Site Specific Environmental Management Plan

– Peka Peka to Ōtaki Project

Project-wide Vegetation Clearance and Enabling Works

FCCL-EV-MPN-0010

Revision C.1 – September 2017

Contents

AUTHORISATION AND REVISION RECORD

Revision	Status	Author	Date	Description
A	Draft	Alice Naylor / Ed Breese	10/07/17	Draft for PA review
B	Draft	Alice Naylor / Ed Breese	10/08/17	Draft for Council review
B.1	Draft	Alice Naylor	14/09/17	Draft for Council Review
C	Final	Alice Naylor	14/09/17	For Council Approval

Certification Record

Revision	Action	Name	Position	Date	Signature
	Approved by:	Richard Percy	Project Leader	18/9/17	
	On behalf of GWRC:				
	Approved by:				
	On behalf of KCDC:				

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Revision	Action	Name	Position	Date	Signature
	Approved by:				
	On behalf of GWRC:				
	Approved by:	Natasha Tod	Resource Consents and Compliance Manager	22/9/17	
	On behalf of KCDC:				

The certification of this document by the Kapiti Coast District Council is without prejudice to any changes to the designation that are shown on the plans but have not been finalised at the time of certification.

1 INTRODUCTION

This Site Specific Environmental Management Plan (SSEMP) provides the necessary information to demonstrate how the project team plan to avoid or mitigate potential adverse environmental effects from construction activities associated with project-wide site clearance and enabling works activities. This SSEMP reflects the requirements of the Construction Environmental Management Plan (CEMP) and its appendices, as well as the Ecological Management Plan (EMP).

The preparation of the SSEMP has involved consultation with various stakeholders which is documented in Appendix B. Input from experts (Appendix A) from specialist disciplines has also been included such as ecology, contaminated land, noise and vibration.

This document is intended to be utilised by the construction team to clearly identify any site specific environmental requirements that must be adhered to prior to, and during works in any given area. A suite of over-arching environmental management plans have been drawn from to inform the contents of this SSEMP. All works will be carried out in general accordance with these management plans. Following approval of this document, a number of internal procedures are still required to take place prior to commencement of works on site, with final sign-off of any ground breaking activities required by the Environmental Manager.

Construction activities covered by this SSEMP are as follows:

- Vegetation clearance
- Compound establishments
- Installation of temporary and permanent fencing
- Geotechnical investigations
- Contaminated land investigations
- Location of utilities
- Proof bores for the Otaki River Bridge and Waitohu Stream
- Archaeological investigations
- Building relocations

Works are not to commence on site until certification of this SSEMP has been confirmed in writing by Kapiti Coast District Council (KCDC) and Greater Wellington Regional Council (GWRC).

1.1 Programme

The expected programme for the activities covered by this SSEMP are as follows:

Activity	Timing	Duration
Vegetation Clearance	September 2017 – January 2018	Ongoing for approximately five months

Temporary Site Establishments and access points	Mid-August 2017 – December 2017	Approximately one month
Fencing	September 2017 – 2021	Approximately five days at each location
Site investigations	September 2017 – December 2017	Up to five days at each location
Otaki River Bridge Proof Bores	September 2017	Six weeks
Archaeological investigations	September 2017	Up to five days at each location
Contaminated land investigations	September 2017	Two days at each location
Building relocations	September – December 2017	To be confirmed by the sub-contractor

A detailed programme can be found in Appendix D.

1.2 SSEMP Changes

In accordance with resource consent condition G.21A, amendments may be made to this SSEMP in the form of a 'minor change' which is required to be submitted to the Manger at least 2 working days prior to implementation of that change, or a 'major change' which is required to be submitted to the Manager for certification at least 5 working days prior to implementation of that change. Minor changes associated with this SSEMP are defined as follows:

- Additional site investigation works if required following initial investigations.
- Stabilisation where minor ground disturbance is evident.
- Formation of minor access tracks where a cut-and-cover methodology can be achieved (cover measure to be spread on the same working day as the cut / disturbance).
- Use of silt control as a contingency for minor activities provided that the controls can be installed in accordance with the project Erosion and Sediment Control Plan (ESCP).

2 PLAN IMPLEMENTATION

2.1 Responsibilities

The following provides a summary of responsibilities relevant to the planning and implementation of this SSEMP.

Role	Person	Contact Details	Responsibilities
Construction Manager	Steve Findlay	stevef@fcc.co.nz 029 770 3128	• Ensures there is a system in place so that construction works do not proceed until required environmental sign-offs are completed. • Overviews systems and processes to ensure consent requirements are captured for construction works. • Ensures adequate resources are provided to ensure environmental issues are appropriately managed. • Reviews environmental incidents and complaints with the Environmental Manager and acts to address issues where needed. • Reviews and monitors construction work methods to ensure compliance with RMA conditions
Environmental Manager	Alice Naylor	A.Naylor@Higgins.co.nz 027 297 6055	• Develops, implements and reviews environmental management systems and environmental management plans. • Coordinates all environmental auditing functions and ensures relevant records are maintained. • Responds to and investigates all environmental complaints, issues or incidents. • Coordinates the SSEMP implementation process and pre-works requirements to ensure that environmental requirements are adhered to. • Provides training and briefings to site staff to ensure that there is sufficient knowledge of environmental requirements in the field. • Acts as the primary point of communication between regulatory bodies and the project.

			• Coordinates a team of experts in specialist disciplines such as contaminated land, ecology, groundwater, noise and vibration. • Communicates environmentally sensitive areas to the construction team.
Environmental Coordinator	Sevasti Hartley	sevastih@fcc.co.nz 0278078400	• Supports the Environmental Manager and provides leadership to ensure all staff comply with environmental management systems. • Provides support in the formation of SSEMPs. • Undertakes as-builting of environmental controls. • Undertakes regular site inspections and audits. • Coordinates all site monitoring including but not limited to groundwater, water quality, ecological, dust, noise, and vibration monitoring. • Manages maintenance and monitoring of Chemical Treatment Systems (if used). • Ensures spill kits are available and stocked and provides training on equipment use. • Conducts regular site inspections of erosion and sediment control devices and co-ordinates maintenance where necessary. • Monitors site controls during rain storms. • Trains staff in site specific environmental procedures.

Stakeholder & Communications Manager	Ed Breese	ebreese@tonkintaylor.co.nz 021 333 726	• Organises, co-ordinates and facilitates engagement with affected property holders and community prior to and during construction. • Works in partnership with Environmental Manager on engagement and construction activities in accordance with RMA conditions
Site Superintendent / Supervisors / Foreman	Simon Fifield	SimonF@fcc.co.nz 027 209 2295	• Provides leadership to the site construction team. • Ensures environmental controls including erosion and sediment control works are protected and maintained on a day to day basis. • Ensures that the SSEMPs and Archaeological Authority requirements are implemented appropriately by the construction team. • Maintains contactability 24/7 during construction and has authority to initiate immediate response actions. • Reports all environmental incidents, compliance issues and complaints to the Environmental Manager. • Reviews the need to use a water cart or sprinklers to control dust.
Project Engineers	Richard Rakovics (Civil) Craig Service (Structural)	RichardR@fcc.co.nz CraigS@fcc.co.nz	• Responsible for ensuring environmental controls and erosion and sediment control works are installed and modified as appropriate for each stage of construction. • Develop, implements and monitors construction methods and environmental protection measures to ensure compliance with the SSEMPs. • Demonstrate understanding of major environmental and community issues and environmentally sensitive areas. • Coordinate environmental interfaces with subcontractors and suppliers. • Reports all environmental incidents, compliance issues and complaints to the Environmental Manager.

Specialist support (contaminated land, ecology, noise and vibration)	Liz Deakin (Terrestrial Ecologist) Dean Miller (Principal Ecologist) Kathryn Longstaff (Avian Ecologist) Genevieve Smith – Contaminated land Brendon Shanks	LDeakin@tonkintaylor.co.nz 027 568 1995 DCMiller@tonkintaylor.co.nz 021542396 KLongstaff@tonkintaylor.co.nz Genevieve.Smith@beca.co.nz Brendon.Shanks@marshallday.co.nz	• Provide expert advice to the Environmental Manager and Environmental Coordinator regarding specific site requirements. • Submits reports to the Environmental Manager to fulfil requirements of consents relevant to their field. • Briefs the construction team of site specific requirements for environmentally 'sensitive areas'.
Iwi	Te Waari Carkeek	TeWaariC@fcc.co.nz	• Provide input into project documentation such as management plans, design processes, planning documents. • Reviews permits to work and coordinates the level of involvement of kaitiaki in site activities • Coordinates all aspects of iwi monitoring. • Key point of contact for **Ngā Hapū o Ōtaki.**

3 ENVIRONMENTAL CONSIDERATIONS

The following section identifies key environmental aspects that need to be considered during planning and commencement of works on site. In some instances, these have been further defined in section 4 of the document.

3.1 Iwi

A Kaiarahi has now been appointed which will be the key point of contact and coordination for Ngā Hapū o Ōtaki. The Kaiarahi will be involved in the design process, construction supervision and environmental monitoring. The Kaiarahi will be supported by the Kaitiaki who provide support in supervision and monitoring activities and provision of specialist advice. Ngā Hapū o Ōtaki will be informed of all works on site and invited to be present for all works, particularly in regards to initial topsoil stripping or ecological surveys required prior to physical works commencement.

3.2 Archaeology

All works under this SSEMP will be carried out in accordance with the approved archaeological authority and the Archaeological Site Management Plan. The Archaeological Site Management Plan outlines high, medium, and low risk archaeological areas across the project footprint. High risk and medium risk archaeological areas have been identified in Appendix C.

In accordance with the Archaeological Site Management Plan, high-risk archaeological areas require further investigation prior to works commencing in these areas. Areas marked as medium risk will require site visits by the project archaeologist to monitor initial topsoil stripping when construction commences. All other areas are deemed to be low-risk areas and will be covered by an 'On-call Protocol'. The on-call protocol is outlined in the Archaeological Site Management Plan and must be adhered to in instances where subsurface archaeological remains, koiwi tangata, or taonga are exposed during construction.

3.3 Ecology

3.3.1 Terrestrial

Ecological requirements are set out in the Ecological Management Plan (EMP). For this phase of works, vegetation clearance poses the biggest risk in regards to protection of valued vegetation and terrestrial habitat.

To ensure that there is a clear delineation of 'high risk' areas on site in regards to ecologically significant species as identified in the EMP, appendix C clearly outlines areas where significant species need to be considered prior to and during vegetation clearance and other enabling works activities. Significant species that must be considered are as follows:

- Herpetofauna , specifically in Hautere Bush, Cottle's Bush, and bush to south of Te Hapua Road.
- *Powelliphanta traversii Ōtaki* snails (Ōtaki snails) which are classified as 'Nationally Critical' and potentially present within Hautere Bush and Cottle's Bush
- Peripatus, (Velvet worm) potentially present in rotting timber in Steven's bush (to the south of Te Hapua Road).
- New Zealand Pipit potentially present south of Mary Crest and in dunes north of Ōtaki.
- Dotterel potential present in the vicinity of the Otaki River.

Site requirements relating to these species have been further defined in Section 6 below.

3.3.2 Aquatic

Requirements relating to aquatic ecology are not yet relevant to the works scope under this SSEMP. Works will be restricted to land only.

3.4 Noise and Vibration

Works due to commence under this SSEMP will require a strong focus on mitigating potential noise and vibration impacts on the local community. The Construction Noise and Vibration Management Plan (CNVMP) identifies the noise and vibration performance standards that must, where practicable, be complied with. It also sets out best practicable options for noise and vibration management for the Project, including mitigation measures, monitoring requirements, and communication and complaint procedures. All works under this SSEMP will be carried out in general accordance with the CNVMP. Site specific information relevant to noise and vibration associated with the activities outlined in this SSEMP are further defined in Section 10.

3.5 Air Quality

It is not anticipated that vegetation clearance and enabling works activities will generate air quality issues in regards to dust as bulk ground disturbance will not take place. That said, consideration will need to be given to other potential air quality concerns that these activities may generate, such as odour. The Construction Air Quality Management Plan (CAQMP) outlines methods to be used to prevent dust and odour nuisance during construction from the site. All works under this SSEMP will be carried out in general accordance with the CAQMP. Further information in regards to site specific mitigation measures have been included in Section 8 below.

3.6 Contaminated Land

The Bulk Earthworks Contaminated Land Management Plan (BECLMP) provides a framework and general procedures for the management of contaminated soil and other contaminated materials/structures potentially present in ground that may be disturbed or require removal to complete the Project. A number of potentially contaminated sites located within the Project corridor were identified during the desk based Phase 1 Contaminated Land Assessment (refer to Appendix C for potentially contaminated areas). These sites will be tested in accordance with the methodology outlined in Section 4.1.5 below.

In the event that any potential risks to human health or the environment are detected, site specific Contaminated Soil Management Plans (CSMPs) will be developed on a site-specific basis to be included in future SSEMPs. Until further analysis of the potentially contaminated sites is complete, general contaminated land management procedures will apply to these sites in accordance with the BECLMP.

4 SITE MANAGEMENT

4.1 Construction Activities

4.1.1 Vegetation clearance

Vegetation clearance across the full alignment footprint is required in advance of bulk earthworks. Vegetation clearance will generate mulch that will be either spread across the site, stockpiled for future use, or carted from site to be utilised elsewhere. Where access and ground conditions allow, a stump grinder will be utilised and the resultant tailings used to backfill the holes. There is no need to strip topsoil at this early stage and any minor disturbance of ground caused by machinery will be progressively stabilised using the mulch generated on site.

One main mulch stockpile area will be utilised at the Bridge Lodge Compound and will be located and maintained such that tannin runoff and fire risk is eliminated. Any changes in regards to mulch stockpile locations will be submitted as an amendment to this SSEMP, with a particular focus to ensure that stockpiles are located away from neighbouring boundaries.

Vegetation clearance will generally be carried out progressively from north to south but will be dictated by the ecological requirements for certain areas identified in Section 6 and Appendix C.

Areas of existing vegetation ‘to be retained’ have been marked on the drawings in Appendix C. The total area of vegetation to be retained is 2.54ha. Refer to Appendix E for additional details regarding specifications for landscaping aspects and site preparation prior to vegetation clearance.

4.1.2 Compound establishments

Two site compounds will be established, one each at Rahui Road and Bridge Lodge (refer to Appendix C drawings for locations). Works will involve the following:

- Construction of a stabilised entrance using clean aggregate
- Vegetation clearance, taking particular consideration of vegetation to be retained
- Installation of perimeter fencing and entry gates
- Installation of geo-fabric over areas to become hardstand
- Construction of hardstand using clean aggregate material
- Establish site compounds and storage areas for miscellaneous goods such as pipes, building materials and tools.

Stripping of topsoil is not required for compound establishments and therefore sediment controls will not be required. Any minor disturbance from fencing and / or construction of the stabilised entrance will be covered immediately with clean aggregate or temporary cover measures such as hay mulch.

4.1.3 Fencing

Temporary and permanent fencing will be established at a number of locations along the project alignment. Prior to fence installation, vegetation clearance may be required and therefore particular consideration will be given in regards to vegetation identified as 'to be retained'. Consultation with adjacent landowners may also be required to ensure that the community are updated prior to works close to property boundaries.

Clearance of existing fences and farm features will also be required in some areas in which case the respective landowner agreement will be followed where relevant and mutual communication with the landowner will take place to ensure that the impact on stock and stakeholders is limited.

4.1.4 Geotechnical investigations and location of utilities

A large number of bore holes, cone penetration tests (CPTs), and trial pits have already been carried out / excavated along the project footprint. The remaining locations have been identified in Appendix C. Location of existing underground services will be completed using a hydro-excavator. All material will be disposed of to a designated land-locked discharge location on site, such that it cannot discharge to water.

4.1.5 Contaminated land investigations

Sampling for potentially contaminated land is required to determine the level of contamination at various locations along the alignment. Test pits will typically be up to 1.5m deep and approximately 2m x 2m, although the sampling method will be confirmed at each individual site depending on the site history and proposed activities at that location. Excavations will either be carried out using an excavator or hand auger and all excavations will be backfilled immediately. Any minor ground disturbance will be stabilised with temporary mulch or aggregates, depending on the location.

4.1.6 Proof bores – Otaki River Bridge and the Waitohu Stream

Proof bores and associated standard penetration testing (SPT) is required to take place at each pier location (11 in total), in advance of piling works for the Otaki Bridge. Five proof bores will be completed under this SSEMP with three located on the river gravels (refer to Appendix C drawings for exact locations). Works will not be carried out within the main flowing river channel with plant located at least 30m away at all times. Piers located within the river channel will be left off the programme until a number of additional requirements are satisfied.

A summary of the sequence of works is as follows:

- Weather forecasting to confirm that works can be carried out during a fine weather window with limited flooding risk.
- Ecologist to be involved to carry out dotterel survey 48 hours prior to works (refer to Section 6.6).
- Access will be via an existing access track from the southern side of the river. At medium flows it is noted that a small river channel forms all the southern bank which may prevent access.

Plant will access the river at low flows and utilise swamp mats as required to gain steady plant and foot access. These will immediately be removed once access is achieved.

- The drill rig and SPT rig will be set up at each proof bore location, one after the other.
- Proof bores are to be sonic drilled with SPT testing to desired level as instructed by the geotechnical engineer.
- Upon completion, each bore is to be backfilled with clean pea metal or river gravels. Alternative grout backfill will not be used.
- It is expected that 1-2 bores will be completed per week.

Heavy rain will be monitored closely throughout the activity and all plant will be evacuated out of the river corridor immediately upon forecasted heavy rain, defined at this stage as >7mm/hour or >20mm/24hours. Site personnel including the Site Engineer and Site Supervisor will also receive heavy rainfall alerts and river level alarms for the Otaki River at Pukehinau directly from the GWRC Duty Flood Manager. If it becomes evident that the above measures are not sufficient, the project will establish a specific telemetered alarm level following further discussions with the GWRC Flood Protection Team.

One proof bore will be required for the Waitohu Stream as indicated on the drawings in Appendix C. The methodology for drilling this proof bore will follow the general sequence described above but will be located outside of the stream bed in a dry environment (outside the northern stream bank). It is expected that this work will take approximately 2 days to complete.

4.1.7 Archaeological investigations

The project archaeologist will carry out archaeological investigations in a number of identified 'high risk' areas across the site. These have been highlighted on the attached drawings (Appendix C). Investigations will involve stripping back topsoil to allow for inspection, followed by re-spread of topsoil. Disturbed ground will be stabilised using a temporary measure such as hay mulch.

4.1.8 Building relocations

A number of buildings will need to be removed from within the project footprint. These have been identified on the drawings in Appendix C. To enable access into each location, minor vegetation clearance may be required which will be carried out in accordance with the procedures outlined in this SSEMP, with particular regard for areas delineated as 'vegetation to be retained'. During removal of buildings located within high risk or medium risk archaeological areas, archaeological requirements must be followed given the potential for disturbance to building foundations.

Disconnection of all utility laterals from properties will be made on the main and not at the property boundary.

4.2 Access

Due to the linear nature of the project, a number of access/egress points will be established along the alignment. These access locations are mainly from the local road network and State Highway 1.

The access/egress points will be stabilised using clean aggregate or sealed to avoid any construction related material entering the local road network and SH1.

A site map showing the proposed access/egress locations can be found in Appendix C.

Details/configurations related to the individual access/egress point will be covered under Section 10 as part of the Site Specific Traffic Management Plans (SSTMPs).

4.3 Site Preparation

As part of the site preparation and establishment works the following mitigation measures will be implemented to avoid or minimise adverse environmental effects.

- Prior to commencement of works, safety fencing and clear signage will be erected to ensure the safety of the public. Immediate neighbours and the general public will be notified of each stage of works in accordance with requirements set out in the Stakeholder and Community Management Plan (SCMP).
- Sensitive areas in regards to ecology, archaeology, contaminated land, and residential receivers in close proximity to works will be clearly marked on drawings (attached) to ensure that the contractor carrying out the works is aware of the high risk areas.
- Site specific information, including environmental constraints and requirements, is to be discussed at the relevant pre-construction site meetings with input from specialists as required.
- Prior to works commencing in each area, the project surveyors will use GPS to identify the extent of works. The works area will be clearly marked-out with regular input from the survey team throughout works as required.
- Areas identified as 'retained vegetation' as per the approved vegetation retention plans will be clearly delineated using physical markers on site.
- Areas such as wetlands and areas that require prior salvage and relocation of species (as identified in Appendix C) will be visibly marked off on site by the survey team or project ecologist prior to works commencement in that area. No works are to take place within any watercourse.
- Environmental requirements for any given area will be noted on each project "Permit to Work'. These permits are required for any activity on site and must be in place and signed off by the environmental team prior to works commencement.

4.4 Construction Plant

The plant items to be used to undertake each of the activities generally as follows:

Vegetation clearance

- 16 – 20T Excavators
- Forestry Chippers
- Bin trucks for mulch cartage

- Loaders
- Flail mulching unit
- Stump Grinders
- Chain saws

Temporary site establishments

- Hiab trucks
- 6 – 20 ton Excavators
- Accommodation units
- Truck and trailers

Setting up/forming site access points

- 6 – 20T Excavators
- Truck and trailers
- 6-12T Roller

Installation of temporary and permanent fencing

- Post rammer (tractor attachment)
- Small site vehicles

Location of services

- Hydro-vacuum unit
- Light vehicles

Archaeological / contaminated land site investigations

- 6 – 20T excavators

Building removal

- *To be confirmed by the confirmed sub-contractor carrying out the works*

Proof bores

- Sonic drill rig
- CPT rig
- Light vehicles

All plant will require to be inspected prior to start of works and during construction activities at regular intervals. Unwanted vegetation, seeds or contaminants will be cleared prior to plant entering the site to avoid the introduction or spread of weeds or pest species.

Plant inspections will be recorded on daily plant inspection forms to demonstrate that all plant used on this project are in good working order and have been cleared of unwanted weeds or pest species.

Any faulty equipment will be stood down until the necessary repairs are carried out and the given plant is fit for purpose.

Spill control kits will be available on site at the site compound locations and areas where heavy machinery is working (as a minimum) to assist with the clean-up in the event of any spillages and plant storage during non-working hours will take into consideration high risk areas such as flood prone areas to ensure that machinery is located outside of these locations. Refuelling activities will take place using a mini-tanker away from watercourses to prevent additional risk of spillage to water.

4.5 Waste

Resource efficiency and waste management is discussed in Section 3.12 of the CEMP. Waste units for works under this SSEMP will generally be located at the two site establishment locations and will be located such that they do not cause issues in regards to odour for adjacent properties. The project is working towards a Greenroads Bronze certification and therefore resource efficiency and effective waste management practices will be integrated into planning for all works, whether at the site establishment locations, in the offices, or across the wider site.

4.5.1 Sewage

Location of workers' conveniences will be coordinated by the site supervisors and will be located away from residential properties and watercourses wherever practicable to prevent potential odour or discharge issues. Given that the site will be constantly moving during enabling works, the number of portaloos required on site will be low during the enabling works phase. Where required outside of the site establishment areas, portaloos will generally be located in areas of high activity and will be maintained by the sub-contractor to ensure that the site is maintained in a tidy state.

4.6 Materials storage

Storage of project materials, including fuels and lubricant will also require careful management. Section 3.11 of the CEMP outlines procedures for storing fuels and lubricants on site and this will be followed at all times. Only materials necessary for the project will be stored on site in order to keep materials to a minimum.

Lined concrete wash-down areas will be required at each of the site establishments which will be carefully located and delineated to ensure that the designated areas are used properly.

Upon completion of works carried out under this SSEMP, Project supervisors will be responsible for removing all contaminants (e.g. fuel, hydraulic oils, lubricants etc) from the site if they are no longer required. Weekly environmental site inspections carried out will be the primary inspection process to identify whether unnecessary contaminants are stored on site.

4.7 Water supply

Given that ground disturbance on a bulk scale is not allowed for under this SSEMP, it is not anticipated that water will be required on a routine basis for dust suppression. Any water required for enabling works activities will be collected from off-site. Storage tanks will be held at the site compound locations.

5 EARTHWORKS

Major earth-working activities are not required at this stage and have not been included in this SSEMP. Minor earthworks will be required for the enabling works activities, particularly at site establishment areas and access/egress points. Archaeological investigations will also require topsoil removal on a larger scale than the other enabling works activities and will require a higher level of care in regards to erosion prevention as detailed below.

5.1 Erosion and sediment control

It is not anticipated that sediment controls will be required under this SSEMP. There will be a strong focus on utilising the mulch that will be generated from vegetation clearance, to apply across the site progressively to ensure that the site is maintained as stabilised.

Activities that result in minor areas of soil disturbance will be managed carefully to ensure that these areas are maintained as stabilised also. Use of other erosion protection will be used in some cases such as hay mulch, aggregate, and geotextile fabrics. Disturbed areas will be required to be stabilised on the same working day as the disturbance which will be monitored regularly by the environmental team during routine site inspections.

5.2 Re-vegetation

Application of grass seed and permanent planting will take place progressively once works have progressed to bulk earthworks and permanent works. Re-vegetation is not required at this early stage.

5.3 Quarrying

No aggregate sourcing will occur as part of this SSEMP.

6 ECOLOGICAL REQUIREMENTS

Appendix C outlines areas that require ecological input prior to and / or during construction. The following sections outline site specific requirements in regards to ecology. It is anticipated that

following further site inspections due to be carried out by the project ecologists, the requirements outlined in this section may evolve.

Salvage and relocation procedures are required for various species as specified in the Ecological Management Plan. All salvage procedures will be carried out in accordance with the relevant Wildlife Permits and handling of species identified below will not take place until the necessary permits have been approved.

6.1 General requirements

- A suitably experienced ecologist will undertake a site walkover of the full alignment in conjunction with project landscape architects to identify specific vegetation and trees near the works footprint that may be possible to retain. A follow up assessment will be undertaken by an arborist if required.
- Areas marked as 'vegetation to be retained' on the attached drawings will be marked on site to provide a visible barrier for the contractor carrying out site vegetation clearance works.
- A suitably qualified ecologist will remain involved throughout vegetation clearance and provide expert input where required.
- Ecologically sensitive areas as identified on the attached maps in Appendix C will be marked on site and 'no-go areas' will be communicated clearly to the contractor.

6.2 Herpetofauna

6.2.1 Skinks

Skinks that could be potentially present within native vegetation in the Project footprint include the common skink, spotted skink and brown skink. At locations identified as potential lizard areas in the attached drawings (Appendix C), the following procedure will be carried out in regards to skink salvage methods:

- Areas identified in Appendix C as potential lizard areas will be marked off on site and be deemed 'no-go zones' until approval has been granted by the project ecologists.
- Approximately 10 weeks prior to commencement of vegetation clearance, reptile shelters known as Artificial Cover Objects (ACOs) will be deployed (single layered 500mm x 450mm onduline sheets).

- ACO checks and manual searches will take place to capture skinks, beginning two weeks prior to vegetation clearance. Checks will occur 3 times per week. ACOs will be deployed during early spring and checks and manual searching activities will take place during warmer months (November – December).

Manual searches will include:

  - Turning over or pulling apart cover objects (e.g. coarse wood debris); and
  - Raking of leaf litter or ground cover.

- Construction (machinery) assisted salvaging will take place during vegetation clearance activities that may include:
    - Mulching of low stature non-woody vegetation;
    - Turning over of large cover objects that cannot be searched manually (e.g., large decomposing logs); and
    - Searching epiphytes (on felled trees).
- All captured skinks will be placed in a container along with leaf litter and relocated into the nearest relocation site on the same day of capture.
- A physical barrier may then be deployed such as a silt fence to prevent skinks from migrating back into the project footprint.
- Capture and release methods will be carried out in accordance with the EMP.

6.2.2 Geckos

Geckos that may be present within the native forest patches include the Ngahere gecko (otherwise known as the Southern North Island Forest gecko) and the Barking gecko (otherwise known as the Wellington green gecko), both of which are classified as 'At Risk'.

At locations identified as high-risk lizard areas in the attached drawings (Appendix C), the following procedure will be carried out in regards to gecko salvage methods:

- Each site identified as suitable for geckos will be searched on three separate nights during warmer months (November – December) beginning at least three weeks prior to vegetation clearance using standard nocturnal searching techniques using powerful spotlights. If geckos are detected, then an additional 10 person hours searching will be undertaken until no further geckos are found. If geckos continue to be found, then gecko searching will continue until a maximum of 150 person hours is undertaken.
- All captured geckos will be placed in a container along with leaf litter and transported to the nearest relocation site on the same night of capture.
- To minimise mortality and injury to geckos not detected during salvaging operations, felled trees will be de-limbed and vegetation ('slash') will be stockpiled against remaining native vegetation indefinitely. In time, this will enable geckos to disperse out of stockpiles and into the adjacent forest. We expect this to significantly reduce effects as standard vegetation clearance protocol is to mulch vegetation.
- Capture and release methods will be carried out in accordance with the EMP.

6.3 Powelliphanta traversii Ōtakia (Ōtaki Snails)

Powelliphanta traversii Ōtaki snails (Ōtaki snails), which are classified as 'Nationally Critical'. Locations of potential habitat for Ōtaki Snails have been identified in Appendix C and require the following procedure to be carried out:

- The areas marked as potential Ōtaki snail habitat will be marked as a 'no-go zone' on site.

- The search area will be traversed by the project ecologists and local iwi systematically to ensure a relatively even coverage. The search team will form a moving front traversing snail habitat within the area during warmer months (November – December).
- Salvaging will involve searching through:
    - Leaf litter
    - Fallen logs and old tree stumps
    - Beneath aboveground tree roots
    - Gaps in existing tree trunk bark formation (for young/juveniles)
    - Niches at accessible mature tree branch/trunk interface (for young/juveniles)
    - Other moist, sheltered habitats/microclimates
- Any Ōtaki snails found will be placed in a container along with leaf litter and relocated into the nearest relocation site on the same day of capture.
- The project ecologists will advise of any further requirements and deem the area to be cleared for works prior to any works commencement in these areas.

6.4 Peripatus (Velvet Worm)

One area of potential habitat for Velvet Worm has been identified in Appendix C. At this location, the following is required in accordance with the EMP:

- The area marked as potential Velvet Worm habitat will be marked as a 'no-go zone' on site.
- Once the project ecologists have granted clearance for works to commence in this area, they will be present on site during vegetation clearance.
- Effects on the Velvet Worm will be avoided or minimised through salvaging and relocation of potential habitat, most notably decomposing coarse woody debris (logs and stumps), into adjacent vegetation that will remain outside of the Project footprint.
- Once relocation of habitat is complete, the project ecologists will approve the area for future works.

When relocating woody debris, shade and moisture conditions will be retained (i.e. woody debris will be covered with a tarpaulin to ensure the debris is not exposed or damaged. Direct transfer to the receptor site will be required and debris will be relocated on the same day it is salvaged from its original location. The release site will need to be completely shaded in a moist environment with similar characteristics in regards to shade, moisture, surrounding vegetation and vegetation cover.

6.5 Pipit

Locations for potential pipit habitat have been identified in Appendix C south of Mary Crest and in the dunes north Ōtaki. In accordance with the EMP, pipit surveys will take place in spring/summer prior to commencement of vegetation clearance. Due to the large area of potential habitat, it is not practical to mark off the entire area. Instead, the attached drawings with the identified areas will be provided to the contractors undertaking the works and a pre-site meeting will take place with the project ecology team to ensure that the survey requirements have been satisfied and clearance work can commence.

The survey will be carried out by a qualified ornithologist and will involve grid-searching the project designation within the areas identified as potential pipit habitat. The number of birds seen and site locations will be recorded on GPS. If pipit are found, vegetation clearance will need to be stopped until the pipit have vacated the area.

6.6 Dotterel

Dotterel requirements are isolated to the Otaki River area only as identified on Appendix C drawings. Prior to proof bore works required in this area, the following will take place:

- A suitably qualified ecologist is to survey the site 48 hours prior to works commencement.
- Ideally, this will take place prior to the breeding season (early – mid September)
- If works cannot commence before then, bird deterrents will need to be established on site prior to the start of the breeding season.
- If dotterels are found within close proximity to the work site (within 50m) work must stop immediately and wait until chicks have fledged their nests and approval to proceed has been granted by the ecologist.

6.7 Native Log Salvage

Areas where native log salvage is required have been identified in Appendix C. Prior to works commencing in these areas, the project ecologist will carry out an inspection and physically mark vegetation that may need to be transported to an allocated area off-site. Areas identified for native log salvage in Appendix C will remain as 'no go areas' until the project ecologist has provided confirmation of which trees / vegetation this applies to.

6.8 Ecological Monitoring

There are no ecological monitoring requirements associated with these works. Pre-works ecological surveys will be carried out as outlined in the previous sections.

6.9 Aquatic Species Relocation

Relocation of fish species will not be required under this SSEMP.

7 STREAMWORKS

Streamworks are not required under this SSEMP and therefore requirements specific to streamworks activities will not be included at this stage.

Pre-construction ecological inspections and associated monitoring (turbidity and macroinvertebrate) will be the only activities carried out within watercourses.

Plant is not permitted to carry out any works within watercourses and any vegetation clearance will be carried out outside of the wetted channels. Tree felling activities within close proximity to watercourses will ensure that trees are directed away from the watercourse and do not impact on the channel or stream banks. Watercourse locations have been marked on the attached drawings as Appendix C.

8 STORMWATER

Works under this SSEMP are restricted to land-based activities and there is no need to install temporary or permanent culverts for access at this early stage of the project. Stormwater requirements in regards to permanent stormwater treatment areas, flood response procedures, culvert sizing and conveyance of stormwater through the site will be addressed in future SSEMPs.

8.1 Transport of Materials

Prior to carting materials on / off site, a risk assessment will be made by the site supervisor to assess whether there is potential for the material to create an air discharge concern. In cases where a risk is identified, materials will be covered to prevent air discharge to adjacent properties and / or SH1 and local roads.

9 AIR QUALITY

High risk locations in regards to air quality have been identified in Appendix C. Particular care will be taken during the planning stage of the works to ensure that nuisance air discharges are prevented from crossing the boundary. Given the minor nature of works during the enabling works phase, the risk of air quality issues as a result of the works is relatively low. Mulch generated from site clearance works will be utilised immediately to spread around the site As well as providing an effective tool for erosion control, this will help to ensure that dust potential is minimised. All works will be carried out in general accordance with the mitigation measures outlined in the CAQMP with emphasis placed on ensuring that adjacent landowners are not impacted by odour from site facilities, portaloos, storage of materials including mulch, or idling machinery.

10 NOISE AND VIBRATION

High-risk areas in regards to potential noise and vibration effects as a result of works have been identified in Appendix C. All high-risk locations identified within the overarching CNVMP are relevant to this SSEMP given the project-wide vegetation clearance.

In accordance with the CNVMP, works carried out under this SSEMP will generally be restricted to take place between the hours of:

- 0630 and 2000hrs on weekdays; and
- 0730 and 1800hrs on Saturdays.

As far as practicable, works will be scheduled to avoid noisy activities in areas identified as sensitive receivers on the attached drawings between 0630 – 0730hrs in the morning, and between 1800 – 2000hrs in the evening to align with noise level criteria outlined in the CNVMP.

It is not anticipated that works will be required to take place outside of normal working hours for works outlined in this SSEMP. In the event that this changes, the procedures outlined in the CNVMP will be followed.

Given that these activities will often be the first in any given area of the site, it is anticipated that community nervousness will be high during the early stages of works. Therefore, the primary mitigation measure in regards to reducing the impacts from construction noise and vibration will be ongoing effective community consultation, particularly in areas identified in Appendix C as high-risk.

Majority of the enabling works activities will generate relatively low noise and vibration output and are of short duration during normal working hours. Noise will be monitored regularly during these activities to ensure that levels are within the noise and vibration criteria limits. Vegetation clearance works and use of the hydro-vacuum unit for location of services are expected to generate the most noise and additional measure swill need to be implemented as follows:

Noisy plant such, mulchers, stump grinders and hydro-vacuum units will be located wherever practicable, away from neighbouring properties identified as high-risk in Appendix C. Where this is not possible, these will be positioned such that the dominant noise source is directed away from the receiver location, and if required, shielded using temporary barriers and/or or natural buffers such as sand dunes will be utilised.

Neighbouring residential properties will be kept up to date with works in their area.

Stockpile locations will take into consideration any residential properties and will be located away from neighbouring boundaries where practicable.

Noise and vibration monitoring will take place throughout the works to assess the impacts on adjacent properties at various locations. In the event that noise or vibration criteria is exceeded, mitigation options will be reassessed in an effort to comply with the construction limits, and a site specific noise ‘schedule’ will be submitted to Kapiti Coast District Council in accordance with the CNVMP.

11 TRAFFIC

With the project interfacing with local roads and SH1 at multiple locations, it is important that potential impacts on local traffic movements are managed accordingly. A Site Specific Traffic Management Plan has been included as Appendix C relevant to the works due to commence under this SSEMP.

APPENDIX A – SSEMP AUTHORS

Name	Role	Company	Input
Liz Deakin	Terrestrial Ecologist	Tonkin and Taylor	Section 6
Genevieve Smith	Contaminated Land specialist	BECA	3.6, 4.1.5
Brendan Shanks	Noise and Vibration specialist	Marshall Day Acoustics	3.4, 9
Ed Breese	Stakeholder, Communications and Compliance Manager	Tonkin and Taylor	All
Alice Naylor	Environmental Manager	Higgins	All

APPENDIX B – CONSULTATION RECORD

Group	Date
Community Liaison Group (CLG)	Consultation commenced on 3rd July 2017 at the first CLG meeting – consultation will continue throughout the approval phase.
Community Liaison Group (CLG)	7th August 2017 – Second meeting held to receive feedback. Only one query received requiring action as follows: • Query regarding names of streams on Appendix C and whether they are the confirmed names of each watercourse. ACTION: AN to follow up with Opus prior to final approval. Follow-up – the current names align with project documentation and will remain as they are at this stage.

APPENDIX C – DRAWINGS

Ecological requirements

Noise and vibration – sensitive areas

Air Quality – sensitive areas

Archaeological high risk areas

Location of works – general given the nature of the works

ECOLOGY LEGEND:

TERRESTRIAL ECOLOGY REQUIREMENTS:

LIZARD SURVEYS, SALVAGING AND MONITORING

NATIVE TREE LOG SALVAGE

PERIPATUS MANAGEMENT

POWELLIPHANTA TRAVERSI OTAKI SURVEY

BIRD SURVEY

PIPIT SURVEY

BANDED DOTTEREL SURVEY

NOISE VIBRATION LEGEND:

VIBRATION - LOW RISK (RESIDENTIAL)

VIBRATION - LOW RISK (COMMERCIAL)

AIR QUALITY:

AIR QUALITY SENSITIVE RECEIVERS

DRAINAGE LEGEND:

DESIGNATION

RAILWAY DESIGNATION

EXISTING STREAMS

STORMWATER WETLAND/POND

SITE COMPOUNDS:

HARD STAND AREA

SITE ENTRY AND EXIT

ARCHAEOLOGICAL HIGH-RISH AREAS:

SITE ARCHAEOLOGICAL

SITES ARCHAEOLOGICAL-AERIAL-PHOTO

LANDSCAPE:

EXISTING VEGETATION RETAINED

EXISTING NZTA SITE INVESTIGATIONS:

DCP5XX 2014-16 OPUS DYNAMIC CONE PENETRATION TESTS

BH2XX 2016 OPUS BOREHOLE LOCATION

DETAILED DESIGN SITE INVESTIGATIONS:

BH8XX 2017 BOREHOLE LOCATION

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Peka Peka to Ōtaki Expressway

Fletcher HIGGINS Beca Tonkin+Taylor

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Discipline: CIVIL

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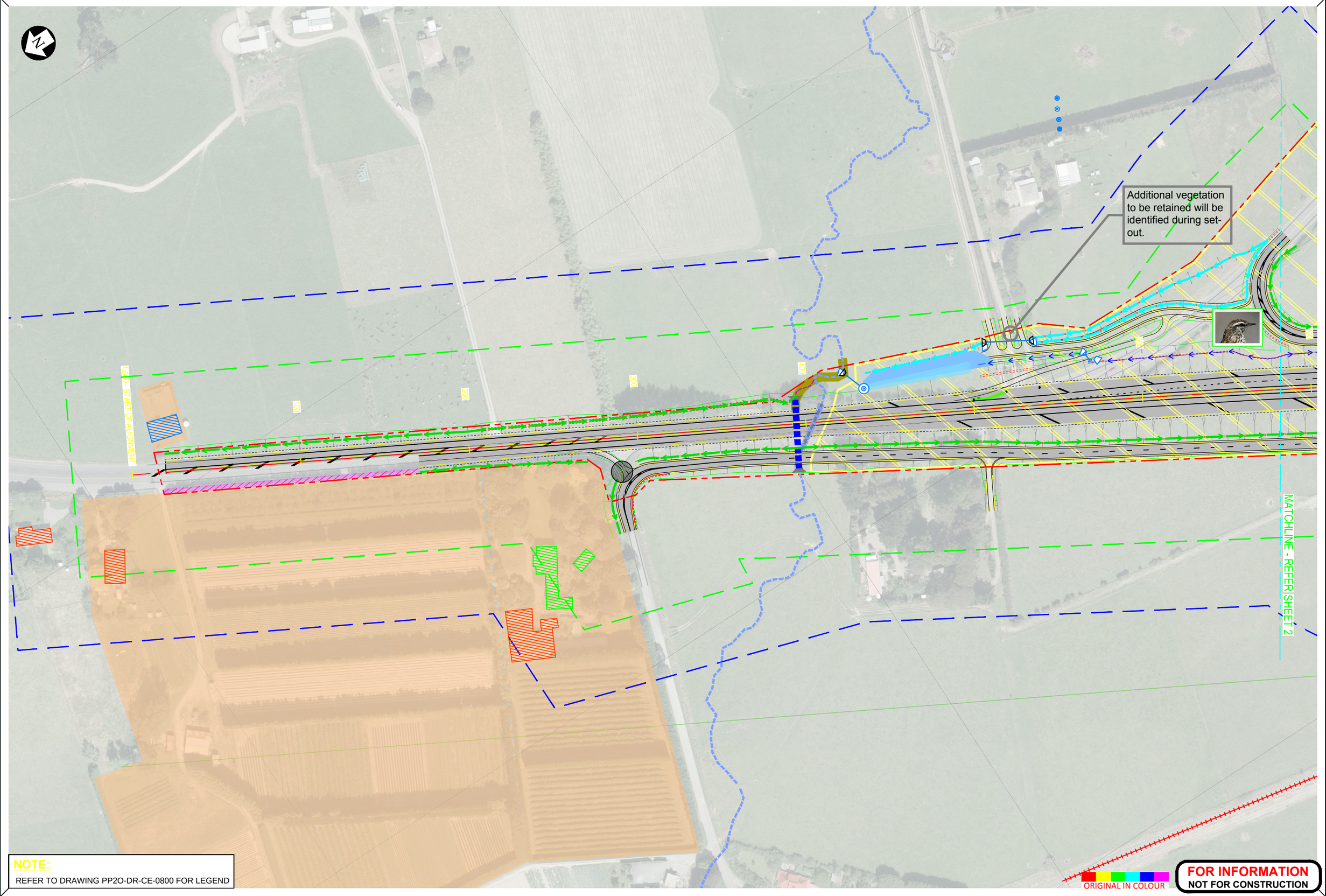

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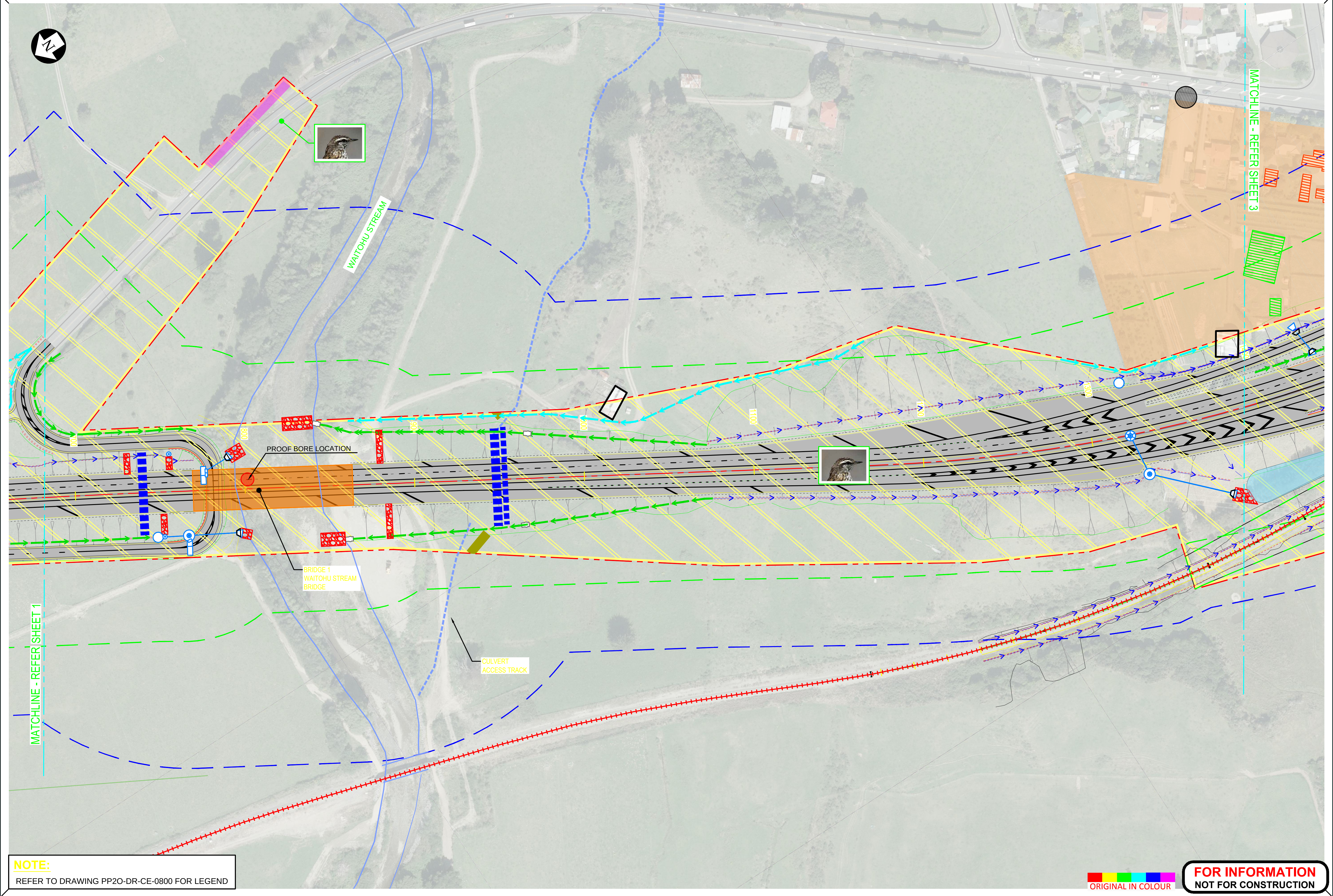

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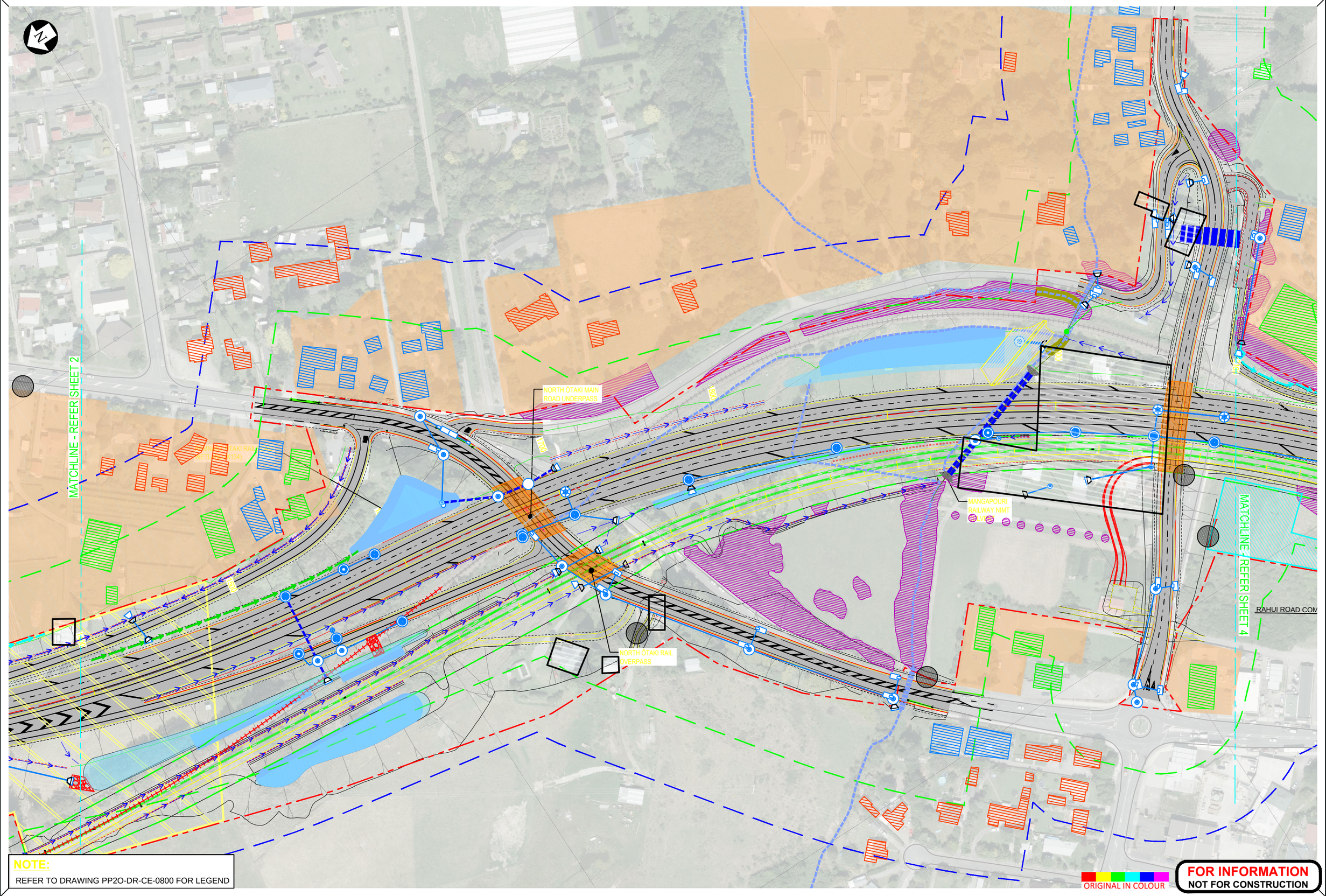

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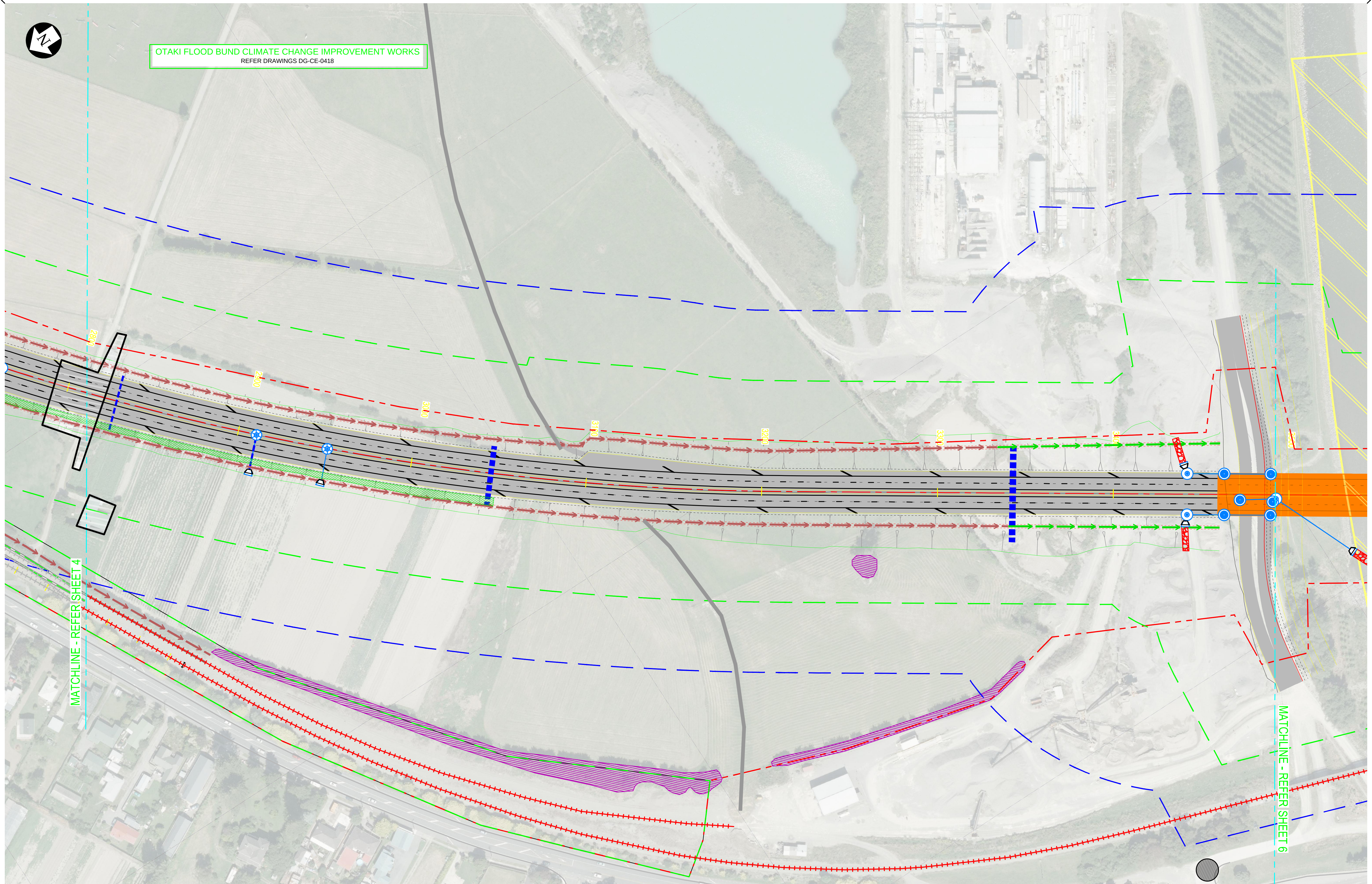

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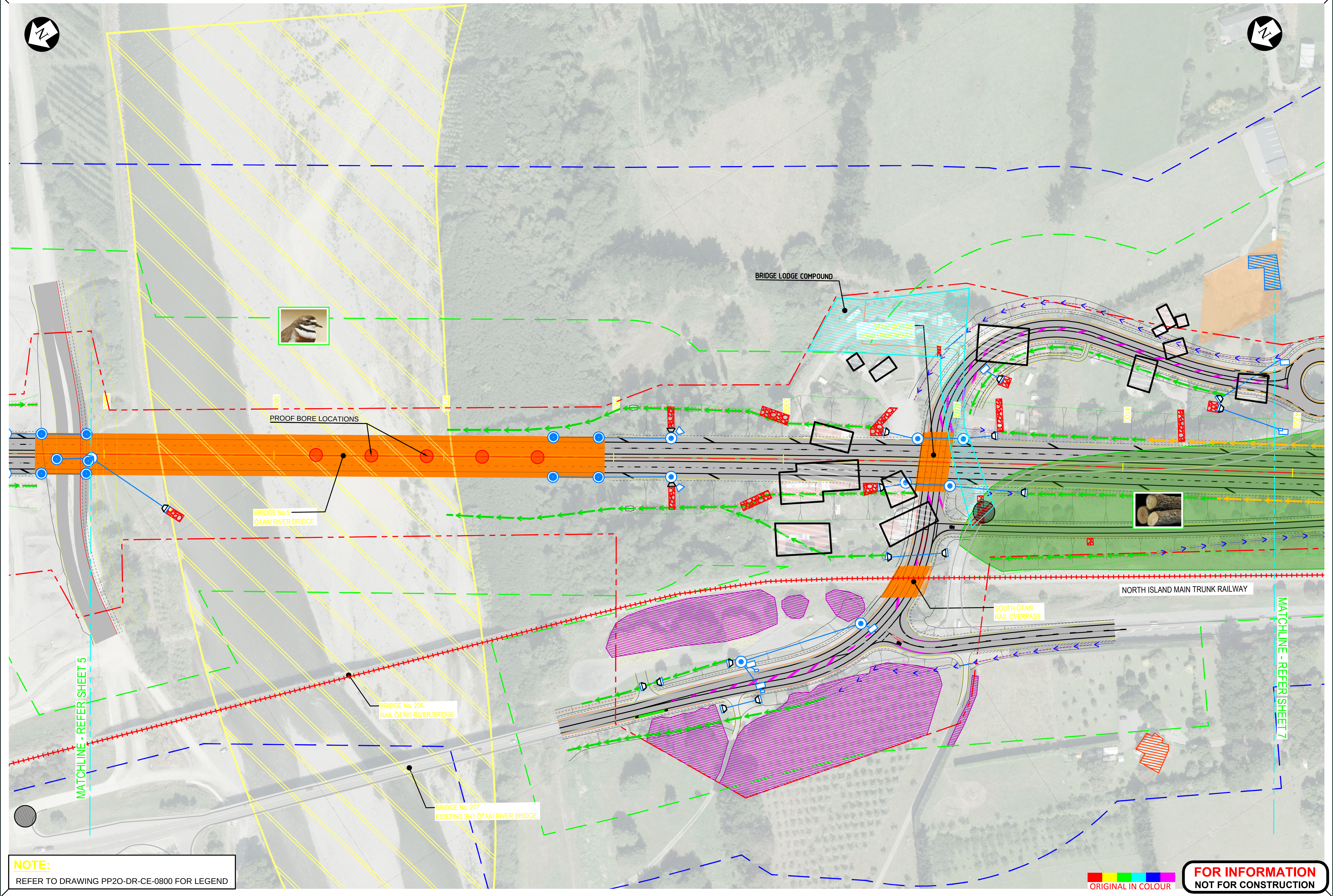

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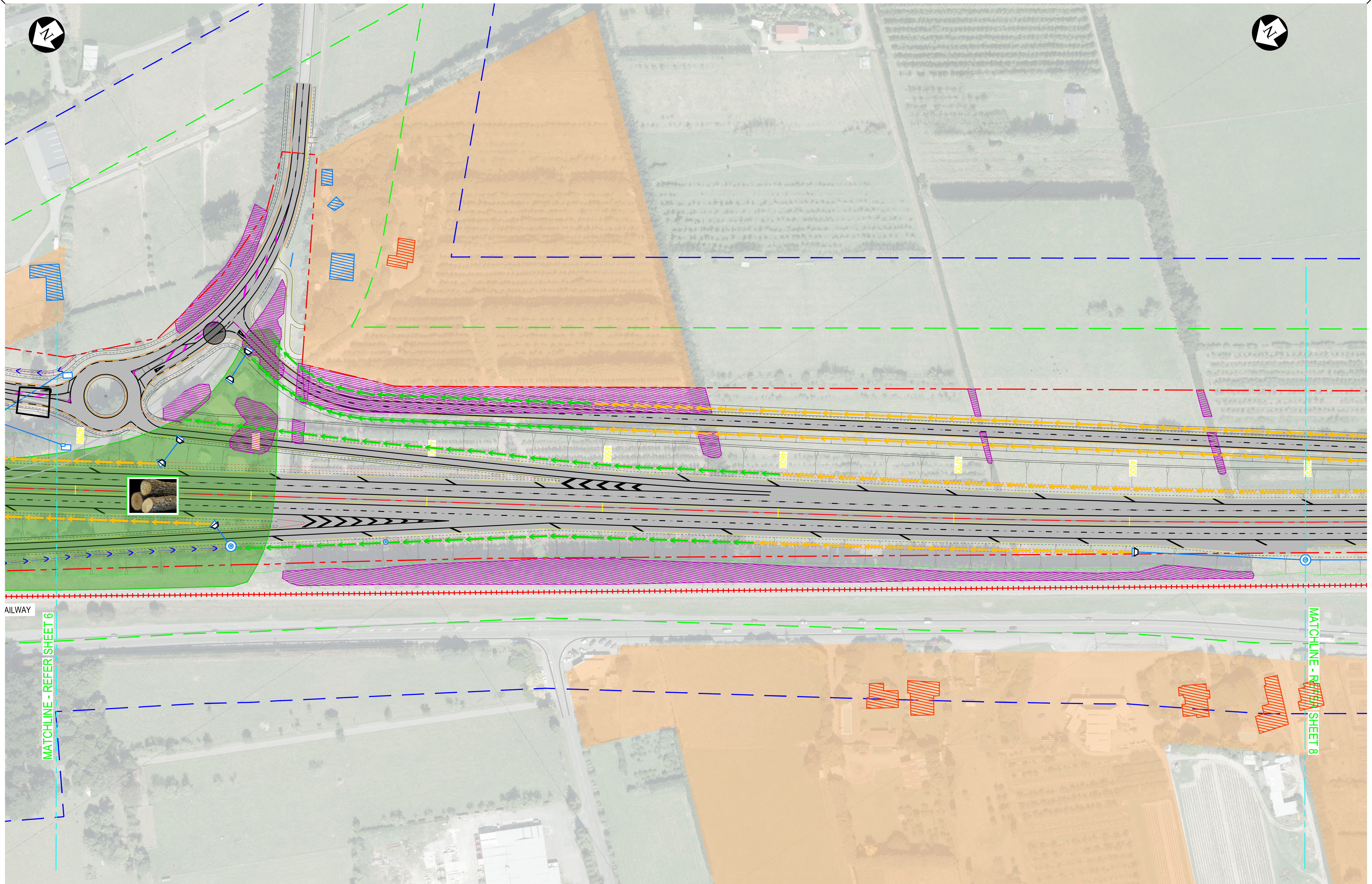

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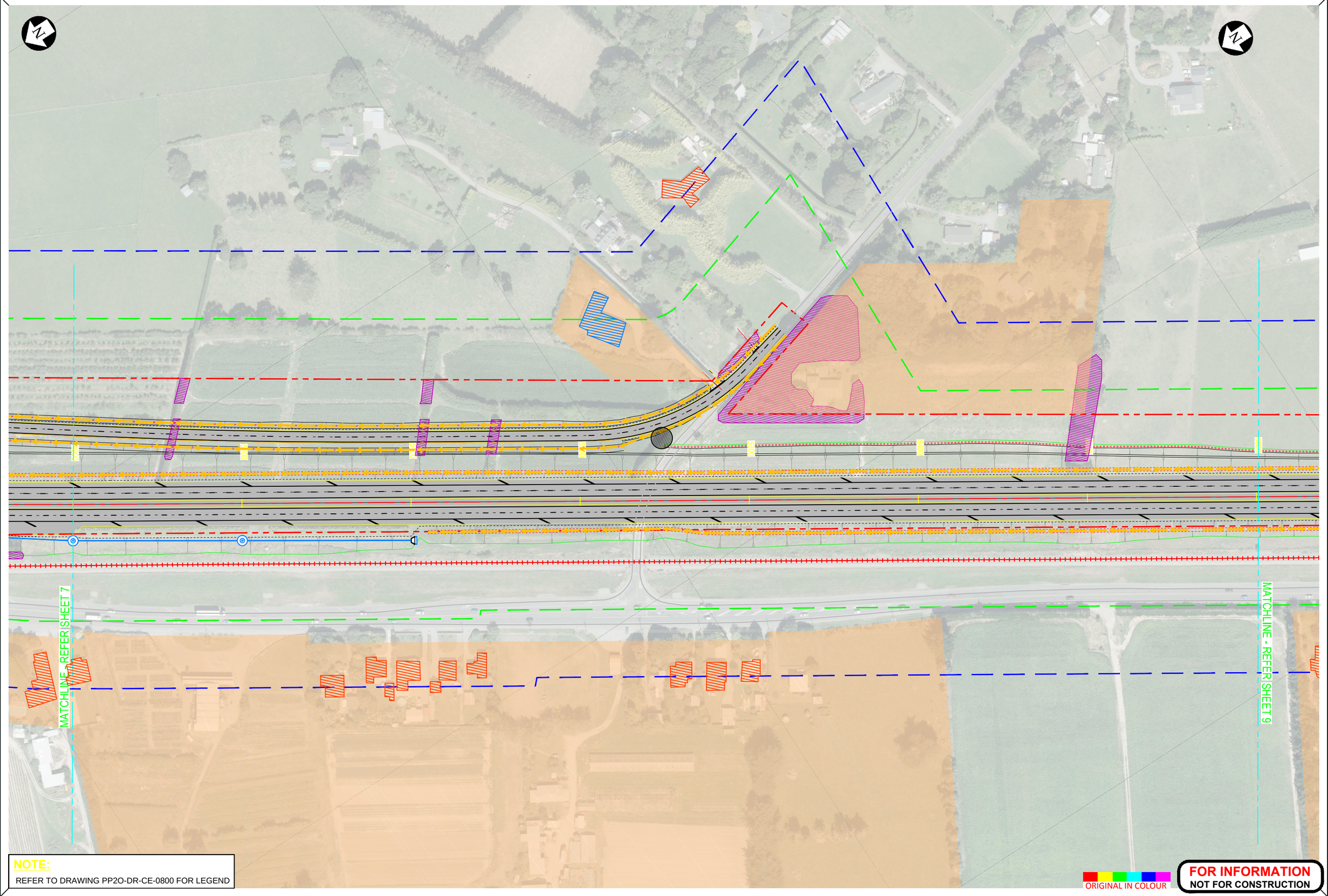

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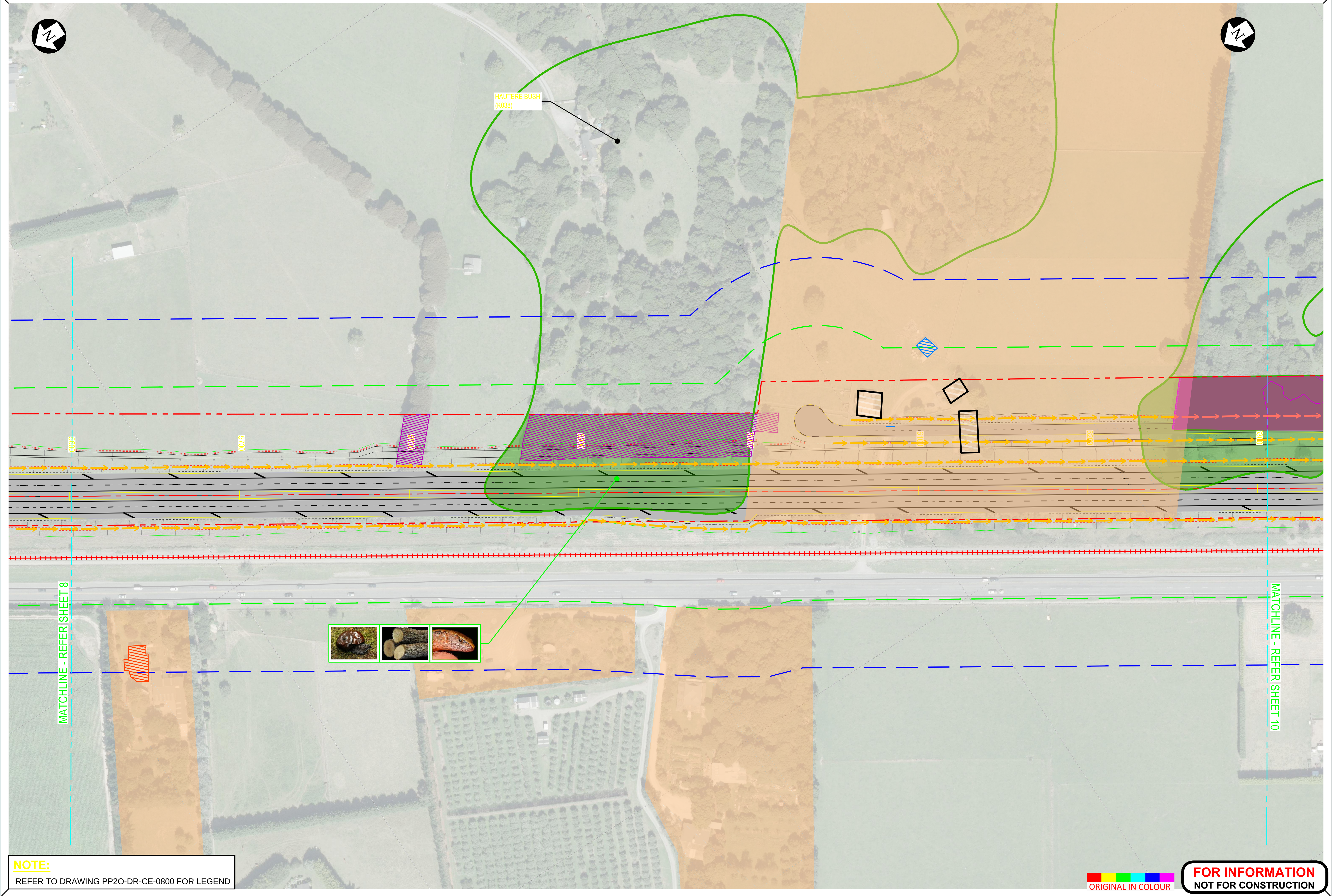

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HIGGINS

Beca

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Discipline: CIVIL

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NATIVE TREES

COTTLE'S BUSH (K037)

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NOTE:

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ORIGINAL IN COLOUR

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No.	Revision	By	Chk	Appd	Date
B	SSEMP FOR INFORMATION	WW			14.09.17
A	SSEMP FOR INFORMATION	AK	GD	AN	20.07.17

Scale (A1) 1:1000	Design	AN	13.07.17	Approved For Construction
Scale (A3)	Drawn	AK	13.07.17	
	Dsg Verifier			
	Drg Check			Date

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NZ TRANSPORT AGENCY WAKA KOTAHI

Peka Peka to Ōtaki Expressway

IFC_Logo_SMALL_Colour_40%.jpg

Beca HIGGINS Tonkin+Taylor

Subject: SSEMP PW1

Title: SHEET 10 OF 18

Discipline: CIVIL

Drawing No.: SSEMP-PW1-10

Rev.: B

Document No. \\W2PSP.FCC.INTERNAL\DAVWWWROOT\200\207\270 SECTOR GENERAL\PRECAST WORKING SHOP DRAWINGS\PP2O\FOR ALICE\PP2O-DR-CE-0801-0818 2017-08-28- STANDARD\PP2O-DR-CE-0801-0818_14-09-ZMIANA TABELKI, REWIZJI- DO WYRZUCANIA.DWG

ORIGINAL SIZE A1 : DO NOT SCALE

IF IN DOUBT ASK

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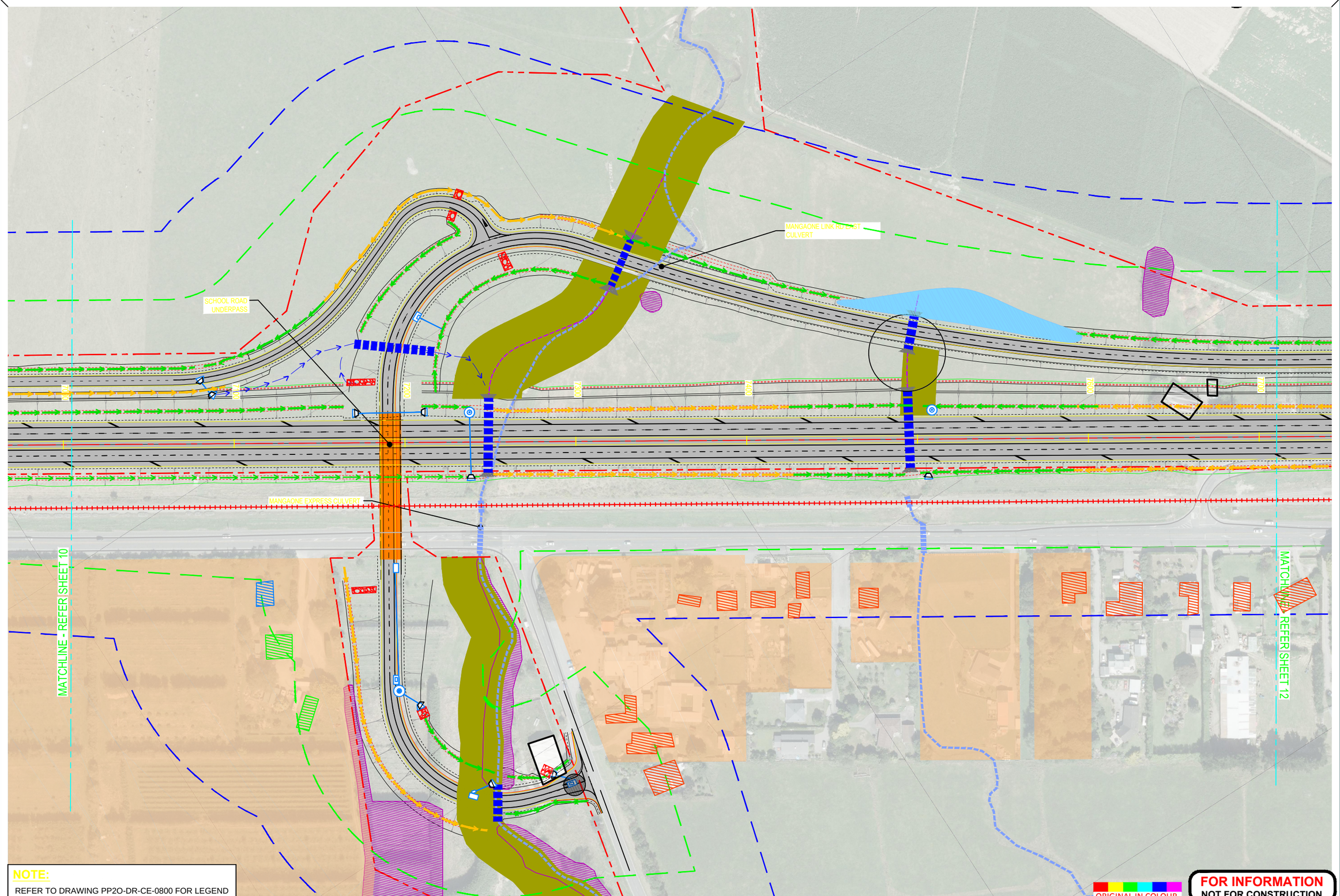

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A	SSEMP FOR INFORMATION	AK	GE	AK	20.07.17

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Drg Check			Date

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NZ TRANSPORT AGENCY WAKA KOTAHI | Peka Peka to Ōtaki Expressway | IFC_Logo_SMALL_Colour_40%.jpg | HIGGINS | Beca | Tonkin+Taylor

Subject: SSEMP PW1
Title: SHEET 11 OF 18

Discipline: CIVIL
Drawing No.: SSEMP-PW1-11
Rev.: B

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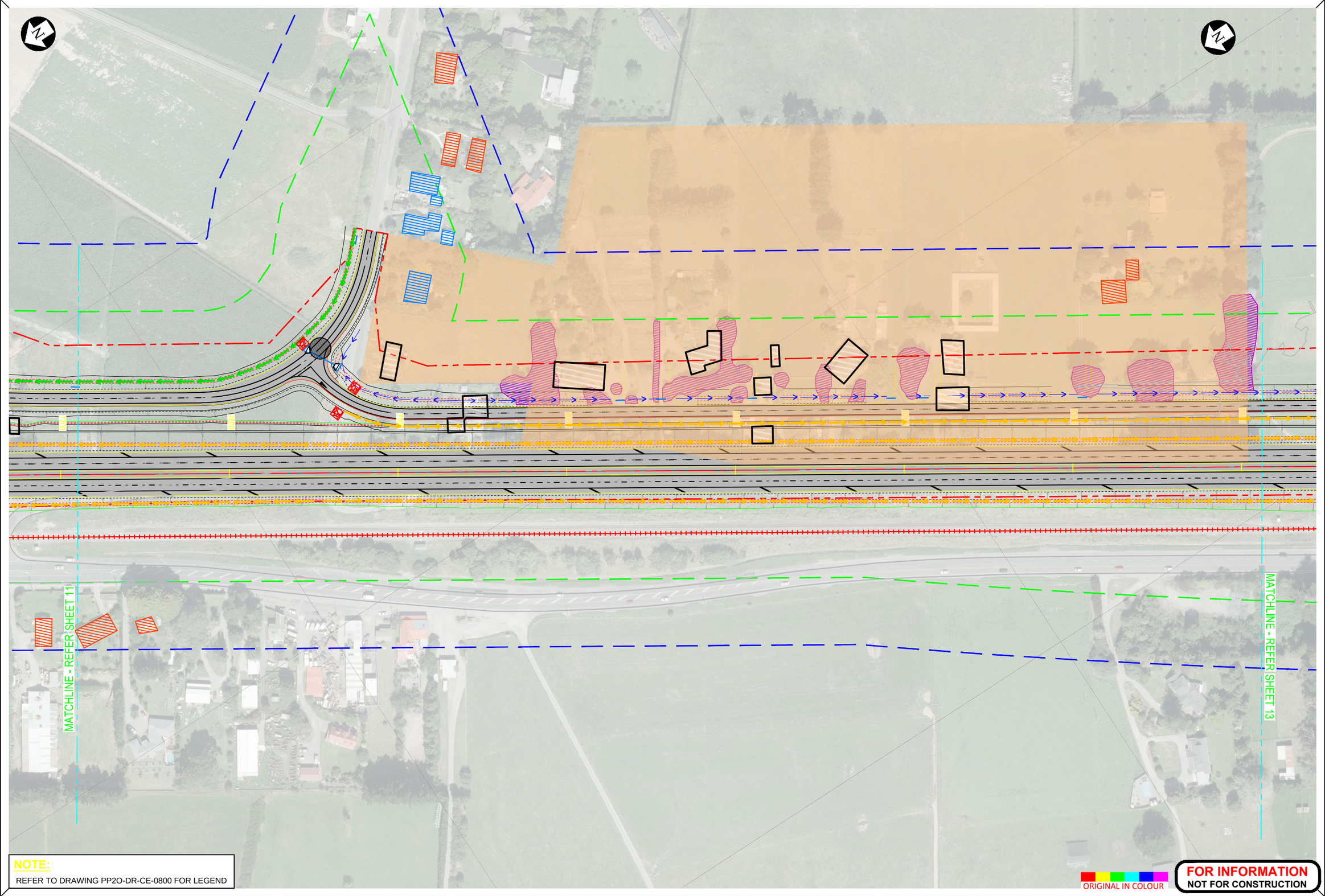

NOTE:

REFER TO DRAWING PP2O-DR-CE-0800 FOR LEGEND

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No.	Revision	By	Chk	Appd	Date
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A	SSEMP FOR INFORMATION	AK	GD	AN	20.07.17

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Drawn	AK	13.07.17	-
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Subject: SSEMP PW1
Title: SHEET 12 OF 18

Discipline: CIVIL
Drawing No.: SSEMP-PW1-12
Rev.: B

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STANDARD\PP2O-DR-CE-0801-0818 2017-08-28- STANDARD\PP2

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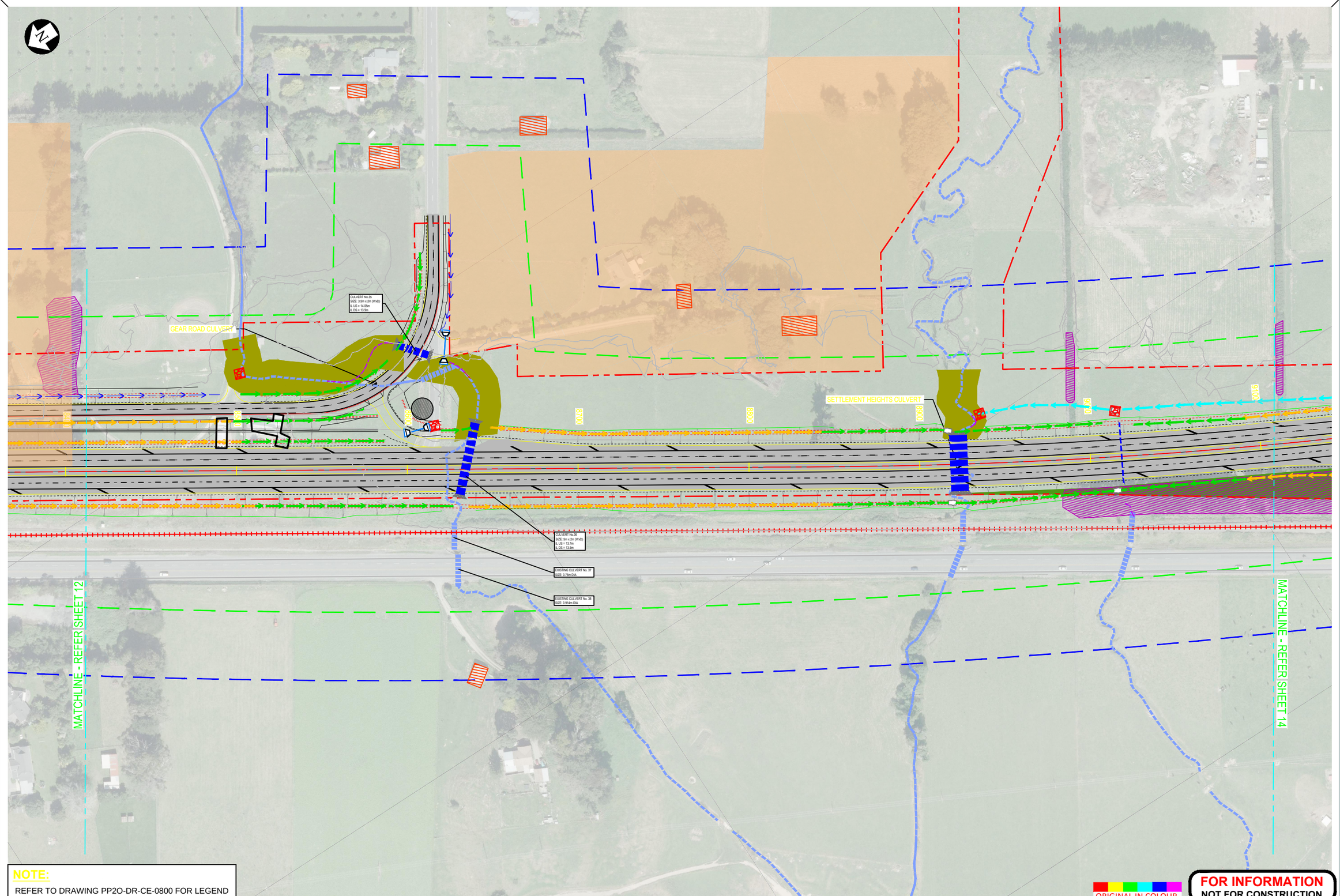

NOTE:
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No.	Revision	By	Chk	Appd	Date
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A	SSEMP FOR INFORMATION	AK	GC	AK	20.07.17

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Date

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Subject: SSEMP PW1
Title: SHEET 13 OF 18

Discipline: CIVIL
Drawing No.: SSEMP-PW1-18
Rev.: B

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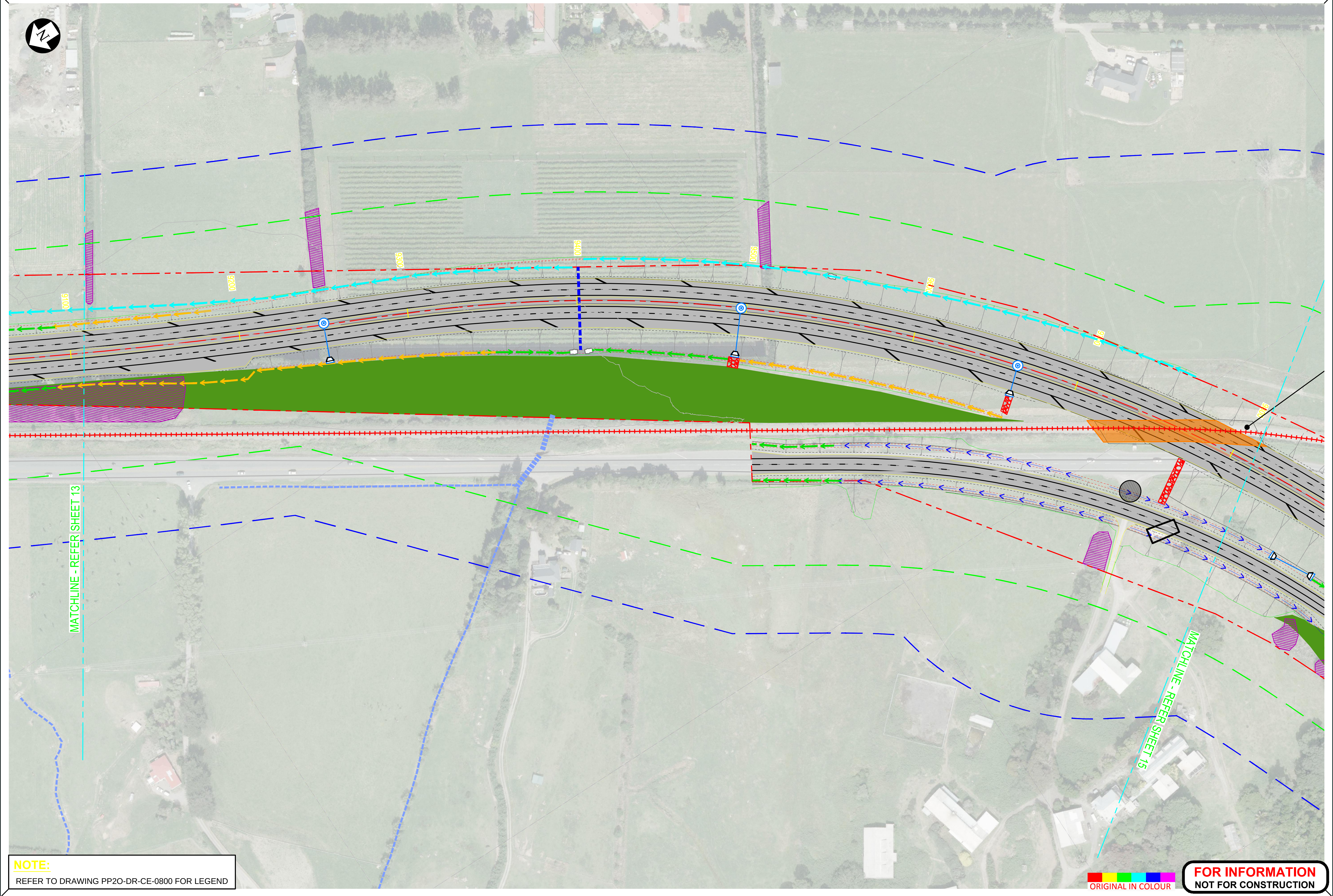

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No.	Revision	By	Chk	Appd	Date
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	Drawn	AK	13.07.17
Scale (A3)	Dsg Verifier		
	Drg Check		

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Title: SHEET 14 OF 18

Discipline: CIVIL

Drawing No.: SSEMP-PW1-14

Rev.: B

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ORIGINAL SIZE A1 : DO NOT SCALE

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LEGEND:

- DESIGNATION
- RAILWAY DESIGNATION
- EXISTING STREAMS
- PROPOSED STREAMS DIVERSIONS
- EXISTING CULVERTS
- PROPOSED CULVERTS
- STORMWATER WETLAND/POND

ECOLOGICAL PLANTING:

- RIPARIAN PLANTING
- TERRESTRIAL MITIGATION PLANTING
- WETLAND BUFFER PLANTING
- SWAMP FOREST PLANTING
- LOW STATURE WETLAND PLANTING
- EXISTING VEGETATION RETAINED

MARY CREST RAIL OVERPASS

EXISTING CULVERT No.48
SIZE: 0.91m x 0.9 (WxD)

EXISTING CULVERT No.49
SIZE: 0.9m DIA

EXISTING CULVERT No.51
SIZE: 1.2m x 1.3m (WxD)

EXISITING CULVERT No.52
SIZE: 1.2m DIA

CULVERT No.53
SIZE: TWIN 2.5m x 2m
SEE NOTE 1
IL US = 20.0m
IL DS = 19.2m

EDWIN CULVERT

PROPOSED VALENTINE WETLAND
(TREATMENT & ATTENUATION)

CULVERT No.50
SIZE: 1.2m DIA
IL US = 22.1m
IL DS = 20.2m

EDWIN STREAM DIVERSION

SWALE CROSSES OVER CULVERT

JEWEL STREAM DIVERSION

EXISTING STREAM TO BE REMOVED

Additional vegetation is to be retained in this area where possible (to be identified during final set-out).

ORIGINAL IN COLOUR

FOR INFORMATION
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No.	Revision	By	Chk	Appd	Date
B	SSEMP FOR INFORMATION	WW			14.09.17
A	SSEMP FOR INFORMATION	SJH	GD	AN	- -

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Design	AN	13.07.17	Approved For Construction
Drawn	SJH	10.08.17	
Dsg Verifier			
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NZ TRANSPORT AGENCY WAKA KOTAHI

Peka Peka to Ōtaki Expressway

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Subject: SSEMP PW1

Title: SHEET 15 OF 18

Discipline: CIVIL

Drawing No.: SHEET 15 OF 18

Rev.: B

Document No.

ORIGINAL SIZE A1 : DO NOT SCALE

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\\WZPPSP.FCC.INTERNAL\DATA\WWWROOT\2000\27270 SECTOR GENERAL\PRECAST WORKING SHOP DRAWINGS\PP2O\FOR ALIC\EPP2O-DR-CE-0801-0818 2017-08-29- STANDARD\PP2O-DR-CE-0801-0818_14-09-2MANA TABELKI, REWIZJI- DO WYRZUCANIA.DWG

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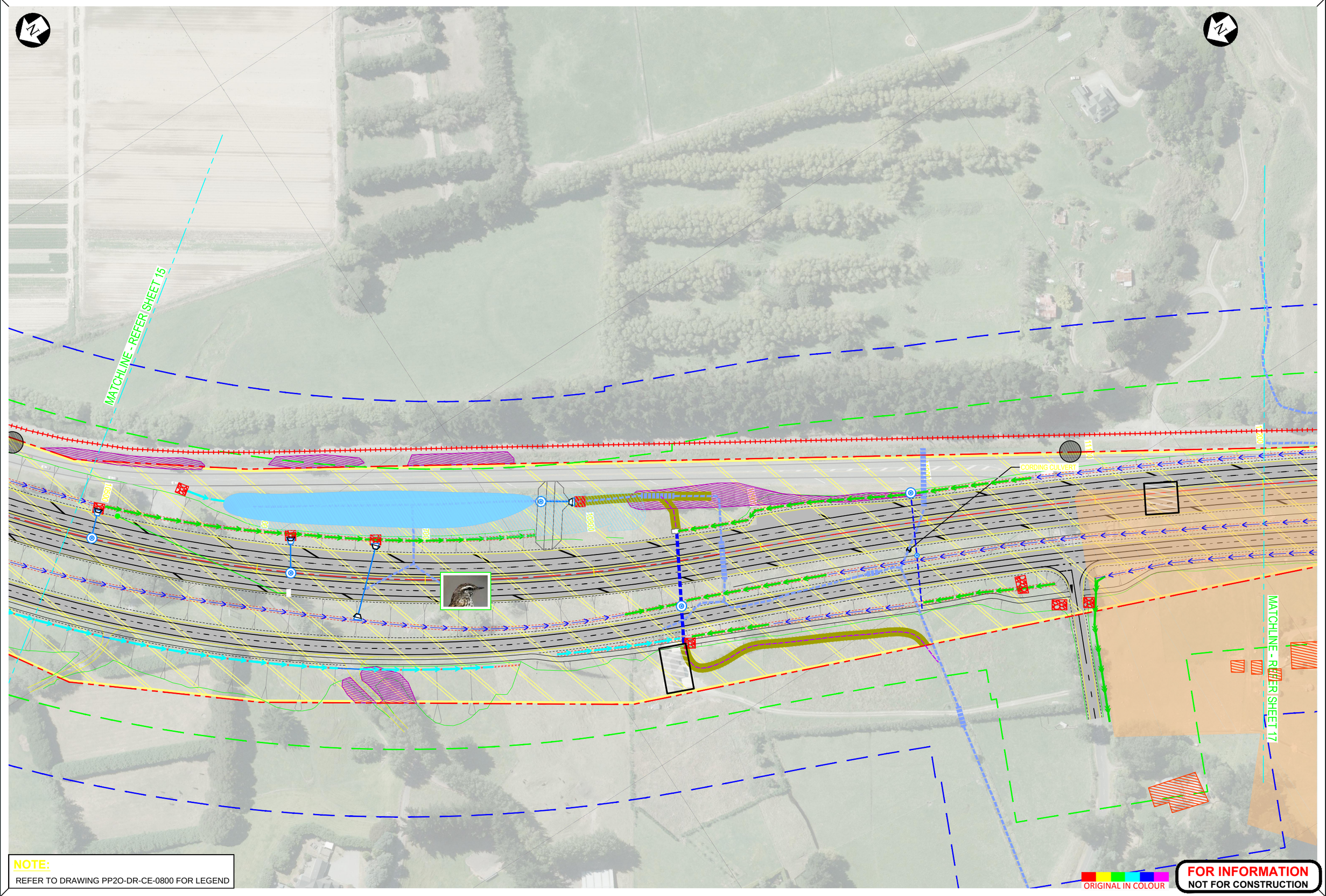

NOTE:
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A	SSEMP FOR INFORMATION	AK	GD	AN	20.07.17

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NZ TRANSPORT AGENCY WAKA KOTAHI
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Subject: SSEMP PW1
Title: SHEET 16 OF 18
Discipline: CIVIL
Drawing No.: SSEMP-PW1-16
Rev.: B

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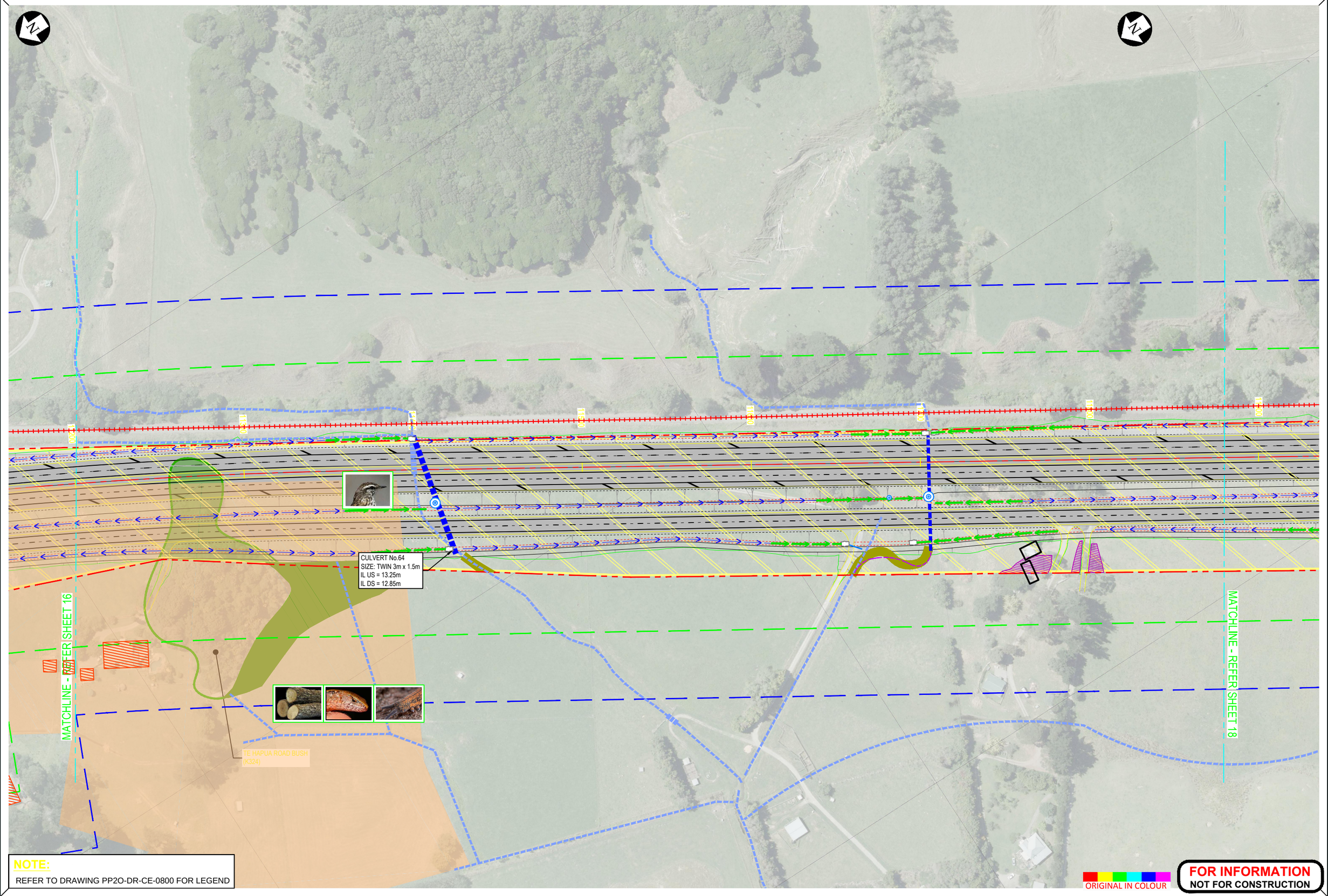

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Scale (A3)

Design	AN	13.07.17	Approved For Construction
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Dsg Verifier			
Drg Check			Date

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NZ TRANSPORT AGENCY WAKA KOTAHI
Peka Peka to Ōtaki Expressway
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Subject: SSEMP PW1
Title: SHEET 17 OF 18

Discipline: CIVIL
Drawing No.: SSEMP-PW1-17
Rev.: B

ORIGINAL SIZE A1 : DO NOT SCALE

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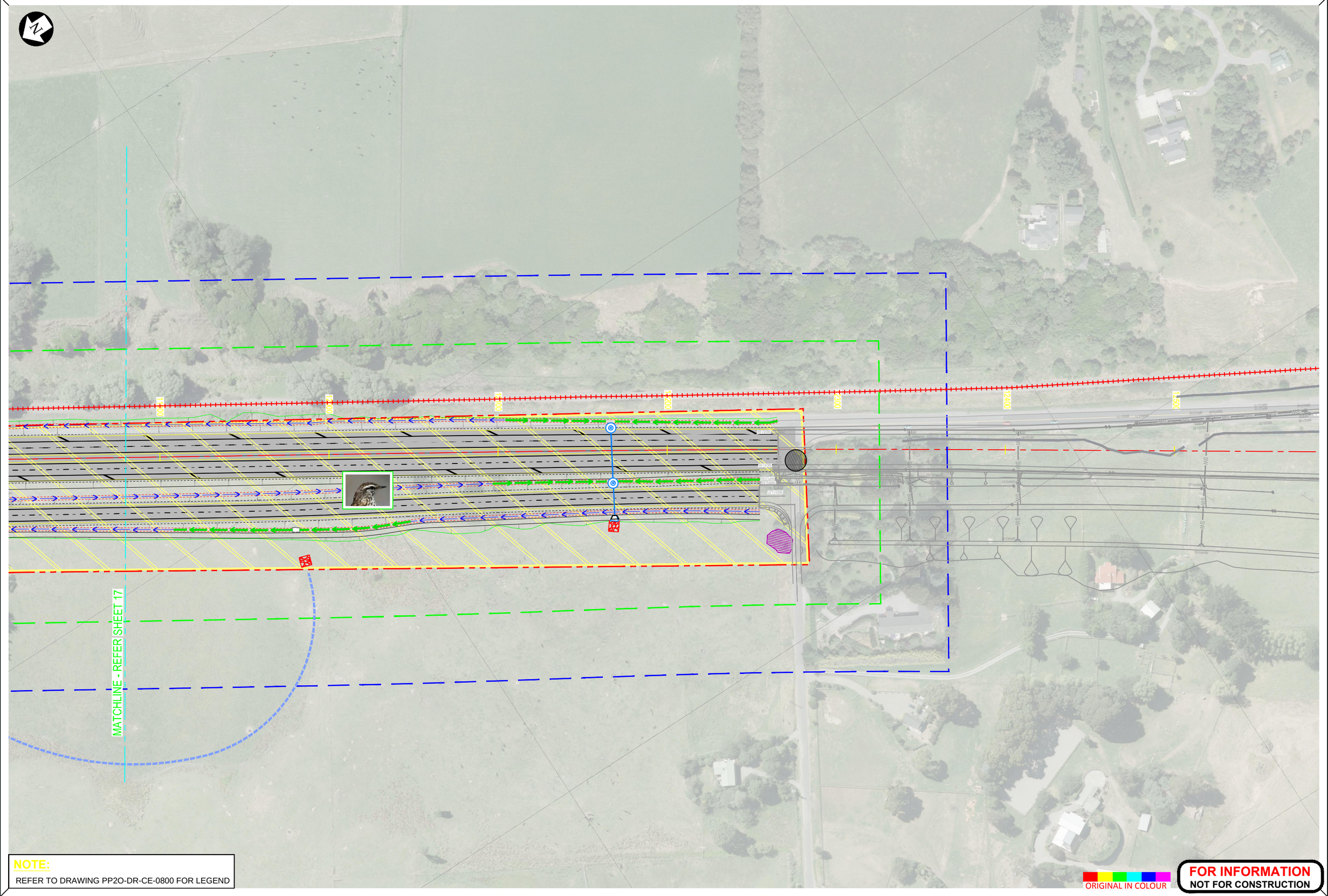

NOTE:
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A	SSEMP FOR INFORMATION	AK	GD	AN	20.07.17

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Scale (A3)

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Drawn	AK	13.07.17	
Dsg Verifier			
Drg Check			Date

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NZ TRANSPORT AGENCY WAKA KOTAHI | Peka Peka to Ōtaki Expressway | IFC_Logo_SMALL_Colour_40%.jpg | HIGGINS | Beca | Tonkin+Taylor

Subject: SSEMP PW1
Title: SHEET 18 OF 18

Discipline: CIVIL
Drawing No.: SSEMP-PW1-18
Rev.: B

Document No. \\W2PPSP.FCC.INTERNAL\DAVWWWROOT\200\27\270 SECTOR GENERAL\PRECAST WORKING SHOP DRAWINGS\PP2O\FOR ALICE\PP2O-DR-CE-0801-0818 2017-08-28 STANDARD\PP2O-DR-CE-0801-0818_14.09-ZMIANA TABELKI, REWIZJI- DO WYRZUCANIA.DWG

ORIGINAL SIZE A1 : DO NOT SCALE

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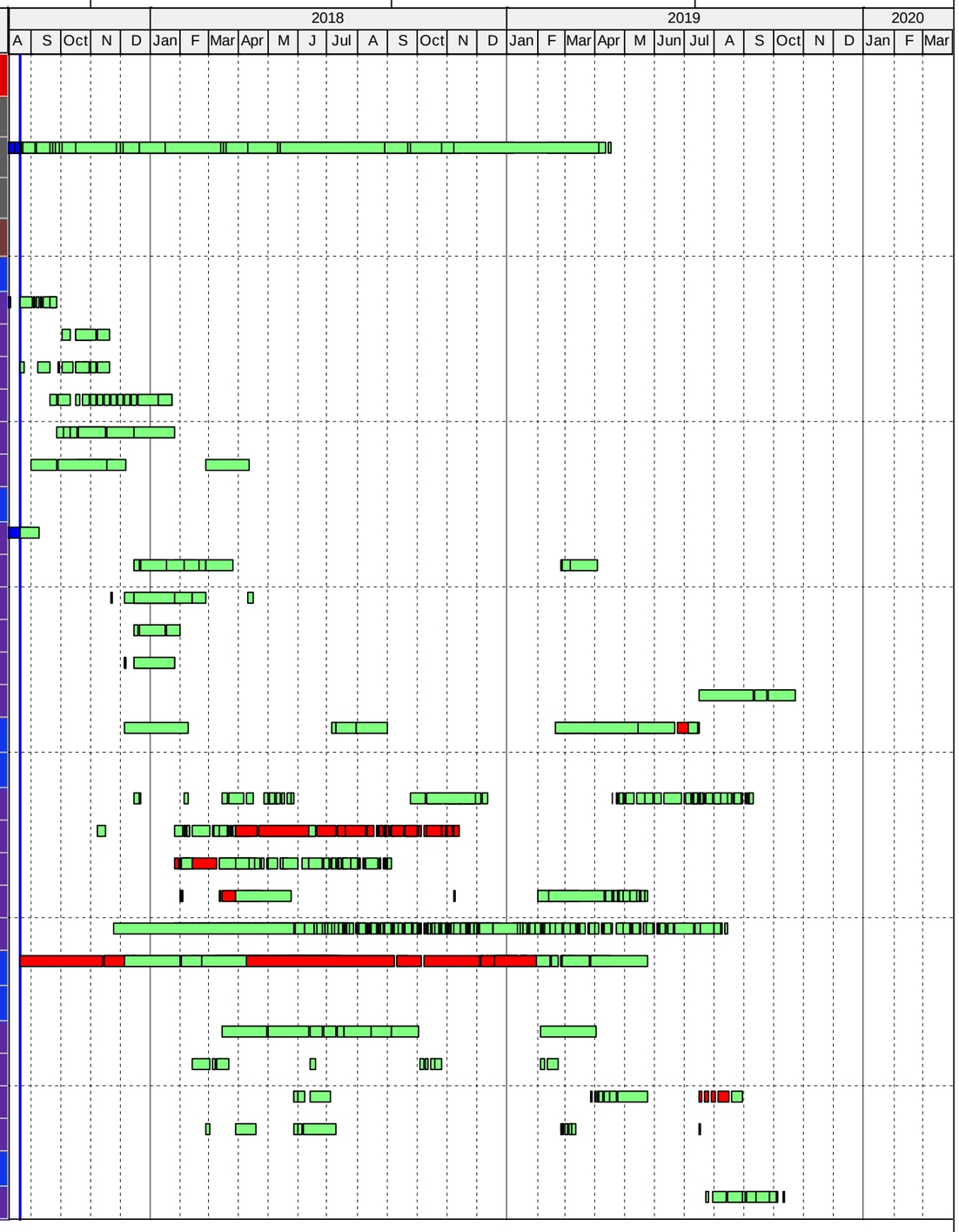
APPENDIX D – PROGRAMME

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
	Peka Peka to Otaki Expressway - Master Tar	810	634	25-Nov-16 A	30-Mar-20
	Project Milestones	810	634	25-Nov-16 A	30-Mar-20
	Pre Construction	579	403	25-Nov-16 A	18-Apr-19
	Construction	660	630	26-Jun-17 A	24-Mar-20
	Zone 1 (North): Ch 0 - 3800	635	605	26-Jun-17 A	18-Feb-20
	Accommodation Works	176	153	19-Jul-17 A	11-Apr-18
	High Risk Archaeological Site Investigations	27	27	02-Aug-17 A	26-Sep-17
	Waitohu Area (Ch 0-800)	35	35	02-Oct-17	20-Nov-17
	North Otaki Area (Ch 800-1900)	65	65	21-Aug-17	20-Nov-17
	Rahui Rd Area (Ch 1900-2600)	78	78	20-Sep-17	22-Jan-18
	North Otaki River (Ch 2600-3300)	76	76	27-Sep-17	25-Jan-18
	Winstones Accommodation Works (Ch 3300-3800)	145	145	31-Aug-17	11-Apr-18
	Utilities & Services	563	533	26-Jun-17 A	22-Oct-19
	Service Location	38	15	26-Jun-17 A	08-Sep-17
	Chorus	310	310	15-Dec-17	03-Apr-19
	Electra	91	91	21-Nov-17	16-Apr-18
	First Gas	23	23	15-Dec-17	31-Jan-18
	KCDC (WW & SW)	28	28	05-Dec-17	25-Jan-18
	ITS	70	70	17-Jul-19	22-Oct-19
	Earthworks	387	387	05-Dec-17	16-Jul-19
	Structures	448	448	07-Nov-17	10-Sep-19
	Bridge 1 - Waitohu Stream Bridge (Ch 750-850)	419	419	15-Dec-17	10-Sep-19
	Bridge 2 - North Otaki Underpass (Ch 1650)	248	248	07-Nov-17	12-Nov-18
	Bridge 3 - North Otaki Rail Overpass (Ch 1650)	152	152	26-Jan-18	04-Sep-18
	Bridge 4 - Rahui Road Underpass (Steel) (Ch 2070-2080)	322	322	31-Jan-18	24-May-19
	Bridge 5 - Otaki River Bridge (Ch 3450-3800)	416	416	24-Nov-17	14-Aug-19
	Rail Relocation Works	427	427	21-Aug-17	24-May-19
	Drainage	384	384	12-Feb-18	30-Aug-19
	Box Culverts	256	256	15-Mar-18	01-Apr-19
	Circular Culverts	253	253	12-Feb-18	22-Feb-19
	Carriageway Drainage	312	312	28-May-18	30-Aug-19
	Local Road Drainage	343	343	26-Feb-18	18-Jul-19
	Pavements	142	142	29-May-19	16-Dec-19
	North Tie in to Waitohu Br (Ch 0-800)	59	59	23-Jul-19	11-Oct-19



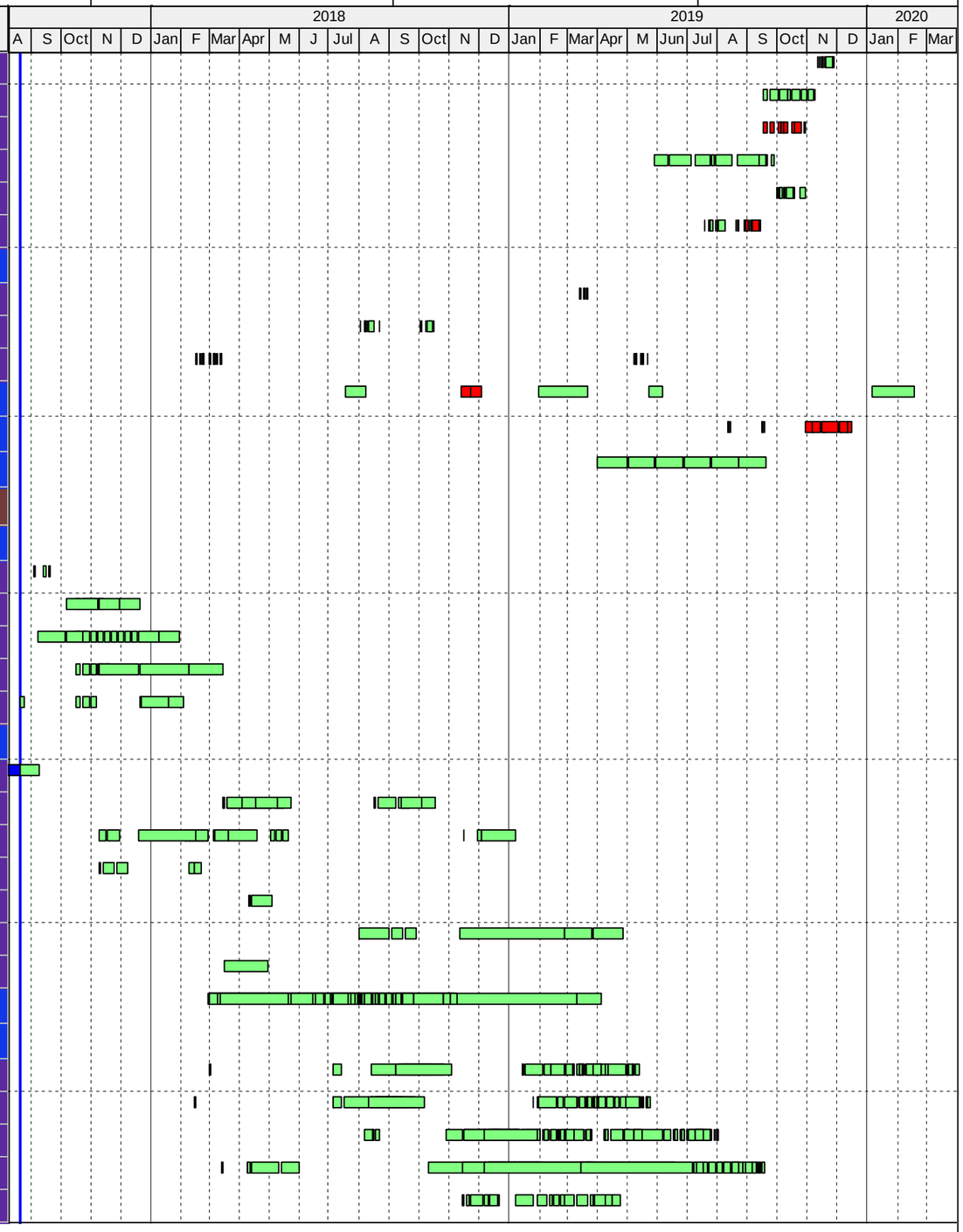
NZ TRANSPORT AGENCY WAKA KOTAHI

Peka Peka to Otaki Construction Summary

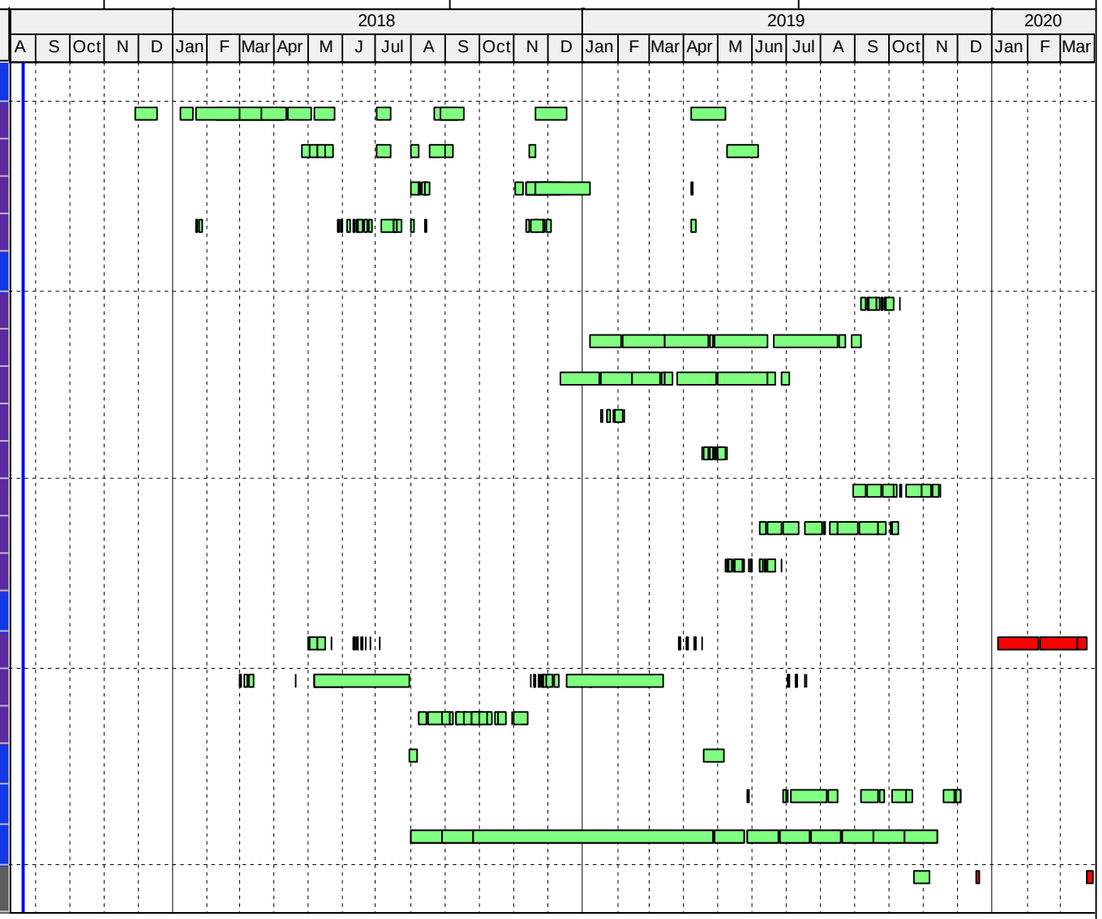
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Fletcher HIGGINS
Beca
Tonkin+Taylor

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
	Waitohu Br South Lead-in (Ch 850-1000)	13	13	11-Nov-19	27-Nov-19
	Waitohu Br to Otaki Nth Underpass (Ch 1000-1650)	38	38	17-Sep-19	08-Nov-19
	Otaki Nth Underpass to Rahui Rd Underpass (Ch 1650-2(	30	30	17-Sep-19	29-Oct-19
	Rahui Rd Underpass to Otaki River Br (Ch 2075-3300)	87	87	29-May-19	27-Sep-19
	Otaki Bridge North Lead-in (Ch 3300-3450)	20	20	01-Oct-19	29-Oct-19
	North Otaki Interchange On and Off Ramps (Ch 1200-170	41	41	19-Jul-19	13-Sep-19
	Local Roads	309	309	16-Feb-18	22-May-19
	Taylor's Road (Ch 280-775)	7	7	14-Mar-19	22-Mar-19
	Otaki North Main Road (Ch 1575-1950)	54	54	02-Aug-18	16-Oct-18
	Rahui Road (Ch 2000-2100)	309	309	16-Feb-18	22-May-19
	Traffic Management	489	489	16-Feb-18	18-Feb-20
	Traffic Services	90	90	12-Aug-19	16-Dec-19
	Landscaping	120	120	01-Apr-19	19-Sep-19
	Zone 2 (South): 3800 - 12200	660	630	26-Jun-17 A	24-Mar-20
	Accommodation Works	136	136	21-Aug-17	15-Mar-18
	High Risk Archaeological Site Investigations	13	13	04-Sep-17	20-Sep-17
	Mary Crest Bridge Area (Ch 9700-12300)	53	53	06-Oct-17	20-Dec-17
	North Mary Crest Area (Ch 7400-9700)	91	91	08-Sep-17	30-Jan-18
	Te Horo Underpass Area (Ch 4050-7400)	96	96	16-Oct-17	15-Mar-18
	South Otaki Bridge Area (Ch 3800-4050)	108	108	21-Aug-17	02-Feb-18
	Utilities & Services	437	407	26-Jun-17 A	26-Apr-19
	Service Location	25	15	26-Jun-17 A	08-Sep-17
	Chorus	151	151	15-Mar-18	17-Oct-18
	Electra	276	276	09-Nov-17	07-Jan-19
	First Gas	62	62	09-Nov-17	20-Feb-18
	KCDC	18	18	10-Apr-18	04-May-18
	ITS	177	177	01-Aug-18	26-Apr-19
	Arcus Water	29	29	16-Mar-18	30-Apr-18
	Earthworks	271	271	28-Feb-18	05-Apr-19
	Structures	395	395	14-Feb-18	18-Sep-19
	Bridge 6 - South Otaki Underpass (Ch 4000)	293	293	01-Mar-18	13-May-19
	Bridge 7 - South Otaki Rail Overpass (Ch 4000)	313	313	14-Feb-18	24-May-19
	Bridge 8 - Te Horo Underpass (Ch 7190 - 7200)	242	242	07-Aug-18	02-Aug-19
	Bridge 9 - Mary Crest Rail Overpass (Ch 9650 - 9850)	375	375	14-Mar-18	18-Sep-19
	Mary Crest Access Culvert (Ch 9500)	102	102	14-Nov-18	24-Apr-19



Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
	Drainage	365	365	28-Nov-17	06-Jun-19
	Box Culverts	345	345	28-Nov-17	08-May-19
	Circular Culverts	272	272	26-Apr-18	06-Jun-19
	Carriageway Drainage	167	167	01-Aug-18	09-Apr-19
	Local Road Drainage	300	300	22-Jan-18	11-Apr-19
	Pavements	238	238	12-Dec-18	03-Dec-19
	Otaki River Bridge South Lead-in (Ch 3800-4100)	25	25	06-Sep-19	10-Oct-19
	Otaki Gorge to School Rd Underpass (Ch 4100-7185)	167	167	08-Jan-19	05-Sep-19
	School Rd Underpass to Mary Crest Br (Ch 7185-9650)	131	131	12-Dec-18	04-Jul-19
	Mary Crest Br North Lead-in (Ch 9650-9800)	14	14	17-Jan-19	07-Feb-19
	Mary Crest Br South Lead-in (Ch 9800-10100)	14	14	17-Apr-19	09-May-19
	Mary Crest to Te Hapua (Ch 10100-11100)	67	67	30-Aug-19	03-Dec-19
	Te Hapua to Peka Peka (Ch 11100-12200)	89	89	07-Jun-19	09-Oct-19
	Otaki Gorge Interchange On and Off Ramps (Ch 4000-460	36	36	08-May-19	27-Jun-19
	Local Roads	505	505	01-Mar-18	24-Mar-20
	Otaki Gorge Rd (Ch 3900-5240)	465	465	01-May-18	24-Mar-20
	School Road (Ch 6080-8600)	341	341	01-Mar-18	19-Jul-19
	Mary Crest to Peka Peka (Ch 9500-12250)	205	205	31-Jul-18	07-Jun-19
	Traffic Management	265	265	04-Jul-18	03-Aug-19
	Traffic Services	135	135	27-May-19	03-Dec-19
	Landscaping	317	317	01-Aug-18	12-Nov-19
	Completion & Close Out	101	101	23-Oct-19	30-Mar-20



APPENDIX E – DRAFT TECHNICAL SPECIFICATION – LANDSCAPING SITE PREPARATION

Technical Specification

7 September 2017

Revision A

Specification No C5002 “Landscaping – Site Preparation”

Disclaimer

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More information

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REVISION HISTORY					
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			Approved by	Bruce Symmans	
B		For Certification	Prepared by		
			Checked by		
			Approved by		
1		Issued for Construction (IFC)	Prepared by		
			Checked by		
			Approved by		
2			Prepared by		
			Checked by		
			Approved by		

C5002- LANDSCAPING – SITE PREPARATION

The work specified in this section covers the clearing and disposal of existing vegetation (except vegetation identified to be retained), site preparation spraying, pruning and minor landscape earthworks, topsoil / soil mix re-spreading, stockpiling and storage of bulk materials (mulch, peat, and topsoil). For the removal and disposal of existing hardstand surfaces and inorganic debris, refer to specification sections by others.

It is required by the NZTA that highway preparation works shall support topsoil and plant growth within highway landscape treatments.

All measures to protect existing vegetation to be retained (e.g. mature trees, native bush) and features (e.g. archaeological sites) shall be in place prior to any site preparation commencing. These shall be in accordance with any designation and/or resource consent conditions.

C5002.0 Index

C5002.1 Applicability

.1 Precedence

This specification shall be read in conjunction with relevant design and construction information contained in each work package. Any additional or specific technical information included within a work package shall take precedence over the provisions in this specification. In the event of the requirements of the Drawings being at variance with the provisions of this specification then the requirements of the Drawings shall take precedence.

2. General Definitions

The following are definitions of general terminology contained within this document:

- 'The Designer' for the purposes of this specification shall:
  - Be a NZILA Registered Landscape Architect or a qualified Landscape Architect acting under the direction of an NZILA Registered Landscape Architect.

- Act as technical advisor to the Constructor.
- Complete a producer statement at the completion of the contract to confirm that the contract works have been undertaken in accordance with the plans and specification.

- 'The Constructor' refers to the person (or team) responsible for the planning, execution and delivery of the required physical works.

- Where subcontractors are necessary for the execution of physical works they may be referred to as 'the Constructor', 'the Applicator', 'the Supplier' or 'the Installer' as applicable. For the purposes of this specification 'the Installer' and 'the Supplier' refers to the landscape sub-contractor(s) responsible for eco-sourced seed collection, plant propagation and supply, planting, mulching and maintenance of all planting in accordance with the defects liability and maintenance periods specified.

C5002.2 General

1. Scope

To achieve consistency and quality in the delivery of highway landscape treatments the following standard specification sets out the minimum standards for all highway landscape projects. This baseline landscape specification sets the required performance standards, quality and workmanship for highway landscape treatments which are generally part of all highway projects.

Associated with this standard specification shall be landscape plans and plant schedules specific to the PP2O project that include design and quantitative information. Both this Specification and the site specific plans and schedules will form part of the construction contract and pricing package.

The Landscape Works shall be for, but not limited to, the supply of all labour, plant and materials for the construction and completion of the works, including the preparation of the landscape section for the Asset Owner's Manual, in accordance with the Project Drawings, Plant Schedules and Minimum or Principal Requirements.

Constructors, Applicators and Installers should ensure that they are familiar with relevant conditions of any Resource Consent, or Designation, or legal/landowner agreements prior to undertaking any works on the site. The details of this specification do not in any way absolve the need to comply with these conditions. Where this specification is in conflict with the consent conditions the conditions would take precedence over the specification.

2. Use of this Specification

The NZTA seek quality landscape outcomes. In order to achieve this consideration of all aspects of the works is required. This includes: site preparation, pest control, topsoil quality, plant material, standard of planting and associated materials, timing of planting and maintenance.

This specification shall be read in conjunction with the requirements and minimum standards in Principal's Requirements for the project and shall form part of the overall standard specification for Landscaping on the Peka Peka to Otaki Expressway Project. All of the following specifications documents shall be read as a whole.

C5000 – Landscaping – General
C5001 – Landscaping – Quality Assurance
C5002 – Landscaping – Site Preparation
C5003 – Landscaping – Plant and Animal Pest Control
C5004 – Landscaping – Plant Propagation
C5005 – Landscaping – Topsoil Supply
C5006 – Landscaping – Planting
C5007 – Landscaping – Grassed Surfaces
C5008 – Landscaping – Hydro-seeding Grassed (& Specialist) Surfaces
C5009 – Landscaping – Defects Liability and Maintenance

C5002.3 Materials

1. Topsoil

Topsoil is defined as the top layer of soil characterised by the presence of organic matter and meeting the standards as set out in C5005 – Landscaping - Topsoil Supply. Where topsoil is referred to throughout, it may be material as defined above and recovered from on site, **or** a manufactured peat-based soil mix (peat/sand/compost).

2. On site topsoil and re-use of suitable material

The Constructor shall inspect the site together with the Designer to assess the condition of the existing topsoil and define soil-testing locations.

The Constructor shall provide for soil testing for each batch/area of topsoil as appropriate, and submit a report from the soil-testing laboratory including topsoil analysis of physical and chemical properties. This shall be interpreted by a soil scientist and recommendations made to achieve a planting medium suited to the plant species proposed. Any remedial measures would generally seek to address compacted soils, poor or low fertility, levels of contamination.

In the event that the Constructor fails to accept the advice of the soil tests, and plants subsequently die due to the topsoil conditions the Constructor shall be responsible for the remediation of the soil and replacement of those plants.

Peat recovered from on-site shall form the basis of manufactured soil mix for planting. Soil mixes shall comprise peat, sand and compost.

3. Stockpiling and storage

The stockpiling and storage of bulk materials for landscaping works is to be in accordance with Consent Conditions and Principal Requirements.

4. Topsoil care

Topsoil compaction should be avoided, measures include:

- The use of the lightest possible vehicles and machinery when spreading topsoil and/or trafficking planting areas which have been topsoiled.
- Ensure all machinery used is fit for purpose.
- Avoid trafficking completed topsoil areas and limit passes

5. Imported Fill

Imported fill material shall be clean and free of stones, rubble, organic material, contaminants, stumps, branches and construction debris. The Constructor shall co-ordinate with the Designer prior to importing the material to site for placement. For imported topsoil refer to C5005 – Landscaping – Topsoil Supply.

6. Unsuitable Materials

The Constructor shall ensure that all planting is undertaken on suitable material that will sustain the proposed plant species. Unsuitable materials would include:

- Soil that is too weak to provide support for new planting
- Soil containing rubbish or contaminated materials
- Soil containing excessive amounts pest plant material

The Constructor may supply a methodology to remediate unsuitable materials, including how the volume of pest plants will be reduced and managed. This shall be approved by the Designer prior to commencement.

Should dormant seed or plant pest seed be present or identified onsite, the Constructor shall supply a methodology to control any infestation. This shall be approved by the Designer prior to commencement.

Failure to identify unsuitable material or plant pest emergence would not alleviate the Constructor of their responsibilities to control these issues or any infestation.

C5002.4 Preparation

1. Erosion and Sediment Control

For all areas of earthworks, the Constructor shall ensure that erosion and sediment control measures are installed in accordance with the consent conditions and GWRC requirements.

During the course of the works, the Constructor shall be responsible for undertaking regular inspections and maintaining the erosion and sediment control measures in operational order.

2. Vegetation Clearing

Vegetation clearance is generally required for the following reasons:

- Clearance to enable construction works to be undertaken
- Clearance for safety, visibility/views and removal of hazards
- Clearance of exotic vegetation and/or pest plants in association with native revegetation planting
- Clearance of exotic vegetation and/or pest plants to reduce long term maintenance costs and the spread of pest plants.

For all clearance works associated with plant pest removal, refer to C5003 – Landscaping – Plant and Animal Pest Control; where the use of herbicides in site preparation spraying is covered.

Please Note: The Contractor shall ensure that personnel are familiar with relevant conditions of any Resource Consent, or Designation, or legal/ landowner agreements prior to undertaking any clearing works on the site.

Vegetation Clearance Works

The area of any clearing work shown on the relevant drawings shall be cleared of all exotic trees, shrubs or grass, dependent on height as tabled below. Where identified all vegetation to be retained shall remain undisturbed.

Where native fauna or flora are required to be captured or relocated from the area prior to clearance works, no works shall be undertaken until an instruction to proceed has been issued by the Designer.

Table C5002.1 – Clearing Schedule Table

Material	Location	Height	Clearing Details
Grass and Weeds	Trees located in grassed areas	N/A	Spot spray 1.0m2 area around plant locations, two applications may be required in certain situations. (Specified Below)
Grass and Weeds	Massed Planting	N/A	Blanket spray with herbicide, up to two applications dependent upon the situation and weed type.
Blackberry	All areas to be planted/grassed	All	Cut and mulch and spray regrowth with approved herbicide.
Gorse	All areas to be planted/grassed	All	Cut and mulch, and spray regrowth with 2 applications and spray regrowth with approved herbicide specific for gorse control; marker dye to be added to spray to confirm coverage.
Convolvulus	All areas to be planted/grassed	All	Spray active growth with approved herbicide with marker dye added; monitor closely and re- spray any regrowth.
Exotic Trees and Shrubs	All areas to be planted/grassed	All	Fell, remove and mulch (see notes below)

Notes: (to Table C5002.1)

- Mulch all areas where accessible by mulching equipment. The Constructor shall confirm with the Designer which tree species can be mulched for re-use on site prior to the clearance works.
- Subject to Iwi / Landscape / Ecological requirements.

Vegetation Disposal

Unless otherwise specified, the Constructor is responsible for the disposal of all cleared materials in a safe and legal manner.

Note: Native trees felled may be required to be supplied to iwi for cultural purposes. Constructor is to confirm requirements with designer before felling any native trees.

All material to be retained on site (e.g. approved tree species to be mulched for re-use) shall be stockpiled near to the clearance areas, unless otherwise specified. Material that is mulched shall be stockpiled and left to 'season' for a minimum of 6 months

Areas that are mulched where there are weeds present will need to be carefully controlled to avoid weed contamination to areas where the mulch is used. Care needs to be exercised where there is pest plant material that would re-sprout and take root or is incorporated within mulching of onsite material (e.g. crack willow/*Salix fragilis*, *Tradescantia fluminensis*).

3. Vegetation to be retained

The Constructor shall take all necessary measures to protect existing vegetation to be retained from damage.

Trees to be retained within the project area, as identified on the drawings and/or required by the conditions of Designation, shall be fenced around the drip line and the existing ground levels retained beneath the canopy of the tree.

Vegetation to be retained shall be marked on site by Constructor, and then inspected and approved by the Designer, prior to fencing off.

4. Habitat features

Where identified as part of the landscape works, the Constructor shall take all necessary measures to retain any existing logs, boulders, or woody debris as habitat features within expressway landscape/ planting areas (eg in lizard habitat, *Powelliphanta traversii* and pipit habitat, riparian zones etc.).

Material identified on the drawings to be retained, recovered and reused within the project area, shall be protected or set aside and retained for use. All habitat features shall be positioned as required and installed to avoid dislodgment.

C5002.5 Workmanship

1. General

All plant and equipment shall only be operated by licensed, competent operators.

Only certified applicators shall be responsible for the application of herbicides.

2. Clearing - General

The working area shall be cleared of all vegetation and structures except those specifically required to remain as noted on the Drawings. Refer to specification sections referring to vegetation clearance.

Any works near a watercourse shall be undertaken in accordance with relevant KCDC and GWRC standards.

The extent of clearing shall include all areas affected by cutting and filling together with sufficient additional areas on which to stockpile stripped topsoil.

Unless elements are noted for retention on the drawings; clearing shall include the complete removal of all trees and other vegetation, stumps, inorganic debris, pipes, fences, stone walls, retaining walls, hardstand surfaces, boulders, and other materials as specified.

Where machine clearing is not possible, vegetation shall be removed by hand methods and removed off site. Roots from cleared vegetation shall be removed during cultivation work. Particular care shall be taken around the root zone of trees to be retained. (Note: the root zone extends to at least the extent of a tree's dripline).

The clearing of hardstand surfaces shall include saw cutting where necessary, breaking and excavation of bedding materials and disposal off site.

Cleared materials shown on the drawings for reuse or to be stockpiled for reuse, shall be stored on site in a location to avoid relocation and damage.

3. Tree Clearing

Trees and shrubs to be cleared shall include the removal of stumps.

All cleared material shall be mulched, buried or removed off site and may not be burnt on site. If the Constructor elects to chip cleared material on-site, then the Constructor shall ensure that its operations do not affect neighbouring properties.

4. Pruning

Where trees and other vegetation are being retained but require pruning, the work shall be undertaken by skilled operators. Pruning shall remove all damaged twigs and branches.

Operations are to be carried out using sharp clean implements to give a clean sloping cut with one flat face. Ragged edges of bark or wood are to be trimmed in accordance with current horticultural trade practice.

All approved prunings shall be chipped on site if possible. Retain mulched material on site at agreed locations. Place stockpiles in sufficient number to make the transport to and from planting sites economic and feasible.

5. Site Preparation Spraying

Refer to C5003 – Landscaping – Plant and Animal Pest Control.

6. Topsoil Stripping

Note: See C5005 – Landscaping – Topsoil Supply for topsoil testing and quality prior to acceptance.

Topsoil stripping shall not start until the clearing operation has been inspected and passed, and silt control measures are installed.

All topsoil including turfs, humus and organic materials shall be stripped to the satisfaction of the Designer from areas as shown on the Drawings and / or affected by cutting or filling and stockpiled clear of the areas affected by other works.

Stripped topsoil shall be stockpiled separately and neatly outside of the stripped areas for later re-spreading or re-use. The stockpiles shall be trimmed to a free draining slope to reduce ingress of rainwater. Location and size of stockpiles in flood hazard areas shall meet consent conditions and be approved by Stormwater Designer.

7. Soil Disposal

Unless otherwise specified, the Constructor is responsible for the disposal off site of all cleared materials in a safe and legal manner, including payment of any associated fees as required.

8. Earthworks and Topsoil

Topsoil shall not be placed and spread if the earth-worked sub-surfaces are not to the required standard. All subsurface works, including drainage, shall be completed by the Constructor prior to topsoil spreading. Refer to site preparation and topsoil quality inspections.

Earth worked areas ready for the Constructor to commence landscape work shall be such that earth-worked surfaces:

- Have sufficient drainage and fall to shed water in a controlled manner and prevent ponding and riling (erosion);
- Are free of contaminants, stumps, branches and construction debris;
- Have been placed and compacted in layers no greater than 100mm thick and compacted by track rolling as appropriate to prevent undue settlement.

9. Unsuitable Materials

Should sub-surfaces include unsuitable materials and are not to the required standard, topsoiling shall not proceed until directed by the Designer.

10. Soil Mix

Peat-derived manufactured soil mixes comprising peat/sand/compost shall be thoroughly mixed in situ or as approved by the designer. (Refer Specification C5005 - Landscaping - Topsoil Supply).

11. Topsoil / Soil Mix Placement

Refer to Specification C5005-Landscaping-Topsoil Supply. Topsoil shall be spread from stockpiles to the compacted depth as stated in for the following areas:

- Grassed areas 100mm
- Massed planted areas on engineered ground 300mm – Note: mass planting in areas of natural ground will employ a 'pit planting' methodology.
- Specimen Tree pits 1000mm

Topsoil shall not be placed and spread if the earth-worked sub-surfaces do not have sufficient fall to shed water in a controlled manner to prevent ponding.

Topsoil shall not be placed until the sub-surfaces are at the required standard. Unduly compacted areas (such as in traffic routes) shall be loosened prior to final levelling in readiness for topsoiling.

Topsoil shall not be placed and spread when the ground or topsoil are excessively wet or in a condition which would be detrimental to the work.

Final grading of the topsoil shall be carried out to ensure a true specified level and slope and to avoid dishing or other depressions where water may collect.

The placed topsoil profile shall allow for subsidence so that after settlement the levels shall be the final specified levels.

The Designer shall inspect final topsoil / soil mix depths to ensure they meet specification, after placement and prior to planting.

12. Imported Topsoil

The Constructor shall co-ordinate with the Designer early in the project regarding both the volumes of topsoil required for planting and the specifications for the imported topsoil.

Imported topsoil shall be carefully managed to avoid any contamination, seeds or undesirable material being brought to site.

13. Final Grading

The Constructor shall ensure that:

- All earthworks have been shaped to integrate the works with the surrounding landform.

- All areas to be planted (or grassed) shall have been contoured when the topsoil is reasonably dry and workable to smooth flowing contours with falls for adequate drainage and, removing all minor hollows and ridges.

14. Inspections

The Constructor shall notify the Designer for inspection of the works following:

- Set out for vegetation clearing
- On completion of the clearance
- Formation of wetlands
- During site preparation, identification of sub-surfaces being at the required standard
- Completion of cultivation prior to the placement of stockpiled topsoil, soil mix, or imported topsoil

C5002.6 Completion

The Site Preparation will be deemed complete when all areas are in a clean and tidy condition ready for planting.

END

C5002- QUALITY ASSURANCE GUIDE

The following is summary of the quality information, testing and hold points associated with this Technical Specification. This guide is intended as a summary of key quality assurance information contained within this Specification. Refer to the main document for a more comprehensive description of the quality assurance information required.

A. Information to be Supplied

Clause	Description	Timing
C5002.4.2	Herbicide sprays to be used including licences and consents for their use and storage.	Prior to application.

B. Material Testing

Clause	Test	Frequency	IANZ
C5002.3.2	Soil testing	When recovering batches of topsoil in different locations along the route.	
C5002.3.5	Imported fill	Prior to placement	

C. Onsite Testing

Clause	Test	Frequency	Timing

D. Hold Points

Clause	Test	Frequency	Timing
C5002.4.2	Vegetation clearance	Prior to clearance	

E. Inspections

Clause	Test	Frequency	Timing
C5002.3.2	Topsoil	Prior to stripping	
C5002.4.1	Erosion and sediment control measures inspected by Constructor.	Regularly	

Clause	Test	Frequency	Timing
C5002.4.3	Vegetation to be retained inspected by the Designer.	Once marked on site, prior to fencing off.	
C5002.5.11	Topsoil / soil mix depths.	After placement, prior to planting.	

APPENDIX F – SITE SPECIFIC TRAFFIC MANAGEMENT PLAN

Site Specific Traffic Management Plan

– Peka to Ōtaki Project

FCCL-TM-MPN-0002

Revision C – September 2017

NZ TRANSPORT AGENCY WAKA KOTAHI

Peka Peka to Ōtaki Expressway

New Zealand Government

Contents

1 INTRODUCTION

This Site Specific Traffic Management Plan (SSTMP) provides the necessary information to demonstrate how the project team plan to avoid or mitigate potential construction traffic effects from activities associated with project-wide site clearance and enabling works activities as outlined in **SSEMP PW1.**

This SSTMP reflects the requirements of the Construction Traffic Management Plan (CTMP) including sections 1.3 (Performance Standards) and section 3.2.1 - specifically the need to interface with TTM on other networks. This plan is also consistent with the requirements set out in the over-arching Construction Environmental Management Plan (CEMP).

This document is intended to be utilised by the construction team to clearly identify any site specific traffic management requirements that must be adhered to prior to, and during works in any given area.

The scope of works detailed within **SSEMP PW1** and for which this SSTMP covers includes:

- Vegetation clearance
- Compound establishments
- Installation of temporary and permanent fencing
- Geotechnical investigations
- Contaminated land investigations
- Location of utilities
- Proof bores for the Ōtaki River Bridge
- Archaeological investigations
- Building relocations

The temporary traffic management required to carry out these works across the site consists the establishment of access points only.

There are twelve access points proposed across the length of the works – Site Access point's (SAP) 1 to 12 which shall be utilised for the duration of the works. Outline details / locations of the SAP's are included within Appendix A

The majority of the SAP's are in locations of existing access points off either the State Highway Network or the KCDC network. The SAP's in locations where there are no existing access point are all within the KCDC network in areas of clear and / or reduced local speed environments.

1.1 The SSTMP and TMP Process

This SSTMP provides the necessary information from a project level on how the effects of construction traffic related to the site activities will be avoided or mitigated across the two roading networks in the location of the expressway works i.e. the State Highway Network (NZTA) and the local road network (KCDC)

Each of the two Road Controlling Authorities (RCA's) has its own processes and procedures for the approvals (TMP's) and implementation of temporary Traffic management within their respective networks which is separate to the SSTMP process.

It is recognised that approval / implementation of TMPs associated with this SSTMP will be staged and implemented at differing times over the course of the works. In addition, it is recognised that the TMP's themselves may alter due to both project and surrounding community requirements.

The purpose of this SSTMP is to provide the base (minimum) standard of service / maximum practical level of mitigation to be incorporated into the development of the respective TMP's all the while ensuring that the BOI consent conditions and subsequent CTMP requirements are met during the construction process.

2 SSTMP CONSENT CONSIDERATIONS

Reference should also be made to section 3.2 of the CTMP.

2.1 Proposed Temporary Traffic Management Measures - BOI condition 34 b (i)

Access to the site will be via twelve site access points (SAP's). Each of the access points will have the required (CoPTTM) signage and early warning delineation provided by a combination of cones and line marking – all in accordance with the respective RCA TMP requirements.

2.2 Assessment of delays - BOI condition 34 b (ii)

As there are no closures or detours associated with the implementation and operation of the SAP's, delays to existing traffic flows are not expected.

2.3 Detour Routes - BOI condition 34 b (iii)

There are no detours associated with the Temporary Traffic Management measures included within this SSTMP.

2.4 Existing Accesses - BOI condition 34 b (iv)

The proposed Temporary Traffic Management measures do not affect existing accesses to private or commercial properties.

2.5 Pedestrian and Cyclist Access - BOI condition 34 b (v)

There are a number of SAP's that will cross existing pedestrian footpaths. At these locations, the appropriate (CoPTTM) signage will be installed. Operation of these SAP's will be mindful of and in conjunction daily peak periods generated through students (where applicable) walking to and from school.

The SAP's do not affect any dedicated cycle paths or lanes though their set out and operation will be mindful of cyclists in accordance with CoPTTM and applicable RCA requirements.

2.6 Maintaining Existing Transport Services - BOI condition 34 b (vi)

The proposed Temporary Traffic Management measures for implementation of the SAP's will not affect any existing public transport services and facilities such as bus stops.

2.7 Temporary Speed Limits (TSL) - BOI condition 34 b (vii)

There are no TSL's proposed or required in conjunction the safe operation of the SAP's.

2.8 Access to & From the Construction Site - BOI condition 34 b (viii)

The primary objective of this SSTMP is the planning (TMP's), approvals (RCA's) and implementation of Site Access Points (SAP's) to ensure the safe and efficient access to and from site of construction related traffic.

The operating hours of the SAP's will be in accordance with the proposed hours of work included within the **CNVMP i.e.**

- Monday to Friday 6.30am to 8pm
- Saturday 7.30am to 6pm

Operation outside those hours will be at the approval of the Engineer and in accordance with the provisions of the **CNVMP.**

2.9 Communications and Stakeholders - BOI condition 34 b (ix)

As the effects of the proposed measures are minor, implementation and operation of the SAP's will be communicated to stakeholders, road users and the community via the methods and processes as included within the project Stake Holder and Communications Management Plan, with particular emphasis on the key groups identified in Section 3.1 of the CTMP as required.

3 ADDITIONAL CTMP CONSIDERATIONS

3.1 Kiwirail NIMTR - CTMP section 2.1.2

The implementation and operation of the SAP's will not interfere or affect the operation of the Kiwirail NIMT Railway or existing at grade carriageway crossings

3.2 Emergency Action Plan(s) – CTMP section 3.2.3.8

All emergency services shall have unimpeded access along all State Highway and local roads 24 hrs. per day.

3.3 Access to KCDC Owned and Operated Water and Waste Water Assets – CTMP section 3.2.1.1.7

Access to existing KCDC water and waste water assets will not be impeded by the SAP's.

3.4 Monitoring, Auditing & Reporting – CTMP sections 3.3 & 3.4

Monitoring, Auditing and Reporting of the Traffic Management Measure (once implemented) shall be in accordance with the CTMP

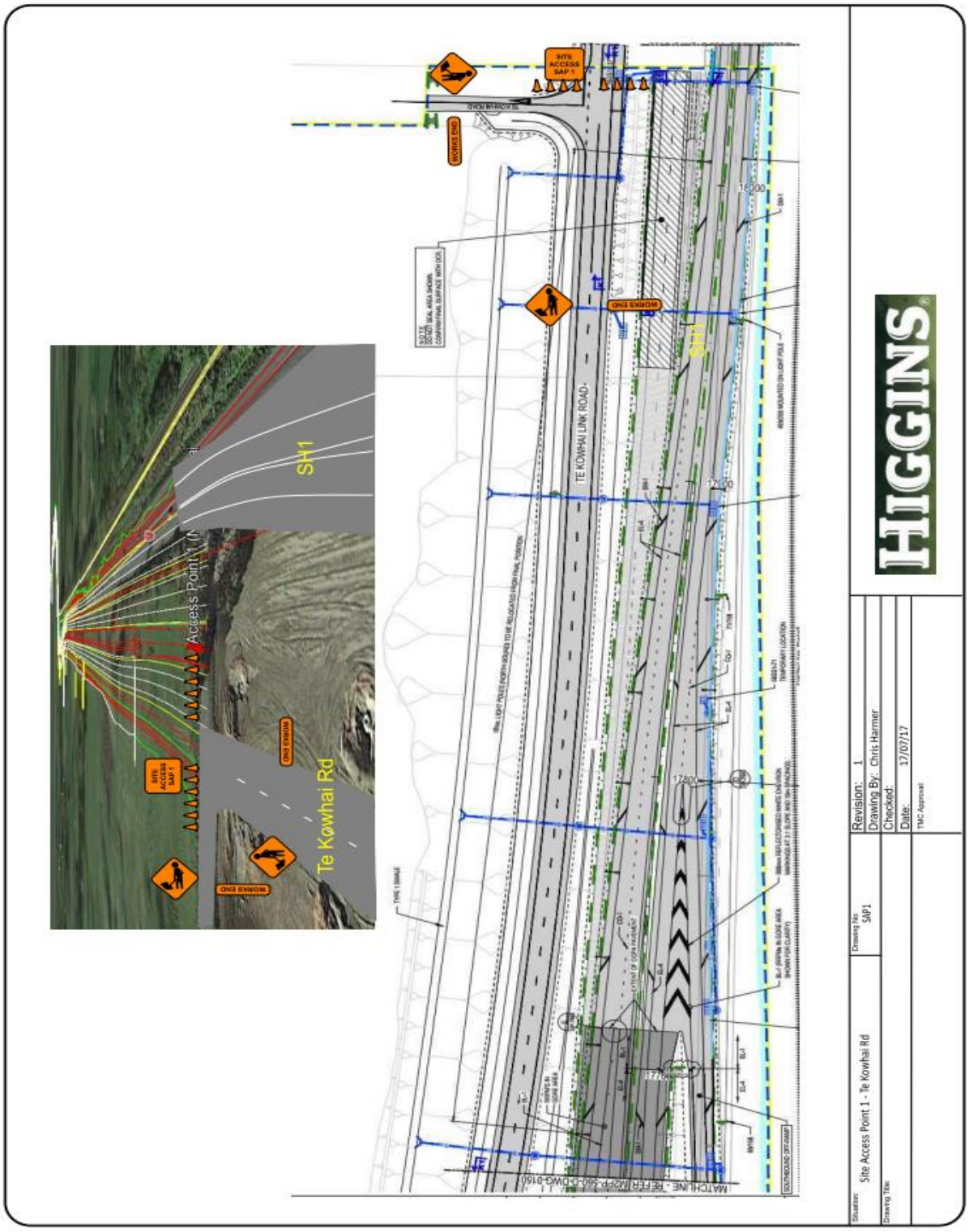
3.5 Complaints – CTMP sections 3.5

Feedback including complaints received related to the implementation of Temporary Traffic Management measures covered within this SSTMP shall be recorded and processed in line with the CTMP

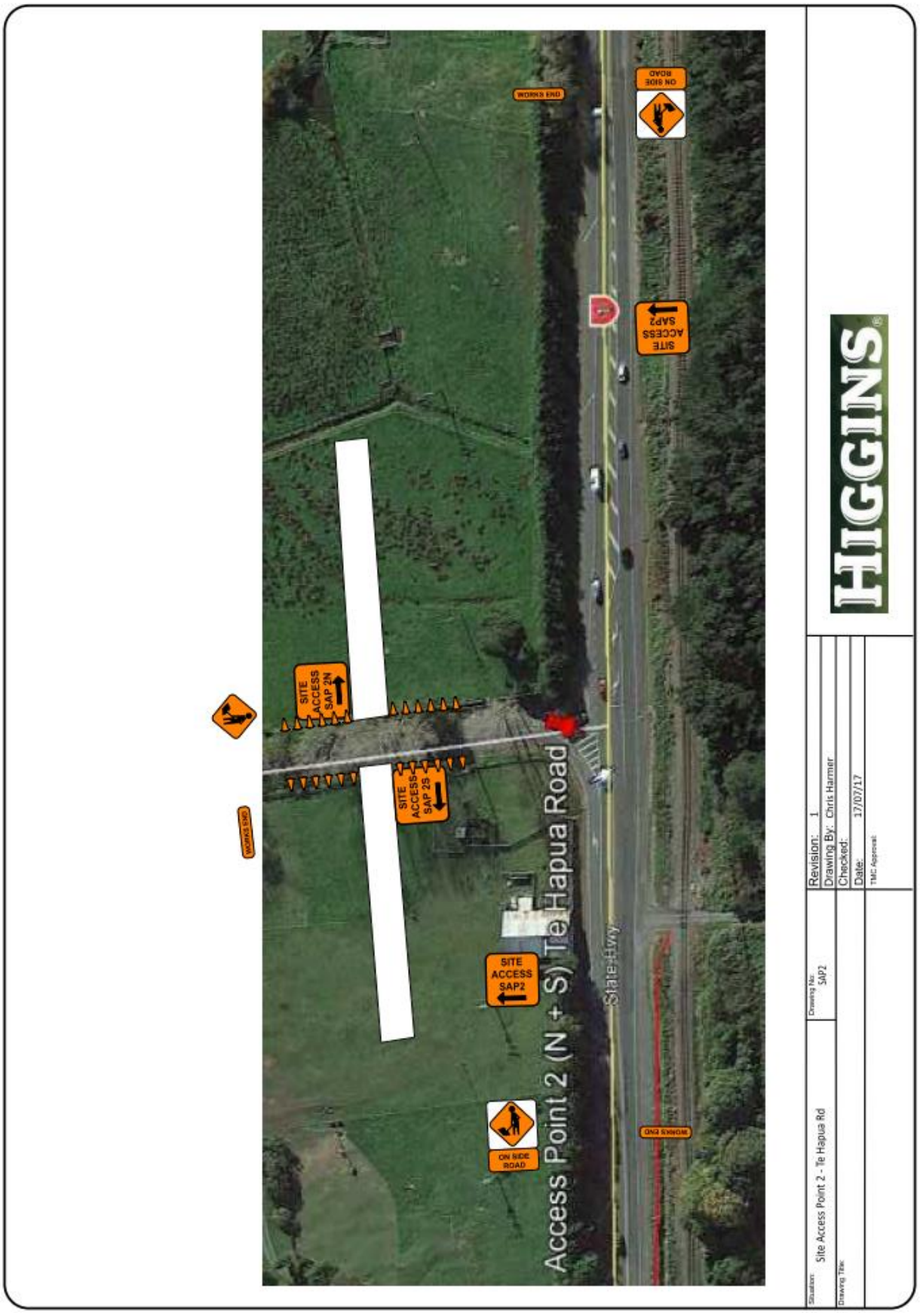
APPENDIX A – SITE ACCESS POINT (I.D) AND LOCATION

Site Access Point No	Location
1	Te Kowhai Road
2	Te Hapua Road
3	State Highway One – Mary Crest
4	State Highway One – Mary Crest
5	Gear Rd
6	School Rd
7	Te Horo Beach Road
8	Old Hautere Road
9	Ōtaki Gorge Road
10	Ōtaki Gorge Road
11	Rahui Rd
12	State Highway One North Ōtaki

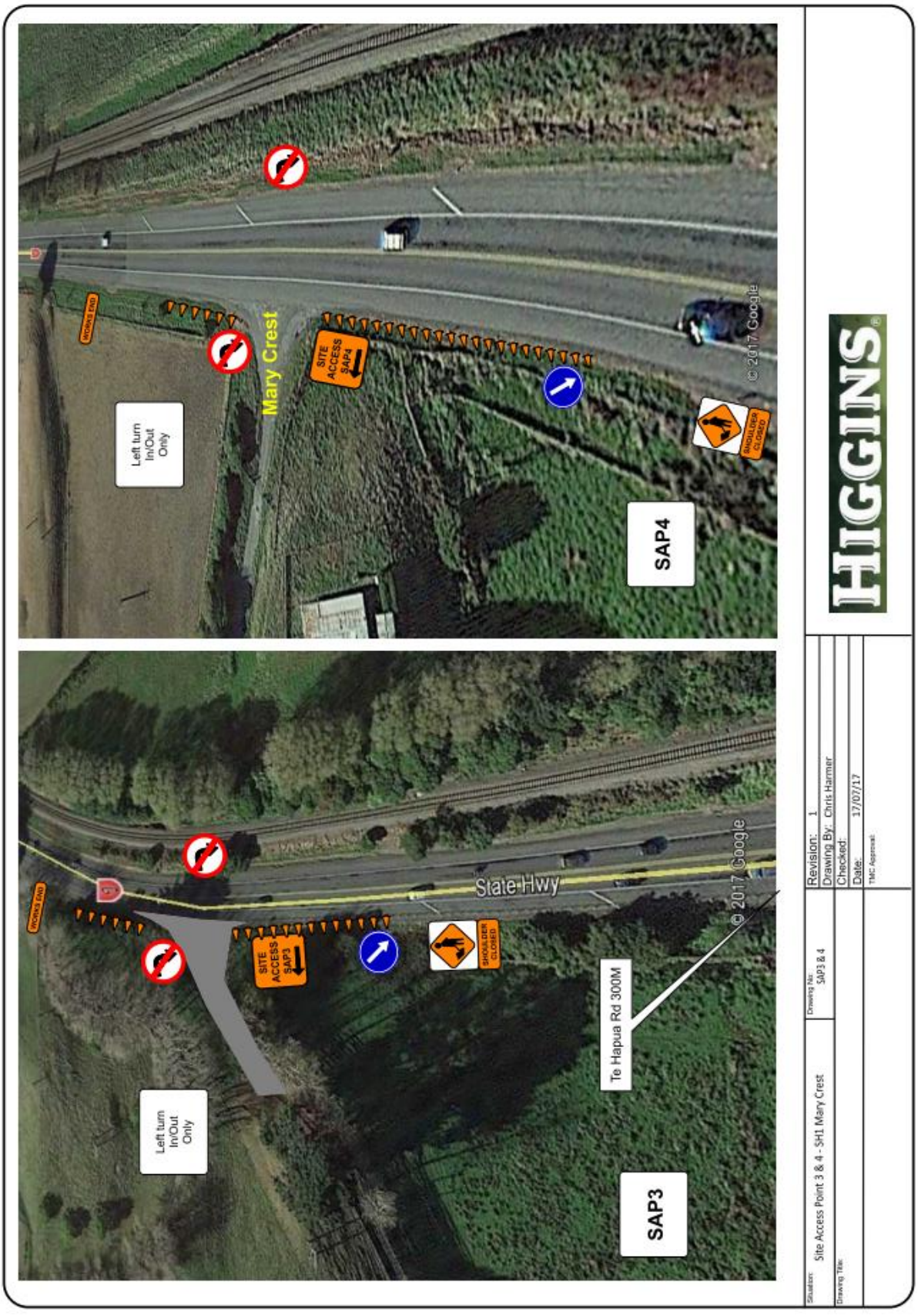
SAP 1


SH1
Access Point 1
Te Kowhai Rd
SITE ACCESS SAP 1
WORKS END
TE KOWHAI LINK ROAD
SH1
HIGGINS
Situation: Site Access Point 1 - Te Kowhai Rd
Drawing No: SAP1
Drawing Title:
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

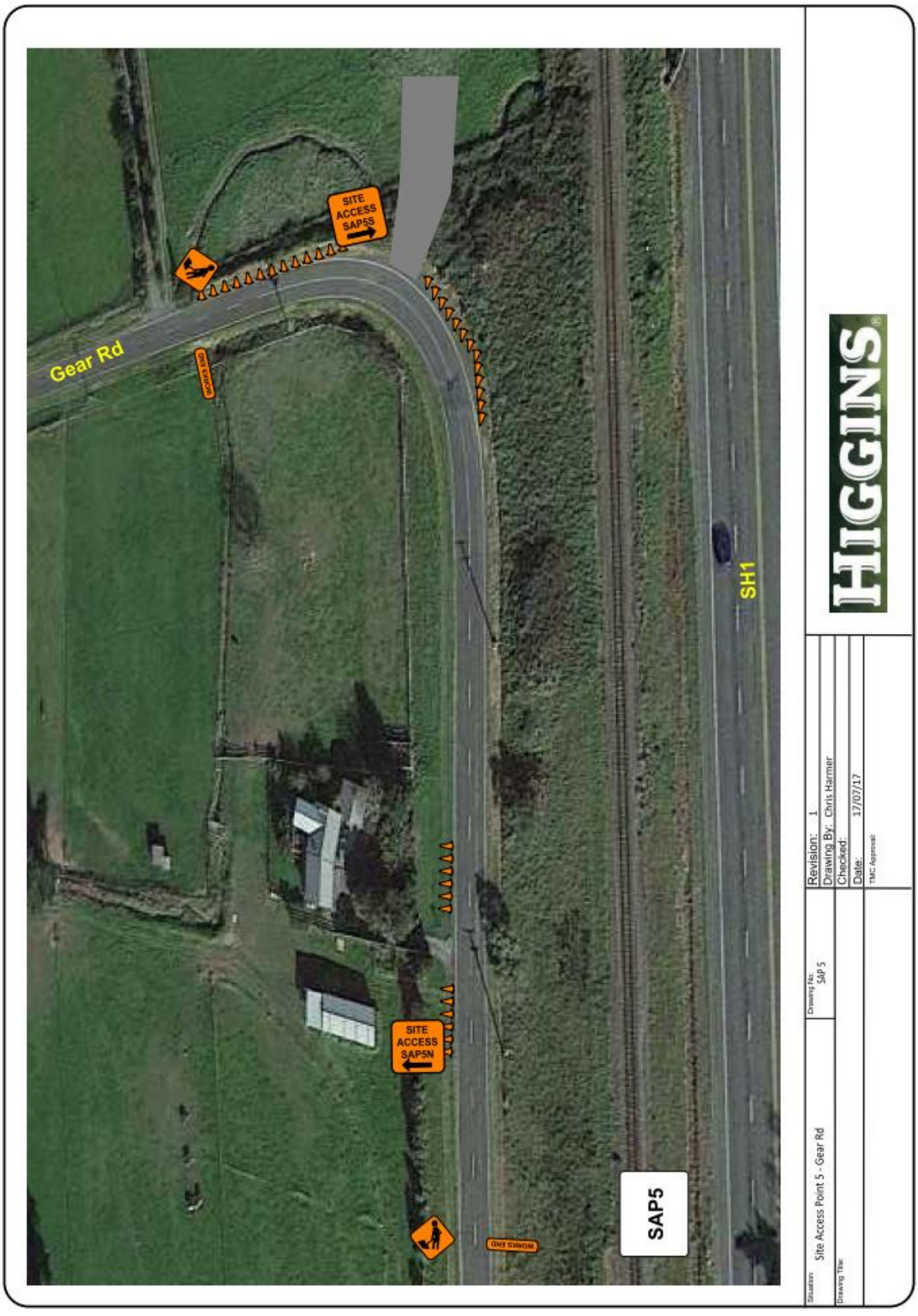
SAP 2


Access Point 2 (N + S) Te Hapua Road
State Hwy
SITE ACCESS SAP 2N
SITE ACCESS SAP 2S
SITE ACCESS SAP2
SITE ACCESS SAP2
ON SIDE ROAD
ON SIDE ROAD
WORKS END
WORKS END
WORKS END
Site Access Point 2 - Te Hapua Rd
SAP2
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:
HIGGINS

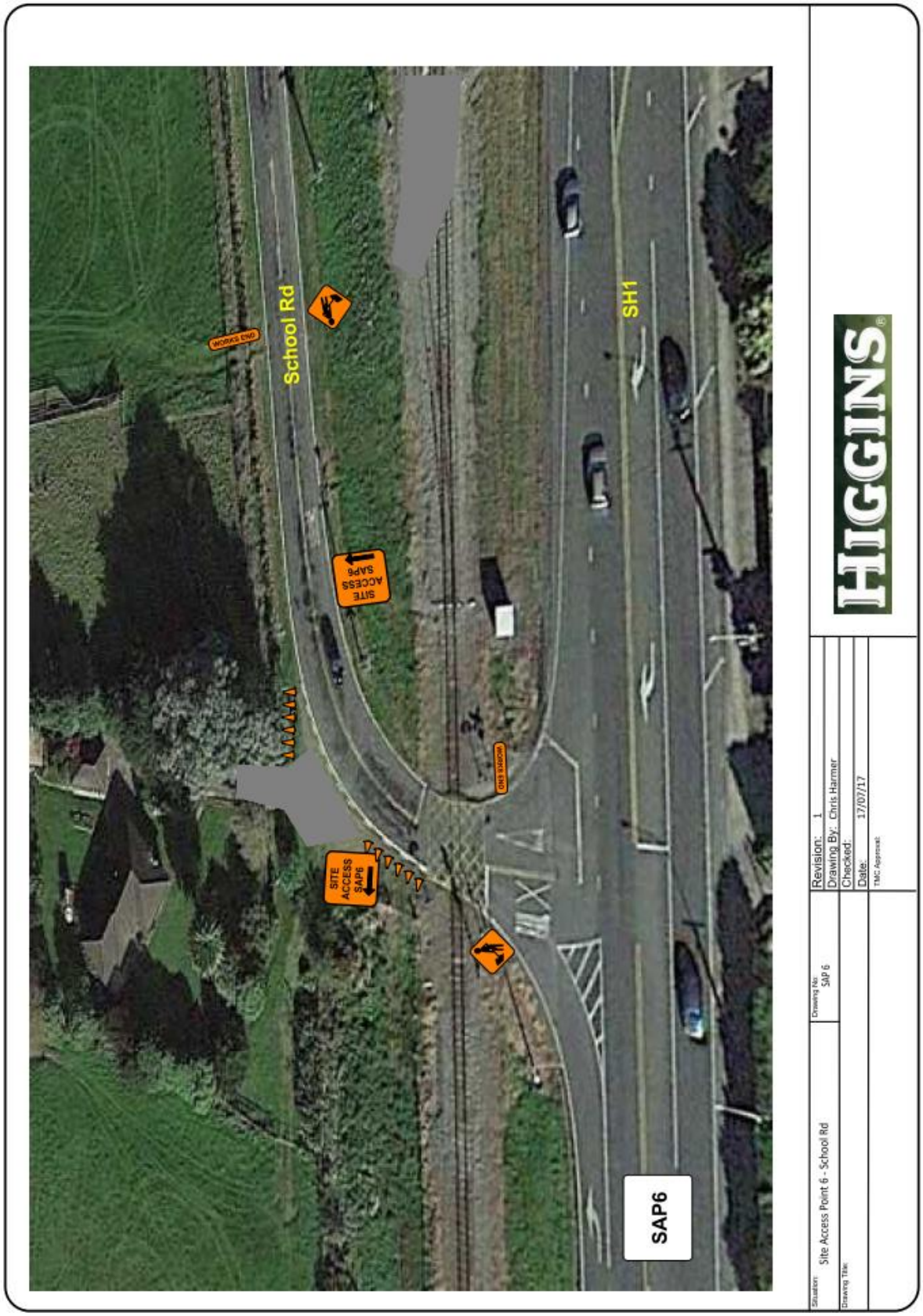
SAP 3 & SAP 4


Mary Crest
SITE ACCESS SAP4
WORKS END
Left turn In/Out Only
SHOULDER CLOSED
SAP4
© 2017 Google
State Hwy
SITE ACCESS SAP3
Te Hapua Rd 300M
SAP3
HIGGINS
Site Access Point 3 & 4 - SH1 Mary Crest
SAP3 & 4
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

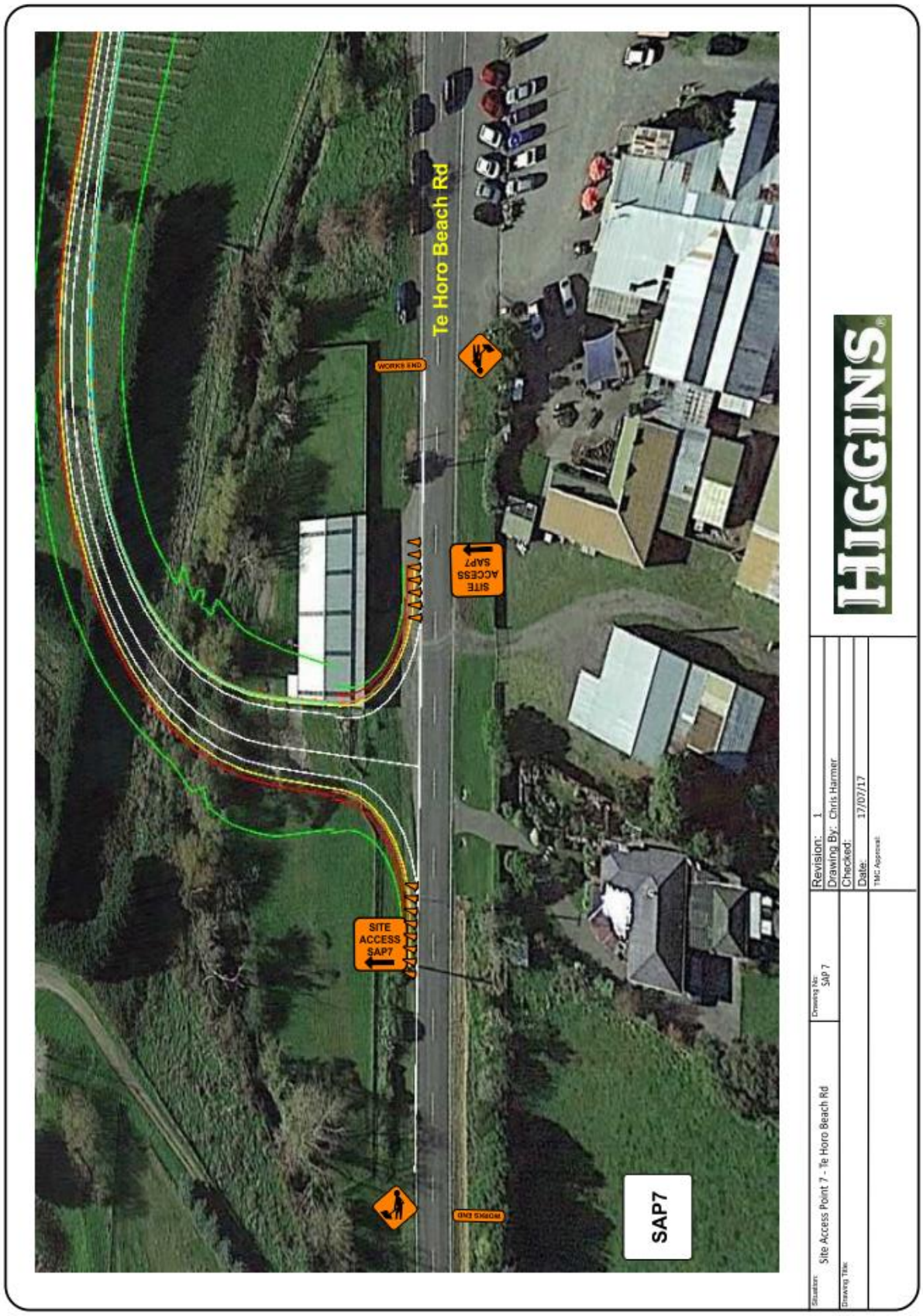
SAP 5


SITE ACCESS SAP5S
Gear Rd
SITE ACCESS SAP5N
SH1
SAP5
HIGGINS
Site Access Point 5 - Gear Rd
Drawing No: SAP 5
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

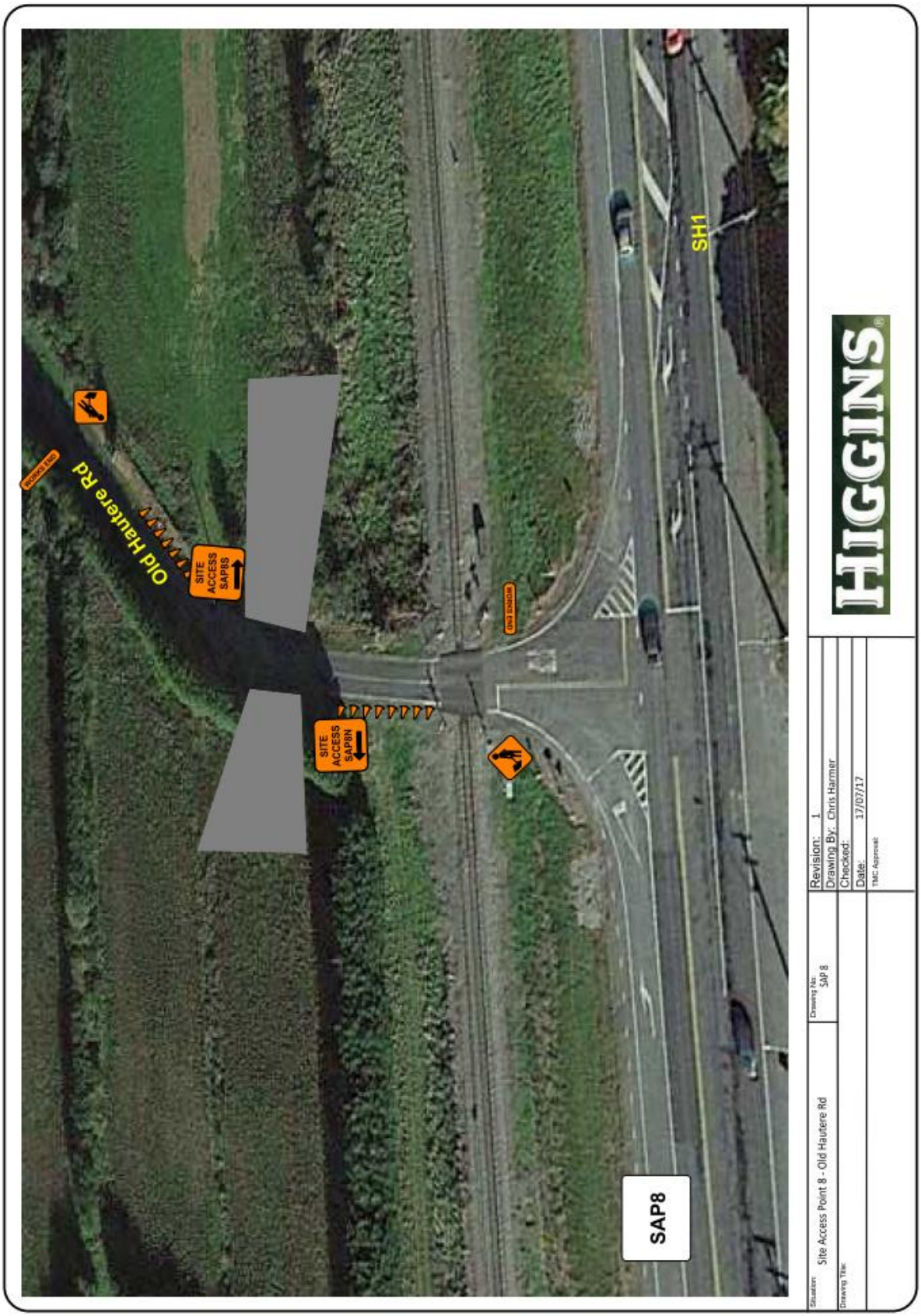
SAP 6


School Rd
SH1
WORKS END
SITE ACCESS SAP6
SITE ACCESS SAP6
WORKS END
SAP6
HIGGINS
Site Access Point 6 - School Rd
Drawing No: SAP 6
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

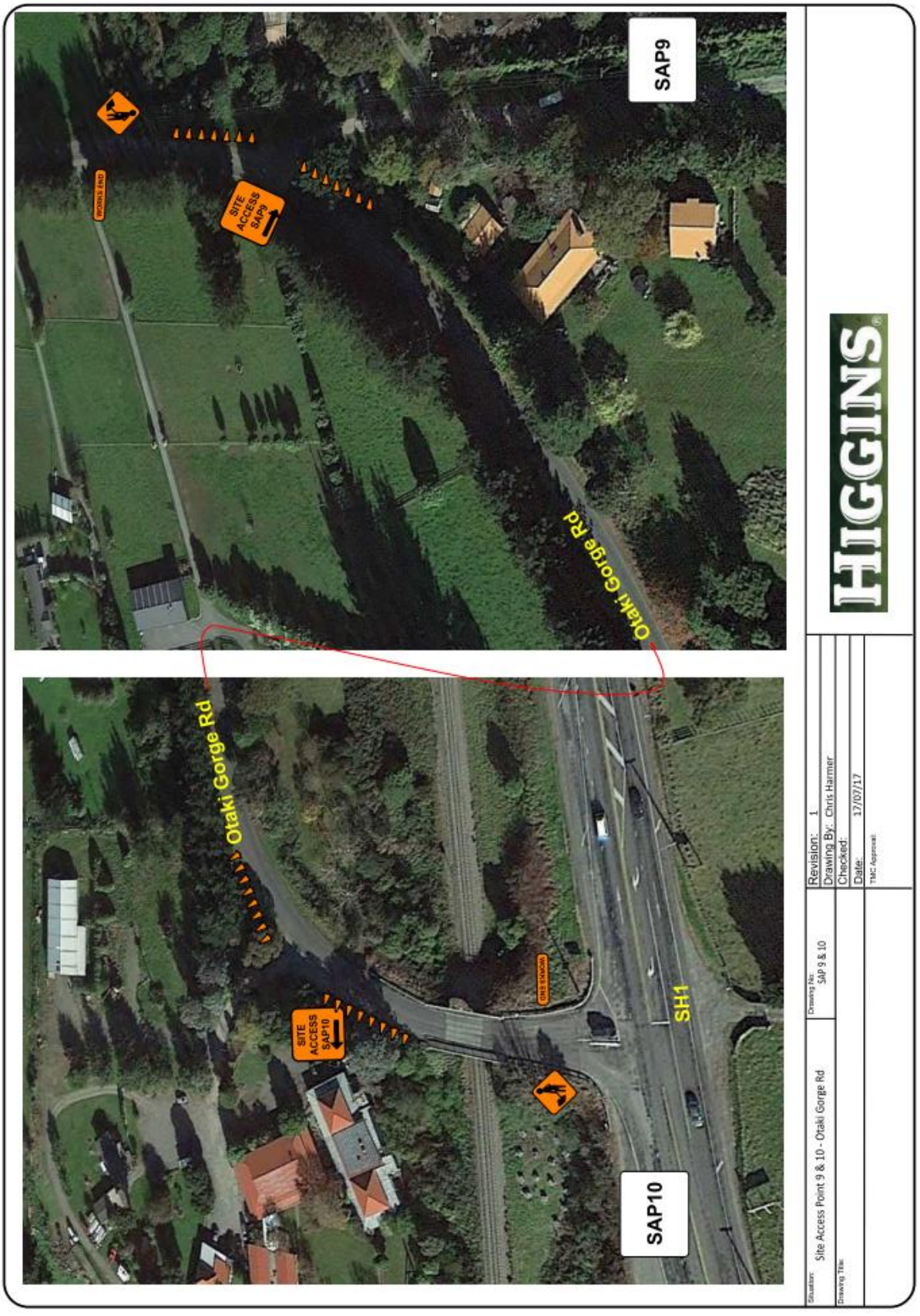
SAP 7


Te Horo Beach Rd
WORKS END
SITE ACCESS SAP7
SITE ACCESS SAP7
WORKS END
SAP7
HIGGINS
Situation: Site Access Point 7 - Te Horo Beach Rd
Drawing No: SAP 7
Drawing Title:
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

SAP 8


SH1
Old Hauture Rd
SITE ACCESS SAP8S
SITE ACCESS SAP8N
SAP8
HIGGINS
Site Access Point 8 - Old Hauture Rd
SAP 8
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

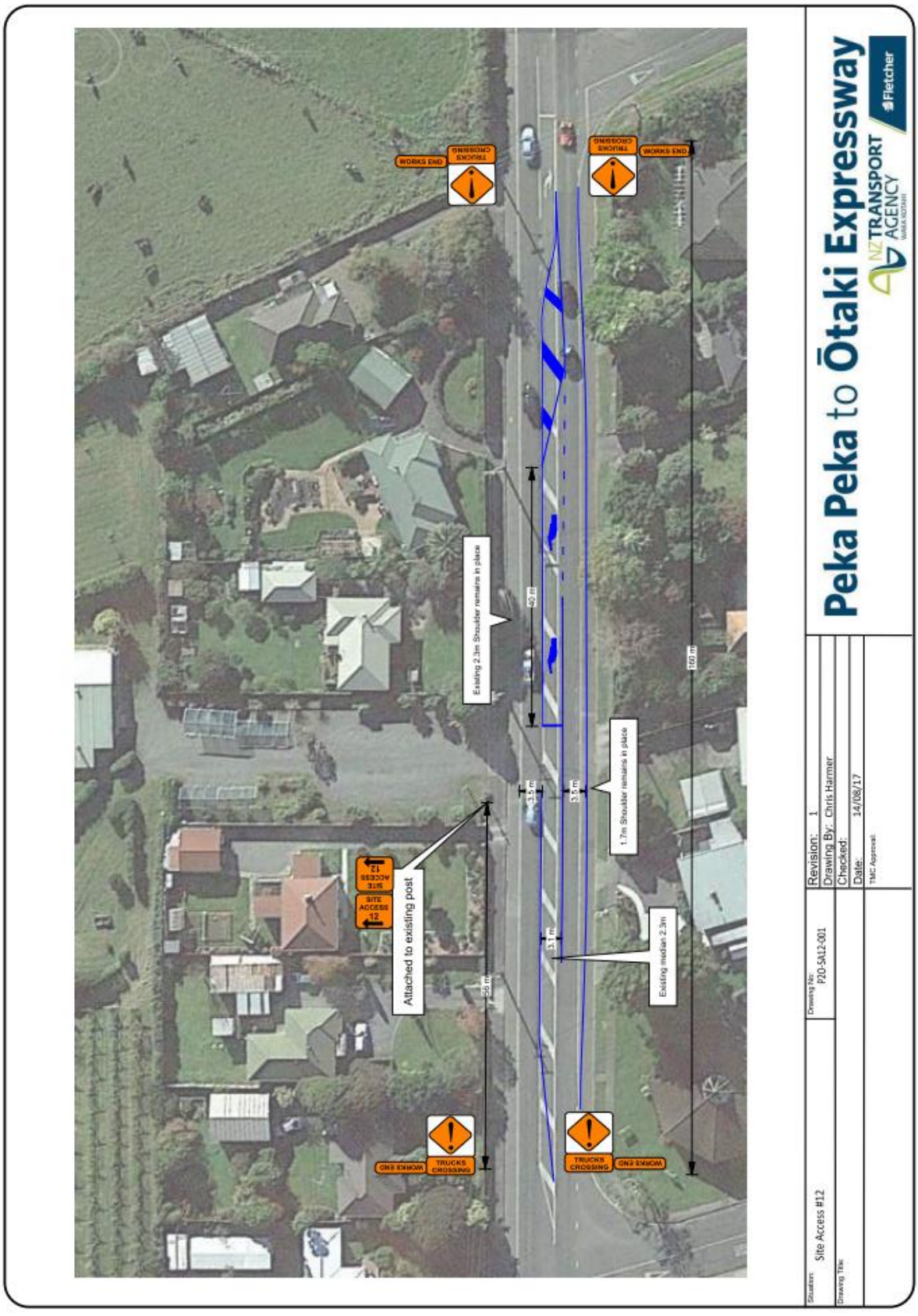
SAP 9 & SAP 10


SAP9
Otaki Gorge Rd
SITE ACCESS SAP9
WORKS END
SAP10
Otaki Gorge Rd
SITE ACCESS SAP10
SH1
HIGGINS
Situation: Site Access Point 9 & 10 - Otaki Gorge Rd
Drawing No: SAP 9 & 10
Drawing Title:
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

SAP 11


SITE ACCESS SAP11S
SITE ACCESS SAP11N
WORKS END
WORKS END
Rahui Rd
SAP11
HIGGINS
Situation: Site Access Point 11 - Rahui Rd
Drawing No: SAP 11
Drawing Title:
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 17/07/17
TMC Approval:

SAP 12


Peka Peka to Ōtaki Expressway
NZ TRANSPORT AGENCY
Fletcher
Site Access #12
P20-SA12-001
Revision: 1
Drawing By: Chris Harmer
Checked:
Date: 14/08/17
TMC Approval:
Existing 2.3m Shoulder remains in place
1.7m Shoulder remains in place
Existing median 2.3m
Attached to existing post
SITE ACCESS 12
TRUCKS CROSSING
WORKS END
50 m
103 m
56 m
3.5 m
3.5 m
3.1 m