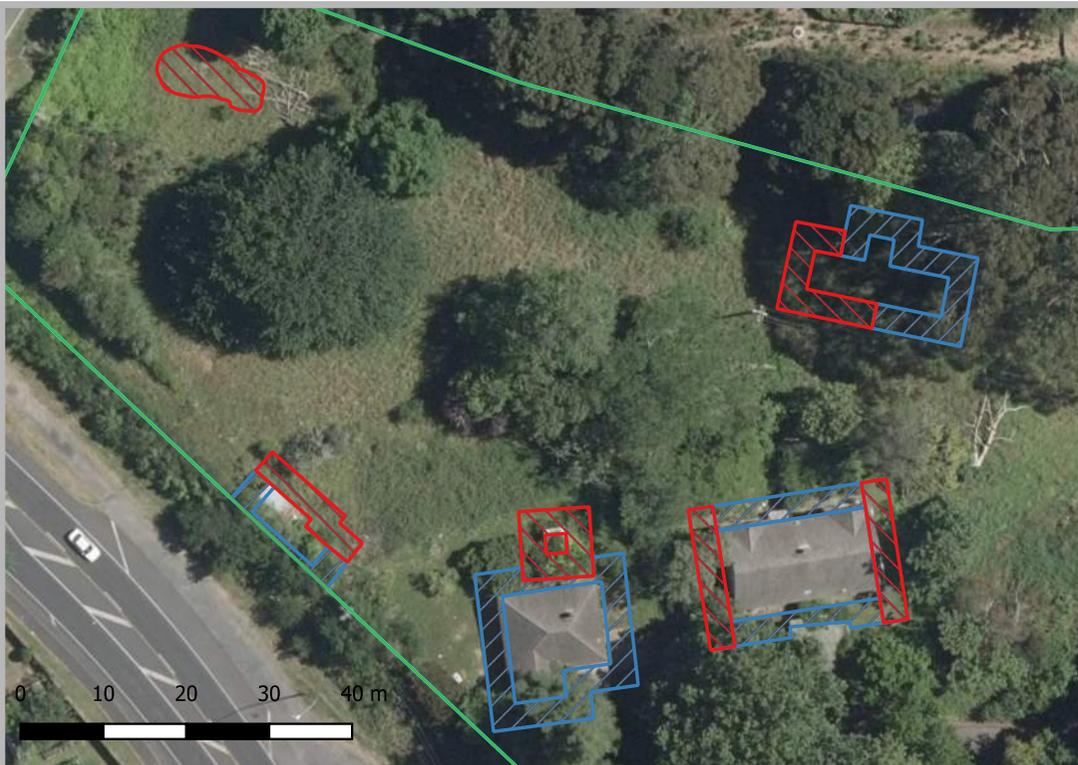
- The quantity of soil material removed from site, including copies of the disposal manifests;
- A description of any unforeseen contaminated soil material encountered during the remedial works;
- Laboratory analytical results from any soil testing that occurred during the remedial works; and
- Any incidences or complaints that occurred during the earthworks.

9 REFERENCES

1. Ministry for the Environment (2011) - Draft Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2011) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
4. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
5. Department of Labour (1999) — *Health and Safety Guidelines on the Cleanup of Contaminated Sites*. Occupational Safety and Health Services. Department of Labor. Wellington. ISBN 0-477-03546-9.

FIGURES





Legend

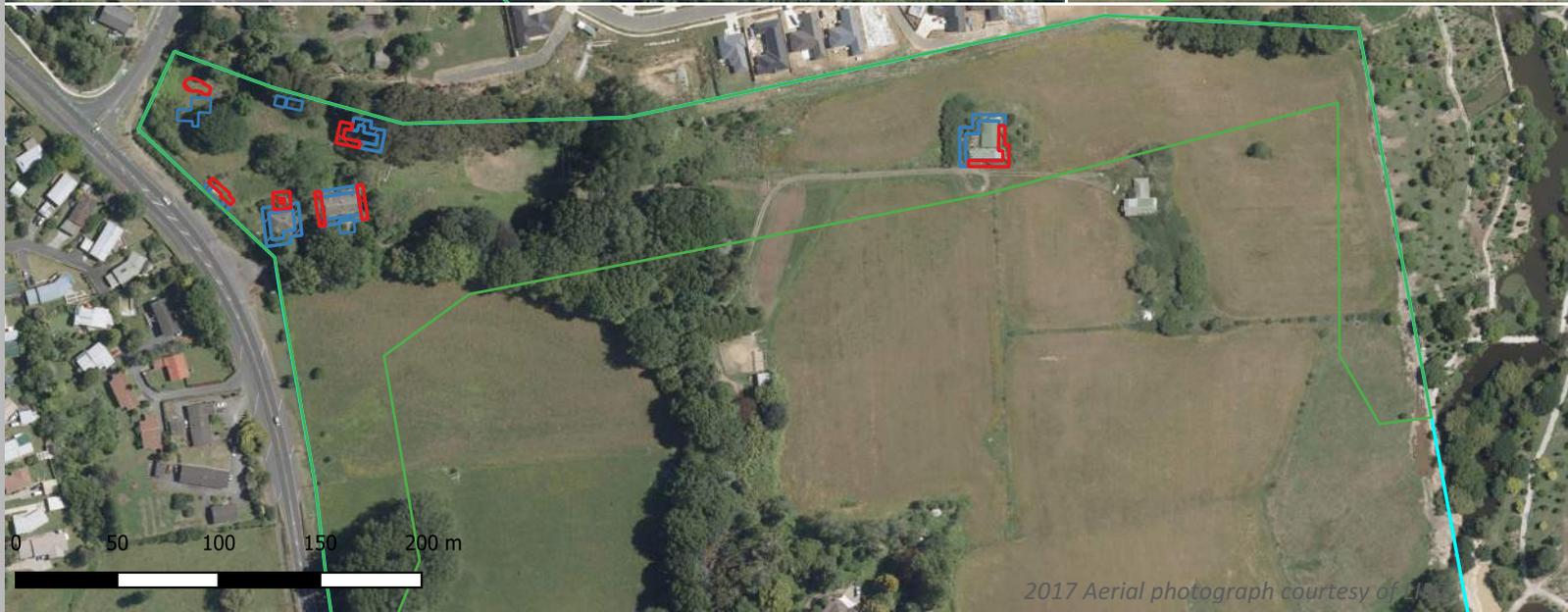
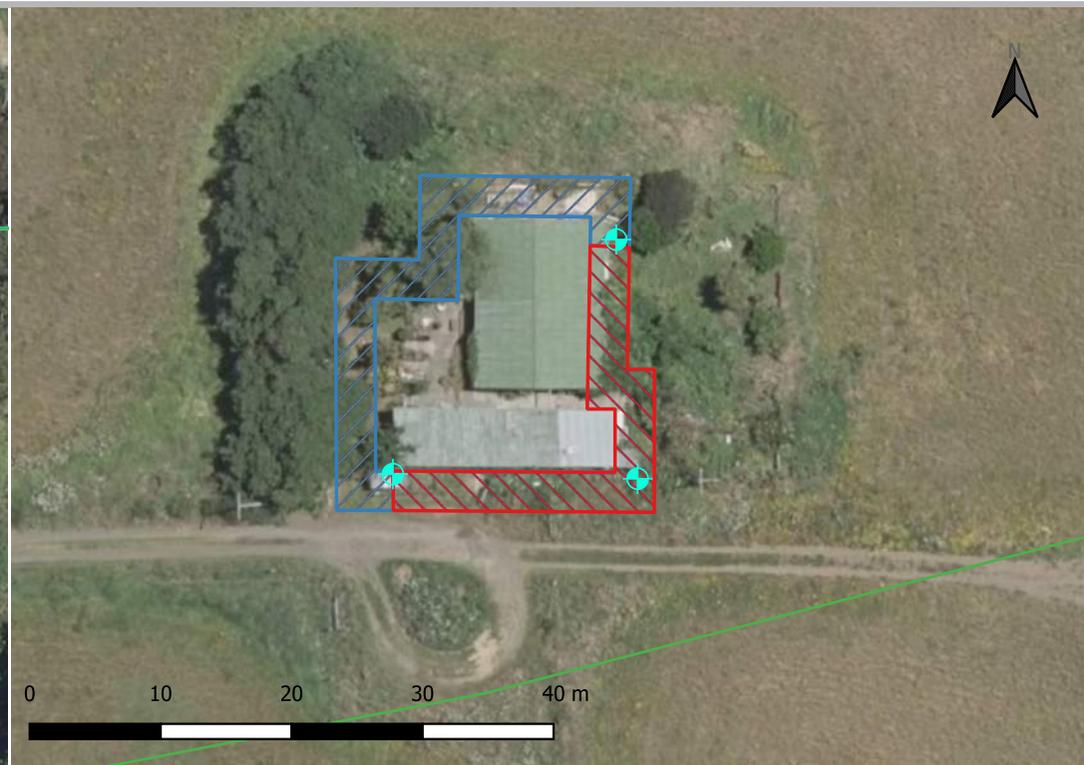
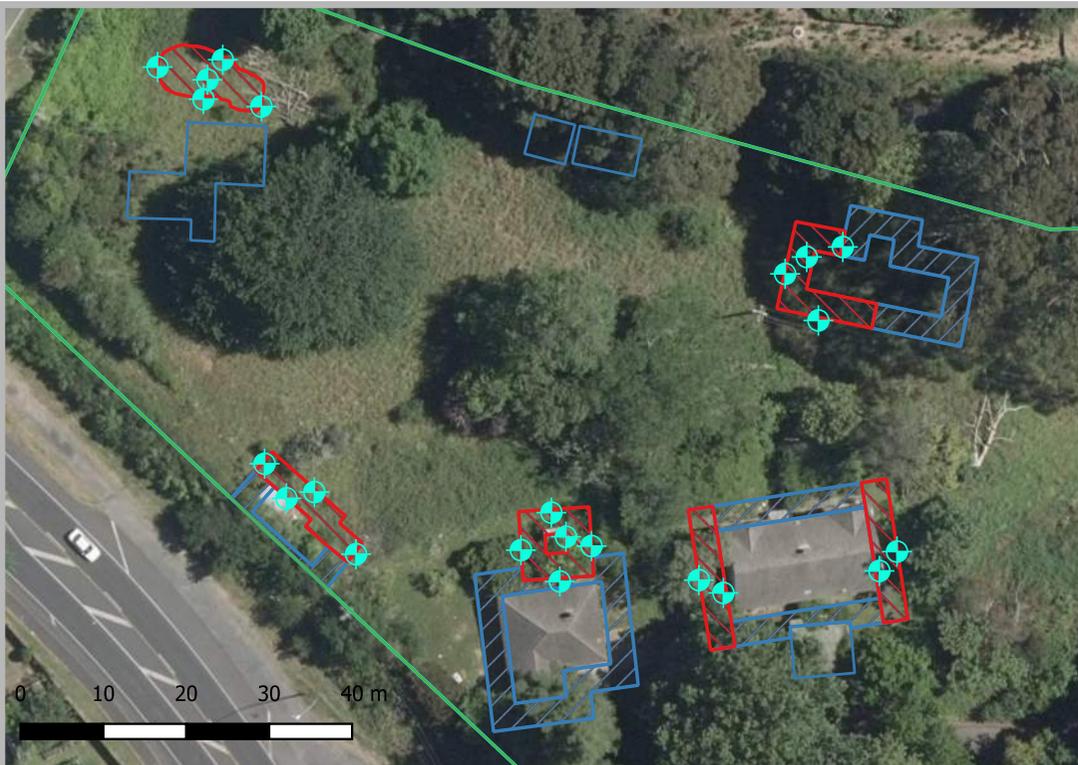
-  Site boundary (Designation A106)
-  Property Boundary
-  Remediation - Offsite disposal
-  Remediation - Onsite mixing

2017 Aerial photograph courtesy of [unclear]

Figure 2 - Remediation Areas

Designation A106, 3019 Ohaupo Road, Peacocke, Hamilton

Reference: J1378a
Date: 11/09/2019
Drawn: CD
Approved: COB



Legend

-  Site boundary (Designation A106)
-  Property Boundary
-  Remediation - Offsite disposal
-  Remediation - Onsite mixing
-  Proposed Validation Sampling

2017 Aerial photograph courtesy of [unclear]

APPENDIX A: PREVIOUS INVESTIGATION EXTRACTS

EXECUTIVE SUMMARY

Hamilton City Council (HCC) have designated a portion of the property at 3019 Ohaupo Road, Peacocke, Hamilton for the construction of an arterial road under the NZTA and HCC Southern Links project (Designation A106). The piece of land, hereafter referred to as 'the site', encompasses some 5.56 Ha along the northern boundary of the property. It is proposed to change this land from its current residential and primary production landuse to road corridor, subdivide it from the larger 3019 Ohaupo Road property, and develop the necessary road and associated infrastructure.

Under the *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES)*, the Waikato Regional Plan (WRP), and the Hamilton City Council Operative District Plan, subdivision or development of land identified as the location of activities or industries encompassed by the Ministry for the Environment's (MfE) Hazardous Activities and Industries List (HAIL) requires a detailed site investigation (DSI) to determine if there is any risk to human or environmental health as a result of the former activities.

Geosciences Ltd (GSL) have previously undertaken a detailed site investigation of the larger 3019 Ohaupo Road property (Ref: *Rep-1165/DSI/Apr18/Rev1*). The desktop portion of that investigation identified that the property was developed from vacant pasture into the Rukuhia Soil Research Centre, where it was utilised for investigation of a range of persistent pesticides and fertilisers.

Whilst that former investigation included a historic review of the site, it did not include intrusive soil sampling across the area of the proposed designation. However, during that former investigation, four composite soil samples collected from paddocks that overlap the boundary of the designation did not identify any contaminants of concern in excess of the appropriate criteria, and as such those areas have not been re-sampled in this investigation.

To assess the current and historic landuses of the site, and identify any potential sources of soil contamination, GSL undertook a review of the current and historic Certificates of Title of the larger property, the previous DSI reference above, a research report into the history of the former Rukuhia Soil Research Station located on the property, and supplementary historic aerial photographs made available since the previous DSI. The above review and a site inspection performed on 2 August 2019 identified the following activities encompassed by the MfE HAIL:

- Use of lead-based paint on historic buildings – Item I;
- Use of Asbestos Containing Materials in damaged or deteriorated condition – Item E.1;
- Glasshouses at a facility known to use persistent pesticides – Item A.10;
- Accidental release of potential contaminants from buried burnt timber – Item I.

Consequently, GSL developed a conceptual site model of actual and potential soil contamination which identified the contaminants of concern associated with current and historic landuses, including a suite of heavy metals (including arsenic, copper, and lead), organochlorine pesticides (OCPs), polycyclic aromatic hydrocarbons (PAHs), and asbestos fibres. Based on this conceptual model, GSL undertook a judgemental soil sampling regime to collect 30 discrete surface soil samples and 3 composite soil samples from those areas identified as potentially contaminated by HAIL activities.

Laboratory analysis of the collected soil samples identified elevated lead concentrations around historic structures and a zinc concentration in a soil stockpile that exceeded the MfE (2003) *Guidelines for the Safe Application of Biosolids to Land in New Zealand*, chosen as criteria indicative

of environmental risk under the MfE Contaminated Land Management Guidelines (CLMG) No. 2 *Hierarchy and Application in New Zealand of Environmental Guideline Values (Revised 2011)*. However, no soil samples returned concentrations of contaminants of concern in excess of the NES soil contaminant standard (SCS) for commercial / industrial outdoor workers (unpaved) landuse, selected as the most relevant SCS to development workers and road corridor maintenance workers. Broken fragments of cement product positively identified as containing asbestos fibres are present on the western boundary of the site at the historic single garage.

Based on the analytical results of those samples, GSL concluded that:

- No contaminants of concern exceeded the NES SCS for commercial / industrial outdoor workers (unpaved);
- Concentrations of lead in excess of the Biosolids Guidelines criteria were identified around five historic buildings, indicating a potential risk to environmental health that will require remediation;
- Broken fragments of confirmed asbestos containing material are located on the western boundary of the site and will require appropriate removal, but do not appear to have impacted the underlying soil;
- None of the soil analysed meets the MfE definition of cleanfill material and must be disposed of appropriately if removed from site.

As no contaminant concentrations exceeded the NES SCS, the activity will likely be regarded as a Controlled Activity under Regulation 9 of the NES based on soil disturbance volumes, and will therefore require a Site Management Plan (SMP) outlining the measures and controls to be used during the proposed development to protect human health. Remediation is recommended to address the hotspots of elevated lead concentrations around several of the historic structures, and elevated zinc concentrations in the stockpile of material in the north-western corner of the site.

Remediation activities will be regarded as a Permitted Activity under the WRP, under the provision that a Remediation Action Plan (RAP) is submitted to and approved by Waikato Regional Council prior to works commencing. A Site Validation Report (SVR) will be required to be submitted to Waikato Regional Council following completion of the remediation works, showing that material remaining on site complies with the applicable Biosolids Guideline criteria. Remedial works recommended by GSL include:

- excavation and offsite disposal at an appropriately licensed landfill facility of any soil with contaminants of concern in excess of twice the Biosolids Guidelines criteria, including:
 - (1) the small stockpile of soil in the north-western corner of the site,
 - (2) the top 300mm of soil within 3m of the single and duplex residential buildings, the garage on the western boundary, the footprint of the former soil physics lab, and the eastern glasshouse / office.

Vertical mixing of remaining impacted soil with non-impacted material to achieve and average concentrations of contaminants of concern below the Biosolids Guidelines criteria for reuse in areas where it is deemed structurally acceptable by the development engineers, such as in planted batters.

APPENDIX B: CONTAMINATED SOIL DISCOVERY GUIDELINES



REPORT TITLE

CONTAMINATED SOIL DISCOVERY GUIDELINES

DOC REFERENCE

GSL/CSDG



Geosciences Limited
47 Clyde Road, Browns Bay, Auckland
PO Box 35-366, Browns Bay, Auckland
(09) 475 0222

info@geosciences.co.nz
www.geosciences.co.nz

DISCLAIMER

These guidelines are provided on the condition that Geosciences Ltd disclaims all liability to any person or entity in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of these guidelines. Furthermore, Geosciences Ltd disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or any part of the contents of these guidelines of all matters not explicitly stated within the guidelines and according to our general terms and conditions and special terms and conditions for contaminated sites.

STATEMENT

These guidelines have been prepared in acknowledgement of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. They have been authorised by a suitably qualified and experienced practitioner (SQEP); and have been prepared with the intention of providing practices and procedures for the management of potentially contaminated land which meets the criteria of the NES and the MfE guidelines.

Prepared on behalf of GSL by:



Colin Jowett
Snr Environmental Scientist
Geosciences Ltd

Reviewed and authorised on behalf of
GSL by:



Johan Faurie
Principal
Geosciences Ltd

TABLE OF CONTENTS

1	INTRODUCTION.....	2
2	PURPOSE.....	2
3	INADVERTENT DISCOVERY OF CONTAMINATION.....	3
4	GENERAL PROCEDURES.....	3
4.1.	STOP.....	3
4.2.	ADVISE THE SITE MANAGER.....	4
4.3.	CONTAIN.....	4
4.4.	ASSESS THE RISK.....	4
4.5.	CONTACT THE CLA (SQEP).....	5
4.6.	RESTRICT ACCESS.....	5
4.7.	ESTABLISH A WORKING TEAM AND PROVIDE WITH APPROPRIATE PPE.....	5
4.8.	EXCAVATE.....	6
4.9.	DOCUMENT.....	6
4.10.	DISPOSE.....	7
4.11.	REPORT.....	7
5	FACTSHEETS.....	8
5.1.	PETROLEUM HYDROCARBONS.....	8
5.2.	HEAVY METALS.....	9
5.3.	DRY CLEANERS.....	10
5.4.	TANNERY / LEATHER PROCESSING.....	11
5.5.	ASBESTOS.....	12
5.6.	REFUSE.....	13

1 INTRODUCTION

Contaminated land can be defined as, *'any land that has been adversely affected through the impact of human activity that has resulted in a significant alteration to the chemical, inorganic or organic characteristics of the naturally occurring soil material of the land'*.

Such a definition leaves a broad spectrum of potential physico-chemical characteristics which may apply. It is not the purpose of these guidelines to attempt to define all of the possible activities, characteristics, processes, or chemical compounds which may have an adverse impact upon naturally occurring soil material.

However, in the current field of contaminated soil investigation, disturbance, remediation and validation, and within the context of the *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) there are situations that may be uncovered, or may present themselves in other ways, where the impact of man-made activities are both hazardous, in terms of human risk, and significant, in terms of environmental risk.

It should be noted that not all hazardous and significant contamination sources can be discerned by the eye, the ear or the nose and that any suspected occurrence of soil contamination should be scientifically investigated through the most appropriate means available.

It is hoped that this document can provide some additional guidance, examples, and discussion points around the investigation and assessment of particularly 'gross' or visually, olfactory and auditory significant contamination events, sources or plumes. It should not be taken that this document can replace suitable qualifications and experience, but rather can be used as general guide to the field practical methods used to immediately assess, prepare, and undertake the safe handling and immediate containment or excavation of contaminated soil materials.

2 PURPOSE

The practices and procedures in this report are intended to provide a field-practical process for the identification, assessment and management of grossly contaminated soil that may be encountered during earth breaking activities or other sub surface soil disturbance. These processes are intended to provide guidance on health, safety and environmental risks and risk management associated with earth breaking activities when gross evidence of contamination is encountered.

The practices and procedures outlined provide for first layer risk control and are one of many stages in the applicable health, safety and environmental risk management process. It is not intended to replace site specific health and safety plans, nor can it provide for every possible eventuality encountered in the field and cannot be reasonably expected to replace significant relevant on-the-job experience.

The *Health and Safety Guidelines on the Clean-up of Contaminated Sites* developed by Occupational Safety and Health Services (OSH) provides reference to appropriate H&S measures that can be adopted for contaminated sites and this is a key reference document when dealing with contaminated materials. These guidelines do not intend to replace the

guidance provided in that document and, if in doubt, it is the more preferable guidance document on provisions for Health and Safety when operating on contaminated soil sites.

3 INADVERTENT DISCOVERY OF CONTAMINATION

It is assumed that a site which has already been identified as 'contaminated' has been assessed with respect of the inorganic or organic characteristics which exceed the applicable criteria or threshold values as defined by the relevant legislation, rules, or plans. Identified contaminated sites will therefore already have appropriate protocols in place for the ongoing assessment, investigation, remediation and validation of the areas that have been defined as contaminated and have plans and procedures in place to protect both human health and the environment.

It still remains possible however, that unknown, unidentified or even identified but underestimated, contamination may exist on such a site, or on a supposed 'non-contaminated' site. Such unknown contamination may be encountered as underground lenses (conglomerates of contamination in a localised zone), layers (widespread zone of contamination occurring along a stratified zone), hotspots (individual occurrences in a single location not otherwise connected), columns (vertical bands of contamination) or a plume (a zone of contamination moving along or through an aquifer / underground flow path and usually associated with seasonal or permanent groundwater flow).

In the event that 'unknown contamination' is encountered then it is advisable to have available some form of reference documentation that can provide insight to the frontline staff on the immediate signs, symptoms and actions that should be identified, assessed or considered while further advice is sought.

In all events encountering unknown soil contamination, a suitably qualified and experienced practitioner (SQEP) should be contacted for further advice, assessment and investigation.

4 GENERAL PROCEDURES

Below is a summarized guide of applicable steps which should be considered if any grossly contaminated material is encountered. The contaminated soil discovery guideline factsheets at the back of the report provide further details on the explicit health, safety and environmental risks associated with particular contamination scenarios, and the procedures to follow, however, in all instances the following general procedures summarized within the headings below should be considered. The steps highlighted below should not be considered exhaustive nor considered solely in step-by-step fashion, it may be necessary to conduct one or more actions at the same time or in differing order as a result of changing circumstances 'on the ground'.

4.1. STOP

- Stop working immediately and exclude others from working in the immediate area.
- Switch off machinery, generators etc., and establish a safe zone around the area dependent upon the assumed risk.

- For example, a gas release from an old landfill can be considered potentially toxic and / or explosive and a zone of approximately 10m may be considered appropriate depending upon the scale of the event.
- A series of dark red, brown or black stains in a pit with no odorous or free liquid discharges is unlikely to be immediately hazardous and the safe zone may extend to only the excavation edges.
- Prevent ingress or egress of stormwater, rainwater or wash water and stop all further activity immediately associated with the area.
- At this stage the extent, type and risk to health as a result of contamination is unknown – proceed with care and caution.

4.2. ADVISE THE SITE MANAGER

The site manager (or designated person) is the person principally in charge of health and safety on the site. They should also be familiar with these guidelines. The following steps are generally completed by the site manager or completed on the manager's delegation.

4.3. CONTAIN

If the contamination is leaving the site, or has the potential to leave the work site, then it should be contained. At this stage, the exact nature and risk of the contamination may not be known, so appropriate care and caution should be exercised. Some or all of the following methods may be used to contain the contamination:

- Sediment fences and straw bales;
- drain covers and sandbags;
- absorbent booms, spill mats, 'kitty litter' etc. can all be utilized to protect the environment from further release; and
- If containment is not possible, immediately contact:
 - ***Auckland Pollution Hotline (09) 377 3107.***

4.4. ASSESS THE RISK

Not all contaminants, or all instances of contamination, will require special provisions or procedures. Similarly, an instance of contamination may be falsely or incorrectly reported. Not all stains are contamination, or all apparent plumes of oil on a liquid surface, are man-made occurrences.

- Refer to the factsheets at the back of these guidelines.
- Make a note of any or all of the following. It may be necessary to document and record some or all of the findings, for forwarding to the SQEP, as odours may dissipate and water may dry up or soak back into the soil:
 - Appearance – staining, trickling, flowing, bubbling (gas escape), thick, sticking to tools and equipment, sliding off tools etc.

- Odour – sweet, sour, petrol-like, tar-like, sharp etc.
- Colour or colours
- Miscibility i.e. does it or does it not mix with water. Oil / solvents etc. do not mix with water and creates a coloured sheen on the water surface.
- If gross contamination is confirmed (or strongly suspected) then the appropriate measures should be put in place, dependent upon the risks concerned as defined in the factsheets. A half buried rusted drum of waste batteries will require different safety procedures to the discovery of a buried pile of asbestos cement board, for example.

4.5. CONTACT THE CLA (SQEP)

Contact the on-call contaminated land advisor – provide digital photographs if safely possible to do so. Talk to the CLA. They may advise additional steps to follow; they may be required to come to site.

4.6. RESTRICT ACCESS

Following the assessment of the risk, the safety zone can now be better defined.

- With reference to the factsheets, restrict access to the safe zone to only those members of the team that need to be there. It may be necessary in the case of potentially explosive vapour release, to cordon off a significant sized area and prevent working, or vehicular access, within that area.
- Consider the potential flow paths of vapours along trenches, down slopes, through drains etc.
- Access can be restricted through purely visual means, e.g. warning signs, via fencing or by staff management (security guard for example) or a mixture of all three based upon the site manager's assessment and the extent of the contamination.

4.7. ESTABLISH A WORKING TEAM AND PROVIDE WITH APPROPRIATE PPE

Before continuing, establish a team of competent trained individuals who can deal with the matter and ensure that they have, and are correctly wearing, the appropriate PPE for the situation at hand as defined in the factsheets. Consider the following when establishing the team:

- Experience – have they handled such a situation before?
- Competence – are they familiar with the tools, equipment, PPE and procedures that will be employed?
- Comfort – not all staff are comfortable with unknown situations. Will they be comfortable in this situation?

4.8. EXCAVATE

At some point, the contamination is likely to be removed. This may not be the case in every instance and the regulations allow for other actions such as in-situ remediation, stabilisation, encapsulation etc. and the SQEP will advise on the specific methodologies required. In certain circumstances a more detailed remedial plan may have to be compiled which will document specific goals, validations and disposal actions. The SQEP will advise on the requirements of the regulations. In most cases of localised acute instances of gross contamination, they can be safely managed immediately in the interests of protecting human health and the environment. In this case, some or all of the following processes should be followed:

- Excavation / Isolation – solid contaminants, soil, drums, refuse etc. can be excavated, by machine or by hand, directly into a covered truck or sealed skip, preventing further potential spread and isolating the contaminants for assessment and disposal;
- Vacuum extraction – contaminated water may be sucked up into a vacuum tanker, provided that there is no risk of reaction or explosion, where it can be isolated for assessment and disposal. DO NOT MIX water / liquid from more than one event in a vacuum truck;
- Separation – large separate items, such as asbestos sheet fragments, can be collected by hand, separated from the soil matrix and placed in double skinned plastic bags for appropriate disposal; and
- Absorbance – contaminated water, hydrocarbons and chemicals can all be absorbed through the use of contaminated pads, pillows and booms which can then be placed in sealed skips or bags and isolated for appropriate disposal.

4.9. DOCUMENT

Keep written documents, including digital photographs, of all measures used to contain or cleanup the contamination. This might include some or all of the following:

- Assessment measures used e.g. laboratory analysis, in-situ analysis (e.g. XRF), smell, behaviour in water (miscibility etc.), pH indicator test etc.;
- Staff involved in clean-up and experience;
- Methods used, problems encountered, discussions with SQEP;
- Complaints by third parties (e.g. odours, colour changes to local waterways etc.);
- Excavation or separation methods used, names of contractors etc.;
- Volumes extracted;
- Conditions of cartage, e.g. skip bin, covered truck, closed wheelie bins etc.
- Location of final disposal and disposal documentation e.g. tip dockets, weighbridge receipts etc.

4.10. DISPOSE

In order to ensure that all material is disposed of correctly, ensure the safe and licensed disposal of the material in accordance with the requirements outlined by the SQEP. In the majority of cases, examples of gross contamination are likely to require disposal at a licensed landfill facility e.g. Redvale Landfill or Hampton Downs Landfill. Other licensed facilities may exist that can handle potentially contaminated material, that may also be able to provide assistance.

- Contaminated liquids will not be received at landfill for disposal and must go to a licensed liquid disposal facility. Sewerage contaminated liquids can probably go directly to the nearest local sewer treatment facility, but chemical contaminated liquid will be required to go to an appropriate liquid treatment plant.
- Drums of unknown or unidentified waste may have to go to a solid / liquid hazardous waste handling plant.
- Contaminated PPE will also require appropriate disposal.
- In all instances, the receiving facility will be unlikely to receive and handle the material without some form of analysis or assessment of the composition of the waste.
- Keep all transport and disposal dockets for the final report.

4.11. REPORT

Communications and documentation will be kept during the procedures but a final report should be provided to the project manager detailing all of the steps, communications and records as required.

This report provides assurance to the regulatory authority that all the necessary steps have been followed and the matter has been adequately and professionally dealt with.

5 FACTSHEETS

5.1. PETROLEUM HYDROCARBONS



ACTIVITY

- Petroleum service station
- Vehicle workshop
- Gasworks sites

POTENTIAL CONTAMINATION

- Total Petroleum Hydrocarbons (TPHs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Benzene, Toluene, Ethylxylene, and Xylenes (BTEX)
- Heavy Metals

DESCRIPTION

Petroleum-contaminated soils have a brown / black discolouration and an 'oily' consistency. Petroleum products, such as diesel and petrol, are insoluble in water and can form oil slicks in excavated areas such as trenches. Petroleum products in soil can be detected by the characteristic odour of petrol and diesel. BTEX produces a much 'sweeter' odour similar to that of paint-thinners.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Adverse reactions to strong hydrocarbon odours are possible, e.g. headaches, blurred vision, nausea. Contaminants can be absorbed into body via inhalation of dust, contact with skin, or ingestion. Leaked fuels can migrate into groundwater, potentially contaminating drinking water.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face respirator.

HANDLING AND DISPOSAL

Pooled hydrocarbon spills can be removed using suitable absorbent materials or collected by a suitably rated vacuum tanker. Spills can also be transferred to a sealed container by an appropriately rated vacuum pump or similar. Hydrocarbon contaminated soil can be placed in a sealed leak proof skip bin or truck for disposal at a facility authorised to receive material of that kind.

5.2. HEAVY METALS



ACTIVITY

- Metal workshop
- Metallisation works
- Electroplating industries
- Timber treatment facilities

POTENTIAL CONTAMINATION

- Heavy Metals

DESCRIPTION

Gross contamination of heavy metals in soils can cause bands of discolouration within the soil profile. Pools of discoloured water (yellow, blue, red, orange) in excavated areas, such as trenches, are indicative heavy metal contamination. Solvents used for metal preparation, like BTEX, can form ‘sheen’ on the surface of water and produce a ‘sweet’ odour similar to that of paint-thinners.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Contaminants can be absorbed into body via inhalation of dust, contact with skin, or ingestion. Heavy metals have the ability to leach further into soil and eventually into groundwater, potentially contaminating drinking water. A consideration should be given to the potential of pH alteration as metal finishing plants often employ acidic solutions for metal preparation.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

Heavy metal-contaminated soil can be placed in a truck and covered with tarpaulin for disposal at a facility authorised to receive material of that kind.

5.3. DRY CLEANERS



ACTIVITY

- Dry-cleaners

POTENTIAL CONTAMINATION

- Volatile hydrocarbons (trichloroethylene, tetrachloroethylene, carbon tetrachloride)

DESCRIPTION

It is difficult to distinguish soil contamination by solvents used for dry-cleaning. However, the solvents can form a bilayer with water they are less dense than water. The odours associated with dry-cleaning agents are very distinctive and can be described as ‘sickly sweet’, causing dizziness and nausea.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Contaminants can be absorbed into body via inhalation of vapours, contact with skin, or ingestion. Depending on atmospheric conditions, dry-cleaning agents may readily evaporate. Extended exposure to dry-cleaning agents can affect the central nervous system. Gross contamination of dry-cleaning agents in soil can migrate past the water table, making remediation complex.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face respirator.

HANDLING AND DISPOSAL

Pooled hydrocarbon spills can be removed using suitable absorbent materials or collected by a suitably rated vacuum tanker. Spills can also be transferred to a sealed container by a suitably rated vacuum pump or similar. Solvent contaminated soil, including drums or containers, can be placed in a sealed leak proof skip bin for disposal at a facility authorised to receive material of that kind.

5.4. TANNERY / LEATHER PROCESSING



ACTIVITY

- Leather manufacture / treating facility

POTENTIAL CONTAMINATION

- Heavy Metals (particularly chromium)
- Solvents
- Pesticides
- Bleaching agents

DESCRIPTION

Gross contamination of chromium in soils, caused in the tanning stage of treating leather, can cause orange and blue bands of discolouration within the soil profile. Pools of discoloured water (orange, blue, green) in excavated areas, such as trenches, are indicative chromium and metal contamination.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Contaminants can be absorbed into body via inhalation of vapours and dust, contact with skin, or ingestion. Wastewater produced from the tanning process can have excessive levels of chromium and sulphides which can cause gross soil contamination if inadequately handled.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

Pooled liquid spills can be removed by using tailor-designed absorbent materials and via tanker or pump. Contaminated soil can be placed in a sealed skip bin or covered truck for disposal at a facility authorised to receive material of that kind.

5.5. ASBESTOS



ACTIVITY

- Improper disposal of asbestos-containing building materials

POTENTIAL CONTAMINATION

- Asbestos (fibres)

DESCRIPTION

Asbestos in soil is most likely due to burial of building materials. Asbestos fibres are usually entrained in a substrate material, making identification difficult. Broken cement, floor tiles, roof shingles, insulation, heat shields, and textured ceiling tiles manufactured between the 1950s and 1980s are likely to contain asbestos.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Asbestos can be absorbed into the lungs via inhalation of fibres. A significant acute or chronic exposure can lead to mesothelioma, asbestosis and lung cancer. Buried asbestos is relatively stable; however, disturbing asbestos during excavations could lead to the production of harmful fibres.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) disposable coveralls; (2) washable PVC gloves; (4) safety glasses; (5) suitably graded full face or half face P3 respirator.

HANDLING AND DISPOSAL

KEEP DAMP to suppress fibre generation. Large fragments may be collected by hand and place in double skinned plastic bags. Asbestos-contaminated soil can be placed in a sealed skip bin for disposal at a facility authorised to receive material of that kind. Soil of this kind can also be transported via sealed doubled bags or a sealed skip bin.

5.6. REFUSE



ACTIVITY

- Inorganic / Organic refuse disposal

POTENTIAL CONTAMINATION

- Variable, dependant on the type of refuse
- Contaminants could arise from liquid waste, putrid organic waste, and any material that would normally be sent to a licensed landfill

DESCRIPTION

Refuse in soil is most likely due to burial of waste materials that should have normally been sent to landfill. Waste could include, but not limited to, paint cans, oil / hydrocarbon containers, and putrid household waste. The odour of buried refuse is likely to be extremely pungent.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Due to the variability of types of refuse and waste, it is difficult to distinguish human health and environmental risks. Individual assessment of the risks will be required.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical-resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

Handling and disposal of refuse will be dependent upon the waste material identified.

5.7. PESTICIDES



ACTIVITY

- Horticultural activity
- Pesticide manufacture

POTENTIAL CONTAMINATION

- Pesticides, including DDT, dieldrin, and other organochloride pesticides (OCPs)

DESCRIPTION

Persistent use and storage of pesticides associated with horticultural activities are the main contributors to pesticide-related contamination in soil. Illegal burial of pesticide drums and containers may be encountered on production and agricultural sites. Pesticides are often found as fine, white powders.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Pesticide contaminants can be absorbed into body via inhalation of dust, contact with skin, or ingestion. Extended exposure to organochloride pesticides can disrupt the endocrine system as well as affecting DNA. DDT and its breakdown products, DDD and DDE, are highly persistent and do not breakdown easily in soil. DDT and its isomers have the ability to magnify through the food chain (bioaccumulate).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical-resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

If bulk pesticide storage containers are found, the site manager must be advised. Pesticide-contaminated soil can be placed in a truck and covered with tarpaulin for disposal at a facility authorised to receive material of that kind.

5.8. SEWAGE



ACTIVITY

- Underground sewage tanks / pipelines

POTENTIAL CONTAMINATION

- Raw sewage
- Bacteria / pathogens
(*Escherichia coli*, *Vibrio cholerae*, etc.)

DESCRIPTION

Sewage in soil is most likely due to leaking underground septic tanks and / or sewer pipelines. The odour of sewage is likely to be extremely pungent.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Pathogens in sewage-contaminated soil can be absorbed into body via contact with skin or ingestion. Exposure to raw sewage can infect a person with an array of harmful pathogens, such as *E. coli*, which originate from faecal matter in wastewater. Gross contamination of raw sewage can lead to eutrophication of lakes, rivers, and other receiving bodies of water.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical-resistant steel-capped boots; (2) disposable / liquid repellent coveralls; (3) chemical-resistant / waterproof gloves; (4) safety glasses; (5) suitably full face mask or face shield.

HANDLING AND DISPOSAL

If raw sewage is encountered, the site manager must be advised. Sewage-contaminated soil can be placed in a truck and covered with tarpaulin for disposal at a facility authorised to receive material of that kind.

Schedule A to Part 1.0

Contractor's Site Induction / Training Plan
(SITP)

Peacockes / SH3 Ohaupo Rd Roundabout

Contract Number 18532

Site Specific Induction

SCHICK

CIVIL CONSTRUCTION

Peacockes / SH3 Ohaupo Rd Roundabout

Client - Hamilton City Council
Engineer - Gray Matter



SCHICK

CIVIL CONSTRUCTION

Emergency Action Plan

In an emergency: **Contact your Supervisor or call 111**

Emergency alarm: **5 Blasts on an Air Horn**

Main Assembly point: **Site Office**

Process:

- Stop what you are doing and shut down any machinery and equipment when safe to do so.
- Assemble at the emergency evacuation point.
- Once there, the Site Supervisor will provide further instruction.
- A copy of the Emergency Action Plan is displayed in the Site Office. It includes emergency procedures and contact details.
- First Aid Kits and Fire Extinguishers are located in the Site Office and all Schick Civil vehicles.
- In the instance of a spill, a spill kit is located in the Site Office.

• Nearest Medical Centres:

- **Glenview Medical Centre** - Corner Ohaupo Road & Ulrich Ave. Phone No. 07 8434429
- **Waikato Hospital** - Pembroke Street, Hamilton Phone No. 078398899 (Open 24/7)

The additional red ticks highlight areas to meet if there is an emergency, depending on your position on site. In the event of an emergency, move to the nearest location. Never cross the road to get to the meeting point.



SCHICK

CIVIL CONSTRUCTION

Site Specific Safety Rules

- Health & Safety
 - You must review and sign onto the Hazard ID form when coming onto Site. This can be found in the Site Office.
 - All site workers and contractors must participate in the daily Pre-Start. This is held in Site Office at 6:30am.
- Approved PPE must be worn at all times (see next slide).
- Traffic Control:
 - Ohaupo Road / SH3 is a Level 2 Road.
 - You cannot walk across the Ohaupo Road at any time.
 - You must never alter traffic control systems.
 - Vehicles must enter and exit the site by turning left from or onto Ohaupo Road.
- Light vehicles must be parked in the area near the Site Office.
- Light vehicles must NOT be driven around site, unless prior approval has been received from Matt Nugent.
- You must keep out of the Northview Development (Camex Site) - the designation is shown to the right of the yellow line in the attached photo.



SCHICK

CIVIL CONSTRUCTION

PPE Requirements

- The following PPE is compulsory at all times on site:
 - Day-Glo.
 - Steel Cap Safety Footwear.
 - Hard Hat (except within the Site Office and smoko zone).
- Use hearing protection when operating in and around mobile plant.
- Gloves & Safety Glasses should be worn if specified by a task specific JSEA or if noted on Hazard ID in relation to specific risks.
- Long sleeves / long pants are NOT required on this site, unless they are specified by a task specific JSEA or if noted on Hazard ID in relation to specific risks.
- Note that NZTA, Hamilton City Council and Schick Civil want to ensure our staff, contractors and visitors protect themselves from sun damage and sunburn. Sun cream is available in the Main Site Office and in Schick Civil vehicles.

CH10



JOB SAFETY AND ENVIRONMENTAL ANALYSIS - JSEA

Job #:	Project Name:	JSEA No	Originator	Date
Scope of work:	General Site Works	SW01		
Reviewed by: (as appropriate)	Print Name	Signature	Date	Revision
Foreman:				0
Subcontractor:				0
APPROVED BY: _____ DATE: _____				

DOCUMENTATION REQUIRED (Tick Box)

Programme	JSEA Checklist	Lifting Plan	Material Safety Data Sheets	Erosion and Sediment Control Plan	Noise Control Plan	Traffic Management Plan	Permit to Work Excavation	Permit to Work Confined Space	Permit to Work Hot Work	Permit to Work Over Water
Hazard ID Updated	Generic Hazard Register	SSSP Reviewed	Subbie Has JSEA	Hazardous Works						

PPE / EQUIPMENT REQUIRED (Tick Box)
ONLY TICK AFTER COMPLETING SUBSEQUENT TASK ANALYSIS PAGES

 Hi-vis, Boots	 Eye protection	 Hand protection	 Ear protection	 Life Jacket	 Tripod space) (Conf.	 Fall protection
 Hard hat	 Face protection	 Respirator	 Protective clothing	 Dust mask	 Gas Detector	

Your Additional Responsibilities

- Be courteous to all stakeholders and the general public.
- Report all incidents, near misses and all unsafe conditions immediately to your supervisor.
- If you see anyone acting disruptively or putting themselves in harms way, then stop them immediately and report the incident to your supervisor.
- No photos are to be taken on site, without prior consent from Ryan Smith.
- Please do not publish anything about the project on social media unless you have prior consent from Ryan Smith.



SCHICK

CIVIL CONSTRUCTION

Schick Civil Health And Safety Policy and 13 Commandments of Safety

- Everyone on site must comply with the Schick Civil Health and Safety Policy.
- Everyone on site should follow the General Site Safety Rules; covering the “13 Commandments of Safety”.
- Copies of these documents are displayed in the Site Office.

PS01



HEALTH AND SAFETY POLICY

Schick is committed to get every person involved in our work environment
Home Safe, Every Day

Schick and our Employees will:

1. Take reasonable care that their actions or inactions do not adversely affect our own or others health and safety.
2. Identify all existing and new hazards and take all practicable steps to Minimise or Eliminate the exposure to any significant hazards.
3. Ensure necessary training so that employees can carry out their duties in a safe manner, plan tasks, assess the risks and implement the appropriate controls to mitigate the adverse effects of the risks.
4. Accurately report, record and investigate all incidents and injuries to identify all contributing factors and where appropriate formulate plans to implement corrective actions.
5. Contribute to the continuous improvement of the safety system by setting and reviewing objectives and supporting annual policy and procedure reviews.
6. Wear Personal Protective Clothing and Equipment as appropriate and when required.
7. Provide and actively participate in treatment and rehabilitation plans that ensure a safe, early and durable return to work.
8. Comply with the Health and Safety at Work Act 2015 and Regulations 2016, Codes of Practice, Safe Operating Procedures and all other relevant legislation, rules, standards, codes of practice and best practice guidelines.



PATRICK PEOPLES
Director
(Owner)



MARK DAWBIN
NZ Operations Manager
(Owner)



SCOTT BROWNLEE
CEO

Reviewed September 2019



GENERAL SITE SAFETY RULES

Our Purpose is to *benefit all those who contribute*, and our Mission is to *deliver excellence*. These both require a non-negotiable commitment to achieve our safety vision, which is to get everyone **home safe, every day**.

To help us achieve this safety vision, we will follow the “13 Commandments of Safety”. These will guide our decisions and drive our actions every day. They will ensure that health and safety within our work environment is our highest priority.

1. **PLAN YOUR DAY:** Use the daily Pre-Start meeting to review your safety plan and do a **hazard identification** process for each task. Assess the critical risks on your site and review the actions required to **minimise or eliminate** them.
2. **TAKE 5:** Stop and reassess the risks and mitigations when moving to a new task, or when changing the method of an existing task.
3. **SPEAK UP:** If you see something unsafe speak up and highlight any concerns to your supervisor. Use the Blue and Green forms to report all injuries, accidents or near misses to the H&S Administrator.
4. **KNOW YOUR LIMITS:** Only operate plant or machinery that you are qualified and experienced to use and feel confident using. Alternatively, ensure you are under the supervision of a qualified and experienced trainer.
5. **CHECK YOUR GEAR:** Use the right equipment for the task. Complete pre-start checks on vehicles and plant and do not operate anything that you think is unsafe. Notify the workshop to arrange repairs as required.
6. **WEAR YOUR PPE:** Wear appropriate personal protective equipment within all designated work areas, when handling chemicals or when operating plant and equipment.
7. **WEAR YOUR SEATBELT:** Wear a seatbelt when driving a vehicle or operating plant.
8. **CHECK BEFORE YOU DIG:** Locate underground services prior to commencing excavations. Use spotters where appropriate and carry out continual checks to ensure service strikes are avoided.
9. **RESPECT EXCLUSION ZONES:** Exclusion zones segregate people from hazards. Use them. They include physically marked zones (e.g. traffic control, walkways, barriers) and virtual zones (e.g. safe zones around moving machinery).
10. **BE DRUG FREE:** Employees must stay free from the adverse effects of legal and illegal drugs within the work environment. Read and comply with the Schick Drug and Alcohol Policy.
11. **KEEP YOUR SITE TIDY:** A tidy work site improves safety, helps productivity and projects professionalism. Be organised.
12. **STAY FIT AND HEALTHY:** Drink lots of water, eat well, exercise regularly and get plenty of sleep. Maintaining your health is good for you, your family, your team and our business.
13. **LOOK OUT FOR YOUR MATES:** Stress, fatigue and mental illness can affect us all. Keep an eye on your mates and check in with them regularly. It's ok to ask for help. Talk with our support partner, EAP Works if you need advice.

Reviewed September 2019

Critical Risk

- Schick Civil has identified 11 Critical Risks that have the potential to cause serious harm or death.
- These must be discussed and planned for everyday during the daily Pre-Start, with necessary mitigations implemented where appropriate.



1. Struck by a Moving Machine Onsite

- Exclusion zones
- Eye contact / observational awareness
- Speed limits onsite
- Flashing lights
- PPE (visibility)

2. Machine Roll-over

- Assess work area
- Operational plans e.g. "One roller width"
- Towards the batter not along the batter

3. Striking Under / Above Ground Services

- Check locations - B4UDIG
- Locate and pothole
- Service plans in digger
- Use a spotter

4. Struck by Traffic on Public Roads

- TMP inplace
- Traffic segregation plans
- Staff work zones
- PPE

5. Trapped Under Collapsed Soil

- Construction Methodology
- Trench shield
- Bench and batter
- Exclusion zones
- Physical barriers

6. Illness through Stress or Fatigue

- Manage workloads
- Take appropriate breaks
- Hydrate regularly
- EAP services
- PPE

7. Vehicle Accidents

- Training / license
- Defensive driving
- Safe vehicles
- Seat belts
- Vehicle policy

8. Falling From Height

- Exclusion zones
- Physical barriers
- Appropriate restraints
- 3 points of contact

9. Struck By Falling Object

- Exclusion zones
- Drop valves
- ROP's
- PPE

10. Loss of Control of Hand Tool

- Guarding
- PPE
- Training
- Safety zones
- Pre checks

11. Exposed to Chemicals and Fumes

e.g. Confined Spaces

- PPE
- Check data sheets (SDS)
- Gas detector
- Confined space training

Drug and Alcohol Policy

- This is a drug-free and alcohol-free site.
- This project carries out drug and alcohol testing as part of all post-incident investigations.
- This project will carry out random drug and alcohol testing.
- If you are taking prescribed drugs that may inhibit your ability to safely perform your work or that cause drowsiness, then this should be reported to your Foreman or Supervisor.



SCHICK

CIVIL CONSTRUCTION

DRUG AND ALCOHOL POLICY

Schick Civil Construction is committed to being free from the adverse effects of legal and illegal drugs and alcohol within the work environment.

Scope: This Policy applies to all employees, contractors, subcontractors and visitors who are involved in any activity conducted by or on behalf of Schick.

1. Schick may suspend without pay any employee who fails a drug and alcohol test until that employee returns a negative test from Schick's chosen registered drug testing agency.
2. The cost of any non-negative drug test that leads to suspension will be at the employee's expense.
3. Schick may offer rehabilitation to employees at its sole discretion.
4. The refusal by an employee to undertake a drug and alcohol test will be treated as a failed test.

Any of the following actions constitutes a breach of this Policy and may subject an employee to disciplinary action, up to and including dismissal without notice:

- Using, selling, purchasing, transferring, possessing, manufacturing, or storing an illegal drug or drug paraphernalia, or attempting or assisting another to do so, while in the course of employment or engaged in a company related or sponsored activity, on premises, in owned, leased, or rented vehicles, or on business or during working hours
- Working or reporting to work, conducting company business or being in the workplace while under the influence of an illegal drug, a prescription or pharmaceutical drug not being taken in accordance with advice or recommendations, alcohol or in an impaired condition
- Alcohol in excess of the legal driving limit for that driver
- Refusing to consent to a test conducted following Schick's Drug and Alcohol Procedures

'alcohol' means any beverage that contains ethyl alcohol including but not limited to beer, wine, pre-mix drinks and other spirits.

'drugs' means any kind of mind altering or legally controlled substance unless it is prescribed by a doctor and used in accordance with medical directions. This includes any drugs listed in the Misuse of Drugs Act 1975 and any drugs listed in the AS/NZS 4308:2008.

Managing Noise & Vibration

- This project is being done in close proximity to surrounding neighbours and public.
- Minimising noise and vibration is a priority.
- Construction times are restricted to between 7am and 7pm.
- Where possible, maximise the distance between equipment and neighbours.
- Avoid unnecessary noise - loud radios, horns, shouting, shaking excavator buckets, high engine revs etc.
- Turn off engines when idle/parked.
- Use silencers, enclosures or isolation pads where possible.
- Create noise barriers where appropriate.
- Use hearing protection when operating in and around mobile plant.



SCHICK

CIVIL CONSTRUCTION

Bat & Lizard Protection / Environmental

- Bats
 - This site is the home to native bats.
 - These bats live in the trees within and around the site.
 - No tree is to be cut down without permission from Matt Nugent.
 - Prior to starting major works, an exercise was completed to relocate the bats.
 - If you do notice a bat or see anything similar, please report the location to Matt Nugent asap.
- Lizards
 - There are protected lizards around this site.
 - These lizards live in the long grassy areas.
 - Prior to starting major works, an exercise was completed to find and relocate the lizards.
 - If you do find a lizard DO NOT TOUCH IT, but please report the location to Matt Nugent asap.
- Environmental controls have been implemented on this site to manage water, ground and air quality.
 - Please do not alter any environmental controls unless you are authorised.
 - If you damage a bund or silt fence, report it immediately to your supervisor.
 - All fuelling of machines and tools must be done away from ponds and streams.
 - No discharging of any kind is allowed into stormwater lines.
 - Spills kits are located in the Site Office.
 - Inspect all controls daily when onsite.
 - Report any issues to your Supervisor.



SCHICK

CIVIL CONSTRUCTION

Historic Places / Artefact's

- The Peacocke area and the project site is a highly important area to the local Iwi.
- We are tasked to protect this heritage and culture.
- We must look after this area and create as little disruption as possible.
- We must respect the area we are working - act as caregivers.
- We must do the necessary work and then ensure we re-establish the area back as best as possible.
- If you find anything underground that looks out of place or is not in virgin material, immediately let your supervisor know (this could be shells for example) - lock out your machine and stop work immediately.
- At times there will be a supervisor from local Iwi or Heritage NZ. Please treat them with respect and watch over their safety. They must abide by our safety rules.



SCHICK

CIVIL CONSTRUCTION

Quality

- At Schick Civil we pride ourselves on doing the highest quality work.
- Our intention and vision is for this project to raise the bar in terms of quality and customer satisfaction.
- All works must be completed in accordance with the project ITP (Inspection Test Plan) located in site office.
- Teams must review the ITP at every pre-start.
- Additional quality standards should be met that may not be covered within the project specification. These include:
 - Tidy and accurate finishing of major earthwork areas.
 - Quality of top-soil used on finished areas.
 - No damage to finished kerbs or footpaths.
 - High-quality concrete work.
 - Quality planting and grassing, ensuring success of growth (good topsoil depth, water etc).
 - Eventual ride quality of the road-ways and cycleways and footpaths.
- Please take the time at daily pre-starts to identify and discuss the quality aspects of your tasks.

SCHICK

CIVIL CONSTRUCTION

Site Specific Traffic Management

- Always follow the instructions of the STMS.
- Always follow the NZTA Code of Practice for Temporary Traffic Management (COPTTM).
- Access to working areas is via Site Access Points (SAPs) which have associated operating conditions.
- Ohaupo Road / SH3 is a Level 2 Road:
 - Vehicles must enter and exit site by turning left off or onto Ohaupo Road.
 - You cannot walk across the road at any time.
 - You must never alter traffic control systems.
 - Always look out for members of the public (vehicles, cyclists and pedestrians).



SCHICK

CIVIL CONSTRUCTION

The Schick Way

- The Schick Way shows our Purpose, Mission and Values. These define what we stand for as a company and guides us in our actions and how we behave...



SCHICK

CIVIL CONSTRUCTION

Project Staff / Key Contacts

- Contractors Representative
 - Ryan Smith - 027 687 1758 - ryan@schick.co.nz
- Project Manager
 - Matt Nugent- 021 075 5920 - matt.nugent@schick.co.nz

SCHICK

CIVIL CONSTRUCTION

SCHICK STAFF TRAINING REGISTER & LICENSES

NAMES	ALLERGIES / Other	Road	Off Road	First Aid (Exp date)	Site Safe (Exp date)	Construct Safe	Accident Investigation (Date attended)	Enviro (Date attended)	Hazard / Risk Ass Course	Height & Harness	Concrete Saw Course (Date Attended)	Confined Spaces	PE Welding (Date attended)	TC / STMS (Exp date)	NDM (Date attended)	Water Ind. Training Done	NZS 3910 (Date attended)	H & S Courses (Date Attended)	Eros/Sed Course (Date attended)	NZHT Instruct L3 Completed	Laser / Dumpy (Internal)	Quality	Schick Induction	Fire/Emerg Warden (Exp date)	Drainage	Concrete Pipe Install	SLMP (Date attended)	Drone Training (Internal)	Trainer	Other	NSN Number				
SENIOR MANAGEMENT																																			
Brownlee Scott	CEO	1	WTR																		16/07/2019		4/02/2019												
Dawbin Mark	NZ Ops Manager	1,2,3,4,5	F,R,T,W	16/11/2016	18/07/2018							13/08/2018					Yes	Jul-17				Yes	Owner							Yes	Fonterra Nov 12				
Peoples Pat	DIRECTOR	1,2,4,5		9/09/2015	13/10/2016												Yes	Nov-09				Yes	Owner							Yes					
Smith Ryan	Waikato Branch Manager	1	W,T,R		Adv 21/7/17	028-0000-226								L1. 12/03/2021	11/05/2017							Ag Sampler	16/02/2015							Yes	Microsoft Project Management Jul 2016				
Twaddle Nathan	People Development Manager	1, 2	WTR		17/07/2020																16/07/2019		21/05/2018												
Vette Colin	Special Projects/ Land Dev Mgr	1,2	WTR	19/06/2019	21/05/2021							13/08/2018											Yes							Yes	Micro Project Jul 2016				
ADMINISTRATION																																			
Kinnaird Michelle		1		20/09/2020																			Yes	14/11/2021						Yes					
Blackmoore Jess		1		22/08/2021																			28/05/2018												
Chean Vincent		1		22/08/2021																			24/10/2017								IT Quals				
Derry Helen		1																					19/01/2019												
Ferguson Joanne		1																					6/08/2018	14/11/2021											
Harith Samir		1																					21/01/2019												
Harmse Theresa		1		20/09/2020																			15/09/2014	14/11/2021					Yes						
Innes Jolene		1		22/08/2021	6/09/2021									L1. 24/10/2022									14/07/2014					Yes	Yes						
MacMillam Jennifer		1																					6/08/2018												
Peoples Michelle		1		16/09/2015																			Yes												
Roberts Natalie		1		22/08/2021																			2/02/2015	14/11/2021							Induction Trained				
Shepherd Peter		1																					14/12/2017								Qualified Accountant				
Snowden Susan		1		22/08/2021																			1/04/2018	14/11/2021											
Storm Jaco		1																					15/03/2019												
Te Hira Naomi		1		21/03/2020																			Apr-18												
Vette Ezra		1																					6/01/2015												
DRAINAGE																																			
Andrews Josh		1	WTR									12/10/2020												27/08/2018		#27482									
Clapham Errol		1,2	WTR		24/08/2020																	Compaction	25/06/2018				29/06/2018								
Corder Dayne		1,2,3,4,5	R,T,W	20/09/2017	27/06/2020																		Yes				11/07/2016					Watercare - Exp Sept 2017			
Fox John		1	WTR		6/09/2021	031-991-918						3/07/2021		L1. 26/05/2020										6/08/2018									111080650		
Garrett Geoff		1,2	WTR	20/09/2020	27/06/2020							25/01/2020												14/07/2016											
Gough Leo		1	WTR	19/06/2019	25/09/2019							3/07/2021												24/11/2011		Nat Cert L4 Drainlayig	5/10/2015	17/04/2015				Polytech Electrofusion Exp 31/8/14			
Gower Trent	Only to drive vehicles with alcohol interlock device	1																						29/04/2019											
HaeHae Sam		1R	WTRE-092																					18/02/2019											
Hall Leigh		1,2,3,4,5	WTR, F	20/09/2020	3/10/2022																		3/10/2019	14/07/2016				22/05/2015		Yes					
Hitchins Tom		1	WTR		6/09/2021																			3/09/2018											
Leary Michael		1	WTR	10/10/2020	27/06/2020							31/07/2020	14/11/2019											2/12/2014		#28955	5/10/2015	17/04/2015				Poly Elector fusion Welding Mar 2015			
Owen Caleb		1	WTR																					14/01/2019											
Perry Turanga		1L																						11/11/2019											
Ponsonby Hayden		1	WTR	22/03/2021	17/07/2020							31/07/2020												26/02/2014		Nat Cert L4 Drainlayig		17/04/2015		Yes	Poly Pipe Welding - Completed 22/7/15				
Robertson Scott		1,2	WTR	20/09/2020	25/09/2019				14/08/2017			29/03/2020	14/11/2019											24/01/2012		5/10/2015	Dogman Course - 2017								
Taituma David		1																						11/02/2019											
Thompson Josh		1R																						29/10/2019											
Thompson Regan		1?										31/07/2021																							
Thwaites JJ		1,2,4	F,T,W	10/10/2020	17/07/2020							3/07/2021		L1. 12/06/2021										14/09/2015		#17223	5/10/2015	28/09/2015		Yes	Watercare Exp 29/9/17	97107742			
Wahl Ben		1	F																					22/07/2019											
ENGINEER CADETS																																			
Barlett Ethan		1R			1/10/2018									TC. 1/02/2021									Compaction	12/11/2018											
Bosson Luke		1																						30/10/2017											
Brake Michael		1																						9/09/2019											
Coombes Aleisha		1																						4/11/2019											
Corkery Nicholas		1			17/12/2020																			12/11/2018											
Elvy Jack		1				065-0000-177																		4/11/2019											
Hapi Waven		1	F																					25/11/2019											
Harker Taris		1																						16/07/2019											
Haughey		1																						4/11/2019											
Hunt Brendan		1																						21/01/2019											
Kennedy Aaron		1												L1. 24/10/2022									Compaction	1/07/2019											
Legarth Hamish		1																						1/07/2019											
McGregor Lee		1																																	

Schedule A to Part 7.0

Contractor's Emergency Response Protocol (ERP)

DIESEL / PETROL / OIL SPILL RESPONSE PLAN

SITE RESPONSE CONTACT	PHONE #
Site Engineer (SE): Wade Bosley	027 497 5215
Site Foreman (SF): James Jackson	027 495 4200
Contract Manager (CM): Matt Nugent	021 075 5920
Project Manager (PM): Matt Nugent	021 075 5920
Compliance Agent (CA): Paula Cornille	021 287 2852
Environmental Pollution Hotline	0800 800 401
Hamilton City Council Project Manager (HCC PM) : Nathanael Savage	07 838 6527



200L Wheelie bin Spill Kit and 40L Vehicle Spill Kit

LEVEL OF RESPONSE REQUIRED:
ANY SPILL to WATER - notify **SE, CM and PE** immediately
Minor Spills - less than 5 litres to land or asphalt contact **SE** immediately
Major Spills - more than 5 litres to land or asphalt contact **SE, CM and PM** immediately. **CM** to notify **CA** as required & Report to **HCC PM** within 24hours.
Notifiable Spills – **ANY SPILL to WATER** or greater than 50 litres to land or asphalt must be immediately reported to **SE, CM and PM**. **CM** will make contact with **CA** and **ECan**. (If **SE, CM** and **PE** not contactable you are to contact the **ECan Hotline**).

IMPORTANT STEPS TO FOLLOW

- 1. Assess for danger**
Identify the spilled material, if unsure check MSD sheets, wear appropriate PPE and only clean up if you will be safe.
 - 2. Stop the Source**
Stop machine / stand up container / plug leak.
 - 3. Protect Waterways & Stormwater**
Use spill kit booms and pillows.
 - 4. Notify Supervision**
Notify Site Engineer, who is to notify CM immediately – phone until you speak with someone, do not leave a message.
 - 5. Start Clean Up**
Use equipment in spill kits including pads, socks, pillows, absorbent peat and other absorbents to begin clean up. Be sure to collect all soiled material and dispose of appropriately. In some cases contaminated soil will need to be dug up and disposed of at an appropriate facility. Call the Environmental Team to provide advice on disposal options.
- 

Absorbent Peat
Sprinkle over spills, allow to soak up liquid, then sweep up and put in disposal bag.



Absorbent Pad
Used to catch or mop up smaller oil spills and leaks.



Absorbent Pillows
Used to mop up or catch large oil spills and leaks.



Absorbent Socks
Used to contain spills and protect waterways. It acts as a barrier. Place around spilled material or drain to stop the oil spill moving or getting into the drain.
- 6. Complete Report**
SE with the CM to complete an Environmental Incident Investigation Report Form within 24 hours of spill.
 - 7. Replace Materials In Spill Kit**
Ensure all used materials in spill kit are replaced. You can get these from field work group (0508 327 672), to be arranged by SE.

CONTAMINATED DISCHARGE RESPONSE PLAN

SITE RESPONSE CONTACT	PHONE #
Site Engineer (SE): Wade Bosley	027 497 5215
Site Foreman (SF): James Jackson	027 495 4200
Contract Manager (CM): Matt Nugent	021 075 5920
Project Manager (PM): Matt Nugent	021 075 5920
Compliance Agent (CA): Paula Cornille	021 287 2852
Environmental Pollution Hotline	0800 800 401
Hamilton City Council Project Manager (HCC PM) : Nathanael Savage	07 838 6527



LEVEL OF RESPONSE REQUIRED:
ANY CONTAMINATED DISCHARGE to **STORMWATER** and/or **WATERWAY NOT CONTAINED** - notify the **Site Engineer, Contract Manager and Project Manager** immediately
Minor Discharge Contained - less than 5 litres to water, land or asphalt contact **Site Engineer and Contract Manager** immediately and notify **Project Manager**. *Follow steps below.*
Major Discharge Contained - more than 5 litres to water, land or asphalt contact **Site Engineer, Contract Manager and Project Manager** immediately. The **Project Manager** will Report to **HCC PM within 24hrs Compliance Agent and Enviro Hot Line** if required. *Follow steps below.*

IMPORTANT STEPS TO FOLLOW:

- 1. Assess**
Identify the spilled material, check MSD sheets if unsure, and obtain appropriate PPE.
- 2. Stop the Source**
Stop machine or pump / plug leak / stand up container.
- 3. Protect Waterways**
Use spill kit booms and drain covers. **Organise sucker truck** to remove discharge contractor.
- 4. Notify Supervision**
Notify Site Engineer immediately. Notify Environmental Advisor and WRC when required as per Level of Response.
- 5. Start Clean Up**
Use equipment in spill kits including pads, booms, kitty litter and other absorbents to begin clean up. **Organise sucker truck** contractor. Be sure to collect all soiled material and dispose of appropriately. In some cases contaminated soil will need to be dug up and disposed of to an appropriate facility. The **CA** will provide advice on disposal options.



Absorbent granules or peat
Sprinkle over spill, allow to soak up liquid then sweep up to remove



Absorbent pads
Use to mop up or catch smaller spills and leaks.



Absorbent booms
For containing spills and protecting waterways. Place around spilled material or drain to act as a barrier



Plug'n'dike
For temporarily plugging punctured tanks and drums



Rubber cesspit protector
Place over nearby storm water inlets

- 6. Complete Report**
SE with the CM to complete an Incident Field Report and forward to **WRC** and **CA** within 24 hours of discharge.
- 7. Replace Materials In Spill Kit**
Ensure all used materials in spill kit are replaced. You can get these from field work group (0508 327 672), to be arranged by SE.

Schedule B to Part 1.0

Contractor's Flocculation Management Plan (FMP)

Schick Civil Construction



Schick Civil Construction Limited

Chemical Treatment Management Plan
(CTMP)

Prepared by Erosion Control Co. Ltd

As at 21st January 2020



Contents

1. Introduction	3
2. Bench Testing.....	3
3. Test Results and Discussion	4
4. The Rainfall Activated Dosing Systems – Flocc Box and Smart Dose Box	5
5. Flocc Box Set-Up Calculations	6
6. Set Up and Installation.....	7
7. Batch Dosing of Sediment Ponds.....	8
8. Monitoring and Maintenance	9
8.1. Monitoring and Maintenance requirements.....	9
8.2. Routine monitoring and maintenance	9
8.3. Contingency Management	9
8.4. Record-Keeping & Reporting to Monitoring Council or Its Representative	9
8.5. Storage of Chemical on Site	10
8.6. Procedure for Transporting CHEMICLEAR 101 / Other Treatment Chemicals	10
8.7. Chemical Spill Contingency Plan	10
8.8. Chain of Responsibility for Monitoring & Maintaining Chemical Treatment Systems on Site	10
8.9. Training of Personnel Responsible for Monitoring & Maintaining Chemical Treatment Systems	10
8.10. Responsibility	11
8.11. Instructions for Maintenance of Chemical Treatment Systems	11
8.11.1. Reducing the Header Tank Volume:	11
8.11.2. Refilling the Reservoir:	11
8.11.3. Observation of Water Quality in Pond:.....	11
8.11.4. Periodic System Checks:	11
8.11.5. Monitoring Records:	11
9. Flocc Box / Smart Dose Box Setup Confirmation.....	13
10. Flocc Box / Smart Dose Box Inspection and Test Record.....	14
11. Appendix.....	15

1. Introduction

Erosion Control Co Ltd have been engaged by Schick Civil Construction to prepare a Chemical Treatment Management Plan for the site located at Eastwest Link & Ohaupo Roads, Hamilton.

- The report outlines bench test results using water treatment chemicals including coagulants and flocculants.
- The dosing methodology and system for the particular site.
- Responsibilities for the management, monitoring, maintenance and reporting of chemical dosing.
- A spill contingency plan.

Bench testing conducted in this plan is to the standards of Auckland Council GD05 Earthwork, Erosion and Sediment Control guide and ASTM standard D2035-13.

The design and implementation of the proposed CTMP will be in accordance with the Waikato Regional Councils Erosion and Sediment Control Guidelines for Soil Disturbing Activities 2009.

2. Bench Testing

Bench testing has been carried out using the collected soil sample deemed to best represent the site once the land has been stripped of topsoil. The soil sample was mixed in an agitated barrel with rain water. The runoff sample was then added to six 1 L jars and TWO chemical coagulants added at the aluminium concentrations shown in the following table. Note that various chemicals are available to ensure the optimum product is ultimately selected.

	Jar 1	Jar 2	Jar 3	Jar 4	Jar 5	Jar 6	Jar 7
CHEMICAL	BLANK	Chemiclear 100	Chemiclear 100	Chemiclear 100	Chemiclear 101	Chemiclear 101	Chemiclear 101
Al Concentration (ppm as Al)	0 ppm	2 ppm	5 ppm	8 ppm	2 ppm	5 ppm	8 ppm

- Clarity was then recorded after 5 minutes, 10 minutes and 30 minutes to identify optimum dose rates to meet and achieve best discharge requirements.
- Final pH is also recorded to ensure council guidelines are met.

3. Test Results and Discussion

CATCHMENT SAMPLE



CATCHMENT SAMPLE: Results of Chemiclear 100 & Chemiclear 101 after 30 minutes settling

Catchment Sample Dosed with Chemiclear 100 & 101 - Water Clarity & pH

Chemical	Aluminium Dose (mg/L)	Clarity (mm) 5 Mins	Clarity (mm) 10 Mins	Clarity (mm) 30 Mins	Final pH	Notes
N/A	0 (Blank)	0	0	0	7.2	
Chemiclear 100	2.0	<60	<60	<60	7.1	
Chemiclear 100	5.0	<60	<60	<60	7.0	
Chemiclear 100	8.0	<60	<60	>100	6.9	
Chemiclear 101	2.0	>100	>100	>100	7.0	Recommended
Chemiclear 101	5.0	<60	>100	>100	7.0	
Chemiclear 101	8.0	<60	<60	<60	6.9	

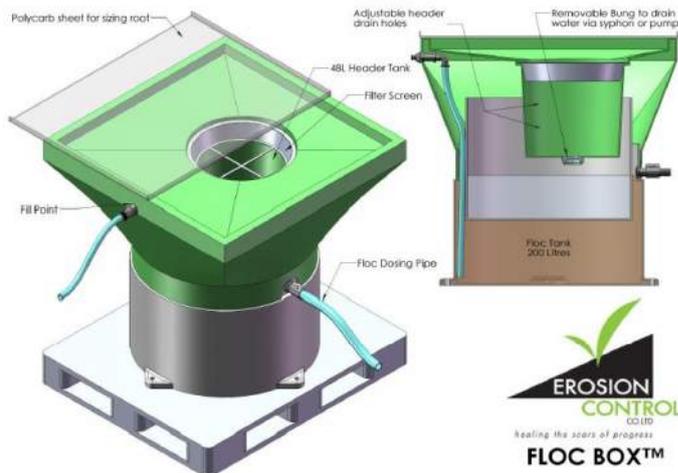
RECOMMENDED DOSAGE

The recommended dosage for the catchment is shown below from bench test results on the received sample.

Catchment / Pond	Chemical	Dose Rate	Volume of water to be treated by 1 litre of chemical
Catchment for SRP 1 22,000 m ²	Chemiclear 101	31 mL / 1 m ³	32.2 m ³
Catchment for SRP 2 9,000 m ²	Chemiclear 101	31 mL / 1 m ³	32.2 m ³
Catchment for DEB 1 6,000 m ²	Chemiclear 101	31 mL / 1 m ³	32.2 m ³

4. The Rainfall Activated Dosing Systems – Floc Box and Smart Dose Box

Floc Box



The Floc Box is a rainfall activated dosing system which has been streamlined to allow easier and more efficient installation and maintenance. The units come in 75, 200 and 400 L versions and have adjustable catchment trays allowing for rainfall capture from 0.25 – 5.0 m². Units can be supplied with catchment trays and header tanks pre-sized for site catchments and correct dose rates as outlined in the CTMP.

Smart Dose Box

The Smart Dose Box is a rainfall activated dosing system that minimises the chemical handling requirement versus that of the Floc Box. The unit can dose a maximum catchment area of 6 ha.

Rain fall level is measured in real time and the chemical pump speed automatically adjusted so that the desired chemical concentration is dosed.

The box contains a double-head pump so it can dose two chemicals if required. Some applications require a pH adjustment product as well as a coagulant.

The unit has a real time communication platform that allows a nominated person to view its operation and important data such as rainfall. A message alert is sent to the nominated Erosion Control person and, if necessary, customers as well should the calculated chemical level drop beneath a nominated low-level amount e.g 5% of pack volume. This means that actions can be taken and the chemical replenished before it runs out and jeopardises pond water quality.

5. Floc Box Set-Up Calculations

Site: Eastwest Link & Ohaupo Roads, Hamilton

Catchment & Area	Product	Floc Box Size	Catchment Tray area	Header Tank Low Flow Hole (Ø3 mm)*	Header Tank High Flow Hole (Ø10 mm)*	Estimated rainfall before chemical refilling
Catchment SRP 1 22,000 m ² (2.2ha)	Chemiclear 101 2 ppm (Al)	200 L	0.83 m ²	<u>Volume to Hole</u> 9.9 L <u>Hole Height</u> 79 mm	<u>Volume to Hole</u> 19.8 L <u>Hole Height</u> 158 mm	242 mm
Catchment SRP 2 9,000 m ² (0.9ha)	Chemiclear 101 2 ppm (Al)	75 L	0.34 m ²	<u>Volume to Hole</u> 4.1 L <u>Hole Height</u> 62 mm	<u>Volume to Hole</u> 8.1 L <u>Hole Height</u> 124 mm	222 mm
Catchment DEB 1 6,000 m ² (0.6ha)	Chemiclear 101 2 ppm (Al)	75 L	0.23 m ²	<u>Volume to Hole</u> 2.7 L <u>Hole Height</u> 41 mm	<u>Volume to Hole</u> 5.4 L <u>Hole Height</u> 83 mm	333 mm

*Low and high flow heights in mm are based on the recommended Floc Box header tank.

The catchment tray area is determined by the chemical dose rate and the area of exposed earthworks within the catchment. If the area of catchment or exposed area changes then the catchment tray and header tank need to be adjusted accordingly. Stabilization processes such as hay mulching will also greatly reduce the volume of sediment laden water and should be accounted for with the variation of catchment tray and header tank.

The header tank is designed to allow for 12 mm of rainfall before chemical dosing starts. This is deemed best for the volume of rain required to initiate overland flow and runoff tracking to the sediment pond. In periods of high intensity rainfall, the header tank will back up to the high flow which will increase the volume of chemical being dose. This will then ultimately track down to the low flow as rainfall decreases or stops. This ensures that dosing continues after the rainfall event has ended allowing for the time lag for surface flow in the catchment to travel to the sediment pond.

The Auckland Regional Councils GD05 guidelines recommend the management of storage water in the header tank as follows (which is followed if not set out in the Waikato Regional Councils guidelines):

- After 3 days without rain – remove 50%
- After 6 days without rain – remove 100%

Ultimately, the volume of water stored in the sediment retention pond (SRP) and the clarity of the stored water should be considered when managing header tank volumes and further dosing requirements.

While all care has been taken in the testing and preparation of this chemical treatment management plan, Erosion Control cannot guarantee that the same results will be achieved in the retention ponds. The scale up of the test results are affected by a large number of parameters that can alter the dose rate and results.

The results and plan presented above should not be replicated or changed without prior approval from Erosion Control Co.

6. Set Up and Installation

The rainfall activated dosing device should be set up on a level area so that the dosing point can be located 5-10 m metres up the entrance channel prior to the fore bay.



Consideration should be given to the ease of access for maintenance, storage of chemical drums and any further earthworks activity that needs to be carried out around the location. Once the unit is set up in situ the chemical storage tank should be filled until chemical visibly discharges from the dosing hose.



The positioning of “filter socks” or similar provide helps ensure a concentrated flow at the dose point to promote chemical mixing and ensures dosing into runoff during lower flows. Consideration should also be given to lining the channel at this point to avoid scouring of the channel floor. The dose point should not become submerged during heavy rainfall.

7. Batch Dosing of Sediment Ponds

Batch dosing should not be used as the primary dosing option but can be used to treat water prior to the installation of a rainfall activated system or when adequate clarity of >100 mm (see later notes on monitoring) has not been achieved. **It is important to note that pH should be measured and recorded both prior to and after batch dosing to ensure that it stays within 5.5 and 8.5 as set in the GD05 guidelines.**

To ensure the optimal results from batch dosing it is necessary to ensure as even distribution as possible across the pond surface. Applying via a sprayer around the edges of the pond is the preferred methodology. Alternatively, the CHEMICLEAR 101 can be diluted in 1 L increments in a 20 L bucket and thrown onto the pond surface with an effort to achieve as much distribution as possible. Clarity should begin to improve within the first 1-2 hours after dosing with maximum effect over 24 hrs. Clarity, volume of chemical added, and pH should be recorded 24 hrs after each application.

Once clarity >100 mm has been achieved then the water can be discharged so long as pH is within the limits set above.

Recommended Batch Dosing Volumes

Number of SRPs / DEBs: 2 x SRP; 1 x DEB

SRP 1

Chemical	CHEMICLEAR 101
Dose Rate (ml/m ³)	31.00
Pond Water Volume (m ³)	660 m ³
100% Batch Dose Volume (L)	20.5
50% Batch Dose Volume (L)	10.2

SRP 2

Chemical	CHEMICLEAR 101
Dose Rate (ml/m ³)	31.00
Pond Water Volume (m ³)	180 m ³
100% Batch Dose Volume (L)	5.58
50% Batch Dose Volume (L)	2.79

DEB 1

Chemical	CHEMICLEAR 101
Dose Rate (ml/m ³)	31.00
Pond Water Volume (m ³)	120 m ³
100% Batch Dose Volume (L)	3.72
50% Batch Dose Volume (L)	1.86

8. Monitoring and Maintenance

8.1. Monitoring and Maintenance requirements

The monitoring of the chemical dose system will be undertaken by the site foreman with regular checks being made by the site engineer to ensure compliance.

Monitoring of the system will be undertaken each day following rain and at least once per week if no rain. All monitoring results are to be recorded, with an example provided in table 2.

8.2. Routine monitoring and maintenance

Instructions for routine monitoring and maintenance of the chemical treatment system will be summarised in a table, a copy of which should be placed in the chemical treatment box inside a waterproof zip lock bag.

Routine weekly attendance should be undertaken for monitoring and recording of each pond and the rainfall activated dosing system status. This can be undertaken by Erosion Control Co.

The clarity of the water in the retention ponds will be monitored using the black disc method. This will consist of a 50-80mm diameter black painted disc attached to the bottom of a 1 m long wooden ruler with a centimetre scale starting at the end to which the disc is attached. The disc is lowered vertically into the water near the pond outlet until it disappears and is then moved towards the surface until it is just visible. The depth of reappearance in mm is recorded as the clarity of the water.

After moderate or heavy rain, the dosing points should be checked to ensure that the chemical is being delivered into the stormwater flow during low flow conditions.

8.3. Contingency Management

A plan must be put in place to manage contingent events in accordance with site environmental management plans. Contingencies could include poor performance of the treatment system, vandalism, stormwater damage or effects of other influences on stormwater quality.

If the treated water in any of the ponds is consistently very clear to depths >100 mm it could indicate overdosing and the possibility of a lowered pH which can present a risk to the receiving waters as a result of elevated free aluminium concentration in the discharge. If the treated water is consistently clear, the pH of the water in any pond should be retested.

Contingencies such as poor treatment performance or consistently very clear treated water should be dealt with by consultation with the appropriate organisation or its representative.

The header tank should be drained by half after 3 days of no rain and emptied after 6 days of no rain.

A treatment chemical spill contingency plan is provided.

8.4. Record-Keeping & Reporting to Monitoring Council or Its Representative

A copy of the monitoring records will be available on file and updated as required.

The integrity of the treatment system will be checked weekly during both dry and wet weather. This check will include a quick check of the plumbing, a check that the header tank hoses are clear and a check of the dosing point to ensure that the chemical would drop into the stormwater flow from the site.

Erosion Control can provide the weekly monitoring visit records as well as other monitoring and these can be compiled into a monthly summary report.

8.5. Storage of Chemical on Site

Bulk chemical supplied by the manufacturer in 200 L polyethylene drums will be kept in secure storage if on the site. Chemical drums will be stored on end with the screw caps uppermost.

Topping up of chemical will be made weekly as part of the regular inspection regime.

Empty drums should be washed out with water, and the wash water poured onto dry soil well away from any watercourse. Drums will be properly disposed of.

8.6. Procedure for Transporting CHEMICLEAR 101 / Other Treatment Chemicals

The transport of water treatment chemicals to and from the project will be undertaken by commercial carriers in accordance with current Hazardous Goods, Traffic & Transport regulation. CHEMICLEAR 101 weighs about 250 kg in 200 L drums and is most easily moved within the site in a loader bucket. Drum lifting chains can be supplied by Erosion Control Co if required. The use of these or any other chemical must be done in accordance with the site Health & Safety Plan.

8.7. Chemical Spill Contingency Plan

If there is a spill of CHEMICLEAR 101 or alternative water treatment chemical onto the ground it will be immediately contained using earth bunds to prevent it from entering water. The spilt CHEMICLEAR 101 should be recovered if possible and placed in polyethylene containers. If the spilt CHEMICLEAR 101 cannot be recovered, it should be mixed with a volume of soil equal to at least ten times the volume of spilt CHEMICLEAR 101 and buried in dry soil.

If there is a spill of CHEMICLEAR 101 or alternative flocculation chemicals into pond water, discharge from the pond to natural water should be prevented. Contact the Council or its representative for advice on appropriate action.

If there is a spill of CHEMICLEAR 101 or other chemical into flowing water:

1. The regional council should be advised immediately.
2. If possible the water and the split CHEMICLEAR 101 should be pumped into a bund or pond until all the split CHEMICLEAR 101 has been removed from the watercourse.
3. If the CHEMICLEAR 101 cannot be removed from the watercourse any downstream users should be identified and advised. Contact the Local Council or its representative qualified to advise on appropriate action.

8.8. Chain of Responsibility for Monitoring & Maintaining Chemical Treatment Systems on Site

The earthworks contractor shall have primary responsibility for maintenance and monitoring the effectiveness of the chemical treatment system on the site.

A service may be subcontracted to Erosion Control Co to provide regular monitoring of the ponds, servicing of the Floc Boxes and assembly of the monitoring reports if required.

8.9. Training of Personnel Responsible for Monitoring & Maintaining Chemical Treatment Systems

Erosion Control Co can provide regular monitoring and servicing of the flocculation system or can undertake regular training of site personnel to carry out the routine monitoring and maintenance of the chemical treatment system, and the required record keeping.

8.10. Responsibility

While all care has been taken in preparing this CTMP, it is based on the information provided by the contractor and results may vary during the course of working this development.

It is the responsibility of the contractor to ensure compliance with all aspects of the appropriate regulations pertaining to these works.

Erosion Control Co would recommend that testing be repeated every 6 months during the development to ensure dosing and Flox Box design are providing best results, as soil type may change through the development phase.

This information is not to be used for any other purpose, without prior consultation and the written consent from Erosion Control Ltd and no liability is accepted for misuse of this information.

8.11. Instructions for Maintenance of Chemical Treatment Systems

8.11.1. Reducing the Header Tank Volume:

The header tank is used to avoid dosing during the initial stages of rainfall when site conditions are dry and no runoff is to be expected.

After 3 days without rain – reduce volume to 50%

After 6 days without rain – reduce volume to empty (level at lowest outlet)

8.11.2. Refilling the Reservoir:

The reservoir tank should be refilled when the displacement tank is half full, or sooner if heavy rain is predicted. The level of chemical in the device needs to be sufficient to treat a 100-year event should one occur. Refilling is done by first emptying the displacement tank and then refilling the reservoir tank until the chemical level is at the lower edge of the outlet.

8.11.3. Observation of Water Quality in Pond:

The pond water quality will be observed at least weekly, and the clarity determined using a black disc and recorded on the monitoring sheet. pH shall be recorded once the pond has filled up to ensure that dosing does not have an unacceptable effect.

8.11.4. Periodic System Checks:

Check the lower hose with the small tube outlet, from the header tank to the displacement tank is not blocked with leaves or other foreign debris.

8.11.5. Monitoring Records:

A separate sheet is provided for monitoring records for each month. The information to be recorded is as follows:

Visual check:

Check the tray for leaks, the plumbing, and the hoses from the header tank. Record “ok” or if maintenance is required write “M” and note requirement in notes column.

% Header full:

This is the volume between the lowest and middle outlets. After rain this should be either 100% after 12mm or more rain, or between 1-100% after less than 12mm rain; in summer: 50% when lowered after 3 dry days, 0% when emptied after 6 dry days.

% Depth in Displacement Tank:



Schick Civil Construction

Measure depth of water in cm. Reduces to 0 when emptied.

Chemical Volume added:

Record chemical volume added. 1 drum CHEMICLEAR 101 = 200L, 9cm in CHEMICLEAR 101
200l drum = 20L. Can be calculated from change in water level in displacement tank where 1cm
change = 4 L of CHEMICLEAR 101.

Pond Clarity:

Record using black disc near pond outlet. (Refer above).



9. Floc Box / Smart Dose Box Setup Confirmation

Contractor			
Site			
Installed by			
Chemical Recommended			
Dose rate			
Catchment	Area (ha)	Recommendation	Check
1			
2			
3			
4			
<p>I hereby state that the above methodology has been followed and prepared in accordance with the chemical treatment management plan.</p>			
Signature:		Date:	

11. Appendix

Remainder of Bench Test Photos not in main body of report



CATCHMENT SAMPLE: Test Results of Chemiclear 101 after 5 minutes settling



CATCHMENT SAMPLE: Test Results of Chemiclear 101 after 10 minutes settling

Material Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

PRODUCT NAME: CHEMICLEAR 101
OTHER NAMES: PAC blend

ADDITIONAL INFO: PAC/PolyDADMAC blend
Cationic polymer in aqueous solution

Typical use: Coagulant for water treatment.
NZ Supplier: Erosion Control Co Ltd, Silverdale, Auckland
Telephone: 09 426 8292
Fax: 09 426 8293
Emergency No: NZ Poisons Centre 0800 764 766
Email: info@erosioncontrol.co.nz

2. HAZARDS IDENTIFICATION

Not classified as a Dangerous Goods under NZS 5433:2012 Transport of Dangerous Goods on Land.

Classified as Hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

Signal Word – WARNING



Subclasses:

- 6.1 Category D Substances which are acutely toxic
- 6.3 Category A Substances irritating to the skin
- 6.4 Category A Substances irritating to the eye

Hazard Statements:

- H302 Harmful if swallowed
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H332 Harmful if inhaled

Prevention Statements

- P102 Keep out of reach of children
- P103 Read label before use

P104 Read Safety data sheet before use
P264 Wash hands and any exposed skin thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P280 Wear protective clothing, gloves and eye/face protection

Response Statements

P101 If medical advice is needed, have product container or label at hand.
P301+P312 IF SWALLOWED: Call a poison centre or doctor/physician if you feel unwell.
P302+P352 IF ON SKIN: wash with plenty of soap and water.
P330 Rinse mouth.
P331 Do NOT induce vomiting.
P332+P313 If skin irritation occurs. Get medical advice/attention.
P362 Take off contaminated clothing and wash before re-use.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.

3. COMPOSITION/INFOMRATION ON INGREDIANTS

Ingredient	Concentration	CAS No.	Hazard Code
Polyaluminium chloride	≥ 20 %	1327-41-9	H302; H319; H315
Polydiallyldimethylammonium chloride (PolyDADMAC)	1-10 %	26062-79-3	
Water	≤ 80 %	7732-18-5	

4. FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Remove contact lenses, if present. Get medical attention if eye irritation persists.

Skin: In case of contact, immediately flush skin with copious quantities of water for at least 15 minutes while removing contaminated clothing and shoes. If swelling, redness, blistering or irritation occurs seek medical assistance. Wash clothing before re-use.

Inhalation: Remove victim to fresh air. Remove any contaminated clothing and loosen remaining clothing. Allow patient to assume a comfortable position and keep warm. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call a doctor/physician if effects persist.

Ingestion: Do NOT induce vomiting. Rinse mouth out with water and get medical/attention immediately.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Foam, dry powder, carbon dioxide and sand
Special protective equipment: As for all fires involving chemicals.
For firefighters: Chemical protection suit, suitable gloves and boots, and self-contained breathing apparatus.

Specific hazards arising from substance or mixture:

- Non-combustible material
- May decompose on heating emitting fumes including hydrogen chloride

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Use personal protective equipment/effective to prevent skin & eye contact & inhalation of dust

De-contamination procedures Residues or small spillages shall be rubbed by cloth and washed with clean water & soap.

Environmental precautions Clear area of all unprotected personnel.
Absorb spills with sand, earth or non-combustible absorbent material, sweep up & collect in suitable containers for disposal.
If contamination of sewers or waterways occurs, advise local emergency services.

7. HANDLING AND STORAGE

Handling precautions: Wear PVC or other plastic material gloves/rubber gloves for hand protection and wear goggles for eye protection. Do not eat or drink whilst handling the product.

Package: CHEMICLEAR 101 comes as a liquid in either 20, 200 or 1000 L vessels.

Storage conditions Avoid wet, damp and humid conditions.
Keep in a dry, cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures to reduce exposure: Ensure adequate ventilation. Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.
HTP(8h)=2mg/M3 (Al) Finland
TVL=2mg/M3 (Al) (TWA) USA
MAK=6(F)mg/M3 (Al) Germany

Personal protection equipment

Respiratory Protection: In case of insufficient ventilation wear suitable respiratory equipment.

Hand Protection: PVC or other plastic material gloves.

Eye Protection: Safety glasses with side-shields. Do not wear contact lenses.

Skin & body protection: Chemical resistant apron or protective suits if splashing or repeated contact with solution is likely.

Hygiene measures: Wash hands and face before breaks and immediately after handling the product. When using do not eat drink or smoke. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Clear or pale yellow liquid

Al₂O₃: 6.2% min.

Water Insolubles: 0.6% max.

pH: 3.5-5.0 (10% aqueous solution)

Specific Gravity (sg) 1.15 @ 20°C

Boiling point: above 100°C

Freezing Point/Range (°C) -10-14°C (approx)

Decomposition Point >150°C

Flash Point Non-combustible

10. STABILITY AND REACTIVITY

Stability Stable at ambient temperatures

Materials to avoid Acids, strong alkalis, calcium hypochlorite, metals

Hazardous decomposition No decomposition if stored and applied as directed

11. TOXICOLOGICAL INFORMATION

No adverse health effects are expected if the product is handled in accordance with this safety Data sheet and the product label. Symptoms or effects may arise if the product is mishandled and overexposure occurs.

Acute toxicity:

-Oral: The product is not expected to be toxic

-Inhalation: The product is not expected to be toxic.

Irritation

- Skin: Prolonged skin contact may cause skin irritation.

- Eyes: May cause eye irritation.

Sensitization: No data available.

12. ECOLOGICAL INFORMATION

Low acute LC50 to fish, but not expected to cause long term adverse effects to aquatic environment as the product is quickly bound to naturally occurring dissolved organic carbon and particulate material.

LC50/96 hour/algae 1.5-2 mg/L (Al-Cl)

Toxicity to bacteria 12 mg/L (Al-Cl)

Lc50/48 hour/ daphnia 3.9 mg/L (Al-Cl)

13. DISPOSAL CONSIDERATIONS

Waste from residues/unused: Dispose of as special waste in compliance with local and national regulations.

Contaminated packaging: Dispose of as special waste in compliances with local and national regulations.

14. TRANSPORTATION INFORMATION

Road & Rail Transport:

Not classified as a Dangerous Good under NZS5433:2012 Transport of Dangerous Good on Land.

Marine Transport:

Not classified as Dangerous Goods by the International Maritime Dangerous Goods Code (IMDG Code) for Transport by Sea. Non-dangerous goods.

Air Transport:

Not classified as Dangerous Goods by the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by Air. Non-dangerous goods.

15. REGULATORY INFORMATION

The product is not a hazardous article and need not to be labeled according to EC-Directives as amended.

16. OTHER INFORMATION

Notes: The information contained in this safety data sheet is given in good faith. It is accurate to the best of our knowledge and belief and represents the most up to date information. The information given in this data sheet does not constitute or replace the user's own assessment of workplace risk as required by other health and safety legislation.

No liability will be accepted for injury, loss or damage resulting from failures to take consideration of information or advice contained in the SDS.